



Department of  
Primary Industries  
Water

2014–15

# NSW Water Supply and Sewerage Benchmarking Report

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NSW WATER SUPPLY AND SEWERAGE

Benchmarking Report

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**BEST PRACTICE MANAGEMENT**

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (May 2016). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the Department of Primary Industries or the user's independent adviser.



## FOREWORD

The *NSW Performance Monitoring System* (page 3) has been conceived and implemented as a ‘one stop shop’ for continuous productivity and performance improvement by the 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 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](http://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*<sup>1</sup>. 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* (page 6). The *BPM Framework* requires LWUs to undertake annual performance monitoring in accordance with the *National Water Initiative*<sup>2</sup>, 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<sup>3</sup> and the Productivity Commission<sup>4</sup>.

This *2014-15 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 (pages 1 and 351).

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 *2014-15 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 Lands and Water has made both the performance monitoring report and the benchmarking report available on the DPI Water website ([www.water.nsw.gov.au](http://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. Page 1 provides a summary of such information and responses.

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

<sup>2</sup> *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](http://www.nwc.gov.au)).

<sup>3</sup> *Pricing Principles for Local Water Authorities*, Independent Pricing and Regulatory Tribunal, NSW, 1996.

<sup>4</sup> *Australia's Urban Water Sector*, Productivity Commission Report No.55, August 2011 ([www.pc.gov.au](http://www.pc.gov.au)).

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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* (page 6) are therefore particularly acknowledged.

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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 local water utility (LWU) to improve its productivity and performance through benchmarking its performance against that of similar LWUs.

A companion report, the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report* (available at [www.water.nsw.gov.au](http://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 2014-15 for Urban Water Utilities* is shown in Appendix F (page 316) of this *Benchmarking Report* while national performance comparisons are shown in Appendix A (page 204) and the characteristics of the Australian urban water sector are discussed in Appendix K (page 364). Independent auditing and validation assure data reliability (page 353).

This *Benchmarking Report* discloses the NSW results for all of the approximately 130 NWI Performance Indicators as shown in note 15 on page 35.

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 (pages i, 351, 353)
- **NSW 'one stop shop'** minimises regulatory burden and avoids duplication in reporting (page 3)
- Statewide and national medians (pages 105, 106, 107); water supply **system planning insights** from trends in statewide performance indicators (pages 19, 111, 113, 115)
- National Certification Framework for Treatment Works Operators (pages 36, 280, 360)
- Risk-based drinking water management system (**DWMS**) (page 9)
- Achieving **microbiological compliance** (page 10)
- Boil water alerts (page 10), **lessons learnt** (page 12), distribution system integrity (page 11, 307)
- Assuring safety and integrity of a water supply distribution system (pages 9, 305)
- Water quality sampling locations and frequency (page 235)
- Performance of each LWU's water and sewage treatment works (pages 280, 288)
- BPM (page 5), **NSW BPM Framework** (page 6) and BPM implementation (page 108)
- Cost-effective **renewals** (page 14), **infrastructure asset condition and performance** (pages 126, 130), asset rehabilitation, renewals expenditure (pages 126, 130)
- Leakage (page 15), **Non-revenue water (NRW)** in L/d/connection should be used for tracking performance over time (page 16)
- Benefits of the strong NSW **pricing signals** (page 13), achieving **full cost recovery** (page 22)
- Achieving efficient water use (page 13), total urban water supplied (page 25)
- Greenhouse gases (page 16), **NSW greenhouse gas calculator** (page 339), pollution incident response management plan (**PIRMP**) (page 288), wastewater treatment operators (pages 288, 360)
- Triple bottom line (**TBL**) **Performance Report** (pages 4, 30, 274, 276)
- **Action Plan** (pages 4, 20, 28), 'liveability', emerging issues, financial plan update (page 20)
- Improving performance (page 17), NSW Performance monitoring database (page 213)
- Economic efficiency indicators for four sizes of LWUs (page 21)
- Local Government Integrated Planning and Reporting (**IPR**) Framework, 2010 (pages 7, 8)
- **Software, guidelines, training, tools** and assistance available from DPI Water (pages 8, 9, 12, 13, 16, 22, 24, 36, 356)
- Contents of tables 5 to 18 (page 37), Characteristics of the **Australian Urban Water Sector** (364)
- General notes (page 32), rainwater tanks, liveability indicators (pages 16, 362)

## 2 NSW WATER UTILITIES

This report discloses performance indicators for all NSW urban water utilities, comprising the 105 regional local water utilities (LWUs) together with four metropolitan utilities (Sydney Water, Hunter Water, Water NSW (from January 2015, formerly Sydney Catchment Authority) 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. The number shown beside each utility in the table below indicates the relative size of the utilities on the basis of connected properties served. For example, the table shows '11 Albury City', indicating that Albury City is the 11th largest LWU. LWUs are grouped in four size ranges: over 10,000, 3,001 to 10,000, 1,501 to 3,000, and 200 to 1,500 connected properties.

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

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

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

## 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 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'**<sup>5</sup> 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* (page 6). 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 *2014-15 Annual Financial Statements* (pages 239 to 254). DPI Water obtains the water, sewerage and trade waste charges from each LWU's website. In addition to extensive independent auditing (page 353), DPI Water validates the data in order to assure data reliability (Appendix H on page 351) 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).

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<sup>5</sup> 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 29 eligible NSW LWUs to the BOM for publication in the National Performance Report ([www.bom.gov.au](http://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:
  - o The *NSW Performance Monitoring Report*, which discloses the overall statewide performance of LWUs and compares that performance with interstate utilities;
  - o This *NSW Benchmarking Report*, which has been prepared by DPI Water since 1986;
  - o A Triple Bottom Line (TBL) Report for each LWU (examples on pages 30 and 31 and pages 274 to 277); and
  - o An Action Plan template for each LWU (example on pages 28 and 29).

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](http://www.nwc.gov.au)). All Australian urban water utilities with over 10,000 connected properties are required to report mostly monthly data for those indicators. The NSW Performance Monitoring Database has been extended to enable the 29 eligible NSW LWUs to report this data through the NSW Database. To further avoid duplication, utilities which report these indicators to BOM are exempted from reporting the relevant 33 water resources indicators in DPI Water's annual data collection.

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 20-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](mailto: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 on page 3, DPI Water provides each NSW local water utility 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 on page 20. Example TBL reports are provided on pages 30, 274 and 276 and an example action plan is provided on page 28.

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 (refer to section 4 on page 5).

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 on page 17. 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 (e.g. 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 (pages 31, 275, 277). 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 (pages 274 to 277) and to prepare and implement a sound Action Plan to Council (pages 28 and 29) 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 on page 20.

## 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 Lands and Water is responsible for overseeing and monitoring the performance of NSW regional LWUs in the sustainable provision of water supply and sewerage services to the community. The aim of NSW Government policy is for NSW regional 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 (page 9) to the utilities and is the primary regulator for the 105 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 on page 7).

In addition, such implementation (page 108) 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 on page 6.

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 on page 22.



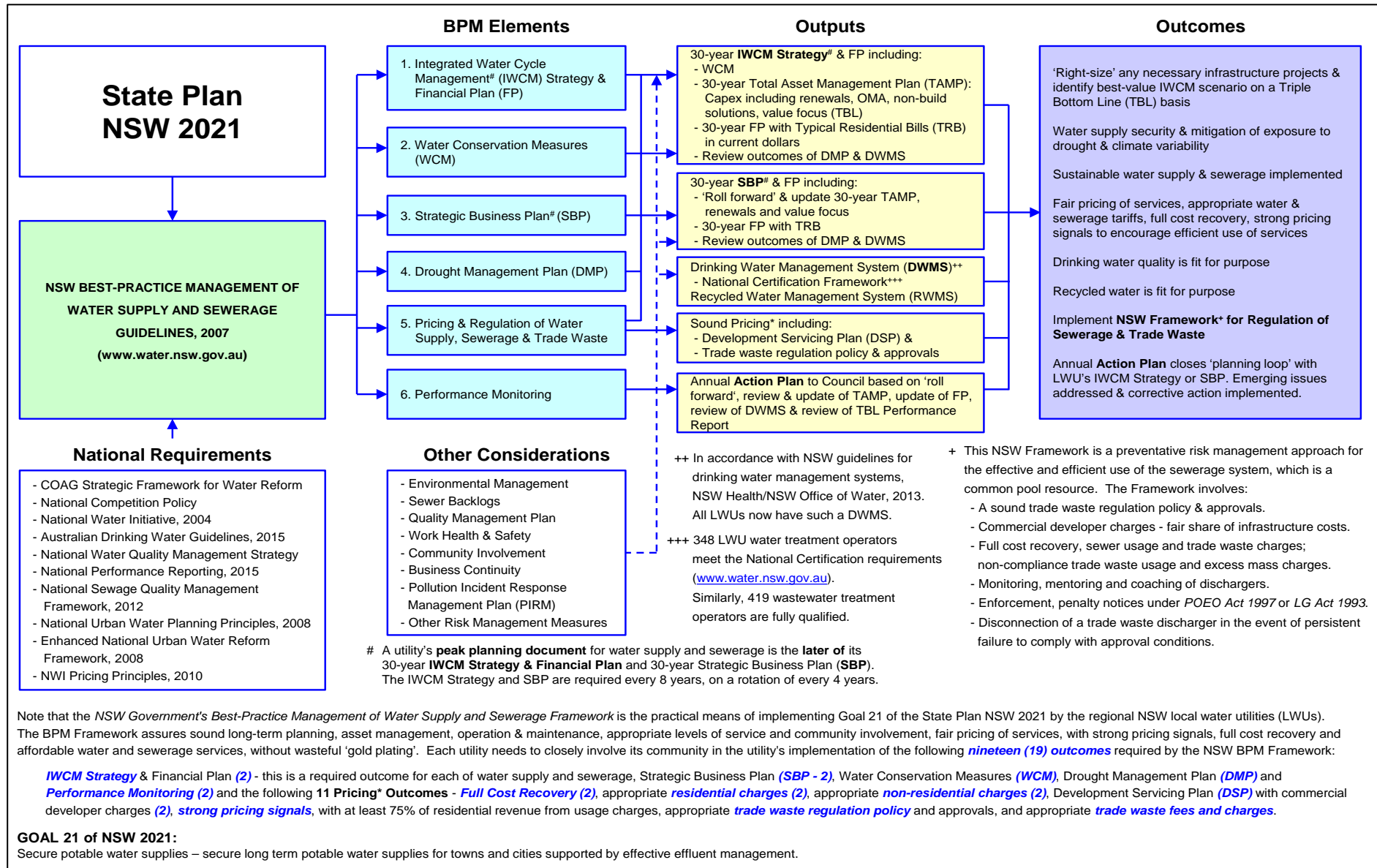


Chart 1 - NSW Best-Practice Management (BPM) of Water Supply and Sewerage Framework



## 4.2 Best-practice management framework

The *NSW Best-Practice Management of Water supply and Sewerage Framework* (page 6) 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](http://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, 2015;*
- *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' (page 355)) 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](http://www.water.nsw.gov.au)). Ninety-four per cent of the NSW LWUs have now prepared such a sound strategic business plan, TAMP and financial plan (column 34 of Table 5 on page 116). 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 (page 20) will ensure the long term effectiveness and sustainability of these services.

All the utilities need to implement the 19 outcomes<sup>6</sup> required by the Framework (Table 3 on page 108), which involve the following six interrelated elements:

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<sup>6</sup> Page 20 of the *Integrated Planning and Reporting Manual for local government in NSW, March 2013* ([www.olg.nsw.gov.au](http://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](http://www.water.nsw.gov.au)."

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

As set out in Appendix H of the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report* ([www.water.nsw.gov.au](http://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**.

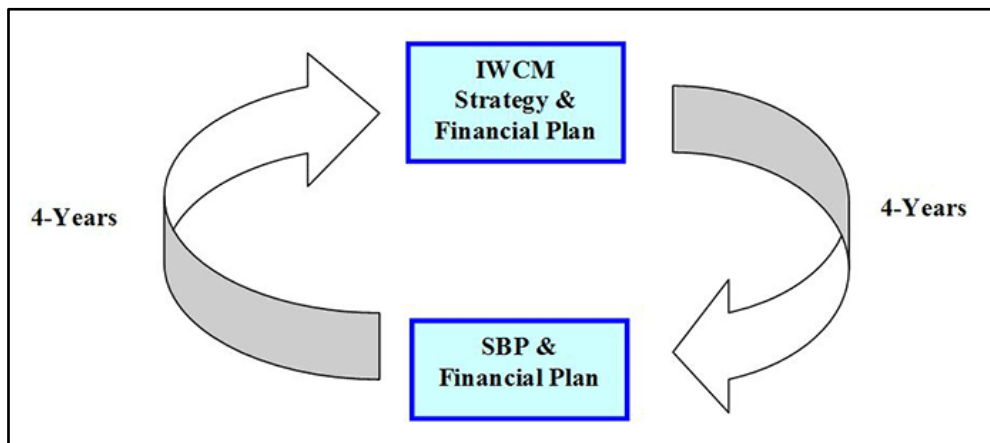


Chart 2 - Preparation timing of IWCM strategy & financial plan and SBP & financial plan

The reported LWU implementation of each outcome required by the Framework is shown in Table 3 on page 108 of this report and the overall level of implementation is shown in column 33 of Table 5 on page 116. A summary of LWU implementation is provided in the *2014-15 NSW Performance Monitoring Report* (page 23 and Figures 21, 22 and 23). Particular attention is required for strategic business planning and financial planning (column 34 of Table 5 on page 116), full cost recovery (columns 29 and 30 of Table 5 on page 116, page 22), residential water supply revenue from usage charges (column 3 of Table 5 on page 116 and Figure 13 on page 51), non-residential sewer usage charges (column 3a of Table 7 on page 146 and Figure 44 on page 81), liquid trade waste fees and charges (column 2 of Table 7C on page 153 and Figure 45 on page 82), trade waste regulation policy and approvals (columns 1 and 3 of Table 7C on page 153), and an IWCM Strategy and financial plan (columns 20 and 21 of Table 8C on page 163).

As noted on page 24 of the *2014-15 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](http://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 on page 7) 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](http://www.water.nsw.gov.au)). Refer also to pages 106 and 111 of the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report* ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)).

### Software, guidelines and training

DPI Water provides comprehensive software, guidelines and check lists (pages 7 and 8) to assist LWUs in developing appropriate water supply and sewerage strategic business plans (page 7), financial plans (page 7), community involvement<sup>7</sup>, pricing (pages 7 and 358), including water supply tariffs (page 358), sewerage tariffs (page 358), liquid trade waste fees and charges (page 358), developer charges (page 358), total asset management plans (TAMP - capital works plan, operation plan including non-build solutions and a maintenance plan (page 7)), asset valuation<sup>8</sup>, integrated water cycle management (IWCM) strategies (page 8), water conservation and demand management (page 358), drought management (page 358), assessing future urban water security<sup>9</sup> (page 359), greenhouse gas calculation (page 339) and trade waste regulation policies (page 358).

The NSW Government also provides **nationally certificated training** (page 36) for water utility operators in water treatment, wastewater treatment, fluoridation, dam safety inspection and trade waste regulation ([www.water.nsw.gov.au](http://www.water.nsw.gov.au); [urbanwater.ctw@dpi.nsw.gov.au](mailto: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](http://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.

### 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 19,400 regional NSW samples tested for E. coli in 2014-15 complied with the *Australian Drinking Water Guidelines 2011 (ADWG)*, (column 9 of Table 5 on page 116, column 71 of Table 12 on page 183, Figure 17 on page 55 and Appendix D1 on page 280).

The risk of contamination of public water supplies due to system integrity failure remains the dominant cause. This can be seen in the table on page 12, 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 on page 183 shows that all 95 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 page 10.

<sup>7</sup> 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](mailto:urbanwater.ctw@dpi.nsw.gov.au)).

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

<sup>9</sup> 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](mailto:urbanwater.ctw@dpi.nsw.gov.au)).

<sup>10</sup> 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 (page 12). 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 (page 183) 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. Annual review of your DWMS is required (page 20).

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<sup>6</sup> 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 (pages 11, 12 and 310).
4. Maintains effective disinfection and the integrity of the utility's water supply distribution systems in accordance with Circular LWU 18 of June 2014 (page 305). The LWU needs to provide a Summary Report to DPI Water (page 315) 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 on page 305, 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 on page 29). Refer also to page 24.

Assistance available: [urbanwater.ctw@dpi.nsw.gov.au](mailto: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 page 36).

### 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 on page 12). 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 page 11 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 on page 12 have been integrated into the guidance in Appendix E on Page 305 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.



## 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**.

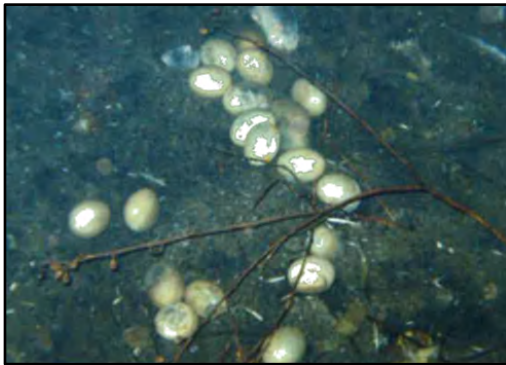


Photo 2 - Bird eggs in reservoir

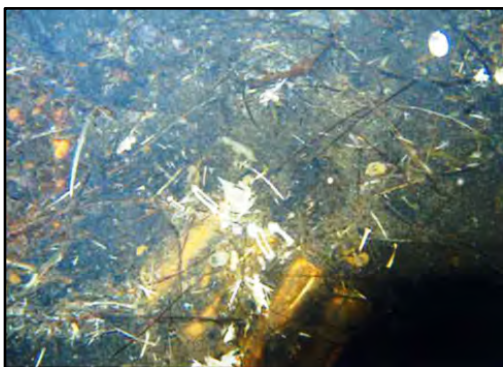


Photo 3 - Dead birds in reservoir

**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.

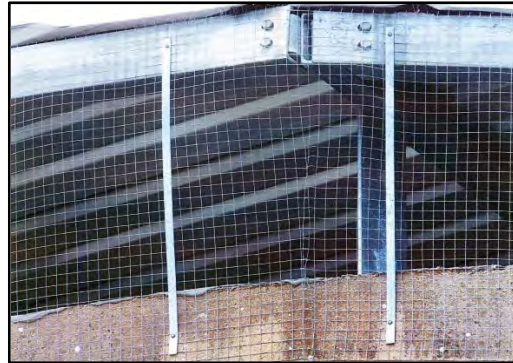


Photo 4 – Deficient reservoir roof design



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 on page 305 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 page 10, 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.

## 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. <sup>11</sup>
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<sup>10</sup> 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:

### Lessons learnt<sup>12</sup> from boil water alerts

Practices	Lessons
Management	<ul style="list-style-type: none"> <li>Carry out regular preventative maintenance and calibration of chlorinators and associated equipment.</li> </ul>
Disinfection	<ul style="list-style-type: none"> <li><b>Ensure effective disinfection of the source water</b> prior to distribution.</li> <li>Continuous monitoring<sup>13</sup> of the chlorination system to warn of any interruptions/failures of the chlorinator.</li> <li>Carry out chlorine demand tests on a regular basis and after a change in raw water characteristics; adjust chlorine dosage as necessary.</li> </ul>
Storage (service reservoirs/tanks)	<ul style="list-style-type: none"> <li>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.</li> <li>Regular physical inspection is essential in order to <b>detect</b> and <b>repair</b> any design deficiencies (eg. photos 4 and 5 on page 11) or <b>defects</b> in the <b>reservoir</b> roof, wall or bird proofing of each reservoir. Early repairs must be effected to correct any defects and <b>prevent contamination</b> of the stored water by birds, vermin or windblown material (pages 310, 315).</li> </ul>
Free chlorine residual	<ul style="list-style-type: none"> <li><b>Maintain a minimum free chlorine residual of about 0.2 mg/L</b> throughout the water supply distribution system<sup>14</sup> (including extremities where practicable).</li> </ul>
Backflow prevention	<ul style="list-style-type: none"> <li>Ensure appropriate backflow prevention devices are installed and are properly maintained (including any rain water tanks used for toilet flushing).</li> </ul>
Source monitoring	<ul style="list-style-type: none"> <li>Monitor the raw water regularly and after storm events for evidence of changes in colour or turbidity.</li> <li>Chlorine demand tests should be carried out on a regular basis.</li> <li>Adjust chlorine dosing as necessary.</li> </ul>

<sup>11</sup> Guidance on ensuring effective disinfection and assuring the integrity of the distribution system to prevent contamination of the supply is provided in Appendix E on page 305. This guidance incorporates the above lessons.

<sup>12</sup> 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 306, 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 (page 315) 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.

<sup>13</sup> 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 on page 305, section 6.2 on page 36 & page 24.

<sup>14</sup> Maintaining such a **chlorine residual** is Barrier 3 in the recommended **multi-barrier approach** for assuring drinking water quality (page 312).

## Outcomes of reservoir and distribution system integrity inspections

The following 23 LWUs have provided DPI Water with a Summary Report (refer to page 315) on the outcomes of their examination and rectification of deficiencies in reservoir and distribution system integrity pursuant to Circular LWU 18 (page 305).

Armidale, Bogan, Bourke, Brewarrina, Cooma Monaro, Coonamble, Dubbo, Gilgandra, Kempsey, Lismore, MidCoast Water, Nambucca, Narromine, Orange, Rous Water Shoalhaven, Singleton, Tenterfield, Walcha, Warren, Warrumbungle, Wingecarribee and Wyong.

Armidale, Rous and Wingecarribee have rectified the identified deficiencies and the remainder have scheduled the necessary corrective action in their short term work plan.

## 4.4 Achieving efficient water use

Achieving efficient water use is a key responsibility for each water utility. As shown on page 9 of the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report* (available at [www.water.nsw.gov.au](http://www.water.nsw.gov.au)) and Figure 33 on page 111, the regional NSW utilities have reduced the average annual residential water supplied per property by 50 per cent over the past 24 years. Refer also to Figure 26 on page 64.

Many LWUs have reduced their average annual residential water supplied by over 50 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 on page 205 and Figure 12 on page 50, the first step water usage charge has risen to 226 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 on page 22) has removed the need for use of inclining block tariffs by LWUs. **The NSW Government encourages<sup>15</sup> 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, Gosford, Wyong and Essential Energy.

The median revenue from residential water usage charges was 72 per cent (Figure 13 on page 51). However, affordability has been maintained through the \$593 (Jan 2016\$) water Typical Residential Bill, which has increased by only 18% in real terms over the past 20 years (graph 5 on page 206).

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 page 5 of the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report* (available at [www.water.nsw.gov.au](http://www.water.nsw.gov.au)).

Any LWU which is not achieving the required revenue from residential water usage charges (column 3 of Table 5 on page 116) 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 on page 22 and column 29 of Table 5 on page 116). Assistance is available from DPI Water ([Dilip.Dutta@dpi.nsw.gov.au](mailto:Dilip.Dutta@dpi.nsw.gov.au) or (02) 9842 8499).

The peak day water supplied per property is shown on page 46, Figure 33c on page 111 and on each LWU's TBL Performance Report (graph 33c on page 31). Figure 33c on page 111 shows a 61% reduction in the statewide median peak day water supplied per connected property over the past 15 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. Refer to section 5.3 on page 19.

## 4.5 Asset management

### Infrastructure Renewals

As noted on page 7, assessment of infrastructure renewals requirements is a critical element of a utility's asset management plan, which must be documented in the utility's 30-year strategic business plan and

<sup>15</sup> 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](http://www.pc.gov.au) and [www.water.nsw.gov.au/urban-water/default.aspx#draft](http://www.water.nsw.gov.au/urban-water/default.aspx#draft)).



financial plan. Details of each LWU's asset rehabilitation activities and renewals expenditure are provided in Tables 10 and 15 on pages 172 and 192 respectively, as well as Tables 5C and 5D on pages 126 and 130. These are also shown on notes 9 and 10 respectively of each LWU's Water and Sewerage TBL Reports (pages 274 and 276).

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 on page 7, 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**<sup>16</sup>).

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 30-year financial plan includes capital expenditure, including renewals, identified in a soundly based total asset management plan<sup>17</sup>. They should also 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 (page 20).

Funding in the financial plan involves an appropriate mix of the utility's annual income, accumulated cash and investments and borrowings. As noted on page 23, 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 on page 59 and graph 10 on page 207, 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 information on the development of a cost-effective asset renewal plan can be obtained from DPI Water ([Dilip.Dutta@dpi.nsw.gov.au](mailto:Dilip.Dutta@dpi.nsw.gov.au) or (02) 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](http://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](http://www.water.nsw.gov.au)).

<sup>16</sup> 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](http://www.water.nsw.gov.au)).

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



## 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 on page 172 and Table 10A on page 175.
- **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 on page 159).
- **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 on page 172, column 9 of Table 8 on page 155 and Figure 29 on page 67. Unbilled authorised consumption (column 8b of Table 8 and column 9 of Table 8A on page 159) 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 no. of service connections in a water supply network (column 18a of Table 9 on page 169). 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 on page 213), 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](http://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 on page 172). 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 on page 172, Figure 28 on page 66), 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 on page 33, **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 on page 172 and Figure 29 on page 67.

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<sup>18</sup> the best performing urban water utilities in the world for minimising leakage and real losses.

The statewide median real water loss is 60 L/connection/d, which is lower than the national Median of 76 L/connection/d (page 119 and Figure 28 on page 66 and page 208). As shown in Table 10 on page 172, 74 LWUs have recently carried out water loss management, including leakage testing, analysis and leakage reduction. The Regional NSW Water Loss Management Program (Table 10A on page 175) 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 on page 175 for each of the 68 LWUs.

### 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 on page 123 and pages 115 and 277). 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** on page 339. 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<sub>2</sub>/GJ). Factors are used to calculate GHG emissions by multiplying the factor (e.g. kg CO<sub>2</sub>/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>).

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.

### Rainwater Tanks and Water Sensitive Urban Design

Appendix J on page 362 shows a total of 39,000 residential rainwater tanks reported by 33 LWUs. The typical rainwater tank volume is 3 to 5 kL. The ten LWUs which reported at least 1,000 rainwater tanks were Wyong (10,000), Gosford (9,032), Singleton (2,149), Bega Valley (1,800), Tweed (1,873), Coffs Harbour (1,886), Mid-Western Regional (1,588), Gwydir (1,500), Armidale (1,342) and Young (1,000).

In 2014-15, 17 LWUs released a total of 2,200 water sensitive urban design (WSUD) residential lots, compared to a total of 1,700 in 2013-14.

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 216km of stormwater channels are managed under WSUD principles.

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

## 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 on pages 5 and 22, 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 (see section 5.4 on page 20).

**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 on page 116, Figure 1 on page 38, column 8 of Table 6 on page 126, Figure 10 on page 48, column 8 of Table 7 on page 146, Figure 42 on page 79) and is the annual bill paid by a residential customer using the utility's average annual residential water supplied (column 17 of Table 5 on page 116, Figure 26 on page 64). 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 on page 116, column 67 of Table 11 on page 180, Figures 33, 34, 35 on pages 70, 71, 72) 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 (refer to pages 18 and 19).

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 (page 31) 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 on the following page.

### 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 68% 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 on page 14, 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. Refer also to page 14.
- (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 31, but has a range of 3 to over 70 (column 26 of Table 9 on page 169, Figure 6 on page 43)). 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<sup>19</sup> 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 on page 34).
- (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 (page 21 and Figure 37 on page 74). Refer also to footnote 19 below.

### 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 on page 34).

### Environmental

- (9) **High average annual residential water supplied per property** (column 17 of Table 5 on page 116, column 56a of Table 10 on page 172, Figure 26 on page 63, Figure 33 on page 111) – 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 on page 111, the regional NSW utilities have reduced the average annual residential water supplied per property by 50 per cent over the past 24 years. Many utilities with 3,000 to 10,000 connected properties are providing relatively weak pricing signals to their residential customers through their water usage charges. These utilities should review their tariff structure to provide appropriate pricing signals. Assistance is available from DPI Water in this regard (page 13). Refer also to section 4.4 on page 13 and section 5.3 on pages 19 and 20.

### 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. **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 page 14 of the *2014-15 NSW Performance Monitoring Report* ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)).

<sup>19</sup> 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.



(11) **High pumping cost** (columns 94 to 99 of Table 13 on page 186, Figure 38 on page 74) – is influenced mainly by topography and geography. As noted on page 27, the LWU may be able to achieve significant savings in energy cost.

Similar considerations 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 80 utilities reporting in the National Performance Report are shown in Table 4 on page 111. 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 on pages 274 to 277). Strategic considerations arising from these results are discussed below.

Interstate performance comparisons for the 2014-15 financial year are provided on pages 17 to 20 of the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report* ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)) and are not repeated here.

#### Peak day water supplied

**Figure 33c** and Figure 33 on page 111 show that over the past 15 years, the statewide median peak day water supplied per connected property has **declined by 61%** to 1,200 L/property/d, whilst the average annual residential water supplied has reduced by 25%. 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 shows graphs of the above 2 performance indicators (peak day water supplied (eg. Figure 33c on page 31) and average annual residential water supplied (eg. Figure 33 on page 31)), as well as the peak week water supplied for each of the last 10 years (Figure 33c on page 31). **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 on page 31), rather than now irrelevant former design values such as 4,000 L/d per tenement.** Refer also to the 20-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 on page 3). Figure 33c on page 111 shows that the statewide median peak day water supplied over the last 6 years has ranged from 1,800 to 1,200 kL/d/connected property.

Further guidance is available in the second set of graphs in Figure 8 on page 45, which shows that for inland utilities such as Dubbo and Orange, the ratio of peak day water supplied to average water supplied is about 250%. For coastal utilities such as Gosford, 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.

#### 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 on page 116, **Figure 16** on page 111), 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](http://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 226 c/kL – **Figure 12** on page 111) 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 on page 111). Refer also to the preceding 4 paragraphs and to page 5 of the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report* ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)).

## 5.4 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 page 26 of the *2014-15 NSW Performance Monitoring Report*. 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 (page 10), 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 on page 29).

In order to assist LWUs, DPI Water will continue to provide a template for each LWU's Action Plan (example on pages 28 and 29) 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 on pages 28 and 29).

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](http://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.

Table 2 - Median economic efficiency indicators for four sizes of LWUs - Water Supply 2014-15

Size of LWU	Over 10,000 connected properties	3,001 to 10,000 connected properties	1,501 to 3,000 connected properties	200 to 1,500 connected properties	Statewide median (page 105)
Performance indicator	(27 LWUs)	(28 LWUs)	(19 LWUs)	(22 LWUs)	(96 LWUs)
Operating cost/property (\$)	388	524	555	634	400
Operating cost (c/kL)	130	115	111	86	129
Operating cost/100 km (\$'000)	1,320	1,240	1,230	1,110	1,320
Management cost/property (\$)	134	160	139	135	141
Treatment cost <sup>1</sup> /property (\$)	45	123	158	162	58
Pumping cost/property (\$)	26	54	95	81	31
Energy cost <sup>2</sup> /property (\$)	17	38	41	47	18
Water Main cost/property (\$)	74	82	79	84	74
No. of employees/1,000 properties	1.2	1.6	1.7	2.1	1.4
Economic Real Rate of Return	1.6	1.0	2.8	0.3	1.6
Capital expenditure <sup>3</sup> (\$ per property)	162	167	258	87	155
Properties served/km of main	40	28	25	23	31

**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 2014-15 capital expenditure with the medians in these tables.

Table 3 - Median economic efficiency indicators for four sizes of LWUs - Sewerage 2014-15

Size of LWU	Over 10,000 connected properties	3,001 to 10,000 connected properties	1,501 to 3,000 connected properties	200 to 1,500 connected properties	Statewide median (page 106)
Performance indicator	(24 LWUs)	(24 LWUs)	(24 LWUs)	(27 LWUs)	(99 LWUs)
Operating cost/property (\$)	425	420	359	363	420
Operating cost (c/kL)	172	216	205	187	193
Operating cost/100 km (\$'000)	1,720	1,370	1,180	820	1,720
Management cost/property (\$)	169	142	122	98	160
Treatment cost/property (\$)	145	134	141	137	145
Pumping cost/property (\$)	72	43	46	56	72
Energy cost <sup>1</sup> /property (\$)	37	36	29	25	37
Sewer main cost/property (\$)	42	63	32	37	51
No. of employees/1,000 properties	1.6	1.7	1.5	2.3	1.6
Economic Real Rate of Return	1.7	2.0	1.2	0.3	1.7
Capital expenditure <sup>2</sup> (\$ per property)	215	180	96	69	204
Properties served/km of main	43	36	34	30	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 2014-15 capital expenditure with the medians in these tables.

### 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 pages 84 and 85 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](http://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](mailto: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* (page 6), 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 on page 13, 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 on page 29, 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.

### Implementation of best-practice management framework

Implementation of each of the key outcomes (Table 3 on page 108) required by the BPM Framework is shown on the TBL Report (page 30) and the overall level of implementation is shown in column 33 of Table 5 on page 116. LWUs should address any areas not yet implemented, which are shown on the Action Plan template (page 28). 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 on page 5 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](http://www.water.nsw.gov.au)) or the Regional Water and Waste Water Backlog Program ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)). Refer also to footnote 6 on page 7.



## Performance based on triple bottom line

LWUs should review the Performance indicators shown in the TBL Report (example on page 30) 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 on page 17.

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 & 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 on pages 105, 106 and 107), 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 on page 4).

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

### Utility characteristics

- **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. Refer to section 4.5 on page 14.
- **Employees** – the number of employees per 1,000 properties is a good indicator of operating and management costs (column 32 of Table 9 on page 169, Figure 10 on page 48, column 14 of Table 14 on page 189, Figure 41 on page 78). If the number of employees per 1,000 properties is significantly higher than the median shown in the tables on page 21 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 first dot point on page 27 and to page 21).
- **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](http://www.health.nsw.gov.au/environment/water)). In particular, LWUs need to ensure that water treatment operators, wastewater treatment operators, dam safety officers, trade waste officers and engineers update their training and skills at least every 3 years. Refer to the boxes on pages 9 and 36. LWUs should provide an average of at least 2 days/a of appropriate training for each employee. Refer to Tables 9 and 14 on pages 169 and 189 for the training currently provided by each LWU.
- **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 35 properties per km (range 6 to 73), while for LWUs with 200 to 1,500 properties the median is 22 (range 3 to 34) (column 26 of Table 9 on page 169, Figure 6 on page 43, column 9 of Table 14 on page 189, Figure 40 on page 77).

### Social factors

- **Typical residential bill (TRB)** – as noted on page 17, 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 on page 116, column 67 of Table 11 on page 180, Figures 33, 34, 35 on pages 70, 71, 72) as noted on page 27 under Economic Factors – Efficiency. As noted on page 20, 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** (ERRR on page 26).

- **Residential revenue from usage charges (per cent)** – The *Best-Practice Management Framework* (page 6) 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 on page 116, column 13 of Table 6 on page 134, Figure 13 on page 51). As noted in Section 4.4 on page 13, the statewide median residential revenue from water usage charges was 72 per cent. Refer also to item 9 on page 18 and the residential water usage charge below.
- **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 on page 5 of the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report*. Refer also to Figure 12 on page 50, Figure 12 on page 111 and column 5b of Table 6 on page 134.

#### Health

- **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 on page 55, all the LWUs complied with the microbiological water quality requirements in 2014-15 (also refer to columns 9 and 10 of Table 5 on page 116). 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 pages 8 to 12, note 4 on page 29 and Appendix E on page 305). Assistance is available from your DPI Water Regional Water and Sewerage Treatment Officer (refer to page 36 for the contact details of each officer).

As indicated in section 4.3 on pages 9 and 10, 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](mailto:urbanwater.ctw@dpi.nsw.gov.au) or (02) 9842 8508).

- **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.
- **Capital investment on improving public health** – If a LWU reported zero for this indicator, investigate to ensure that this indicator is not under reported.
- **Sewerage coverage** – Figure 46 on page 83 – percentage of the urban population (residential zoned land) with a reticulated sewerage service. Refer also to Indicator 16 on page 276.

#### Customer service

- **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 & 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 on page 116, Figure 19 on page 57).
- **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 on page 198, Figure 49 on page 86).
- **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 on page 116, Figure 21 on page 59). Refer also to section 4.5 on page 14.

- **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 on page 116).
- **Average interruption (sewerage)** – where this indicator is significantly higher than the statewide median of 95 minutes, your LWU's Action Plan should provide a brief explanation together with proposed remedial action if appropriate (column 65 of Table 17 on page 198).

### Environmental factors

- **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 2014-15 was 225 kL/property compared to 150 kL/property for coastal LWUs (column 17 of Table 5 on page 116, column 14 of Table 6 on page 134, Figure 26 on page 64). Refer also to Item 9 on page 18.
- **Total urban water supplied** – Figure 9 on page 47 and column 2 of Table 5 on page 116.
- **Real Losses** – LWUs should monitor their Real Losses (column 18 of Table 5 on page 116, column 41 of Table 10 on page 172, Figure 28 on page 66) 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 on page 16, 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 on page 16, **non-revenue water (NRW)** should also be monitored in L/d/connection (column 41f of Table 10 on page 172, Figure 29 on page 67).
- **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 (page 15; refer also to footnote 18 on page 16). 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 on page 172).
- **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 2014-15 20 per cent of LWUs reused over 50 per cent of their effluent (columns 13 to 14b of Table 8 on page 155 and Figure 57 on page 94). As shown in columns 21 and 22 of Table 5 on page 116, the highest volume recycled by a utility was 5,600 ML and a further five utilities each recycled over 2,000 ML. Refer also to figure 33d on page 111, figures 27 and 26a on page 114 and figure 27 on page 277.
- **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 on page 198, Figure 50 on page 87).
- **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 on page 198, Figure 51 on page 88).
- **Percent of sewage treated that was compliant** – Figure 54 on page 91 and column 19 of Table 5 on page 116. Refer also to figure 18 on page 113 and figure 18 on page 277.
- **Sewer main breaks and chokes** – sections of sewer main with a high incidence of breaks and chokes (say treble the statewide median of 35 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 on page 116, column 59 of Table 17 on page 198, Figure 55 on page 92). Refer also to figure 36 on page 113 and figure 36 on page 277

- **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 on page 198, Figure 56 on page 93).
- **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

- **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 on page 116, column 12 of Table 6 on page 134, Figure 32 on page 69, column 11 of Table 7 on page 146, Figure 61 on page 97). 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 on page 22, which will result in a satisfactory Typical Residential Bill (TRB – page 23). This is particularly important during drought periods. Refer also to Figures 27 and 28 on pages 59 and 60 of the *2014-15 NSW Performance Monitoring Report* and Appendix G on page 84 of the *2010-11 NSW Performance Monitoring Report*.
- **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 on page 134, column 9 of Table 7 on page 146, column 24c of Table 5A on page 120). Refer also to note 3 on page 29.
- **Net Debt to equity**<sup>20</sup> – net debt is the sum of long and short term borrowings less cash and investments. Equity is the total assets less total liabilities. In 2014-15 the NSW median net debt to equity for water supply and sewerage was -1% (column 19a of Table 5 on page 116). 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 on page 19.
- **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 on page 180 and column 51a of Table 16 on page 195). The median loan payment in 2014-15 for water supply was \$69 per connected property (Table 1 on page 105).
- **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 on page 120). As a general guide, an interest cover >2 is a good interest cover position. For 2014-15, the median interest cover for water supply and sewerage was 4 (Table 2A on page 107).

<sup>20</sup> It is important to note that most NSW LWUs have relatively little borrowings at present. In **2014-15** the statewide median net debt to equity for LWU water and sewerage was -1% (range -37% to 22%). The **2014-15** net debt to equity for major Australian utilities include 98% for Sydney Water, 134% for ICON Water, 168% for Melbourne Water, 56% for Yarra Valley Water, 63% for Queensland Urban Utilities, 53% for Water Corporation (WA), 120% for SA Water and 81% for Hunter Water (National Performance Report 2014-15 for Urban Water Utilities). Refer also to graph 27 on page 211. 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 on page 116, column 67 of Table 11 on page 180, Figure 33 on page 70). The components of operating cost (shown on pages 21, 31, 112, 114, 275 and 277) are:

- **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 on page 180, Figure 36 on page 73). 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’ on page 23 and page 21). Similarly, LWUs with a low development density, under about 20 properties served / km of water main (column 26 of Table 9 on page 169) will need a higher level of employees.
- **Treatment cost (water)** – (columns 104 to 107 of Table 13 on page 186, Figure 37 on page 74) 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 on page 21, there are great economies of scale for the operation of water treatment works (i.e. facilities involving at least filtration and disinfection).
- **Treatment cost (sewage)** – (columns 89 to 92 of Table 18 on page 201, Figure 66 on page 102) 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.
- **Pumping cost (water)** – (columns 94 to 98 of Table 13 on page 186, Figure 38 on page 75) 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.
- **Energy cost** – (column 98 of Table 13 on page 186) 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 on page 201). 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).
- **Water and Sewerage mains cost** – (column 84 of Table 13 on page 186, Figure 39 on page 76, column 70 of Table 18 on page 201, Figure 68 on page 104) this is dependent on the age and condition of the mains, the ground conditions and the number of connected properties per km of main.

## 5.5 Example TBL report and action plan – Coffs Harbour City Council

### Coffs Harbour City Council Water Supply – Action Plan Page 1

#### Summary

In 2014-15, Coffs Harbour City Council has implemented all 19 planning, pricing and management outcomes (10 water, 9 sewerage) required by the *NSW Best-Practice Management (BPM) Framework* and its performance has continued to be very good.

The key actions required are shown below for Indicators 20 and 32. Note also Indicators 12 and 14 and that a new IWCM Strategy and financial plan are required in 2016.

Key action from Council's Strategic Business Plan:

- Strategic business plan and financial plan completed in May 2012

(<http://www.coffsharbour.nsw.gov.au/places-for-living/Documents/Strategic-Business-Plans-Water-Supply-Sewerage.pdf>).

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

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

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

## Coffs Harbour City Council Water Supply – Action Plan Page 2

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

3. Review and comparison of the 2015-16 **Typical Residential Bill (Indicator 14)** with the projection in the later of your IWCM Strategy and financial plan and your Strategic Business Plan is **mandatory**. Refer to page 104 of the 2014-15 NSW Performance Monitoring Report.  
In addition, if both indicators 43 and 44 are negative, you must report your proposed 2016-17 typical residential bill to achieve full cost recovery.

4. **Microbiological compliance (Indicator 20)** is a **high priority** for each NSW LWU. Corrective action for non-compliance ( $\leq 97\%$ ), or any 'boil water alerts' must be reported in your Action Plan. Refer to pages 7, 8 and 26 of the 2014-15 NSW Water Supply and Sewerage Performance Monitoring Report ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)).



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

<b>Coffs Harbour City Council</b>	<b>TBL Water Supply Performance</b>	<b>2014-15</b>
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**WATER SUPPLY SYSTEM** - Coffs Harbour City Council serves a population of 71,300 (25,060 connected properties). Water is sourced from the Nymboida River (part of the Regional Water Supply which includes Shannon Creek Dam) and also from the Orara River. Water is transferred to Karangi Dam where it is treated and supplied to the Coffs Harbour area which stretches from Sawtell to Corindi. Council has 2 storage dams at Karangi and Woolgoolga (total storage capacity 5,870ML), not including the 30,000ML Shannon Creek Dam. Council has 2 smaller systems providing treated water to Coramba and Nana Glen villages. The water supply network comprises a dissolved air flotation treatment works, a conventional water treatment works and a chlorinator, 18 service reservoirs (88 ML), 7 pumping stations, 43 ML/d delivery capacity into the distribution system, 157 km of transfer and trunk mains and 478 km of reticulation. 95% of water supplied is potable and 5% nonpotable (recycled).

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

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

<b>(1) Complete Current Strategic Business Plan &amp; Financial Plan</b> <b>(2) (2a) Pricing</b> - Full Cost Recovery, without significant cross subsidies <b>(2b,2c) Pricing</b> - Appropriate Residential Charges <b>(2d) Pricing</b> - Appropriate Non-residential Charges <b>(2e) Pricing</b> - DSP with Commercial Developer Charges	<b>YES</b> <sup>12</sup> Yes Yes Yes Yes	<b>(3) Sound water conservation implemented</b> <b>(4) Sound drought management implemented</b> <b>(5) Complete performance reporting (by 15 September)</b> <b>(6) Integrated water cycle management strategy</b>	<b>YES</b> <b>YES</b> <b>YES</b> <b>YESC</b> <b>100%</b>
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**TRIPLE BOTTOM LINE (TBL) PERFORMANCE INDICATORS**

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

**NOTES:**

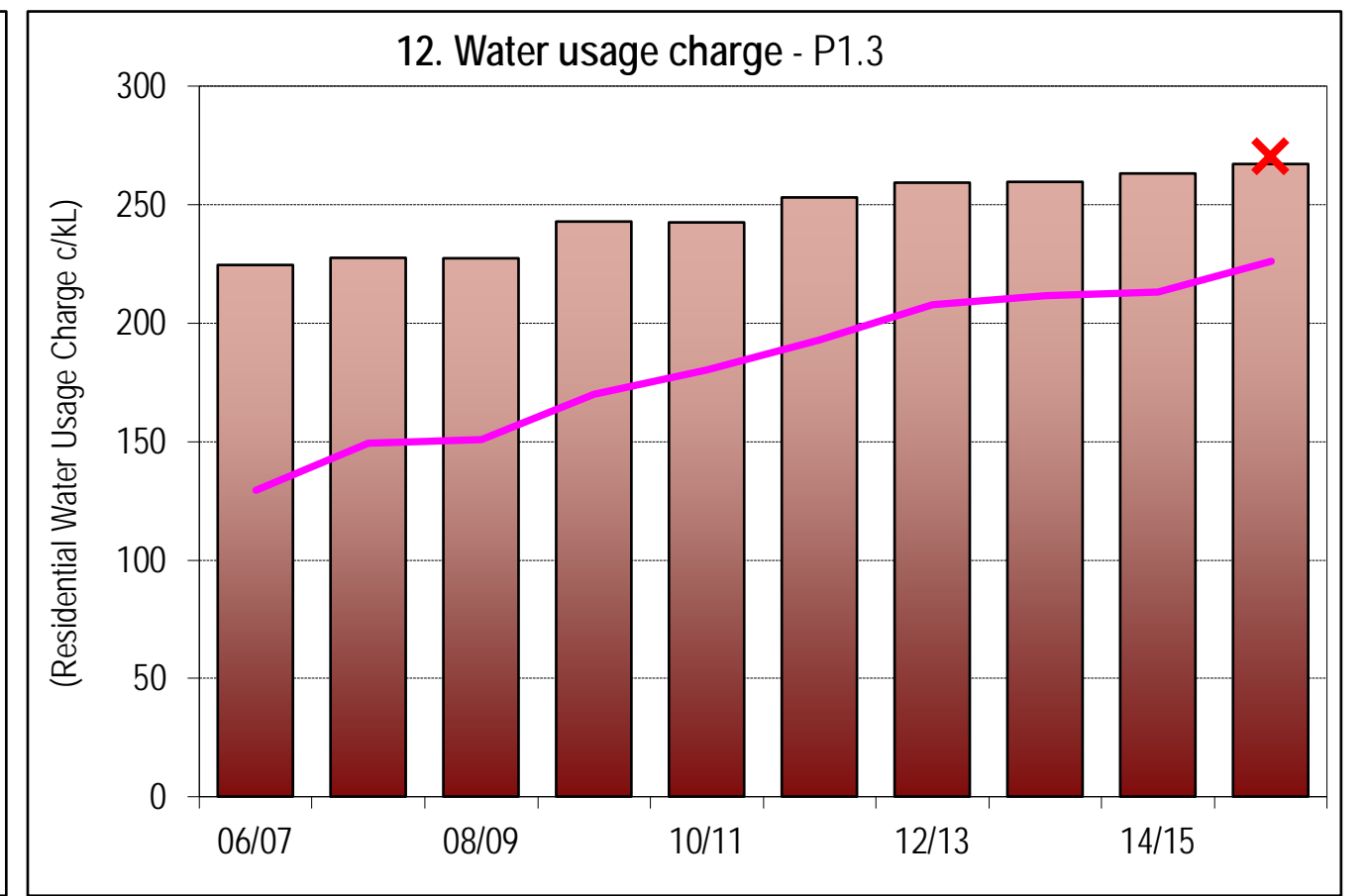
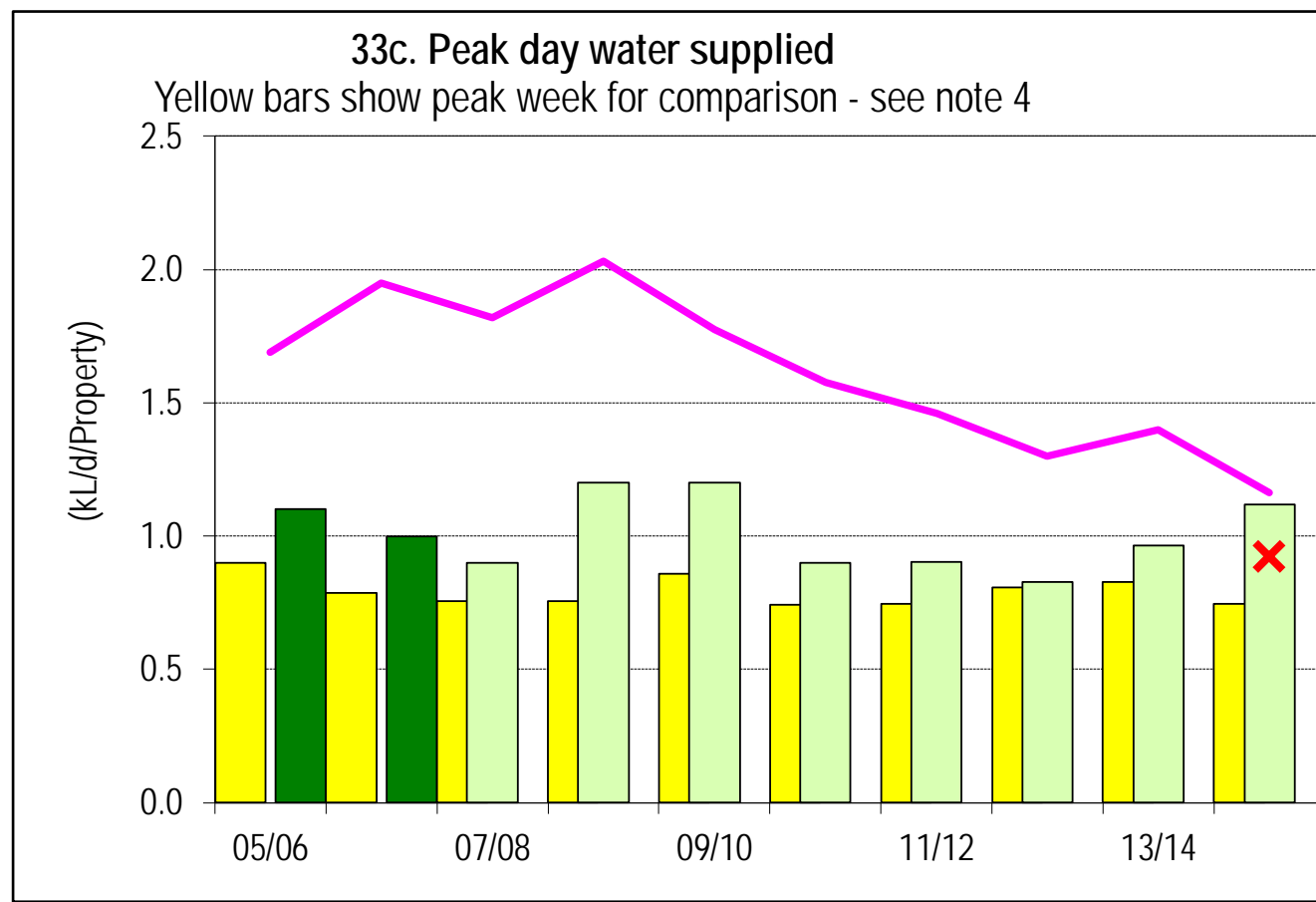
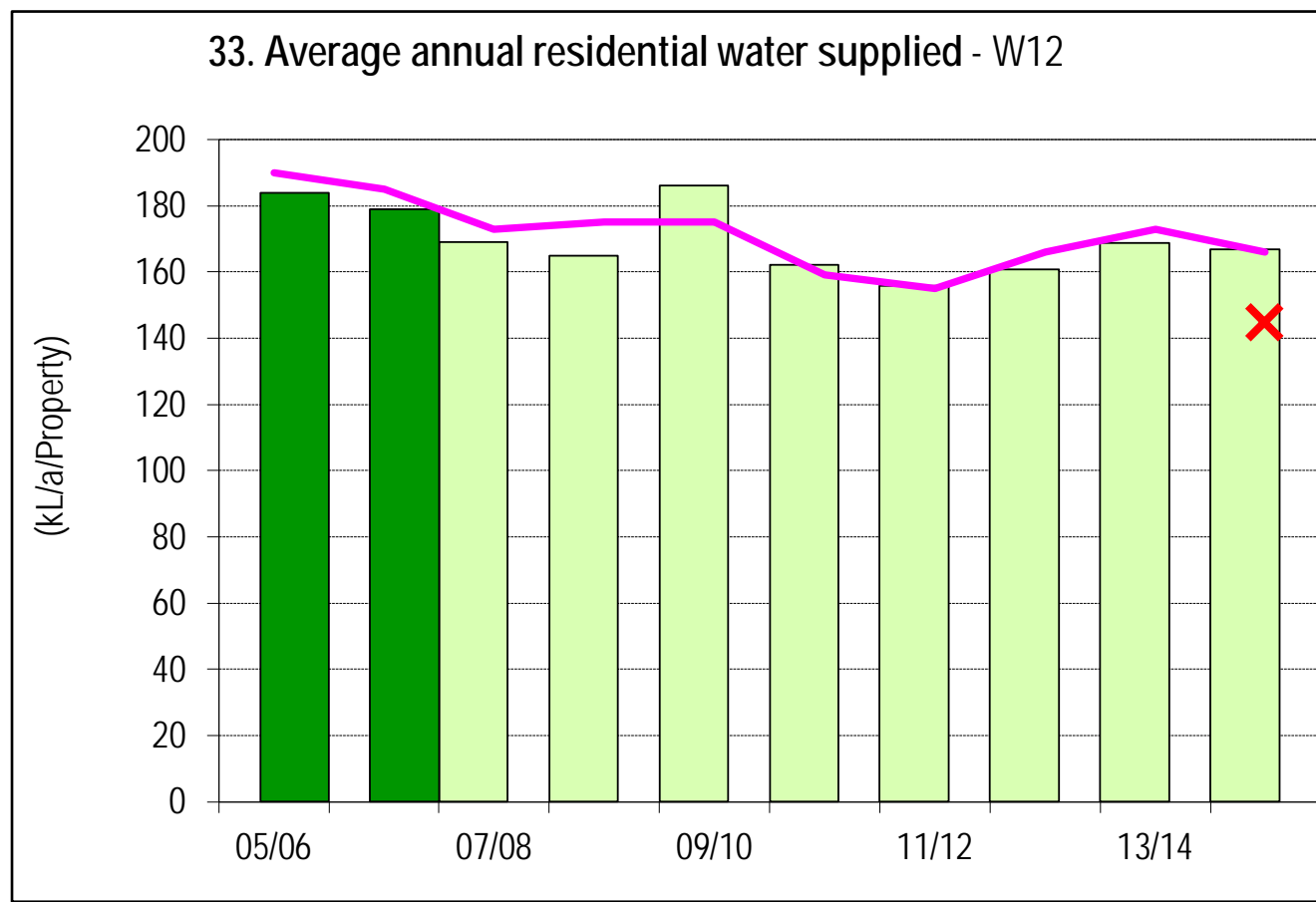
- Col 2 rankings are on a % of LWUs basis - best reveals performance compared to similar sized LWUs (ie. Col 1 is compared with LWUs with >10,000 properties).
- Col 3 rankings are on a % of LWUs basis - best reveals performance compared to all LWUs (ie. Col 1 is compared with all LWUs).
- Col 4 (Statewide Median) is on a % of connected properties basis- best reveals statewide performance (gives due weight to larger LWUs & reduces effect of smaller LWUs).
- Col 5 (National Median) is the median value for the 76 utilities reporting water supply performance in the National Performance Report 2014-15 ([www.bom.gov.au](http://www.bom.gov.au)).
- 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.
- 2015-16 Non-residential Tariff: Access Charge based on Meter Size: 40mm \$572, Two Part Tariff; Usage Charge 267c/kL.
- Non-residential water supplied was 25% of potable water supplied excluding non-revenue water.
- Non-residential revenue was 24% of annual rates and charges, indicating fair pricing of services between the residential and non-residential sectors.
- The operating cost (OMA) per property was \$395. Components were: management (\$153), operation (\$108), maintenance (\$104), energy (\$9) & chemical (\$17).
- Rehabilitations included 0.3% of water mains, 0.14% of service connections and 5.8% of water meters. Renewals expenditure was \$12,000/100km of main.
- Compliance with ADWG 2011 for drinking water quality is shown as "Yes" if compliance has been achieved (indicators 19, 19a & 20).
- Coffs Harbour City Council has 3 fully qualified water treatment operators who meet the requirements of the National Certification Framework.
- As Council's IWCM Strategy is over 6 years old, it will need to prepare a new 30-year IWCM Strategy, financial plan and report in accordance with the July 2014 IWCM Check List ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)).



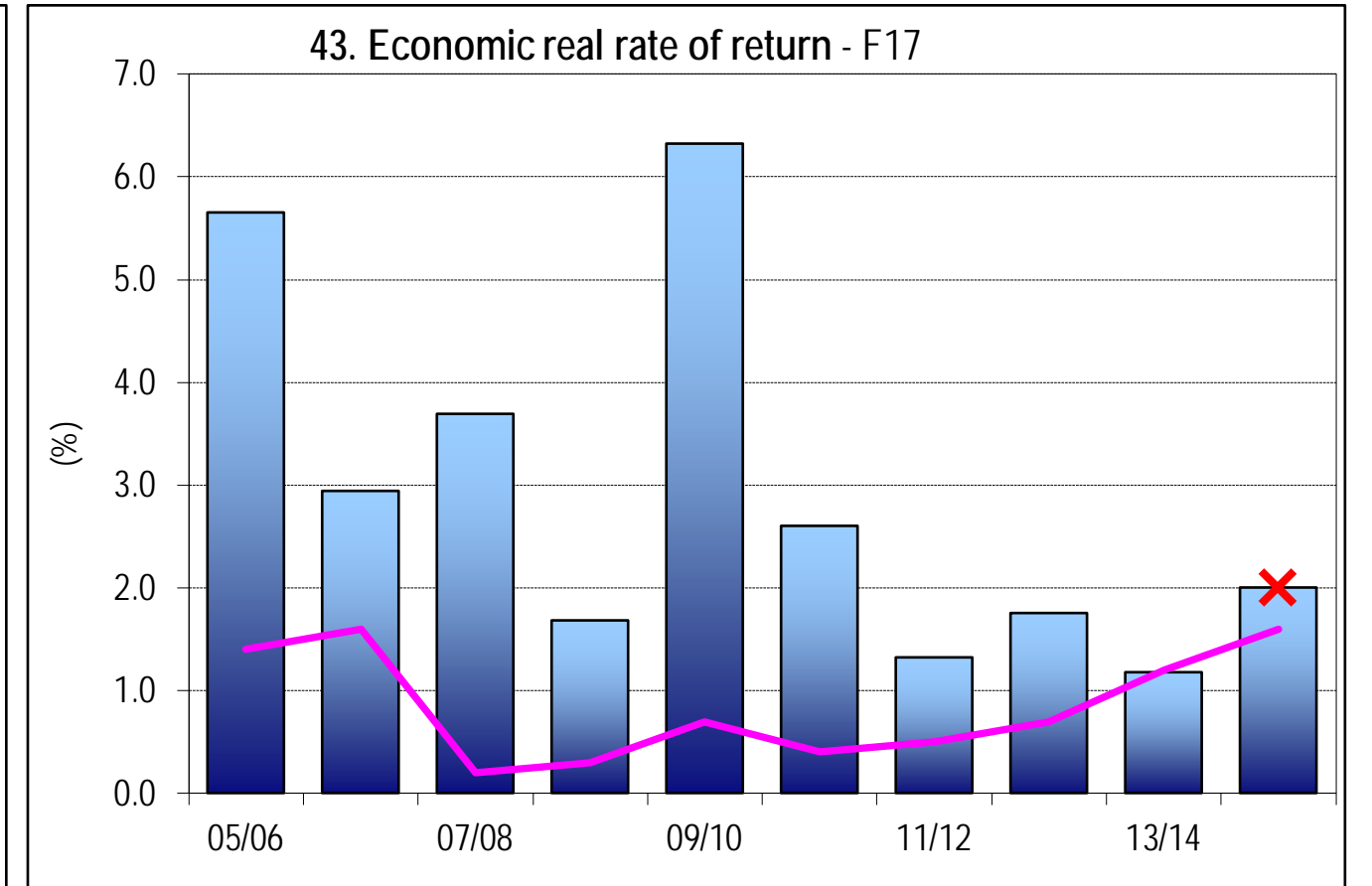
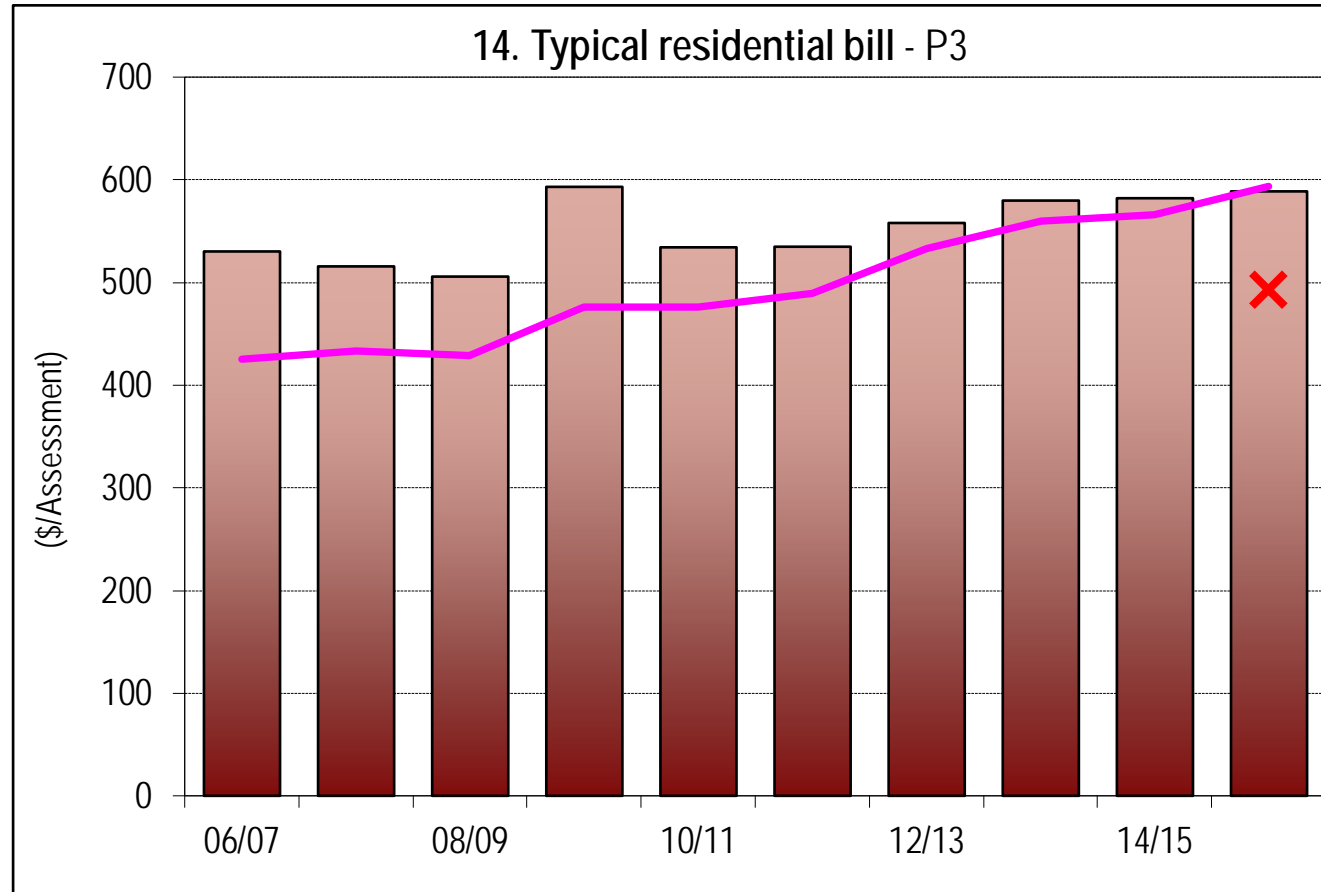
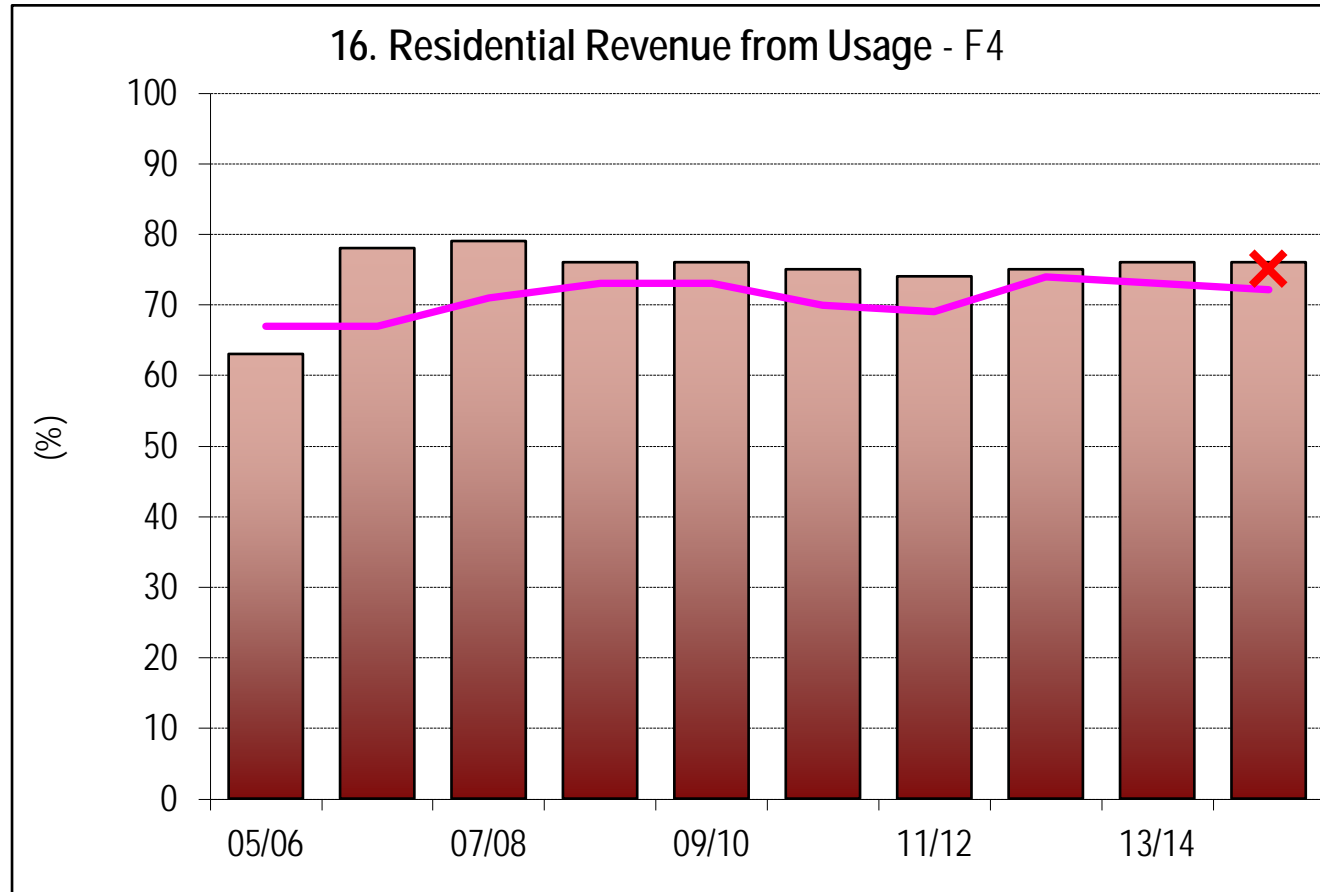
**Coffs Harbour City Council TBL Water Supply Performance (page 2) 2014-15**

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

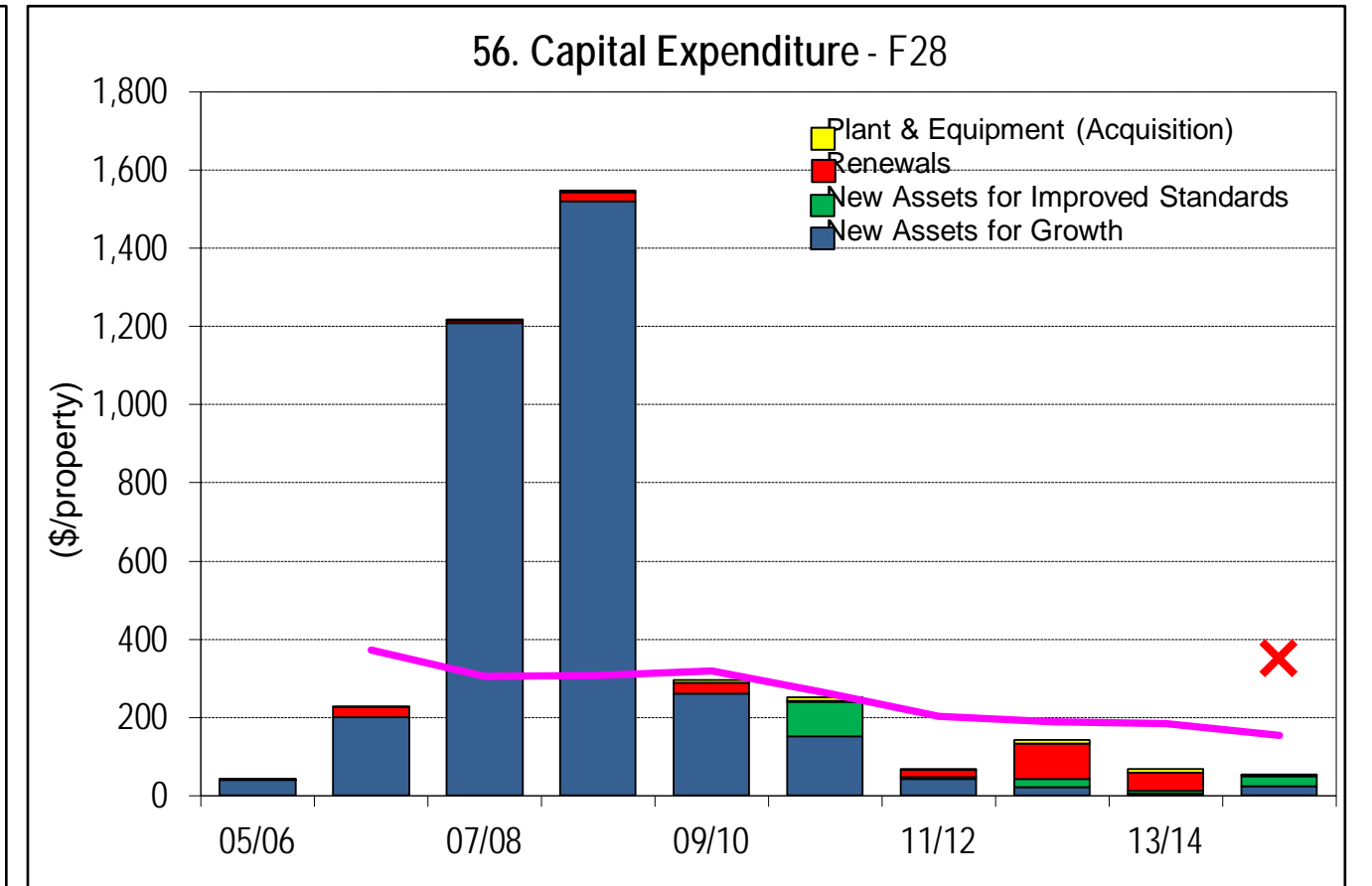
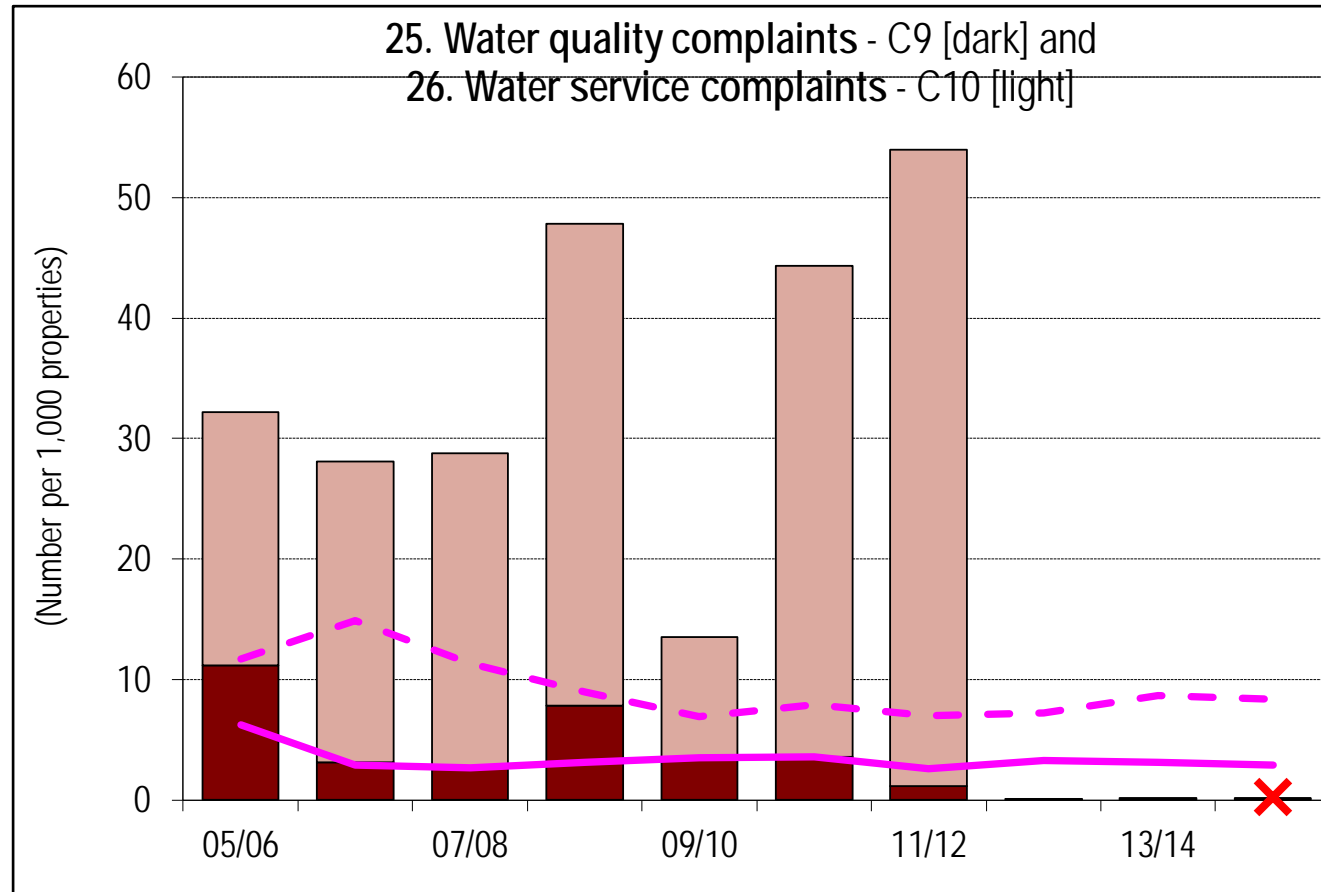
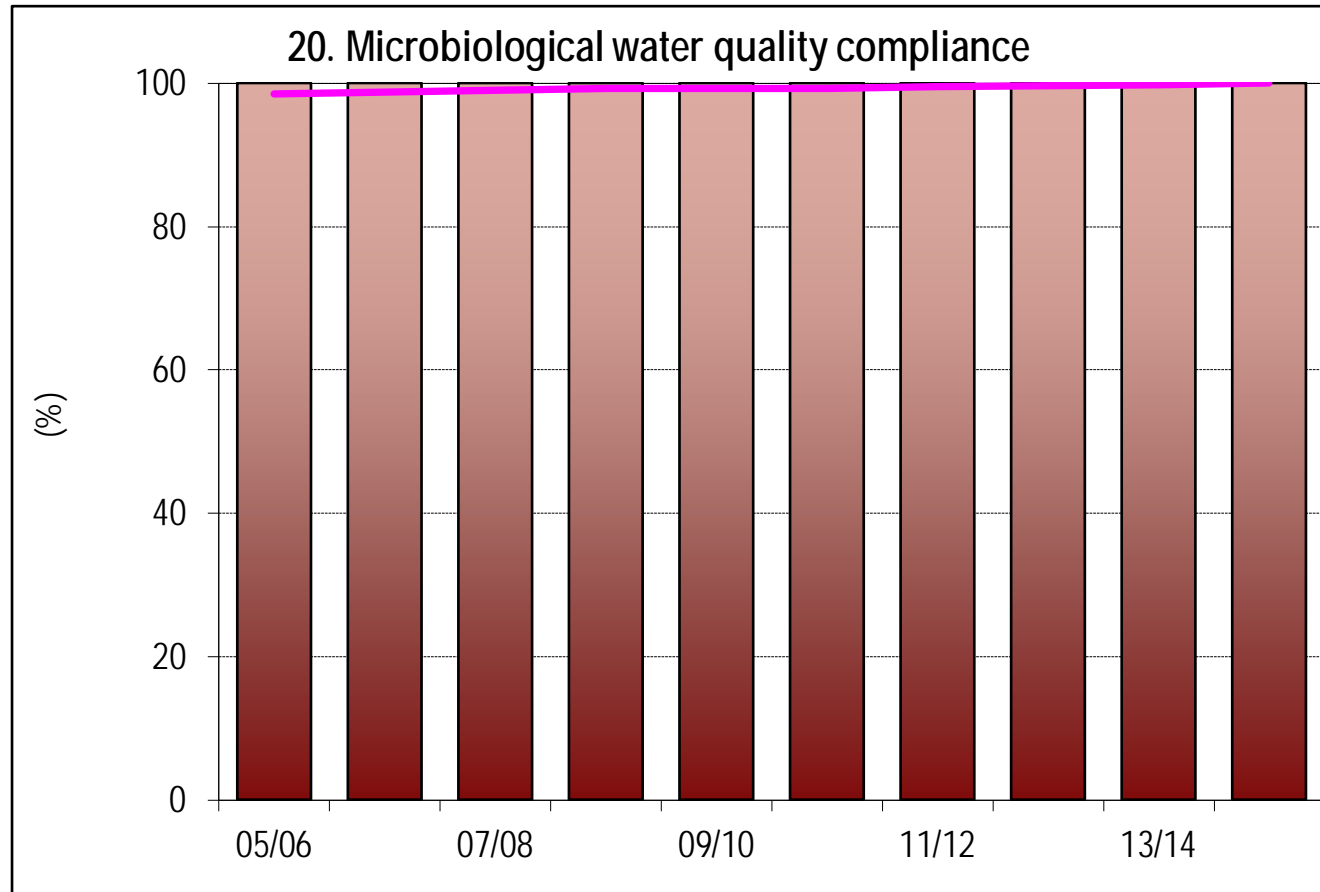
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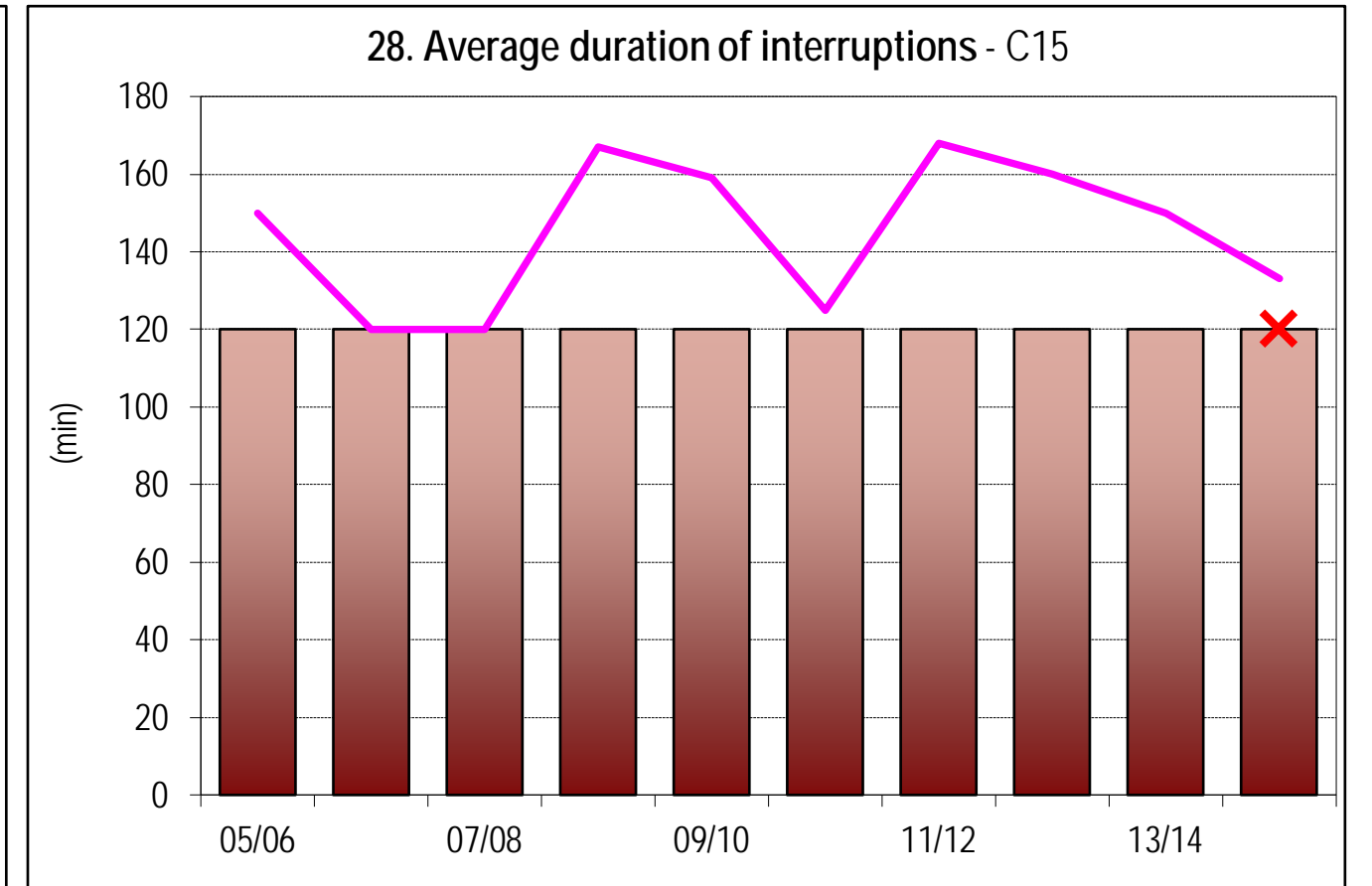
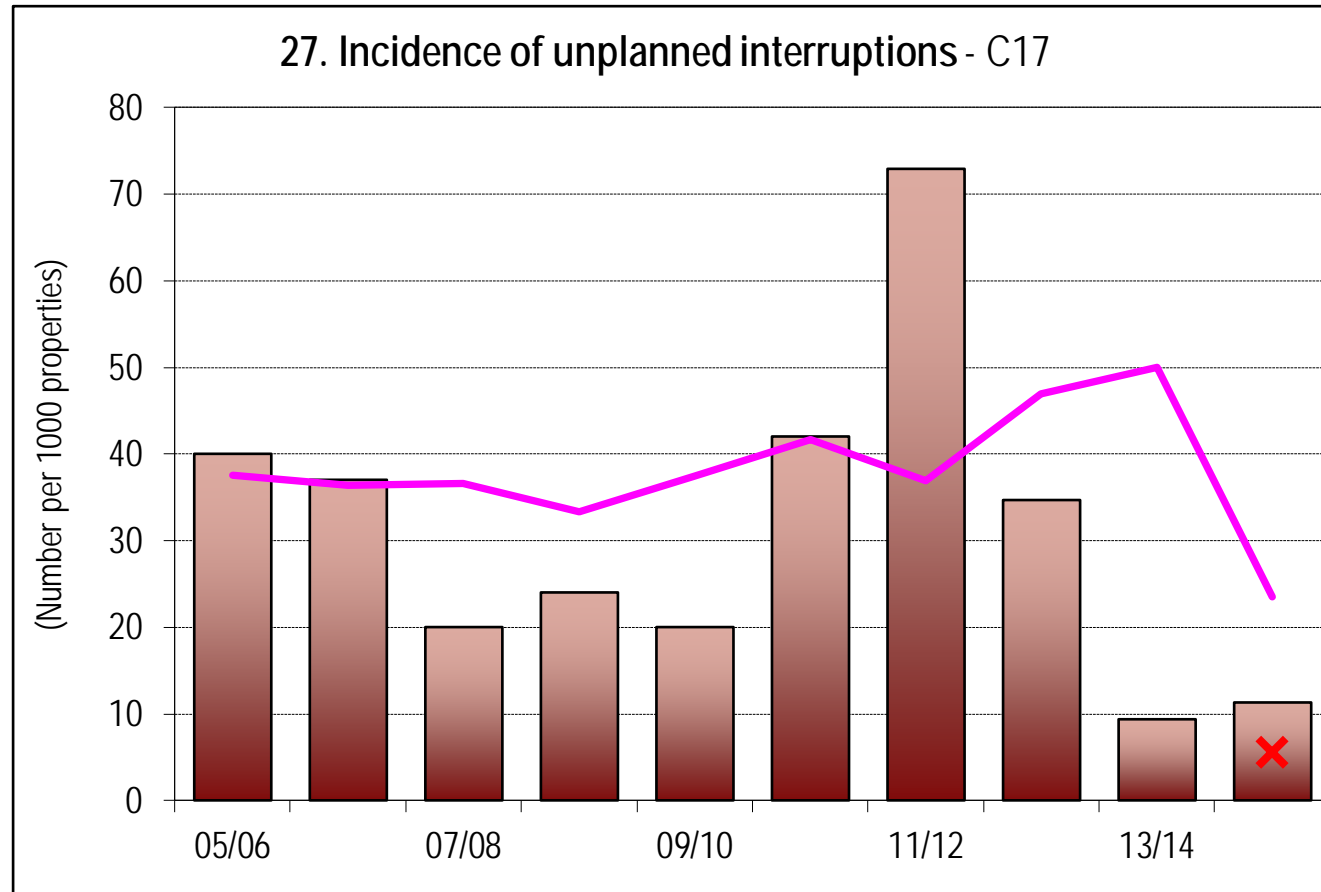
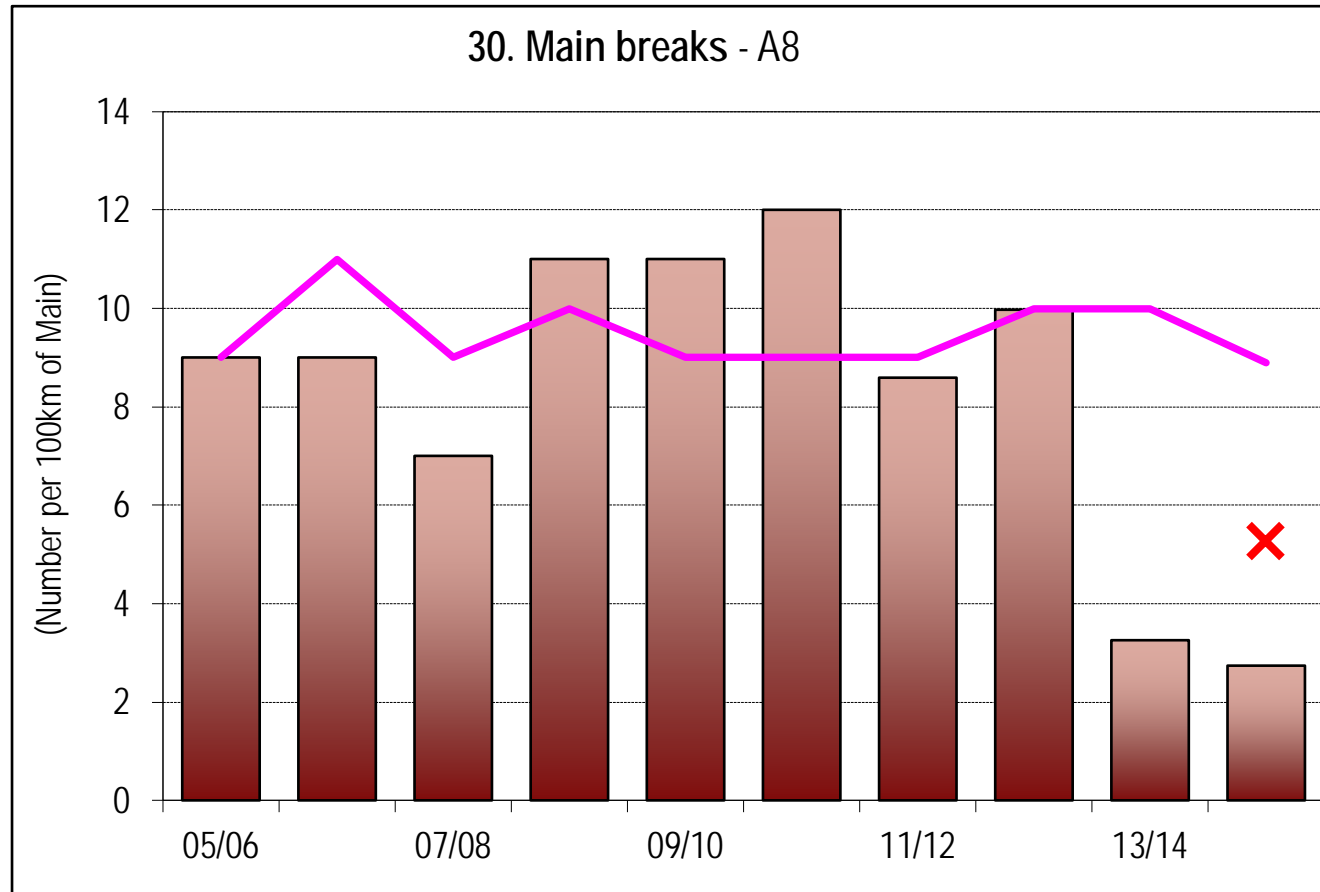
**COST RECOVERY**



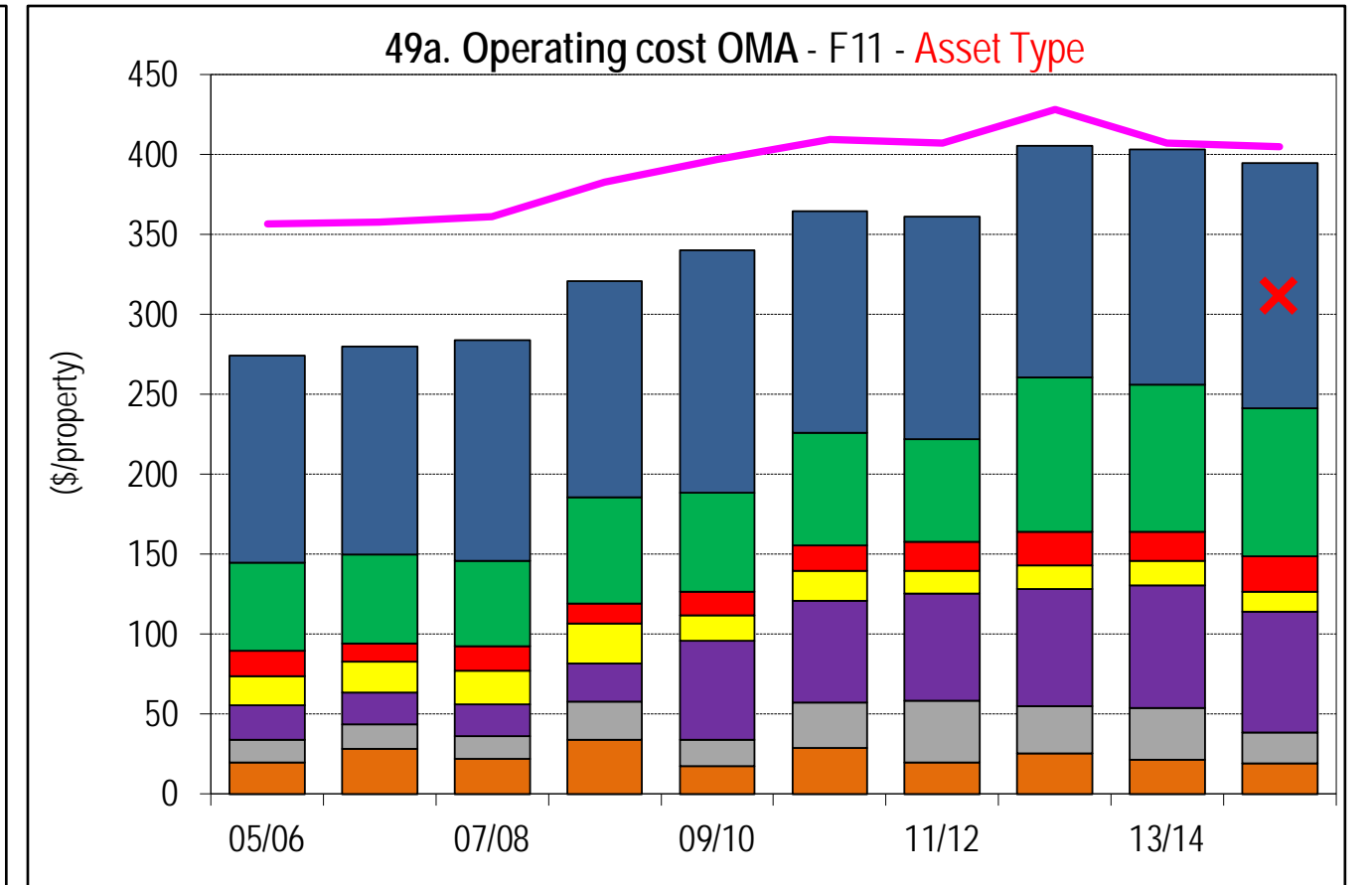
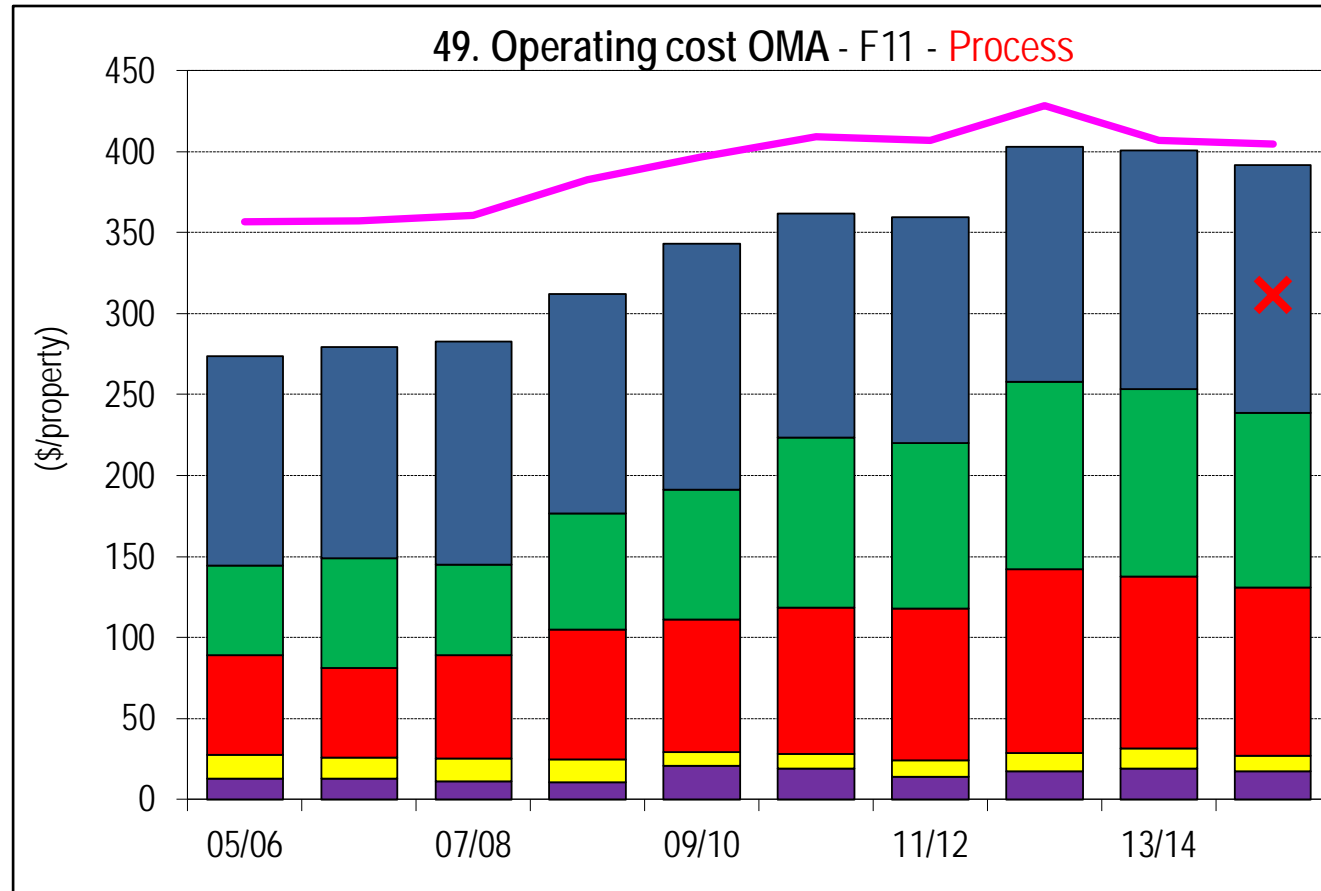
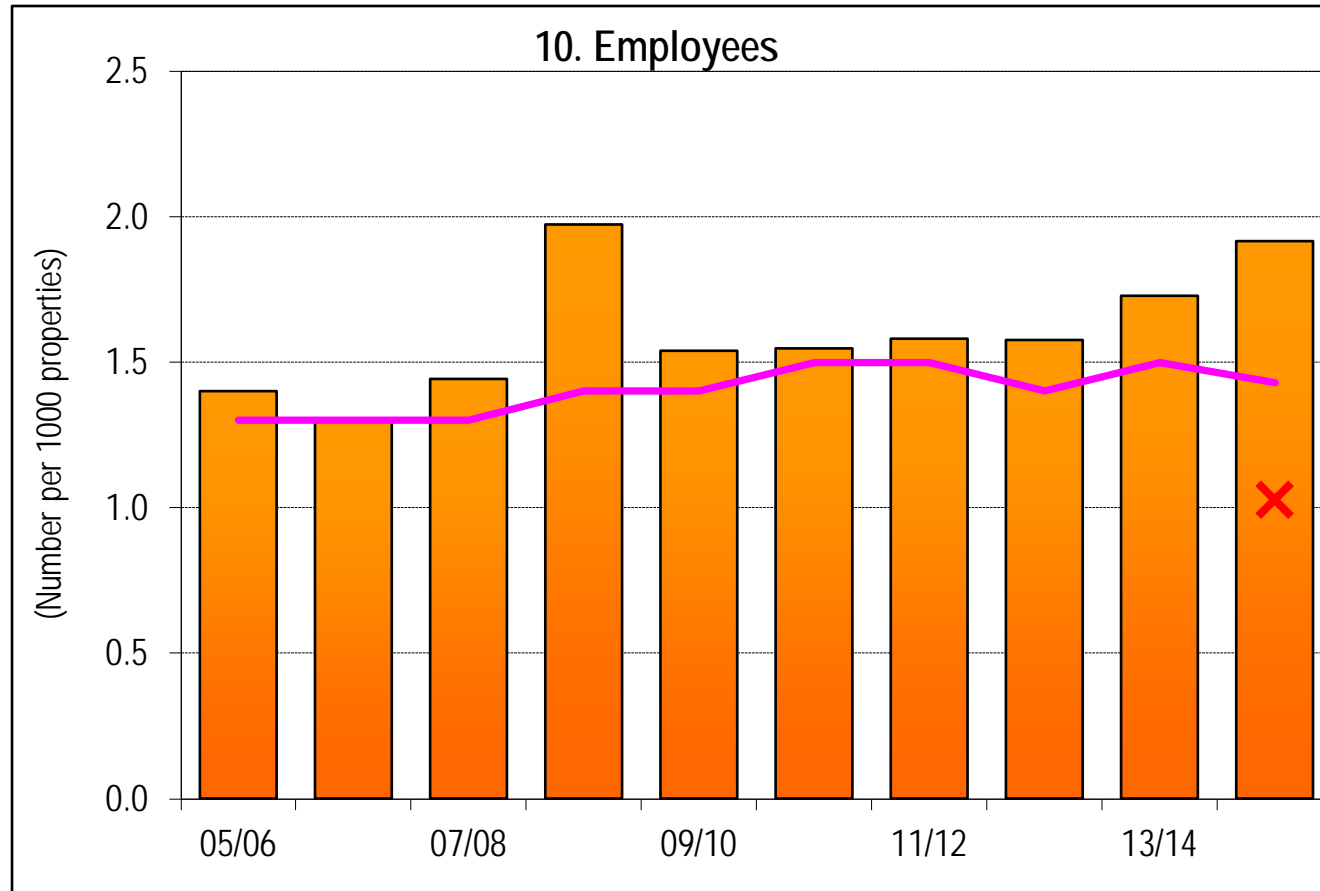
**WATER QUALITY/CUSTOMER SERVICE/CAPITAL EXPENDITURE**



**RELIABILITY**



**EFFICIENCY**



**NOTES:**

- Costs are in Jan 2015\$ except for graphs 12 and 14, which are in Jan 2016\$.
- Microbiological water quality compliance 1999-00 to 2003-04 was on the basis of 1996 NHMRC/ARMCANZ Australian Drinking Water Guidelines for E. coli; from 2004-05 to 2010-11 compliance was on the basis of the 2004 NHMRC/NRMMC Australian Drinking Water Guidelines (ADWG) and for 2011-12 to 2014-15 compliance was on the basis of the 2011 ADWG.
- 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
- Indicator 33c - Yellow bars show Peak Week Water Supplied for comparison with Peak Day Water Supplied shown in green.

**LEGEND**  
 State Median for all years (Pink line)  
 Top 20% for 2014-15 (Red X)

## 6 GENERAL NOTES

This *2014-15 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](http://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 on page 351) assure data reliability for the NSW Performance Monitoring System. The data validation procedures include matters such as:
  - Aggregated businesses (section H4.1 on page 353)
  - Assessments (section H4.2 on page 353)
  - Connected properties (section H4.2 on page 353)
  - Charges, bills and cost recovery (section H4.3 on page 354)
  - Urban water supplied (section H4.4 on page 354)
  - Operating cost and management cost (section H4.5 on page 354)
  - Drinking water quality compliance (section H4.6 on page 355)
  - Sewage treatment works compliance (section H4.7 on page 356)
  - Implementation of Best-Practice Management Framework (section H5 on page 356)
- (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 109 NSW water utilities (105 LWUs plus Sydney Water Corporation and Hunter Water Corporation, Water NSW (from January 2015, formerly Sydney Catchment Authority) and Hawkesbury Council).

As noted on page 2, these tables are sorted in order of the number of connected properties served in order to facilitate comparisons with similar sized LWUs. The table on page 2 shows each LWU’s ranking in terms of water supply connected properties. For example, the table shows ‘11 Albury City’, indicating that Albury City is the 11th largest LWU. 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 on page 30 and in Appendix C on page 274). Statewide medians are shown in Tables 1, 2 and 2A on pages 105, 106 and 107. Table 4 on page 111 shows trends in statewide performance indicators for regional NSW and comparisons with the national median for the 80 utilities reported in the National Performance Report 2014-15 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 on page 3).
- (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 page 17.

**Calculation of TRB** – The 2015-16 typical residential bill is based on a customer of the LWU's principal water supply or sewerage system using the LWU's 2014-15 average annual residential water supplied (see Tables 6 and 7 on pages 134 and 146). The typical residential bill for 2014-15 and previous years is based on the reported average annual residential water supplied for that year (the 2014-15 residential water supplied is shown in column 17 of Table 5 on page 116). Refer also to section H4.3 on page 354.

- (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 on page 116 and Figure 9 on page 47). 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 on page 134. The potable water supplied and the total water supplied (potable + non-potable) have been separately reported for the 12 LWUs with a dual water supply (see note 8 below).
- (8) **Dual supplies** – Twelve LWUs had a dual water supply to over 50 per cent of their residential customers in July 2014 (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 660 (167), Berrigan 399 (241), Bourke 1,243 (284), Brewarrina 1,391 (614), Central Darling 581 (128), Hay 1,048 (159), Jerilderie 1,242 (219), Murray 280 (168), Wakool 502 (142), Walgett 1,341 (720), Warren 752 (328) and Wentworth 504 (99).

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

- (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 on page 16, 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 on page 116, column 41 of Table 10 on page 172 and Figure 28 on page 66. Refer also to figure 34 on page 112.

Due to perverse impacts shown on page 15, 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 on page 172 and Figure 29 on page 67.

In addition, the 2014-15 adopted volume of NRW (NWI Indicator W10.1) and NRW as a percentage of the total potable water supplied are shown in columns 15 and 16 of Table 8A on page 159.

- (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 74 NSW LWUs indicate an average leakage from potable water supply distribution systems of 3% to 13% of total potable water supplied, as shown in column 41e of Table 10 on page 172. 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 13 of these utilities had a real loss of under 6%. In addition, Table 10A on page 175 discloses the real losses for 68 LWUs 'before' and 'after' leakage reduction under the Regional NSW Water Loss



Management Program<sup>21</sup>. For these LWUs, Table 10A indicates average real losses of 10% of the potable water supplied after leakage reduction.

Accordingly, a minimum real loss (mostly leakage) of 6% of the total potable urban water supplied (NWI Indicator W11.1) has been adopted. Reported real losses of less than 6% have only been accepted where the utility has provided evidence to support the adoption of a lower value. Where such evidence has not been provided, real losses have been increased to 6% of the total potable urban water supplied (W11.1) and are shown in italics bold in column 8 of Table 8 on page 155. Refer also to the final paragraph below on NRW and to the 3rd paragraph of page 16.

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 on page 155.

- (11) **Sydney Water, Hunter Water and Water NSW** – The performance indicators for Sydney Water Corporation, Hunter Water Corporation and Water NSW (from January 2015, formerly Sydney Catchment Authority) were obtained from the *National Performance Report 2014-15 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 on page 18). The following 45 regional utilities provided such bulk storage: Armidale, Ballina, Bathurst, Bega Valley, Bourke, Brewarrina, Byron (Mullumbimby), Cabonne, Central Tablelands, Clarence Valley, Cobar, Coffs Harbour, Essential Energy, Eurobodalla, Fish River, Glen Innes-Severn, Gosford, Goulburn Mulwaree, Guyra, Inverell, Kempsey, Kyogle, Lachlan, Leeton, Lithgow, MidCoast, Mid Western Regional, Moree Plains, Orange, Palerang, Parkes, Port Macquarie-Hastings, Richmond Valley, Rous, Shoalhaven, Tamworth, Tenterfield, Tweed, Upper Hunter, Upper Lachlan, Uralla, Warrumbungle, Wingecarribee, Wyong, Yass Valley. Refer also to column 37 of Table 5B on page 123.
- (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 on page 33).
- (14) **National Water Initiative (NWI) Indicators** – There are 32 NSW water utilities with >10,000 connected properties including three metropolitan utilities and 29 regional utilities. These utilities have reported their performance in the *National Performance Report 2014-15* ([www.bom.gov.au](http://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

<sup>21</sup> Refer to Table 10A on page 175. 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>.

Report 2014-15 and are shown in Appendix F on page 316. 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 2014-15* 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 on page 353).

- (15) **Reported NWI Indicators** – This report discloses the performance of each of the 105 NSW Local Water Utilities (LWUs) for each of the approximately 130 NWI performance indicators on the following basis:

**Table 5** on page 116 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** on page 120 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** on page 123 reports the results for NWI indicators C12, C14, E9, E10, E11 and E12.

**Table 5C** on page 126 reports indicators F9, F14, F11, F22, F17, A8, C17, A10, C9, C10, H3 and P3.

**Table 5D** on page 130 reports indicators F10, F15, F12, F22, F18, A14, C11, E4 and P6.

**Table 6** on page 134 reports indicators P1, P1.2, P1.12, P1.3, P1.4, P3, F17, F4, W12 and C4.

**Table 7** on page 146 reports indicators P4.1, P4.2, P6, F18 and C8.

**Table 8** on page 155 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** on page 166 reports the results for NWI indicators W9.1, W9.2, W9, W11.3, W21 & W28.4.

**Table 9** on page 169 reports the results for NWI indicators C4, C2, C1, A2, A3, A1, F28, F14 & F26.

**Table 10** on page 172 reports the results for NWI indicators A10, A11, A9, A8, C17, W11 and W12.

**Table 10A** on page 175 reports the results for NWI indicators A9, W11.1 and A10.

**Table 11** on page 180 reports the results for NWI indicators F1, F5, F4, F9, F22, F17 and F11.

**Table 12** on page 183 reports the results for NWI indicators H5, H4, H3, C9, C10, C18, C19, C17 and C15.

**Table 14** on page 189 reports the results for NWI indicators C8, C6, C5, A5, A6, A4, F15 and F27.

**Table 15** on page 192 reports the results for NWI indicators A14, E13, W18, W17, E4, E1, E2, E3, W19, E8, W26 and W27.

**Table 16** on page 195 reports the results for NWI indicators F2, F6, F10, F22, F18 and F12.

**Table 17** on page 198 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.

All the NSW LWUs have complied with indicators H1, H3 and H4. Results for indicator H5 is reported in Table 12 on page 183.

## 6.1 Regional Water and Sewerage Treatment Officers - DPI Water

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

As noted on pages 10 and 24, 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

### National Certification Framework for Water Treatment Operators

Appendix I on page 360 discloses that **each** of the **91 NSW LWUs** responsible for providing water treatment<sup>#</sup> has at least one **fully qualified water treatment operator\*** to operate the 163 LWU water treatment works and 73 chlorinators and aerators<sup>+</sup>.

The LWUs have a **total of 348** fully qualified operators, who meet the requirements of the National Certification Framework for Water Treatment Operators. Continuing professional development of operators is required, such as attending a DPI Water Treatment Update Seminar at least every 3 years.

In addition, 419 LWU operators are fully qualified Wastewater Treatment Operators, with a Certificate III in Water Operations (Wastewater Treatment) or equivalent and are employed as the operator of a LWU sewage treatment works. Such operators meet the NSW Certification requirements.

<sup>#</sup> Excludes the 9 LWUs responsible for sewerage only (page 2), reticulators Cootamundra, Harden, Queanbeyan and Young, and Cobar Water Board which provides a bulk raw water supply.

\* An operator of a water treatment works must have a Certificate III in Water Operations (Water Treatment) or equivalent and must be employed in operating a LWU treatment works 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>)).

<sup>+</sup> 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 on page 364 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 32% and 34% respectively of the Australian totals of 22.2 million and 20.7 million. The volume of urban water supplied in NSW is 32% of the Australian total of 2,760 GL, and the recycled water supplied in NSW is 32% of the Australian total of 269 GL.

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

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

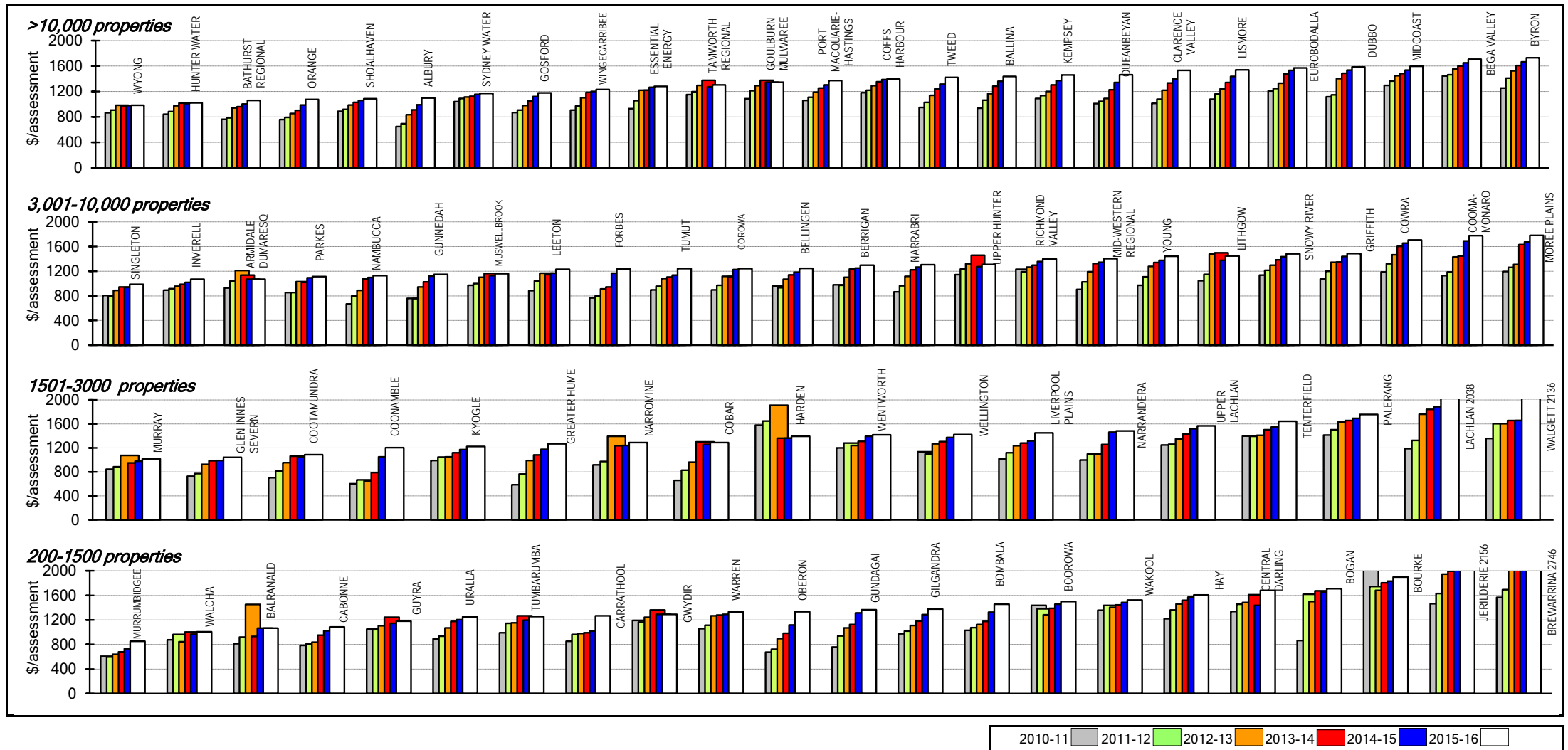


## 6.4 Contents of tables 5 to 18

Table 5	2014-15 NSW water utility performance summary – Overview of each water utility’s key water supply and sewerage performance indicators.
Table 5A	Water supply and sewerage – financial – Combined water supply and sewerage indicators.
Table 5B	Water supply and sewerage – levels of service, environmental, main sources of water – Combined water supply and sewerage indicators.
Table 5C	Water supply – Infrastructure Asset Condition and Performance 2014-15
Table 5D	Sewerage – Infrastructure Asset Condition and Performance 2014-15
Table 6	Water supply – residential charges, bills, cost recovery – Type of tariff, residential charges, bills, cost recovery, average annual residential water supplied and number of connected properties
Tables 6A to 6B	Water supply – 2014-15 residential inclining block or multiple tariffs, non-residential tariffs
Table 7	Sewerage – residential charges, bills, cost recovery – Residential charges, bills, non-residential sewer usage charge, cost recovery and number of connected properties for each water utility’s sewerage business
Tables 7A to 7C	Sewerage – 2014-15 residential multiple tariffs, non-residential tariffs, liquid trade waste fees and charges
Table 8	2014-15 NSW urban water supplied – Water supplied by customer category, water losses, leakage, non-revenue water, total potable and non-potable water supplied, recycled water use and surface and groundwater use
Table 8A	2014-15 Water losses and non-revenue water
Table 8B	2014-15 Water consumptions from source catchments in regional NSW – Shows details of water consumptions by customer category for each source catchment
Table 8C	2014-15 Water conservation initiatives
Table 8D	2014-15 Components of commercial, industrial and rural water supplied, municipal water used, potable water produced, urban stormwater used
Table 9	Water supply – utility characteristics – Population [permanent, peak], no. of assessments, no. of service connections, connected properties, new residential dwellings connected, assets employed, capital investment, workforce employed, employees undergoing training, outsourcing, days lost
Table 10	Water supply – asset management, water resource management – Leakage, Non-Revenue Water (NRW), main breaks, interruptions to supply, rehabilitations, renewals and maintenance expenditure, total annual & average residential water supplied, recycled water use, drought & demand management policies
Table 10A	Estimated Real Water Losses from Regional Water Loss Management Program – Zone, ILI before, estimated water loss - before and after, annual water savings, leakage test and the test year
Table 11	Water supply – financial, efficiency – Revenue, residential revenue and water supplied, current replacement cost, net debt to equity, cross subsidies, operating result, externalities, loan payment, operating cost (OMA) and management cost
Table 12	Water supply – health, levels of service – Physical, chemical and e. coli water quality compliance, water quality complaints, water service complaints, customer inquiries, customer restrictions and legal action, customer interruption incidence and drought water restrictions
Table 13	Water Supply – benchmarking cost data – Disaggregated benchmarking cost data including operating cost, management cost, retail/wholesale cost, pumping cost, treatment cost and water main cost (pages 111, 112, 275)
Table 14	Sewerage – utility characteristics – Population (permanent, peak), no. of assessments, connected properties, new residential dwellings connected, assets employed, capital investment, workforce employed, employees undergoing training, outsourcing, days lost
Table 15	Sewerage – asset management, resource management – Infiltration, interruptions to service, rehabilitations, renewals, maintenance expenditures, volume of sewage collected/treated, biosolids reused, per cent effluent reclaimed
Table 16	Sewerage – financial, efficiency – Revenue, current replacement cost, debt to equity, cross subsidies, operating result, externalities, loan payment, operating cost (OMA) and management cost
Table 17	Sewerage – environmental, levels of service – BOD and SS compliance, sewage treated that was compliant, STW compliance, odour complaints, service complaints, customer inquiries, average sewerage interruption
Table 18	Sewerage – benchmarking cost data – Disaggregated benchmarking cost data including operating cost, management cost, retail / wholesale cost, pumping cost, treatment cost and sewer main cost (pages 114, 277)

## 7. WATER SUPPLY AND SEWERAGE FIGURES

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

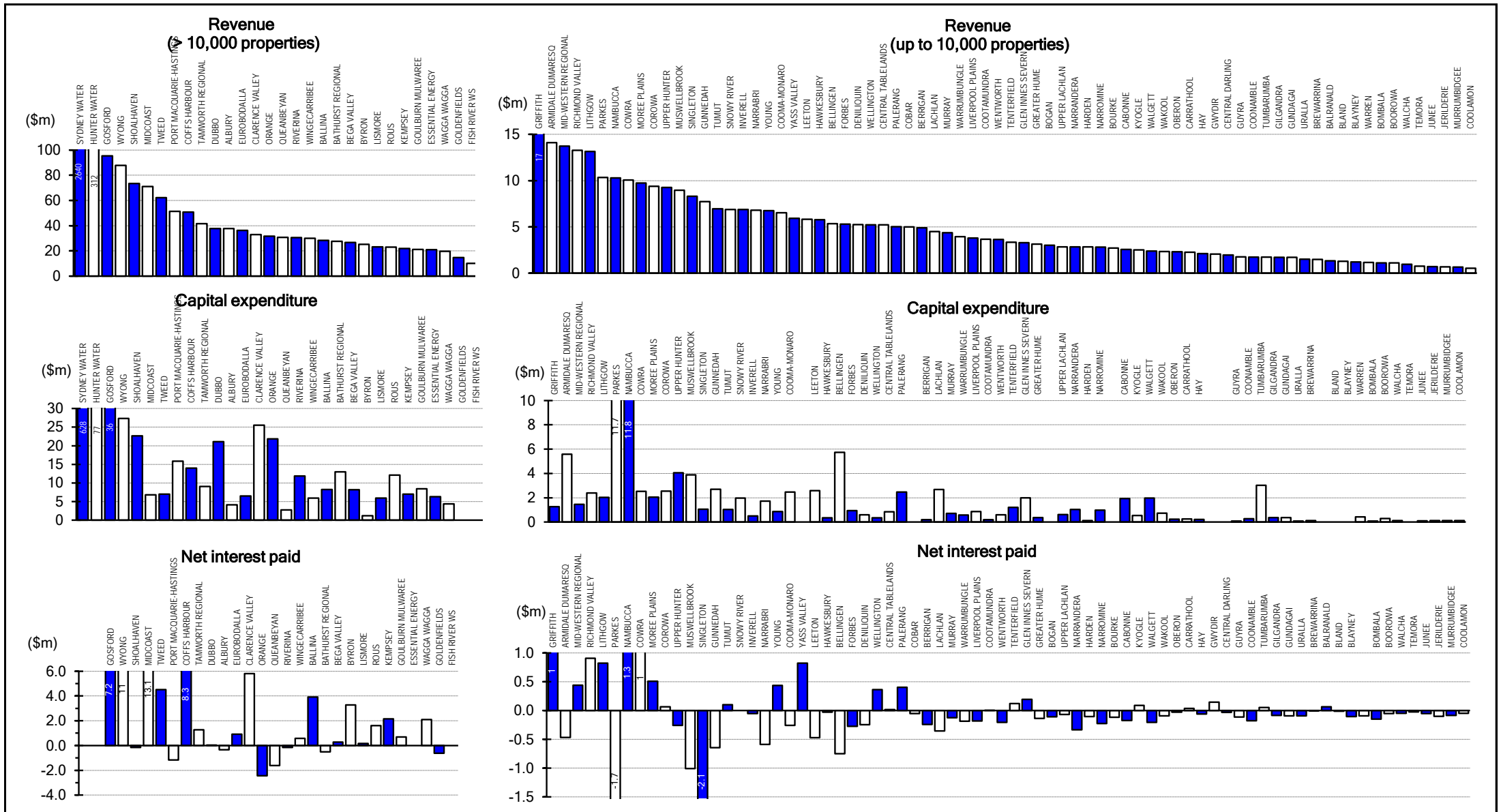


**Parameter:** (2014-15 Average Residential Water Supplied x 2015-16 Water Usage Charge) + 2015-16 Water and Sewerage Access Charges

**Notes:**

1. This figure shows ranked values of the 2015-16 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2015-16 typical residential water bill for water supply and sewerage for the 24 LWUs shown ranges from \$987 to \$1780. Results for the previous 5 years are also shown in Jan 2016\$.
2. The 2015-16 Statewide median typical residential bill for water supply and sewerage is \$1,290 per assessment [National Median is \$1320 for 2014-15]. Refer also to Table 5 on page 116, graph 7 on page 206 and figure 2a on page 115.
3. Refer also to pages 7 and 33 of the 2014-15 NSW Water Supply and Sewerage Performance Monitoring Report ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)).
4. For general notes see page 32.

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

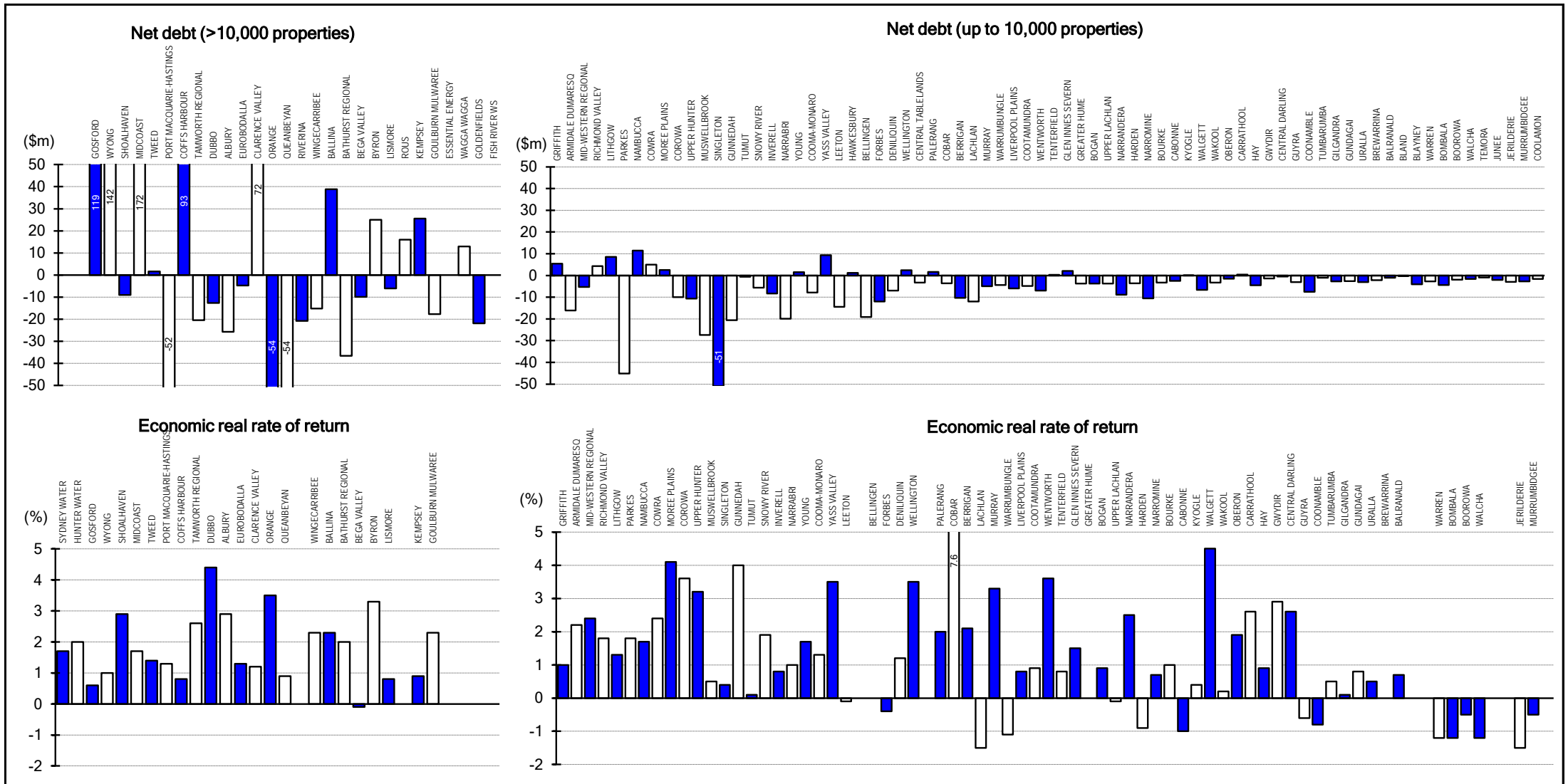
Parameter: Acquisition of fixed assets (W\_16 + S\_17)

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 \$2,640M and Hunter Water's revenue was \$312M.
2. Refer also to Table 3 on page 108, Table 5 on page 116 and graphs 30 and 31 on page 212.
3. For general notes see page 32.

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



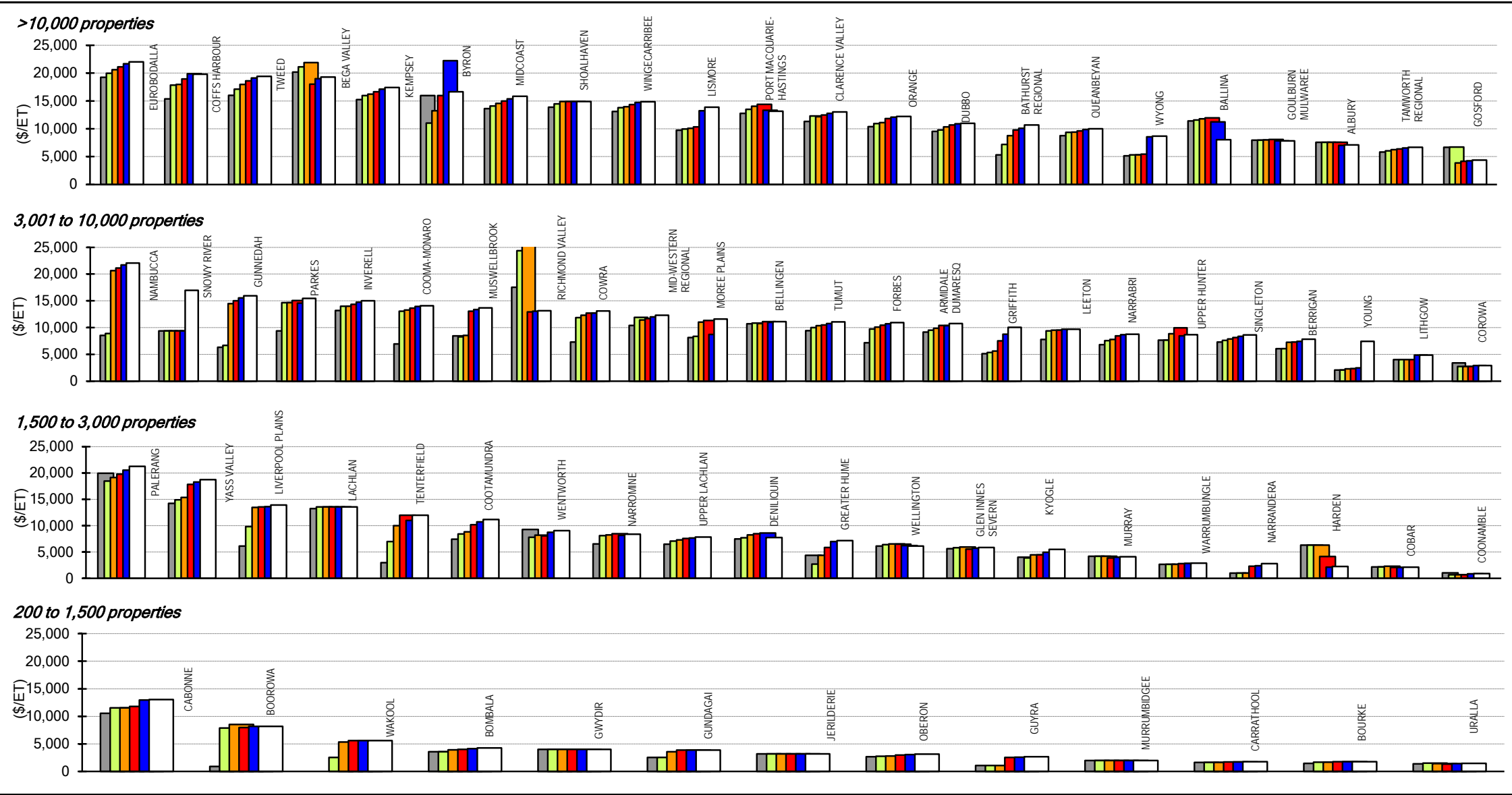
Parameter: [Borrowings (W\_39 + S\_40) + bank overdraft (W\_37 + S\_38)] - cash and investments (W\_30 + S\_31)

Parameter: [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)]  
Written down replacement cost of system assets, plant & equipment (W\_47 + W\_33b + S\_48 + S\_34b)

Notes:

1. Utilities are ranked on the basis of revenue (see the top graph). Revenue for Sydney Water was \$2,640M and Hunter Water's revenue was \$312M.
2. Refer also to Table 5 on page 116, Table 5A on page 120, graphs 24 and 27 on page 211 and figure 13 on page 115.
3. For general notes see page 32.

Figure 4: Typical developer charge - water supply and sewerage

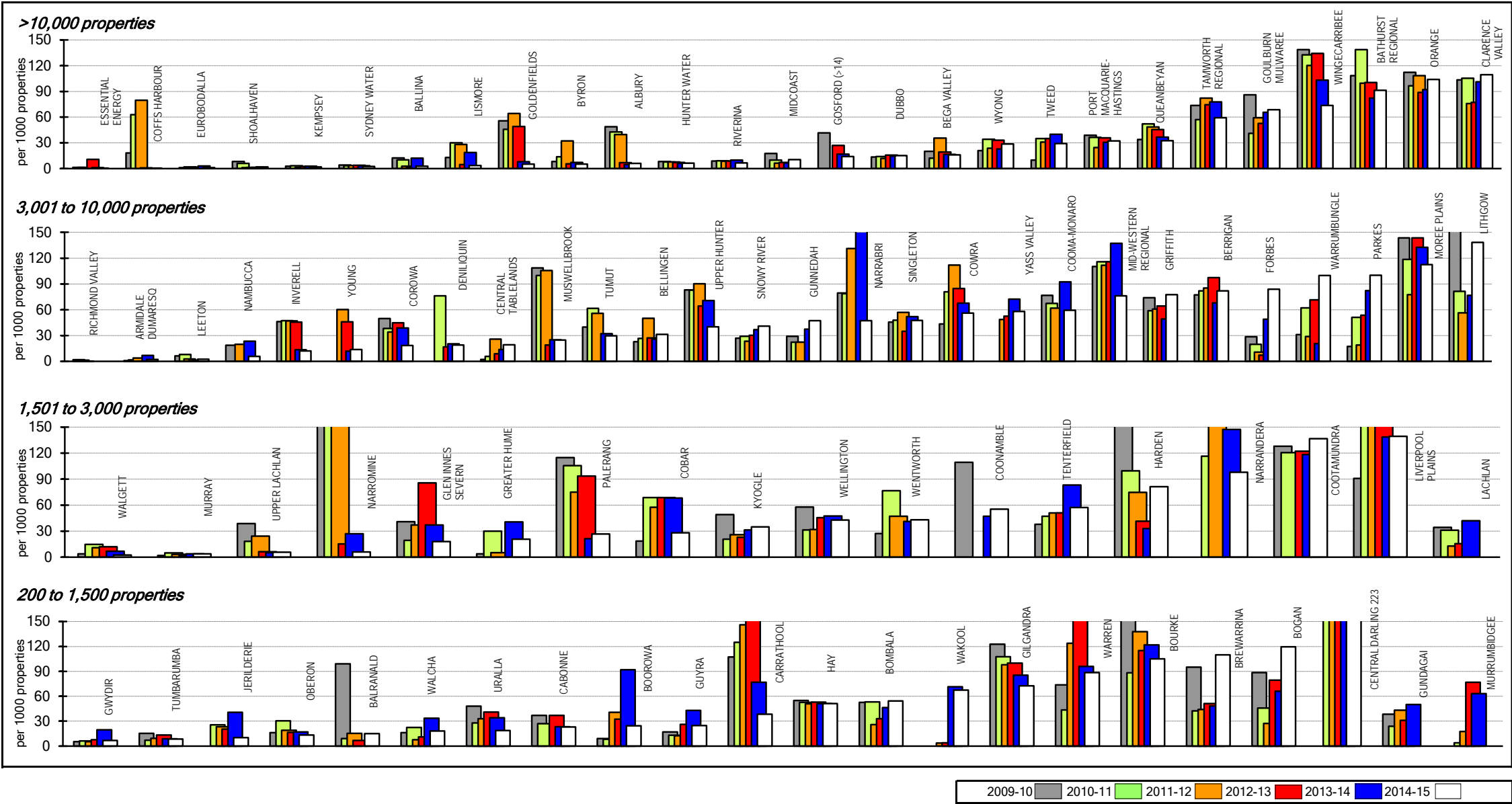


2010-11 2011-12 2012-13 2013-14 2014-15 2015-16

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

- Notes:
1. This figure shows ranked values of the 2015-16 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the typical developer charge for water supply and sewerage for the 24 LWUs shown ranges from \$22060 to \$2900. Results for the previous 5 years are also shown in Jan 2016\$.
  2. The 2015-16 Statewide median typical developer charge for water supply and sewerage is \$11000 per Equivalent Tenement (ET). Refer also to Table 5 on page 116.
  3. For general notes see page 32.

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

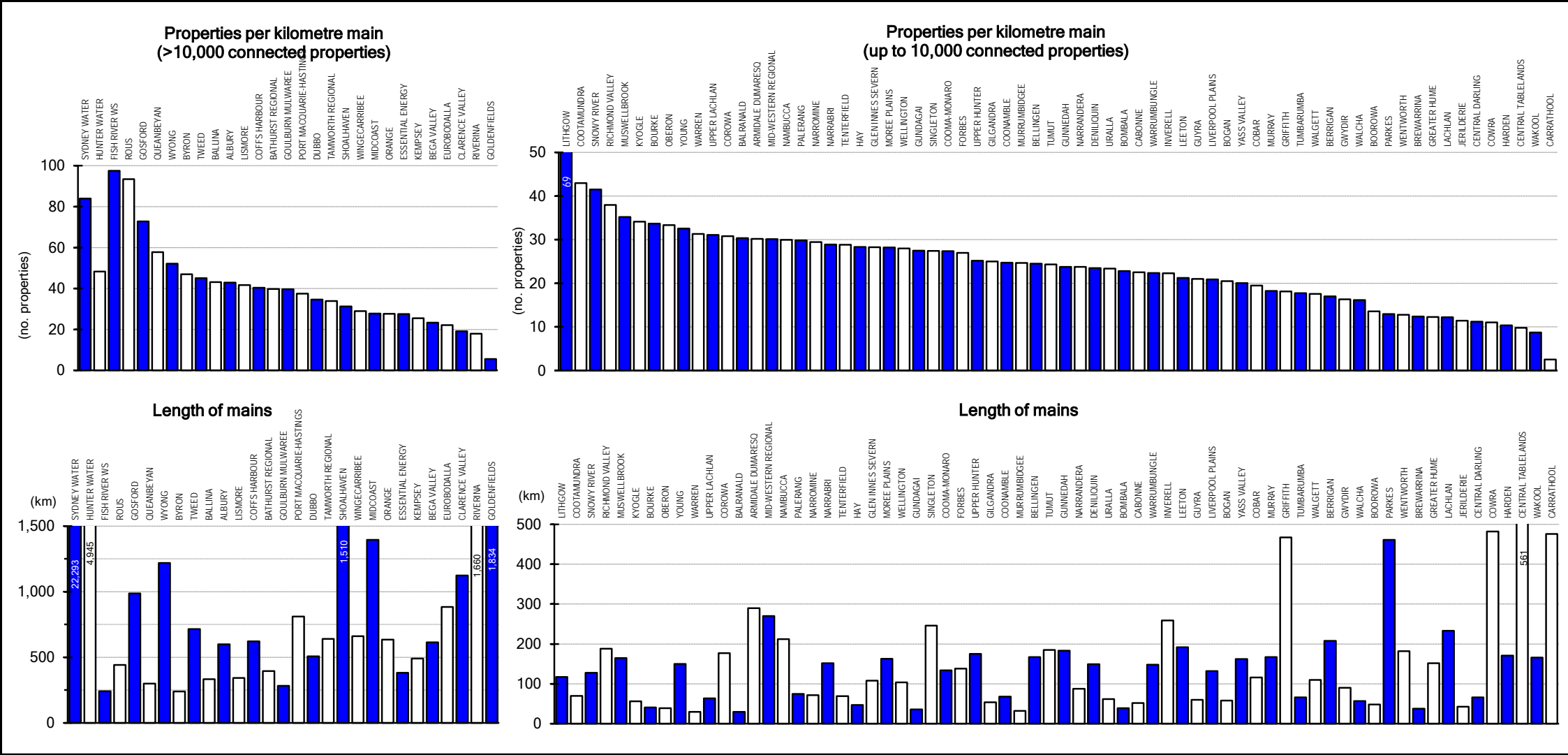


**Parameter:**  $\frac{[\text{No. of Water Complaints (WB102)} + \text{No. of Sewerage Complaints (SB40)}] \times 1000}{[\text{No. of Residential Assessments (WB32)} + \text{No. of Non-Residential Assessments (WB33)}] \times \text{No. of Connected Properties per Assessment}}$

- Notes:**
1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the total water supply and sewerage complaints for the 26 LWUs shown ranges from nil to 138 per 1,000 connected properties.
  2. The Statewide median total number of water and sewerage complaints is 19 per 1,000 properties [National Median is 4 per 1,000 properties]. Refer also to figure 5 on page 115 and pages 183 and 198.
  3. For general notes see page 32.

# 8. WATER SUPPLY FIGURES

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



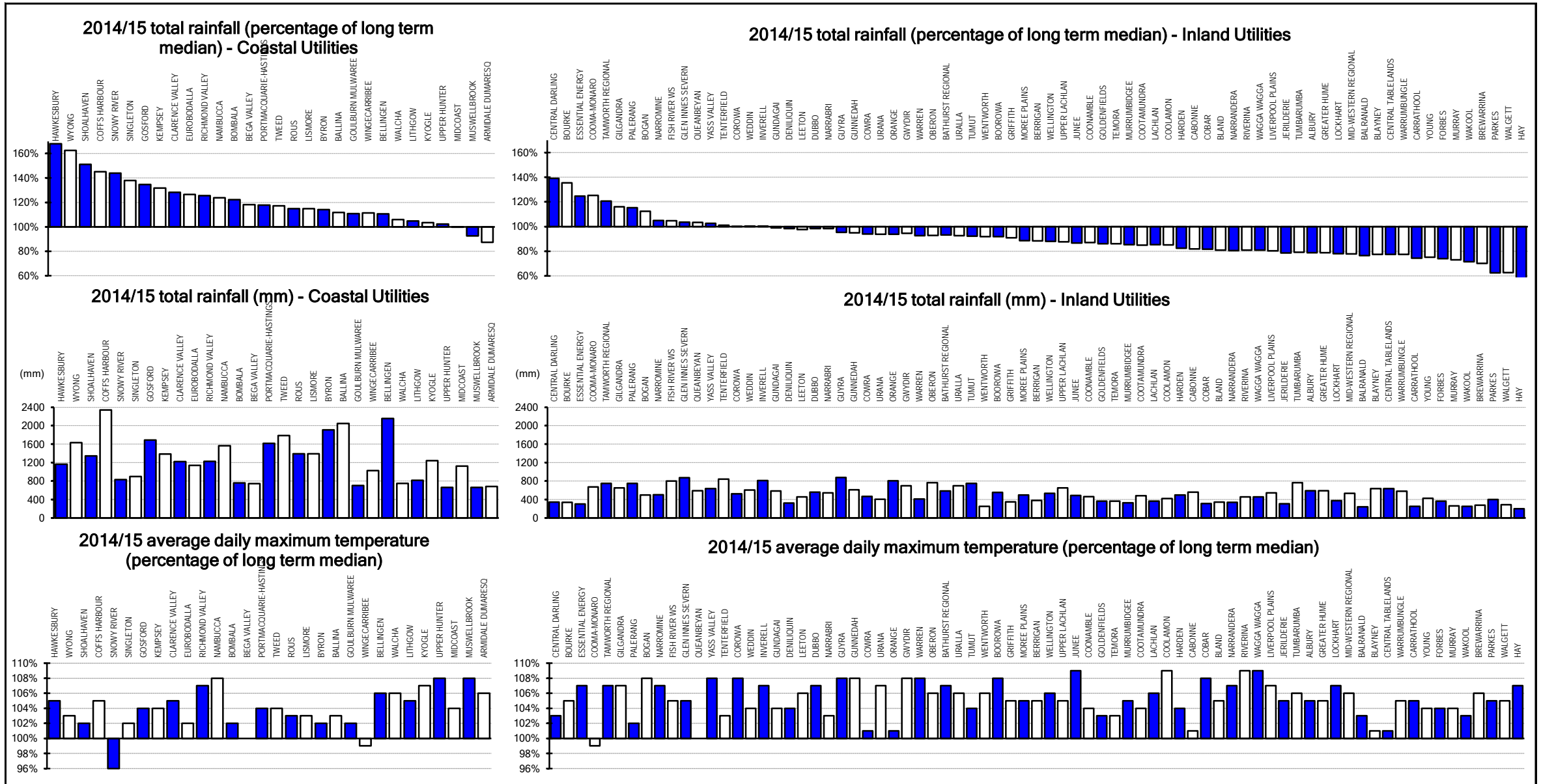
**Parameter:** 
$$\frac{\text{No. of residential assessments (WB32)} + \text{No. of non-residential assessments (WB33)} \times \text{No. of connected properties per assessment}}{\text{Length of headworks transfer mains (WB20a)} + \text{length of trunk mains (WB20)} + \text{length of reticulation mains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

**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 31 [National Median is 34 per km of main]. Refer also to Table 9 on page 169 and graph 1 on page 205.
  3. For general notes see page 32.



Figure 7: Rainfall, temperature - water supply



Parameter: [2014/15 total rainfall x 100] ÷ Long term median annual rainfall  
 Parameter: 2014/15 total rainfall (mm)  
 Parameter: [2014/15 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 2014/15 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 116% of the long term median. However, the top graphs above show that the weighted medians for the coastal and inland utilities were 128% and 94% respectively.
5. For general notes see page 32.

Figure 8: Total water supplied - water supply - W11

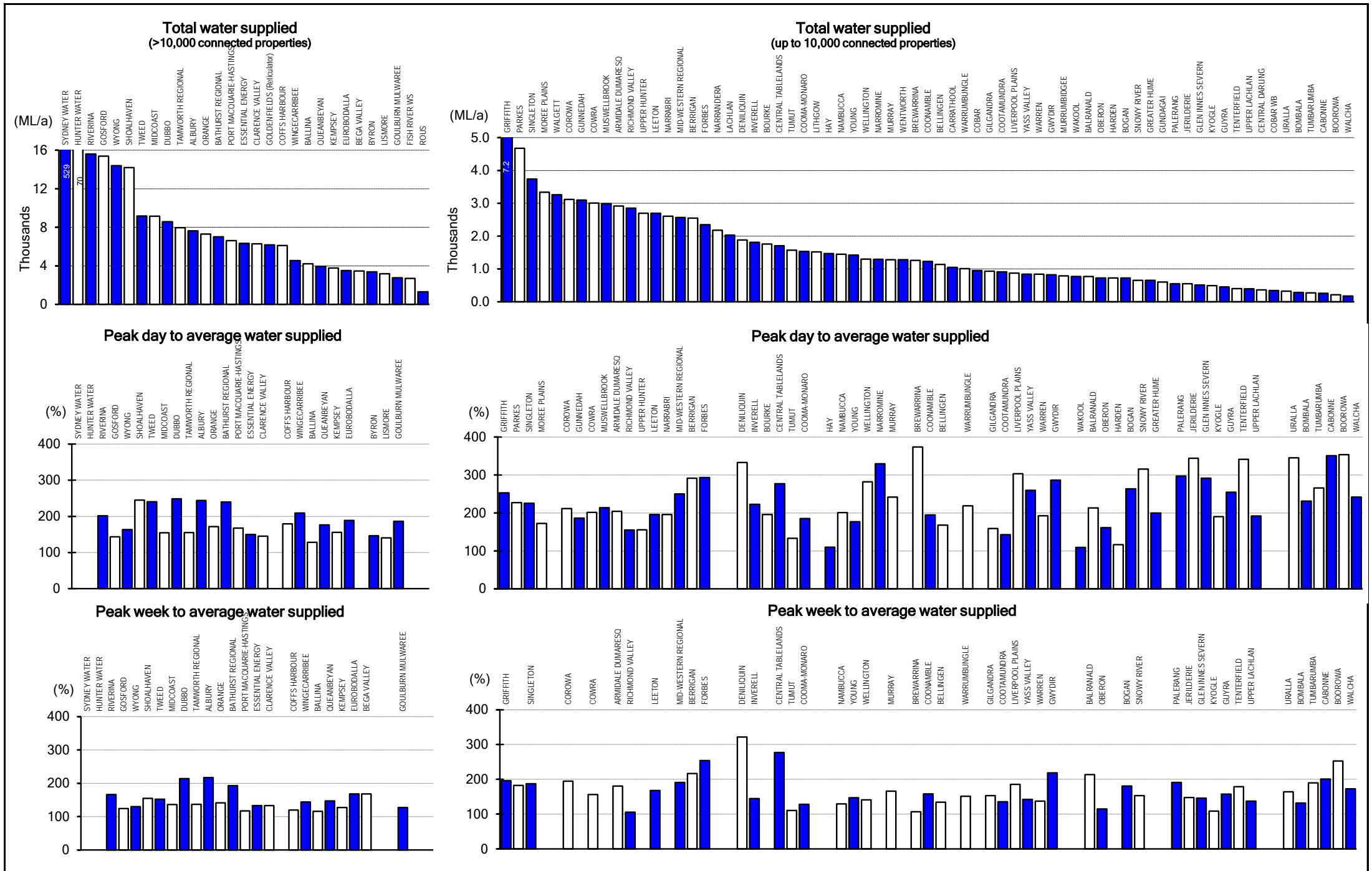


Figure 8: Total water supplied - water supply (continued)

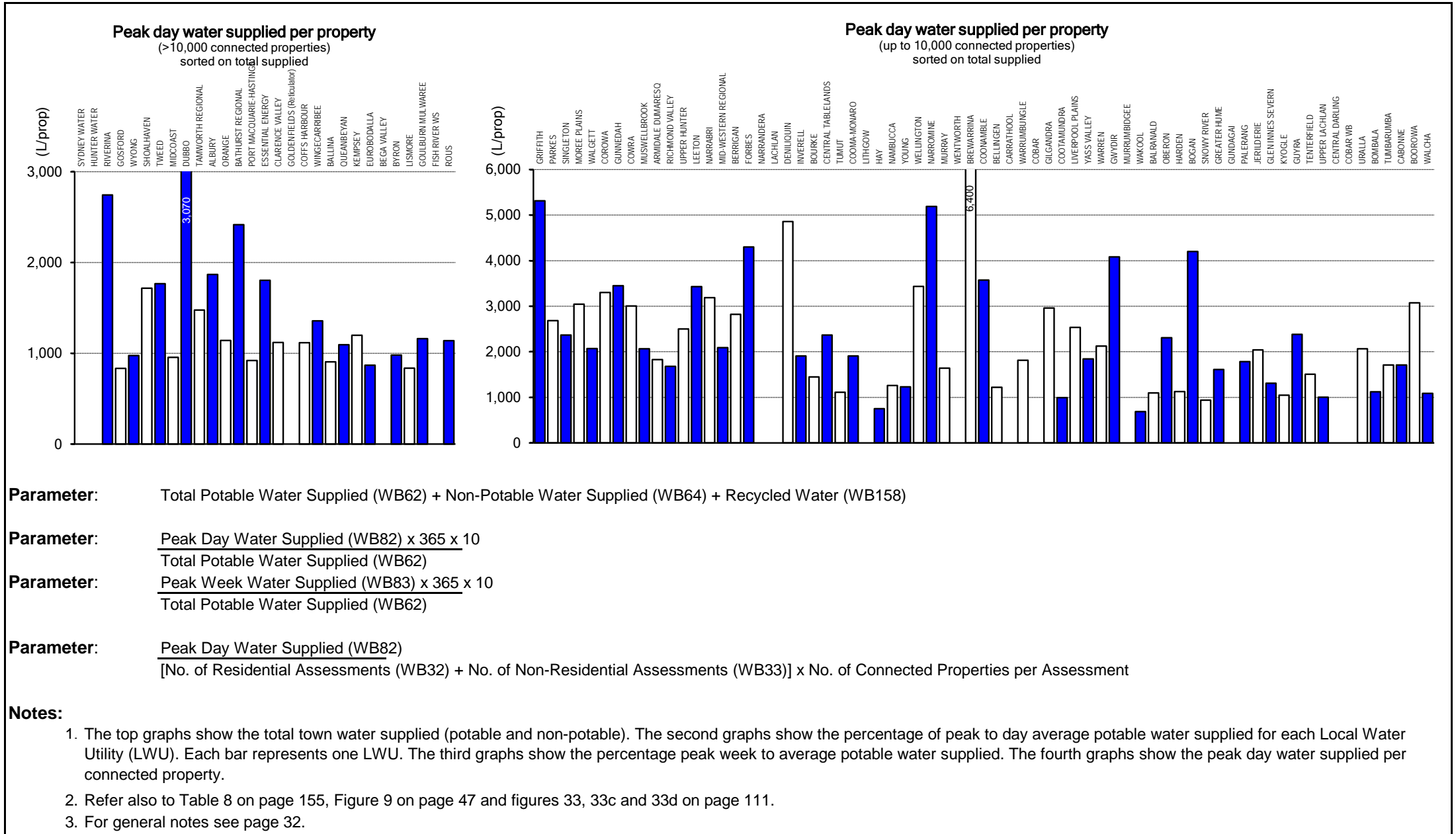
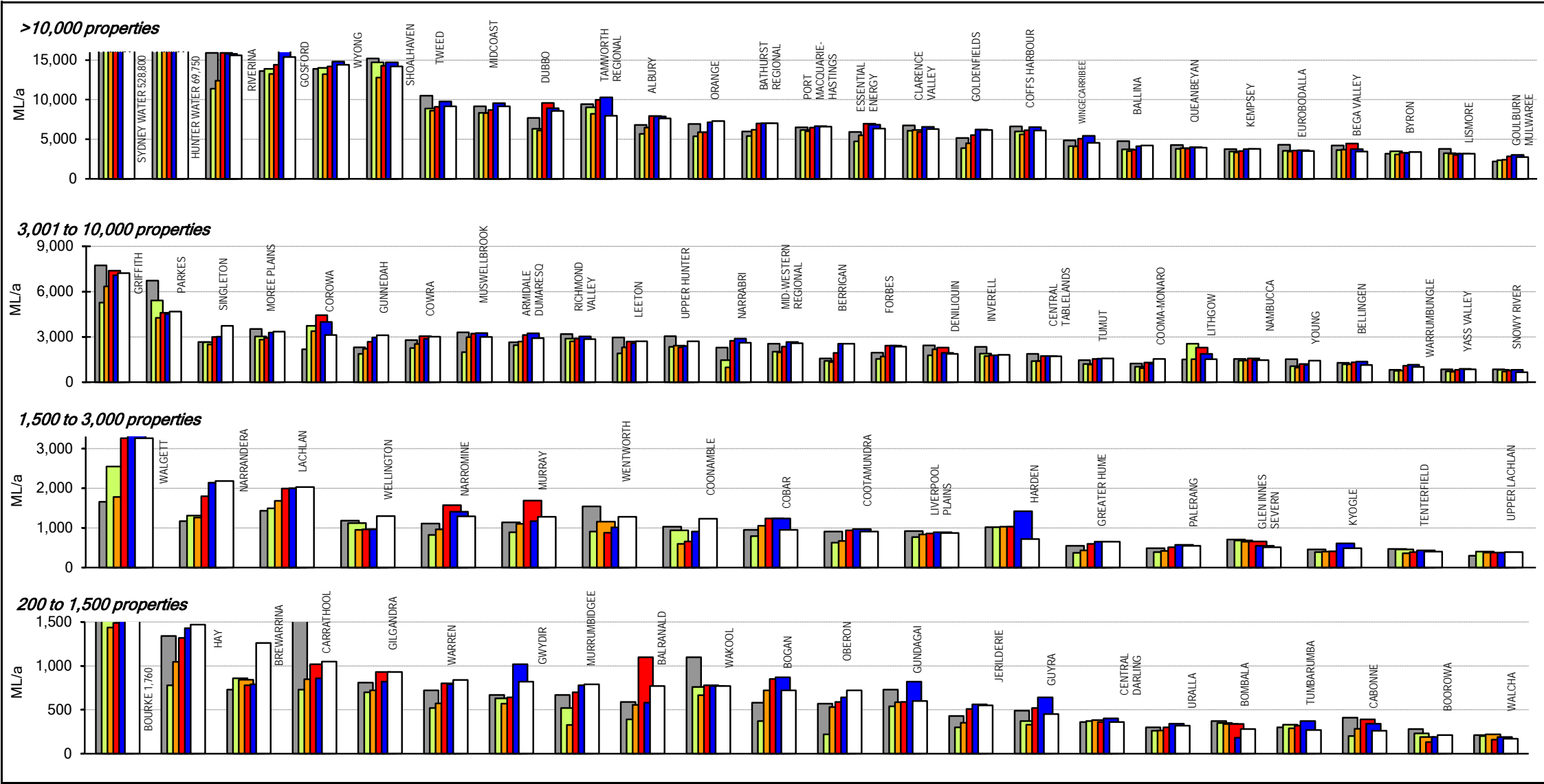


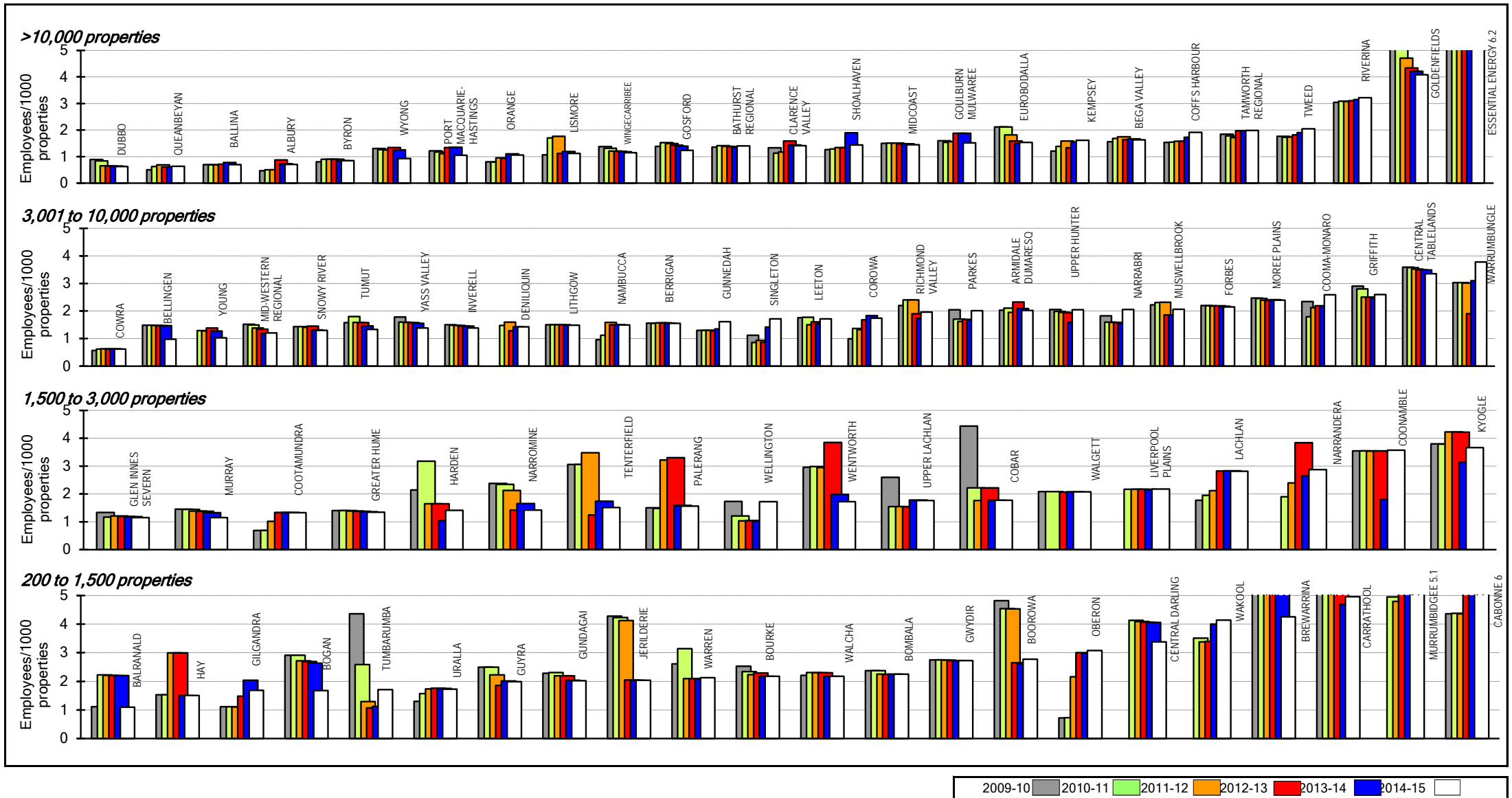
Figure 9: Total urban water supplied - water supply - W11



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

- Notes:
1. This figure shows ranked values of the 2014-15 total urban water supplied for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the total urban water supplied for the 28 LWUs shown ranges from 7,220 to 650 ML/a. Results for the previous 5 years are also shown.
  2. The Statewide median total urban water supplied is 7000 ML/a [National Median is 9060 ML/a]. Refer also to Table 5 on page 116 and Table 10 on page 172.
  3. For general notes see page 32.

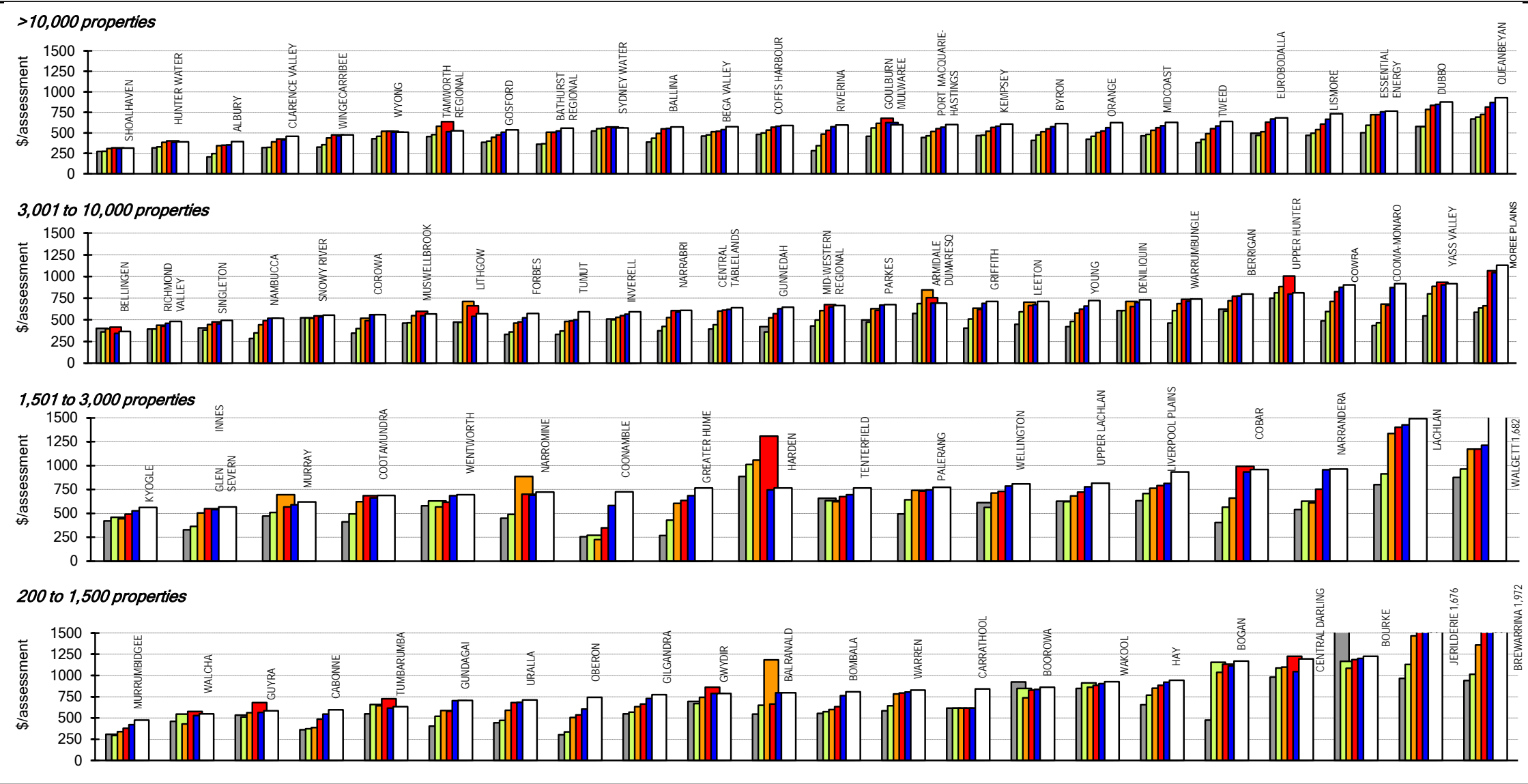
Figure 10: Employees per 1,000 properties - water supply



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

- Notes:**
1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the water supply employees per 1000 connected properties for the 28 LWUs shown ranges from 0.6 to 3.8. Results for the previous 5 years are also shown.
  2. The Statewide median number of water supply employees is 1.4 per 1000 connected properties. Refer also to pages 21, 23, 27 and Table 9 on page 169.
  3. For general notes see page 32.

Figure 11: Typical residential bill – water supply

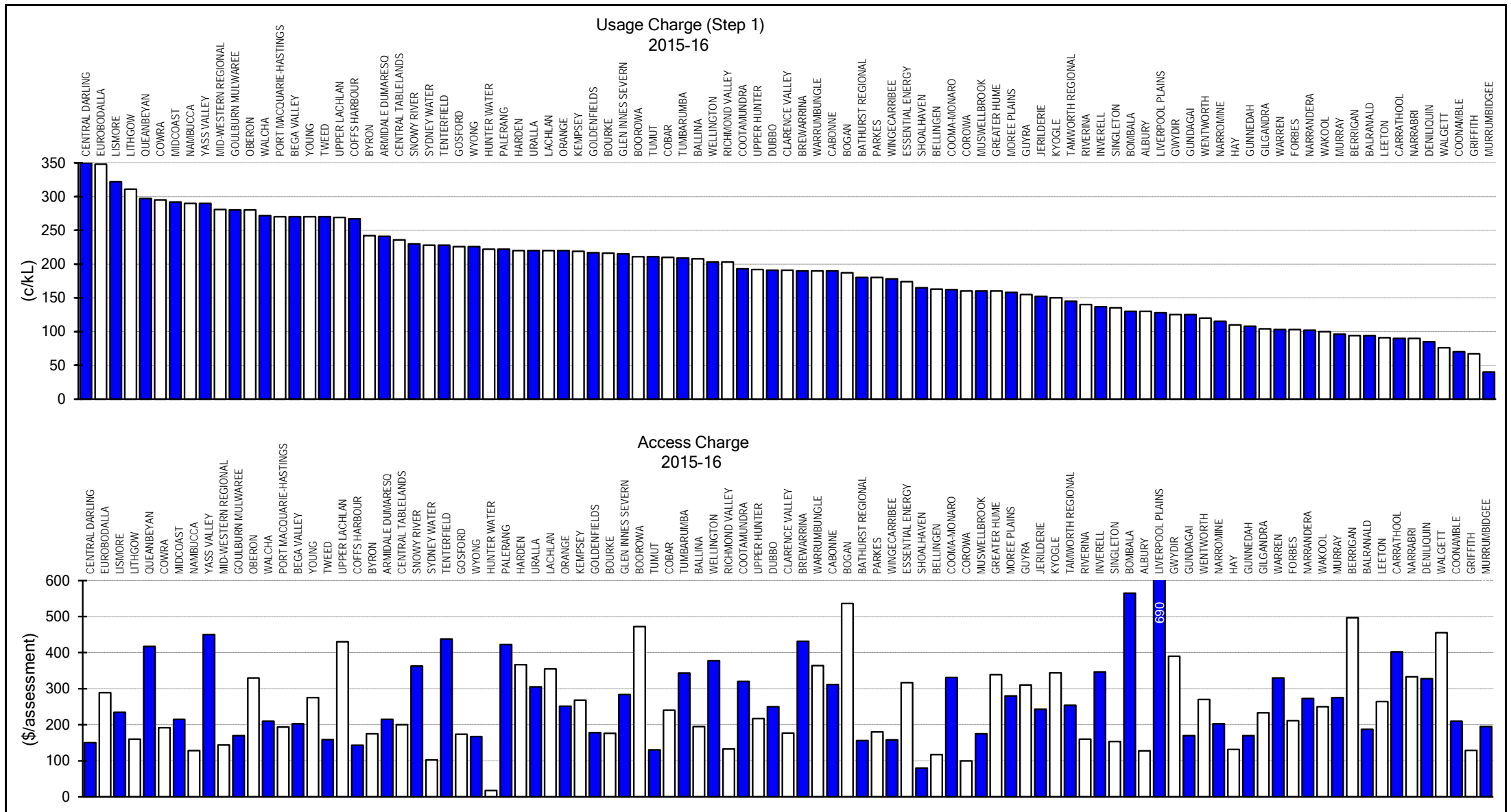


**Parameter:** (2014-15 Average Residential Water Supplied x 2015-16 Water Usage Charges) + 2015-16 Access Charge

- Notes:**
1. This figure shows ranked values of the 2015-16 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the typical residential bill in 2015-16 for the 28 LWUs shown ranges from \$360 to \$1130 per assessment. Results for the previous 5 years are also shown in Jan 2016\$.
  2. The 2015-16 Statewide median typical residential bill for water supply is \$593 per assessment [National Median is \$589 for 2014-15]. Refer also to Table 6 on page 134, graph 5 on page 206 and figure 14 on page 111.
  3. For general notes see page 32.

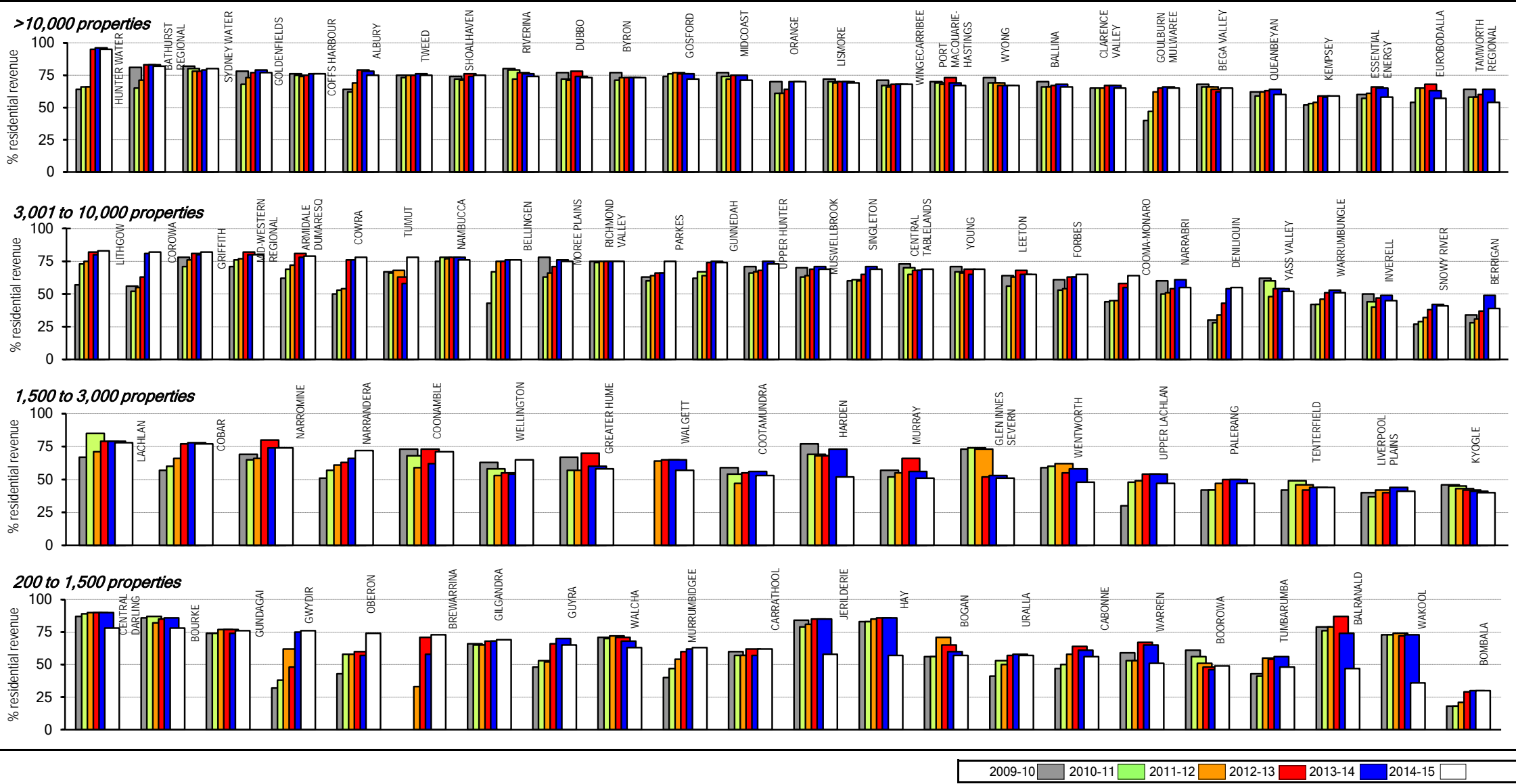


Figure 12: Residential usage charge [P1.3] and access charge [P1.2] - water supply



- 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 on page 134 and graph 3 on page 206.
  3. The Statewide median water usage charge for the first step was 226 c/kL [National Median is 185 c/kL for 2014-15]. 20% of LWUs had a usage charge greater than 270 c/kL. 80% of LWUs had a usage charge greater than 160 c/kL. Refer also to figure 12 on page 111.
  4. For general notes see page 32. Refer also to page 13.

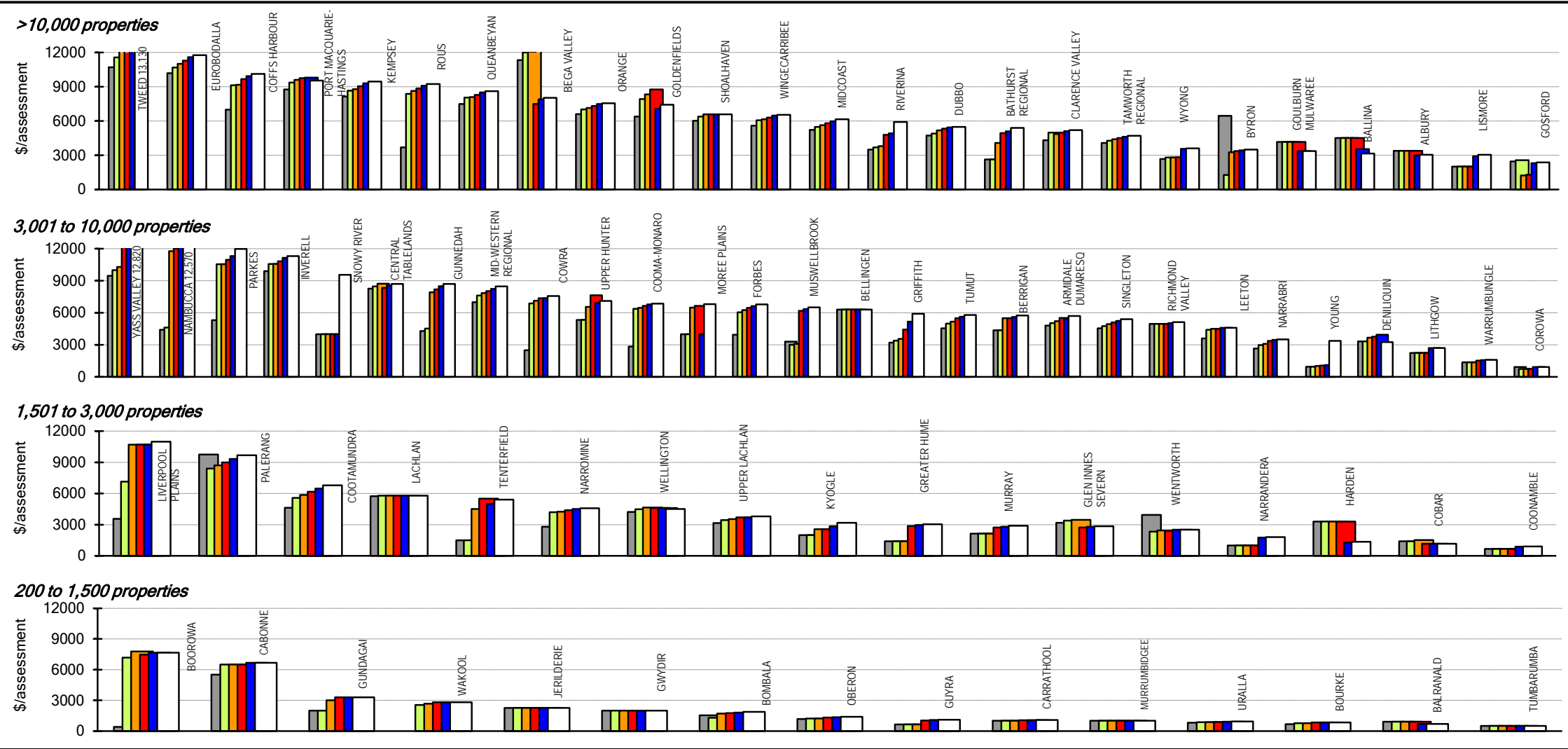
Figure 13: Residential revenue from usage charges - water supply - F4



**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 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the residential revenue from usage charges for the 28 LWUs shown ranges from 83 to 39 percent. Results for the previous 5 years are also shown.
  2. The Statewide median residential revenue from water usage charges was 72%, which provides a strong pricing signal [National Median is 66%]. Refer also to page 24, Table 5 on page 116, Table 6 on page 134, Table 3 on page 108, graph 4 on page 206 and figure 16 on page 111. Refer also to page 5 of the 2014-15 Water Supply and Sewerage Performance Monitoring Report ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)).
  3. For general notes see page 32.

Figure 14: Typical developer charge – water supply



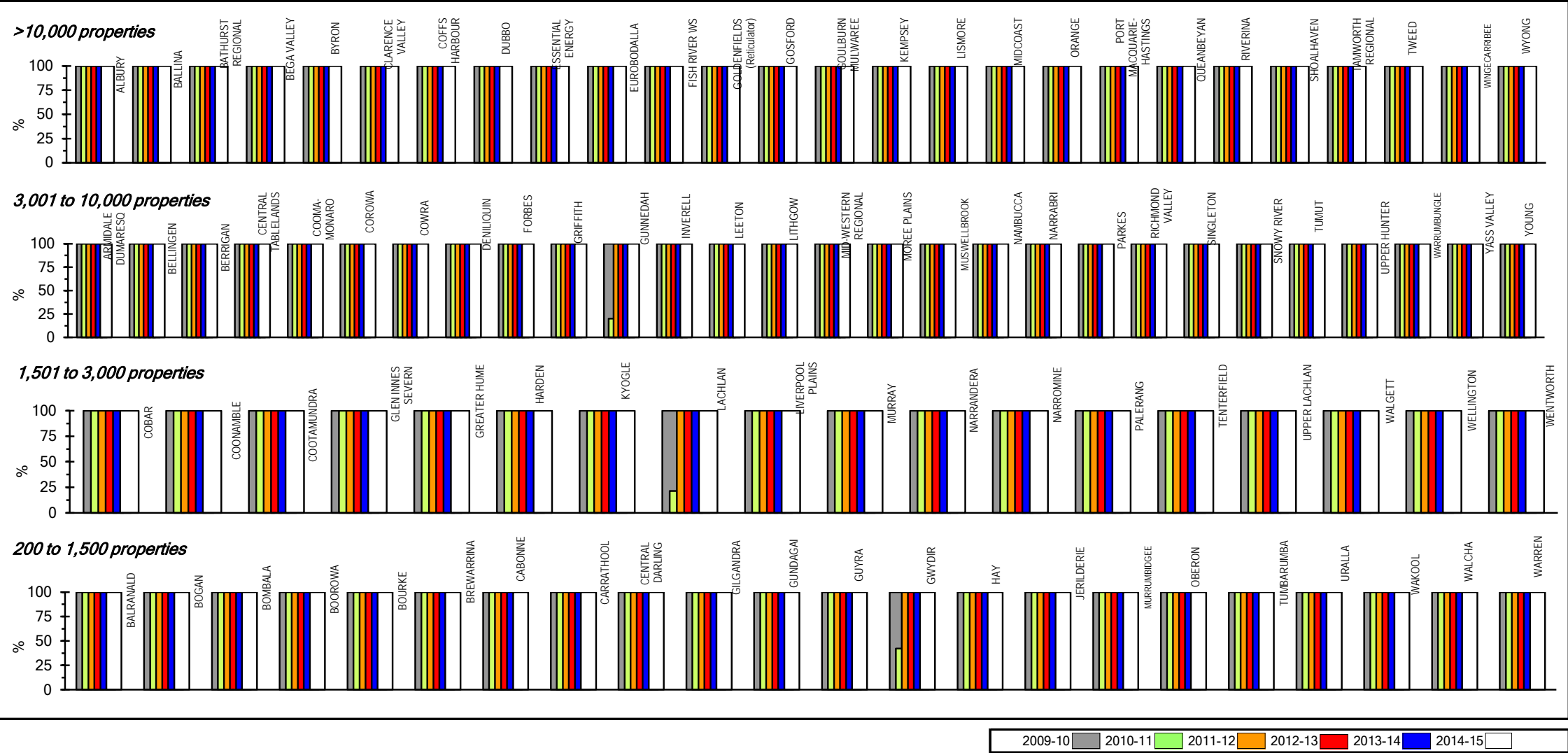
Parameter: Typical Water Supply Developer Charge (WB136)



Notes:

1. This figure shows ranked values of the 2015-16 typical developer charge for water supply for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the typical developer charge for water supply for the 28 LWUs shown ranges from \$12800 to \$900. Results for the previous 5 years are also shown in Jan 2016\$.
2. The 2015-16 Statewide median typical developer charge for water supply is \$5,900 per equivalent tenement (ET), which is 36% of the median current replacement cost of water supply system assets of \$16,400 per assessment. Refer also to Table 6 on page 134.
3. 85 LWUs levied water supply developer charges.
4. 83% of LWUs have an appropriate water supply Development Servicing Plan (DSP) with commercial developer charges. This includes the following 12 utilities which have received an exemption from needing to levy commercial water supply developer charges due to their low growth of under 5 lots/a - Bogan, Boorowra, Bourke, Brewarrina, Central Darling, Coonamble, Essential Energy, Gilgandra, Hay, Kyogle, Tumbarumba and Warren.
5. For general notes see page 32.

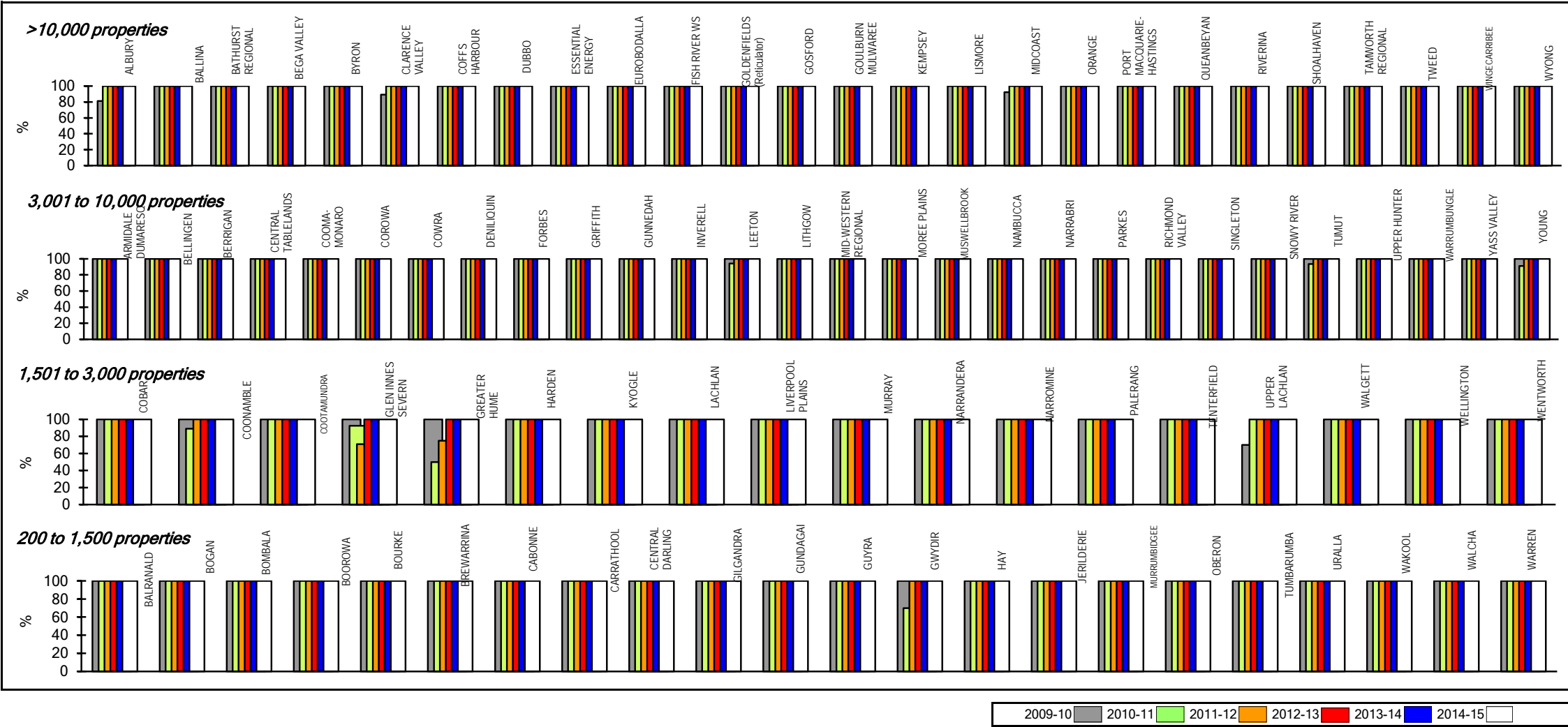
Figure 15: Physical water quality compliance - water supply



**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 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the physical water quality compliance for the 28 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. 98.3% of the 4,600 samples tested in 2014-15 achieved 100% compliance with these guidelines. 100% of LWUs complied with the guidelines in 2014-15.
  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 on page 280 provides the 2014-15 results for each treatment works.
  5. The Statewide median physical water quality compliance is 100%. Refer also to Table 12 on page 183.
  6. For general notes see page 32.

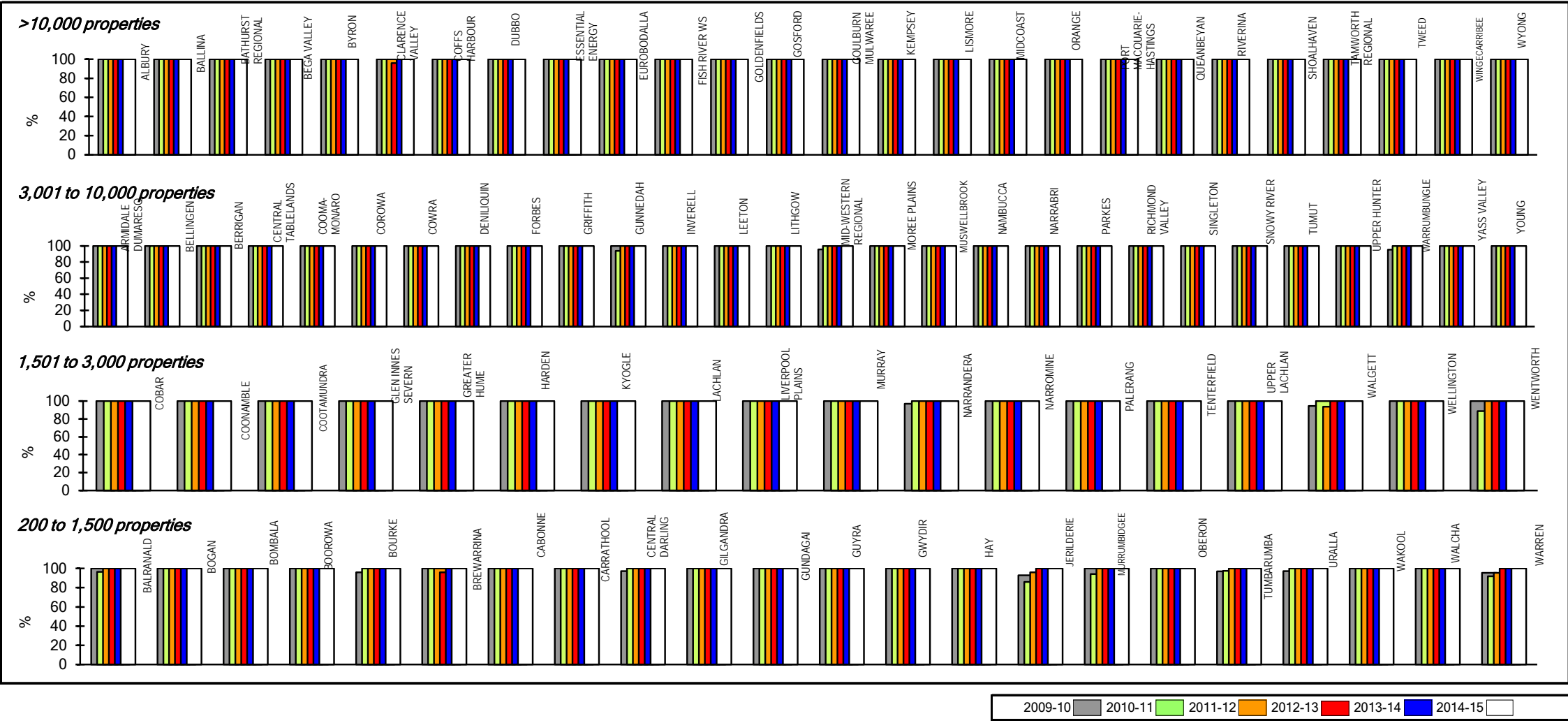
Figure 16: Chemical water quality compliance - water supply



**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 2014-15 distribution system compliance with the 2011 NHMRC/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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the chemical water quality compliance for the 28 LWUs shown are all 100%. Results for the previous 5 years are also shown.
  2. 99.9% of the 4,800 samples tested in 2014-15 complied with the 2011 Guidelines. 100% of the LWUs complied with the Guidelines in 2014-15.
  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 page 235) 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 on page 280 provides the 2014-15 results for each treatment works. Refer also to Table 5 on page 116 and Table 12 on page 183.
  4. The Statewide median chemical water quality compliance is 100%.
  5. For 2012-13, 2013-14 and 2014-15, the public drinking water supply for 99.9% of the urban population in regional NSW complied with 2011 ADWG for both microbiological and chemical water quality.
  6. For general notes see page 32.

Figure 17: Microbiological water quality compliance - water supply

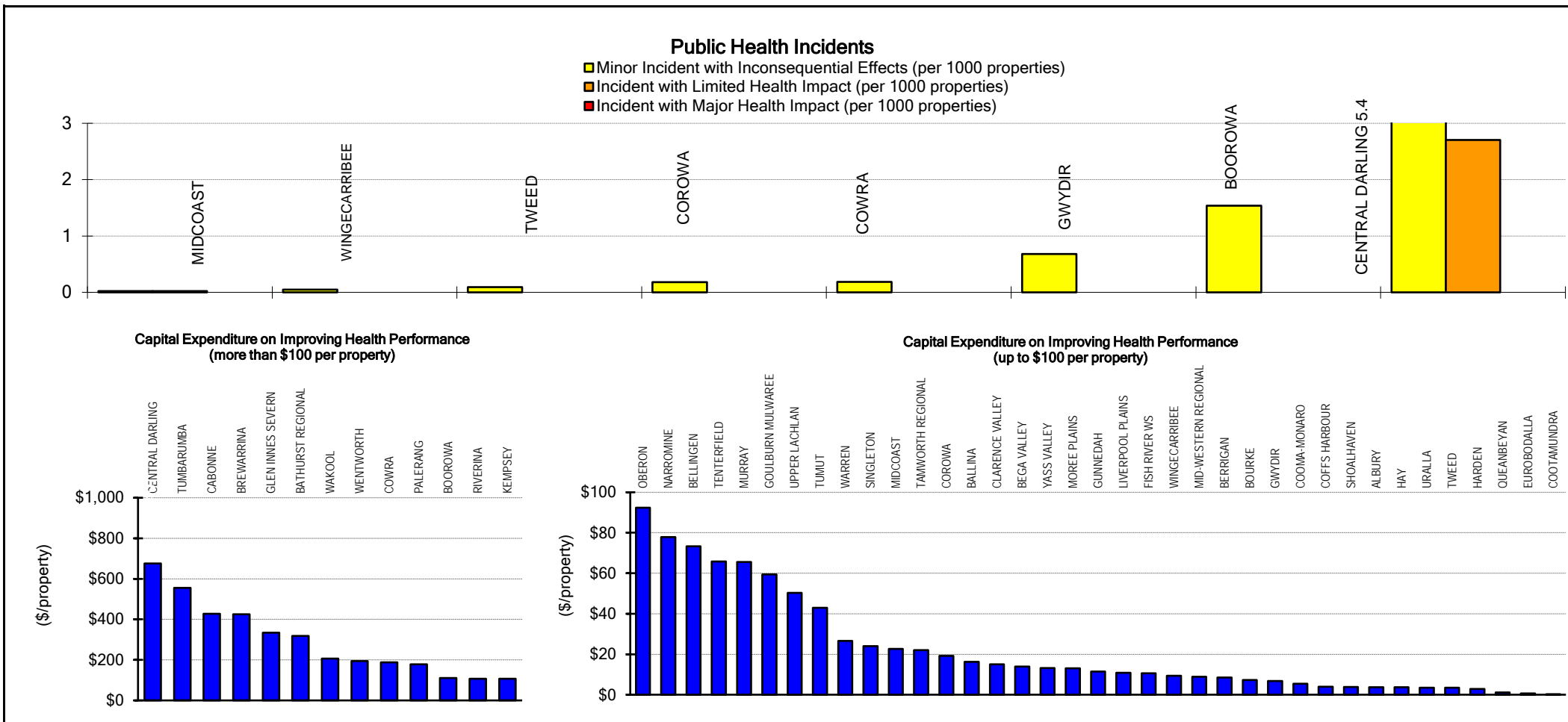


**Parameter:** Percentage of distribution system water samples complying with E. coli criteria of the 2011 NHMRC/NRMMC Australian Drinking Water Guidelines

- Notes:**
1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the microbiological water quality compliance for the 28 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 page 235) 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 19,400 samples tested in 2014-15 contained no E. coli. 100% of the LWUs complied with the 2011 Guidelines for E. coli in 2014-15. Refer also to page 24.
  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 on page 280 provides the 2014-15 results for each treatment works.
  4. The Statewide median microbiological water quality compliance is 100%. Refer also to Table 5 on page 116, Table 12 on page 183 and graph 8 on page 207.
  5. For 2012-13, 2013-14 and 2014-15, the public drinking water supply for 99.9% of the urban population in regional NSW complied with 2011 ADWG for both microbiological and chemical water quality.
  6. For general notes see page 32.



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



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

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

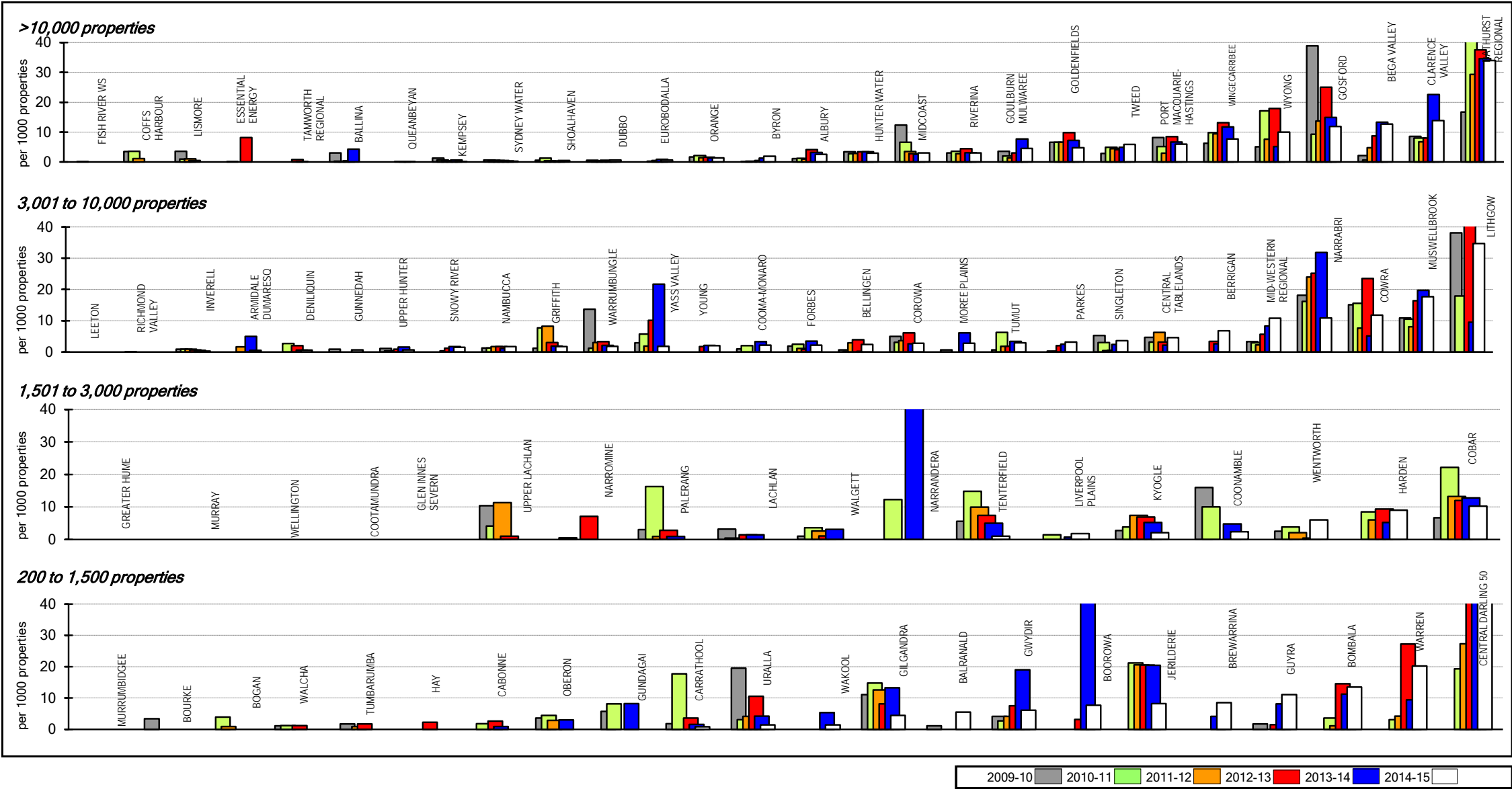
**Parameter:**  $\frac{\text{Total No. of Major Incidents with Major Health Impacts (WB117)}}{[\text{No. of Residential Assessments (WB32)} + \text{No. of Non-Residential Assessments (WB33)}] \times \text{No. of Connected Properties per Assessment}}$

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

**Note:**

- 8 Utilities are shown in the figure above, while 87 utilities reported zero public health incidents.
- For general notes see page 32.

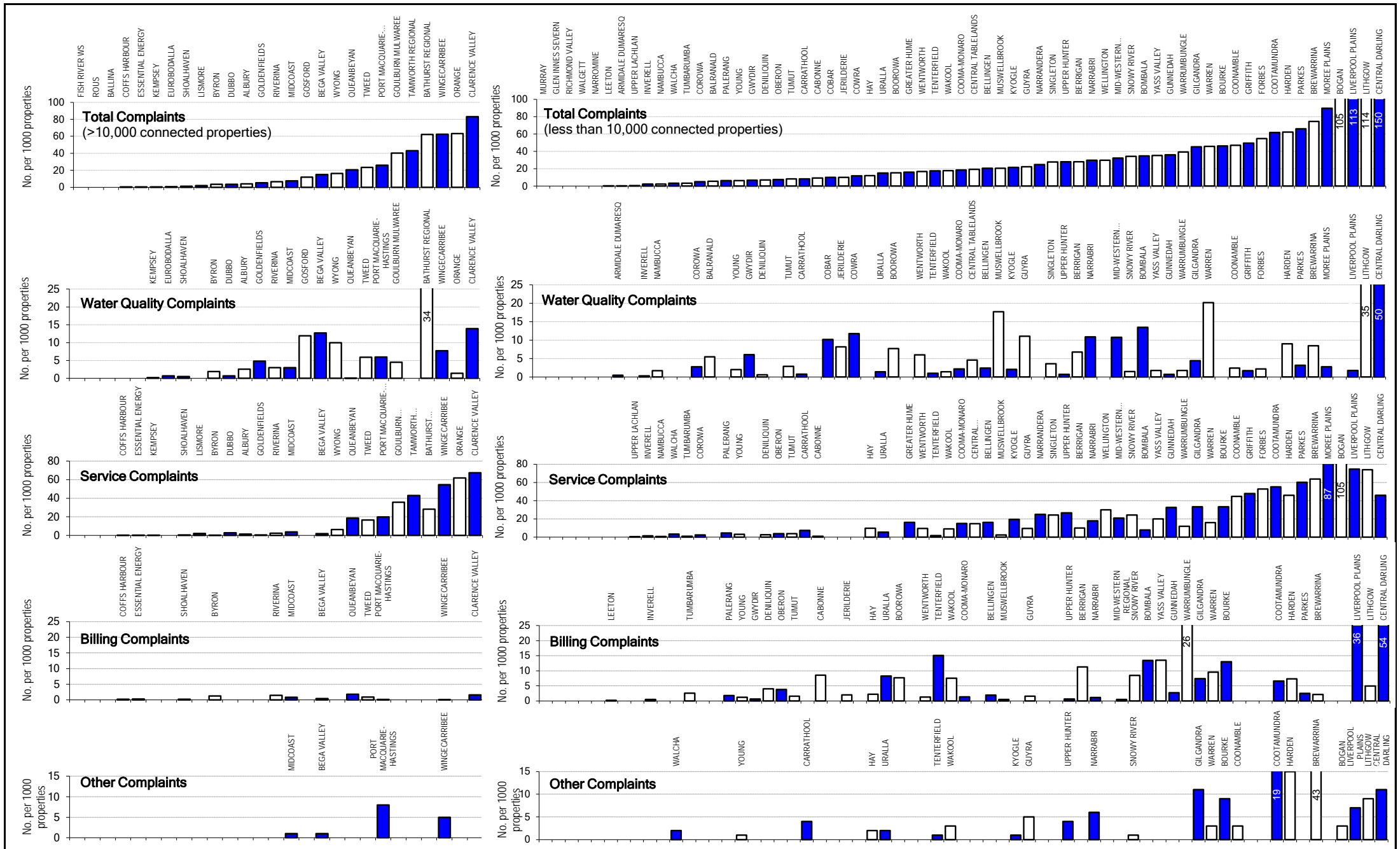
Figure 19: Water quality complaints - water supply - C9



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

- Notes:**
1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the water quality complaints for the 26 LWUs shown ranges from nil to 35 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 on page 116, graph 9 on page 207 and figure 25 on page 112.
  3. For general notes see page 32.

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

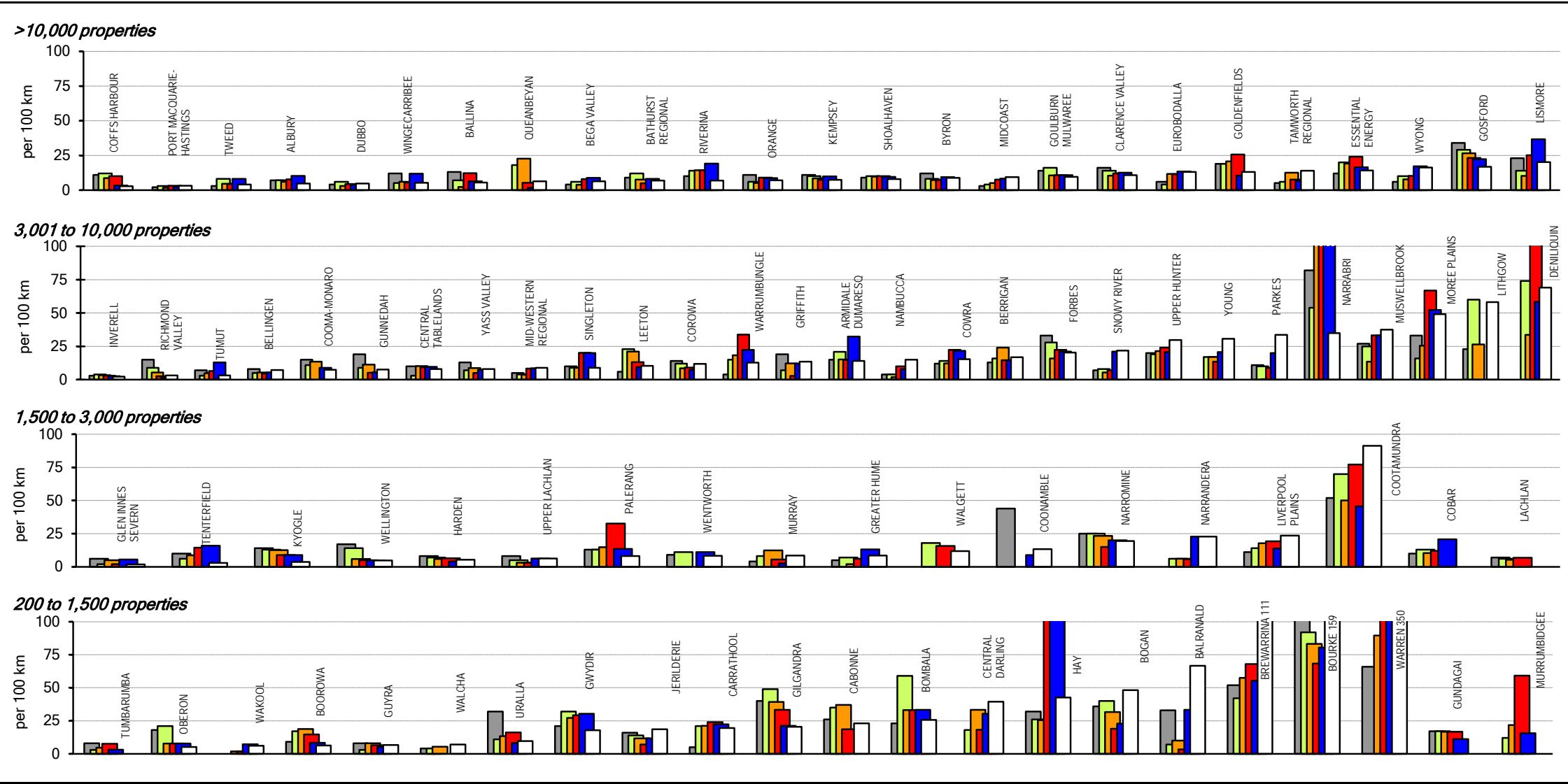


Parameter:  $\frac{\text{Total No. of Complaints [(WB96)+(WB99)+(WB100)+(WB101)] \times 1000}{[\text{No. of Residential Assessments (WB32)} + \text{No. of Non-Residential Assessments (WB33)}] \times \text{No. of Connected Properties per Assessment}}$

Note:

- For general notes see page 32. Refer also to Table 5 on page 116, Table 12 on page 183, figures 25 and 26 on page 112, figure 21 on page 114 and figure 5 on page 115.

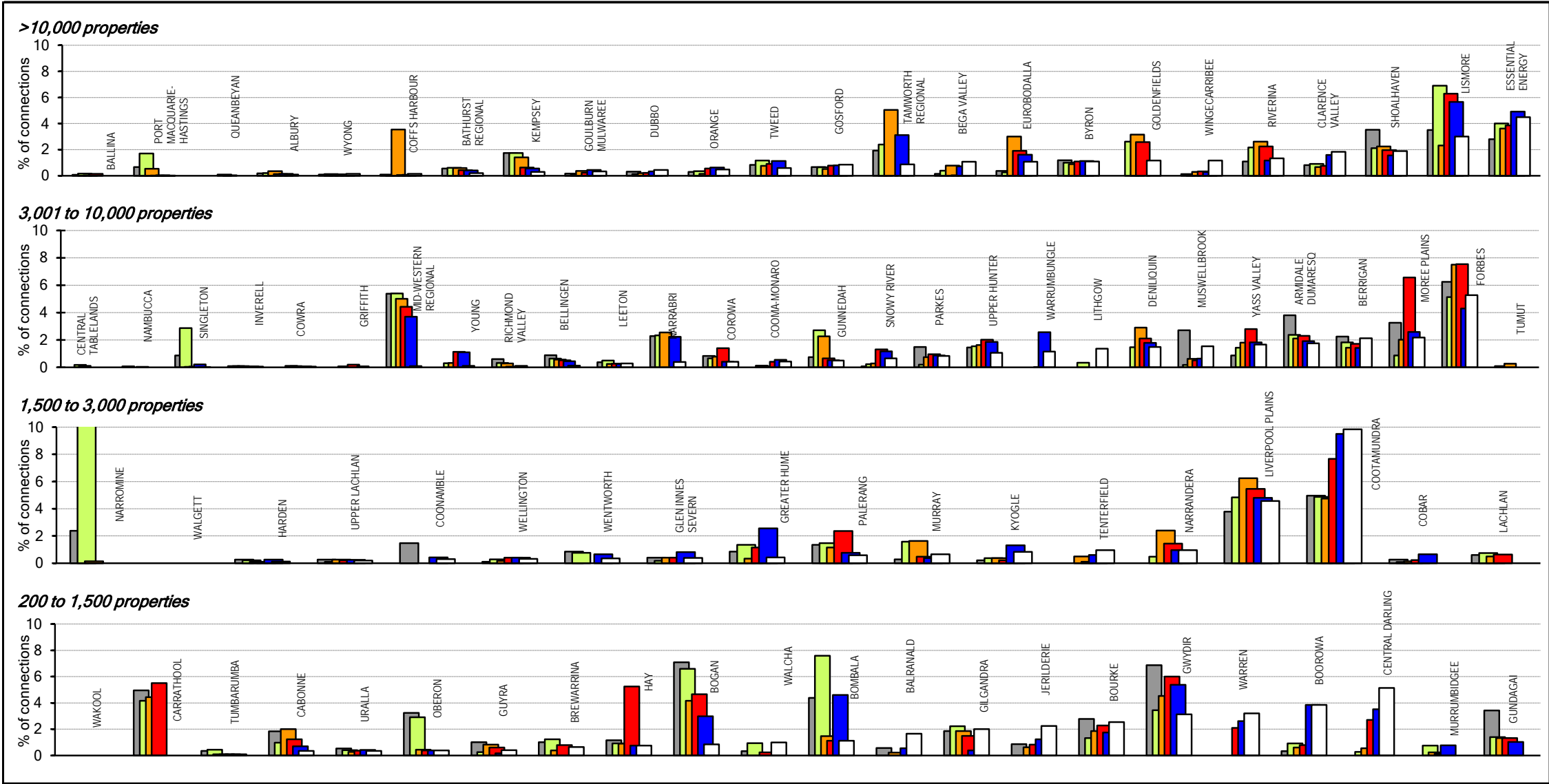
Figure 21: Number of water main breaks - water supply - A8



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

- Notes:**
1. This figure shows ranked values of the 2014-15 water supply main breaks for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the number of main breaks for the 28 LWUs shown ranges from 2.3 to 69 per 100km of water mains. 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 on page 207 of Appendix A and figure 30 on page 112). Refer also to Table 5 on page 116 and Table 10 on page 172.
  3. For general notes see page 32.

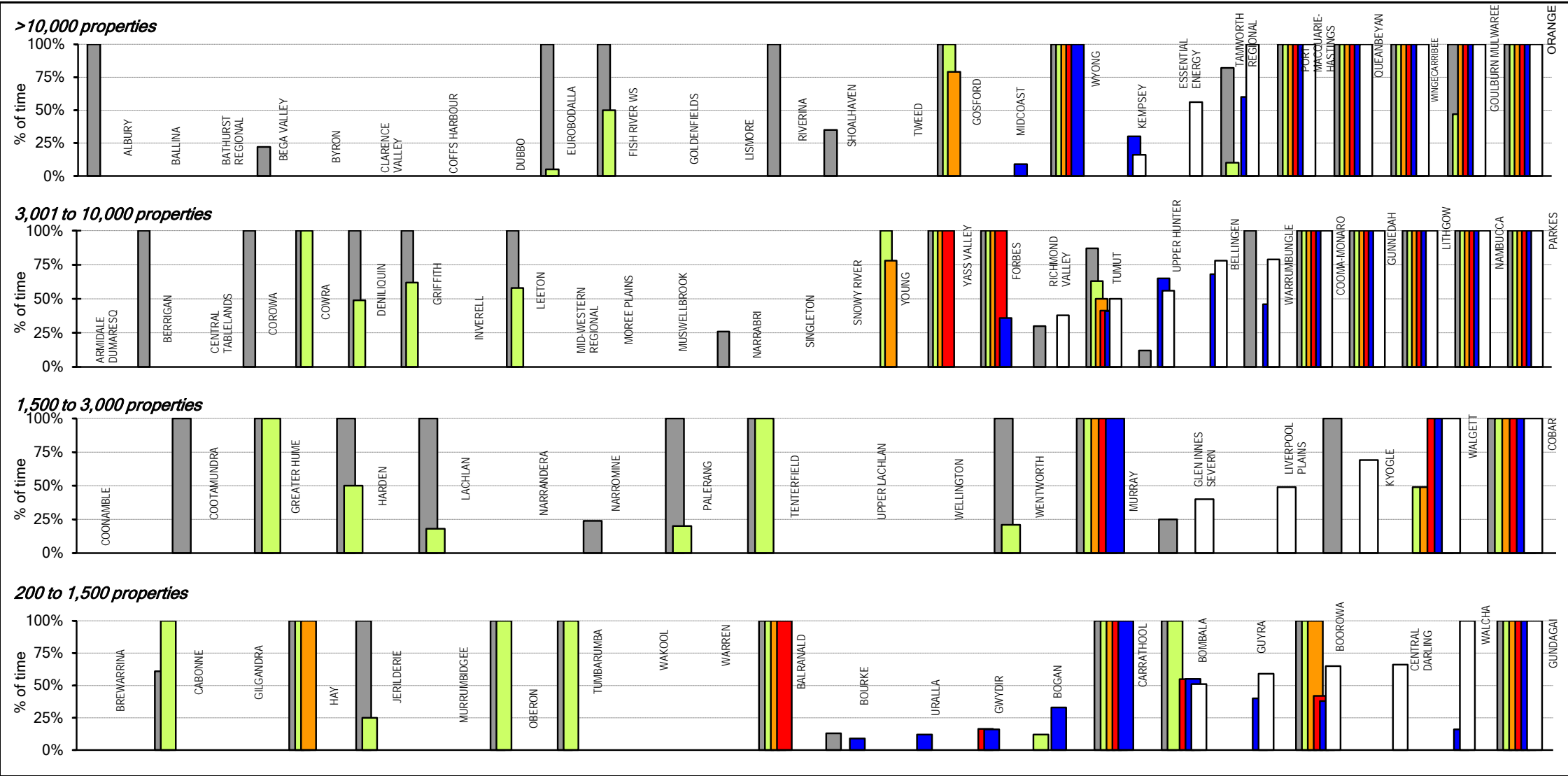
Figure 22: Service connection failures - water supply



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

- Notes:**
1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the number of service connection failures for the 26 LWUs shown ranges from nil to 5%. The 1 LWU on the right did not report this indicator for 2014-15. Results for the previous 5 years are also shown.
  2. Refer also to Table 10 on page 172 and columns 48 to 59 of Table 5C on page 126.
  3. For general notes see page 32.

Figure 23: Drought water restrictions - water supply

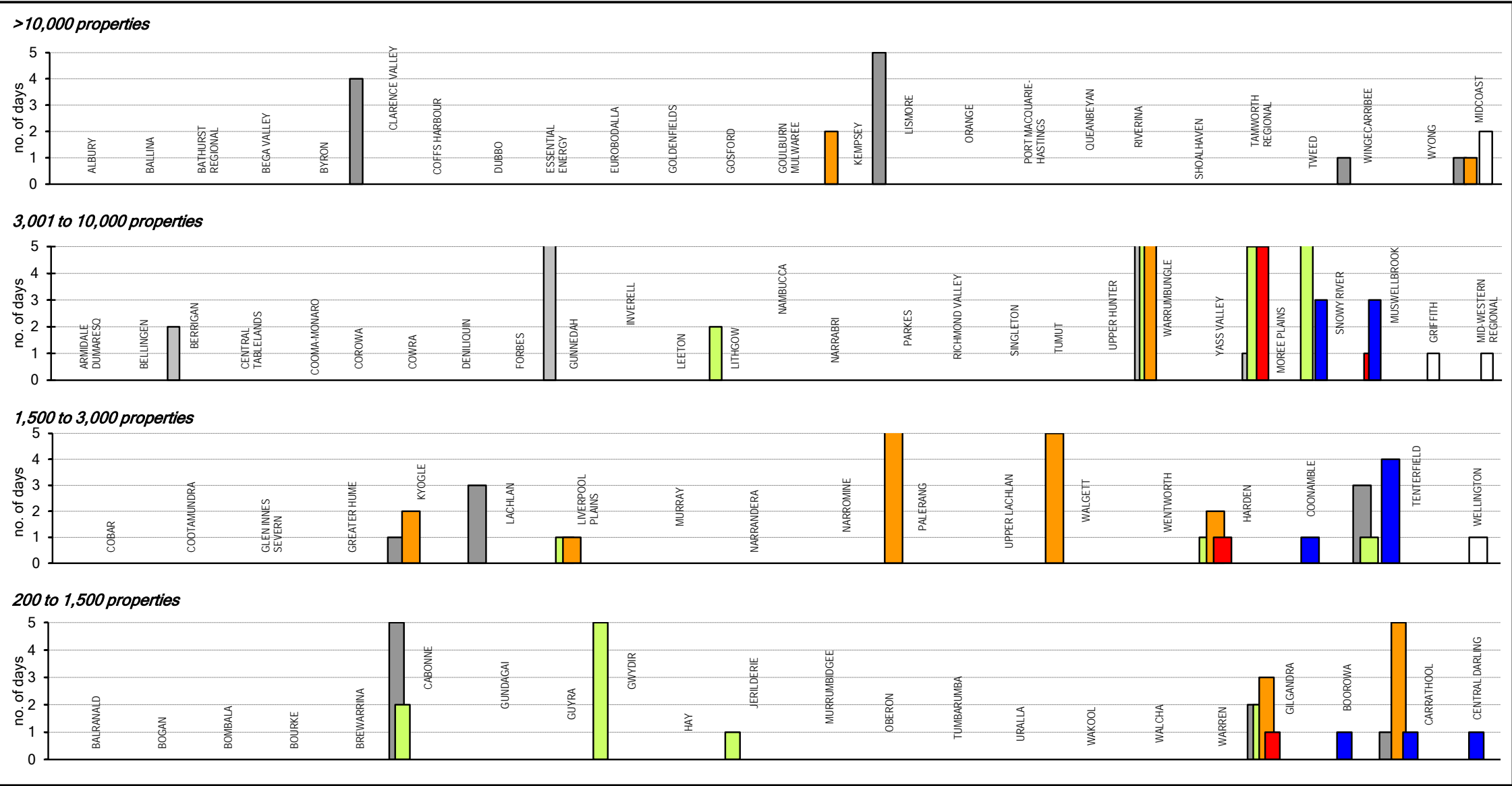


Parameter:  $\frac{\text{No. of Days of Water Restrictions Due to Drought (WB95)} \times 100}{365 \text{ Days}}$

- Notes:
1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), 10 of the 28 reporting LWUs reported restrictions ranging from 38% of the time to 100% of the time. 18 LWUs reported no drought water restrictions. Results for the previous 5 years are also shown.
  2. 30% of the LWUs needed to apply drought water restrictions in 2014-15.
  3. Refer also to Table 12 on page 183 and to page 3 of the 2014-15 NSW Water Supply and Sewerage Performance Monitoring Report ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)).
  4. For general notes see page 32.



Figure 24: Chlorination system malfunction - water supply

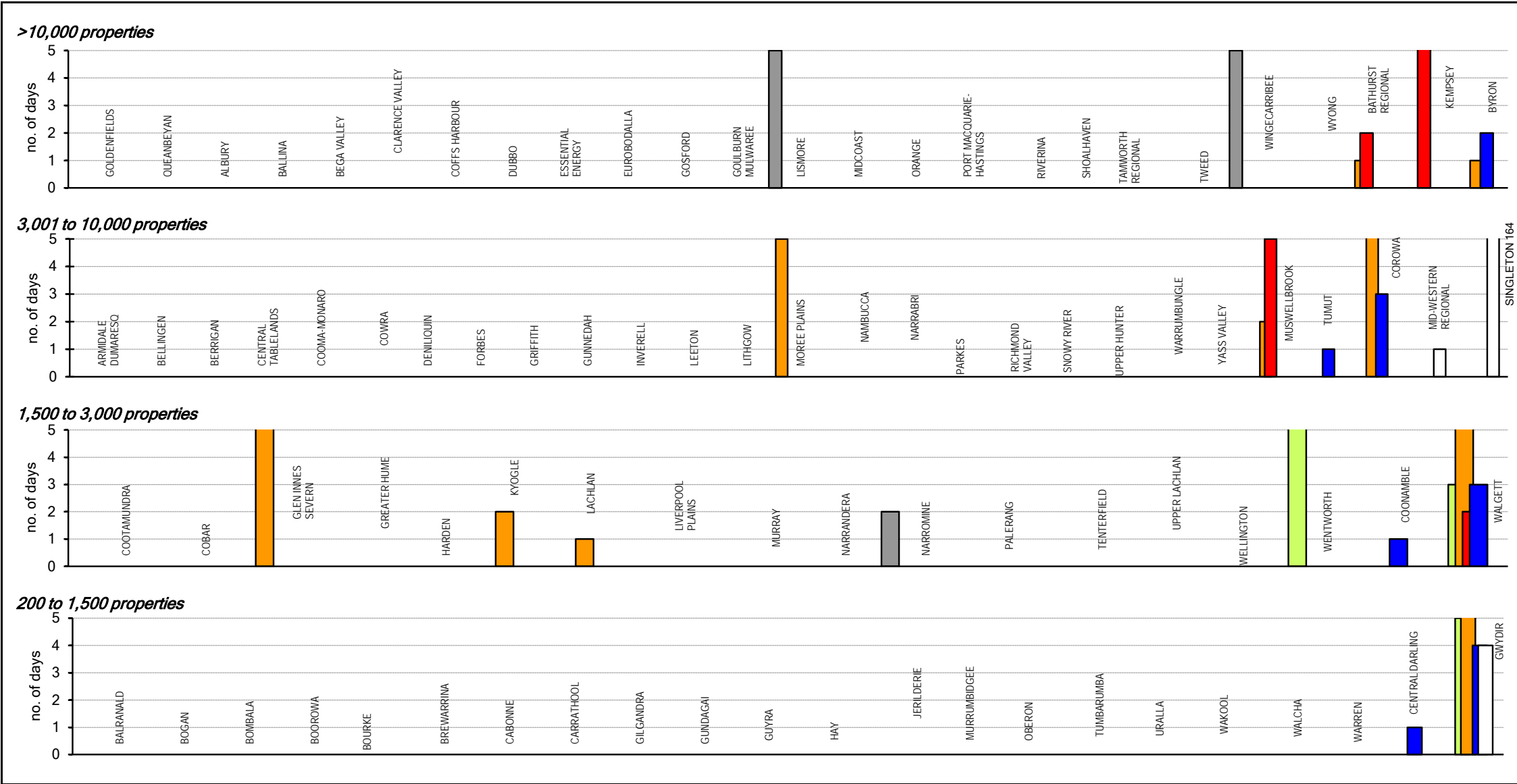


Parameter: Number of Days Chlorination System failed to Operate (WB44)

Notes:

- The figure shows the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the number of days the chlorination system did not operate for the 27 LWUs shown ranges from nil to 1 days. Results for the previous 5 years are also shown.
- For LWUs with more than one chlorination system, the weighted average (based on capacity) of days was used. Refer also to Appendix D1 on page 280.
- For general notes see page 32.

Figure 25: Treatment works malfunction - water supply

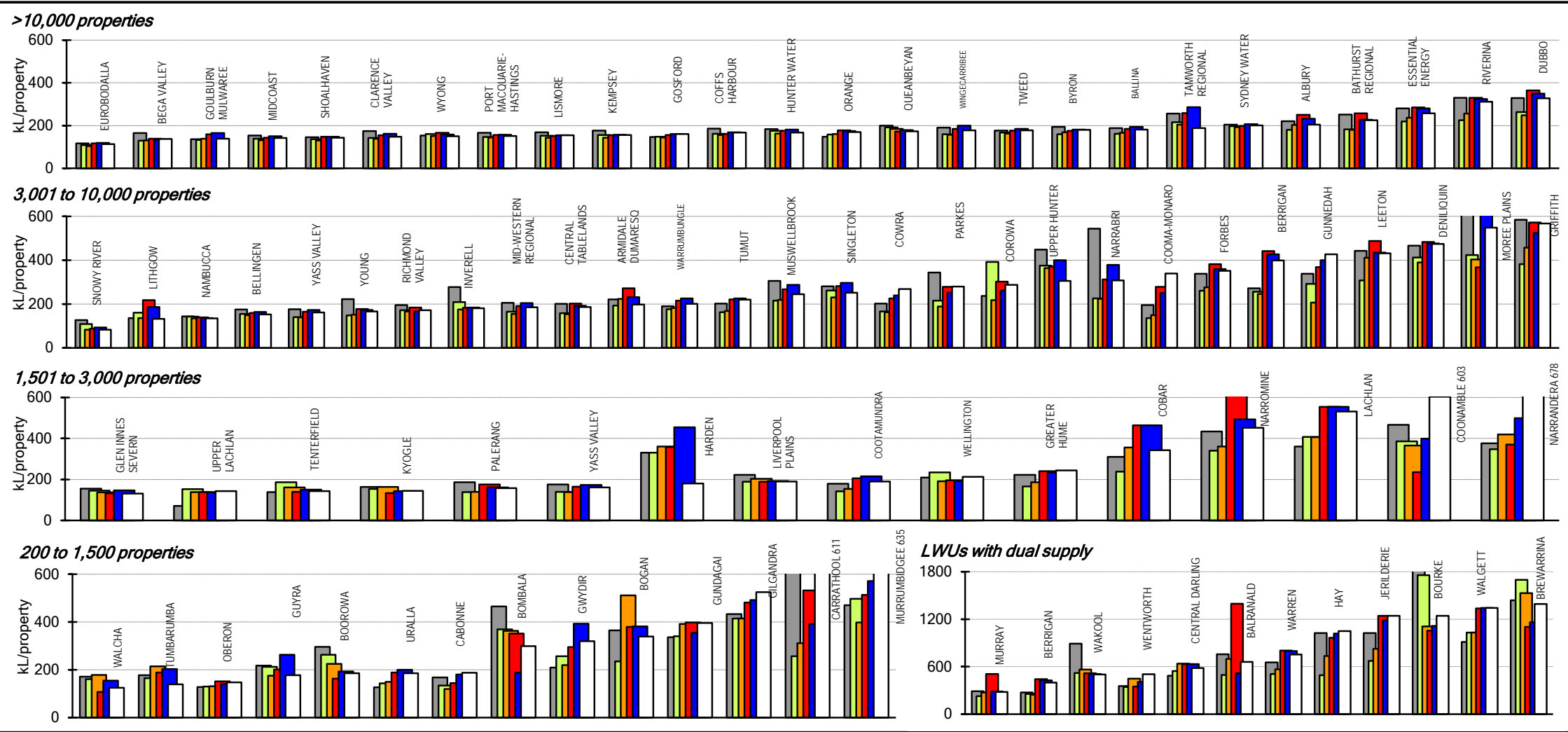


Parameter: Number of Days of major Malfunction of Treatment Processes (WB45)

Notes:

1. The figure shows the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the number of days of treatment works malfunction for the 27 LWUs shown ranges from nil to 164 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 on page 280.
3. For general notes see page 32.

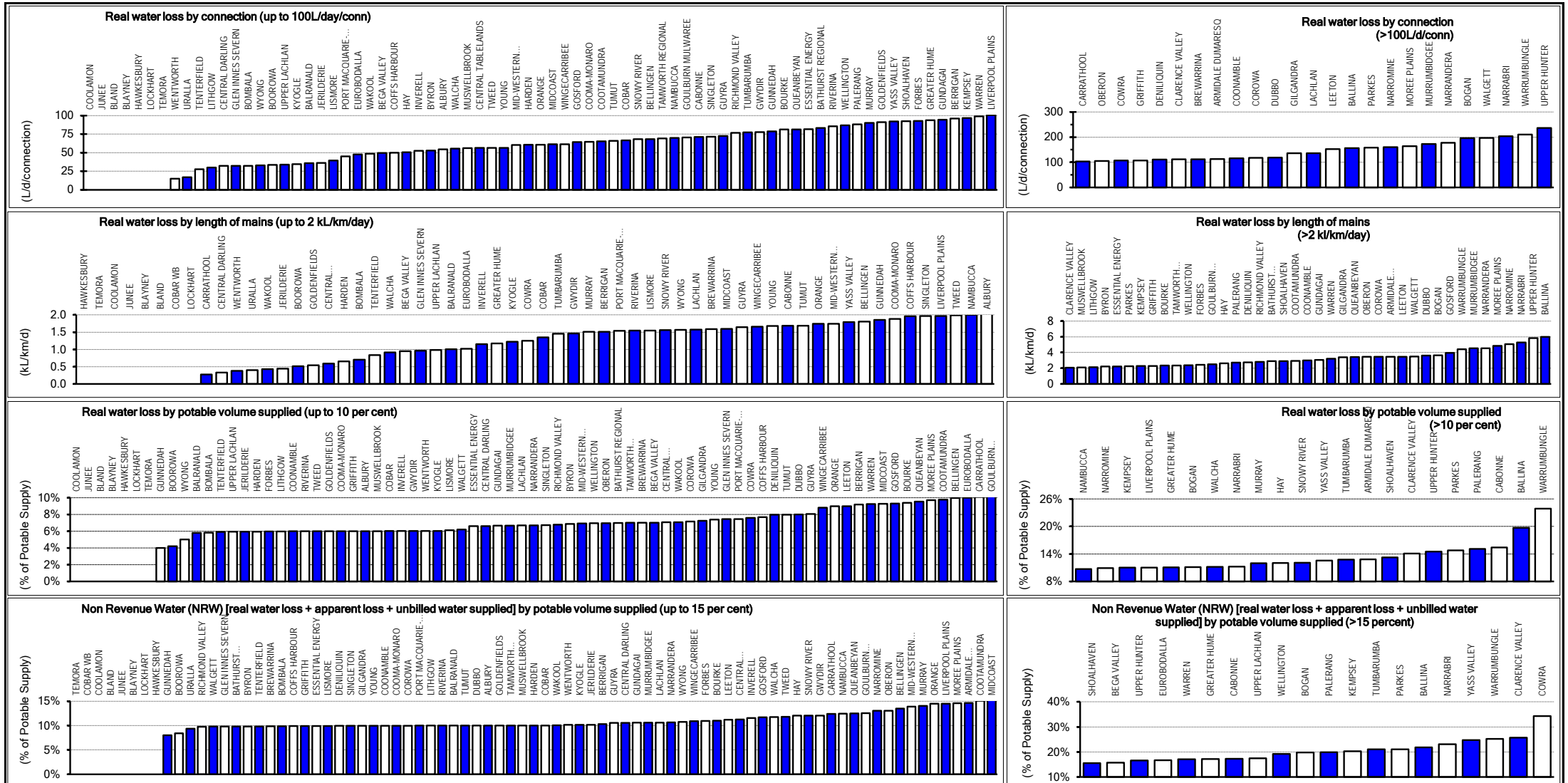
Figure 26: Average annual residential water supplied - water supply - W12



**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 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 annual residential water supplied for the 28 LWUs shown ranges from 80 to 567 kL/a per connected property. Results for the previous 5 years are also shown.
  2. Results for the 12 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 3,600 properties. Refer to Note 12 on page 34 for further information.
  3. The Statewide median annual residential water supplied is 166 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 150 and 225kL/a per connected property respectively. Refer also to Table 5 on page 116, Table 6 on page 134, graph 14 on page 208 and figure 33 on page 111.
  4. Refer also to pages 9, 5, 18, 46 of the 2014-15 NSW Water Supply and Sewerage Performance Monitoring Report ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)).
  5. 30% of the LWUs needed to apply drought water restrictions in 2014-15.
  6. For general notes see page 32.

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



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

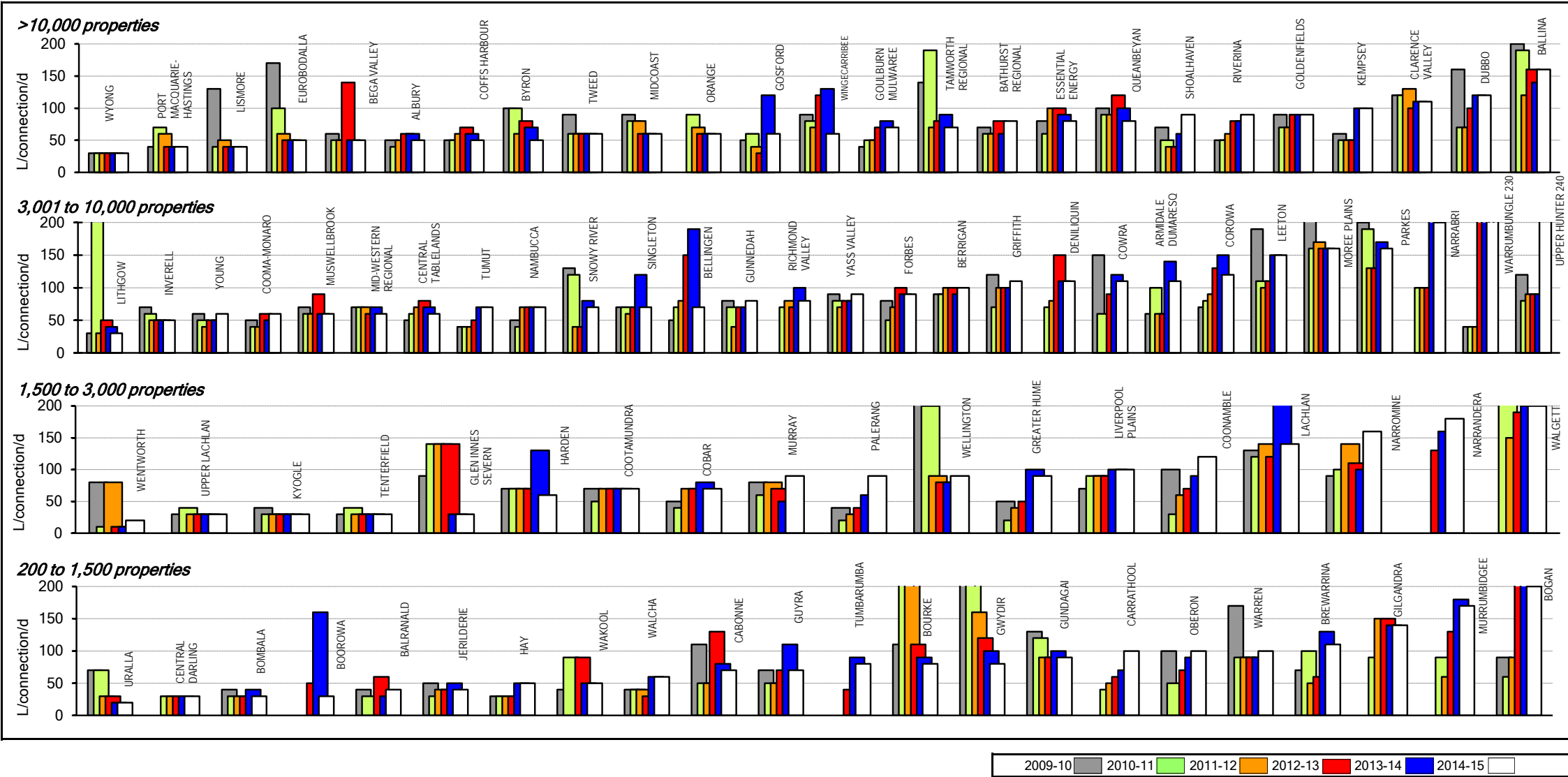
Parameter:  $\frac{\text{Real water losses (WB68)} \times 100}{\text{Length of mains (WB22)}}$

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

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

- Notes:
1. Refer to Note 9 of General Notes on page 33 for water losses. Refer also to figures 28 and 29 on pages 66 and 67, Table 5 on page 116, Table 10 on page 172, Table 10A on page 175, graph 13 on page 208 & figure 34 on page 112.
  2. For general notes see page 32.

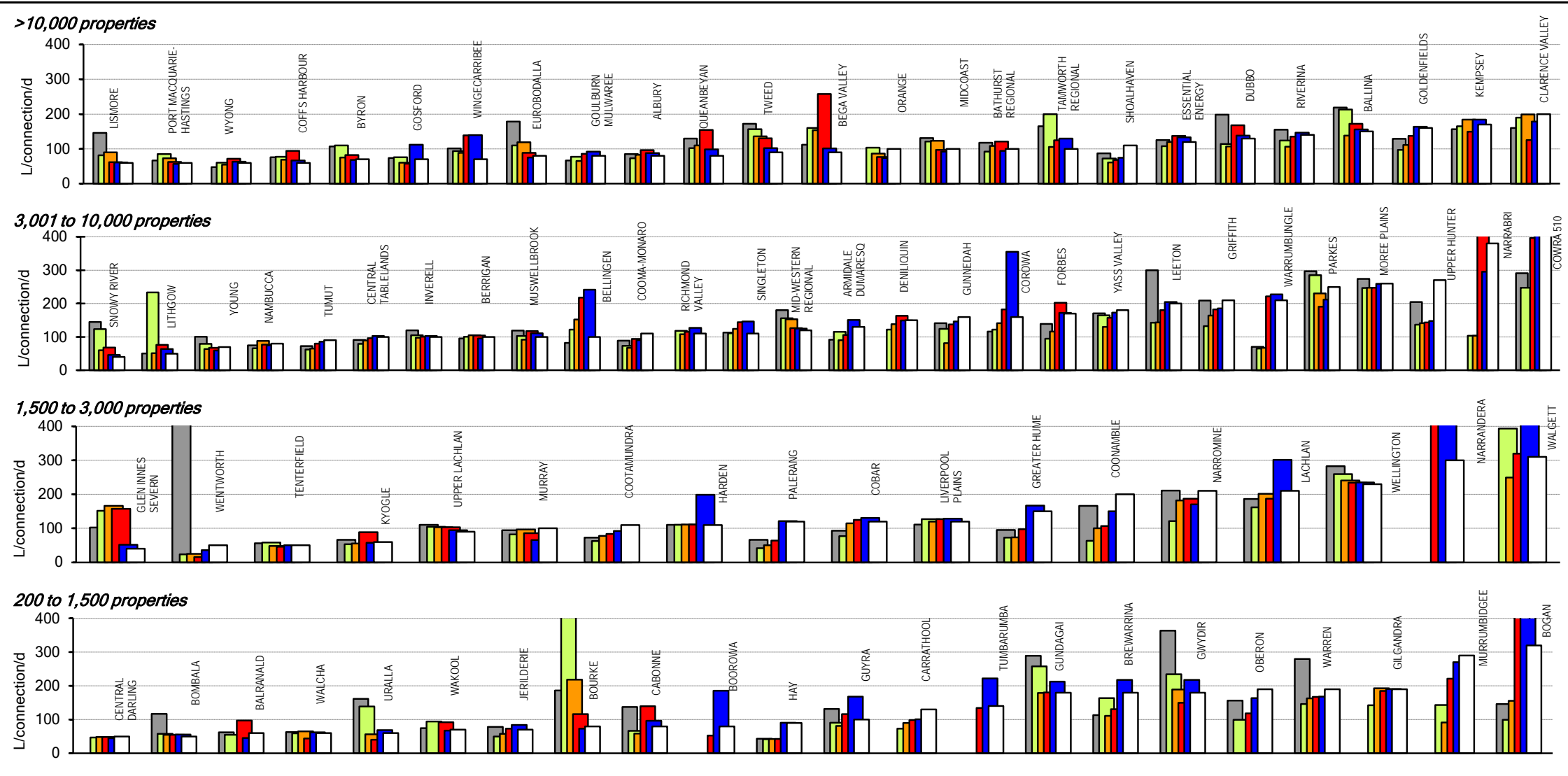
Figure 28: Real losses (L/service connection/d) - water supply - A10



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

- Notes:**
1. This figure shows ranked values of the 2014-15 real losses for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the real losses for the 28 LWUs shown ranges from 30 to 240 L/service connection/d. Results for the previous 5 years are also shown.
  2. The Statewide median real losses is 60 L/service connection/d [National Median is 76 L/service connection/d]. Refer also to Table 10 on page 172.
  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 on page 175). Refer also to graph 13 on page 208 and figure 34 on page 112.
  4. For general notes see page 32.

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

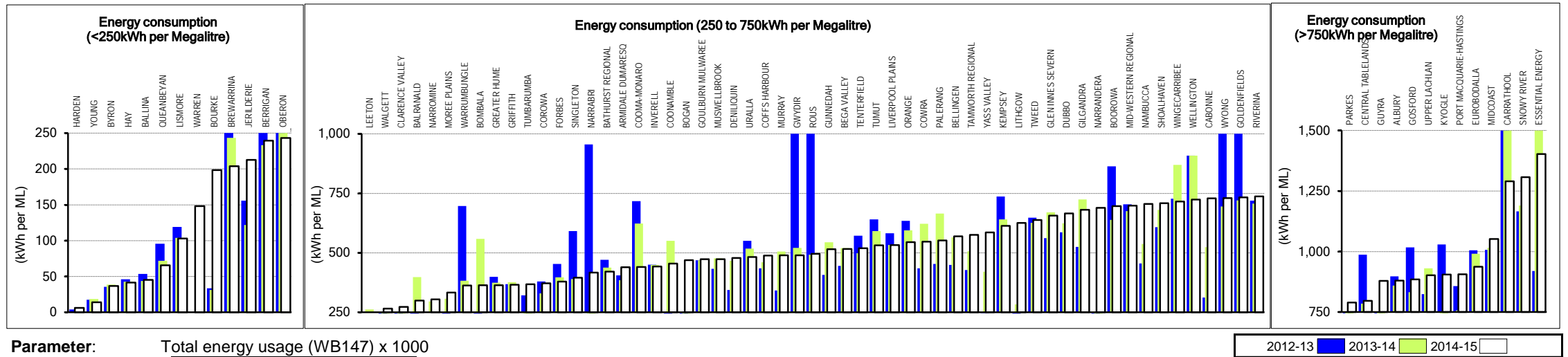


**Parameter:** 
$$\frac{[\text{Real \& apparent water losses (WB69) + Unbilled water supplied (WB61)}] \times 100}{\text{No. of service connections (WB30)}}$$

- Notes:**
1. This figure shows ranked values of the 2014-15 non revenue water for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the non revenue water for the 28 LWUs shown ranges from 40 to 510 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 94 L/service connection/d.
  3. Refer also to Table 8A on page 159 and Table 10 on page 172.
  4. For general notes see page 32.



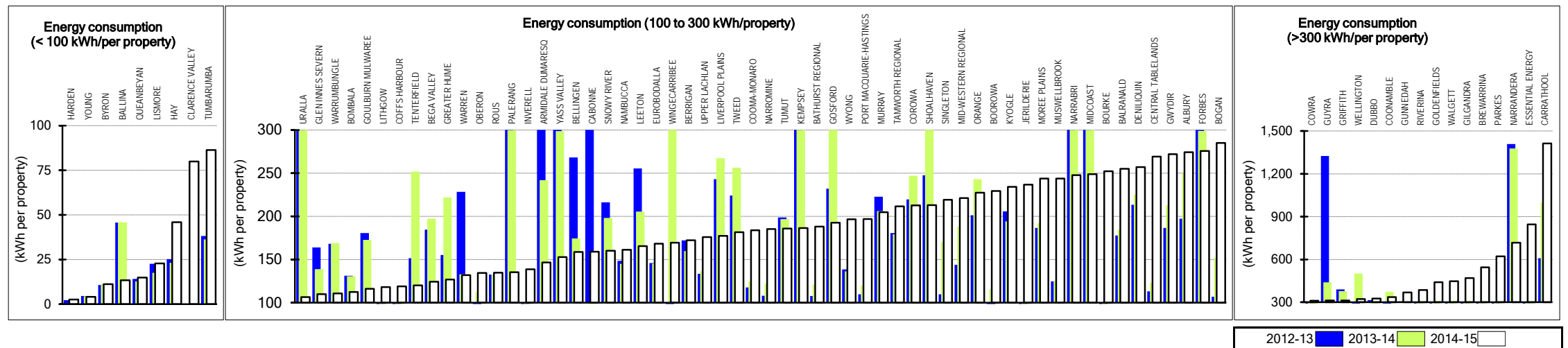
Figure 30: Energy consumption per ML - water supply



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

- Notes:
1. This figure shows ranked values of the 2014-15 total energy consumption per ML. The energy consumption per ML for the 85 Local Water Utilities (LWUs) shown range from about 14 to 1400kWh per ML. Results for the previous 2 years are also shown.
  2. For general notes see page 32.

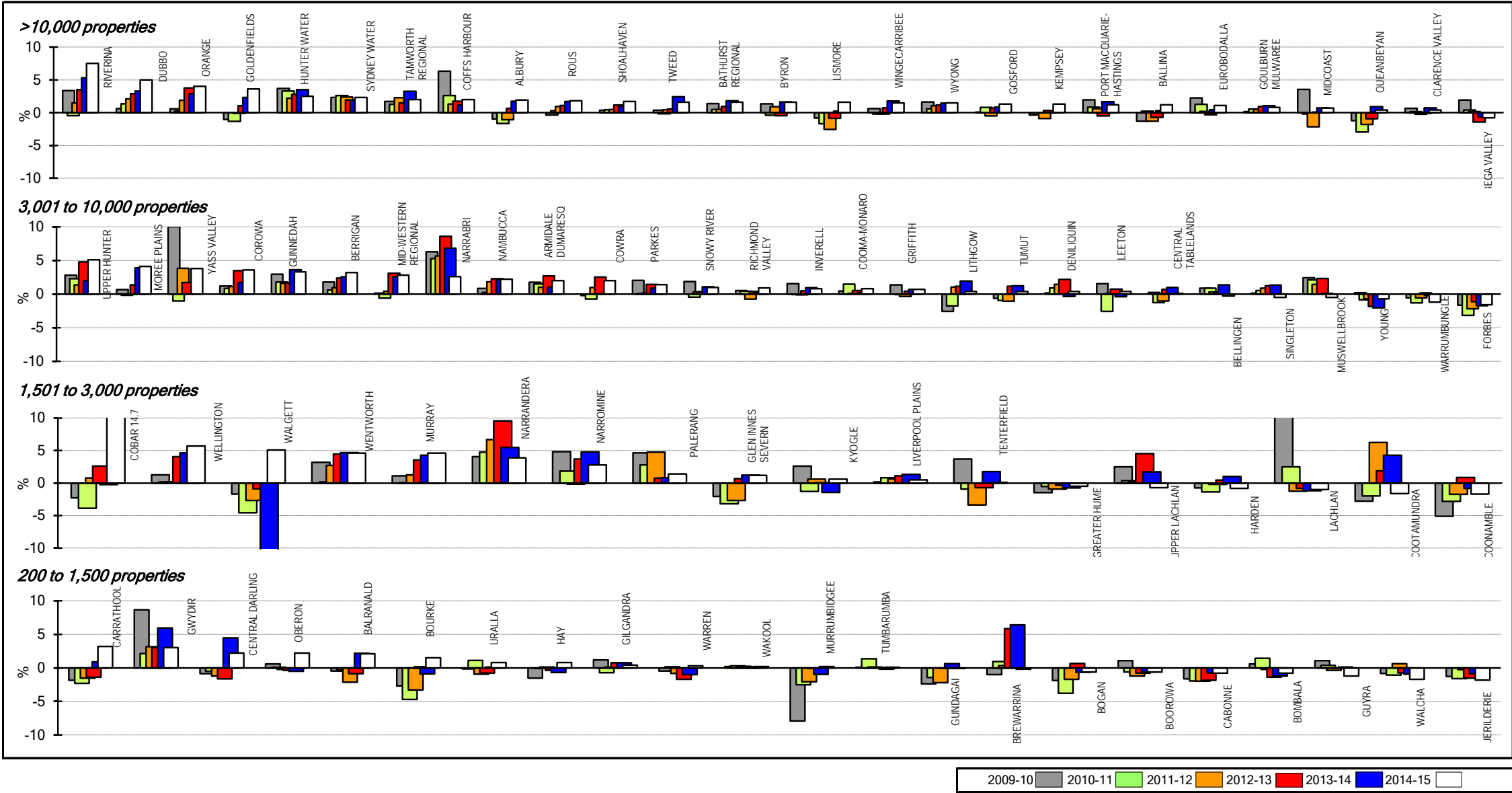
Figure 31: Energy consumption per property - water supply



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

- Notes:
1. This figure shows ranked values of the 2014-15 total energy consumption per connected property. The energy usage per connected property for the 83 Local Water Utilities (LWUs) shown range from 4 to 1410kWh per connected property. Results for the previous 2 years are also shown.
  2. For general notes see page 32.

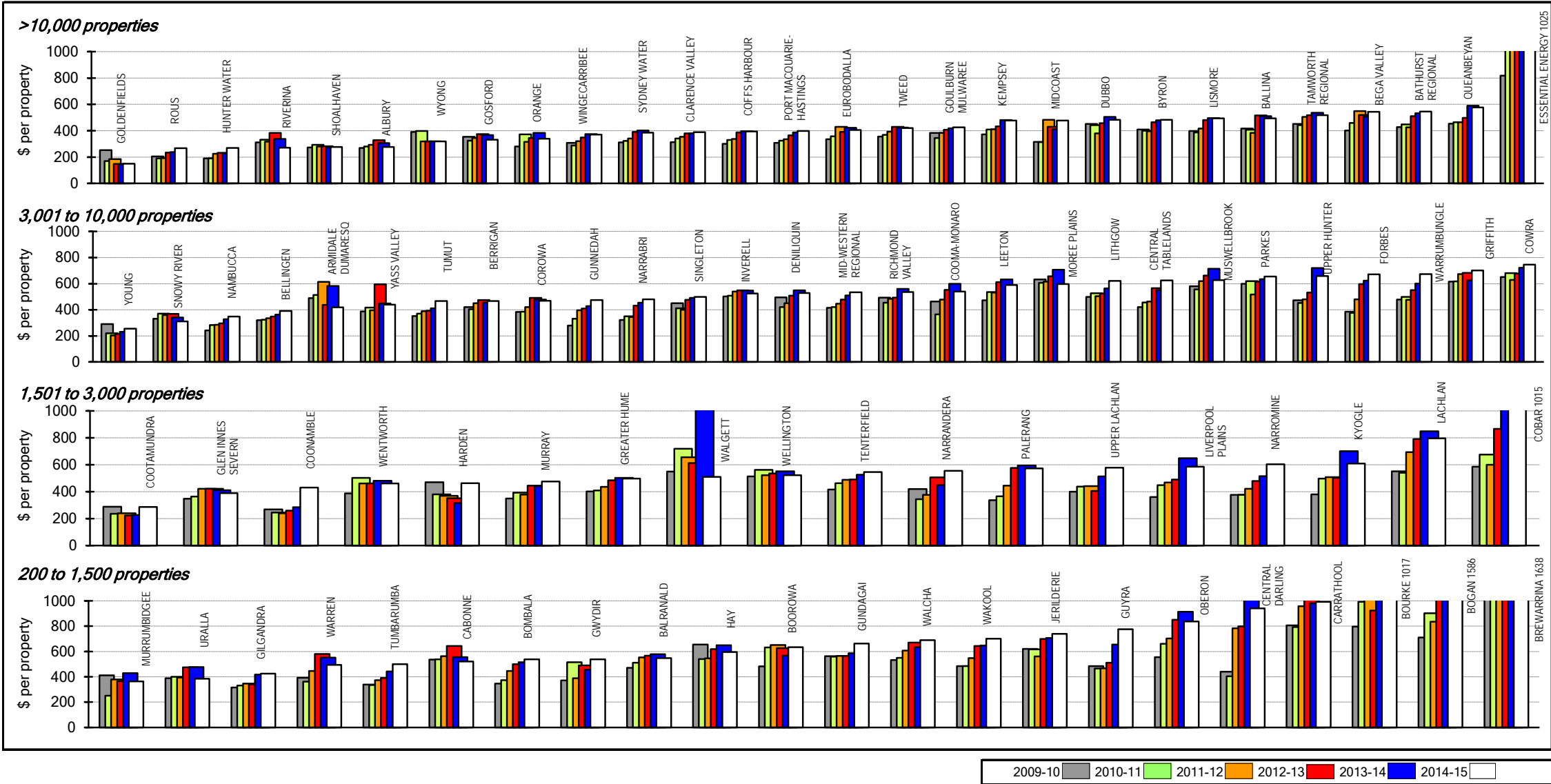
Figure 32: Economic real rate of return - water supply - F17



Parameter: 
$$\frac{[\text{Operating result (W}_{15}) + \text{interest expense (W}_{4a}) - \text{interest income (W}_{9}) - \text{grants for acquisition of assets (W}_{11a})] \times 100}{\text{Written down replacement cost of system assets, plant \& equipment (W}_{33})}$$

- Notes:
1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 water supply real rate of return for the 28 LWUs shown ranges from 5% to -2%. Results for the previous 5 years are also shown.
  2. The statewide median water supply ERRR is 1.6% [National Median is 1.9%]. Refer also to page 26, Table 5 on page 116, Table 6 on page 134 and figure 43 on page 111.
  3. The ERRR includes developer provided assets and capital contributions from other LWUs.
  4. For general notes see page 32.

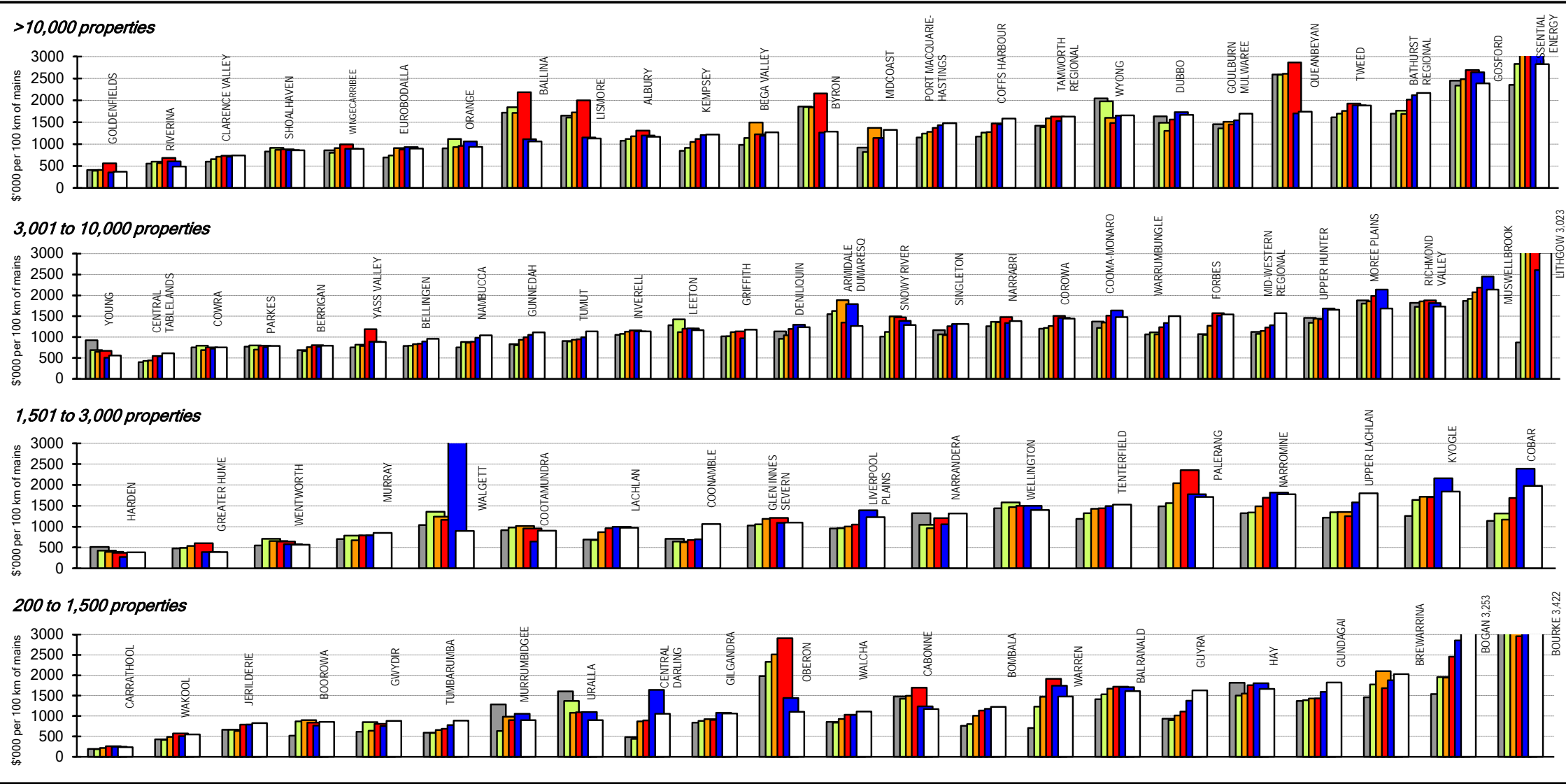
Figure 33: Operating cost (OMA) per property - water supply - F11



**Parameter:**  $\frac{\text{Management Expenses (W\_1)} + \text{Total Operations Expenses (W\_2)} - \text{Purchase of Water} + \text{prorata Bulk Supplier's OMA}}{[\text{No. of Residential Assessments (WB32)} + \text{No. of Non-Residential Assessments (WB33)}] \times \text{No. of Connected Properties per Assessment}}$

- Notes:**
1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 water supply operating costs for the 28 LWUs shown ranges from \$254 to \$746 per connected property. Results for the previous 5 years are also shown in Jan 2015\$.
  2. The Statewide median operating cost per connected property is \$400 [National Median is \$455]. Refer also to page 27, Table 5 on page 116, Table 11 on page 180, Table 13 on page 186, graph 25 on page 211, figure 49 on page 112 and pages 21 and 23.
  3. For general notes see page 32.

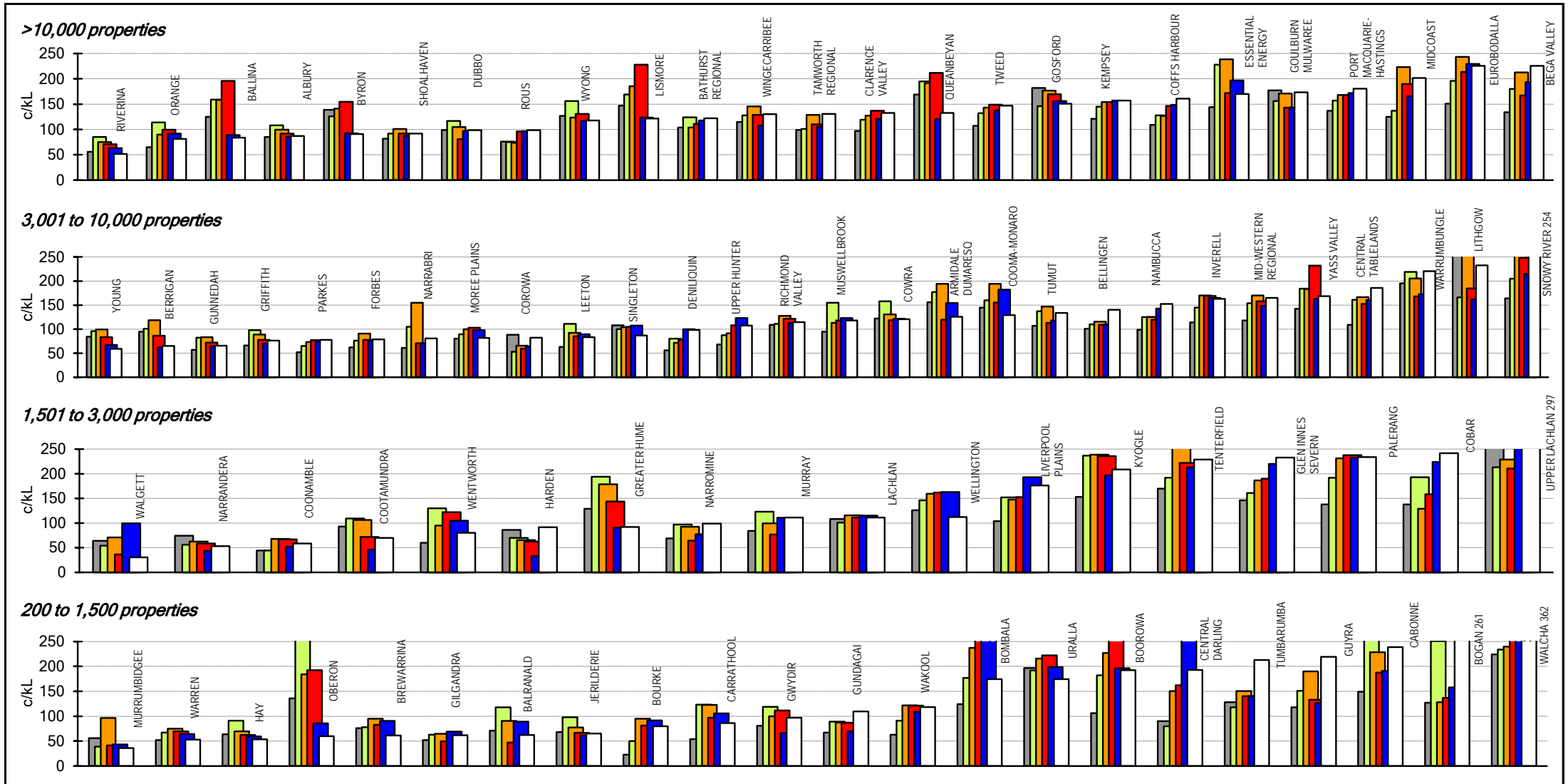
Figure 34: Operating cost (OMA) per 100km of main - water supply



**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 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 operating costs for the 28 LWUs shown ranges from \$0.56M to \$3.02M per 100km of distribution and reticulation mains (excludes source transfer mains). Results for the previous 5 years are also shown in Jan 2015\$.
  2. The Statewide median operating cost is \$1.32M per 100km of water main. Refer also to Table 11 on page 180 and Table 13 on page 186.
  3. For general notes see page 32.

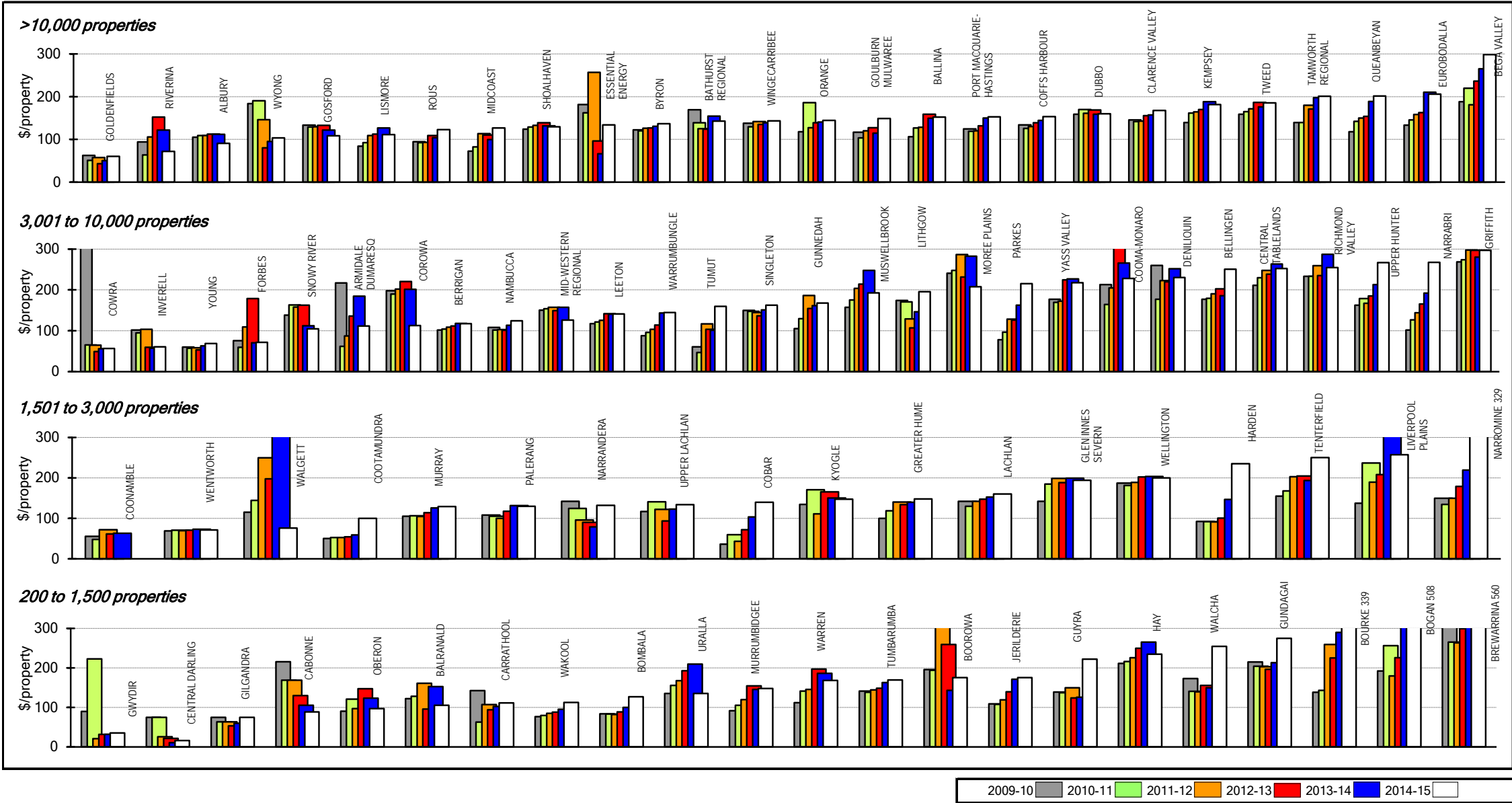
Figure 35: Operating cost (OMA) per kL - water supply



**Parameter:**  $\frac{\text{Management Expenses (W}_1\text{)} + \text{Total Operations Expenses (W}_2\text{)} - \text{Purchase of Water (W}_{2o}\text{)}}{\text{Total Potable Water Supplied (WB62)}}$

- Notes:**
1. This figure shows ranked values of the 2014-15 water supply operating cost (OMA - operation, maintenance and administration) per kL for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 operating costs per kL for the 28 LWUs shown ranges from 59 to 254 c/kL. Results for the previous 5 years are also shown in Jan 2015\$.
  2. The Statewide median operating cost is 129c/kL. Refer also to Table 6 on page 134.
  3. For general notes see page 32.

Figure 36: Management cost per property - water supply

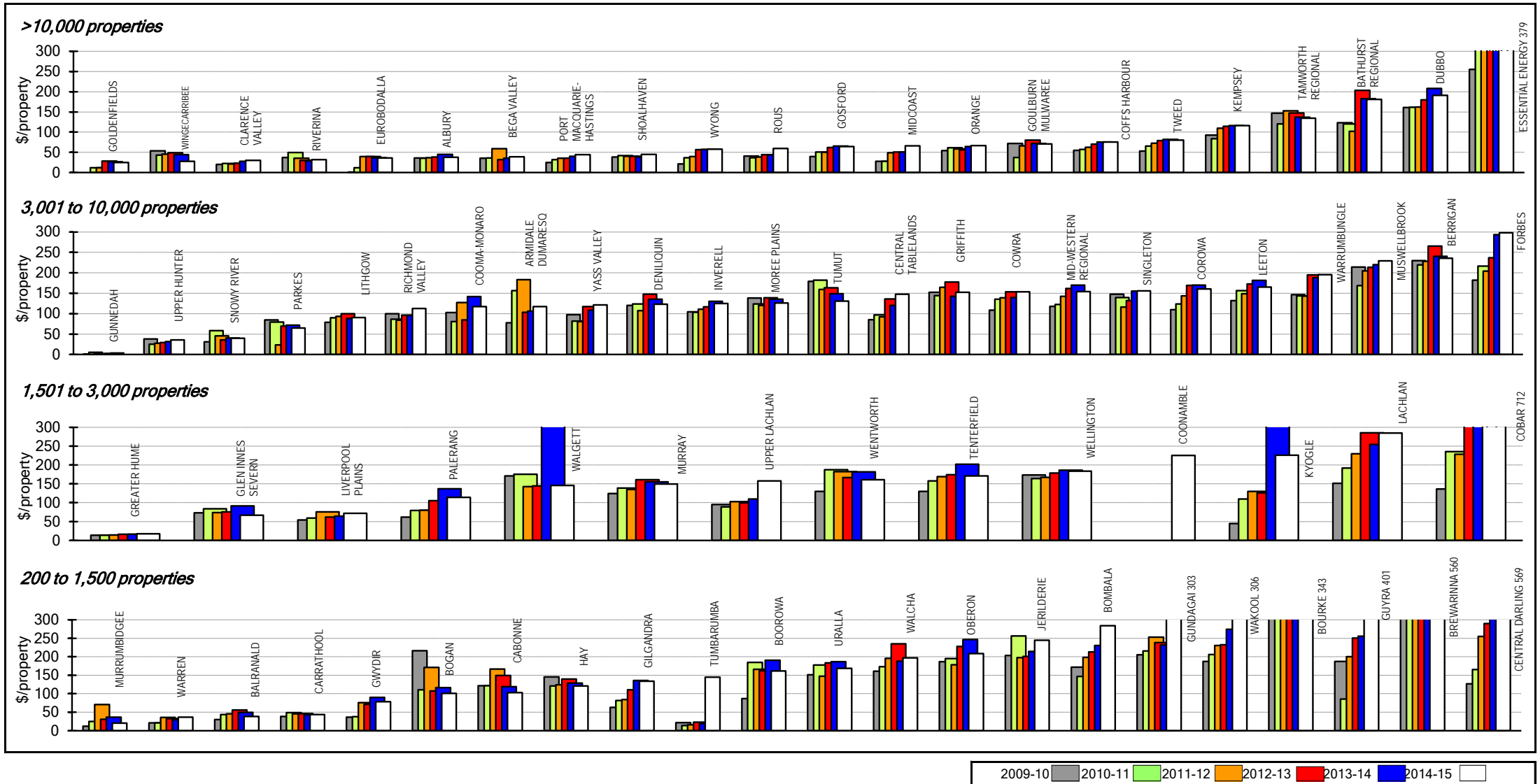


**Parameter:** Administration Cost (W\_1a) + Engineering Cost (W\_1b)  
 [No. of Residential Assessments (WB32) + No. of Non-Residential Assessments (WB33)] x No. of Connected Properties per Assessment

- Notes:**
1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 management costs per property for the 28 LWUs shown ranges from \$56 to \$297. Results for the previous 5 years are also shown in Jan 2015\$.
  2. The Statewide median management cost is \$141 per connected property. Refer also to page 27, Table 11 on page 180 and figure 31 on page 112.
  3. For general notes see page 32.



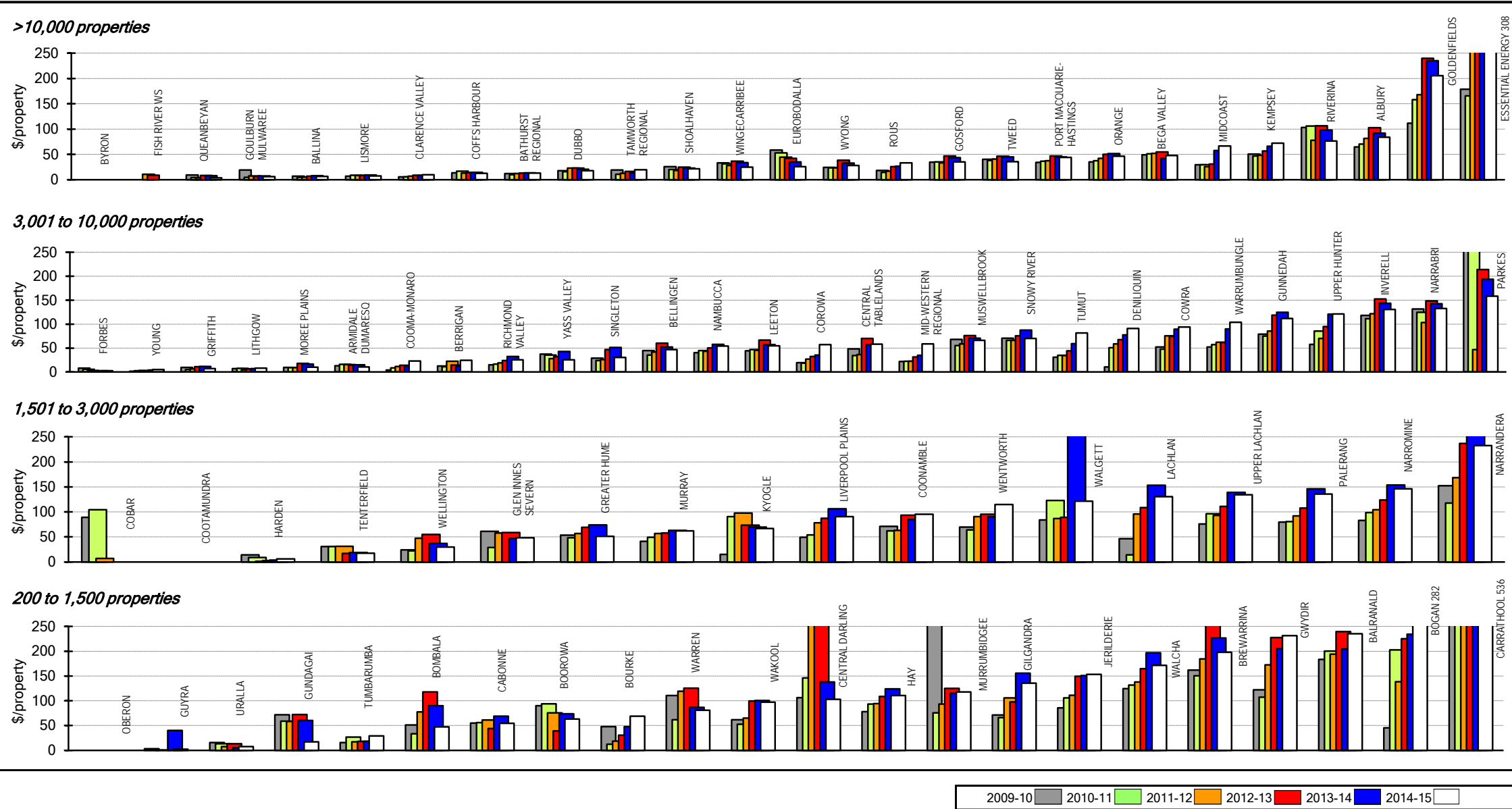
Figure 37: Treatment cost per property - water supply



**Parameter:**  $\frac{\text{Treatment Operation Expenses (W\_2j)} + \text{Treatment Chemical Cost (W\_2k)} + \text{Treatment Maintenance Expenses (W\_2l)}}{[\text{No. of Residential Assessments (WB32)} + \text{No. of Non-Residential Assessments (WB33)}] \times \text{No. of Connected Properties per Assessment}}$

- Notes:**
1. This figure shows ranked values of the 2014-15 water treatment cost for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 treatment costs for the 24 LWUs shown ranges from \$0 to \$300 per connected property. Results for the previous 5 years are also shown in Jan 2015\$.
  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 \$58 per connected property. Refer also to pages 21, 23, 27 and Table 13 on page 186.
  4. For general notes see page 32.

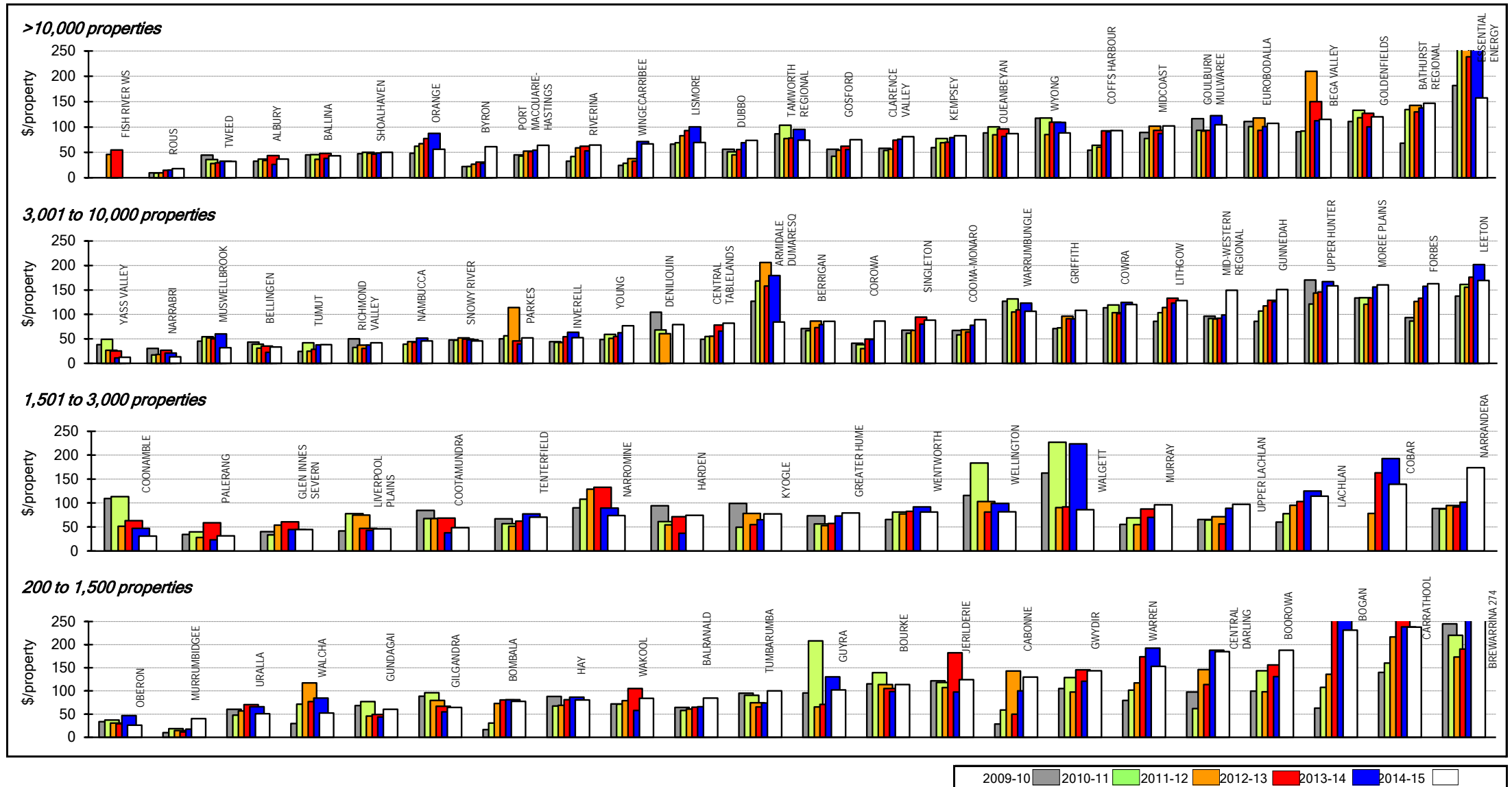
Figure 38: Pumping cost per property - water supply



**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 2014-15 water pumping cost for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 water pumping costs for the 28 LWUs shown ranges from \$2 to \$159 per connected property. Results for the previous 5 years are also shown in Jan 2015\$.
  2. The Statewide median water pumping cost (including energy costs) is \$31 per connected property. Refer also to page 27 and Table 13 on page 186.
  3. For general notes see page 32.

Figure 39: Water main cost per property - water supply

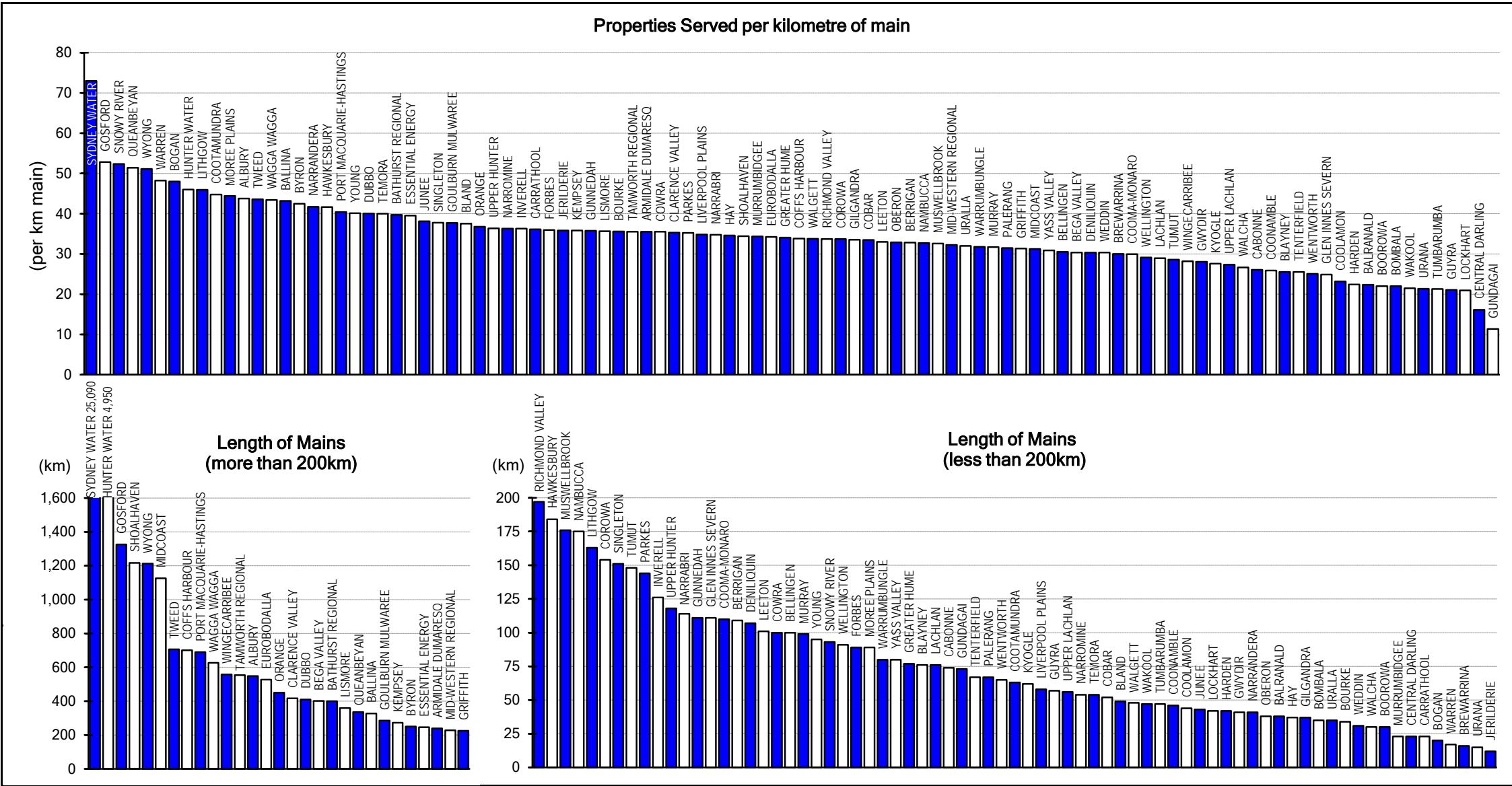


**Parameter:**  $\frac{\text{Water main operation expenses (W\_2c) + water main maintenance costs (W\_2d)}}{[\text{No. of residential assessments (WB32)} + \text{No. of non-residential assessments (WB33)}] \times \text{No. of connected properties per assessment}}$

- Notes:**
1. This figure shows ranked values of the 2014-15 water main operating cost for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 water main costs for the 28 LWUs shown ranges from \$13 to \$169 per property. Results for the previous 5 years are also shown in Jan 2015\$.
  2. The Statewide median water main cost is \$74 per property. Refer also to page 27 and Table 13 on page 186.
  3. For general notes see page 32.

# 9. SEWERAGE FIGURES

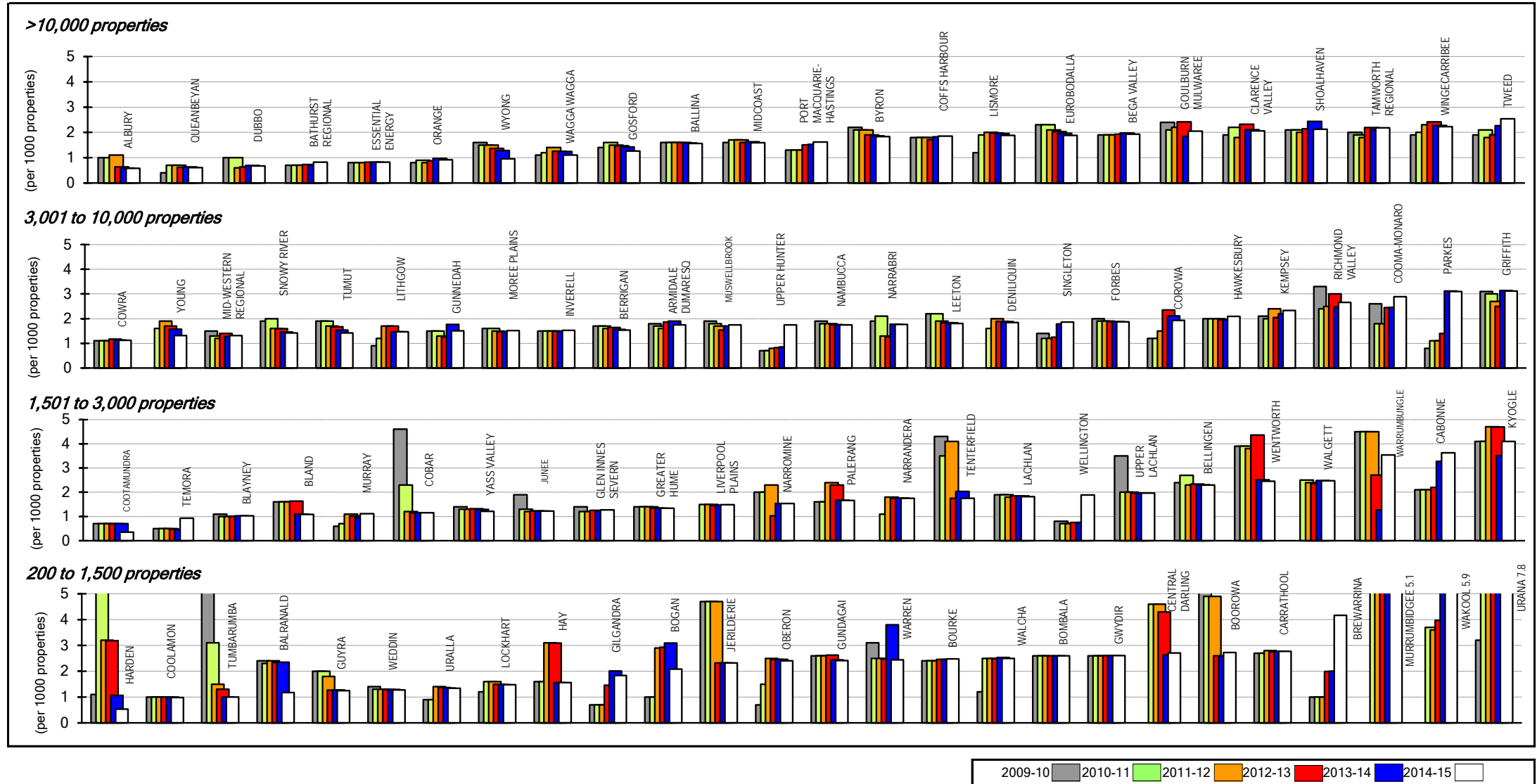
Figure 40: Properties served per km of main, length of mains - sewerage - A5



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

- 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 on page 189 and graph 2 on page 205.
  3. For general notes see page 32.

Figure 41: Employees - sewerage



**Parameter:**

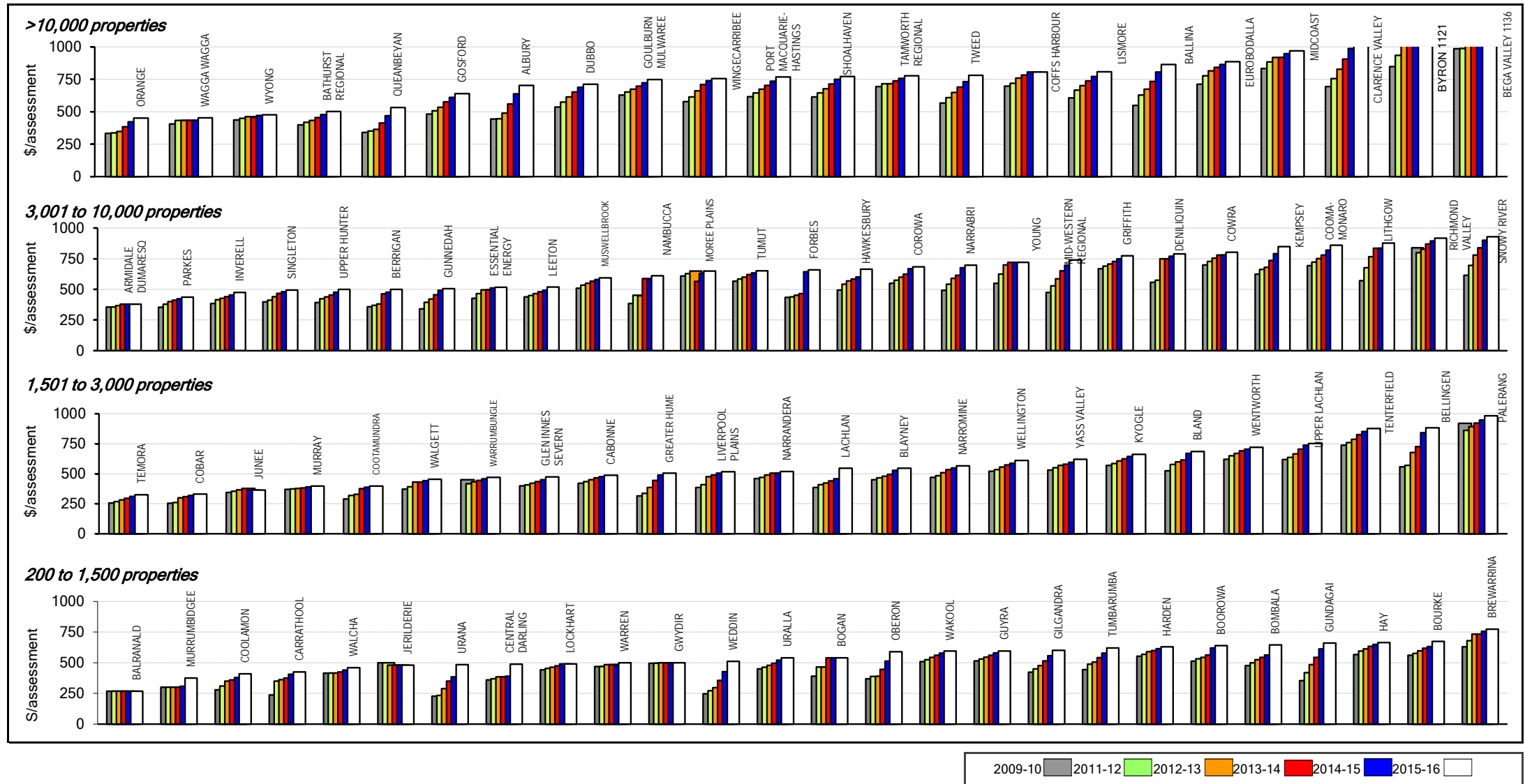
Full-time Equivalent Employees (SB49) x 1000

[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 2014-15 sewerage employees for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 sewerage employees for the 26 LWUs shown ranges from about 1 to 3 per 1,000 connected properties. Results for the previous 5 years are also shown.
2. The 2014-15 Statewide median number of sewerage employees is 1.6 per 1,000 connected properties. Refer also to pages 21, 23, 27 and Table 14 on page 189.
3. For general notes see page 32.

Figure 42: Typical residential bill – sewerage - P6



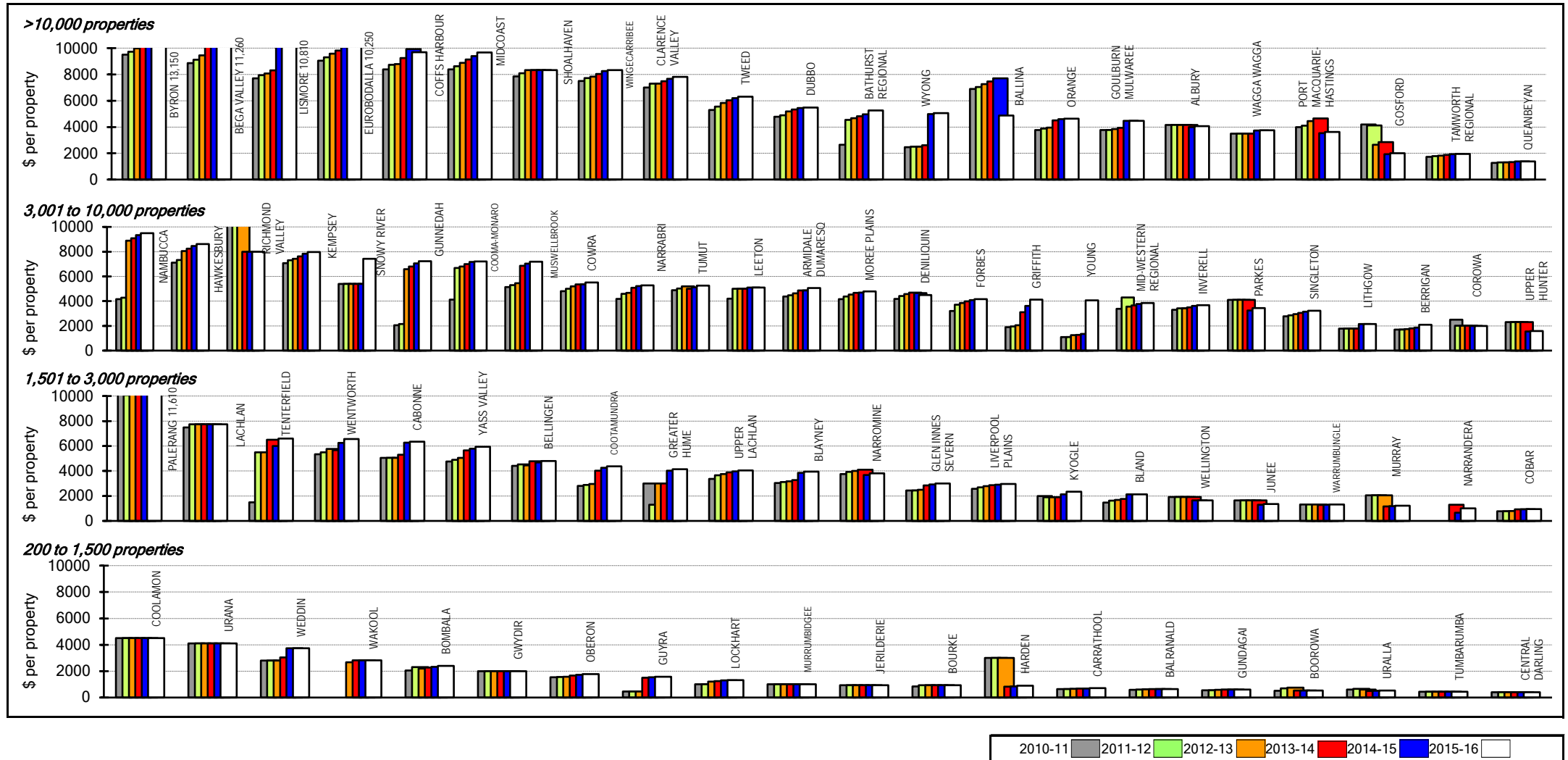
Parameter: Residential Access Charge

Notes:

1. This figure shows ranked values of the 2015-16 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2015-16 typical residential bill for sewerage for the 27 LWUs shown ranges from about \$379 to \$930.
2. The 2015-16 Statewide median typical residential bill for sewerage is \$697 per assessment [National Median for 2014-15 is \$667 per assessment]. Refer also to Table 5 on page 116, Table 7 on page 146, graph 6 on page 206 and figure 12 on page 113.
3. For general notes see page 32.



Figure 43: Typical developer charge - sewerage

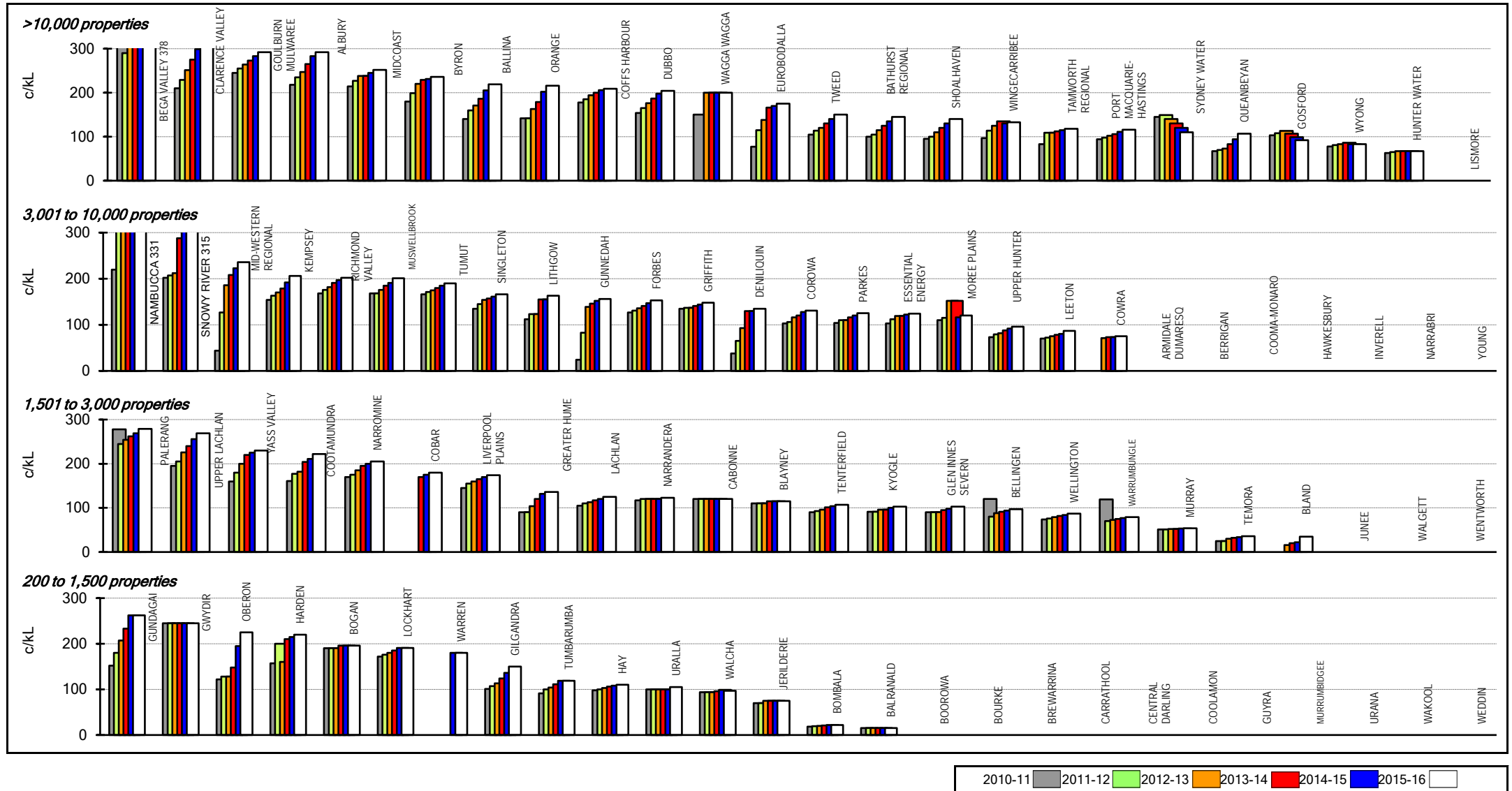


Parameter: Typical Sewerage Developer Charge (SB62)

Notes:

1. This figure shows ranked values of the 2015-16 typical developer charge for sewerage for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the typical developer charge for sewerage for the 26 LWUs shown ranges from \$9500 to \$1600 per equivalent tenement (ET).
2. The 2015-16 Statewide median typical sewerage developer charge was \$5,100 per ET, which is 31% of the current replacement cost of sewerage system assets of \$16,500 per assessment. Refer also to Table 7 on page 146.
3. 90 LWUs levied sewerage developer charges.
4. For general notes see page 32.

**Figure 44: Non-residential sewer usage charge - sewerage**

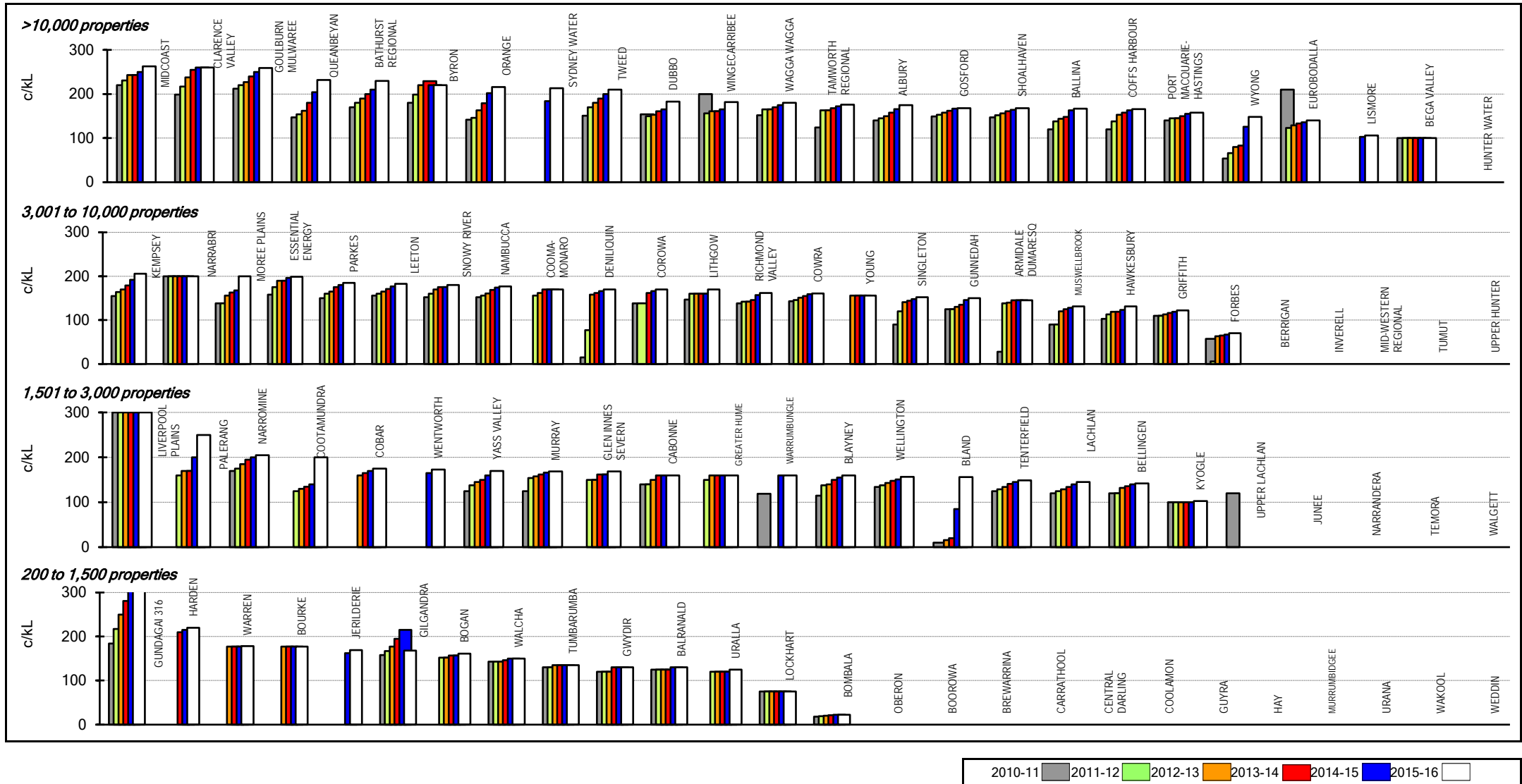


**Parameter:** Non-residential sewer usage charge (c/kL)

**Notes:**

1. This figure shows ranked values of the 2015-16 non-residential sewer usage charge for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the non-residential sewer usage charge for the 26 LWUs shown ranges from 331 to 75c/kL. 7 utilities do not have a sewer usage charge.
2. The 2015-16 Statewide median non-residential sewer usage charge was 150.0c/kL. Refer also to Table 7 on page 146 and figure 14 on page 113.
3. For general notes see page 32.

Figure 45: Trade waste usage charge - sewerage

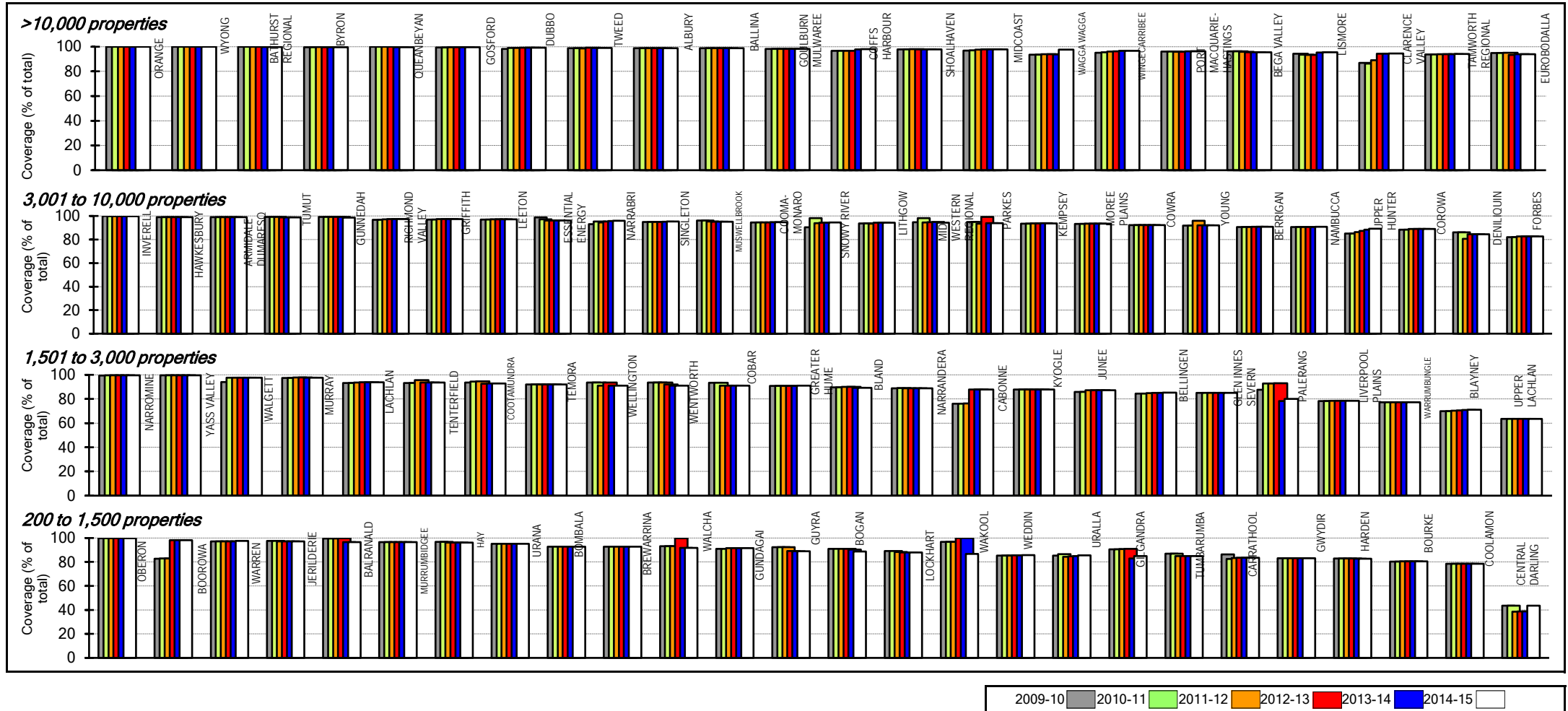


Parameter: Trade waste usage charge (c/kL)

Notes:

1. This figure shows ranked values of the 2015-16 trade waste usage charge for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the trade waste usage charge for the 27 LWUs shown ranges from 206 to 70c/kL. 5 utilities do not have a trade waste usage charge.
2. Refer also to Table 7 on page 146 and Table 7C on page 153.
3. For general notes see page 32.

Figure 46: Sewerage coverage

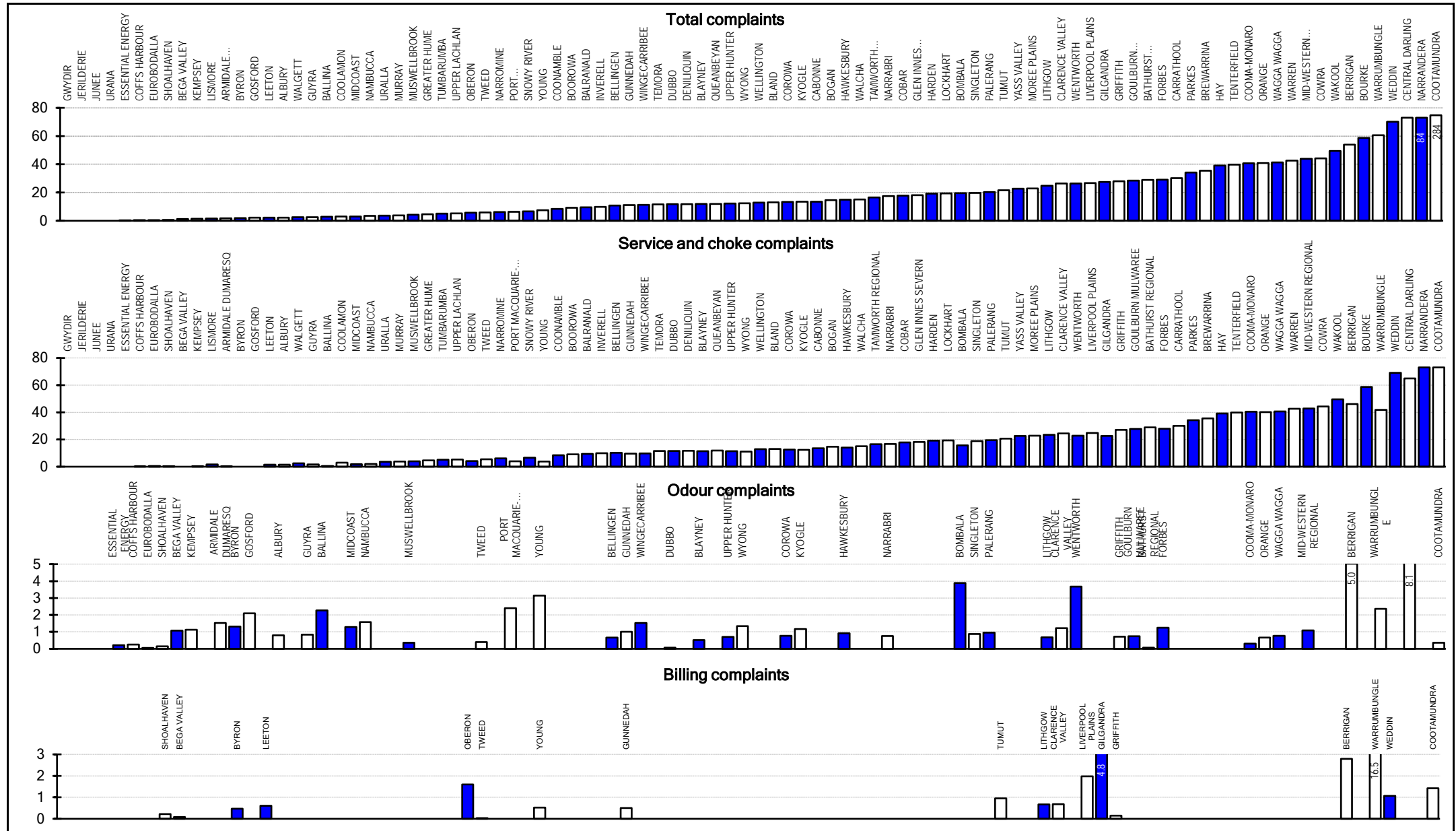


Parameter: Population served (SB1)  
 Population served (SB1) + unsewered urban population (SB21)

- 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the sewerage coverage for the 27 LWUs shown ranges from 99.8% to 83%. Results for the previous 5 years are also shown.
  2. The 2014-15 Statewide median sewerage coverage was 97.9%.
  3. The sewerage coverage for the median LWU was 94%.
  4. The overall sewerage coverage for regional NSW was 96.3% of the urban population (ie. 1.74 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 96.3% of the urban population, compared to 92.3% in 1996.
  5. For general notes see page 32.



Figure 48: Complaints (per 1000 properties) - sewerage



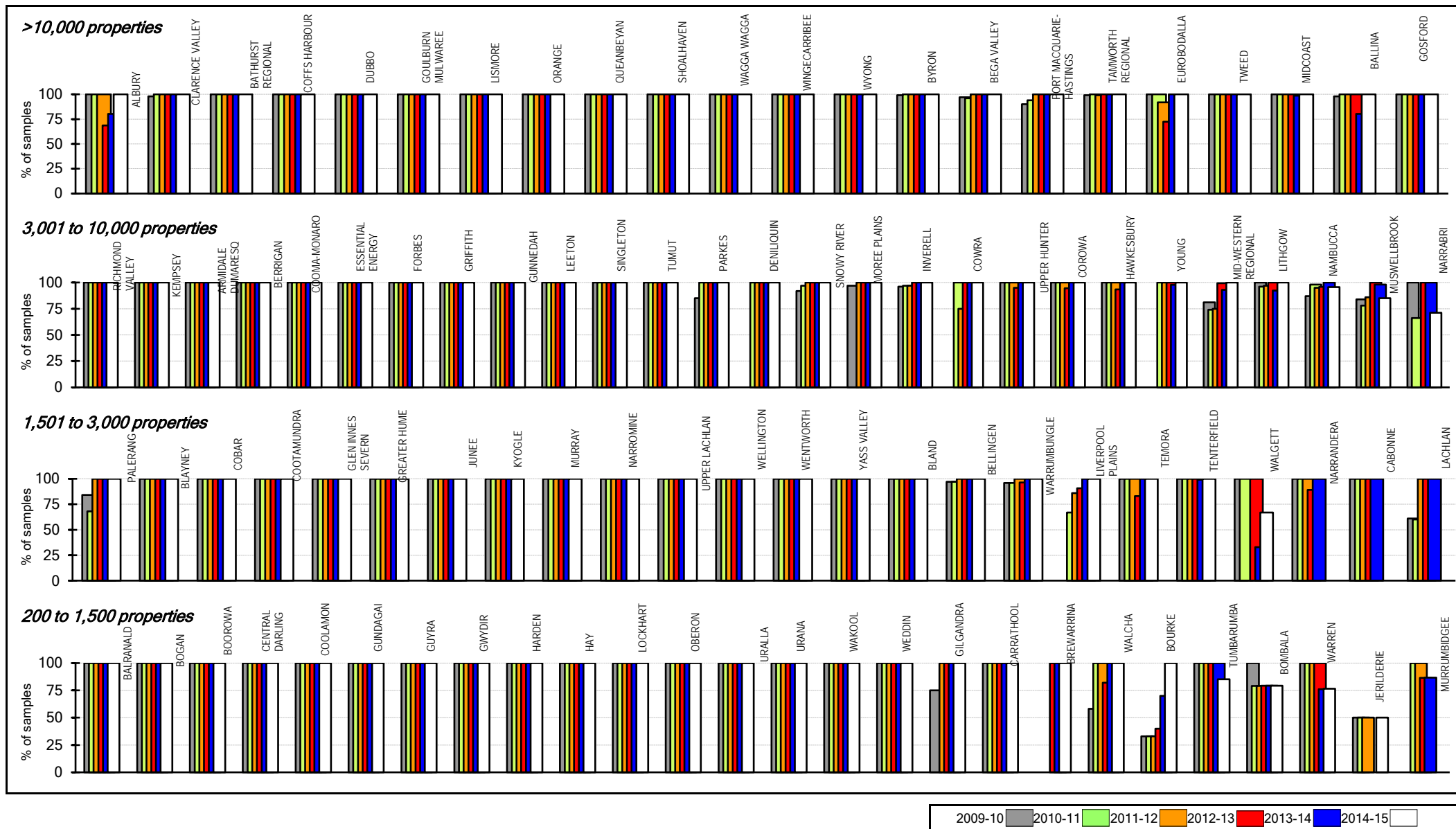
**Parameter:** 
$$\frac{[\text{Total no. of complaints (SB34) + (SB37) + (SB38) + (SB39)] \times 1000}{[\text{No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] \times \text{No. of connected properties per assessment}}$$

**Note:**  
1. For general notes see page 32. Refer also to Table 17 on page 198.





Figure 50: Compliance with BOD in licence - sewerage

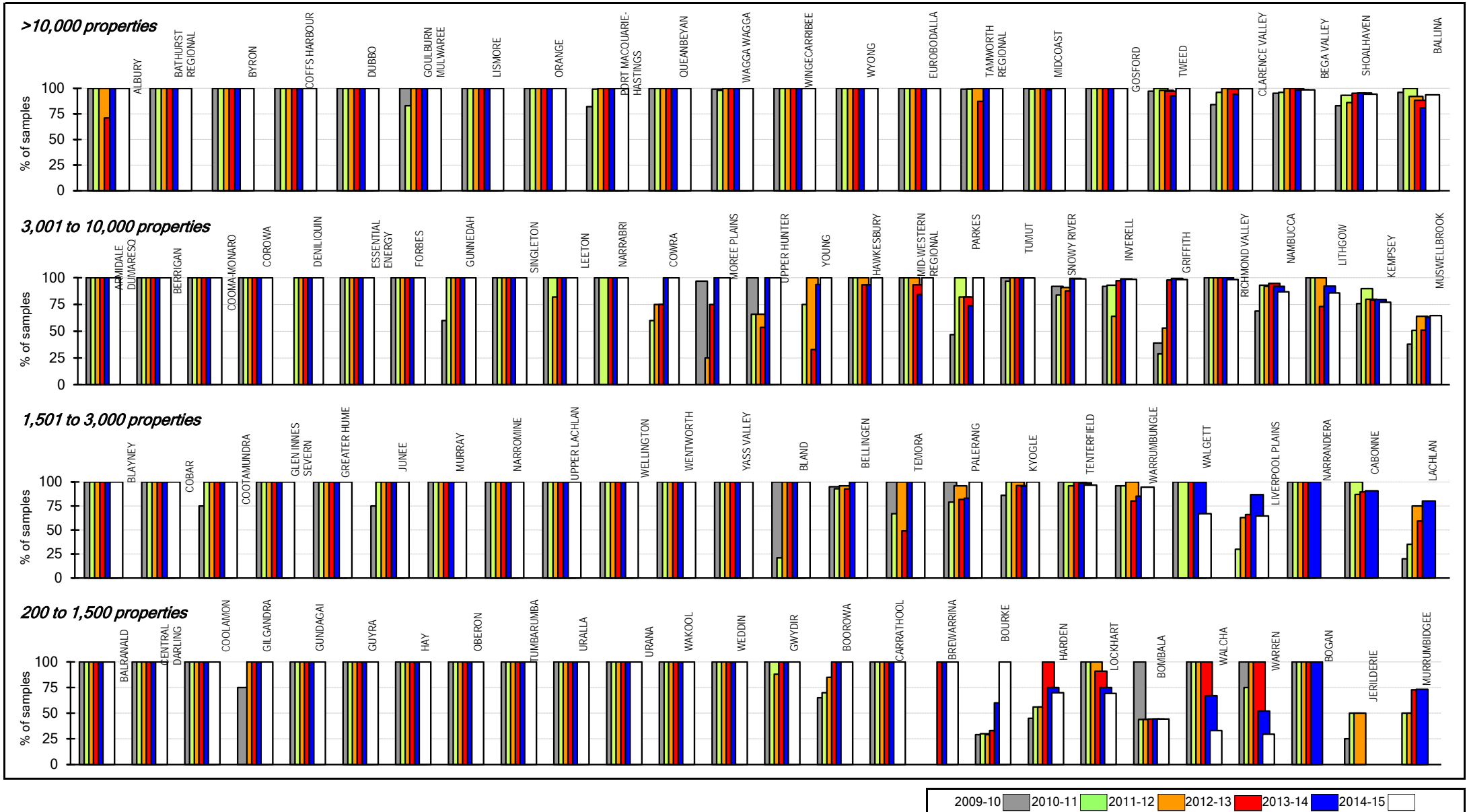


**Parameter:** Percentage of samples complying with 90 percentile Environment Protection Authority (EPA) licence limits for Biochemical Oxygen Demand (BOD) (ST50)

**Note:**

1. Refer also to Table 17 on page 198 and graph 18 on page 209.
2. For general notes see page 32.

Figure 51: Compliance with SS in licence - sewerage

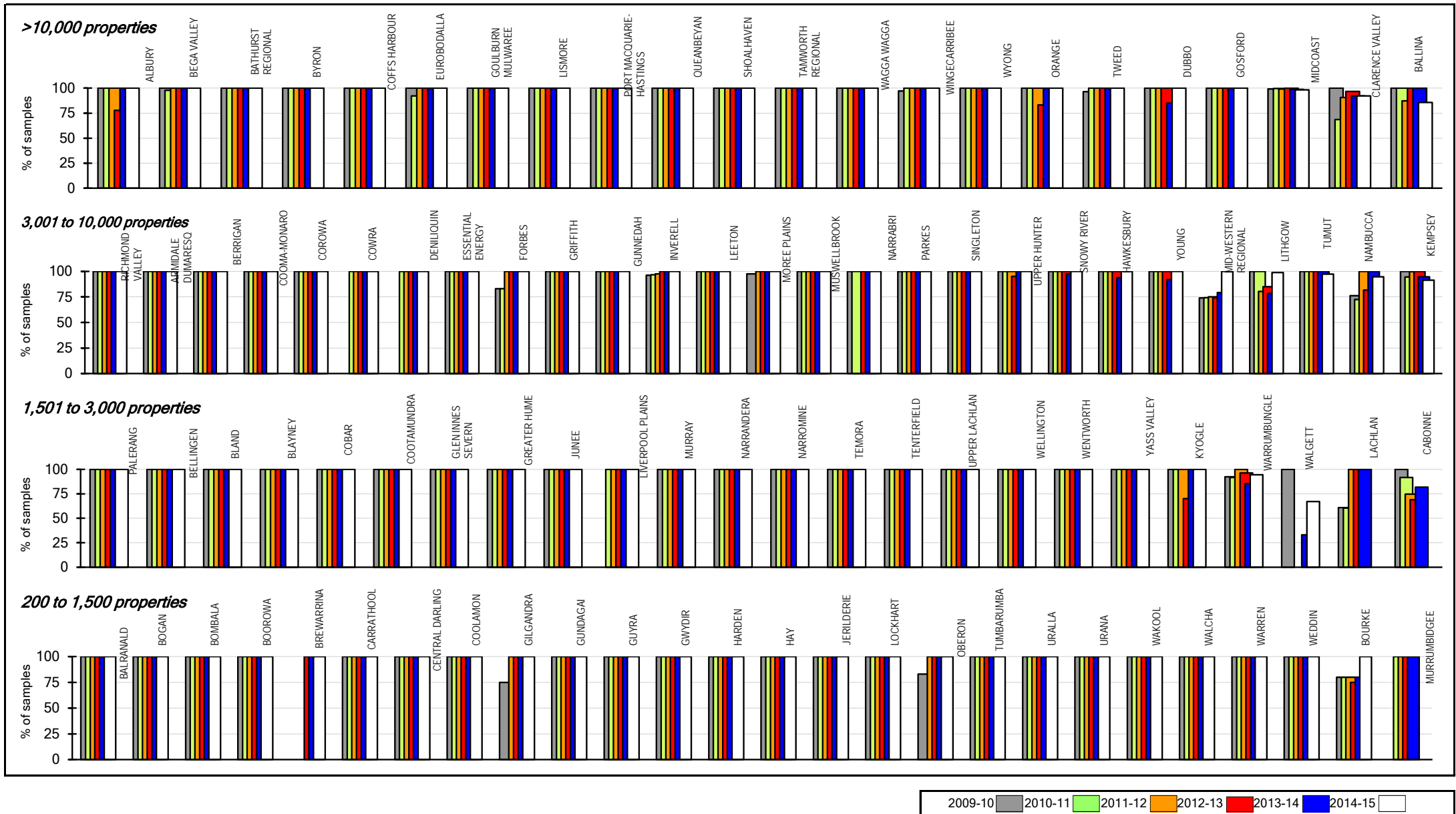


**Parameter:** Percentage of samples complying with 90 percentile Environment Protection Authority (EPA) licence limits for Suspended Solids (SS) (ST52)

**Note:**

1. Refer also to Table 17 on page 198 and graph 18 on page 209.
2. For general notes see page 32.

**Figure 52: Compliance with N in licence - sewerage**

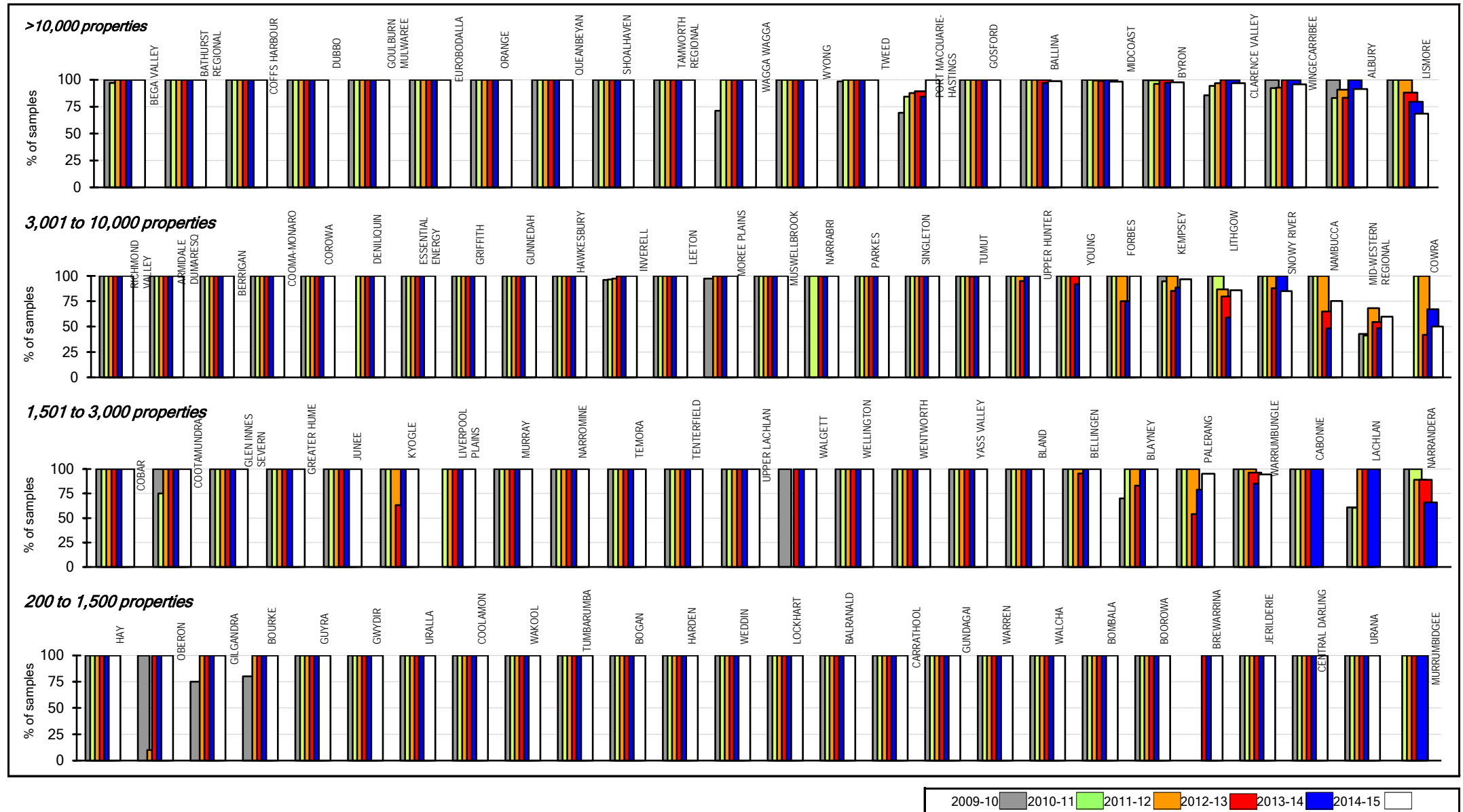


**Parameter:** Percentage of samples complying with 90 percentile Environment Protection Authority (EPA) licence limits for Total Nitrogen (ST54)

**Note:**

1. Refer also to Table 17 on page 198.
2. For general notes see page 32.

Figure 53: Compliance with P in licence - sewerage

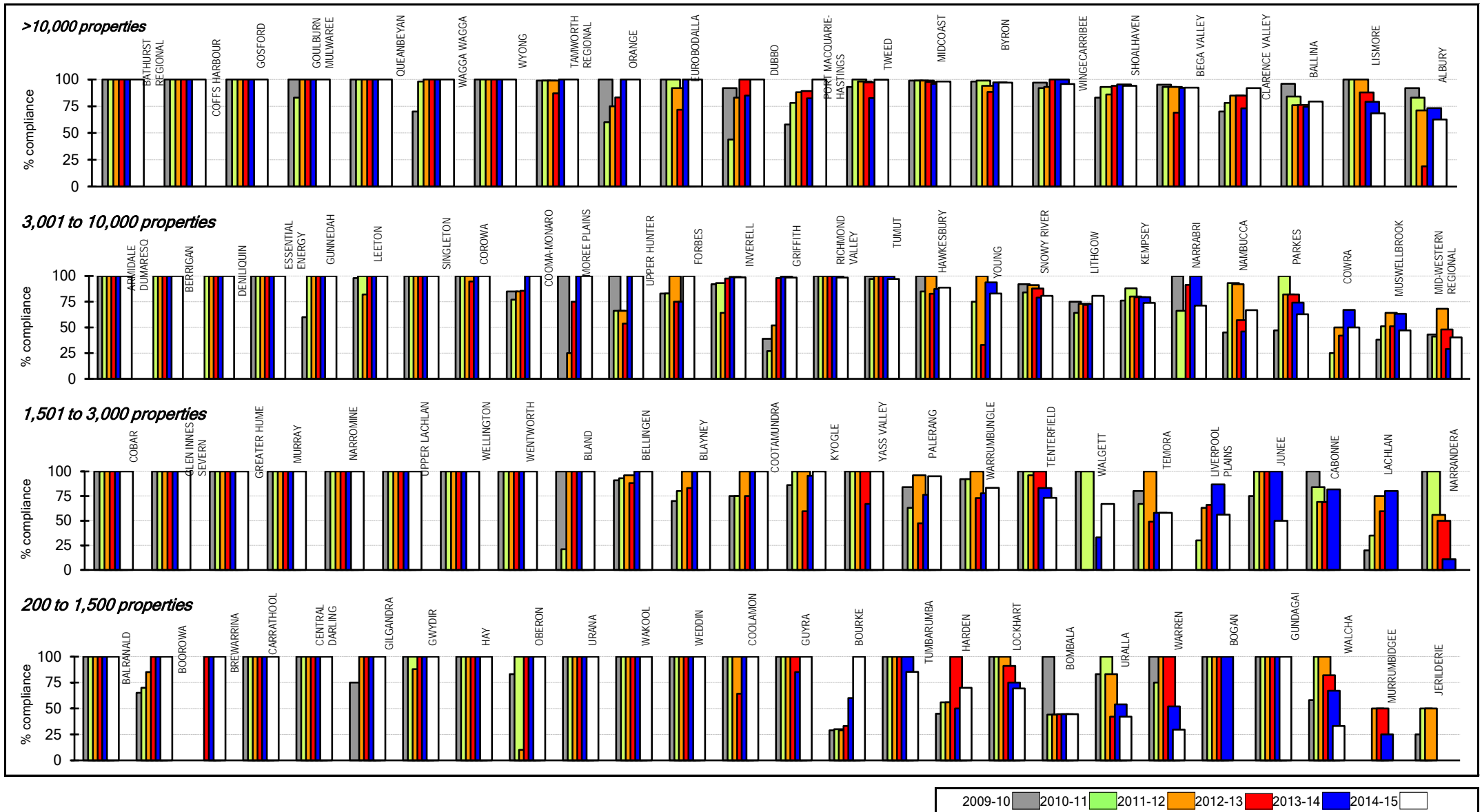


**Parameter:** Percentage of samples complying with 90 percentile Environment Protection Authority (EPA) licence limits for Total Phosphorus (ST60)

**Note:**

1. Refer also to Table 17 on page 198.
2. For general notes see page 32.

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



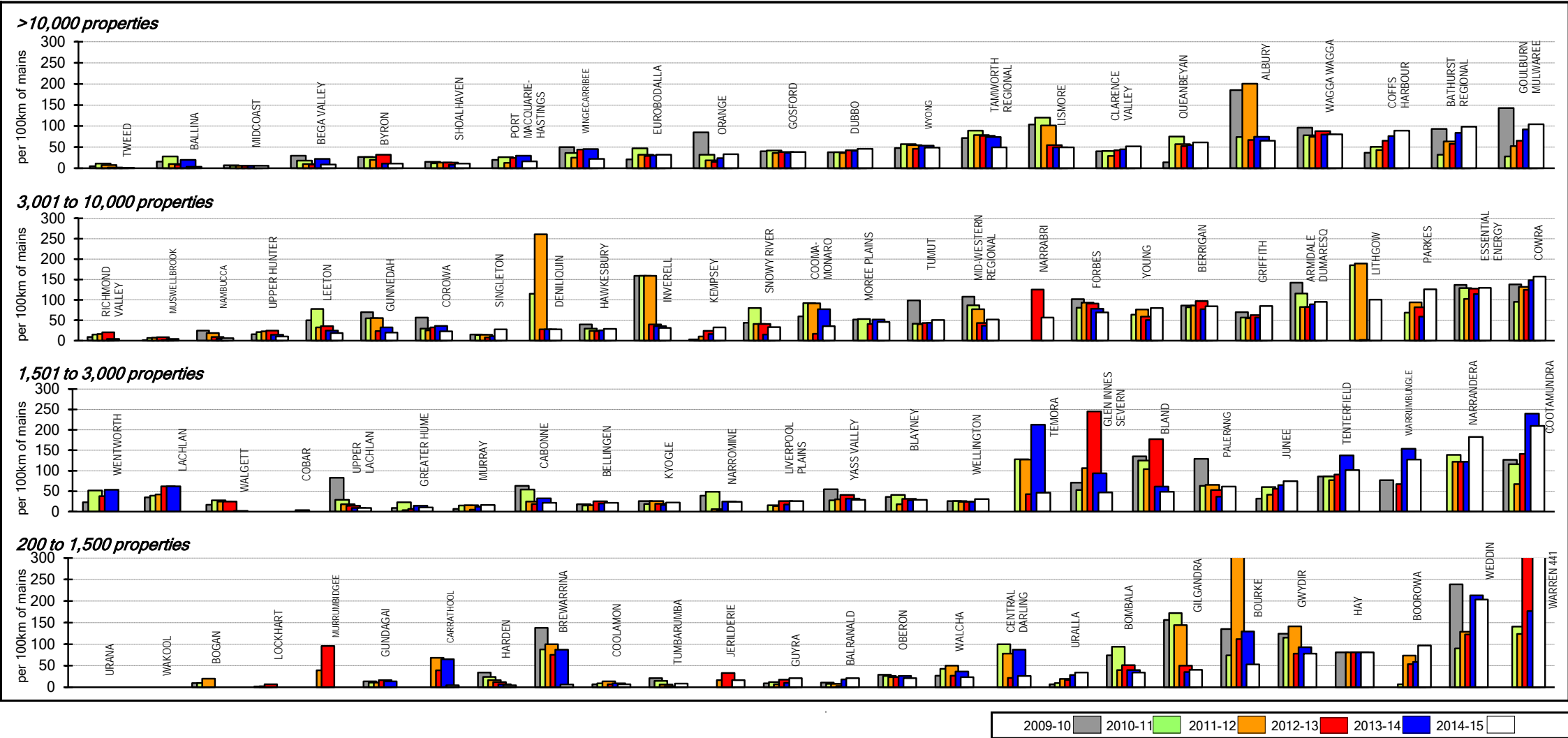
**Parameter:**  $\frac{(\text{No. of scheduled samples complying with all of the licence limits}) \times 100}{\text{Total No. of scheduled samples in reporting period}}$

**Note:**

1. Refer also to Table 17 on page 198, graph 21 on page 210 and figure 18 on page 113.
2. For general notes see page 32.



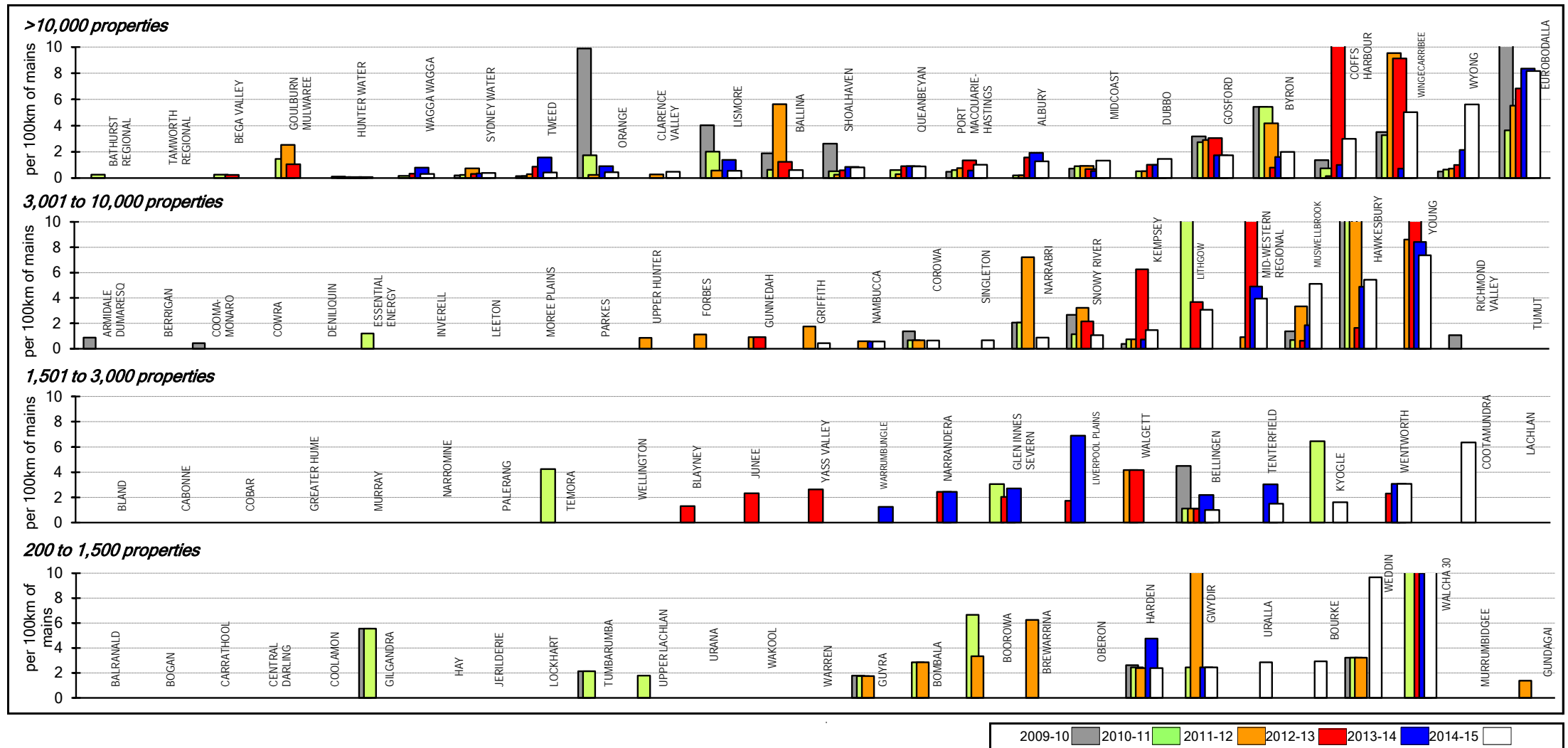
Figure 55: Sewerage main breaks and chokes - sewerage - A14



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

- Notes:**
1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 sewerage main breaks and chokes for the 26 LWUs shown ranges from 5 to 157 chokes per 100 km of sewer mains. Results for the previous 5 years are also shown.
  2. Note NWI Indicator A14 (sewerage main breaks and chokes) was revised in 2009/10 to exclude property connection sewer breaks and chokes which were previously included in this indicator. The results shown for 2008/09 are based on the previous definition which includes property connections sewer breaks and chokes.
  3. The Statewide median sewerage main breaks and chokes is 36 per 100 km of sewer mains, which is significantly higher than the National Median of 17. The NSW median has fallen from 75 to 36 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 on page 116, Table 15 on page 192, graph 20 on page 210 and figure 36 on page 113.
  4. For general notes see page 32.

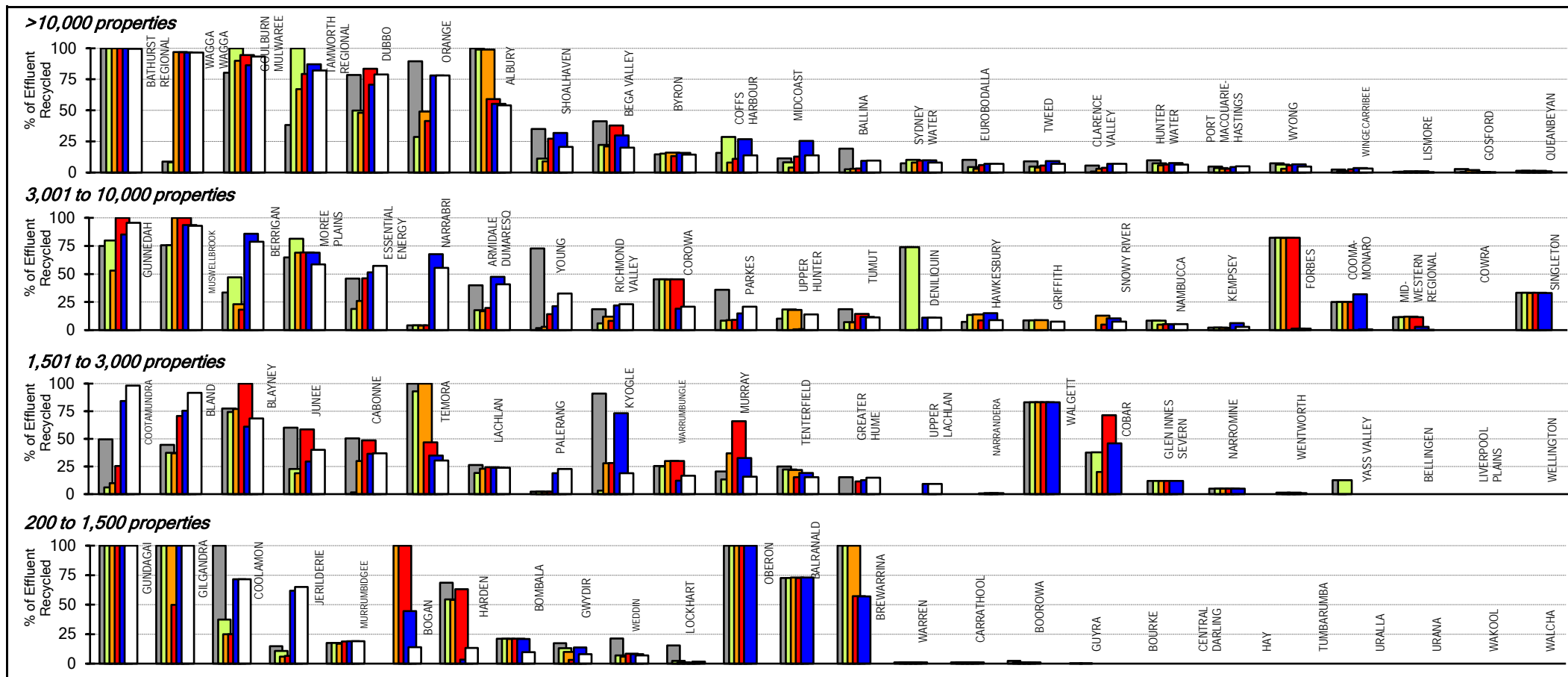
Figure 56: Sewer overflows reported to environmental regulator - sewerage - E13



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

- Notes:**
1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 overflows reported to the environmental regulator for the 24 LWUs shown ranges from nil to 7 overflows per 100 km of sewer mains. The 3 utilities on the right did not report this indicator for 2014-15. 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 0.5 per 100 km of sewer mains]. Refer also to Table 15 on page 192, graph 23 on page 210 and figure 37b on page 113.
  3. 54% of reporting LWUs had no sewer overflows reported to the environmental regulator.
  4. For general notes see page 32.

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



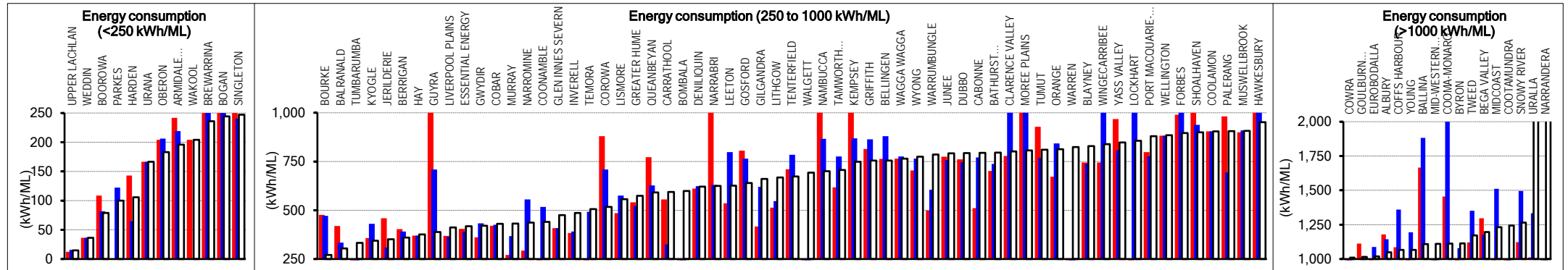
Parameter:  $\frac{\text{Total Volume Recycled (WB158)} \times 100}{\text{Volume of Sewage Treated (Secondary Treatment) (STT18)}}$



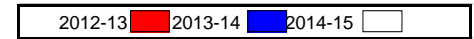
Notes:

1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 recycled water (% of sewage effluent recycled) for the 27 LWUs shown ranges from 96% to 0%.
2. The 2013-14 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 Table 15 on page 192 and Table 5 on page 116.
3. The Statewide median reuse of recycled water is 10% of effluent recycled.
4. The total volume of recycled water for regional NSW was 39,000 ML, which was 22% of the total volume of sewage collected [National Median is 15%]. Re-use was carried out by 70% of LWUs. 20% of LWUs recycled over 50% of their effluent.
5. Refer also to Table 5 on page 116, Table 15 on page 192, graph 16 on page 209, figure 27 on page 114 and to pages 10 and 19 of the 2014-15 NSW Water Supply and Sewerage Performance Monitoring Report ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)).
6. For general notes see page 32.

**Figure 58: Energy consumption per ML - sewerage**



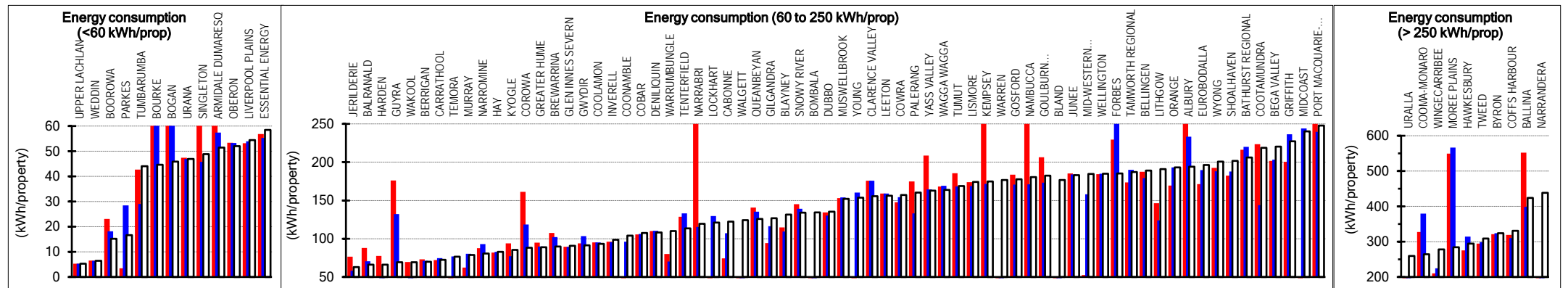
**Parameter:** 
$$\frac{\text{Total Energy Usage (SB79) } \times \text{ 1000}}{\text{Total Volume of Sewage Collected (ST15)}}$$



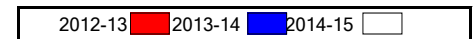
**Notes:**

1. This figure shows ranked values of the 2014-15 total energy consumption per ML. The energy consumption per ML for the 90 Local Water Utilities (LWUs) shown range from about 15 to 2500 kWh per connected property. Results for the previous 2 years are also shown.
2. For general notes see page 32.

**Figure 59: Energy consumption per property - sewerage**



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

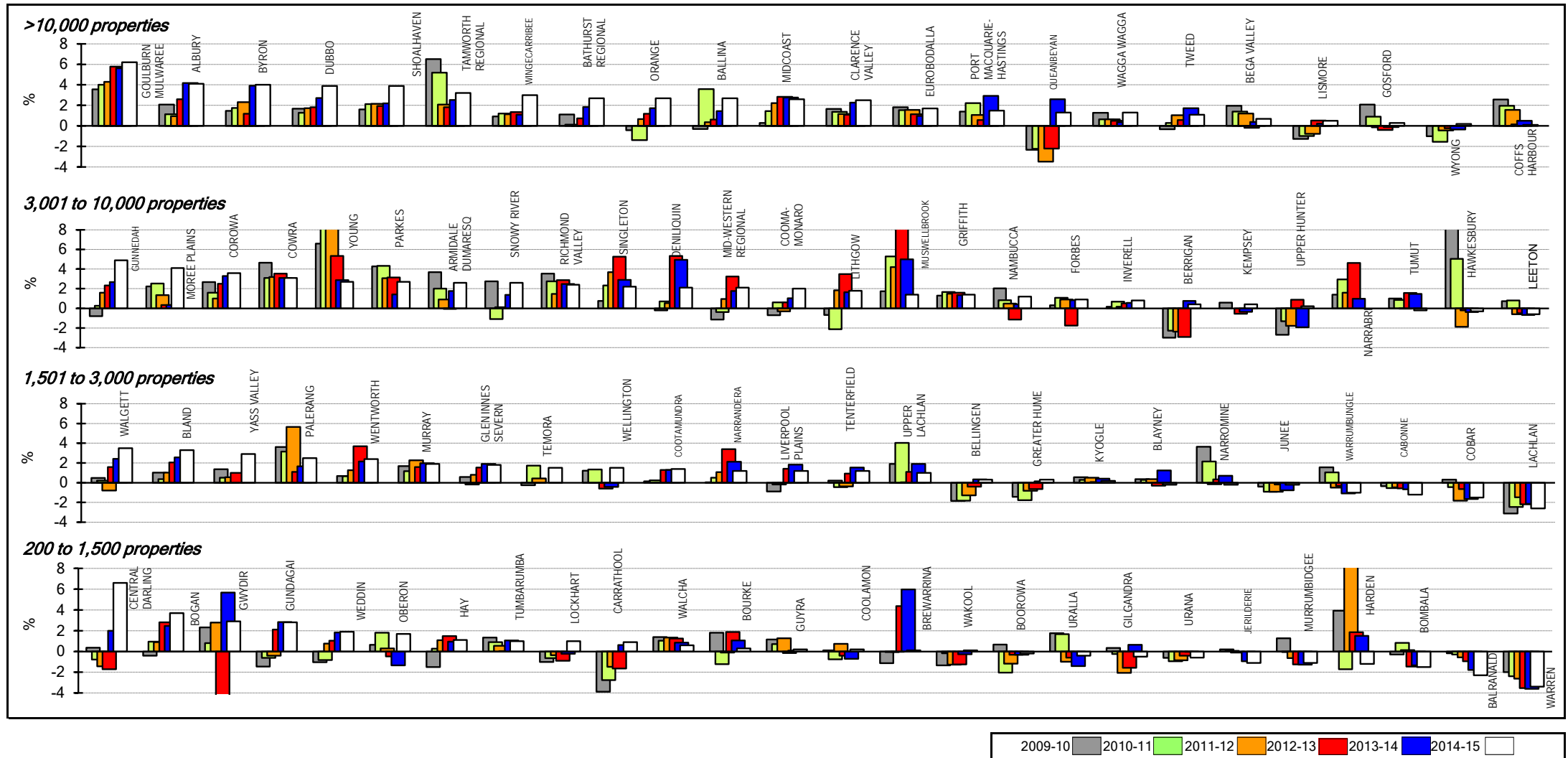


**Notes:**

1. This figure shows ranked values of the 2014-15 total energy consumption per connected property. The energy usage per connected property for the 91 Local Water Utilities (LWUs) shown range from about 5 to 440 kWh per connected property. Results for the previous 2 years are also shown.
2. For general notes see page 32.



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



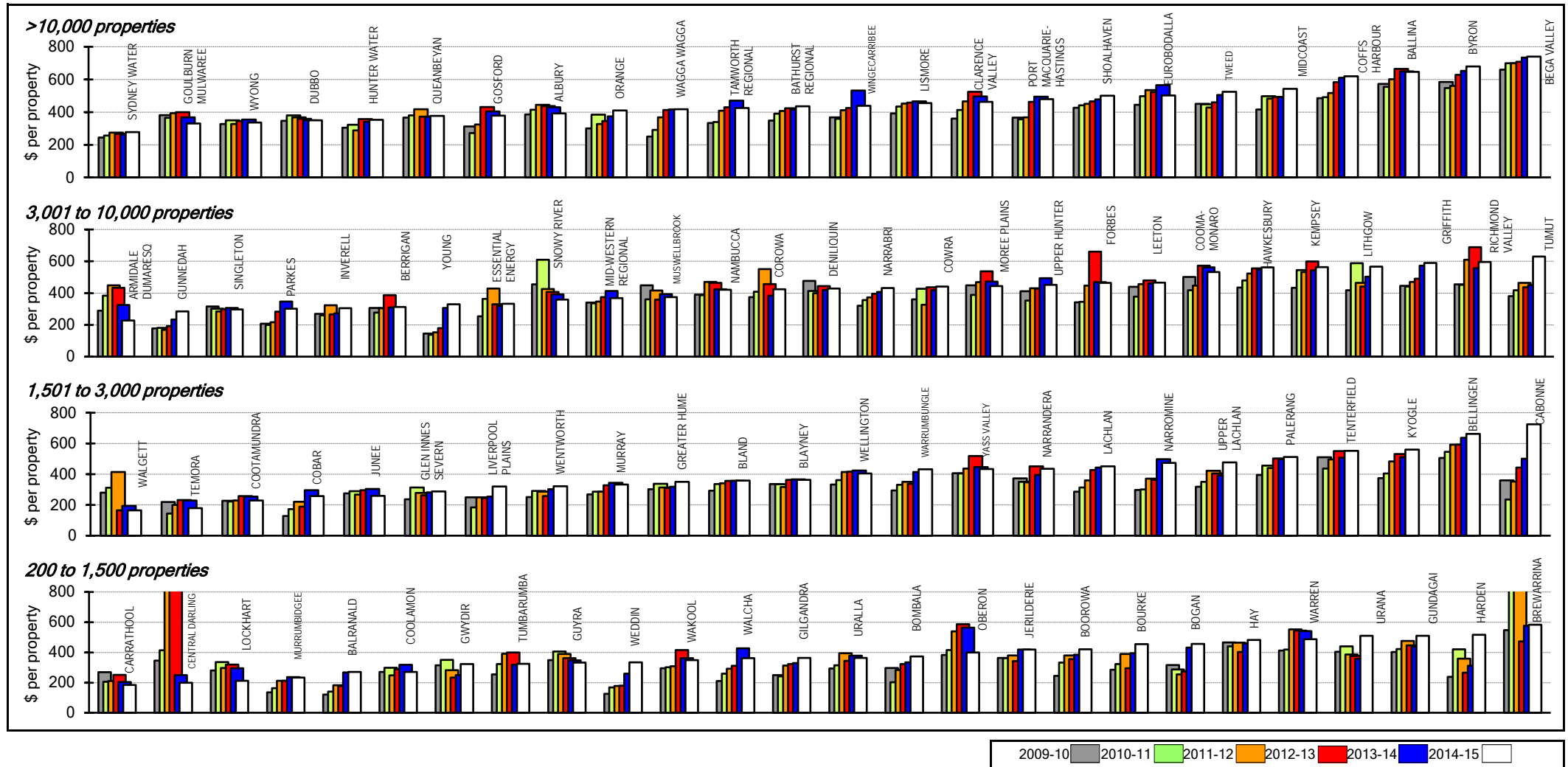
**Parameter:** 
$$\frac{[\text{Operating Result (S}_{16}\text{)} + \text{Interest Expense (S}_{4a}\text{)} - \text{Interest Income (S}_{10}\text{)} - \text{Grants for Acquisition of Assets (S}_{12a}\text{)}] \times 100}{\text{Written Down Replacement Cost of System Assets, Plant \& Equipment (S}_{34}\text{)}}$$

**Notes:**

1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 sewerage real rate of return for the 26 LWUs shown ranges from 4.9% to -0.6%. Results for the previous 5 years are also shown.
2. The Statewide median sewerage ERRR is 1.7% [National Median is 3%]. Refer also to page 26, Table 5 on page 116, Table 7 on page 146 and figure 46 on page 113.
3. The ERRR includes developer provided assets and capital contributions from other LWUs.
4. For general notes see page 32.



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



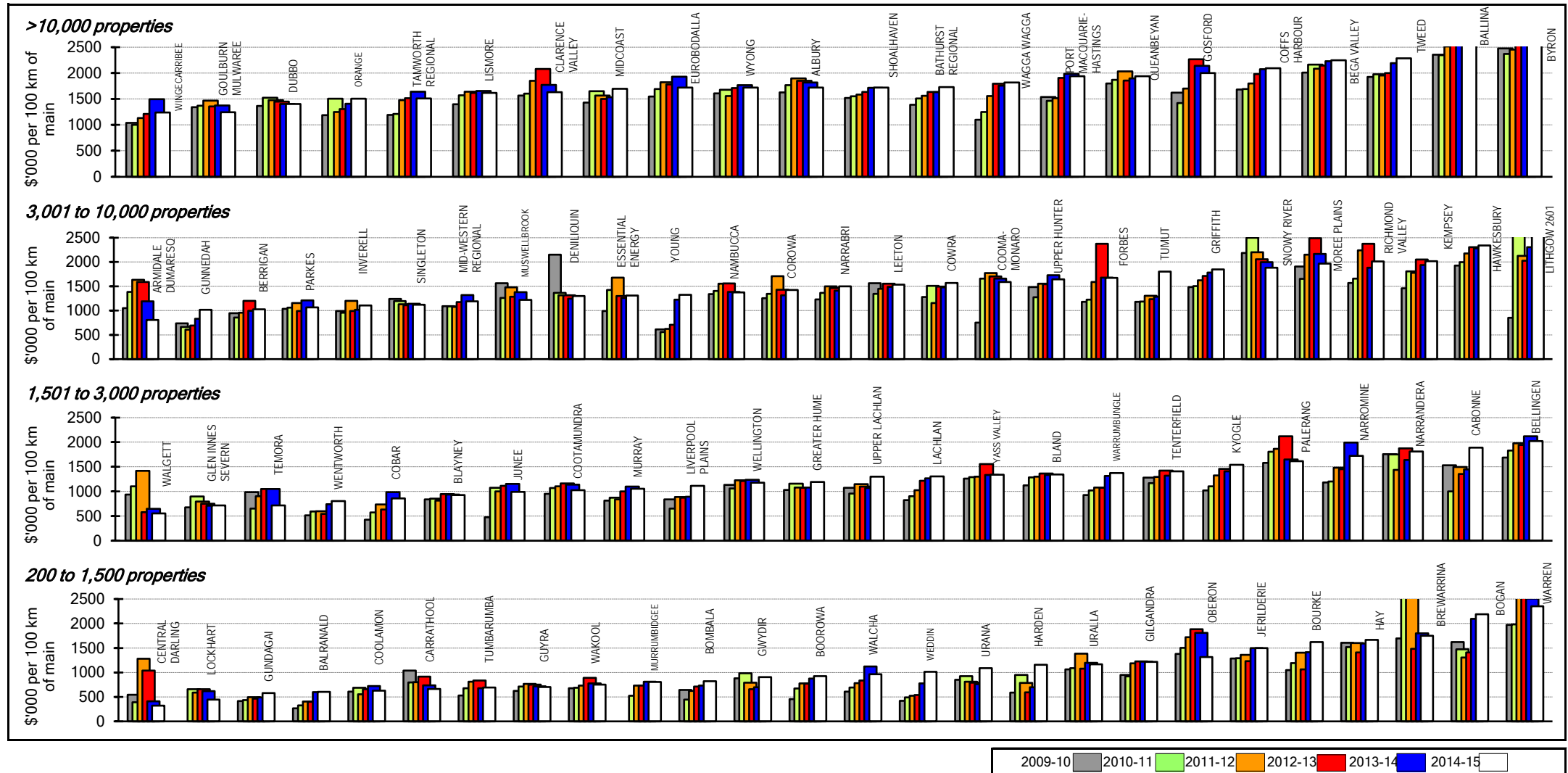
Parameter: Management Expenses (S\_1) + Total Operations Expenses (S\_2) - Purchase of Water + Bulk Supplier's OMA

[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 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the operating costs for the 27 LWUs shown ranges from \$227 to \$630 per connected property. Results for the previous 5 years are also shown.
2. The Statewide median operating cost per connected property is \$420 [National Median is \$400]. Refer also to Table 5 on page 116, Table 16 on page 195, graph 26 on page 211, figure 50 on page 115 and pages 21, 23 and 27.
3. For general notes see page 32.

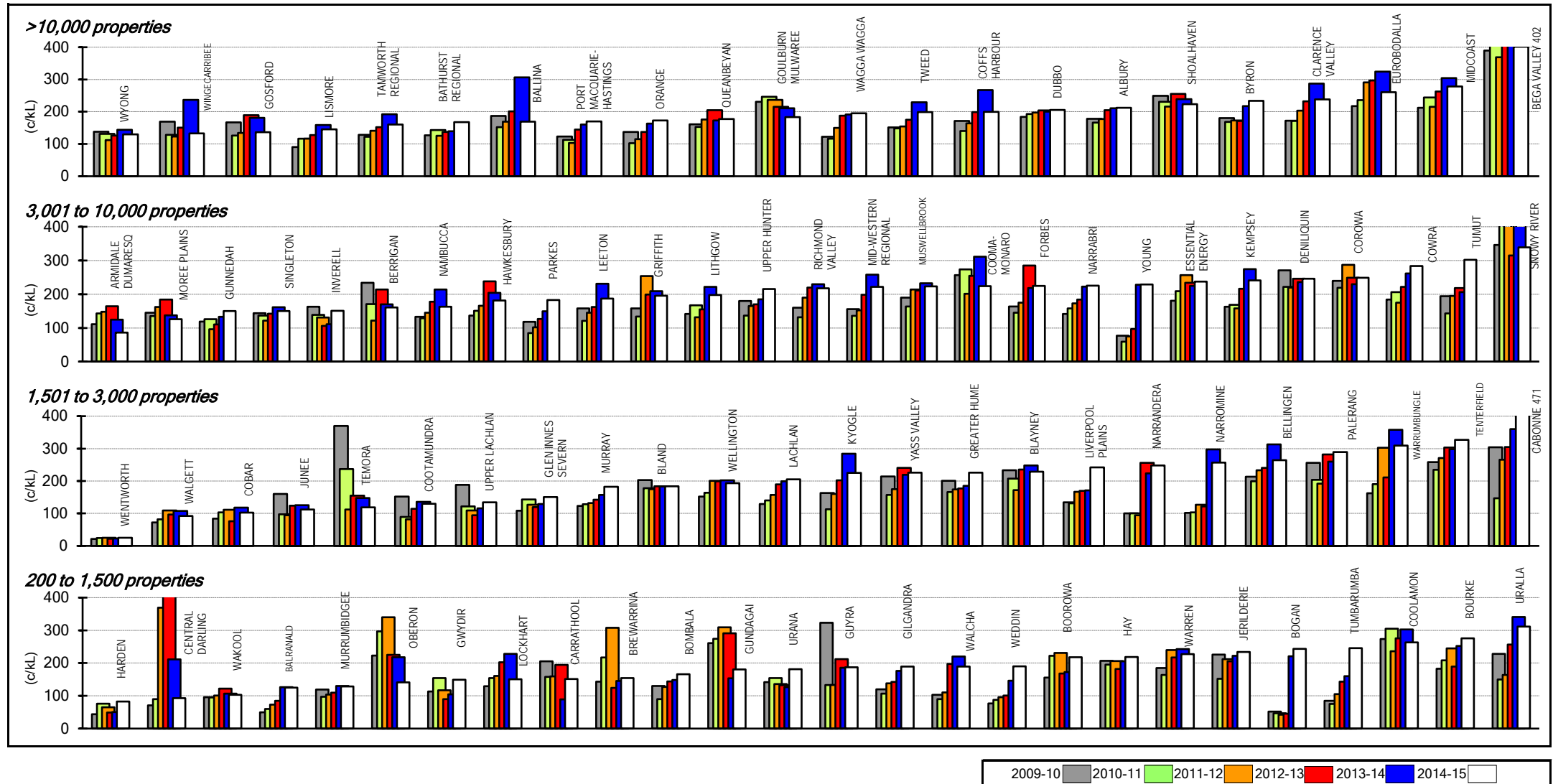
Figure 63: Operating cost (OMA) per 100 km of main - sewerage



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

- Notes:
1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the sewerage operating costs for the 27 LWUs shown ranges from \$0.81M to \$2.6M per 100 km of sewer main. Results for the previous 5 years are also shown.
  2. The Statewide median operating cost is \$1.72M per 100 km of sewer main. Refer also to Table 16 on page 195 and Table 18 on page 201.
  3. For general notes see page 32.

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

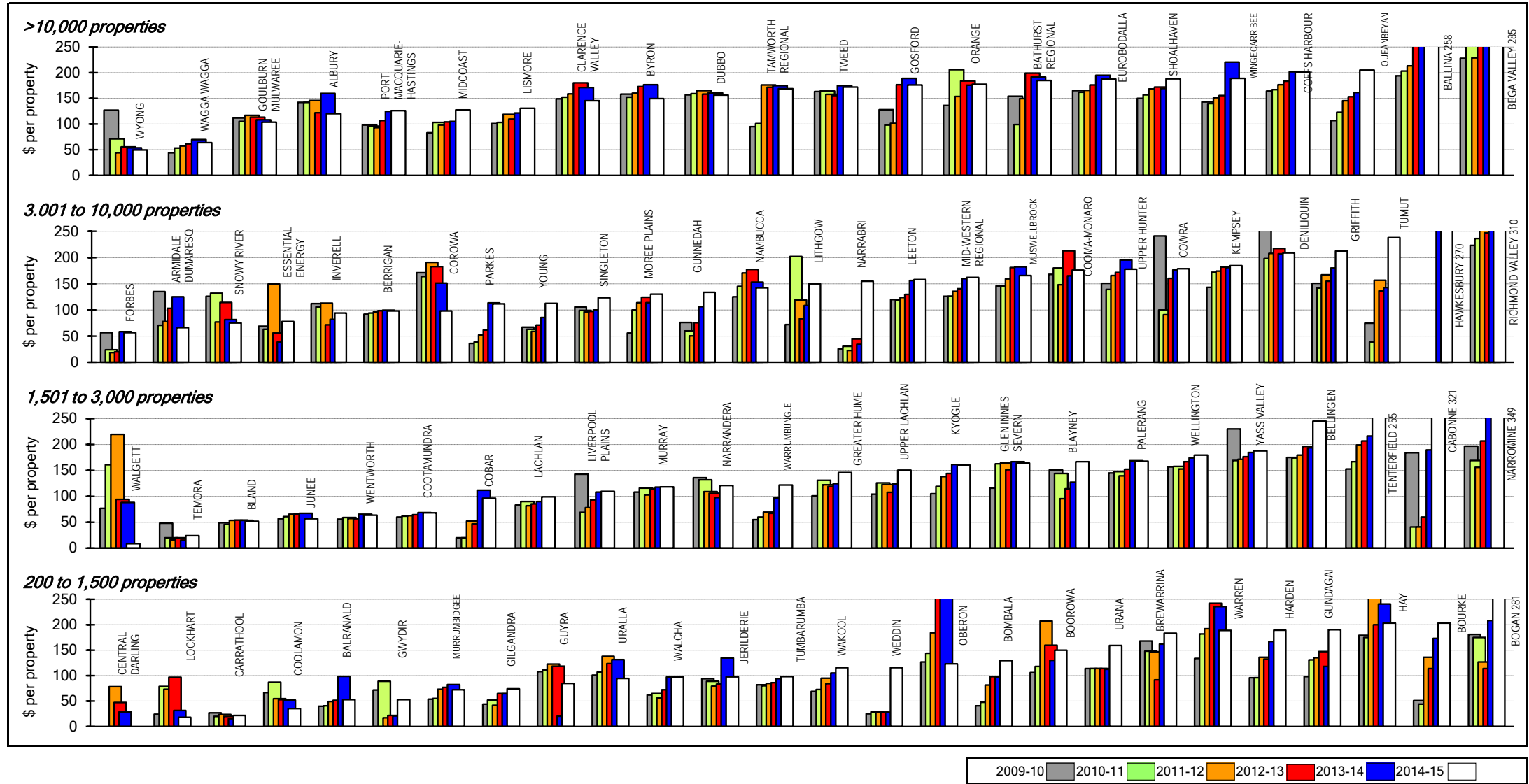


Parameter: 
$$\frac{\text{Management Expenses (S}_1\text{)} + \text{Total Operations and Maintenance Expenses (S}_2\text{)}}{\text{Volume of Sewage Treated (Secondary Treatment) (ST18) x 10}}$$

Notes:

1. This figure shows ranked values of the 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the sewerage operating costs for the 27 LWUs shown ranges from 87c/kL to 339c/kL. Results for the previous 5 years are also shown.
2. The Statewide median operating cost is 194c/kL. Refer also to Table 7 on page 146.
3. For general notes see page 32.

Figure 65: Management cost per property - sewerage



Parameter:

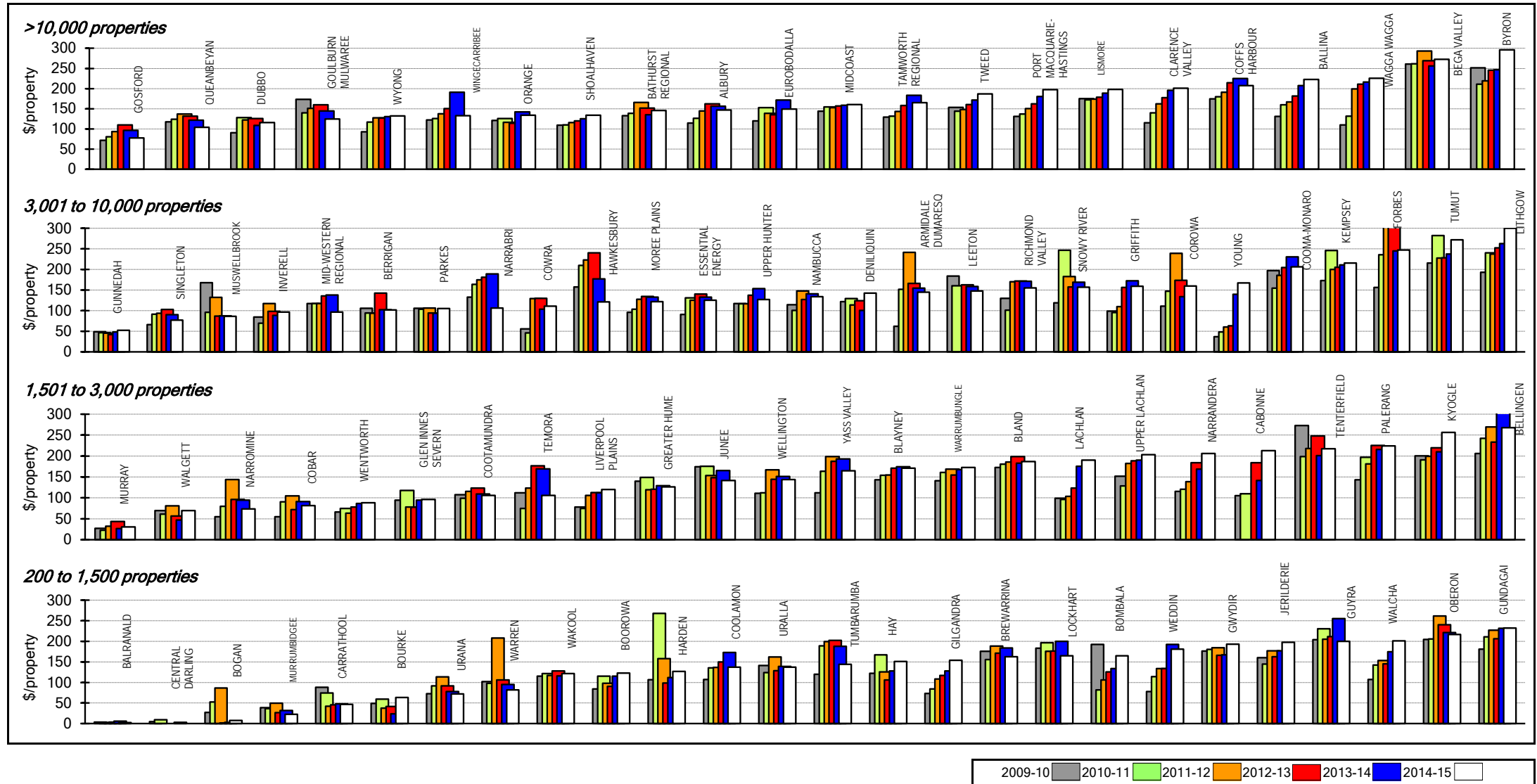
Administration cost (S\_1a) + engineering cost (S\_1b)

[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 2014-15 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, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 management costs for the 26 LWUs shown ranges from \$57 to \$310. Results for the previous 5 years are also shown.
2. The Statewide median management cost is \$160 per connected property. Refer also to page 27 and Table 16 on page 195.
3. For general notes see page 32.

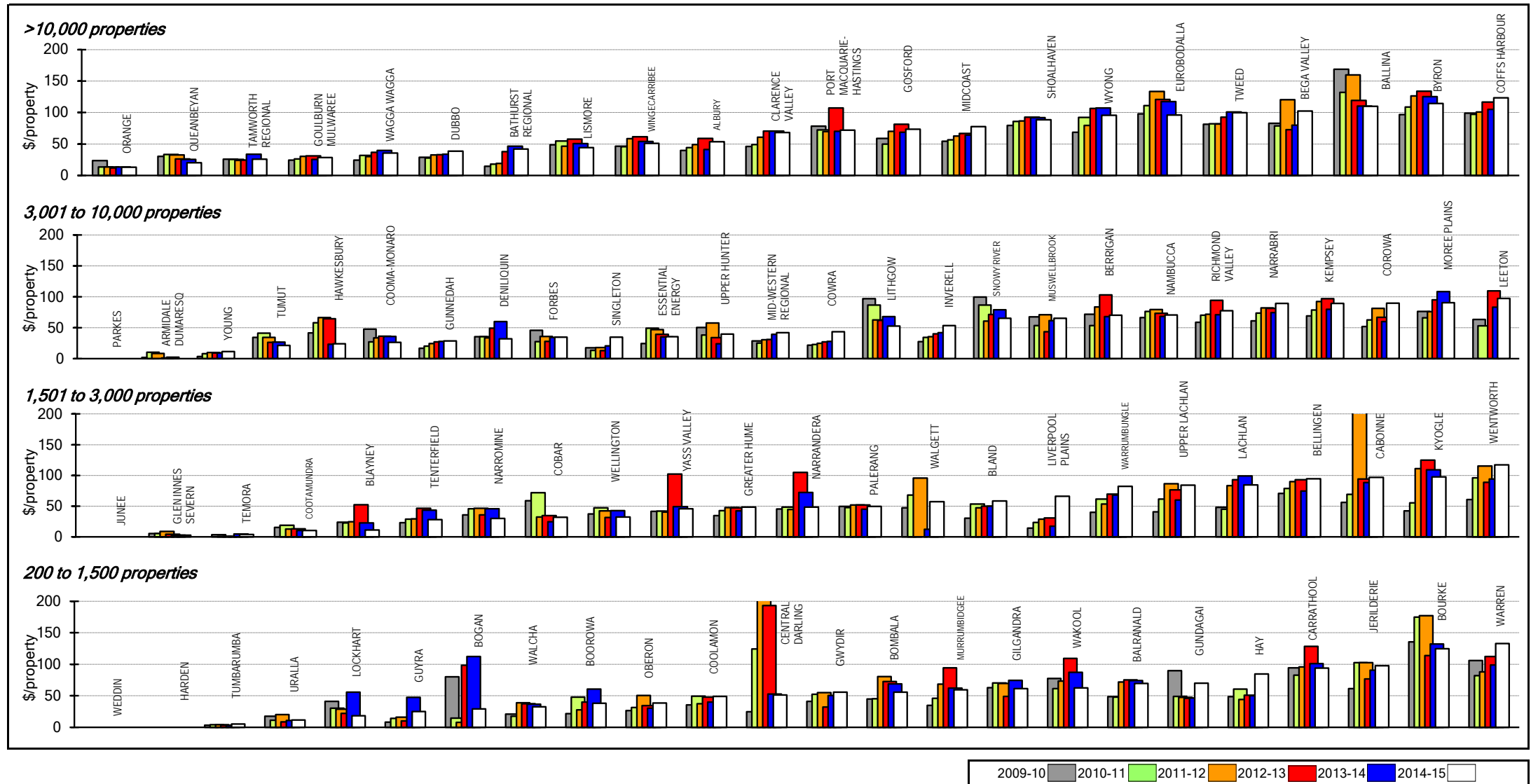
Figure 66: Treatment cost - sewerage



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

- Notes:**
1. This figure shows ranked values of the 2014-15 sewerage treatment cost for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 sewerage treatment cost for the 27 LWUs shown ranges from \$50 to \$300 per connected property. Results for the previous 5 years are also shown.
  2. The Statewide median sewerage treatment cost is \$145 per connected property. Refer also to pages 21, 23, 27 and Table 18 on page 201.
  3. For general notes see page 32.

Figure 67: Pumping cost - sewerage

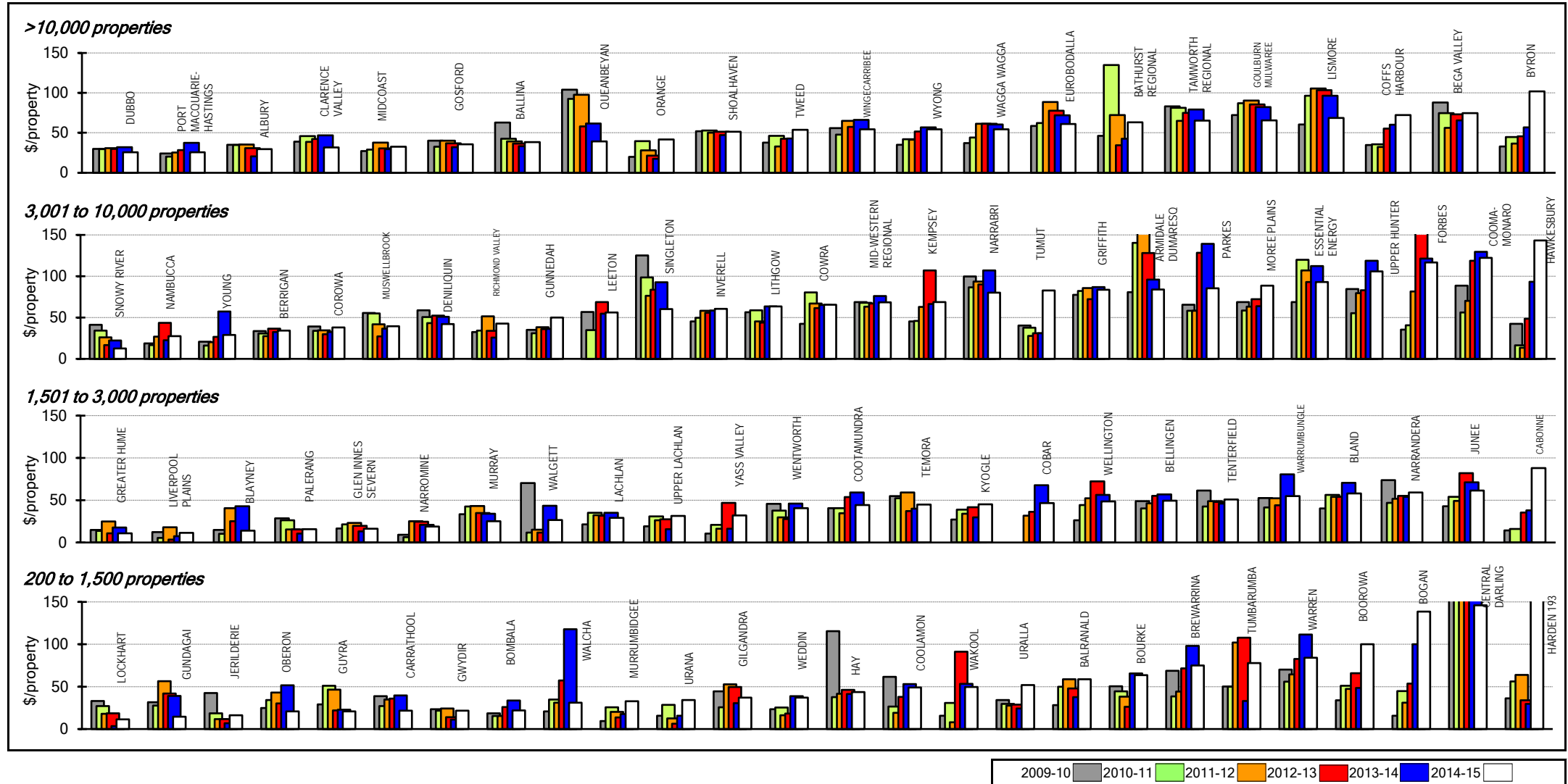


**Parameter:** Pumping station operation expenses (S\_2c) + energy cost (S\_2d) + treatment cost (S\_2e)  
 [No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment

- Notes:**
1. This figure shows ranked values of the 2014-15 sewerage pumping cost for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 sewerage pumping cost for the 26 LWUs shown ranges from \$0 to \$116 per connected property. Results for the previous 5 years are also shown.
  2. The Statewide median pumping cost is \$72 per connected property. Refer also to page 27 and Table 18 on page 201.
  3. For general notes see page 32.



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 2014-15 sewer main cost for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 3,001 to 10,000, 1,501 to 3,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 3,001 to 10,000), the 2014-15 sewer main cost for the 27 LWUs shown ranges from \$13 to \$143 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 page 27 and Table 18 on page 201.
  3. For general notes see page 32.

## 10. TABLES

Table 1: NSW water supply statewide performance indicators 2014-15

STATEWIDE PERCENTILES (% of properties)<sup>1,2</sup>

NWI No.	NSW No.	UTILITY CHARACTERISTICS	20%	Statewide Median (50%)	80%		National Median Utilities with >10,000 props
	3	Residential connected properties (% of total)	95	92	88		
	4	New Residential Dwellings Connected to Water Supply (%)	1.7	1.1	0.6		
A3	5	Properties Served per km of Main	52	31	23	A3	34
	6	Rainfall (% of average annual rainfall)	138	116	93		
W11	7	Total Urban Water Supplied (at Master Meters - ML)	14,400	7,000	2,900	W11	9,060
	8	Peak Week to Average Consumption (%)	120	141	168		
	9	Renewals Expenditure (% of current replacement cost of system assets)	0.9	0.4	0.3		
	10	Employees (employees per 1000 properties)	1.0	1.4	2.0		
<b>SOCIAL - Charges/Bills</b>							
P1.3	12a	Residential Water Usage Charge (c/kL for 2014-15)	256	213	152	P1.3	185
	12	Residential Water Usage Charge (c/kL for 2015-16)	270	226	160		
P3	14a	Typical Residential Bill (\$/assessment for 2014-15)	503	566	666	P3	589
	14	Typical Residential Bill (\$/assessment for 2015-16)	492	593	691		
	15a	Typical Developer Charge (\$/equivalent tenement for 2014-15)	8,600	5,500	3,300		
	15	Typical Developer Charge (\$/equivalent tenement for 2015-16)	8,700	5,900	3,200		
F4	16	Residential Revenue from Usage Charges (% of residential revenue)	75	72	65	F4	66
F5	17	Revenue per property - Water (\$)	1,011	827	694	F5	881
<b>SOCIAL - Health</b>							
	18	Water Supply Coverage (% of Urban Population with reticulated WS)	99.8	99.5	97.4		
	19	Physical Water Quality Compliance (%)	100	100	100		
	19a	Chemical Water Quality Compliance (%)	100	100	100		
	20	Microbiological (E. coli) Water Quality Compliance (%)	100	100	100		
H3	20a	Percent Population with Microbiological Compliance	100	100	100	H3	100
<b>SOCIAL - Levels of Service</b>							
C9	25	Water Quality Complaints (per 1000 properties)	0.2	2.9	9	C9	1.5
C10	26	Water Service Complaints (per 1000 properties)	0.5	6	27	C10	0.5
C17	27	Incidence of unplanned interruptions (per 1000 properties)	6	24	74	C17	91
C15	28	Average Duration of Interruption (minutes)	120	133	205	C15	117
A8	30	Number of Main Breaks (per 100 km of main)	5	9	16	A8	13
	31	Drought Water Restrictions (% of time)	0	0	56		
	32	Total Days Lost (%)	0	3	5		
<b>ENVIRONMENTAL</b>							
W12	33	Average Annual Residential Supplied (kL/property)	145	166	245	W12	181
	33a	Average Annual Residential Supplied - COASTAL (kL/property)	141	150	172		
	33b	Average Annual Residential Supplied - INLAND (kL/property)	181	225	327		
	33c	Peak Day Water Supplied (kL/d/connected property)	0.9	1.2	2.1		
	33d	Total Urban Recycled Water Supplied (ML)	58	288	517		
A10	34	Real Loss (leakage) (L/service connection/d)	50	60	90	A10	76
W10.1/C4	34a	Non Revenue Water (NRW) (L/service connection/d)	67	94	136		78
	35	Energy Consumption (kWh/ML)	420	700	880		
	36	Renewable Energy Consumption (% of Total Energy)	0.0	0.0	0.0		
E12	36a	Net Greenhouse Gas Emissions - WS & Sge (net tonnes CO <sub>2</sub> - equivalents/1000props)	290	410	460	E12	393
<b>ECONOMIC - Financial</b>							
	42	Current Replacement Cost per Assessment - Water (\$)	20,900	16,400	12,200		
F17	43	Economic Real Rate of Return - Water (%)	2.0	1.6	0.8	F17	1.9
	44	Return on Assets - Water (%)	2.8	1.0	0.4		
F9/C4	44a	Written Down Replacement Cost - Water (\$/property)	15,100	10,000	7,600		7,660
F22	45	Net Debt to Equity - WS & Sge(%)	10	-1.0	-8	F22	11
F23	46	Interest Cover - WS & Sge	>100	4	1	F23	2
	47	Loan Payment - Water (\$/property)	356	69	0		
F30	47a	Net Profit After Tax Ratio - WS & Sge (%)	27	10	2	F30	10
F24	47b	Net Profit After Tax - WS & Sge (\$'000)	6,560	2,340	260	F24	7,120
<b>ECONOMIC - Efficiency</b>							
	48	Operating Cost (OMA) per 100 km of Main (\$'000)	890	1,320	1,730		
F11	49	Operating Cost (OMA) per property (\$/property)	310	400	590	F11	455
	50	Operating Cost (OMA) per kL (c/kL)	87	129	168		
	51	Management Cost (\$/property)	105	141	192		
	52	Treatment Cost (\$/property)	36	58	134		
	53	Pumping Cost (\$/property)	13	31	70		
	54	Energy Cost (\$/property)	8	18	54		
	55	Water Main Cost (\$/property)	49	74	100		
F28	56	Capital Expenditure - Water Supply (\$/property)	350	155	81	F28	163

## Notes:

- The above NSW performance indicators are Statewide Percentiles which are calculated on a percentage of connected properties basis as this best reveals statewide performance by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
- 20% is the top 20% of properties, Median (50%) is the median of properties (Statewide) and 80% is the bottom 20% of properties.
- To compare the performance of one LWU with other LWUs, the calculation of percentiles on a percentage of LWUs basis is the most appropriate. Percentiles (on a percentage of LWUs basis) are shown on the Table on page 278 of Appendix C.
- National Medians are from the National Performance Report 2014-15 which shows the performance indicators for 76 Australian urban water utilities providing reticulated water supply services to >10,000 properties [Note 14 on page 34]. The 7 bulk supply utilities are excluded.

**Table 2. NSW sewerage statewide performance indicators 2014-15**STATEWIDE PERCENTILES (% of properties)<sup>1,2</sup>

NWI No.	NSW No.	UTILITY CHARACTERISTICS	20%	Statewide Median (50%)	80%		National Median Utilities with >10,000 props
	3	Residential connected properties (% of total)	95	93	91		
	4	New Residential Dwellings Connected to Sewerage (%)	1.8	1.0	0.4		
A6	5	Properties Served per km of Main	51	38	33	A6	40
W18	6	Volume of Sewage Collected (ML)	16,100	5,200	1,400	W18	5,640
	7	Renewals Expenditure (% of current replacement cost of system assets)	1.1	0.5	0.2		
	8	Employees (per 1000 properties)	0.9	1.6	2.1		
<b>SOCIAL - Charges/Bills</b>							
P4.1	11a	Residential Access Charge for 2014-15 (\$/assessment)	470	669	781	P4.1	620
	11	Residential Access Charge for 2015-16 (\$/assessment)	485	697	804		
P6	12a	Typical Residential Bill for 2014-15 (\$/assessment)	470	669	791	P6	667
	12	Typical Residential Bill for 2015-16 (\$/assessment)	485	697	806		
	13a	Typical Developer Charge for 2014-15 (\$/equivalent tenement)	9,300	5,100	2,000		
	13	Typical Developer Charge for 2015-16 (\$/equivalent tenement)	9,500	5,100	2,100		
	14	Non-residential sewer usage charge (c/kL)	220	150	96		
F6	15	Revenue per property - Sge (\$)	1,131	882	664	F6	947
<b>SOCIAL - Health</b>							
	16	Sewerage Coverage (% of Urban Population with Reticulated Sge Service)	99.5	97.9	94.0		
E3	17	Percent of sewage treated to a tertiary level (%)	100	96.8	30.4	E3	91
	18	Percent of sewage volume treated that was compliant (%)	100	100.0	94.1		
<b>SOCIAL - Levels of Service</b>							
	21	Odour Complaints (per 1000 properties)	0.0	0.8	1.3		
C11	22	Sewerage Service Complaints (per 1000 properties)	2	6	23	C11	1.0
C16	23a	Average Sewerage Interruption (min)	60	95	120	C16	102
	25	Total Days Lost	0.0	3.1	4.6		
<b>ENVIRONMENTAL</b>							
W19	26	Volume of Sewage Collected per property (kL)	281	238	190	W19	214
W26	26a	Total recycled water supplied (ML)	1,810	520	20	W26	1,580
W27	27	Recycled Water (% of effluent recycled)	55	10	0	W27	15
E8	28	Biosolids Reuse (%)	100	100	0	E8	100
	30	Energy Consumption - sewerage (kWh/ML)	630	790	1,050		
	31	Renewable Energy Consumption (% of total energy consumption)	0.0	0.0	0.0		
E12	32	Net greenhouse gas emissions - WS & Sge (net tonnes CO2 equivalents per 1000 proper	290	410	460	E12	393
	33	90th Percentile Licence Limits for Effluent Discharge: BOD 35 mg/L; SS 40 mg/L; Total N 25 mg/L; Total P 5 mg/L					
	34	Compliance with BOD in Licence (%)	100	100	100		
	35	Compliance with SS in Licence (%)	100	100	100		
A14	36	Sewerage Main Breaks and Chokes (per 100 km of main)	11	35	61	A14	17
	37a	Sewer Overflows (per 100 km of main)	3	10	43		
E13	37b	Sewer Overflows Reported to Environmental Regulator (per 100 km of main)	0.0	0.9	2.9	E13	0.5
	39	Non-residential percentage of sewage collected (%)	28	20	15		
<b>ECONOMIC - Financial</b>							
	43	Revenue from Non-residential and Trade Waste Charges (% of total rates & charges)	25	18	13		
	44	Revenue from Trade Waste Charges (% of total rates & charges)	7	2	0		
	45	Current Replacement Cost of Fixed Sewerage Assets (\$/assessment)	24,000	16,500	13,900		
F18	46	Economic Real Rate of Return - sewerage (%)	3.1	1.7	0.4	F18	3.0
	46a	Return on Assets - sewerage (%)	3.1	1.3	0.2		
F10/C8	46b	Written Down Replacement Cost - sewerage (\$/property)	17,400	11,600	7,800		9,350
F22	47	Net Debt to Equity - WS & Sge (%)	10	-1.0	-8	F22	11
F23	48	Interest Cover - WS & Sge	>100	4	1	F23	2
	48a	Loan Payment - sewerage (\$/property)	254	110	27		
F24	48b	Net Profit After Tax - WS & Sge (\$'000)	6,560	2,340	260	F24	7,120
<b>ECONOMIC - Efficiency</b>							
	49	Operating Cost - sewerage (OMA) per 100 km of Main (\$'000)	1,370	1,720	1,970		
F12	50	Operating Cost - sewerage (OMA) per property (\$/property)	350	420	510	F12	400
	51	Operating Cost - sewerage (OMA) per kL (c/kL)	134	193	234		
	52	Management Cost - sewerage (\$/property)	98	160	188		
	53	Treatment Cost - sewerage (\$/property)	106	145	198		
	54	Pumping Cost - sewerage (\$/property)	35	72	95		
	55	Energy Cost - sewerage (\$/property)	29	37	55		
	56	Sewer Main Cost (\$/property)	32	51	65		
F29	57	Capital Expenditure - sewerage (\$/property)	404	204	107	F29	217

**Notes:**

- The above NSW performance indicators are Statewide Percentiles which are calculated on a percentage of connected properties basis as this best reveals statewide performance by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
- 20% is the top 20% of properties, Median (50%) is the median of properties (Statewide) and 80% is the bottom 20% of properties.
- To compare the performance of one LWU with other LWUs, the calculation of percentiles on a percentage of LWUs basis is the most appropriate. Percentiles (on a percentage of LWUs basis) are shown on the Table on page 279 of Appendix C.
- National Medians are from the National Performance Report 2014-15 which shows the performance indicators for 75 Australian urban water utilities providing reticulated sewerage services to >10,000 connected properties [Note 14 on page 34].

**Table 2A. NSW water supply and sewerage statewide performance indicators 2014-15**STATEWIDE PERCENTILES (% of properties)<sup>1,2</sup>

NWI No.	NSW No.	UTILITY CHARACTERISTICS	20%	Statewide Median (50%)	80%		National Median Utilities with >10,000 props
	1	Employees - WS & Sge (employees per 1000 properties)	1.9	3.0	4.1		
		<b>SOCIAL - Charges/Bills</b>					
P8	2	Typical Residential Bill - WS & Sge for 2014-15 (\$/assessment)	973	1,235	1,457	P8	1,320
	2a	Typical Residential Bill - WS & Sge for 2015-16 (\$/assessment)	977	1,290	1,497		
	3	Typical Developer Charge - WS & Sge for 2014-15 (\$/equivalent tenement)	17,900	10,600	5,300		
	3a	Typical Developer Charge - WS & Sge for 2015-16 (\$/equivalent tenement)	18,200	11,000	5,300		
		<b>SOCIAL - Levels of Service</b>					
C12	4	Billing and account complaints - WS & Sge (per 1000 properties)	0.2	0.7	2.3	C12	0.3
C13	5	Total Water and Sewerage complaints (no. per 1000 properties)	3	19	59	C13	4
C18	6	Customer Restrictions for Non Payment of Bill - WS & Sge (per 1000 properties)	0.0	0.0	0.8	C18	0.3
		<b>ENVIRONMENTAL</b>					
E12	7	Net Greenhouse Gas Emissions - WS & Sge (net tonnes CO2 - equivalents/1000props)	290	410	460	E12	393
		<b>ECONOMIC - Financial</b>					
F1+F2	8	Total Revenue - WS & Sge (\$'000)	85,400	37,200	11,600	F1+F2	53,900
F3	9	Total income for whole of utility- WS & Sge (\$'000)	87,000	35,800	10,300	F3	57,800
F5+F6	10	Total Revenue per property - WS & Sge (\$/property)	2,140	1,710	1,360	F5+F6	1,830
F7	11	Total income for whole of utility - WS & Sge (\$/property)	1,870	1,630	1,380	F7	1,750
F8	12	Revenue from Community Service Obligations (%)	1.5	1.3	0.9	F8	1.7
	13	Current Replacement Cost per Assessment - WS & Sge (\$)	44,900	32,900	26,100		
F19	14	Economic Real Rate of Return - WS & Sge (%)	2.9	1.4	0.8	F19	2.3
	15	Return on Assets - WS & Sge (%)	2.8	1.0	0.3		
F22	16	Net Debt to Equity - WS & Sge(%)	10	-1.0	-8	F22	11
F23	17	Interest Cover - WS & Sge	>100	4	1	F23	2.0
F24	18	Net Profit After Tax (NPAT) - WS & Sge (\$'000)	6,560	2,340	260	F24	7,120
F30	19	NPAT Ratio - WS & Sge (%)	27	10	2	F30	10
		<b>ECONOMIC - Efficiency</b>					
F13	20	Operating Cost - WS & Sge (OMA) (\$/property)	660	820	1,100	F13	862
	21	Management Cost (\$/property)	203	301	380		
F16	22	Capital Expenditure - WS & Sge (\$'000)	27,400	8,200	2,500	F16	15,800
F28+F29	23	Capital Expenditure - WS & Sge (\$/prop)	754	359	188	F28+F29	380

- Notes**
1. The above NSW performance indicators are Statewide Percentiles which are calculated on a percentage of connected properties basis as this best reveals statewide performance by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
  2. 20% is the top 20% of properties, Median (50%) is the median of properties (Statewide) and 80% is the bottom 20% of properties.
  3. To compare the performance of one LWU with other LWUs, the calculation of percentiles on a percentage of LWUs basis is the most appropriate. Percentiles (on a percentage of LWUs basis) are shown on the Table on pages 278 and 279 of Appendix C.
  4. National Medians are from the National Performance Report 2014-15 which shows the performance indicators for 71 Australian urban water utilities providing reticulated water supply and sewerage services to >10,000 properties [Note 14 on page 34].
  5. Bulk supply utilities and single service utilities are excluded.



Table 3: 2014-15 best-practice management implementation

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



Table 3: 2014-15 best-practice management implementation

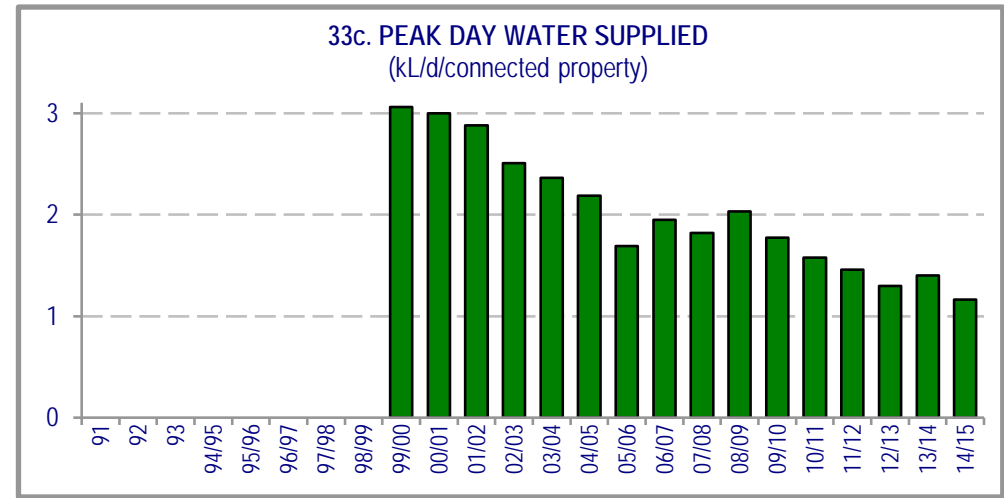
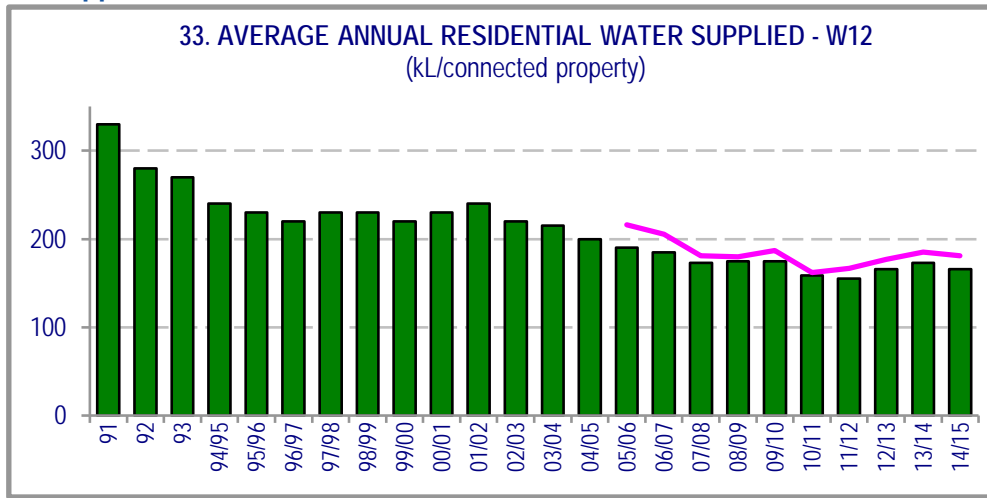
WATER UTILITY (sorted on connected properties)		WATER SUPPLY											SEWERAGE														
		WATER SUPPLY & SEWERAGE REVENUE (\$M)	IMPLEMENTATION OF BPM OUTCOMES (see Note 1)										IMPLEMENTATION OF BPM OUTCOMES (see Note 1)														
			(1) Strategic Business Plan Complete Current 20 to 30-year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



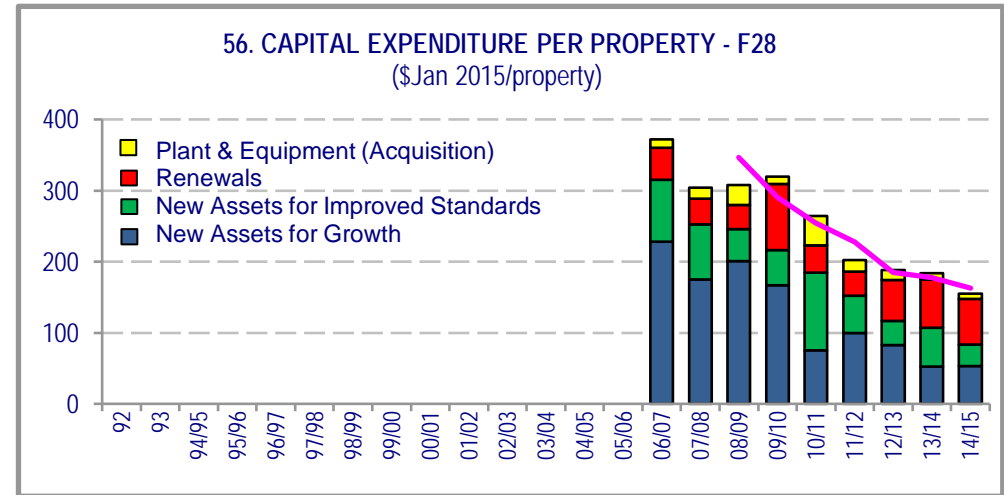
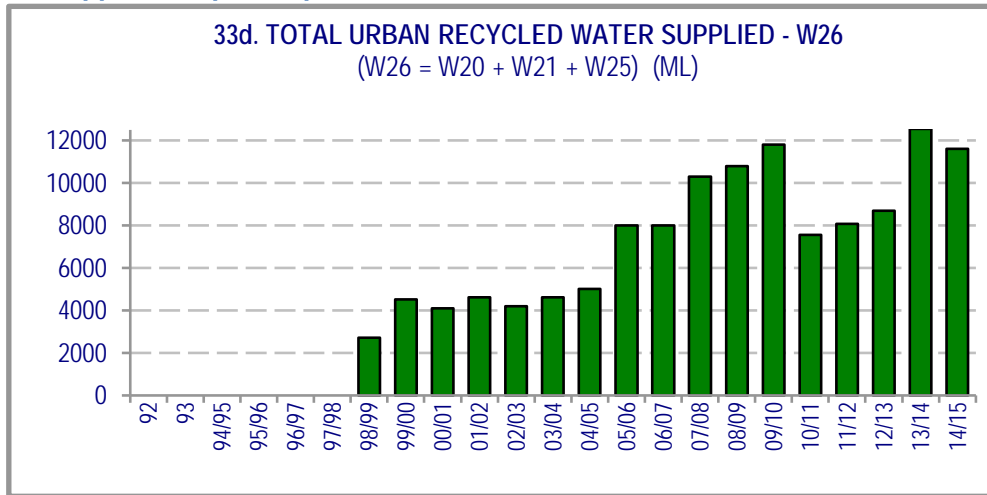


**Table 4: Trends in statewide performance indicators - 1991 to 2014-15**  
**Water supply**

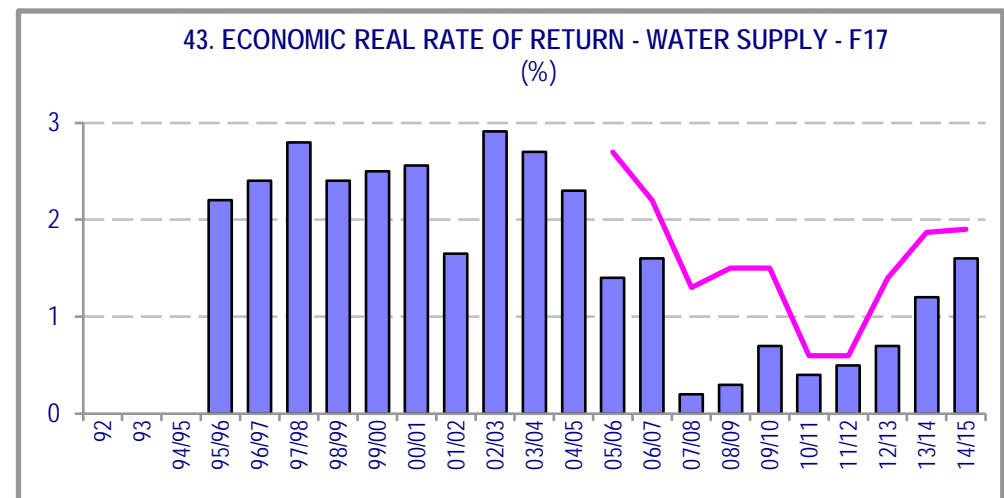
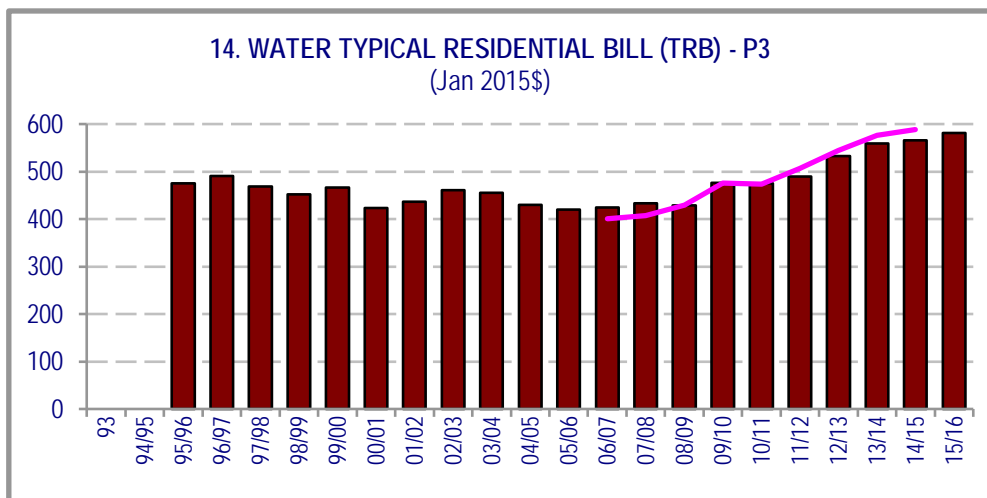
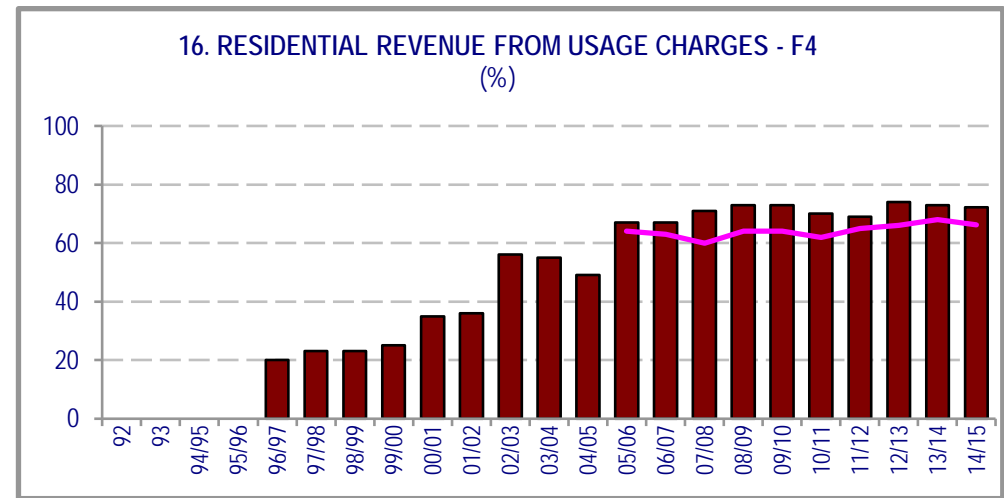
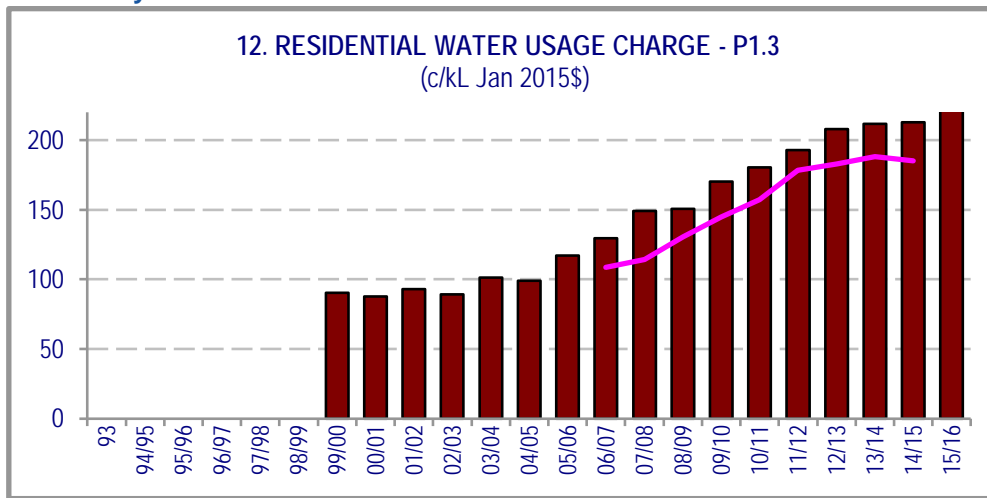
**Water supplied**



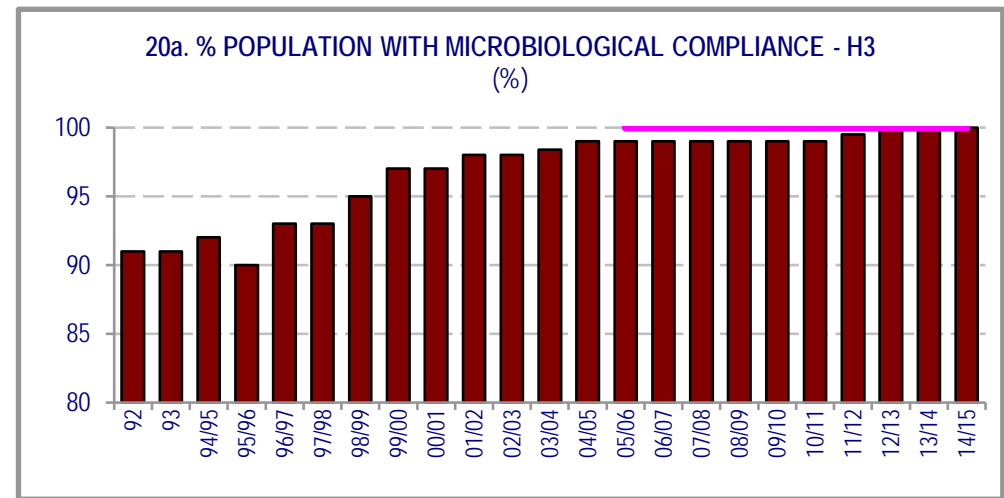
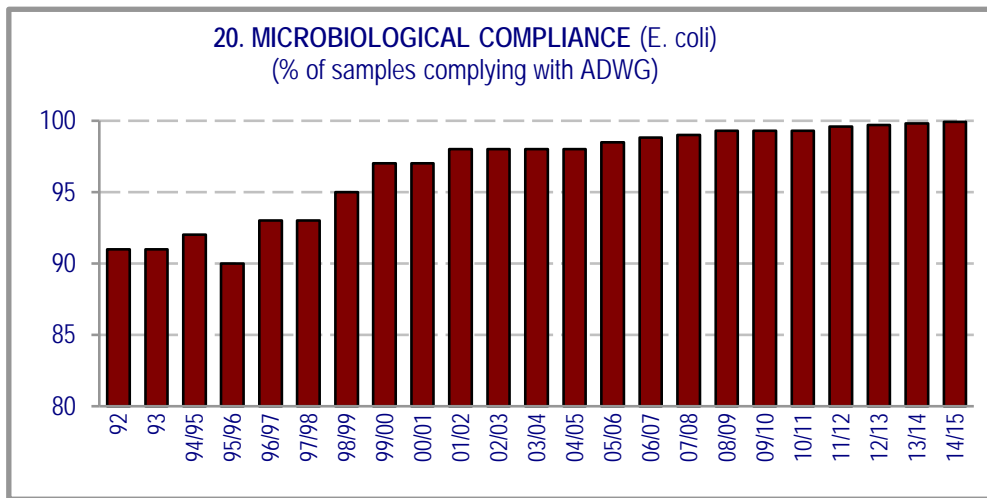
**Water supplied / capital expenditure**



**Cost recovery**



**Health**

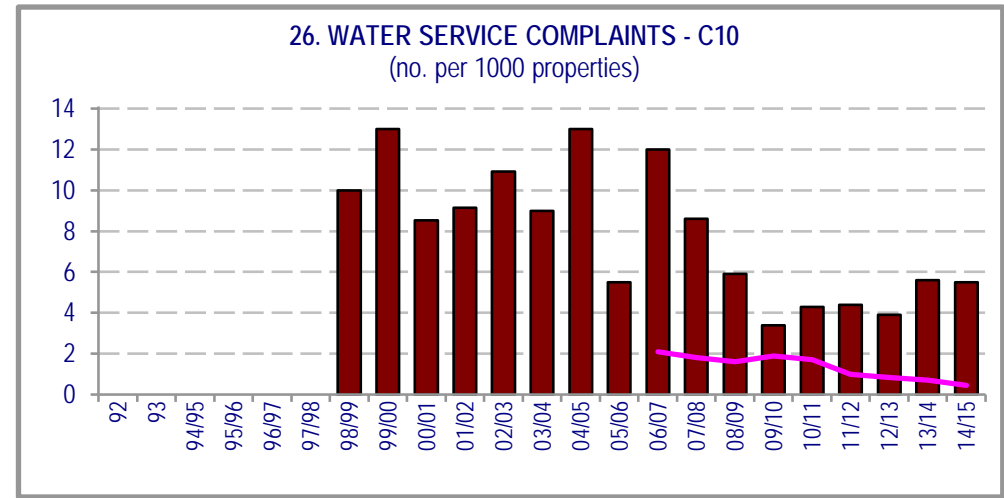
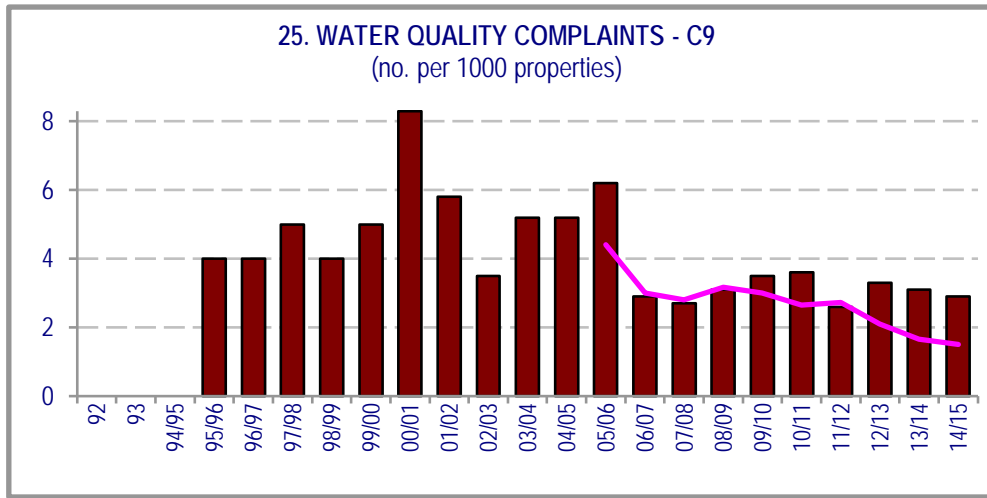


**Water Supply Notes:**

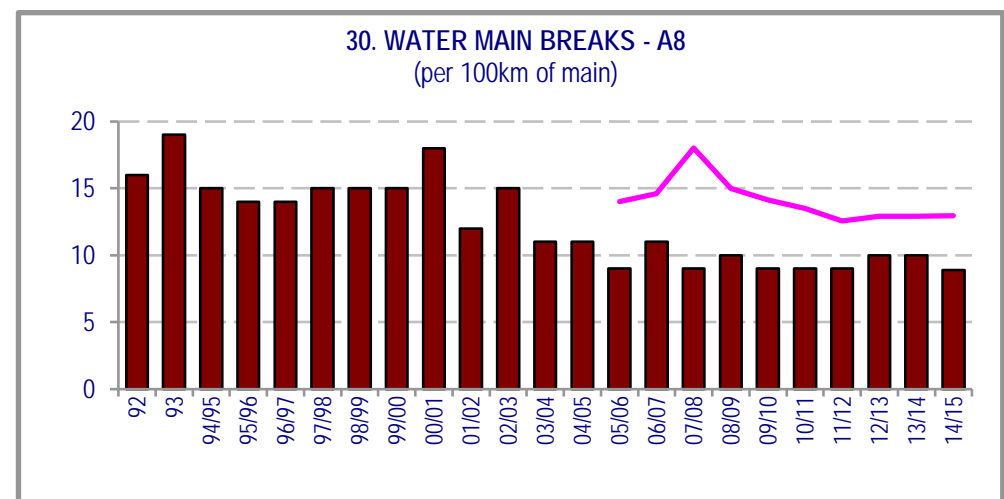
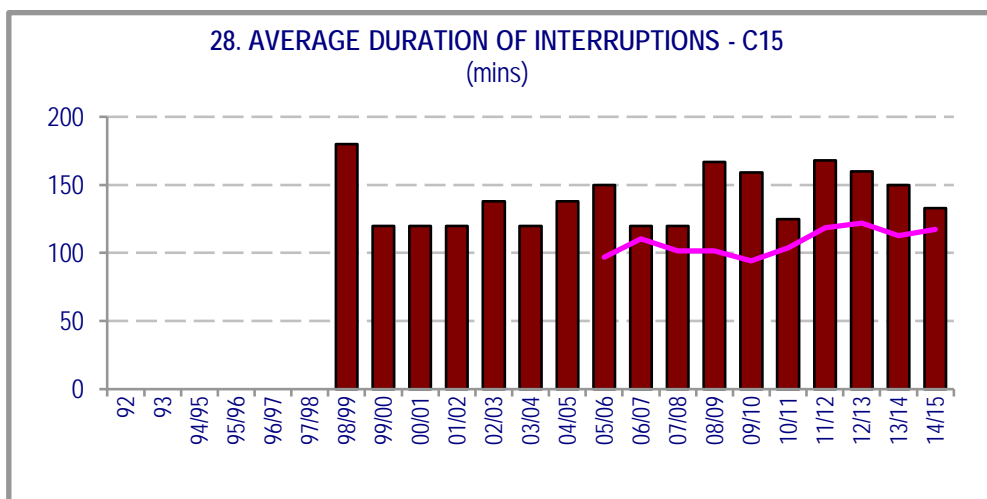
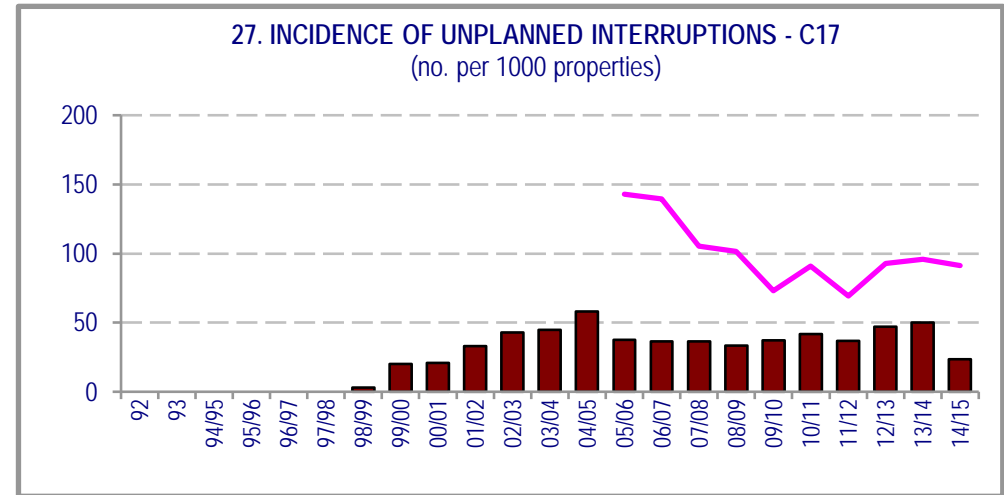
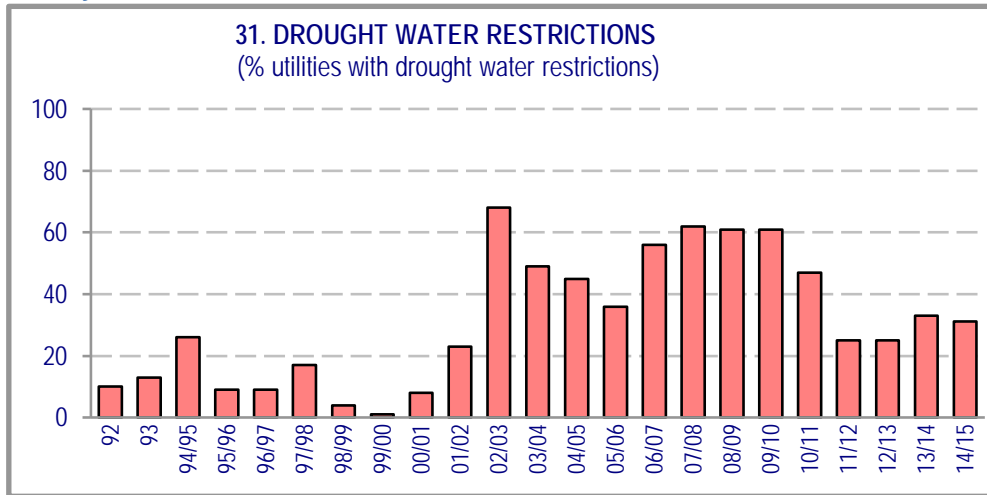
- Costs are in Jan 2015\$.
- The figure numbers (eg. 33. Average Annual Residential Water Supplied) correspond to the indicator number in the TBL reports and in Table 1 on page 105. Where there is an equivalent NWI indicator (eg. W12), this is shown in the title.
- The figures show NSW Statewide medians (note 4 on page 32 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 1.83m 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.
- 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](http://www.bom.gov.au)).

**Table 4: Trends in statewide performance indicators - 1991 to 2014-15**  
**Water supply (continued)**

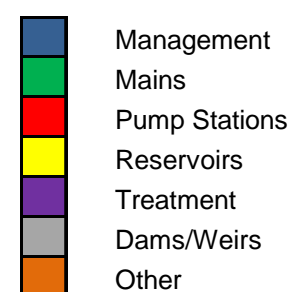
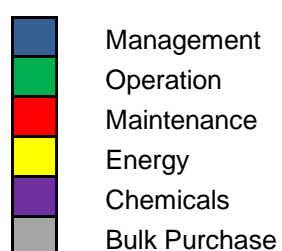
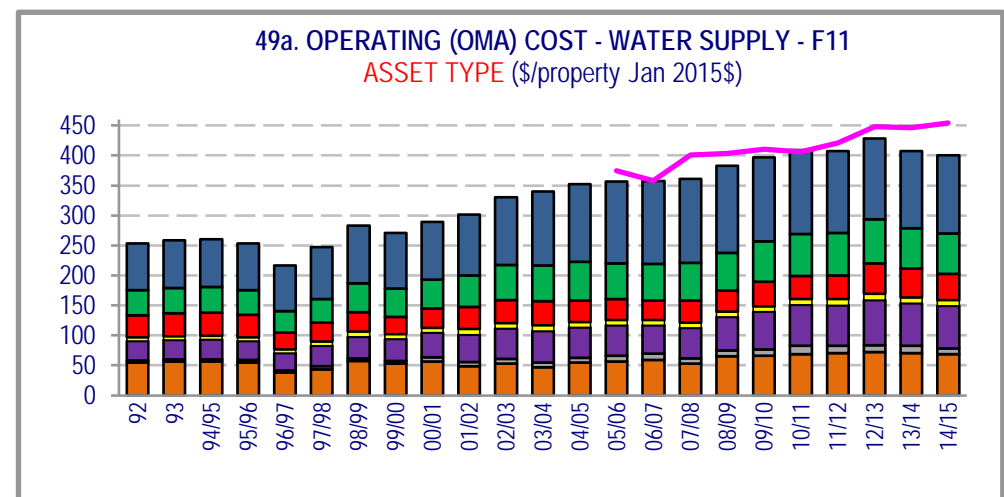
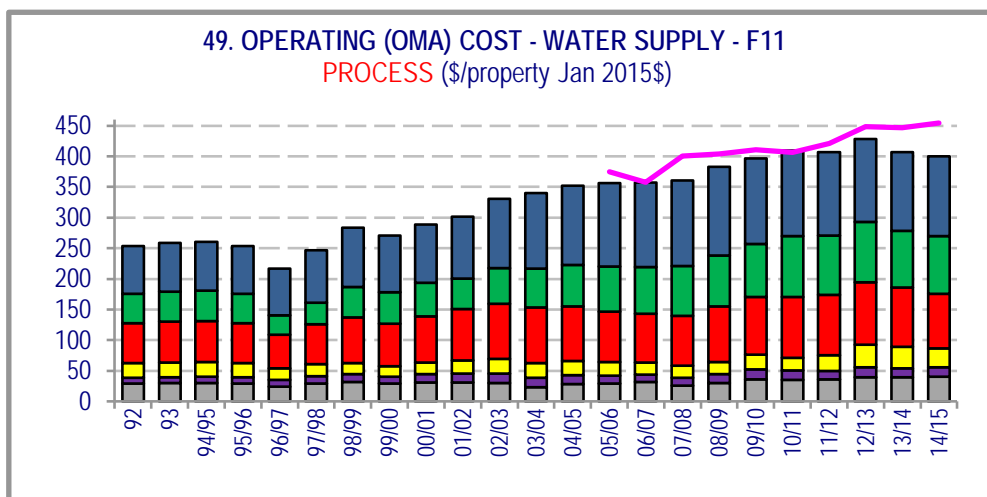
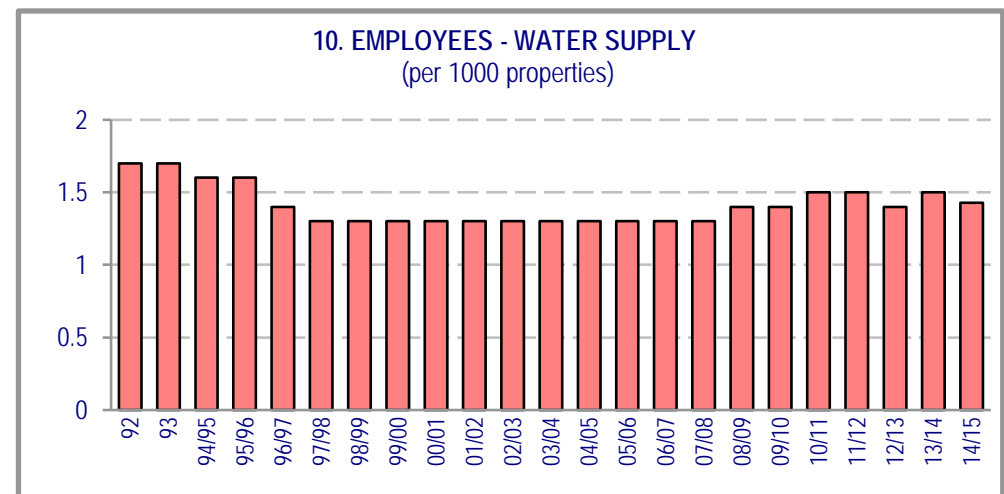
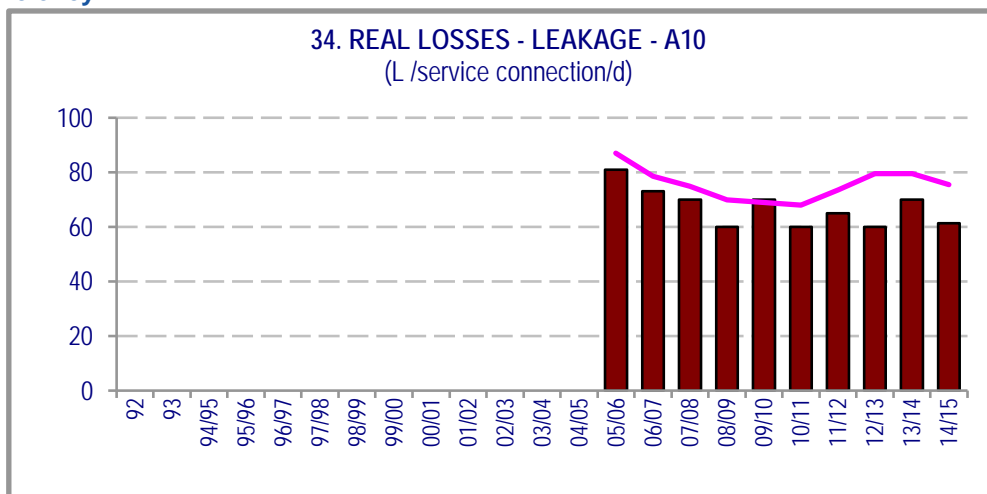
**Customer service**



**Reliability**



**Efficiency**

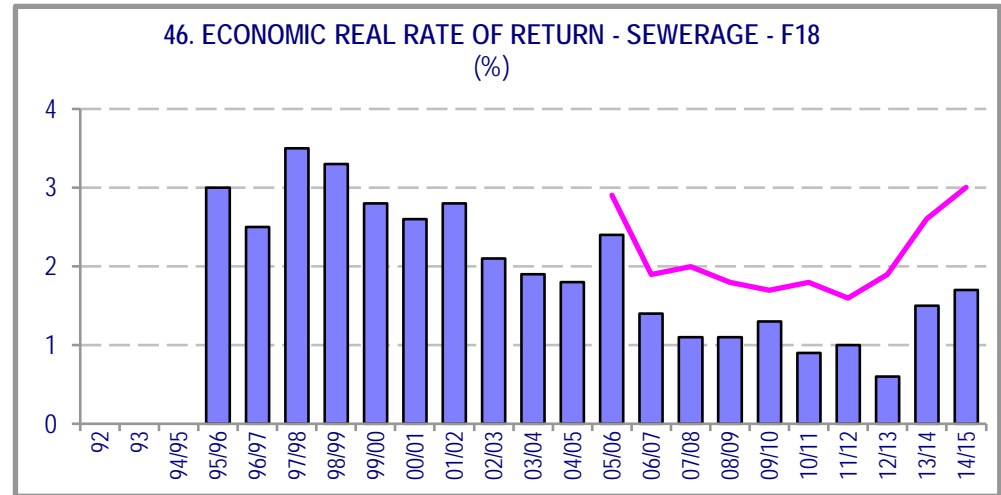
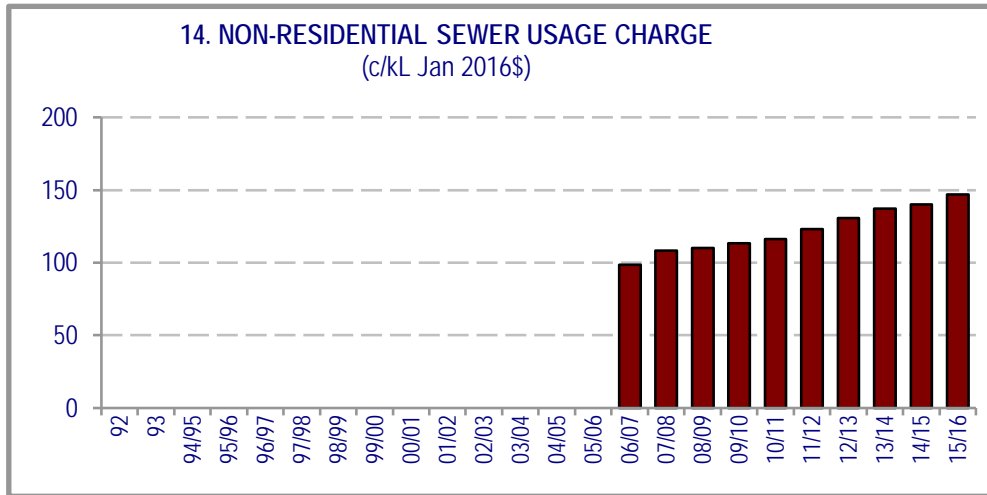
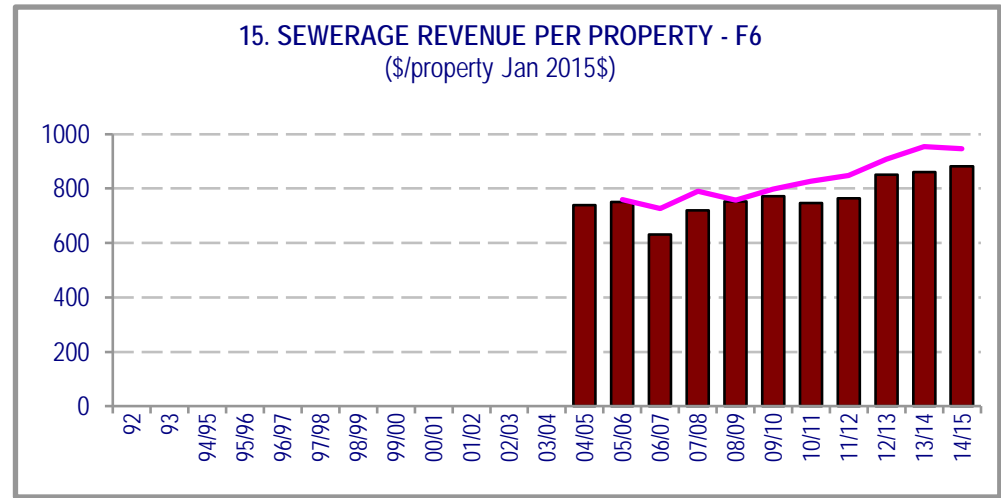
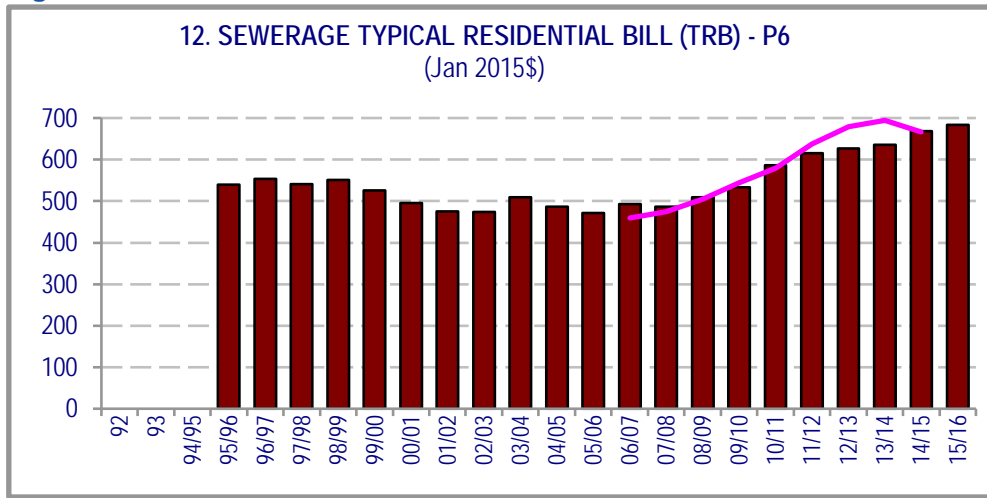


**LEGEND**  
**National Medians** ———

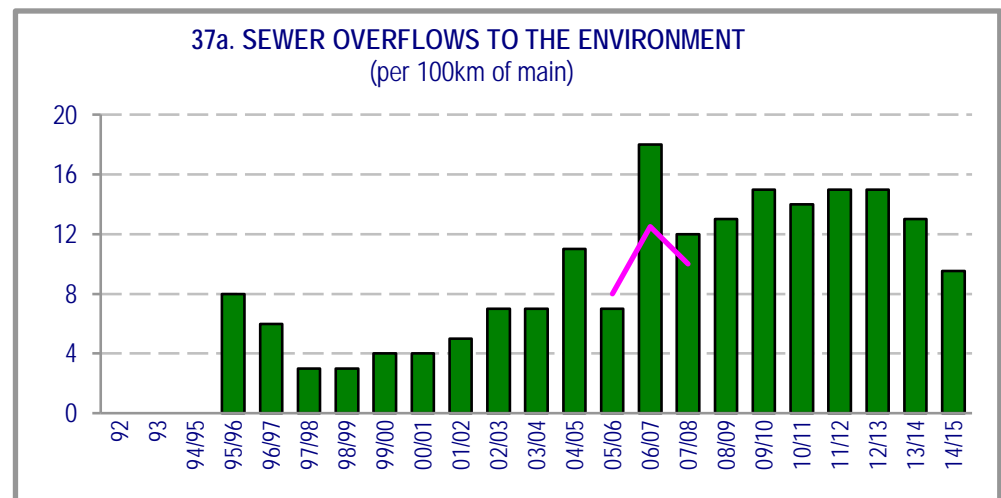
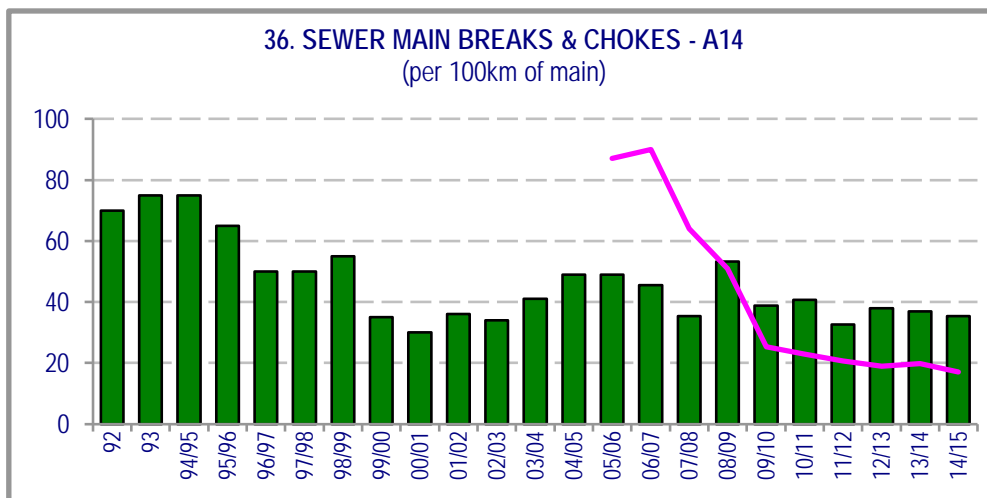
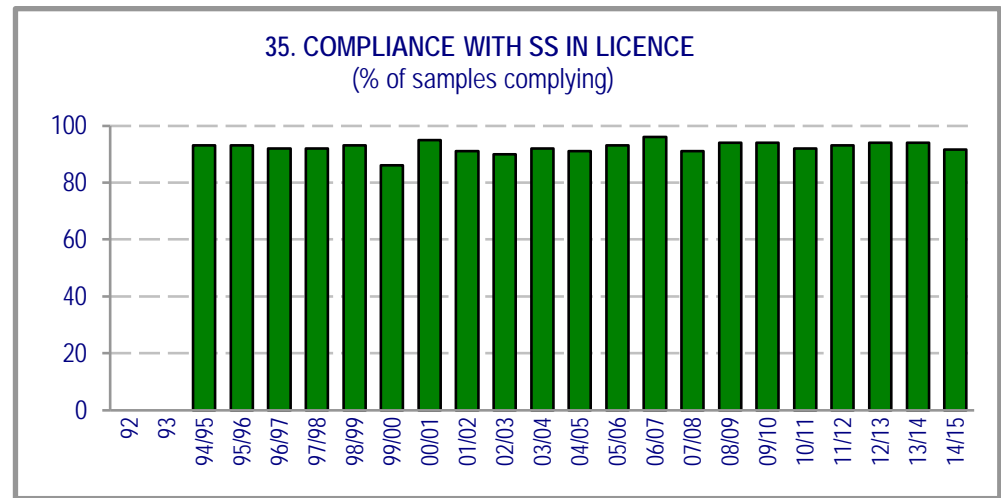
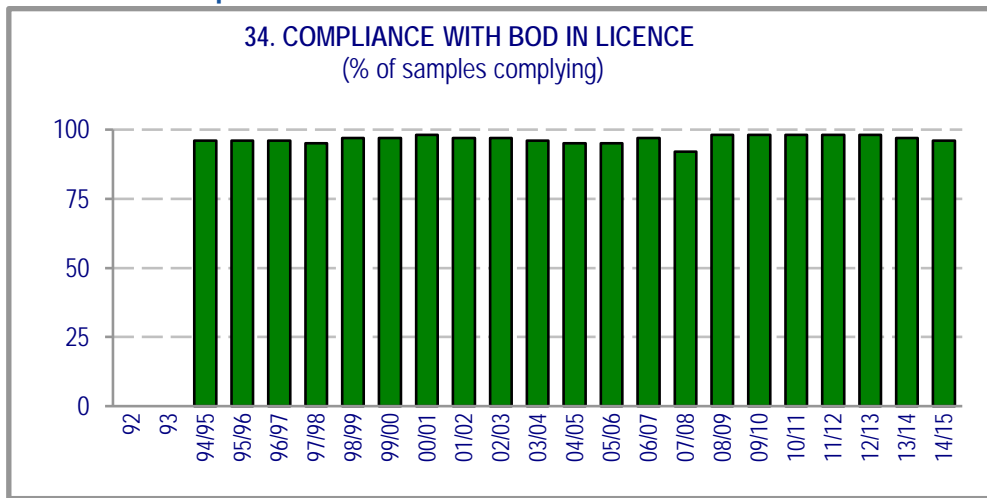


**Table 4: Trends in statewide performance indicators - 1991 to 2014-15**  
**Sewerage**

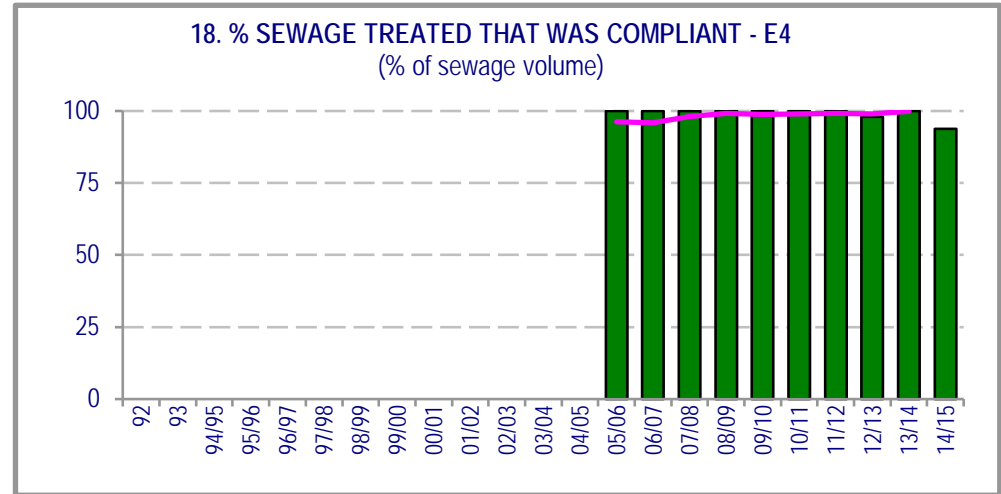
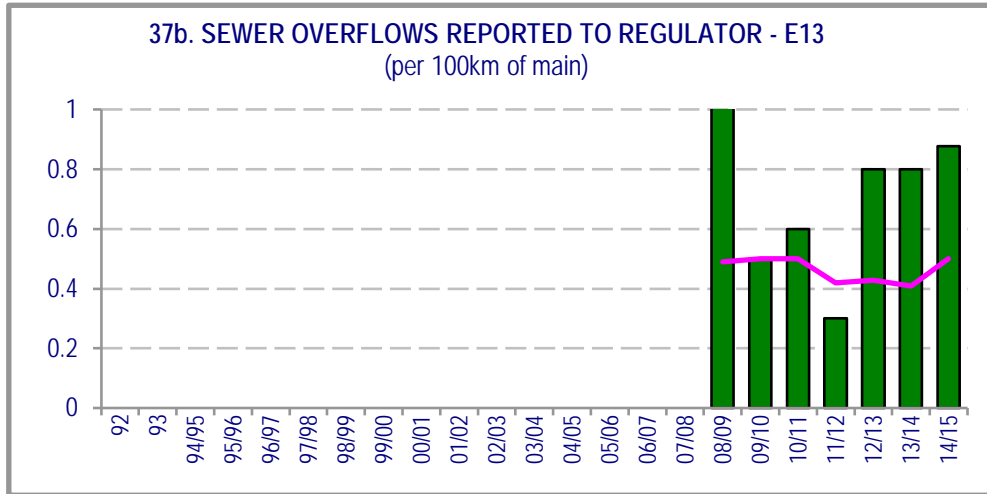
**Charges / revenue**



**Environmental compliance**



**Environmental / health**

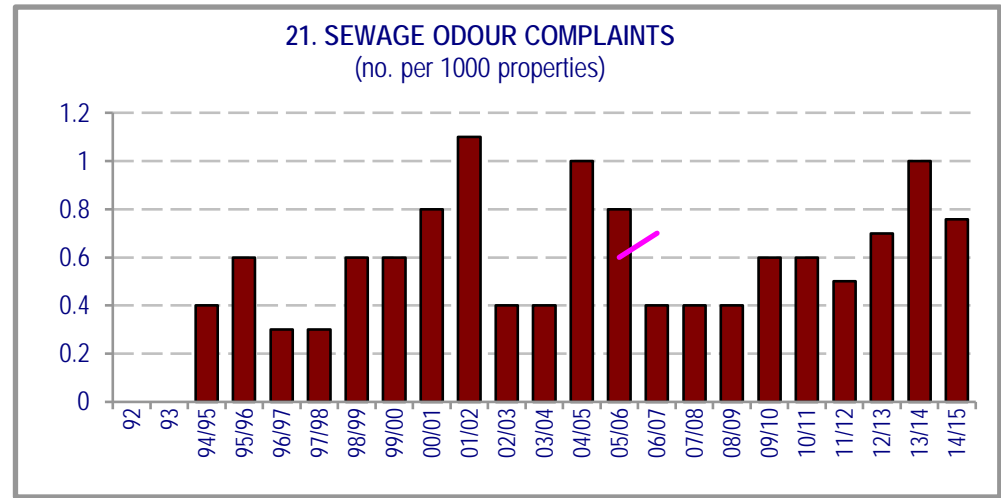
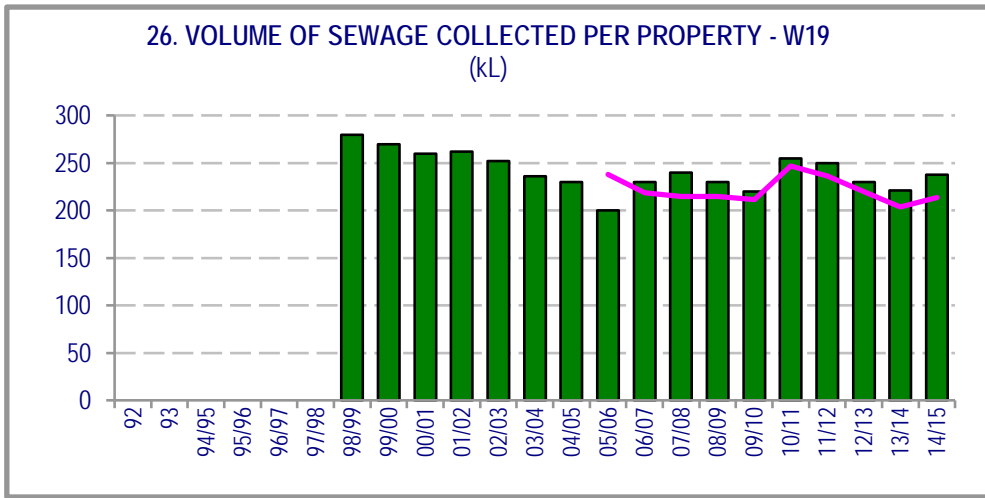


**Sewerage Notes:**

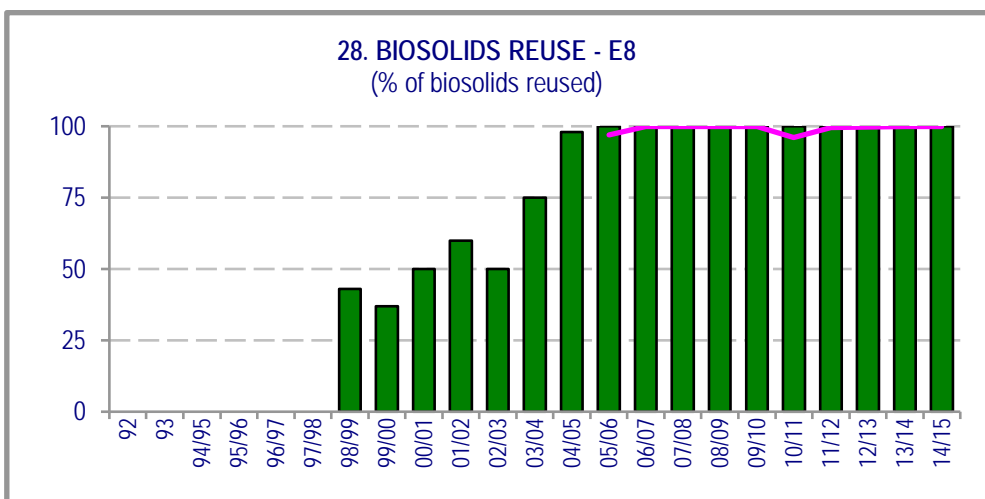
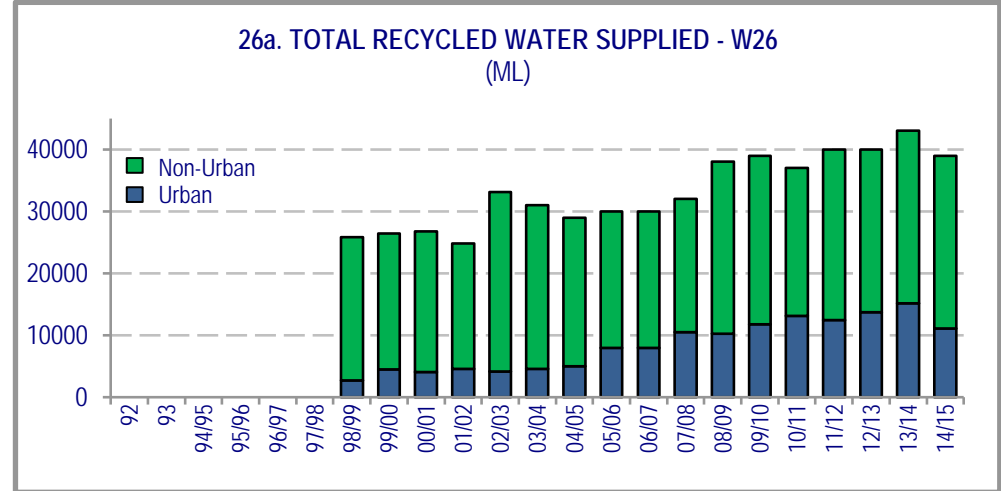
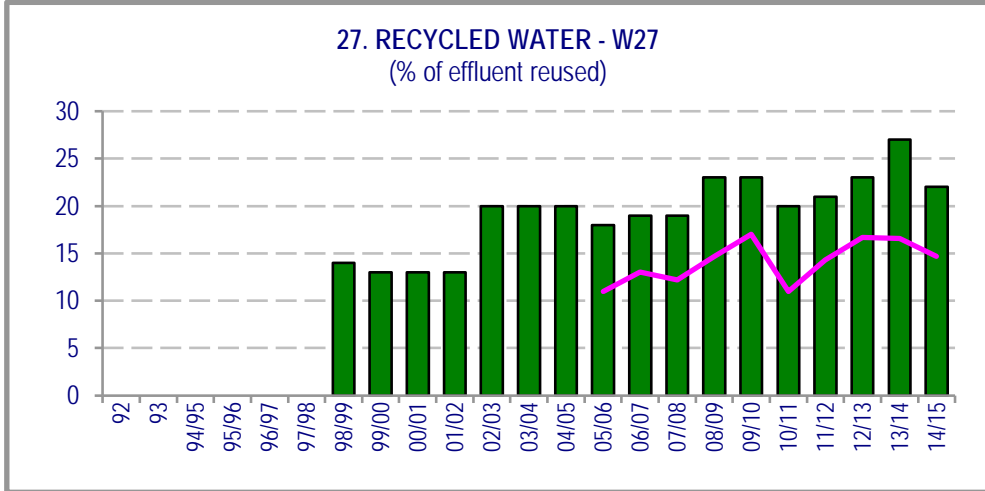
- 1 Costs are in Jan 2015\$ except for figure 14, which is in Jan 2016\$.
- 2 The figure numbers (eg. 12. Sewerage Typical Residential Bill) correspond to the indicator number in the TBL reports and in Table 2 on page 106. Where there is an equivalent NWI indicator (eg. P6), this is shown in the title.
- 3 The figures show NSW Statewide medians (note 4 on page 32, ie. based on % of connected properties), except for figures 34 & 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](http://www.bom.gov.au)).

**Table 4: Trends in statewide performance indicators - 1991 to 2014-15**  
**Sewerage (continued)**

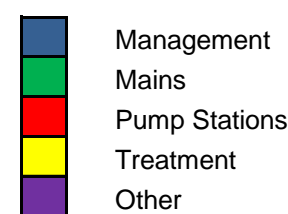
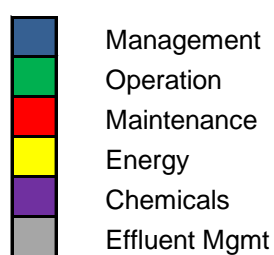
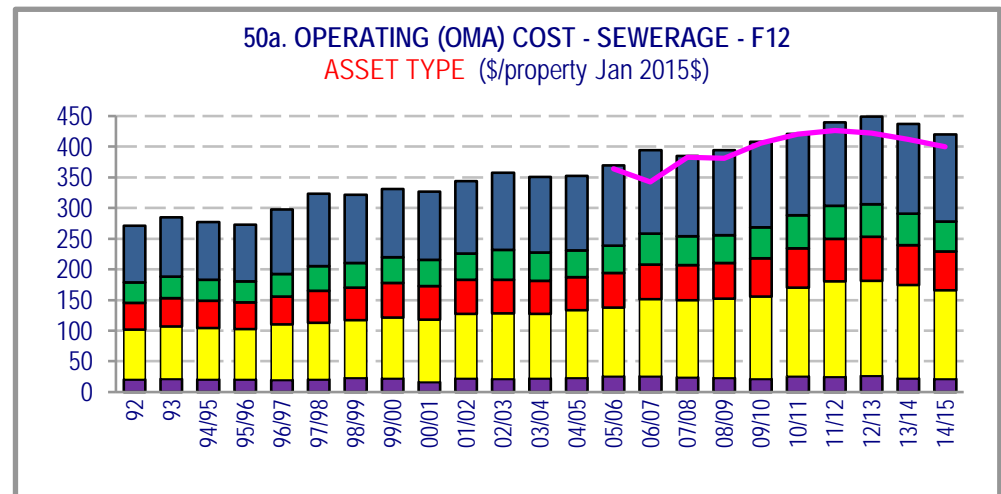
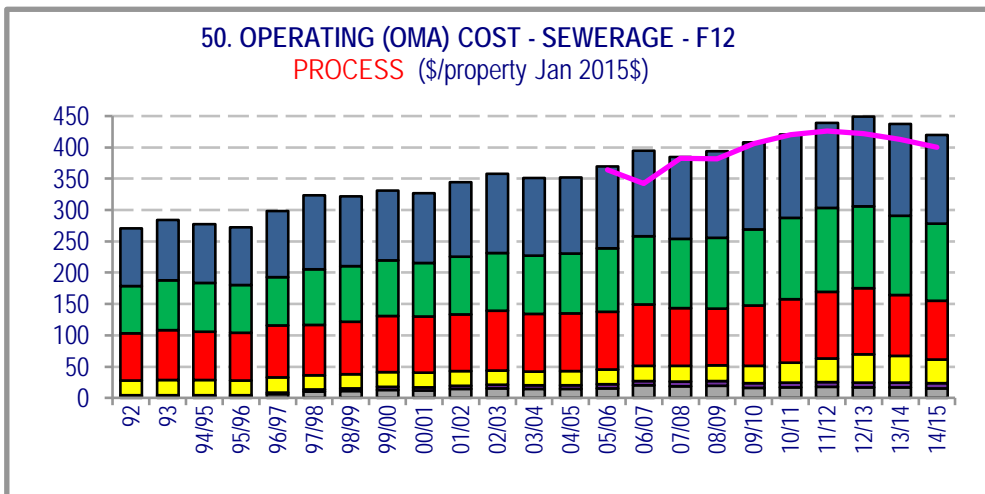
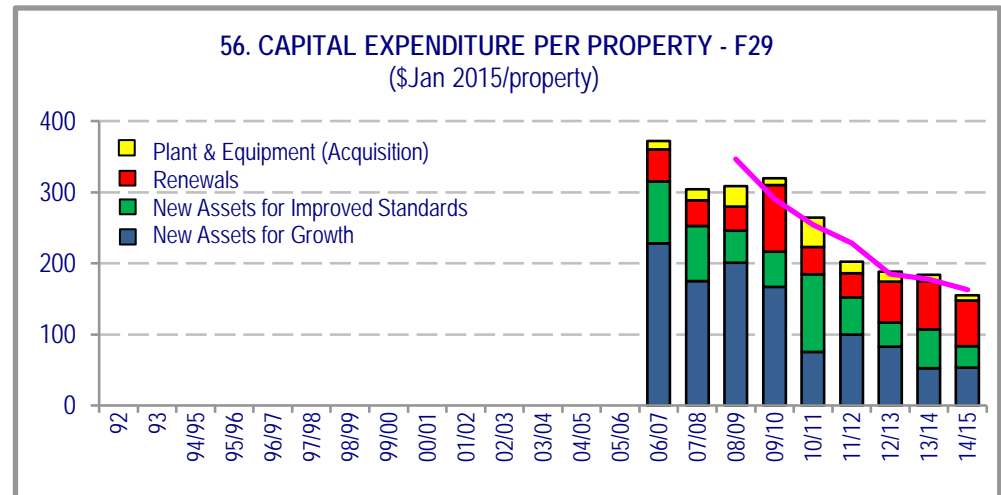
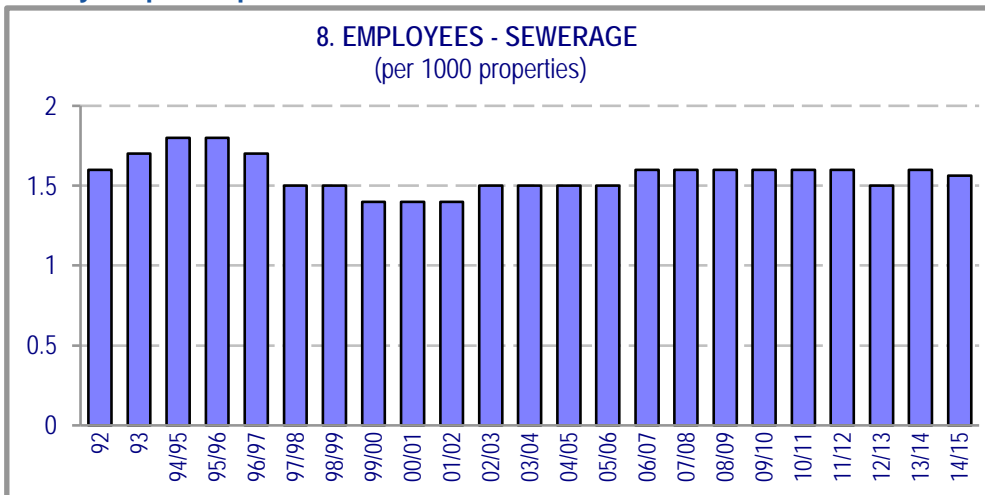
**Customer service**



**Resource management**

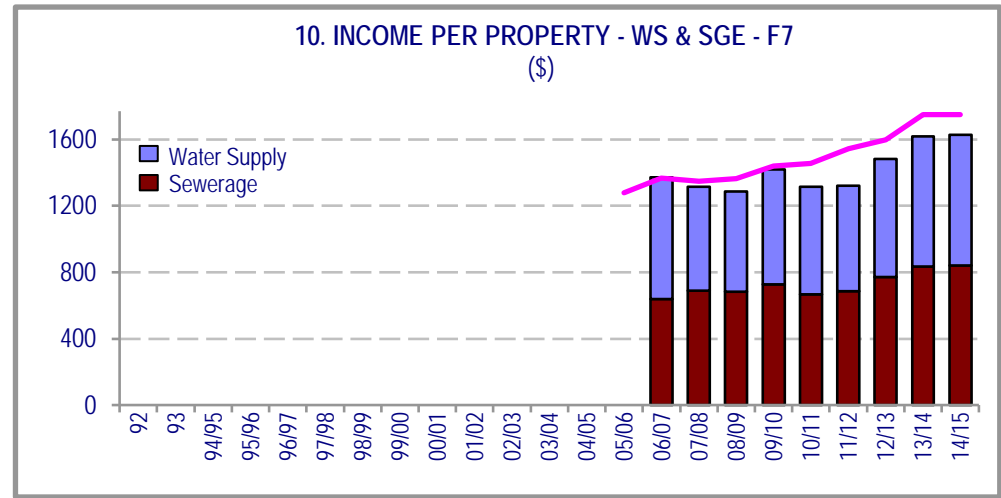
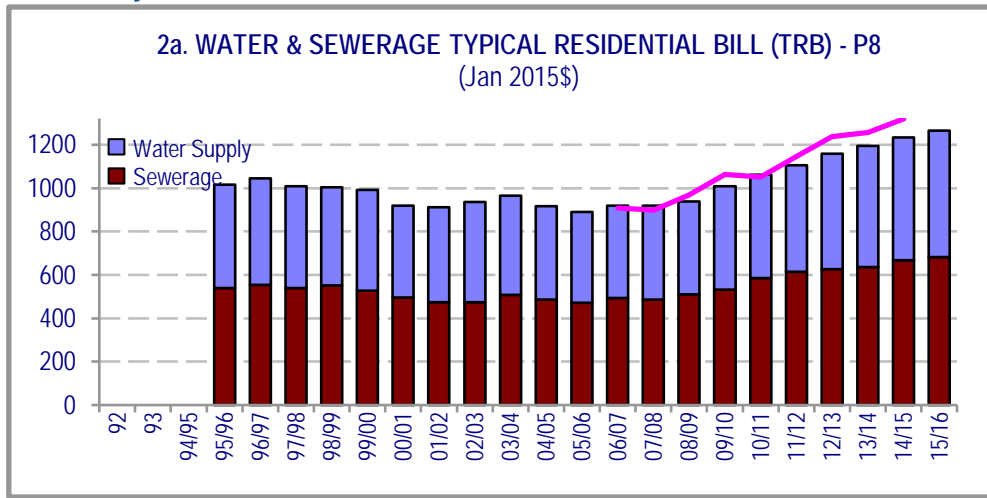


**Efficiency / capital expenditure**

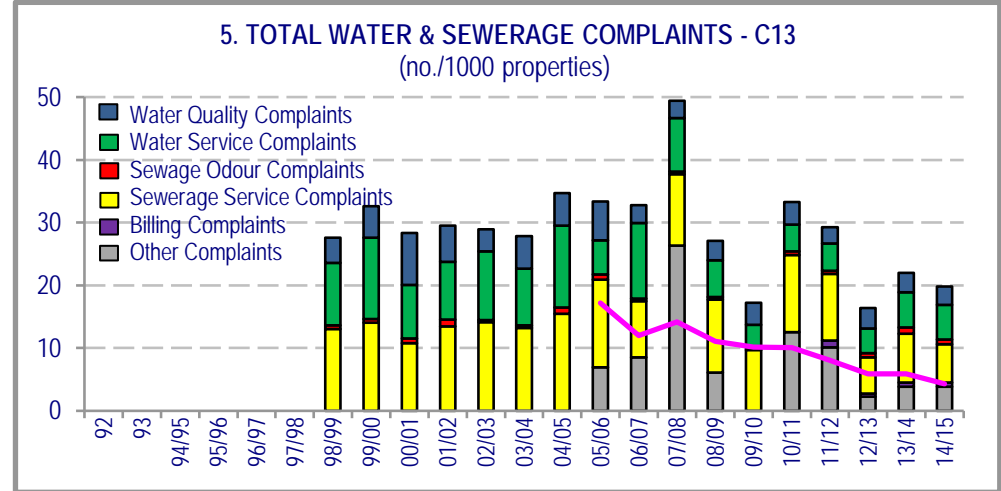
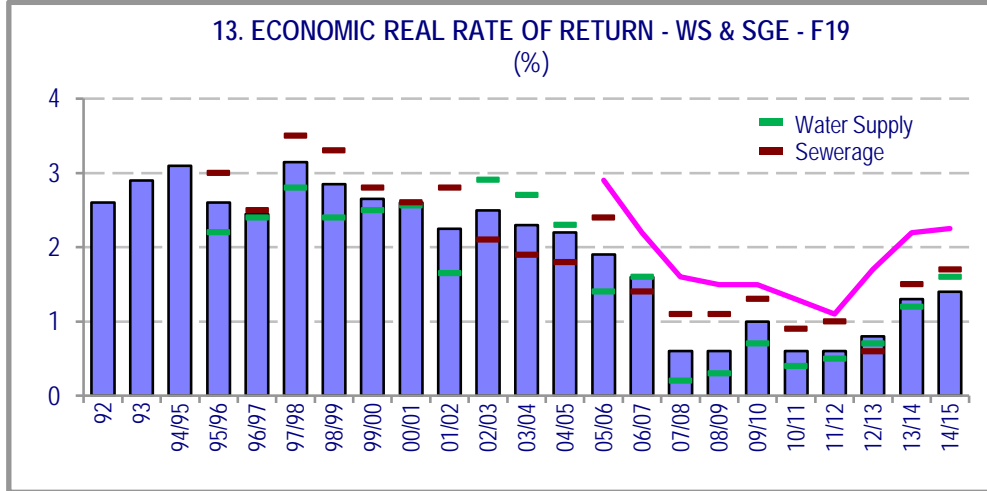


**Table 4: Trends in statewide performance indicators - 1991 to 2014-15**  
**Water supply & sewerage**

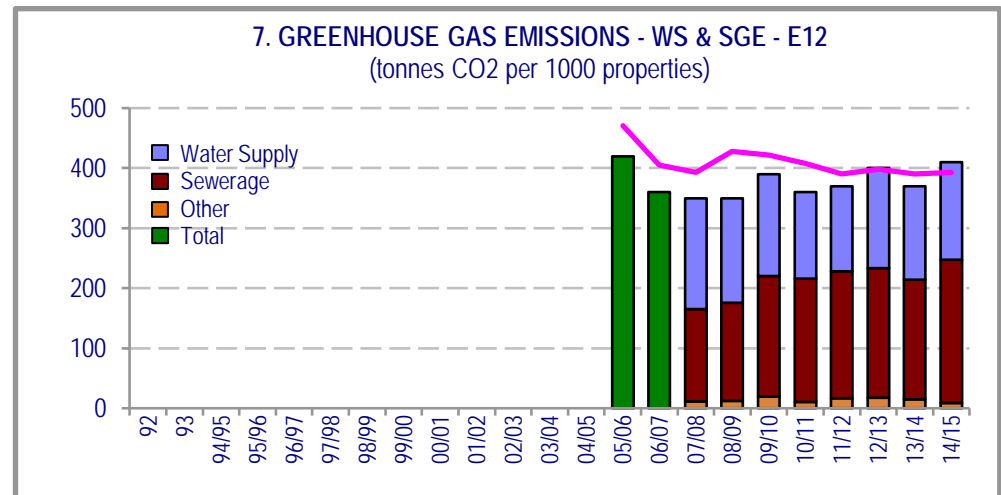
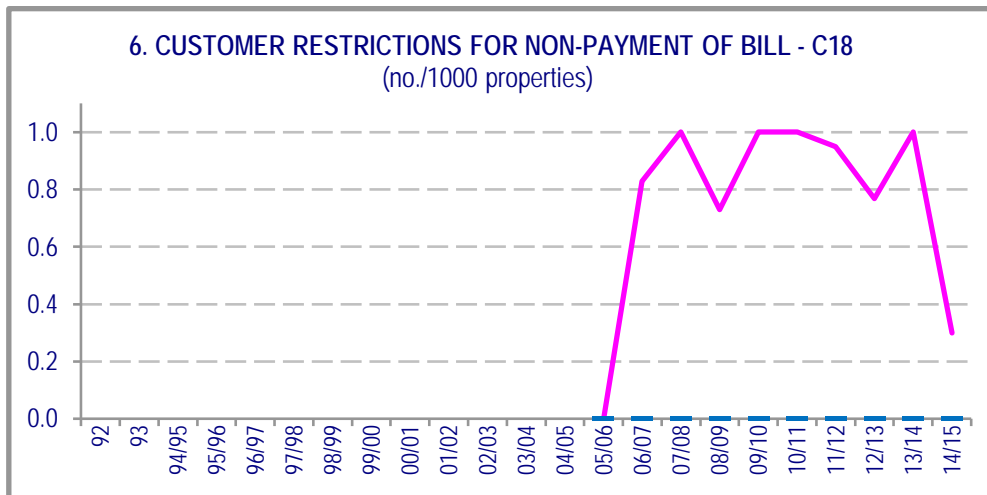
**Cost recovery**



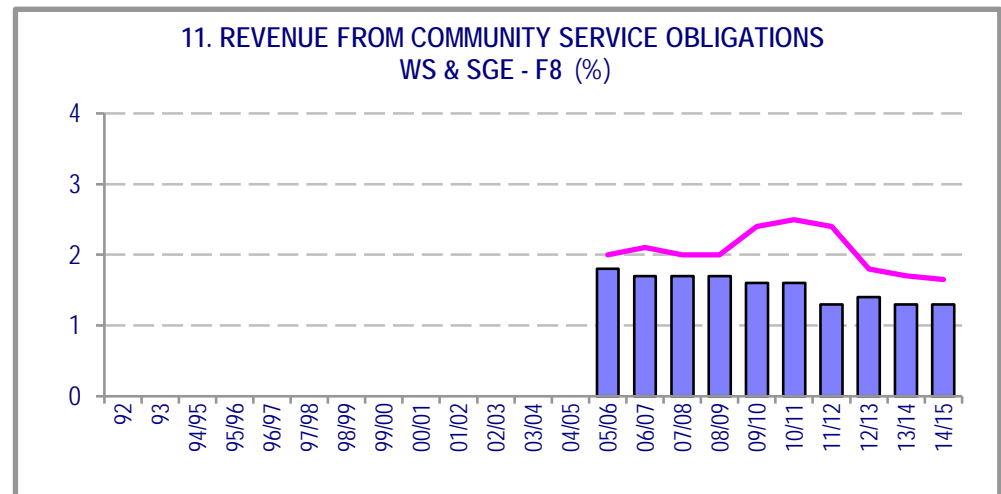
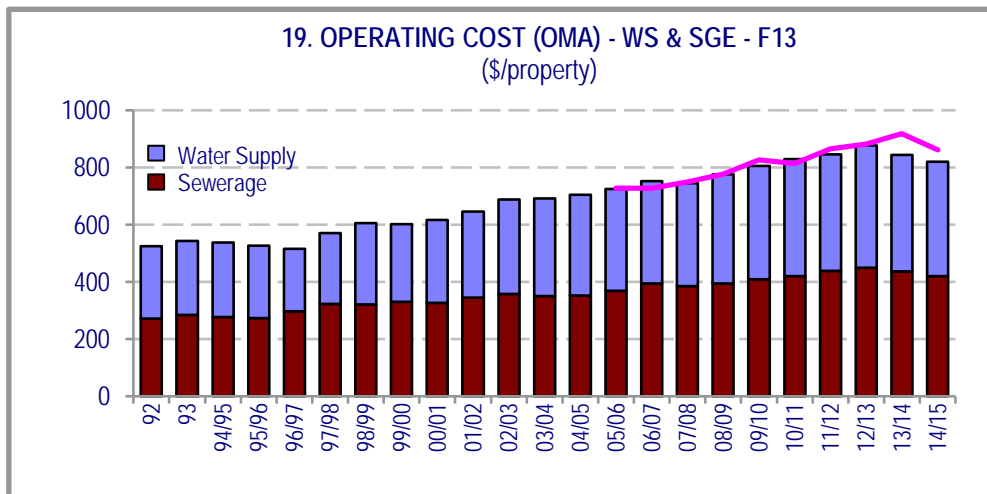
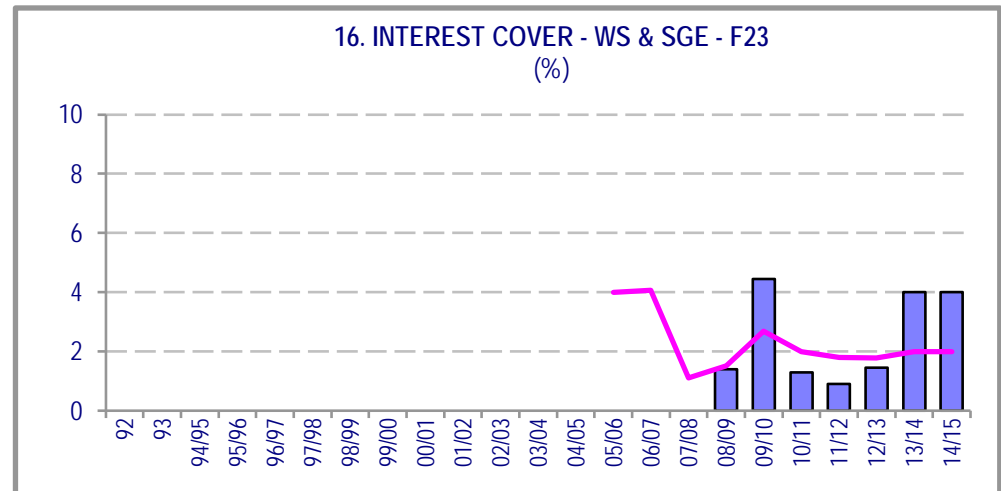
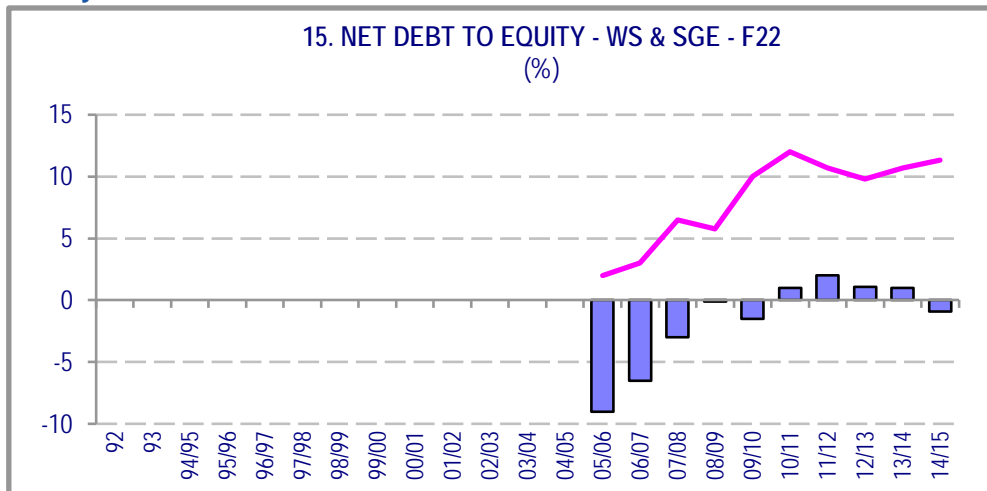
**Cost recovery / customer service**



**Customer service / environmental**



**Efficiency**



**Water Supply and Sewerage Notes:**

- 1 Costs are in Jan 2015\$.
- 2 The figure numbers (eg. 2a Water & Sewerage Typical Residential Bill ) correspond to the indicator number shown in Table 2A on page 107. 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](http://www.bom.gov.au)).

**LEGEND**  
 National Medians —



Table 5: 2014-15 NSW water utility performance summary

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



Table 5: 2014-15 NSW water utility performance summary

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







## Notes

1. This table shows the key 2014-15 performance indicators for NSW water utilities. More detailed indicators are shown in Tables 6 to 18 and Figures 1 to 68.
2. **No WS** = not responsible for water supply; **No SGE** = not responsible for sewerage; **BS** = bulk supplier; **DS** = dual supply; **GW** = groundwater; **UF** = unfiltered; **R** = reticulator. For LWUs with No WS or No SGE, results are shown left justified and are not included in the median calculation for water supply and sewerage. NWI indicator numbers are shown in bold below the column number (eg. column (1), NWI indicator **C4**).
3. Where an LWU has not reported an item for 2014-15, the value previously reported has been used where available. Such values are shown in this table in **italics bold**.
4. The number of connected properties shown in column (1) for LWUs with "No WS" is the number of sewerage connected properties.
5. **NSW Water Utilities**  
In NSW there are 109 water utilities comprising:
  - ◆ 4 metropolitan water utilities (Sydney and Hunter Water Corporations, Water NSW (from 1 January 2015, formerly Sydney Catchment Authority (SCA)) and Hawkesbury Council), and
  - ◆ 105 regional Local Water Utilities (LWUs).
 The 105 LWUs comprise:
  - ◆ 100 local government councils (under *Local Government Act 1993*),
  - ◆ 5 LWUs (Gosford Council, Wyong Water, Cobar WB, Fish River WS, Essential Energy) under the *Water Management Act 2000*.
 Of the 105 LWUs,
  - ◆ 96 were responsible for water supply (including 3 for bulk supply - Cobar WB, Fish River WS & Rous Water)
  - ◆ 99 were responsible for sewerage.
  - ◆ 90 were responsible for both water supply and sewerage, 6 for water supply only and 9 for sewerage only.
6. **Totals for Regional NSW**  
The totals shown below are for regional NSW and therefore exclude Sydney and Hunter Water Corporations, Water NSW and Hawkesbury Council. The totals exclude double-counting where bulk water suppliers are involved.
  - ◆ **Number of water supply connected properties** in regional NSW was 828,000 (col (1)).
  - ◆ **Total annual urban water supplied** was 291,000 ML (column (2)).
  - ◆ **Total revenue** for water supply and sewerage was \$1,420M (column (23)).
  - ◆ **Total current replacement cost (CRC)** of WS and SGE assets was \$28,400M, with a median of \$32,900 per assessment (column (8)).
7. **Statewide medians (regional LWUs):**
  - ◆ **Residential revenue from water usage charges** - Median is 72% (column (3)), which has increased from 20% to 72% over the past 20 years due to LWU tariff reform and strong pricing signals to encourage efficient water use (figure 12 on page 111).
  - ◆ **Typical residential bill (TRB)** for water and sewerage - \$1235/assessment for 2014-15 (column (6)).  
The water supply TRB was \$566 (column (4)) and the sewerage TRB was \$669 (column (5)).
  - ◆ **Typical developer charge** for water and sewerage - \$10,600/ET for 2014-15 (column (7) and Tables 6 and 7).
  - ◆ **Water quality complaints** - 3 per 1000 properties (column (13)).
  - ◆ **Average duration of unplanned interruptions** for water supply - 133 minutes (column (14)).
  - ◆ **Water main breaks** - 9 breaks per 100km of main (column (15)).
  - ◆ **Total water supply and sewerage complaints** - 19 per 1000 properties (column (16)).
  - ◆ **Average annual residential water supplied** - 166kL/connected property (col (17)). This has decreased by 50% since 1991 (page 111).
  - ◆ **Real water loss** - 60 L/connection/d (column (18)).
  - ◆ **Median sewage volume that was compliant** - 100% (column (19)).
  - ◆ **Median sewerage main breaks and chokes** - 35 per 100km of main (column (20)).
8. **Statewide medians (financial):**
  - ◆ **Economic real rate of return (ERRR)** for water supply and sewerage was 1.4% (page 12).  
The water supply ERRR was 1.6% and the sewerage ERRR was 1.7% (columns (27) and (28)).  
100% of LWUs are achieving full cost recovery for water supply and 98% are achieving full cost recovery for sewerage (columns (29) & (30)).  
The remaining 2 sewerage utilities which are not achieving full cost recovery need to do so. Refer also to Tables 6 and 7 and page 29.
  - ◆ **Net debt/equity** for water and sewerage was -1% (column (24)).
8. **Statewide medians (financial)** continued from left:
  - ◆ **Operation, maintenance & administration cost (OMA)** for water supply was \$400 and sewerage was \$420 (cols (31) & (32)).  
OMA includes part of the OMA cost of the bulk water supplier but excludes the purchase cost of water. However, NWI indicator F11 includes the purchase cost of water and therefore may differ from column (31). Refer to page 101 of Appendix G.
  - ◆ **Management cost** for water supply and sewerage - \$301/connected property.  
Water supply management cost was \$141 and sewerage management cost was \$160 per connected property.
  - ◆ **Capital expenditure** for water supply and sewerage - \$359/property (column (25)).  
The total capital expenditure for water supply and sewerage was \$416M (column (26)).
9. **Category 1 Businesses** - 67 LWUs are Category 1 businesses (ie. with an annual revenue of over \$2M) as defined in the *NSW Government's Policy Statement on Application of National Competition Policy to Local Government, June 1996*. 66 such LWUs are responsible for water supply and 52 such LWUs are responsible for sewerage.
10. **Pay-for-use water supply tariff** - All of the 93 LWUs providing a reticulated water supply have a pay-for-use water supply tariff (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** - 98.3% of the 4,600 physical samples and 99.9% of the 4,800 chemical samples tested for NSW LWUs achieved 100% compliance with the *2011 Australian Drinking Water Guidelines (ADWG)*. All LWUs complied with chemical quality (health related) and are shown as 'Yes' in column (11) (pages 7, 8, 38, 39 and 101). All LWUs complied with physical quality (page 8). The results shown for H4 in column 12 are based on population.
12. **Microbiological water quality** - *E.coli* contamination is the primary health-related indicator.
  - ◆ **E.coli** - 99.9% of the 19,400 samples tested for NSW LWUs achieved 100% compliance with the *2011 ADWG*.  
All LWUs complied with these guidelines and are shown as 'Yes' in column (9).  
The public drinking water supply for 99.9% of the urban population in regional NSW complied with both the microbiological and chemical requirements of the *2011 ADWG* (columns (10) and (12)).
13. **Compliance with EPA Discharge Licence for Sewerage**
  - ◆ **BOD** - 96% of the 4,184 sampling days for NSW LWUs achieved 100% compliance with the 90-percentile limit of their EPA licence for BOD (Biochemical Oxygen Demand). 89% of LWUs complied with the EPA licence for BOD.
  - ◆ **SS** - 92% of the 4,184 sampling days for NSW LWUs achieved 100% compliance with the 90-percentile limit of their EPA licence for SS (Suspended Solids). 82% of LWUs complied with their EPA licence for SS.  
18 LWUs had no EPA discharge licence limit.
14. **Best-Practice implementation** - overall the LWUs have implemented 90% of the outcomes required by the NSW Best-Practice Management Framework (column (33)).
15. **Strategic Business Plans** (page 4) - 99 LWUs (94%) have completed a sound 30-year water and/or sewerage Strategic Business Plan, which includes a 30-year total asset management plan and a 30-year financial plan (column (34)). These LWUs have demonstrated the long term financial sustainability of their water supply and sewerage businesses to comply with National Competition Policy. These plans cover over 99% of the connected properties in regional NSW. As the plans of 51 of these utilities are now over 4 years old (shown as "Yes\*" in column (34)), these utilities now need to prepare a 30-year IWCM Strategy, financial plan and report in accordance with the July 2014 IWCM Check List ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)). Similarly, the 17 LWUs whose IWCM Strategy is over 6 years old [shown as Yes<sup>+</sup>] need to prepare such a new IWCM Strategy, financial plan and report [column (34)].
16. **Total Urban Water Supplied** of 291,000 ML(column (2)) comprises 260,000 ML potable water, 20,000 ML non-potable water and 11,600 ML recycled water. Similarly, the average annual residential water supplied (column (3)) includes non-potable & recycled water
17. **Reuse of recycled water** comprised 39,000 ML which is 22% of the volume of sewage collected and was carried out by 70% of utilities, mostly for agriculture (columns (21) and (22)). Refer also to figures 26a and 27 on page 114.
18. **National Water Initiative (NWI) Indicators** - The 32 NSW water utilities with over 10,000 connected properties (3 metropolitan utilities and 29 regional utilities) are required to report their performance under the NWI. The results that have met the rigorous NWI auditing requirements have been published in the *National Performance Report 2014-15*. Refer also to Notes 14 and 15 on page 35.
19. The performance indicators for Sydney and Hunter Water Corporations and Water NSW were obtained from the *National Performance Report 2014-15 for Urban Water Utilities* ([www.bom.gov.au](http://www.bom.gov.au)).



**Table 5A: Water supply and sewerage indicators - financial**

WATER UTILITY	FINANCIAL																																					
	Operating Cost (OMA)			Income per Property			Total Income			Capital Expenditure (Assets, Renewals, Plant/Equip)			Return on Assets			Economic Real Rate of Return			Net Debt to Equity			Interest Cover			Dividend Payable			Dividend Payout Ratio		CSOs			% Revenue from CSOs		Net Profit after Tax NPAT		NPAT Ratio	
	WS & SGE (\$/property)			(\$/property) WS & Sge			WS & Sge (\$M)			WS & Sge (\$ per prop)			WS & Sge (%)			WS & Sge (%)			WS & Sge (%)			WS & Sge (\$'000)			WS & Sge (%)		WS & Sge (\$'000)			WS & Sge (%)		WS & Sge (\$'000)		WS & Sge (%)				
	(23) F13			(24) F7			(24a) F3			(24b) F28 + F29			(24c)			(25) F19			(26) F22			(27) F23			(28) F20			(29) F21		(30) F25			(31) F8		(32) F24		(32a) F30	
	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	13/14	14/15	12/13	13/14	14/15	13/14	14/15	13/14
Sydney Water Corporation	687	676	664	1,400	1,410	1,427	2,580	2,610	2,680	384	328	341				1.5	1.6	1.7	100	96	98	2	2	2	303,703	256,284	664,024	54	129	162,463	160,559	163,091	6	6	472,389	513,497	18	19
Hunter Water Corporation	618	579	623	1,310	1,304	1,308	305	308	312	407	477	333				2.5	2.4	2.0	75	78	81	1	2	2	16,302	36,917	21,330	72	53	14,250	14,043	14,285	5	5	51,183	39,880	17	13
Water NSW																																						
<b>LWUs with &gt; 10,000 Properties</b>																																						
1 Gosford	805	771	710	1212	1257	1332	86	89.8	95.7	657	577	513	-0.3	-0.1	0.2	-0.1	0.1	0.6	5	6.2	6.0	0	1	2						1209	1,230	1,242	1.4	1.3	-2,032	4,865	-2	5
2 Wyong	665	673	655	1239	1300	1370	75	79.9	87.0	427	431	435	-0.2	-0.1	0.3	0.5	0.6	1.0	10	9.5	9.2	1	1	1						1385	1,375	1,374	1.7	1.6	-5,219	1,174	-7	1
3 Shoalhaven	746	752	776	1344	1356	1497	63	63.7	70.6	497	538	513	1.6	1.6	2.9	1.6	1.6	2.9	1	-0.3	-1.0	>100	59	>100	2599	2,673	2,709	20	13	1022	1,035	1,053	1.6	1.5	12,650	20,773	20	29
5 MidCoast	922	902	1020	1716	1647	1772	66	63.5	68.6	583	302	185	-0.1	0.3	0.2	1.4	1.7	1.7	25	23.4	21.7	1	1	1						967	907	931	1.4	1.4	-5,351	-2,760	-8	-4
6 Tweed	888	929	943	1528	2096	1862	48	66.7	60.0	434	418	225	0.2	1.6	1.0	0.6	2.0	1.4	3	2.3	0.1	2	5	3						733	739	745	1.1	1.2	14,196	6,521	21	11
7 Port Macquarie-Hastings	828	880	878	1453	2001	1683	43	60.2	51.2	478	316	540	0.2	2.1	1.5	-0.1	2.2	1.3	-4	-5.3	-7.8	0	23	>100	940	860	17			713	719	729	1.2	1.4	8,590	5,070	14	10
10 Coffs Harbour	972	1006	1014	1849	1894	1994	46	47.2	50.0	355	434	586	0.0	-0.3	-0.3	0.8	0.8	0.8	15	13.7	12.8	1	1	1						495	499	505	1.1	1.0	-3,197	-3,274	-7	-7
11 Albury City	765	735	670	1374	1562	1393	32	36.8	35.8	256	254	166	1.4	2.8	3.0	1.5	2.9	2.9	1	-2.4	-6.0	13	54	>100						318	316	323	0.9	0.9	10,684	9,875	29	28
13 Tamworth Regional	946	1007	942	1715	2011	1881	36	43.1	40.8	608	1012	428	1.4	2.5	2.3	1.7	2.9	2.6	-2	-2.2	-4.1	5	8	10						386	384	403	0.9	1.0	11,637	6,561	27	16
14 Clarence Valley	904	876	851	1318	1444	1515	28	30.9	32.5	750	694	1693	-0.4	0.4	0.3	0.4	1.3	1.2	10	9.8	11.3	0	1	1						445	448	446	1.4	1.4	1,706	900	6	3
15 Eurobodalla	914	987	906	1430	1731	1779	28	33.9	34.8	358	364	349	0.1	0.4	1.2	0.3	0.7	1.3	2	1.1	-0.9	1	3	8	529	133	530	-23	12	386	391	390	1.2	1.1	1,674	4,352	5	12
16 Wingecarribee	773	906	810	1354	1494	1512	25	28.3	29.0	902	306	345	0.9	1.2	2.1	1.1	1.4	2.3	0	-1.3	-3.8	5	8	15						331	339	357	1.2	1.2	4,626	6,966	16	24
17 Queanbeyan	870	961	954	1342	1920	1776	22	31.5	30.8	54	427	159	-0.9	2.5	1.7	-1.6	1.8	0.9	-17	-18.7	-20.2	0	>100	>100						150	159	162	0.5	0.5	4,718	2,294	15	7
18 Dubbo	817	854	832	1715	1755	2139	29	30.1	37.6	446	272	1275	2.2	3.0	4.4	2.4	3.0	4.4	0	-4.0	-3.4	13	>100	>100						188	190	188	0.6	0.5	7,340	14,665	24	39
19 Orange	691	756	748	1524	1597	1811	26	27.4	31.7	440	1638	1259	3.3	3.1	4.1	2.6	2.4	3.5	-13	-14.4	-12.1	>100	>100	>100						253	257	259	0.9	0.8	9,307	13,597	34	43
20 Goulburn Mulwaree	806	786	756	2035	2032	1889	20	21.1	21.1	438	368	763	2.1	2.1	2.1	2.4	2.4	2.3	-2	-4.6	-5.5	8	10	10						186	182	47	0.9	0.2	5,972	5,794	28	27
21 Bathurst Regional	933	948	980	1444	1644	1744	22	25.6	27.4	439	427	825	1.1	2.1	2.2	0.9	1.8	2.0	-11	-12.1	-11.6	>100	>100	>100						202	206	216	0.8	0.8	4,718	4,858	18	18
22 Lismore	940	961	948	1343	1461	1516	19	20.9	21.7	677	368	454	0.5	0.2	0.8	0.1	0.2	0.8	-1	-1.4	-2.2	>100	>100	14						274	255	210	1.2	1.0	-151	617	-1	3
23 Bega Valley	1228	1240	1284	1646	1859	1856	24	26.7	26.7	330	638	619	-0.9	-0.2	-0.1	-0.8	-0.1	-0.1	-2	-2.5	-2.6	0	0	0						266	270	272	1.0	1.0	-702	-487	-3	-2
24 Ballina	1180	1159	1141	1558	1880	1125	22	26.7	16.2	2010	779	579	-0.2	0.1	0.9	0.2	1.1	2.3	8	10.7	16.9	1	1	2						305	303	305	1.1	1.9	-54	-10,138	0	-63
25 Kempsey	1032	1024	1040	1351	1377	1643	17	17.2	20.6	600	555	594	-0.7	-0.9	0.3	-0.1	-0.2	0.9	8	8.3	7.7	0	0	1						255	253	258	1.5	1.3	-4,596	-694	-27	-3
26 Essential Energy	1468	1600	1357	2203	2025	1994	23	21.3	21.0	523	398	619																		250	357	455	1.7	2.2	420	676	2	3
27 Byron	1092	1131	1162	1895	2148	2237	21	24.0	25.1	231	184	111	-1.1	1.5	1.7	0.7	3.3	3.3	21	17.2	13.8	0	2	2						156	154	156	0.6	0.6	2,036	2,755	9	11
<b>Totals for &gt;10,000 Properties</b>																																						
										\$936M										3 LWUs paid a dividend										18 of 23 LWUs had a +ve NPAT								
<b>LWUs with 3,001 - 10,000 Properties</b>																																						
29 Armidale Dumaresq	870	907	647	1895	1756	1615	16	15.1	14.1	267	471	644	2.0	1.3	2.4	1.8	1.2	2.2	-4	-5.6	-7.0	>100	>100	>100						156	161	123	1.1	0.9	3,543	4,887	23	35
30 Griffith	1174	1198	1292	1866	1816	1982	16	16.2	16.8	424	297	159	0.8	0.7	0.6	1.0	1.0	1.0	5	-4.5	2.0	4	3	3						116	68	127	0.4	0.8	1,856	1,674	11	10
31 Lithgow	967	1067	1188	1474	1674	1628	12	13.5	13.2	353	729	262	1.6	2.4	0.4	2.8	1.8	1.3	10	11.7	10.0	2	3	1						186	181	175	1.3	1.3	1,257	239	9	2
32 Mid-Western Regional	852	923	902	1683	1585	1647	13	12.6	13.4	1763	498	188	2.9	1.8	2.1	3.2	2.2	2.4	3	-0.4	-3.8	11	6	7						121	126	113	1.0	0.8	2,192	2,343	17	18
33 Richmond Valley	1181	1118	1133	1735	1662	1736	12	11.9	12.4	1055	508	348	1.2	0.7	1.3	1.8	1.6	1.8	3	3.4	2.5	3	2	4						162	161	161	1.4	1.3	380	1,366	3	11
34 Nambucca	760	751	769	1220	1485	1622	8	9.4	10.3	2586	3829	1861	0.4	0.7	0.9	0.4	1.3	1.7	-5	4.3	7.2	>100	2	2						160	162	125	1.7	1.2	995	1,481	11	14
35 Singleton	774	798	796	1509	1415	1227	10	9.5	8.3	318	204	171	6.0	4.4	2.8	2.7	1.9	0.4	-32	-34.6	-36.5	>100	>100	>100						71	71	72	0.7	0.9	3,396	1,972	36	24
37 Inverell	815	818	829	1150	1224	1192	6	6.7	6.9	116	139	97	0.9	1.3	0.8	0.5	0.8	0.8	-6	-7.3	-6.3	>100	>100	>100						127	127	130	1.9	1.9	1,298	756	19	11
41 Muswellbrook	1022	1109	1001	2441	1965	1543	14	11.4	9.0	815	1352	673	7.6	4.0	1.5	6.4	2.5	0.5	-22	-21.5	-20.8	>100	>100															

**Table 5A: Water supply and sewerage indicators - financial**

WATER UTILITY	FINANCIAL																																								
	Operating Cost (OMA)			Income per Property			Total Income			Capital Expenditure (Assets, Renewals, Plant/Equip)			Return on Assets			Economic Real Rate of Return			Net Debt to Equity			Interest Cover			Dividend Payable			Dividend Payout Ratio		CSOs			% Revenue from CSOs		Net Profit after Tax NPAT		NPAT Ratio				
	WS & SGE (\$/property)			(\$/property) WS & Sge			WS & Sge (\$M)			WS & Sge (\$ per prop)			WS & Sge (%)			WS & Sge (%)			WS & Sge (%)			WS & Sge (\$'000)			WS & Sge (%)		WS & Sge (\$'000)			WS & Sge (\$'000)		WS & Sge (%)									
	(23) F13			(24) F7			(24a) F3			(24b) F28 + F29			(24c)			(25) F19			(26) F22			(27) F23			(28) F20			(29) F21		(30) F25			(31) F8		(32) F24		(32a) F30				
	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	13/14	14/15	12/13	13/14	14/15	13/14	14/15	13/14	14/15					
44	Gunnedah	602	662	759	1182	1496	1678	6	6.7	7.3	277	316	655	2.8	4.0	4.8	2.0	3.2	4.0	-20	-21.0	-21.7	>100	>100	>100			78	78	77	1.2	1.1	2,809	3,109	42	43					
46	Narrabri	829	861	912	1360	1774	1546	6	8.0	6.8	124	222	407	8.4	4.3	1.9	6.2	3.2	1.0	-31	-22.2	-24.2	>100	>100	>100			68	68	66	0.9	1.0	2,519	1,147	32	17					
43	Tumut	830	862	1097	1437	1347	1530	6	6.0	6.9	632	153	243	1.2	0.7	0.0	1.4	1.3	0.1	3	0.5	-0.7	10	2	1			98	91	88	1.5	1.3	-315	-421	-5	-6					
49	Young	393	537	585	1230	1270	1383	6	6.0	6.7	4357	1921	215	2.8	0.4	0.9	2.8	1.3	1.7	-8	5.8	2.9	>100	1	2			85	85	183	1.4	2.7	54	294	1	4					
39	Cowra	1114	1140	1188	1810	1635	1893	10	8.6	10.1	318	714	551	1.8	0.3	1.3	2.9	1.3	2.4	5	5.9	5.7	3	1	2			108	108	112	1.3	1.1	-612	291	-7	3					
45	Upper Hunter	960	1215	1112	1785	1674	2103	8	7.4	9.3	1296	434	925	3.7	0.8	3.5	3.2	0.5	3.2	-9	-10.8	-11.5	>100	>100	>100	30	1	76	82	81	1.1	0.9	600	2,832	8	31					
52	Snowy River	774	732	670	1187	1255	1301	6	6.6	6.9	703	735	387	0.3	1.2	1.9	0.2	1.2	1.9	-4	-6.3	-8.4	>100	46				38	6	23	0.1	0.3	649	1,159	10	17					
51	Forbes	1258	1093	1136	1221	1366	1423	5	5.0	5.3	584	567	265	-0.8	-0.1	0.0	-1.4	-0.5	-0.4	-14	-15.3	-15.8	0	0	0			121	71	68	1.4	1.3	-48	16	-1	0					
50	Cooma-Monaro	1125	1160	1072	1710	1591	1763	6	5.8	6.5	428	841	690	0.9	0.9	1.6	0.6	0.6	1.3	-7	-7.3	-9.7	>100	>100	>100			67	66	66	1.1	1.0	-39	1,051	-1	16					
53	Berrigan	861	764	780	1214	1332	1382	4	4.7	4.9	123	148	54	0.9	2.5	2.7	0.4	1.9	2.1	-13	-15.6	-19.0	>100	>100	>100			88	89	92	1.9	1.9	788	836	17	17					
<b>Totals for 3,001 - 10,000 Props</b>		\$204M																												No. of LWUs paying dividend is 2						21 of 22 LWUs had a +ve NPAT					
<b>LWUs with 1,501 - 3,000 Properties</b>																																									
48	Leeton	1092	1093	1056	1558	1415	1425	6	5.5	5.8	311	477	718	1.3	0.4	0.7	0.2	-0.5	-0.1	-20	-19.7	-18.9	>100	0	0			66	69	69	1.2	1.2	-17	21	0	0					
54	Deniliquin	951	968	956	1605	1464	1500	6	5.1	5.2	1500	137	180	3.8	2.2	1.6	3.5	1.9	1.2	-7	-10.0	-8.4	>100	>100	>100	192	21	73	73	72	1.4	1.4	727	916	14	17					
47	Bellingen	940	1001	1053	1172	1440	1307	5	5.9	5.3	286	324	1838	0.6	1.6	0.9	0.0	0.9	0.0	-19	-20.1	-17.8	0	>100	>100			78	94	89	1.6	1.7	1,260	532	21	10					
60	Glen Innes Severn	685	694	677	1063	1090	1074	3	3.2	3.3	391	544	668	0.6	0.9	0.9	1.1	1.5	1.5	4	5.7	6.1	2	3	3			73	74	72	2.3	2.2	263	200	8	6					
58	Cootamundra	483	481	516	1080	1216	1216	3	3.6	3.7		35	70	1.4	1.8	0.9	1.4	1.8	0.9	-13	-14.6	-16.4	84	>100	>100			83	50	55	1.4	1.5	372	191	10	5					
57	Wellington	950	976	927	1587	1654	1816	5	4.8	5.3	34	30	128	0.6	1.0	2.7	1.7	2.0	3.5	16	11.4	6.1	2	2	4			61	58	64	1.2	1.2	219	955	5	18					
91	Cabonne	1087	1056	1245	2044	2160	2180	2	2.5	2.6	734	567	1154	-0.8	-0.4	-0.8	-1.1	-0.7	-1.0	-7	-3.6	-3.5	0	0	0			41	39	37	1.6	1.5	-283	-500	-11	-20					
80	Greater Hume	795	822	848	1366	1530	1689	3	2.8	3.1	153	243	168	-0.3	0.0	0.2	-0.5	-0.2	0.0	-5	-6.0	-6.5	0	0	0			45	45	51	1.6	1.6	-14	104	0	3					
59	Lachlan	1218	1292	1249	1417	1430	1580	4	4.0	4.5	334	284	950	-0.4	-0.7	-1.0	-1.2	-1.5	-1.5	-13	-13.2	-13.6	0	0	0			43	40	40	1.0	0.9	-506	-755	-13	-17					
65	Murray	774	786	809	1285	1369	1430	4	4.1	4.4	189	473	228	2.9	3.5	3.6	2.5	3.1	3.3	-10	-10.0	-12.5	>100	>100	>100			57	59	59	1.4	1.4	1,161	1,227	28	28					
62	Narromine	843	1013	1077	1239	1285	1283	3	2.7	2.7	201	385	488	2.1	2.7	1.6	1.3	1.9	0.7	-28	-29.8	-28.9	>100	>100	>100			39	41	41	1.5	1.5	587	299	22	11					
56	Yass Valley	1114	894	872	1651	1649	1823	5	5.3	5.9	2812	0	0	0.2	1.1	2.2	1.5	0.0	3.5	20	20.6	18.3	1	2	3			44	47	48	0.9	0.8	504	981	9	17					
61	Liverpool Plains	736	902	906	1232	1487	1378	3	4.1	3.8	2027	292	326	1.5	1.6	1.0	1.2	1.5	0.8	-5	-6.7	-7.7	>100	>100	>100			60	57	57	1.4	1.5	1,139	719	27	19					
55	Warrumbungle	889	1015	1105	1161	1203	1187	4	4.0	3.9	127	149	179	0.3	0.0	-0.8	0.0	-0.6	-1.1	-5	-6.6	-7.5	0	0	0			86	56	100	1.4	2.5	-71	-462	-2	-12					
71	Palerang	1079	1093	1085	1733	2025	2243	4	4.5	5.0	2813	362	1138	0.6	0.5	1.4	1.0	1.3	2.0	4	2.5	2.8	3	2	3			22	23	23	0.5	0.5	266	801	6	16					
63	Narrandera	959	845	989	1669	1419	1356	4	2.9	2.8	1107	645	523	8.1	5.5	4.0	6.4	3.8	2.5	-30	-29.6	-27.2	>100	>100	>100			59	44	44	1.5	1.6	933	621	32	22					
67	Cobar	1056	1521	1271	1423	1678	2214	3	3.8	5.0	94	0	0	1.1	-0.6	7.9	1.1	-0.9	7.6	-6	-8.6	-14.7	>100	0	>100			25	24	25	0.6	0.5	-128	1,620	-3	32					
74	Wentworth	719	784	784	1548	1694	1655	4	3.8	3.8	50	39	279	4.5	3.6	3.6	4.1	3.6	3.6	-8	-12.1	-14.6	>100	>100	>100			36	36	37	0.9	1.0	1,179	1,204	31	31					
75	Coonamble	593	531	673	859	958	1032	2	1.6	1.7	2911	347	177	1.4	0.4	-0.1	-0.1	-0.6	-0.8	-20	-20.9	-22.3	0	0	0			28	25	22	1.6	1.3	-58	-70	-4	-4					
<b>Totals for 1,501 - 3,000 Props</b>		\$78M																												No. of LWUs paying dividend is 1						15 of 19 LWUs had a +ve NPAT					
<b>LWUs with 200 - 1,500 Properties</b>																																									
70	Kyogle	1034	1211	1169	1126	1243	1250	2	2.4	2.4	326	195	310	-0.2	-0.5	0.1	0.1	-0.2	0.4	2	1.1	0.3	0	0	1			53	53	52	2.2	2	-237	-102	-10	-4					
79	Walgett	778	1946	675	1218	1242	1621	2	2.4	3.1	0	0	1038	0.1	-6.9	4.9	0.2	-6.5	4.5	-16	-14.7	-17.0	2	0	>100			22	43	21	1.8	1	-2,141	1,493	-89	48					
68	Tenterfield	1041	1034	1098	1483	1773	1687	3	3.6	3.4	357	331	668	-0.3	1.2	0.5	0.3	1.6	0.8	6	0.7	0.7	0	4	2			47	49	49	1.4	2	443	163	12	5					
84	Gilgandra	663	747	787	1091	1336	1241	2	1.8	1.7	198	330	274	0.2	1.1	0.5	-0.2	0.7	0.1	-12	-11.8	-12.3	0	>100	>100			25	25	26	1.4	2	-311	-36	-17	-2					
73	Upper Lachlan	810	906	1055	1410	1463	1422	3	2.9	2.8	1503	5095	349	3.2	2.0	0.1	2.7	1.8	-0.1	-17	-7.7	-9.5	>100	>100	0			34	35	37	1.2	1	532	-53	18	-2					
87	Bourke	1220	1457	1472	1531	1812	1961	2	2.5	2.7	471	41	0	1.7	0.7	1.6	0.9	-0.1	1.0	-16	-16.9	-13.4	0	0	>100			11	11	11	0.4	0	141	294	6	11					



Table 5A: Water supply and sewerage indicators - financial

WATER UTILITY		FINANCIAL																																												
		Operating Cost (OMA)			Income per Property			Total Income			Capital Expenditure (Assets, Renewals, Plant/Equip)			Return on Assets			Economic Real Rate of Return			Net Debt to Equity			Interest Cover			Dividend Payable			Dividend Payout Ratio		CSOs			% Revenue from CSOs		Net Profit after Tax NPAT		NPAT Ratio								
		WS & SGE (\$/property)			(\$/property) WS & Sge			WS & Sge (\$M)			WS & Sge (\$ per prop)			WS & Sge (%)			WS & Sge (%)			WS & Sge (%)			WS & Sge (\$'000)			WS & Sge (%)		WS & Sge (\$'000)			WS & Sge (%)															
		(23) F13	(24) F7	(24a) F3	(24b) F28 + F29	(24c) F3	(25) F19	(26) F22	(27) F23	(28) F20	(29) F21	(30) F25	(31) F8	(32) F24	(32a) F30																															
12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	13/14	14/15	13/14	14/15	13/14	14/15														
86	Hay	1021	1110	1078	1462	1479	1576	2	2.0	2.1	212	150	159	0.9	0.4	1.2	0.5	0.1	0.9	-14	-15.7	-17.3	>100	>100	>100			24	25	24	1.3	1	76	259	4	12										
83	Oberon	1438	1477	1236	1550	1534	1767	2	2.1	2.3	160	120	189	-0.2	-0.9	2.1	-0.4	-1.0	1.9	-4	-3.8	-7.1	0	0	>100			20	21	21	1.0	1	-171	595	-8	26										
81	Gwydir	723	706	862	1369	1504	1404	2	2.2	2.1	405	124	0	-5.9	5.4	2.2	-5.6	5.9	2.9	-4	-6.2	-5.2	0	12	4.0			45	45	44	2.0	2	354	225	16	11										
85	Uralla	819	855	749	917	1013	1038	1	1.4	1.5	81	0	59	0.2	0.1	0.9	-0.7	-0.3	0.5	-7	-8.5	-10.7	0	0	>100			31	28	30	1.9	2	24	208	2	14										
89	Bogan	1320	1695	2042	1985	2146	2535	2	2.4	3.0	0	171	0	1.9	1.0	1.4	1.4	0.4	0.9	-12	-14.0	-15.0	>100	>100	>100			32	0	17	0.0	1	99	282	4	9										
76	Harden	617	628	979	1434	1436	1601	3	2.8	2.8	117	27	77	1.2	1.4	-0.4	0.8	1.1	-0.9	-9	-11.8	-13.3	>100	>100	0.0			39	39	38	1.4	1	289	-107	10	-4										
88	Wakool	1060	1009	1050	684	1439	1614	1	2.2	2.3	1083	524	611	0.0	0.3	0.4	-0.4	0.0	0.2	-8	-8.0	-8.5	0	0	>100			27	27	27	1.3	1	-61	62	-3	3										
93	Tumbarumba	790	761	825	1291	1361	1479	2	1.6	1.7	748	976	2926	0.1	0.4	0.3	0.0	0.3	0.5	-5	-5.1	-2.9	>100	>100	3			20	20	20	1.3	1	41	14	3	1										
94	Gundagai	1012	1024	1173	1515	1640	1721	1	1.6	1.7	63	69	431	1.3	2.0	1.1	0.9	1.6	0.8	-8	-10.7	-12.2	>100	>100	>100			23	25	23	1.6	1	364	314	23	18										
92	Carrathool	1369	1187	1178	1750	1538	1874	2	2.0	2.3	390	1027	214	-1.4	0.9	2.4	-1.4	0.8	2.6	3	3.8	1.9	0	>100	15			14	15	15	0.8	1	178	474	9	21										
96	Warren	1124	1092	982	1151	1184	1237	1	1.1	1.2	187	314	497	-1.2	-1.1	-0.4	-2.4	-2.1	-1.2	-20	-19.6	-19.2	0	0	0			19	18	18	1.6	2	-176	-73	-15	-6										
98	Walcha	983	1061	1052	1118	1103	1048	1	1.0	1.0	31	76	143	0.0	-0.3	-0.9	-0.3	-0.5	-1.2	-7	-7.6	-7.4	0	0	0			22	18	18	1.8	2	-53	-188	-5	-20										
100	Balranald	745	846	819	1080	1331	1481	1	1.2	1.3	106	0	0	-1.1	0.1	0.4	-0.9	0.2	0.7	-2	-4.2	-6.9	0	1	2			0	0	13	0.0	1	-6	77	0	6										
97	Bombala	823	849	911	1078	1152	1238	1	1.0	1.1	138	162	106	-0.8	-0.8	-0.6	-1.4	-1.3	-1.2	-13	-13.8	-14.9	0	0	0			19	20	19	2.0	2	-189	-152	-18	-14										
101	Murrumbidgee	577	666	596	806	832	819	1	0.7	0.6	107	53	151	-0.1	-0.5	0.1	-0.7	-1.1	-0.5	-15	-15.4	-16.3	0	0	0			17	12	12	1.8	2	-66	8	-10	1										
90	Guyra	874	1001	1109	1247	1699	1401	2	2.1	1.8	80	65	64	0.2	0.3	-0.3	-0.1	0.1	-0.6	-4	-6.0	-6.8	0	>100	0			30	30	29	1.4	2	329	-123	16	-7										
104	Boorowa	983	953	1054	1573	1577	1431	1	1.0	0.9	459	116	449	-0.2	-0.2	-0.1	-0.6	-0.5	-0.5	0	-10.5	-10.8	0	0	0			15	17	17	1.7	2	-158	-301	-15	-32										
105	Brewarrina	1720	2033	2222	3531	4269	3164	2	2.1	1.5	103	1066	231	5.2	0.0	-0.2	5.1	6.2	0.0	-14	-11.4	-16.5	>100	0	0			4	4	4	0.2	0	-51	-97	-2	-7										
106	Jerilderie	1042	1125	1157	1298	1398	1357	1	0.7	0.7	94	63	244	1.3	0.8	0.0	-0.8	-0.9	-1.5	-28	-25.1	-26.7	0	0	0			10	10	10	1.5	2	-24	-48	-4	-7										
103	Central Darling	1825	1716	1142	1268	3951	2931	1	2.9	2.2	0	0	0	-1.6	4.1	2.4	-1.6	4.2	2.6	0	-3.0	-1.8	0	>100	>100			0	0	0	0.0	0	1,071	695	37	32										
<i>Totals for 200 - 1,500 Props</i>																													\$50M						No. of LWUs paying dividend is 0						15 of 26 LWUs had a +ve NPAT					
<i>LWUs with a single service (WS or Sge)</i>																																														
4	Rous (Bulk Supplier) (NO SGE)	234	238	268	430	475	554	20	22.2	22.8	55			0.8	1.2	1.3	1.1	1.7	1.8	6	4.2	5.1	4	3	4			10	10	10	0.0	0.0	1,890	2,523	9	11										
8	Riverina (Groundwater) (NO SGE)	384	338	277	855	921	1019	25	27.2	30.4	188	209	397	3.6	5.6	7.9	3.5	5.3	7.5	-4	-7.0	-8.9	>100	>100	>100			212	225	194	0.8	0.6	6,931	11,244	25	37										
12	Fish River WS (Bulk Supplier, NO SGE)				427	426		9	10.0	10.0	17			10.9	15.6		10.9	15.6		0	0.0							0	0		0.0		4,492		45											
28A	Goldenfields (Reticulator) (NO SGE)	809	811	664	1159	1330	1437	12	13.6	14.8				1.4	2.7	4.0	1.1	2.3	3.6	-9	-9.4	-12.6	>100	>100	>100			101	98	97	0.7	0.7	4,069	5,909	30	40										
28B	Goldenfields (Bulk) (NO SGE)	147	146	152	251	252	286	5	4.9	5.5				1.2	1.3	0.5	0.7	0.9	0.0	-10	-11.1	-14.9	>100	>100	>100			0	0	0	0.0	0.0	862	322	17	6										
40	Central Tablelands (NO SGE)	565	552	626	950	963	956	5	5.2	5.2	199	87	154	0.7	0.9	0.1	0.7	1.0	0.1	-1	-3.8	-5.5	64	9	4			58	57	57	1.1	1.1	284	74	5	1										
9	Wagga Wagga (NO WS)	413	417	418	642	632	721	17	16.6	19.6	138	180	161	-0.3	-0.5	0.5	0.5	0.3	1.3	6	6.1	5.3	1	0	2			158	160	159	1.0	0.8	-1,343	1,052	-8	5										
30A	Hawkesbury (NO WS)	555	549	563	726	718	755	6	5.5	5.8	464	188	46	-0.1	-0.2	-0.3	-0.2	-0.4	-0.3	-5	2.9	1.4	0	0	0			38	41	40	0.7	0.7	-109	-252	-2	-4										
69	Temora (NO WS)	231	229	179	307	321	348	1	0.7	0.8	158	0	0	0.3	0.1	1.7	0.0	0.0	1.5	-8	-6.5	-7.5	0	0	>100			26	25	26	3.6	3.5	24	184	3	24										
72	Bland (NO WS)	357	357	359	618	647	693	1	1.2	1.3	76	0	0	2.2	2.7	3.4	2.1	2.6	3.3	-1	-2.2	-1.7	>100	>100	>100			21	20	20	1.7	1.6	291	381	25	30										
77	Junelee (NO WS)	296	304	260	420	419	425	1	0.7	0.7	3	33	56	0.4	-0.1	0.3	-0.2	-0.8	-0.2	-13	-14.1	-15.9	0	0	0			20	21	19	3.1	2.7	-15	36	-2	5										
78	Blayney (NO WS)	363	367	363	579	749	617	1	1.5	1.2		63	184	0.2	1.8	0.4	-0.3	1.2	-0.2	-11	-14.5	-16.8	0	>100	0			16	16	13	1.1	1.1	369	74	25	6										
95	Weddin (NO WS)	180	259	334	356	422	504	0	0.4	0.5	53	0	0	1.2	1.9	2.0	1.0	1.8	1.9	-8	-10.3	-9.4	>100	>100	>100			15	15	16	3.8	3.4	96	101	24	21										
99	Coolamon (NO WS)	289	318	271	444	441	505	0	0.4	0.5	113	57	109	0.1	-0.3	0.6	-0.4	-0.7	0.2	-10	-10.2	-10.9	0	0	>100			13	13	13	2.9	2.5	-111	12	-25	2										
102	Lockhart (NO WS)	319	295	213	429	456	463	0	0.4	0.4	0	0	0	0.0	0.4	1.5	-0.9	-0.2	1.0	-24	-23.4	-25.5	0	0																						

**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						
	(per 1000 properties)			(% )			Water	Sewerage	Other	Total	Major Sources of Water			Storage Dams	Bulk Raw Water Supplier	>50% of Supply from Grnd Water	No. Bores	Bulk Supplier (potable water)	Coastal (C) or Inland (I)			
	(33)	C12		(34)	C14		(35a)	(35b)	(35c)	(35d)	(36)	(37)	(38)	(39)	(40)	(41)	(41a)					
12/13	13/14	14/15	12/13	13/14	14/15	13/14	14/15	13/14	14/15	13/14	14/15	13/14	14/15	13/14	14/15							
Sydney Water	3	2	1	86	83	79	69	63	118	126	-99	-102	85	84								
Hunter Water	2	2	2	79	71	70	116	103	285	105	24	17	412	220								
<b>LWUs with &gt; 10,000 Properties</b>																						
1	Gosford						153	161	229	284	24	24	401	462	Wyong R, Ourimbah Ck, Mooney Mooney Ck and Mangrove Ck.	Mangrove Ck (190GL), Mooney Ck (4.6GL)	GW JWA	22		C		
2	Wyong	0			32	33	34	166	174	264	290	16	2	441	459	Wyong R, Ourimbah Ck, Mooney Mooney Ck, Mangrove Ck and two-way transfers from/to Hunter Water.	Mardi (7.4GL)	GW JWA	12		C	
3	Shoalhaven	0	0	0	100	96	96	147	180	253	282	5	6	377	437	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				219	226	263	263	26	25	483	490	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	51	56	48	175	155	271	264	7	6	441	413	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	77	75	84	146	178	263	260	0	0	386	416	Hastings R to supply Port Macquarie, Wauchope and the Camden Haven areas.	Cowarra (10GL), Port Macquarie (2.5GL)		1		C	
10	Coffs Harbour	0	0	0	99	99	99	103	109	267	363	6	35	362	487	Nymboida R (via Shannon Ck Dam) & Orara R to Karangi Dam to supply Coffs Harbour.	Karangi (5.6GL), Woolgoolga (270ML)			Clarence Valley	C	
11	Albury City	0	0	0		26	30	262	236	203	168	0	1	451	393	Murray River to supply Albury.		Water NSW			I	
13	Tamworth Regional	0	0	0				214	186	227	228	0	0	419	393	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	1	2	2				19	69	139	74			114	119	Nymboida R to supply Grafton, Maclean, Yamba, Iluka, and other villages	Shannon Creek (30GL)				C	
15	Eurobodalla	0	0	0	84		100	159	136	204	205	16	35	363	359	Tuross R, Buckenbours R & Moruya R to supply Batemans Bay, Moruya, Narooma & Tuross Hd.	Deep Creek (4.9GL)		5		C	
16	Wingecarribee	0	0	0	66	79	53	230	162	260	337	23	30	467	469	Wingecarribee Dam & Bundanoon Ck to supply Mittagong, Berrima, Bowral, Moss Vale, Exeter, Bundanoon, Burrawang, Robertson & other villages.	Bundanoon, Medway (3.3GL)	Water NSW			C	
17	Queanbeyan	4	2	2				15	13	146	164	7	7	170	184	Queanbeyan is a reticulater. 98% of supply is a fully treated bulk water supply.				ACTEW	I	
18	Dubbo	0	0	0	89	89	87	306	296	204	207	2	2	499	491	Macquarie R and groundwater (21ML/d) to supply Dubbo.		Water NSW	7		I	
19	Orange	0	8					221	204	199	207	5	5	416	405	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	
20	Goulburn Mulwaree	0	0	0				118	99	472	346	20	18	618	449	Wollondilly R to supply Goulburn and Marulan.	Pejar (9GL), Sooley (6.25GL)				C	
21	Bathurst Regional	0	0	0				172	158	191	177			362	337	Macquarie R and Campbell R to supply Bathurst.	Ben Chifley (30.4GL), Winburndale (1.8GL)		2		I	
22	Lismore	1	2	0	80	80	80	20	27	242	220	12	10	248	233	Lismore Council is a reticulater with a fully treated bulk water supply.	Nimbin (25ML)			Rous	C	
23	Bega Valley	1	0	0	72	79	87	118	107	219	239	39	32	343	342	Towamba R (aquifer), Tantawango Ck, Bega R (aquifer), Bemboka R, Brogo R, Illawamba Ck, Couria Ck.	Yellow Pinch (3GL), Ben Boyd (800ML), Tilba (135ML)		Yes	11		C
24	Ballina	0		0				13	13	419	384			425	390	Council is a reticulater. 93% of supply is fully treated bulk supply. 7% from Richmond R & g/water (1.2ML/d).	Marom (66ML)		2	Rous	C	
25	Kempsey	0	0	0	49	48	45	198	162	172	151	16	43	349	323	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
26	Essential Energy	0	0	0	76	78	78	886	732	48	50			930	779	Water is drawn from local sources at Broken Hill and from Menindee Lakes.	Stephens Ck (24GL), Imperial Lk (700ML), Umberumberka (13GL)					I
27	Byron	2	2	2				6	6	172	169			167	166	Council is a reticulater for 85% of supply (fully treated bulk water). 15% of the supply, including Mullumbimby is provided by Byron.	Wilson R (136ML)			Rous	C	
<b>LWUs with 3,001 - 10,000 Properties</b>																						
29	Armidale Dumaresq	0	0	0				140	129	122	107	3	11	262	244	Macleay River to supply Armidale.	Malpas (13GL), Oaky R (2.7GL), Puddelock Ck (930ML)					C
30	Griffith	0	0	0				261	274	206	202	2	2	425	445	Murrumbidgee Irrigation Area Main Canal to supply Griffith.	Griffith (360ML)	Water NSW				I
31	Lithgow		6		100		100	62		179				228		Council is a reticulater for 39% of supply, remaining from Farmers Ck Dam to supply Lithgow.	Farmers Creek (1.5GL)				Fish River WS	C
32	Mid-Western Regional	0		0				201	197	143	203	3	4	333	384	Cudgegong R to supply Rylstone and Kandos and Cudgegong R and groundwater (13ML/d) to supply Mudgee and Gulgong.	Rylstone (3.32GL)			28		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
34	Nambucca				100	100	100	115	159	203	214			297	351	Groundwater to supply Nambucca Heads, Macksville, Bowraville, South Head and Valla Beach.			Yes	10		C
35	Singleton	0	0	0				154	192	84	108	8	11	233	294	Hunter River and Glennies Creek to supply Singleton.		Water NSW		13		C
36	Parkes	8	3	3	100	100	100	435	650	558	547	14	16	922	1,131	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



**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							
	(per 1000 properties)			C14			Water	Sewerage	Other	Total	Major Sources of Water			Storage Dams	Bulk Raw Water Supplier	>50% of Supply from Grnd Water	No. Bores	Bulk Supplier (potable water)	Coastal (C) or Inland (I)				
	(33) C12			(34) C14			(35a) E9	(35b) E10	(35c) E11	(35d) E12	(36)	(37)	(38)	(39)	(40)	(41)	(41a)						
12/13	13/14	14/15	12/13	13/14	14/15	13/14	14/15	13/14	14/15	13/14	14/15	13/14	14/15	13/14	14/15	13/14	14/15						
37	Inverell	1	1	1	100	100	100	129	123	136	140	17	16	262	250	Gwydir R and groundwater (1ML/d) to supply Inverell, Yetman and Ashford.	Lk Inverell (1.5GL)	Water NSW		1		I	
38	Moree Plains	18	13	0	99	99		122	243	236	396			333	583	Groundwater (18ML/d) to supply Moree, Mungindi and Bogabilla.	2 dams (150ML)		Yes	14		I	
39	Cowra	1	2	0	100	100	100	301	276	138	140	0	0	394	370	Lachlan River and 2 bores to supply Cowra.	Koorawatha (200ML)	Water NSW		2		I	
41	Muswellbrook	0	1	1				0	0.2	41	39	15	15	56	53	Hunter River and groundwater (0.5ML/d) to supply Muswellbrook and Denman.		Water NSW		3		C	
42	Corowa	0	0	0	100	100	100	210	141	149	94			2	353	233	Murray River and Mulwala Lake to supply Corowa and Mulwala.		Water NSW		2		I
43	Tumut	8	2	3	99	99	99	187	163	201	200	4	4	382	355	Tumut R to supply Tumut, Little Gilmore Ck to supply Batlow, Nimbo Ck to supply Brungle, Jounama Ck to supply Talbingo & Adelong Ck.	Batlow (82ML)	Water NSW		3		I	
44	Gunnedah	0	1	3		95	97	316	301	67	70				375	365	Groundwater (26ML/d) & Namoi R to supply Gunnedah, Curlewis, Mullaley and Tambar Springs.			Yes	17		I
45	Upper Hunter	4	6	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	8	7	1	100	100	100	0		291	397	556		811	358	Namoi R & groundwater (34.5ML/d) to supply Narrabri, Wee Waa, Boggabri, Pilliga, Bellata & Gwabegar.			Yes	11		I	
47	Bellingen	2	1	2	95	95	97	169	146	357	330			434	392	Bellingen R to supply Dorrigo & groundwater (4ML/d) to supply Bellingen.	1 dam (54ML)		Yes	4		C	
48	Leeton	0	0	1	100	100	100										Murrumbidgee Irrigation Area Main Northern Canal to supply Leeton, Yanco, Murrumbidgee & Whitton.	Leeton, 2 others (270ML)	Water NSW				I
49	Young	1	1	2	95	95	95	4	4	186	183	12	12	166	159	Council is a reticulater with a fully treated bulk water supply.						Goldenfields	I
50	Cooma-Monaro	0	2	1	98	100	100	10	158	10	227			19	385	Murrumbidgee River & groundwater (0.7ML/d) to supply Cooma, Bredbo & Nimmitabel.	1 dam for Nimmitabel (100ML)				4		I
51	Forbes	0	0	0	100	100	100	314	263	276	177	21	19	573	434	Lachlan River & groundwater (7.3ML/d) to supply Forbes & Ootha.		Water NSW		2		I	
52	Snowy River	10	10	8	99	99	99	151	142	146	147	5	5	289	282	Snowy River to supply Jindabyne, Berridale, Adaminaby, Dalgety & Kalkite.		Water NSW		1		C	
53	Berrigan	19	15	14	98	99	98	64	65	279	274	0	0	343	342	Mulwala Canal, DWR Channel & Murray River to supply Berrigan, Finley & Tocumwal.	4 dams (260ML)	Water NSW				I	
54	Deniliquin	0	4	4		85	50	303	304	425	416	30	30	719	721	Edward River to supply Deniliquin.		Water NSW		1		I	
55	Warrumbungle	33	8	42			100	185	116	141	152	15	16	309	248	Castlereagh R & groundwater (18.3ML/d) to supply Dunedoo, Coolah, Mendooran, Coonabarabran, Baradine, Binnaway, Bugaldie & Kenerbi.	Timor (1.14GL)			6		I	
56	Yass Valley	8	17	14	95	95	95	103	132	172	184	13		240	271	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	
<b>LWUs with 1,501 - 3,000 Properties</b>																							
57	Wellington	8	10	0	99	99	95	337	277	211	196	17	17	546	473	Macquarie River to supply Wellington.		Water NSW		2		I	
58	Cootamundra	2	8	8	98	98	98	8	10	175	235	5	6	178	236	Council is a reticulater with a fully treated bulk water supply.						Goldenfields	I
59	Lachlan	6	8		100	100		358		115		16		462		Lachlan River and groundwater (2ML/d) to supply Lachlan, Tottenham and Lake Cargelligo.	5 dams (112ML)	Water NSW		4		I	
60	Glen Innes Severn	0	0	0	100	100	100	96	84	107	109	9	9	207	191	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	
61	Liverpool Plains	56	51	38	90	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
62	Narromine	4	2	0				171	159	119	69	51	49	333	272	Groundwater (18ML/d) to supply Narromine, Trangie and Tomingley.	2 dams (52ML)		Yes	8		I	
63	Narrandera	2	2		80	95	80	0		0		0					G/water (18ML/d) to supply Narrandera. A bulk water supply from Goldenfields is provided to part of Narrandera.			Yes	4	Goldenfields	I
65	Murray	0	0	0	100	100	100	171	176	129	227			305	410	Murray River and Gulpa Creek to supply Moama and Mathoura.		Water NSW		1		I	
67	Cobar	7	5	0	90	95	95	122		138	138	7	2	235	108	Bulk water supply. Bogan River to supply Cobar.	Cobar (1.82GL), 4 others	Cobar WB		1		I	
68	Tenterfield	5	5	15	95	95	95	104	110	116	102			203	197	Tenterfield Creek and groundwater (1ML/d) to supply Tenterfield, Urbenville and Jennings.	Tenterfield Ck (1.15GL)			1		I	
70	Kyogle	1	0	0	100	100	100	231	247	81	90	23	23	326	350	Clarence River to supply Kyogle, Bonalbo and Woodenbong.	Bonalbo (47ML)			3		C	
71	Palerang	14	2	2	95	100	100	176	134	139	159	0	0	308	283	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		I	
73	Upper Lachlan	0	0	0	90	90	90	127	126					127	126	Kentgrove Creek to supply Crookwell and groundwater (2ML/d) to supply Gunning and Dalton.	Crookwell (450ML), other (25ML)			6		I	
74	Wentworth		2	1		100	100	608		214				758		Murray R & Darling R to provide a dual supply for Wentworth, Buronga, Gol Gol, Dareton and Pooncarie.		Water NSW				I	
75	Coonamble		0	0	90	99	95	313	352	102	109	11	11	402	440	Groundwater (11.7ML/d) to supply Coonamble.			Yes	6		I	
76	Harden	15	7	7	99	100	99		15		86		3	64		Council is a reticulater with a fully treated bulk water supply.						Goldenfields	I
79	Walgett	2		0	90		90										Namoi River and groundwater (5ML/d) to supply Walgett, Collarenebri and Lightning Ridge.		Water NSW		6		I
80	Greater Hume	0	0	0	100	100	100	142	115	115	87	33	32	338	269	Council is mostly a reticulater serving Hume Villages with a fully treated bulk supply. G/water (4ML/d) to Culcairn.				2	Albury, Riverina	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												
	(per 1000 properties)			(% )			Water	Sewerage	Other	Total	Major Sources of Water			Storage Dams	Bulk Raw Water Supplier	>50% of Supply from Grnd Water	No. Bores	Bulk Supplier (potable water)	Coastal (C) or Inland (I)									
	(33) C12	(34) C14		(35a) E9	(35b) E10	(35c) E11	(35d) E12				(36)	(37)	(38)	(39)	(40)	(41)	(41a)											
12/13	13/14	14/15	12/13	13/14	14/15	13/14	14/15	13/14	14/15	13/14	14/15	13/14	14/15															
<b>LWUs with 200 - 1,500 Properties</b>																												
81	Gwydir	0	1	1				56	52			44	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								
83	Oberon	5	5	5	95	95	95	142	146	57	56		194	200	Council is a reticulator with a bulk water supply from Fish River.					Fish River WS	I							
84	Gilgandra	12	7	12	80	80		357	381	77	277	47	14	483	650	Groundwater (8.5ML/d) to supply Gilgandra		Yes	5			I						
85	Uralla	21	17	8	98	98	97	132	114	174	209	7	8	274	283	Kentucky Creek and Gwydir River to supply Uralla and Bundarra.					Kentucky Ck (500ML)		I					
86	Hay	2	2	2	50	50	50	41	41	137	137	41	41	213	213	Murrumbidgee River to supply Hay.					Water NSW		I					
87	Bourke	8	15	13	90	90	90	33	217	130	105	22	23	170	332	A weir on the Darling River to supply Bourke.						1		I				
88	Wakool	0	7	8	100	100	100									Murray River to supply Barham and Murray Downs.					1 dam (130ML)	Water NSW		I				
89	Bogan	0	0	0	90	90		168	300	194	223	28	39	361	518	Bogan River to supply Nyngan.					Water NSW			I				
90	Guyra	3	1	2	96	97	97	352	279	140	108	11	8	496	389	Gara River to supply Guyra.					Guyra (375ML), Tingha (90ML)			I				
91	Cabonne	13	9	9	100	100	100	159		117		3		378		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			
92	Carrathool	9	9	0	100	100	100	1199	1073	112	63	0	66	1,272	1,182	Murrumbidgee Irrig. Area Canal & g/water (15ML/d) to supply Hillston, Goolgowi, Rankins Springs & Carrathool.				Yes	9			I				
93	Tumbarumba	3	1	3	100	100	100	37	84	72	77	2	3	101	153	Murray River and groundwater (0.4ML/d) to supply Tumbarumba and Khancoban.					Tumbarumba (70ML)		2		I			
94	Gundagai	4	22		98	98		357		183		5		515		Murrumbidgee River to supply Gundagai.					Water NSW			I				
96	Warren	26	21	10	95	95	90	0	137	0	746	0	17		805	Macquarie River and groundwater (3.5ML/d).					Water NSW		5		I			
97	Bombala	0	11	13	100	100	100	96	348	169	169	0	0	242	494	Coolumbooka River, Delegate River and Snowy River to supply Bombala and Delegate.					Coolumbooka (215ML)				C			
98	Walcha	0	0	0	100	100	100	213		200		59		443		MacDonald River to supply Walcha.					Walcha (80ML)				C			
100	Balranald	0			100			174	176	200	200			360	363	Murrumbidgee R to supply Balranald & Euston.					Water NSW				I			
101	Murrumbidgee	0														Groundwater (13ML/d) to supply Darlington Point and Coleambally.				Yes	4				I			
103	Central Darling	54	80	54	95	95	95	270	378	224	59	0	0	385	408	Groundwater (1ML/d), Wallandra Creek and Darling River to supply Wilcannia, Ivanhoe and Whitecliffs.					4 dams (575ML)		3			I		
104	Boorowa	2	9	8	99		100	188	197	24	14	5	6	217	217	Boorowa River to supply Boorowa.					Boorowa (335ML)		2			I		
105	Brewarrina	19	6	2	100	100		418	498	98	94	8	4	527	598	Barwon River and groundwater (0.9ML/d) to supply Brewarrina and Goodooga.					1 dam (73ML)		1			I		
106	Jerilderie	0	0	2	95	100	100	120	204	51	56	12	12	178	265	Billabong Creek to supply Jerilderie.		Water NSW								I		
<b>LWUs without Sewerage</b>																												
4	Rous (Bulk Supplier) (NO SGE)		0	0	95	95		107				11		117		Rocky Ck, Duck Ck & 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)	3	4	1	98	98	98	353	364			19	8	372	372	Murrumbidgee River and groundwater (117ML/d) to supply Wagga Wagga, Holbrook, Lockhart and Henty.					3 dams (30ML)	Water NSW	Yes	28			I	
12	Fish River WS (Bulk Supplier, NO SGE)		0		100	100	100	45						45		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 SGE)			0				390	379			17	16	407	395	Council reticulates water to Bland, Coolamon, Junee, Temora and part of Narrandera.										Goldenfields	I	
28B	Goldenfields (Bulk) (NO SGE)							330	330			15	14	345	343	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	280	242			4	3	285	245	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											Bulk raw water is supplied to Cobar and the mines.					4 dams (1.1GL) Nyngan, Cobar						I	
<b>LWUs without Water Supply</b>																												
9	Wagga Wagga (NO WS)		0	0	100	100				177	147			177	147												I	
30A	Hawkesbury (NO WS)		0	0						54	95			54	95													C
69	Temora (NO WS)		0	0	0	100	100			53	52	0	0	53	53												I	
72	Bland (NO WS)		0	0	0	95	95			68	68	0	0	68	68												I	
77	Junee (NO WS)		0	0	0	100	100			334	332			334	332												I	
78	Blayney (NO WS)		0	0	0	100	100			145	152			145	152												I	
95	Weddin (NO WS)		0	0	1	90	90			38	38	0	0	38	38												I	
99	Coolamon (NO WS)		0	0	0					83	81			83	81												I	
102	Lockhart (NO WS)		0	0	0	95	95			195	135	8	9	203	144												I	
107	Urana (NO WS)		0	0	0	99	99			0	0	0	0														I	

**NOTE:**

1. 61 LWUs have a storage dam (col 37), 34 LWUs receive a bulk raw water supply from Water NSW (col 38); 60 LWUs have a groundwater supply (col 40), of which 14 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 - 2014-15**

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 (BTS)	Actual Annual Maintenance	Mains Maintenance Cost	Rehabilitations			Asset Renewals			Assets in Condition as a % of WDV					Renewals Ratio	Backlog Ratio	Asset Maintenance Ratio	Capital Expenditure Ratio	Operating Cost	Net Debt to Equity	Economic Real Rate of Return	Water Main Breaks	Unplanned Interruptions 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 Rqmts	Best-Practice Implementation	
	\$/property F9/C4	\$'000	\$'000 F9	\$'000	\$'000 F14	\$'000	\$'000	\$'000 per 100km of Main	Mains (% of Total Length)	Service Connections (%)	Water Meters (%)	\$'000	\$'000 per 100km of Main	% of CRC	WS Assets (56)					Asset Renewals / Depreciation	BTS / Value of Infrastructure	Actual maintenance / Required Maintenance	Capital expenditure / Depreciation	OMA \$/property F11	WS & SGE % F22	WS % F17	Per 100km of main A8	per 1000 properties C17	Lid/corrupt A10	No. / 1000 props C9	No. / 1000 props C10	% of population H3	\$/ assessment P3	Yes/No	No.	Overall %	Strategic Business Plan (Yes/No)
	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	1	2	3	4	5	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)	(67)	(68)	(69)	(70)	(70a)	(70b)	(71)	(72)
Sydney Water Corporation	6,600		12,400,000		150,100																		386	98	2	26	179	74	0	0	100	563					
Hunter Water Corporation	10,000		2,420,000		36,700																		270	81	3	29	267	91	3	0	100	385					
<b>LWUs with &gt; 10,000 Properties</b>																																					
1 Gosford	7,670	952,000	551,000	14,585	6,780	10,249	7,267	490	0.4	-	3.4	3,682	373	0.4	23	41	20	13	2	0.35	0.02	1.05	0.46	331	6	1.3	17	126	60	12	-	100	507	Yes	4	100	Yes+
2 Wyong	15,100	1,471,000	956,000	17,471	15,850	1,851	4,964	292	0.1	0.9	1.3	12,368	1,015	0.8	19	80	1	0	0	0.68	0.01	0.67	0.91	319	9	1.5	16	57	30	10	6	100	508	Yes	3	100	Yes*
3 Shoalhaven	7,570	621,000	357,000	7,730	10,280	0	3,526	72	1.2	0.7	8.4	2,470	164	0.4	66	34	0	0	0	0.42	0.00	1.00	1.14	276	-1	1.7	8	78	90	1	1	100	309	Yes	8	100	Yes+
4 Rous (Bulk Supplier)		465,000	326,000	6,053	12,120	4,410	1,089	169	1.1		0.5	2,022	459	0.4	3	46	39	11	1					268	5	1.8	10	1		0	0	100		Yes	4	100	Yes*
5 MidCoast	11,300	684,000	436,000	9,612	3,090	34,319	4,889	253	0.4	-	2.6	2,409	173	0.4	49	33	16	1	1	0.30	0.07	0.31	0.24	477	22	0.7	9	6	60	3	4	100	587	Yes	15	100	Yes*
6 Tweed	15,400	661,000	495,000	7,145	1,960	10,836	1,845	125	-	-	4.1	469	66	0.1	80	16	4	0	0	0.07	0.02	0.79	0.23	419	0	1.6	4	19	60	6	17	100	584	Yes	5	100	Yes*
7 Port Macquarie-Hastings	11,400	573,000	348,000	10,572	9,880		3,028	124	1.0	0.0	3.3	1,675	207	0.3	55	42	3	0	0	0.16	0.00	1.00	0.94	398	-8	1.2	3	14	40	6	20	100	568	Yes	6	90	Yes*
8 Riverina	6,810	358,000	203,000	6,711	11,870	64,379	2,167	61	1.7	1.3	3.0	5,726	345	1.6	13	35	33	18	1	0.00	0.34	0.50	1.77	271	-9	7.5	7	57	90	3	2	100	574	Yes	4	90	Yes
10 Coffs Harbour	11,400	423,000	286,000	6,607	1,330	0	2,423	272	0.3	0.1	5.8	76	12	0.0	56	34	8	2	0	0.01	0.00	1.00	0.20	395	13	2.0	3	11	50	0	0	100	582	Yes	3	100	Yes+
11 Albury City	8,060	398,000	207,000	5,768	2,270	7,770	1,282	40	1.0	0.0	2.7	0			50	25	20	5	0	0.25	0.04	1.10	0.15	277	-6	1.9	5		50	3	1	100	354	Yes	3	100	Yes*
13 Tamworth Regional	9,690	365,000	210,000	4,212	6,610	9,159	2,284	175	0.6	0.1	5.8	1,914	299	0.5	49	37	14	0	0	0.46	0.04	0.82	1.51	518	-4	2.0	14		70	0	43	100	515	Yes	12	90	Yes*
14 Clarence Valley	18,600	456,000	400,000	5,352	1,920	2,941	2,376	154	0.3	0.0	8.3	883	79	0.2	50	46	4	0	0	0.19	0.01	1.10	0.16	388	11	0.4	11		110	14	68	100	413	Yes	2	90	Yes+
15 Eurobodalla	14,200	418,000	278,000	6,077	2,570	2,190	1,199	106	0.5	-	11.1	2,151	243	0.5	7	47	41	4	0	0.29	0.01	1.00	0.42	405	-1	1.1	13	120	50	1	0	100	668	Yes	5	100	Yes+
16 Wingecarribee	8,820	284,000	169,000	3,643	2,810	3,434	5,002	193	0.5	0.2	11.4	1,026	155	0.4	74	15	11	0	0	0.29	0.02	1.13	0.63	371	-4	1.5	5	14	60	8	55	100	463	Yes	3	90	Yes*
17 Queanbeyan	5,460	163,000	95,000	2,250	910	400	343	272	0.3	0.2	4.6	269	90	0.2	34	38	28	0	0	0.12	0.00	0.32	0.40	577	-20	0.4	6	1	80	0	19	100	871	Yes		90	Yes*
18 Dubbo	9,650	223,000	170,000	3,519	2,160	3,008	1,698	216	0.2	-	2.7	1,635	322	0.7	65	26	8	1	0	0.39	0.02	1.10	0.61	482	-3	5.0	5	20	120	1	3	100	848	Yes	3	100	Yes+
19 Orange	12,500	333,000	220,000	2,844	18,490	3,803	594	73	0.2	0.2	6.3	2,536	400	0.8	27	42	26	4	1	0.06	0.02	0.78	6.50	339	-12	4.0	7	51	60	1	62	100	564	Yes	3	100	Yes*
20 Goulburn Mulwaree	18,900	300,000	211,000	3,696	6,170	4,350	966	412	0.4	0.2	12.3	2,440	865	0.8	20	39	27	12	2	0.68	0.02	0.90	1.67	426	-6	0.8	10	3	70	5	36	100	624	Yes	4	90	Yes*
21 Bathurst Regional	10,400	295,000	163,000	3,753	7,430	18,458	1,608	320	0.3	0.2	2.4	1,132	287	0.4	24	14	42	11	9	0.37	0.11	0.39	1.98	545	-12	1.6	7	2	80	34	28	100	522	Yes	4	100	Yes+
22 Lismore	5,250	128,000	75,000	1,835	1,250	14,569	1,520		0.6	0.6	5.9	1,192	348	0.9	40	46	13	2	0	0.58	0.20	0.89	0.91	493	-2	1.6	20	49	40	0	2	100	666	Yes	3	100	Yes+
23 Bega Valley	13,300	308,000	191,000	3,711	4,080	5,155	1,469	165	0.5	1.0	20.4	2,022	329	0.7	55	23	19	3	1	0.00	0.03	19.33	1.10	543	-3	-0.8	6	3	50	13	2	100	541	Yes	16	90	Yes*
24 Ballina	4,790	112,000	69,000	1,479	3,080	1,796	918	134		-	3.9	532	160	0.5	41	51	5	2	1	0.37	0.03	1.00	2.07	494	17	1.2	5	0	160	0	0	100	555	Yes	2	90	Yes+
25 Kempsey	15,300	267,000	192,000	4,177	5,360	15,986	1,580	201	0.4	0.9	4.5	2,293	467	0.9	57	27	10	3	3	0.60	0.08	1.00	1.28	477	8	1.3	7	124	100	0	0	100	580	Yes	7	90	Yes+
27 Byron	4,970	92,000	56,000	1,206	350	0	691	156	0.4	1.1	5.3	222	93	0.2	32	28	33	6	2	0.19	0.00	1.00	0.29	482	14	1.6	9	13	50	2	0	100	574	Yes	4	100	Yes*
28A Goldenfields (Reticulator)	14,100	263,000	145,000	2,639				48	0.7	0.8	2.4	659			36	26	23	15	0				830	-13	3.6	13	96	90	5	0	100	750	Yes	3	90	Yes*	
28B Goldenfields (Bulk)		114,000	63,000	2,567				50				286			25	65	8	2	0				150	-15	0.0	0			0	-	100		Yes		86	Yes*	
<i>Medians (% of LWUs basis) or totals for &gt;10,000 Properties</i>																																					
	10,850							165	0.4	0.2	4.5		287	0.4	41	36	15	2	0	0.29	0.02	1.00	0.91	412	-2	1.6	7	16	60	2	3	100	571				
<b>LWUs with 3,001 - 10,000 Properties</b>																																					
29 Armidale Dumaresq	16,600	194,000	145,000	2,420	3,708	6,462	1,124	254	0.7	1.1	5.3	1,329	458	0.7	10	41	22	24	2	0.96	0.04	0.00	1.51	420	-7	2.0	14	74	110	1	0	100	691	Yes	4	90	Yes*
30 Griffith	15,300	178,000	129,800	2,076	833	2,468	625	36	1.1	0.2	9.5	483	103	0.3	38	41	9	8	4	0.48	0.02	0.94	0.35	702	2	0.7	13	24	110	2	48	100	690	Yes	2	100	Yes*
31 Lithgow	3,790	90,000	30,600	1,302	857	5,506	996	350	0.9	-	0.4	857	732	1.0	26	2	54	18	0	0.00	0.18	0.31	0.66	622	10	0.4	58		30	35	74	100	540	Yes	1	90	Yes
32 Mid-Western Regional	7,640	107,000	62,100	1,583	725	1,854	1,715	449	0.7	0.1	6.7	0			35	33	30	1	1	0.23	0.03	1.06	0.46	533	-4</												



**Table 5C: Water Supply - Infrastructure Asset Condition and Performance - 2014-15**

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 (BTS)	Actual Annual Maintenance	Mains Maintenance Cost	Rehabilitations			Asset Renewals			Assets in Condition as a % of WDV					Renewals Ratio	Backlog Ratio	Asset Maintenance Ratio	Capital Expenditure Ratio	Operating Cost	Net Debt to Equity	Economic Real Rate of Return	Water Main Breaks	Unplanned Interruptions 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 Rqmts	Best-Practice Implementation		
	\$/property F9/C4	\$'000	\$'000 F9	\$'000	\$'000 F14	\$'000	\$'000	\$'000 per 100km of Main	Mains (% of Total Length)	Service Connections (%)	Water Meters (%)	\$'000	\$'000 per 100km of Main	% of CRC	WS Assets (56)					Asset Renewals / Depreciation	BTS / Value of Infrastructure	Actual maintenance / Required Maintenance	Capital expenditure / Depreciation	OMA \$/property F11	WS & SGE % F22	WS % F17	Per 100km of main A8	per 1000 properties C17	L/d/cnn A10	No. / 1000 props C9	No. / 1000 props C10	% of population H3	\$/ assessment P3	Yes/No	No.	Overall %	Strategic Business Plan (Yes/No)	
	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	1	2	3	4	5	(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)	(65)	(66)	(67)	(68)	(69)	(70)	(70a)	(70b)	(71)	(72)	
40	Central Tablelands	9,630	121,000	52,900	1,722	846	20,750	987	80	0.9	5.6	1.5	445	79	0.4	0	28	72	0	0	0.44	0.39	1.00	0.48	626	-6	0.1	8	41	60	5	15	100	620	Yes	2	90	Yes
41	Muswellbrook	8,550	86,000	49,600	1,458	2,356	2,593	1,012	105		0.4	4.3	1,023	620	1.2	10	64	13	13	0	0.80	0.05	0.87	1.62	626	-21	-0.5	38	2	60	18	2	100	547	Yes	6	90	Yes+
42	Corowa	7,130	58,000	38,900	1,163	1,383	4,344	641	225	2.3	0.1	1.8	476	269	0.8	41	43	14	1	0	0.54	0.11	1.11	1.19	469	-11	3.6	12	46	120	3	2	100	560	Yes	5	90	Yes+
43	Tumut	8,900	62,000	40,100	1,133	283	0	457	93		-	10.0	57	31	0.1	97	2	1	0	0	0.14	0.00	1.00	0.25	467	-1	0.4	3		70	3	4	99	503	Yes	6	100	Yes
44	Gunnedah	9,160	66,000	39,800	921	1,194	612	783	358	1.1	1.7	9.3	236	129	0.4	28	31	20	21	1	0.77	0.02	0.96	0.82	475	-22	3.3	8	3	80	1	33	99	628	Yes	2	100	Yes
45	Upper Hunter	11,500	76,000	50,500	966	3,043	1,050	621	255	1.7	2.7	31.9	2,243	1,282	2.9	39	27	26	7	0	1.31	0.02	1.09	3.15	659	-12	5.1	30	27	240	1	27	100	798	Yes	5	100	Yes
46	Narrabri	5,570	56,000	24,400	894	1,145	0	328	38	2.6	0.5	-	54	36	0.1	23	29	44	4	0	0.00	0.00	1.18	1.28	480	-24	2.6	35	3	200	11	18	100	591	Yes	4	80	Yes*
47	Bellingen	10,700	58,000	43,800	727	530	200	141	56	1.2	0.5	5.3	458	274	0.8	8	77	14	2	0	0.76	0.00	1.00	0.73	391	-18	-0.3	7	2	70	2	16	100	343	Yes	1	100	Yes
48	Leeton	8,570	72,000	35,000	1,140	1,037	4,410	1,288	360	0.5	2.5	3.7	895	466	1.2	17	48	27	5	3	0.79	0.13	1.11	0.91	590	-19	0.4	10	15	150	0	0	100	675	Yes	4	90	Yes*
49	Young	3,370	50,000	16,500	696	194	370	412	187	2.0	1.0	9.2	194	129	0.4	11	9	41	39	0	0.28	0.02	1.00	0.28	254	3	-0.7	31	41	60	2	3	100	659	Yes		90	Yes
50	Cooma-Monaro	11,100	82,000	40,600	989	1,964	4,500	941	10	0.7	1.2	4.6	271	202	0.3	30	24	21	25	1	0.27	0.11	0.97	1.99	540	-10	0.8	7	3	60	2	15	100	872	Yes	2	100	Yes
51	Forbes	8,980	73,000	33,400	1,013	622	85	1,643	438	-	0.5	1.0	0			0	5	86	6	3	0.37	0.00	2.63	0.61	671	-16	-1.6	20	115	90	2	53	100	523	Yes	3	100	Yes*
52	Snowy River	4,600	50,000	24,400	1,070	1,052	6,129	387	186		0.7	0.9	732	572	1.5	24	20	39	16	0	0.65	0.25	0.55	0.98	311	-8	1.0	22	25	70	2	24	100	534	Yes	7	90	Yes
53	Berrigan	7,560	43,000	26,700	602	146	0	890		0.5	0.8	1.7	146	70	0.3	54	46	0	0	0	0.51	0.00	0.97	0.24	467	-19	3.2	17	21	100	7	10	100	775	Yes	4	70	Yes*
54	Deniliquin	10,800	53,000	37,800	594	113	498	721		0.7	-	0.6	113	76	0.2	2	25	56	15	1	0.19	0.01	1.14	0.18	528	-8	0.4	69	25	110	1	3	100	699	Yes	2	100	Yes
55	Warrumbungle	8,430	62,000	27,900	853	543	9,383	620	232	0.7	1.0	1.0	525	355	0.9	6	55	34	5	0	0.23	0.34	1.05	0.64	673	-8	-1.2	13	1	210	2	12	100	715	Yes	11	80	Yes
56	Yass Valley	12,900	60,000	41,900	723	0	0	377	25		0.5	3.7	0			80	15	5	0	0	0.00	0.00	0.98	0.00	439	18	3.8	8	54	90	2	20	100	902	Yes	3	100	Yes+
<i>Medians (% of LWUs basis) or totals for 3,001 - 10,000 Props</i>		9,395							127	0.7	0.6	3.7	169	0.4	24	31	27	7	0	0.41	0.02	1.00	0.70	531	-8	0.9	14	22	85	2	15	100	638					
<i>LWUs with 1,501 - 3,000 Properties</i>																																						
57	Wellington	6,880	36,100	20,000	537	93	972	554	220		0.4	3.2	93	89	0.3	10	38	42	9	1	0.18	0.05	0.79	0.17	522	6	5.7	5	14	90	0	30	91	785	Yes	2	100	Yes*
58	Cootamundra	1,380	15,500	4,200	217	72	725	288	207		1.4	9.5	0			0	0	92	8	0	0.33	0.18	1.03	0.33	287	-16	-1.6	91	15	70	0	55	100	662	Yes	80	Yes*	
59	Lachlan	19,300	102,700	54,700	1,510	2,592	102,861	1,040	139	-	-	-	2,592	1,112	2.5	36	15	30	17	1	0.11	1.92	0.20	1.72	798	-14	-1.0			140	0	-	100	1,427	Yes	4	100	Yes*
60	Glen Innes Severn	6,740	37,400	20,600	449	1,467	2,242	136	126	0.9	1.8	5.7	489	453	1.3	53	36	10	1	0	0.00	0.11	0.74	3.27	390	6	1.2	2	13	30	0	0	100	539	Yes	3	100	Yes*
61	Liverpool Plains	14,800	55,900	40,900	829	782	1,004	802	92	-	1.6	2.4	328	248	0.6	11	13	73	3	0	0.41	0.02	0.54	0.00	587	-8	0.5	23	46	100	2	75	100	812	Yes	4	80	
62	Narromine	3,490	17,200	7,400	100	291	300	283	218	1.4	3.4	6.3	265	368	1.5	5	20	60	15	0	2.19	0.05	0.94	1.96	603	-29	2.8	19		160	0	0	100	690	Yes	3	100	Yes
63	Narrandera	5,250	22,200	11,000	159	824	3,830	118	413	-	0.5	95.7	536	609	2.4	0	0	50	50	0	0.00	0.35	0.64	5.18	555	-27	3.9	23	19	180	0	25	100	957	Yes	2	80	Yes*
65	Murray	5,630	24,900	17,200	379	474	0	497	112	0.6	0.9	2.5	339	203	1.4	32	44	19	5	0	1.25	0.00	1.01	1.25	476	-13	4.6	8	11	90	0	0	100	590	Yes	2	100	Yes*
67	Cobar	5,130	26,600	11,600	330	0	6,811	293	172	-	0.1	3.6	0			5	19	27	34	16	0.00	0.61	0.29	0.00	1015	-15	14.7			70	10	-	100	935	Yes	1	100	Yes
68	Tenterfield	8,150	43,100	16,200	505	514	3,005	413		1.4	1.0	4.2	444	643	1.0	18	66	1	15	0	0.89	0.19	0.85	1.02	546	1	0.1	3	13	30	1	2	100	695	Yes	4	90	Yes
70	Kyogle	6,450	22,800	12,300	199	155	3,188	271	264	-	0.2	2.3	23	41	0.1	48	17	32	3	0	0.12	0.27	1.10	0.78	610	0	0.6	4	9	30	2	19	100	528	Yes	7	90	Yes*
71	Palerang	11,100	40,600	24,800	605	1,155	4,141	165	53		0.9	1.4	173	231	0.4	24	25	33	17	1	0.29	0.17	0.60	1.91	573	3	1.4	8	45	90	0	5	100	745	Yes	6	90	Yes
73	Upper Lachlan	11,000	35,700	21,900	519	383	0	383	42	7.8	1.0	1.0	220	344	0.6	72	16	11	1	1	0.76	0.00	1.03	0.74	579	-10	-0.7	6	2	30	0	1	100	779	Yes	4	90	Yes*
74	Wentworth	9,620	40,600	22,300	347	480	5,320	255	103	-	-	0.5	444	244	1.1	43	18	16	21	3	1.28	0.24	1.00	1.38	463													

**Table 5C: Water Supply - Infrastructure Asset Condition and Performance - 2014-15**

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 (BTS)	Actual Annual Maintenance	Mains Maintenance Cost	Rehabilitations			Asset Renewals			Assets in Condition as a % of WDV					Renewals Ratio	Backlog Ratio	Asset Maintenance Ratio	Capital Expenditure Ratio	Operating Cost	Net Debt to Equity	Economic Real Rate of Return	Water Main Breaks	Unplanned Interruptions 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 Rqmts	Best-Practice Implementation			
	\$/property F9/C4	\$'000	\$'000 F9	\$'000	\$'000 F14	\$'000	\$'000	\$'000 per 100km of Main	Mains (% of Total Length)	Service Connections (%)	Water Meters (%)	\$'000	\$'000 per 100km of Main	% of CRC	WS Assets (56)					Asset Renewals / Depreciation	BTS / Value of Infrastructure	Actual maintenance / Required Maintenance	Capital expenditure / Depreciation	OMA \$/property F11	WS & SGE % F22	WS % F17	Per 100km of main A8	per 1000 properties C17	L/d/cnn A10	No. / 1000 props C9	No. / 1000 props C10	% of population H3	\$/ assessment P3	Yes/No	No.	Overall %	Strategic Business Plan (Yes/No)		
<i>LWUs with 200 - 1,500 Properties</i>																																							
81	Gwydir	7,490	15,900	11,000	215	0	860	552	150	1.1	0.5	2.0	0			77	22	1	0	0	0.00	7.81	0.53	0.00	539	-5	3.0	18	3	80	6	0	100	790	Yes	5	90	Yes+	
83	Oberon	6,030	12,200	7,800	171	149	191	35	87	2.6	0.8	2.1	149	382	1.2	69	22	8	0	0	0.89	0.03	0.54	0.87	837	-7	2.2	5	1	100	0	4	100	606	Yes	3	80	Yes	
84	Gilgandra	8,010	17,200	10,800	294	277	284	284	161		2.8	0.9	264	489	1.5	6	72	20	0	3	0.97	0.03	1.01	0.94	424	-12	0.4	20	8	140	4	33	100	730	Yes	4	90	Yes*	
85	Uralla	9,970	16,100	14,500	215	30	0	322	119		0.3	0.2	29	47	0.2	8	91	0	0	0	0.16	0.00	1.20	0.14	385	-11	0.8	10	38	20	1	6	100	684	Yes	4	70		
86	Hay	8,040	23,800	10,700	304	57	0	324	228		0.2	0.4	57	121	0.2	0	66	22	12	0	0.19	0.00	1.25	0.19	595	-17	0.8	43	8	50	0	10	100	921	Yes	3	80	Yes*	
87	Bourke	7,250	23,000	10,000	388	0	8,000	497	383	2.4	-	8.3	0			16	12	63	8	1	0.00	0.80	1.00	0.00	1017	-13	1.5	159	684	80	0	33	100	1,200	Yes	1	100	Yes	
88	Wakool	15,500	32,400	22,500	483	375	12	174	64	0.6	-	-	375	226	1.2	6	48	34	12	0	0.61	0.00	1.01	0.78	701	-9	0.2	6	6	50	1	9	100	905	Yes	4	80	Yes	
89	Bogan	11,600	32,400	13,800	427	0	636	526	222		0.8	7.9	0			10	44	13	33	0	0.28	0.05	1.09	0.00	1586	-15	-0.6	48	24	200	0	105	100	1,113	Yes	2	100	Yes	
90	Guyra	16,400	25,400	20,700	394	49	2,420	175		-	0.2	3.5	49	82	0.2	0	33	66	1	0	0.19	0.12	0.85	0.12	775	-7	-1.2	7	44	70	11	10	100	566	Yes	4	80	Yes*	
91	Cabonne	21,000	45,500	24,600	484	455	867	419	10	1.9	0.7	0.7	8	15	0.0	17	33	50	0	0	0.75	0.04	0.79	0.94	521	-4	-0.8	23	5	70	0	1	100	546	Yes	2	100	Yes*	
92	Carrathool	12,400	21,600	15,000	299	221	412	440	61		-	6.2	221	46	1.0	8	12	78	2	0	0.76	0.03	0.94	0.74	993	2	3.2	20		100	1	7	100	615	Yes	5	70		
93	Tumbarumba	17,100	32,600	20,000	429	691	2,212	187	108		0.4	2.6	691	1,047	2.1	27	16	52	5	0	1.61	0.11	0.76	1.61	500	-3	0.1	0	9	80	0	1	100	616	Yes	2	100	Yes*	
94	Gundagai	9,450	18,100	9,400	273	27	0	95	67	-	-	-	27	75	0.1	0	0	0	0	100	0.10	0.00	0.73	0.10	664	-12	-0.1			90	0	-	100	703	Yes	2	90	Yes*	
96	Warren	6,950	13,900	6,500	193	202	230	152	413	3.3	1.3	6.6	167	557	1.2	57	21	18	4	0	0.61	0.04	1.45	1.05	495	-19	0.3	350	21	100	20	16	100	805	Yes	3	90	Yes	
97	Bombala	12,800	20,100	11,400	277	49	2,600	17	177	-	0.1	2.8	49	126	0.2	0	0	100	0	0	0.18	0.23	0.20	0.18	538	-15	-0.8	26		30	14	8	100	763	Yes	2	50		
98	Walcha	17,200	17,900	15,800	208	80	230	171	81	-	6.6	0.3	0			20	36	33	9	2	0.39	0.01	1.24	0.38	689	-7	-1.7	7	14	60	0	3	100	528	Yes	4	80	Yes*	
100	Balranald	7,950	15,700	7,200	276	0	0	319	257		-	1.4	0			1	18	80	1	0	0.00	0.00	1.33	0.00	548	-7	2.1	67		40	6	-	100	798	Yes	5	80	Yes*	
101	Murrumbidgee	8,020	8,700	6,300	123	47	0	83	100	-	-	2.3	47	147	0.5	3	24	73	0	0	0.38	0.00	1.15	0.38	363	-16	0.2			170	0	-	100	422	Yes	3	60	Yes*	
103	Central Darling	34,700	44,900	25,700	581	0	12,633	188	142		0.4	0.5	0			0	24	17	13	45	0.98	0.49	0.22	0.00	942	-2	2.2	39	16	30	50	46	100	1,046	Yes	1	80		
104	Boorowa	15,100	21,400	9,800	308	131	132	208	254	2.1	2.5	7.4	113	235	0.5	3	95	0	2	0	0.39	0.01	1.01	0.43	634	-11	-0.6	6	55	30	8	0	100	837	Yes	1	90	Yes	
105	Brewarrina	11,400	14,700	5,300	286	31	219	286	316	2.6	0.9	0.6	9	24	0.1	34	63	3	0	0	0.00	0.04	1.28	0.11	1638	-17	-0.2	111	4	110	9	64	100	1,953	Yes	5	100	Yes	
106	Jerilderie	7,060	8,600	3,500	127	106		195	140		2.2	0.2	9	21	0.1	0	0	99	1	0	0.07	0.00	1.84	0.80	739	-27	-1.8	19	16	40	8	0	100	1,588	Yes	2	90	Yes*	
<i>Medians (% of LWUs basis) or totals for 200 - 1,500 Props</i>		10,685							142	2.3	0.8	2.1		123	0.4	7	24	28	1	0	0.33	0.03	1.01	0.29	649	-11	0.2	20	14	75	1	8	100	777					
Medians (% of LWUs basis)		9,640	Total (\$M)	Total (\$M)	Total (\$M)	Total (\$M)	Total (\$M)	Total (\$M)	140	0.7	0.7	3.4	Total (\$M)	228	0.5	24	31	23	4	0	0.33	0.03	1.00	0.66	519	-7	1.1	10	14	75	2	10	100	660	Total	Total	Overall	Total	
Medians (Statewide basis)		10,000	14,300	8,980	194	200	470	90	172	0.5	0.5	3.5	85	244	0.4	36	36	17	2	0	0.36	0.02	1.00	0.74	400	-1	1.6	9	24	60	3	6	100	566	94 (100%)	348	91%	90 (94%)	
National Medians		7,660																						455	11	1.9	13	91	76	2	0	100	589						



## 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], **strategic business planning** [SBP - col 72, this includes a 30-year total asset management plan [capital works plan identifying each of works for growth, improved standards and renewals, operation plan, including non-build solutions and maintenance plan] and 30-year financial plan] 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 **2014-15 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 60 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 Boorowa have been corrected.

### 3. Totals for water supply in regional NSW:

- o **Total current replacement cost of system assets** - \$14.3B [col 43],
- o **Total written down replacement cost** - \$9.0B [col 44],
- o **Total annual depreciation** - \$193M [col 45],
- o **Total estimated cost to Bring to Satisfactory Standard<sup>1</sup> (BTS) – \$469M** [col 47],
- o **Total annual maintenance expenditure** - \$89M [col 48],
- o **Total capital expenditure** - \$200M [col 46],
- o **Total asset renewal expenditure** - \$85M [col 53],
- o **Drinking water management system [DWMS]** - 94 (100%) [col 70a],
- o **No. of water treatment operators meeting national certification requirements** – 348 [col 70b],
- o **Strategic Business Plan [SBP]** - 90 (94%) [col 72] and **Overall BPM implementation [WS]** – 91% [col 71].

The total \$469M for BTS is 2.4 times the annual depreciation of \$193M, 3.3% of the current replacement cost of system assets<sup>2</sup> of \$14.3B and 62% of the 2014-15 annual water supply revenue of \$757M.

### 4. Statewide medians for water supply in regional NSW:

- o **Written down current replacement cost per connected property** - \$10,000 [col 42] ; National Median \$7,660
- o **Assets in condition 1** - 36% [col 56]
- o **Assets in condition 2** - 36% [col 56]
- o **Assets in condition 3** - 17% [col 56]
- o **Assets in condition 4** - 2% [col 56]
- o **Assets in condition 5** - 0% [col 56]
- o **Water main rehabilitations per 100 km of main** – 0.5 km [col 50]
- o **Service connection rehabilitations** – 0.5% [col 51]
- o **Water meter rehabilitations** - 3.5% [col 52]
- o **Asset renewals per 100 km of main** – \$244,000 [col 54]
- o **Asset renewals / current replacement cost of assets** – 0.4% [col 55]
- o **Renewals Ratio** [Asset Renewals/Depreciation] – 0.36 [col 57]
- o **Backlog Ratio** [BTS/ Value of Infrastructure] – 0.02 [col 58]
- o **Asset Maintenance Ratio** [Actual Maintenance/Required Maintenance] – 1.00 [col 59]
- o **Capital Expenditure Ratio** [Capital expenditure/Depreciation] – 0.74 [col 60]
- o **Operating Cost** [OMA cost/connected property – F11] - \$400 [col 61]; National Median \$455
- o **Water Mains Maintenance cost per 100 km of main** - \$172,000 [col 49]
- o **Net Debt to Equity** [WS & SGE – F22] – -1% [col 62]; National Median 11%
- o **Economic Real Rate of Return** [F17] – 1.6% [col 63]; National Median 1.9%
- o **Water Main breaks/100km of main** [A8] – 9 [col 64]; National Median 13

<sup>1</sup> BTS - Estimated cost to bring to a satisfactory standard.

<sup>2</sup> This value of 3.3% is consistent with the col 58 value of 0.03 (ie. 3%) 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.

### 4. Statewide medians for water supply in regional NSW: (continued from left)

- o **Unplanned interruptions to supply per 1000 properties** [C17] – 24 [col 65]; National Median 91
- o **Real Loss** [leakage/connection/d - A10] – 60 [col 66]; National Median 76
- o **Water quality complaints/1000 properties** [C9] – 3 [col 67]; National Median 2
- o **Water service complaints/1000 properties** [C10] – 6 [col 68]; National Median 0
- o **% of Population with microbiological water quality compliance** [H3] – 100% [col 69]; National Median 100%
- o **Typical Residential Bill/assessment** [2014-15 – P3] - \$566 [col 70]; National Median \$589.

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 32 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](http://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 on pages 3 and 22 of the *2014-15 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](http://www.water.nsw.gov.au)). This involves a 30-year total asset management plan (TAMP – refer to note 1 above), 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](http://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%, 36%, 17%, 2% and 0% respectively.

With regard to assets in **condition 5 (very poor)**, 59 LWUs (62%) had a 0% result.

The performance of the following 5 LWUs, which had a result greater than 6% for condition 5 is analysed below using the results in Table 5C:

- o **Gundagai 100%** - has a **moderate TRB and a high OMA cost**, full cost recovery, has reported no water quality complaints in 2014-15, but reported 8 complaints per 1000 properties in 2013-14. 100% of reticulated population received a water supply which complied with the 2011 Australian Drinking Water Guidelines (ADWG) and has reported 11 water main breaks per 1000 properties in 2013-14, but did not report in 2014-15. Asset renewals expenditure was \$75,000 per 100 km of main, a total of \$27,000 or 0.1% of CRC (the Current Replacement Cost of system assets). Has a strategic business plan over 4 years old and now needs to prepare a 30-year IWCM Strategy and financial plan. Has implemented 90% of the BPM outcomes. Has 2 fully qualified water treatment works operators.
- o **Central Darling 45%** - has a **high TRB and very high OMA cost**, full cost recovery, reported a very high 50 water quality complaints per 1000 properties, 100% of reticulated population received a water supply which complied with ADWG, had a very high level of water main breaks. Has rehabilitated 0.4% of its service connections and 0.5% of its water meters in 2014-15. Does not have a strategic business plan and financial plan and now needs to prepare a 30-year IWCM Strategy and financial plan. Also needs to apply appropriate non-residential water supply charges. Has implemented 80% of the BPM outcomes. Has a fully qualified water treatment works operator and 5 operators undergoing training.
- o **Cobar 16%** - has a **high TRB and a very high OMA cost**, full cost recovery, reported a high level of water quality and service complaints, 100% of reticulated population received a water supply which complied with ADWG, had a high level of water main breaks. Has rehabilitated 0.9 km of mains/100km and 3.6% of its water meters in 2014-15. Has a current strategic business plan and IWCM Strategy. Has implemented 100% of the BPM requirements. Has a fully qualified water treatment works operator and has 1 operator undergoing training.
- o **Walgett 14%** - has a **high TRB and moderate OMA cost**, full cost recovery, reported no water quality complaints in 2014-15, but reported 3 complaints per 1000 properties in 2013-14, 93% of reticulated population received a water supply which complied with ADWG, had a moderate level of water main breaks. Has rehabilitated 0.3% of its water meters in 2014-15. Asset renewals expenditure was \$1,900,000 per 100 km of main, a total of \$1,760,000 or 0.3% of CRC (the Current Replacement Cost of system assets). Does not have a strategic business plan and financial plan and now needs to prepare a 30-year IWCM Strategy and financial plan. Also needs to apply appropriate developer charges. Has implemented 80% of the BPM requirements. Has a fully qualified water treatment works operator and has 4 operators undergoing training.
- o **Moree Plains 11%** - has a **high TRB and OMA cost**, full cost recovery, reported a high level of water service complaints, 100% of reticulated population received a water supply which complied with ADWG, had a very high level of water main breaks. Asset renewals expenditure was \$47,000 per 100 km of main, a total of \$77,000 or 0.1% of CRC. Has rehabilitated 0.6 km per 100 km of mains and 0.9% of its water meters in 2014-15. Has a strategic business plan and an IWCM Evaluation Study. Now needs to prepare an IWCM Strategy and financial plan. Has implemented 100% of the BPM requirements. Has 3 fully qualified water treatment works operators.



Table 5D: Sewerage - Infrastructure Asset Condition and Performance - 2014-15

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 Maintenance	Mains Maintenance Cost	Rehabilitations		Asset Renewals		Assets in Condition as a % of WDV					Renewals Ratio	Backlog Ratio	Asset Maintenance Ratio	Capital Expenditure 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	Best-Practice Implementation			
	\$/property F10/C8	\$'000	\$'000 F10	\$'000	\$'000 F15	\$'000	\$'000	\$'000 per 100km of Main	Mains (% of Total Length)	Service Connections %	\$'000	\$'000 per 100 km of Main	% of CRC	SGE Assets (86)					Asset Renewals / Depreciation	BTS / Value of Infrastructure	Actual maintenance / Required Maintenance	Capital expenditure / Depreciation	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 %	Strategic Business Plan (Yes/No)	
	(73)	(74)	(75)	(76)	(77)	(78)	(79)	(80)	(81)	(82)	(83)	(84)	(85)	1	2	3	4	5	(87)	(88)	(89)	(90)	(91)	(92)	(93)	(94)	(95)	(96)	(97)	(98)	(99)	(100)	(100a)	(100b)	(101)	(102)	
Sydney Water Corporation	17,000		31,661,000		478,000																278	98	1								592						
Hunter Water Corporation	20,000		4,474,000		40,700																	353	81	2							623						
<b>LWUs with &gt; 10,000 Properties</b>																																					
1 Gosford	22,000	2,031,000	1,537,000	18,300	29,300	25,900	6,156	148	0.4	-	28,714	2,167	1.4	36	51	10	2	0	1.12	0.02	0.94	1.60	379	6	0.3	39	316	44	2	100	2	612	Yes	6	100	Yes+	
2 Wyong	11,500	1,058,000	712,000	13,200	11,500	7,600	6,140	139	0.6	-	9,717	802	0.9	10	68	19	3	0	0.75	0.01	0.99	0.87	336	9	0.2	49	51	12	100	1	471	Yes	14	100	Yes*		
3 Shoalhaven	11,100	700,000	465,000	7,700	12,400	0	4,240	26	0.2	0.3	886	73	0.1	95	5	0	0	0	0.22	0.00	0.90	1.30	500	-1	3.9	11	63	20	0	94	0	750	Yes	7	100	Yes+	
5 MidCoast	12,900	657,000	453,000	8,700	3,700	26,500	4,250	92	0.3	-	2,902	258	0.4	48	37	12	2	1	0.28	0.06	0.29	0.33	543	22	2.6	6	54	6	3	98	1	948	Yes	16	100	Yes*	
6 Tweed	19,600	817,000	604,000	10,400	5,000	10,200	4,247	205	0.6	0.0	3,225	457	0.4	76	21	4	0	0	0.06	0.02	0.95	0.30	524	0	1.1	0	191	5	6	100	0	732	Yes	10	100	Yes*	
7 Port Macquarie-Hastings	9,400	404,000	261,000	7,500	6,000		3,887	64	0.1	0.0	2,798	406	0.7	39	49	9	2	0	0.38	0.00	1.00	0.81	480	-8	1.5	16	144	21	6	100	2	736		11	100	Yes*	
9 Wagga Wagga	9,400	352,000	255,000	5,000	4,400	8,300	2,480	99	0.5	0.8	903	144	0.3	84	3	6	7	1	0.13	0.03	0.00	0.89	418	5	1.3	80	8	27	41	100	1	434	Yes	8	100	Yes	
10 Coffs Harbour	19,300	659,000	458,000	13,500	12,600	0	3,739	189	0.7	0.2	163	23	0.0	47	27	15	7	4	0.01	0.00	1.00	0.94	619	13	0.1	89	7	0	100	0	806	Yes	5	100	Yes+		
11 Albury City	7,600	338,000	183,000	3,900	1,900	12,900	2,244	129	0.7	0.0	0			50	25	20	5	0	0.42	0.07	1.03	0.35	393	-6	4.1	65	1	2	63	1	639	Yes	4	100	Yes*		
13 Tamworth Regional	11,900	295,000	233,000	5,300	2,400	9,900	1,966	151	0.0	0.0	549	99	0.2	73	17	10	0	0	0.10	0.04	0.81	0.35	425	-4	3.2	50	8	16	100	0	758	Yes	11	100	Yes*		
15 Eurobodalla	12,800	399,000	232,000	6,400	3,900	1,200	1,184	50	2.1	0.0	2,531	480	0.6	13	40	47	0	0	0.37	0.01	1.00	0.62	501	-1	1.7	32	270	9	0	100	0	865	Yes	7	100	Yes+	
17 Queanbeyan	6,700	241,000	116,000	3,700	1,900	1,500	903	78	0.0	0.0	106	32	0.0	37	43	17	3	1	0.03	0.01	0.78	0.50	377	-20	1.3	61	90	43	12	100	0	470	Yes	3	100	Yes*	
19 Orange	9,600	248,000	159,000	2,900	3,400	300	752	96	0.7	0.1	489	109	0.2	43	26	16	15	0	0.34	0.00	0.51	1.15	409	-12	2.7	33	67	20	41	100	1	423	Yes	4	100	Yes*	
18 Dubbo	10,900	244,000	180,000	4,500	18,900	5,600	955		0.5	0.0	1,200	293	0.5	53	26	16	4	1	3.15	0.03	0.80	4.25	350	-3	3.9	46	1	6	12	100	0	690	Yes	4	100	Yes+	
16 Wingecarribee	13,200	273,000	207,000	3,600	3,100	5,000	5,024	153	0.7	0.0	939	168	0.3	84	12	1	1	2	0.27	0.03	1.13	0.73	439	-4	3.0	22	321	38	11	96	2	739	Yes	9	100	Yes*	
14 Clarence Valley	19,100	323,000	282,000	4,300	23,600	2,600	1,635	107	0.2	0.1	485	116	0.2	59	32	9	0	0	0.12	0.01	0.93	5.43	462	11	2.5	52	57	23	26	92	1	988	Yes	9	100	Yes+	
21 Bathurst Regional	5,700	196,000	91,000	2,900	5,600	13,900	1,597	235	0.0	0.0	1,546	387	0.8	20	34	39	5	1	0.63	0.15	0.45	1.95	435	-12	2.7	99	18	63	29	100	0	479	Yes	4	100	Yes+	
24 Ballina	13,900	250,000	196,000	2,300	5,100	1,700	2,292	166	0.6	0.0	1,231	376	0.5	87	11	3	0	0	0.55	0.01	1.00	-2.67	647	17	2.7	3	274	2	3	79	2	807	Yes	13	100	Yes+	
22 Lismore	14,900	319,000	190,000	4,500	4,700	30,600	2,189	221	2.5	2.8	4,335	1,208	1.4	37	43	18	2	0	0.99	0.17	0.92	1.27	454	-2	0.5	50	309	1	2	68	0	772	Yes	4	89	Yes+	
23 Bega Valley	15,000	297,000	182,000	6,300	4,100	300	1,043	100	1.2	0.3	1,734	432	0.6	26	26	46	1	1	0.00	0.00	12.57	0.64	740	-3	0.7	9	7	1	92	1	1,109	Yes	5	100	Yes*		
27 Byron	13,800	204,000	147,000	3,200	900	0	1,965	127	0.0	0.0	384	153	0.2	50	26	19	4	0	0.12	0.00	1.00	0.27	680	14	4.0	11	170	6	1	97	1	1,093	Yes	4	100	Yes*	
20 Goulburn Mulwaree	7,700	149,000	83,000	2,000	2,300	4,500	879	247	0.4	3.0	2,233	784	1.5	19	25	21	30	4	1.18	0.05	0.65	1.13	330	-6	6.2	105	90	0	28	100	1	724	Yes	5	100	Yes	
25 Kempsey	16,100	215,000	158,000	3,200	1,600	52,600	1,424	241	0.0	0.1	1,245	456	0.6	50	13	14	12	12	0.40	0.34	0.54	0.51	563	8	0.4	33	278	11	1	74	1	791	Yes	8	100	Yes+	
<i>Medians (% of LWUs basis) or totals for &gt;10,000</i>		12,800						134	0.5	0.0		335	0.5	48	26	15	2	0	0.34	0.02	0.93	0.81	454	-1	2.5	39	117	9	6	100	1	739					
<b>LWUs with 3,001 - 10,000 Properties</b>																																					
29 Armidale Dumaresq	7,300	89,000	62,000	1,460	1,870	3,900	862	298	0.0	0.4	7	3	0.0	13	60	17	9	0	0.01	0.06	0.00	1.31	227	-7	2.6	95	320	52	2	100	2	379	Yes	4	89	Yes*	
31 Lithgow	8,300	105,000	62,000	1,370	1,170	16,610	2,054	291	1.8	-	1,166	715	1.1	37	15	28	11	9	0.00	0.27	0.79	0.85	566	10	1.8	101	3	24	81	1	836	Yes	6	89	Yes		
30A Hawkesbury	10,800	166,000	83,000	1,720	350	0	2,063		0.0	0.0	296	161	0.2	22	30	17	13	19	0.18	0.00	1.31	0.20	563	1	-0.3	29	52	5	15	89	1	602	Yes	3	100	Yes*	
30 Griffith	19,100	177,000	134,000	1,860	430	2,640	1,100	40	0.9	0.9	150	67	0.1	35	22	40	3	0	0.41	0.02	1.02	0.17	590	2	1.4	85	8	28	98	1	750	Yes	3	100	Yes*		
33 Richmond Valley	15,400	126,000	102,000	1,130	1,190	5,670	742	43	0.0	0.5	1,187	603	0.9	43	42	12	3	0	1.08	0.06	0.91	1.05	596	3	2.4	-	10	-	98	0	896	Yes	4	100	Yes+		
32 Mid-Western Regional	9,600	105,000	70,000	1,880	720	16,670	849	220	0.9	0.1	0			53	15	10	18	4	0.24	0.25	0.82	0.39	369	-4	2.1	52	16	39	44	40	1	697	Yes	8	78	Yes*	
34 Nambucca	13,200	110,000	76,000	1,690	580	30	709	90	0.6	0.0	218	125	0.2	4	49	46	0	0	0.13	0.00	7.09	0.34	420	7	1.2	6	253	18	3	67	2	580	Yes	5	100	Yes*	
35 Singleton	5,400	70,000	31,000	1,100	550	2,320	960	154	0.0	0.8	230	152																									

Table 5D: Sewerage - Infrastructure Asset Condition and Performance - 2014-15

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 Maintenance	Mains Maintenance Cost	Rehabilitations		Asset Renewals		Assets in Condition as a % of WDV					Renewals Ratio	Backlog Ratio	Asset Maintenance Ratio	Capital Expenditure 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	Best-Practice Implementation					
	\$/property F10/C8	\$'000	\$'000 F10	\$'000	\$'000 F15	\$'000	\$'000	\$'000 per 100km of Main	Mains (% of Total Length)	Service Connections %	\$'000	\$'000 per 100 km of Main	% of CRC	SGE Assets (86)					Asset Renewals / Depreciation	BTS / Value of Infrastructure	Actual maintenance / Required Maintenance	Capital expenditure / Depreciation	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 %	Strategic Business Plan (Yes/No)			
	(73)	(74)	(75)	(76)	(77)	(78)	(79)	(80)	(81)	(82)	(83)	(84)	(85)	1	2	3	4	5	(87)	(88)	(89)	(90)	(91)	(92)	(93)	(94)	(95)	(96)	(97)	(98)	(99)	(100)	(100a)	(100b)	(101)	(102)			
38	Moree Plains	7,200	57,000	28,000	1,030	1,980	0	717	393	0.0	0.5	1,978	2,222	3.5	26	7	47	13	7	0.61	0.00	0.70	1.92	444	3	4.1	46	101	6	23	100	0	630		4	100	Yes*		
44	Gunnedah	7,800	53,000	31,000	710	1,510	280	390	179	1.8	0.3	252	227	0.5	7	21	16	56	0	0.87	0.01	1.00	2.13	284	-22	4.9	20	45	34	11	100	1	492	Yes	2	100	Yes		
46	Narrabri	9,500	91,000	38,000	1,460	580	0	387	134	1.8	0.7	0			28	45	15	12	0	0.00	0.00	1.14	0.40	432	-24	0.0	57	8	2	17	71	1	677	Yes	4	78	Yes*		
43	Tumut	7,900	51,000	33,000	950	760	0	473	236	1.4	0.1	431	291	0.9	77	18	6	0	0	0.83	0.00	1.00	0.81	630	-1	-0.2	51		3	21	97	0	635	Yes	8	100	Yes		
49	Young	9,600	55,000	37,000	700	670	370	539	104	2.1	0.7	257	271	0.5	67	8	14	10	2	0.38	0.01	1.00	0.96	330	3	2.7	80	41	8	7	83	3	720	Yes	3	89	Yes		
39	Cowra	9,300	48,000	33,000	560	810	410	1,057	233	8.0	0.2	779	779	1.6	10	48	35	7	0	1.42	0.01	2.25	1.46	441	6	3.1	157		0	44	50	0	781	Yes	4	100	Yes*		
45	Upper Hunter	7,200	65,000	31,000	810	1,000	950	492	319	0.8	0.3	1,003	850	1.5	12	26	57	5	0	0.90	0.03	1.28	1.24	453	-12	0.2	10	92	7	12	100	1	477	Yes	3	100	Yes		
52	Snowy River	6,700	65,000	33,000	1,280	920	9,210	353	51	2.2	1.0	225	242	0.3	34	11	38	15	2	0.18	0.28	0.52	0.72	359	-8	2.6	33	32	0	7	81	0	900	Yes	6	100	Yes		
51	Forbes	9,500	45,000	30,000	550	310	8,140	842	419	0.0	0.7	312	351	0.7	0	14	63	23	0	0.57	0.27	0.82	0.57	465	-16	0.9	70	29	0	29	100	1	644	Yes	1	100	Yes*		
50	Cooma-Monaro	9,800	56,000	32,000	850	510	0	974	10	0.0	0.1	310	282	0.6	8	78	7	7	1	0.36	0.00	0.97	0.60	532	-10	2.0	35		121	41	100	0	820	Yes	3	100	Yes		
53	Berrigan	4,500	39,000	16,000	590	50	0	705		0.0	0.3	45	41	0.1	0	80	20	0	0	0.39	0.00	1.01	0.08	312	-19	0.4	84	69	9	51	100	5	477		4	56	Yes*		
48	Leeton	7,700	56,000	25,000	750	1,540	880	442	185	9.9	14.1	1,455	1,441	2.6	28	55	17	1	0	2.02	0.03	1.23	2.05	466	-19	-0.6	19	10	0	2	100	0	492	Yes	3	100	Yes*		
54	Deniliquin	11,600	52,000	38,000	490	480	430	558	128	0.0	0.0	386	361	0.7	23	26	28	13	9	0.80	0.01	0.84	0.98	429	-8	2.1	28	42	0	12	100	0	770	Yes	2	100	Yes		
<i>Medians (% of LWUs basis) or totals for 3,001 - 10,000</i>		9,300							179	0.6	0.3		282	0.6	26	29	17	7	0	0.41	0.01	0.97	0.85	429	-8	2.0	41	42	6	16	98	1	635						
<i>LWUs with 1,501 - 3,000 Properties</i>																																							
47	Bellingen	14,100	60,000	43,000	980	5,210	8,700	461	98	0.0	0.6	221	221	0.4	35	53	3	1	8	0.46	0.26	1.00	5.30	662	-18	0.3	22	76	2	11	100	1	842		4	100	Yes		
60	Glen Innes Severn	5,300	22,000	15,000	320	520	6,220	45	41	2.7	0.0	486	438	2.2	59	33	1	7	0	0.00	0.45	0.37	1.59	287	6	1.8	47	59	47	18	100	0	450	Yes	3	100	Yes*		
58	Cootamundra	7,200	38,000	20,000	450	130	590	279	189	0.0	0.4	0			0	10	77	12	0	0.00	0.03	0.76	0.29	229	-16	1.4	210	159	10	73	100	0	388	Yes	2	89	Yes*		
57	Wellington	8,000	37,000	21,000	710	250	1,350	467	142	0.0	0.0	254	279	0.7	23	37	33	6	1	0.36	0.06	0.93	0.36	405	6	1.5	31	52	0	13	100	0	587	Yes	2	100	Yes*		
91	Cabonne	20,400	50,000	39,000	730	1,480	1,260	779	43	2.7	0.3	0			62	32	6	0	0	0.73	0.04	0.90	2.01	725	-4	-1.2	22		3	13	0	0	475	Yes	6	100	Yes*		
80	Greater Hume	11,700	47,000	31,000	570	200	0	97	14	0.0	0.1	127	165	0.3	10	41	49	0	0	0.22	0.00	0.84	0.35	350	-7	0.3	10	23	0	5	100	0	489	Yes	5	100	Yes		
59	Lachlan	9,500	37,000	21,000	610	80	43,830	616	84	-	-	83	109	0.2	10	11	71	8	1	0.14	2.10	0.28	0.14	452	-14	-2.6	-		-	0	0	458	Yes	1	100	Yes*			
65	Murray	5,400	24,000	17,000	380	230	0	290	51	0.0	0.4	190	192	0.8	20	51	21	8	0	0.61	0.00	1.04	0.61	333	-13	1.9	16	22	0	4	100	0	389	Yes	6	100	Yes*		
62	Narromine	9,000	29,000	18,000	330	690	330	202	69	3.7	0.0	625	1,157	2.2	5	23	55	15	2	1.61	0.02	1.01	2.08	474	-29	-0.2	24		0	6	100	0	548	Yes	4	100	Yes		
56	Yass Valley	7,500	38,000	18,000	570	0	0	130		0.0	0.4	0			45	44	11	0	0	0.00	0.00	0.98	0.00	433	18	2.9	29	40	0	23	100	0	595	Yes	2	100	Yes+		
61	Liverpool Plains	13,200	29,000	27,000	170	90	530	369	36	6.9	0.5	76	131	0.3	12	53	25	11	0	0.44	0.02	1.95	0.00	320	-8	1.2	26	16	3	25	56	0	504	Yes	3	89			
55	Warrumbungle	8,300	36,000	21,000	330	40	1,560	306	166	0.0	0.0	39	49	0.1	8	73	16	4	0	0.21	0.07	0.99	0.12	432	-8	-1.0	128	8	0	44	83	2	458	Yes	2	78	Yes		
69	Temora	4,900	19,000	11,000	210	0	0	330		0.0	0.1	0			0	13	87	0	0	0.00	0.00	0.79	0.00	179	-8	1.5	46	37	19	12	58	0	311	Yes	1	56	Yes*		
71	Palerang	14,200	43,000	30,000	850	1,310	3,380	191	42	0.0	0.0	613	915	1.4	23	42	23	12	0	0.72	0.11	0.80	1.54	512	3	2.5	61	10	4	20	95	1	946	Yes	6	89	Yes		
72	Bland	5,700	23,000	10,000	250	0	550	463		4.1	0.2	0			0	0	0	0	100	0.00	0.05	0.71	0.00	359	-2	3.3	49	33	0	13	100	0	669	Yes	2	78	Yes*		
63	Narrandera	6,500	20,000	11,000	190	220	3,200	141	246	-	-	25	61	0.1	0	25	42	33	0	0.00	0.29	0.94	1.19	435	-27	1.2	183		0	73	-	0	505		4	67	Yes*		
67	Cobar	5,100	17,000	9,000	370	0	650	118	156	0.0	0.1	0			1	27	47	22	3	0.00	0.07	0.47	0.00	257	-15	-1.5	4	10	2	18	100	0	320	Yes		100	Yes		
74	Wentworth	10,500	38,000	17,000	470	120	3,520	179	34	0.0	-	0			26	13	41	20	1	0.00	0.21	1.00	0.25	321	-15	2.4	0		3	26	100	4	705	Yes	2	89	Yes*		
75	Coonamble	10,400	28,000	12,000	440	70	400	113	93	0.0	0.3	70	152	0.3	0	100	0	0	0	0.16	0.03	0.66	0.16	243	-22	0.1	9	33	0	8	46								



**Table 5D: Sewerage - Infrastructure Asset Condition and Performance - 2014-15**

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 Maintenance	Mains Maintenance Cost	Rehabilitations		Asset Renewals		Assets in Condition as a % of WDV					Renewals Ratio	Backlog Ratio	Asset Maintenance Ratio	Capital Expenditure 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	Best-Practice Implementation			
	\$/property F10/C8	\$'000	\$'000 F10	\$'000	\$'000 F15	\$'000	\$'000	\$'000 per 100km of Main	Mains (% of Total Length)	Service Connections %	\$'000	\$'000 per 100 km of Main	% of CRC	SGE Assets (86)					Asset Renewals / Depreciation	BTS / Value of Infrastructure	Actual maintenance / Required Maintenance	Capital expenditure / Depreciation	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 %	Strategic Business Plan (Yes/No)	
	(73)	(74)	(75)	(76)	(77)	(78)	(79)	(80)	(81)	(82)	(83)	(84)	(85)	1	2	3	4	5	(87)	(88)	(89)	(90)	(91)	(92)	(93)	(94)	(95)	(96)	(97)	(98)	(99)	(100)	(100a)	(100b)	(101)	(102)	
<i>LWUs with 200 - 1,500 Properties</i>																																					
84	Gilgandra	6,500	18,000	8,000	380	90	190	284	124	0.0	0.0	51	138	0.3	2	35	61	2	0	0.14	0.02	1.03	0.23	363	-12	-0.5	41	71	11	23	100	0	557	Yes	4	89	Yes*
73	Upper Lachlan	8,700	23,000	13,000	470	240	0	249	36	8.9	1.3	240	429	1.0	56	22	18	4	0	0.59	0.00	0.95	0.51	476	-10	1.0	9	214	0	5	100	0	737	Yes	4	89	Yes*
87	Bourke	6,400	15,000	8,000	190	0	1,600	112	197	0.0	0.8	0			9	15	67	0	9	0.00	0.21	0.97	0.00	455	-13	0.3	53	44	3	59	100	0	632			89	Yes
86	Hay	8,000	22,000	10,000	190	150	0	105	151	0.0	0.2	149	403	0.7	0	40	40	20	0	0.81	0.00	0.50	0.81	482	-17	1.1	81	54	0	39	100	0	649	Yes	4	78	Yes*
83	Oberon	9,400	19,000	12,000	160	90	1,000	37	68	0.0	0.4	0			43	37	17	3	0	0.62	0.09	0.55	0.60	399	-7	1.7	21	39	63	4	100	0	513	Yes	1	89	Yes
81	Gwydir	7,900	12,000	9,000	80	0	2,580	421	59	0.0	0.2	0			24	72	1	0	3	0.00	28.39	1.00	0.00	323	-5	2.9	78	44	39	0	100	0	500		5	89	Yes+
85	Uralla	5,600	8,000	6,000	200	40	0	171	166	0.0	0.0	43	123	0.6	15	64	21	0	0	0.22	0.00	1.06	0.21	364	-11	-0.4	34	49	3	4	42	0	520	Yes	2	67	
95	Weddin	6,900	13,000	7,000	40	0	0	48	10	3.2	0.2	0			0	100	0	0	0.00	0.00	1.12	0.00	334	-9	1.9	203	65	10	69	100	0	427	Yes	2	78	Yes	
89	Bogan	7,400	11,000	7,000	90	0	440	149	380	0.0	0.1	0			14	18	68	0	0	0.32	0.06	0.62	0.00	456	-15	3.7	0	50	0	15	0	0	540	Yes	3	100	Yes
76	Harden	7,600	16,000	7,000	10	250	29	431	2.4	0.1	0				15	2	76	8	0	0.00	3.54	0.29	0.04	516	-13	-1.2	5	5	2	19	70	0	614	Yes	2	78	Yes*
88	Wakool	12,300	27,000	12,000	430	360	0	43	47	2.1	0.0	356	757	1.3	0	92	8	1	0	0.83	0.00	0.42	0.82	350	-9	0.1	0		0	50	100	0	578		4	56	Yes
93	Tumbarumba	14,400	23,000	14,000	220	2,340	70	110	87	2.1	0.1	2,335	4,968	10.0	45	30	14	12	0	10.61	0.01	0.51	10.42	325	-3	1.0	9		0	5	85	0	579	Yes	4	100	Yes*
94	Gundagai	10,100	15,000	8,000	130	340	0	171	16	-	-	335	459	2.2	0	0	0	0	100	2.58	0.00	1.19	2.58	510	-12	2.8	-		-	100	0	612	Yes	4	67	Yes*	
92	Carrathool	7,100	7,000	6,000	80	30	110	67	78	0.0	0.0	26	113	0.4	10	62	26	2	0	0.37	0.02	0.79	0.33	184	2	0.9	4		0	30	100	0	405		1	33	
96	Warren	5,300	14,000	4,000	250	230	170	133	388	5.9	0.7	106	624	0.8	58	18	22	3	0	0.48	0.04	1.16	0.94	488	-19	-3.4	441	65	0	43	30	0	485		1	89	Yes
99	Coolamon	12,600	18,000	13,000	210	110	100	200	114	0.0	0.3	92	209	0.5	68	29	3	0	0	0.63	0.01	1.11	0.53	271	-11	0.2	7	5	0	3	100	0	380	Yes	2	56	Yes*
102	Lockhart	7,600	13,000	7,000	160	0	0	128	24	0.0	0.1	0			2	24	45	19	9	0.00	0.00	0.93	0.00	213	-26	1.0	0		0	19	69	0	490	Yes	3	89	Yes
98	Walcha	5,400	5,000	4,000	70	50	150	72	70	0.0	0.1	0			22	41	21	12	5	0.67	0.04	1.18	0.66	363	-7	0.6	23		30	15	33	0	440	Yes		89	Yes*
100	Bairnald	8,100	13,000	7,000	200	0	0	101		0.0	0.2	0			0	9	90	0	0	0.00	0.00	1.49	0.00	271	-7	-2.3	21		0	9	100	0	269		1	56	Yes*
97	Bombala	17,400	29,000	13,000	360	40	7,960	29	49	0.0	0.0	39	111	0.1	0	0	100	0	0	0.11	0.60	0.64	0.11	373	-15	-1.5	34	3	0	19	44	4	562	Yes	4	78	
101	Murrumbidgee	9,300	10,000	7,000	120	70	0	87	113	-	-	72	313	0.7	8	38	54	1	0	0.58	0.00	1.40	0.58	233	-16	-1.1	-		-	0	0	309	Yes	2	56	Yes*	
90	Guyra	15,400	22,000	18,000	220	30	420	133		0.0	0.0	30	53	0.1	6	51	42	1	0	0.15	0.02	0.86	0.14	333	-7	0.2	21	102	2	3	100	1	580	Yes	2	78	Yes*
104	Boorowa	8,600	13,000	6,000	170	160	1,760	136	220	6.7	0.3	163	543	1.3	2	98	0	0	0	0.84	0.31	1.17	0.94	420	-11	-0.2	97	67	0	9	100	0	620	Yes	3	89	Yes
105	Brewarrina	11,200	11,000	5,000	150	80	90	139	225	0.0	0.4	79	494	0.7	15	84	0	0	0	0.00	0.02	0.93	0.52	583	-17	0.1	6	75	0	35	100	0	756		6	78	Yes
106	Jerilderie	8,100	8,000	3,000	100	10		120	58	0.0	0.0	0			0	0	100	0	0	0.00	0.00	0.95	0.12	419	-27	-1.1	17	83	0	0	0	0	480	Yes	2	78	Yes*
103	Central Darling	7,500	5,000	3,000	80	0	990	68	235	13.0	0.5	0			11	10	54	25	1	0.99	0.36	0.31	0.00	200	-2	6.6	26		4	73	100	8	390		1	78	
107	Urana	22,100	9,000	7,000	80	0	10	95	73	0.0	0.0	0			0	101	0	0	0	0.00	0.00	1.01	0.00	509	-9	-0.6	0		0	0	100	0	385		2	67	Yes*
<i>Medians (% of LWUs basis) or totals for 200 - 1,500 Props</i>		8,100							87	0.0	0.1		403	0.7	9	35	22	1	0	0.32	0.02	0.95	0.23	364	-11	0.2	21	54	0	15	100	0	520				
<i>Medians (% of LWUs basis)</i>		9,400	<b>Total (\$M)</b>	<b>Total (\$M)</b>	<b>Total (\$M)</b>	<b>Total (\$M)</b>	<b>Total (\$M)</b>	<b>Total (\$M)</b>	126	0.1	0.1	<b>Total (\$M)</b>	282	0.6	22	30	17	3	0	0.36	0.02	0.93	0.60	420	-8	1.2	32	53	3	13	100	0	580	<b>Total</b>	<b>Total</b>	<b>Overall</b>	<b>Total</b>
<i>Medians (Statewide basis)</i>		11,600	13,800	9,300	185	208	396	91	134	0.5	0.1	90	387	0.5	43	32	14	2	0	0.38	0.02	0.94	0.89	420	-1	1.7	35	83	10	6	100	1	669	81 (82%)	419	89%	93 (94%)
<i>National Medians</i>		9,350																					400	11	3.0	17			1		667						

**Notes**

- 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], strategic business planning [SBP - col 102, this includes a 20 to 30-year total asset management plan [capital works plan identifying each of works for growth, improved standards and renewals, operation plan, including non-build solutions and maintenance plan] and 20 to 30-year financial plan] 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 2014-15 National Median for the National Water Initiative [NWI] performance indicators [col 72, 91, 92, 93, 94, 97, 100].
- The sources of data for Table 5D are: col 78, 79, 86 to 90 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 Weddin have been corrected.
- Totals for sewerage in regional NSW:
  - Total current replacement cost of system assets - \$13.8B [col 74],
  - Total written down replacement cost - \$9.3B [col 75],
  - Total annual depreciation - \$185M [col 76],
  - Total estimated cost to Bring to Satisfactory Standard<sup>1</sup> (BTS) - \$393M [col 78],
  - Total annual maintenance expenditure - \$90M [col 79],
  - Total capital expenditure - \$208M [col 77],
  - Total asset renewal expenditure - \$90M [col 83],
  - Pollution Incident Response Management Plan (PIRMP)? - 81 (82%) [col 100a]
  - Strategic Business Plan [SBP] - 93 (94%) [col 102] and Overall BPM implementation [SGE] - 89% [col 101].

The total \$393M for BTS is 2.1 times the annual depreciation of \$185M, 2.9% of the current replacement cost of system assets<sup>2</sup> of \$13.8B and 59% of the 2014-15 annual sewerage revenue of \$663M.



## Notes (continued)

## 4. Statewide medians for sewerage in regional NSW:

- o Written down current replacement cost per connected property - \$11,600 [col 73]; National Median \$9,380
- o Assets in condition 1 - 43% [col 86]
- o Assets in condition 2 - 32% [col 86]
- o Assets in condition 3 - 14% [col 86]
- o Assets in condition 4 - 2% [col 86]
- o Assets in condition 5 - 0% [col 86]
- o Sewer main rehabilitations % of total length – 0.5 km [col 81]
- o Service connection rehabilitations – 0.1% [col 82]
- o Asset renewals per 100 km of main – \$387,000 [col 84]
- o Asset renewals / current replacement cost of assets – 0.5% [col 85]
- o Renewals Ratio [Asset Renewals/Depreciation] – 0.38 [col 87]
- o Backlog Ratio [BTS/ Value of Infrastructure] – 0.02 [col 88]
- o Asset Maintenance Ratio [Actual Maintenance/Required Maintenance] – 0.94 [col 89]
- o Capital Expenditure Ratio [Capital expenditure/Depreciation] – 0.89 [col 90]
- o Operating Cost [OMA cost/connected property – F12] - \$420 [col 91]; National Median \$400
- o Sewer Mains Maintenance cost per 100 km of main - \$134,000 [col 80]
- o Net Debt to Equity [WS & SGE – F22] – -1% [col 92]; National Median 11%
- o Economic Real Rate of Return [F18] – 1.7% [col 93]; National Median 3.0%
- o Sewer Main breaks/100km of main [A4] – 35 [col 94]; National Median 17
- o Infiltration/ML/100km of main – 83 [col 95]
- o Sewer Overflows/100km of main – 10 [col 96]
- o Sewerage service complaints/1000 properties [C11] – 6 [col 94]; National Median 1
- o % sewage treated that was compliant [E4] – 100% [col 98]
- o Sewage odour complaints/1000 properties – 1 [col 99]
- o Typical Residential Bill/assessment [2014-15 – P6] - \$669 [col 100]; National Median \$667.

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 32 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](http://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 on pages 3 and 22 of the 2014-15 NSW Water Supply and Sewerage Performance Monitoring Report, each LWU needs to prepare a 30-year Integrated Water Cycle Management (IWC) Strategy, financial plan and report in accordance with the July 2014 IWC Check List ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)).

This involves a 30-year total asset management plan (TAMP – refer to note 1), 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](http://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 43%, 32%, 14%, 2% and 0% respectively.

With regard to assets in **condition 5 (very poor)**, 58 LWUs (59%) had a **0%** result.

The performance of the following 12 utilities, which had a result greater than 6% for condition 5 is analysed below using the results in Table 5D:

- o Bland 100% - has a **low TRB and a low OMA cost**; has full cost recovery, reported a moderate level of sewerage service and odour complaints, 100% of sewage complied with licence and had a high level of sewer main chokes and breaks. Rehabilitated 4.1% of its sewerage mains and 0.2% of its service connections in 2014-15. Has a strategic business plan (SBP) and now needs to prepare a 30-year IWC Strategy and financial plan as its existing SBP is over 4 years old. Also needs to apply appropriate non-residential sewerage charges. Has implemented 78% of the BPM outcomes. Has 2 fully qualified sewage treatment works operators.

## 6. Comment on reported Asset Condition [col 86]: (continued from left)

- o Gundagai 100% - has a **low TRB and a high OMA cost**, has full cost recovery, did not report service or odour complaints, sewerage licence compliance, sewer main chokes & breaks, rehabilitation of its sewerage mains & service connections in 2014-15 but had 18 service complaints & 14 sewer main breaks & chokes per 1000 properties in 2013-14. Has a SBP and now needs to prepare a 30-year IWC Strategy & financial plan as its existing SBP is over 4 years old. Has implemented 67% of the BPM outcomes. Has 4 fully qualified sewage treatment works operators.
- o Hawkesbury 19% - has a **low TRB and a high OMA cost**; has full cost recovery, reported a moderate level of sewerage service and odour complaints. Its sewage effluent did not comply with its licence and had a moderate level of sewer main chokes and breaks. Asset renewals expenditure was \$161,000 per 100 km of main, a total of \$296,000 or 0.2% of CRC (the Current Replacement Cost of system assets). Has an IWC Evaluation and a strategic business plan (SBP) and now needs to prepare a 30-year IWC Strategy and financial plan as its existing SBP is over 4 years old. Has implemented 100% of the BPM outcomes. Has 3 fully qualified sewage treatment works operators.
- o Kempsey 12% - has a **moderate TRB and a high OMA cost**; has full cost recovery, reported a low level of sewerage service & odour complaints, 74% of sewage complied with licence and had a moderate level of sewer main chokes and breaks. Asset renewals expenditure was \$456,000 per 100 km of main, a total of \$1,250,000 or 0.6% of CRC (Current Replacement Cost of system assets). Rehabilitated 0.1% of service connections in 2014-15. Has a strategic business plan (SBP) and now needs to prepare a 30-year IWC Strategy and financial plan as its existing IWC Strategy is over 6 years old. Has implemented 100% of the BPM outcomes. Has 8 fully qualified sewage treatment works operators.
- o Walgett 12% - has a **very low TRB and OMA cost**; has full cost recovery, reported a low level of sewerage service and odour complaints, 67% of sewage complied with licence and had a very high level of sewer main chokes and breaks. Asset renewals expenditure was \$431,000 per 100 km of main, a total of \$207,000 or 1.1% of CRC (the Current Replacement Cost of system assets). Rehabilitated 2.1% of its sewerage mains and 0.0% of its service connections in 2014-15. Does not have a strategic business plan or IWC strategy and now needs to prepare a 30-year IWC Strategy and financial plan. Also needs to apply appropriate non-residential sewerage charges, trade waste fees and charges and developer charges. Has implemented 56% of the BPM outcomes. Has one sewage treatment works operator undergoing training.
- o Bourke 9% - has a **low TRB and moderate OMA cost**; has full cost recovery, reported a very high level of sewerage service complaints, 100% of sewage complied with licence and had a high level of sewer main chokes and breaks. Rehabilitated 0.0% of its sewerage mains and 0.8% of its service connections in 2014-15. Has a strategic business plan and IWC Strategy. Also needs to apply appropriate non-residential sewerage charges. Has implemented 89% of the BPM outcomes. Has 5 sewage treatment works operators in training.
- o Deniliquin 9% - has a **moderate TRB and OMA cost**; has full cost recovery, reported a moderate level of sewerage service and odour complaints, 100% of sewage complied with licence and had a moderate level of sewer main chokes and breaks. Asset renewals expenditure was \$361,000 per 100 km of main, a total of \$386,000 or 0.7% of CRC (the Current Replacement Cost of system assets). Has a strategic business plan and IWC Strategy. Has implemented 100% of the BPM outcomes. Has 2 fully qualified sewage treatment works operators.
- o Lithgow 9% - has a **moderate TRB and high OMA cost**; has full cost recovery, has reported a high level of sewerage service complaints. 81% of sewage complied with licence & had a very high level of sewer main chokes & breaks. Asset renewals expenditure was \$161,000 / 100km main, a total of \$1,200,000 or 0.2% of CRC (Current Replacement Cost of system assets). Rehabilitated 1.8% of sewerage mains in 2014-15. Has a strategic business plan (SBP) & now needs to prepare 30-year IWC Strategy & financial plan as its existing SBP is over 4 years old. Also needs to apply appropriate developer charges. Has implemented 89% of the BPM outcomes. Has 6 fully qualified sewage treatment works operators.
- o Lockhart 9% - has a **low TRB and OMA cost**; has full cost recovery, reported a moderate level of sewerage service and odour complaints, 69% of sewage complied with licence and reported no sewer main chokes and breaks. Rehabilitated 0.0% of its sewerage mains and 0.1% of its service connections in 2014-15. Has a current strategic business plan and IWC Evaluation. Also needs to apply appropriate developer charges. Has implemented 89% of the BPM outcomes. Has 3 fully qualified sewage treatment works operators.
- o Bellingen 8% - has a **high TRB and a high OMA cost**; has full cost recovery, reported a moderate level of sewerage service & odour complaints, 100% of sewage complied with licence and had a low level of sewer main chokes and breaks. Asset renewals expenditure was \$221,000 per 100 km of main, a total of \$221,000 or 0.4% of CRC (the Current Replacement Cost of system assets). Rehabilitated 0.6% of service connections in 2014-15. Has a strategic business and IWC Strategy. Has implemented 100% of the BPM outcomes. Has 4 fully qualified sewage treatment works operators and one operator undergoing training.
- o Muswellbrook 8% - has a **low TRB and OMA cost**; has full cost recovery, reported a low level of sewerage service and odour complaints, 47% of sewage complied with licence and had a low level of sewer main chokes and breaks. Asset renewals expenditure was \$246,000 per 100 km of main, a total of \$433,000 or 0.5% of CRC (Current Replacement Cost of system assets). Rehabilitated 0.6% of its sewerage mains and 0.1% of its service connections in 2014-15. Has a strategic business plan and now needs to prepare a 30-year IWC Strategy & financial plan as its existing IWC Strategy is over 6 years old. Has implemented 100% of the BPM outcomes. Has 3 fully qualified sewage treatment works operators.
- o Moree Plains 7% - has a **low TRB and a moderate OMA cost**; has full cost recovery, reported a very high level of sewerage service complaints, 100% of sewage complied with licence and had a high level of sewer main chokes and breaks. Asset renewals expenditure was \$2,220,000 per 100 km main, a total of \$1,980,000 or 3.5% of CRC (the Current Replacement Cost of system assets). Rehabilitated 0.5% of service connections in 2014-15. Has a strategic business plan (SBP) & now needs to prepare 30-year IWC Strategy & financial plan as its existing SBP is over 4 years old. Has implemented 100% of the BPM outcomes. Has 4 fully qualified sewage treatment works operators.

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

2 This value of 2.9% is consistent with the col 88 value of 0.02 (ie. 2%) 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

WATER UTILITY	RESIDENTIAL CHARGES															COST RECOVERY										Total Connected Properties (15) C4																		
	Type of Tariff		Fixed Charge (or Minimum) (\$)			Special Levies (\$)	Usage Charge (for Step 1 and Step 2)								Billing (2006 National Guidelines) (% Implementation) (5e)		Operating Cost (OMA) (c/kL)			Typical Developer Charge (\$/ET)			Typical Residential Bill based on Col(14b) (Includes Special Levies) (8) P3				Return on Assets (%)			ERRR (Water Supply) (%)			Residential Revenue from Usage Charges (% of residential bills) (13) F4			Avg Annual Residential Water Supplied <sup>3</sup>			Full Cost Recovery? (FCR) (Y/Y*/N)					
							Step 1				Step 2																														Potable		Potable + Non Potable	
	(1) P1	(2) P1.2	(4) P1.12	(5a) P1.3	(5b) P1.3	(5c) P1.4	(5d) P1.4	(12/13)	(13/14)	(14/15)	(12/13)	(13/14)	(14/15)	(12/13)	(13/14)	(14/15)	(12/13)	(13/14)	(14/15)	(12/13)	(13/14)	(14/15)	(12/13)	(13/14)	(14/15)		(12/13)	(13/14)	(14/15)	(12/13)	(13/14)	(14/15)	(12/13)	(13/14)	(14/15)	(12/13)	(13/14)	(14/15)						
	14/15	15/16	13/14	14/15	15/16	15/16	13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	12/13		13/14	14/15	12/13	13/14	14/15	13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16				
Sydney Water	Two Part	Two Part	127	114	103		All	All	All	221	223	228			100	100					581	563	562				1.9	1.9	2.3	79	80	206	201	206	201		Y	1,876,000						
Hunter Water	Two Part	Two Part	17	18	18		All	All	All	217	219	222			100	100					409	385	390				2.8	3.5	2.5	96	95	181	168	181	168		Y	238,800						
<b>LWUs with &gt; 10,000 Properties</b>																																												
1	Gosford	Two Part	Two Part	126	150	174		All	All	All	217	223	226			100	100	170	156	151	1,310	2,320	2,370	475	507	536	-0.2	0.0	0.4	0.7	0.8	1.3	76	73	161	160	161	160	180	Y	71,830			
2	Wyong	Two Part	Two Part	170	172	167		All	All	All	217	223	226			100	100	131	117	118	2,840	3,570	3,620	518	508	507	-0.2	0.0	0.4	1.2	1.4	1.5	67*	67*	157	150	158	150	160	Y	63,490			
3	Shoalhaven	Two Part	Two Part	81	81	80		All	All	All	160	160	165			100	100	92	87	92	6,580	6,580	6,580	317	309	315	2.0	1.6	2.3	1.2	0.9	1.7	74	75*	147	142	148	143	193	Y	47,150			
4	Rous (Bulk Supplier) (No Sge)																	96	96	99	8,860	9,090	9,250				0.8	1.2	1.3	1.1	1.7	1.8							Y	41,230				
5	MidCoast	Inclining Block	Inclining Block	180	205	215		<200	<200	<200	257	270	292	>200	>200	>200	288	302	326	97	97	190	166	202	565	587	629	-1.5	-0.7	-0.9	0.1	0.7	0.7	75	72	150	142	150	142	169	Y	38,710		
6	Tweed	Inclining Block	Inclining Block	138	148	159		<300	<300	<300	225	245	270	>300	>300	>300	340	370	405	100	100	149	138	147	553	584	639	-0.2	1.7	0.9	0.6	2.4	1.6	77	75*	184	178	184	178	192	Y	32,240		
7	Port Macquarie-Hastings (Unfiltered)	Inclining Block	Inclining Block	173	183	194		<270	<270	<270	241	255	270	>270	>270	>270	482	510	540	33	33	168	172	181	532	574	596	-0.2	1.8	1.6	-0.5	1.7	1.2	69*	68	157	151	157	151	142	Y	30,420		
8	Riverina (Groundwater) (No Sge)	Inclining Block	Inclining Block	140	160	160		<500	<500	<500	121	133	140	>500	>500	>500	183	200	210	100	100	71	63	52	4,800	4,930	5,920	3.6	5.6	7.9	3.5	5.3	7.5	76	74	324	311	324	311	326	Y	29,870		
10	Coffs Harbour	Inclining Block	Inclining Block	139	143	143		<365	<365	<365	255	263	267	>365	>365	>365	383	395	401	100	100	146	149	161	569	582	588	0.6	-0.2	0.6	1.8	1.2	2.0	76*	76*	169	167	169	167	150	Y	25,060		
11	Albury City	Inclining Block	Inclining Block	94	113	128		<225	<225	<225	107	118	130	>225	>225	>225	206	216	227	100	100	92	86	87	3,400	3,000	3,050	0.8	1.9	2.2	0.7	1.7	1.9	79	75	232	205	232	205	260	Y	25,700		
12	Fish River WS (Bulk Supplier) (No Sge)			MAQ	MAQ	MAQ																					10.9	15.6	10.9	15.6								Y*	23,500					
13	Tamworth Regional	Inclining Block	Inclining Block	242	248	254		<400	<400	<400	138	142	145	400-800	400-800	400-800	207	213	218	80	80	110	105	131	4,510	4,630	4,710	1.9	3.6	2.3	1.5	3.3	2.0	64	55	287	188	287	188	223	Y	21,680		
14	Clarence Valley	Inclining Block	Inclining Block	156	149	177		<450	<450	<450	168	179	191	>450	>450	>450	252	268	287	95	95	137	121	133	4,990	5,120	5,210	-0.5	0.2	-0.1	-0.1	0.7	0.4	67	66	161	147	161	147	167	Y	21,460		
15	Eurobodalla	Two Part	Two Part	228	282	289		All	All	All	340	340	348							98	98	213	229	225	11,290	11,590	11,780	-0.5	0.3	1.0	-0.3	0.4	1.1	64	58	119	114	119	114	184	Y	19,580		
16	Wingecarribee	Inclining Block	Inclining Block	148	154	158		<225	<225	<225	163	174	178	>225	>225	>225	245	261	267	80	80	129	108	130	6,310	6,480	6,540	0.9	2.1	1.8	0.7	1.8	1.5	69	68	200	178	200	178	209	Y	19,150		
17	Queanbeyan (Reticulator)	Inclining Block	Inclining Block	348	381	417		<160	<160	<176	250	274	297	>160	>160	>176	367	402	456	100	100	212	120	133	8,290	8,500	8,610	-0.7	1.1	0.8	-0.9	0.9	0.4	64	61	178	173	178	173	198	Y	17,350		
18	Dubbo	Two Part	Two Part	228	242	250		All	All	All	174	185	191							100	100	81	97	99	5,340	5,450	5,490	2.1	2.6	4.4	2.9	3.3	5.0	75	74	350	327	350	327	396	Y	17,590		
19	Orange	Inclining Block	Inclining Block	201	222	252		<450	<450	<450	184	202	220	>450	>450	>450	278	303	330		100	92	81	7,320	7,490	7,560	521	564	625	4.3	3.3	4.4	3.7	2.9	4.0	71	70	174	170	174	170	180	Y	17,520
20	Goulburn Mulwaree	Inclining Block	Inclining Block	157	165	170	40	<292	<292	<292	271	280	280	>292	>292	>292	365	378	378	25	25	143	143	174	4,170	3,370	3,370	0.6	0.7	0.4	1.0	1.0	0.8	66*	65*	165	139	165	139	171	Y	11,190		
21	Bathurst Regional	Inclining Block	Inclining Block	116	121	156		<250	<250	<250	171	180	180	>250	>250	>250	257	270	270		111	118	122	4,950	5,100	5,400	503	522	557	1.1	2.0	1.7	0.9	1.8	1.6	83	82	227	223	227	225	259	Y	15,720
22	Lismore (Reticulator)	Two Part	Two Part	185	204	234		All	All	All	272	299	322							75	75	228	124	122	2,020	2,910	3,050	-0.8	-0.1	1.3	-0.9	0.2	1.6	70	70	155	155	155	155	170	Y	14,320		
23	Bega Valley (Unfiltered)	Two Part	Two Part	193	198	203		All	All	All	243	250	270							99	99	167	193	225	7,500	7,910	8,040	-1.1	-0.3	-0.5	-1.4	-0.6	-0.8	63	65*	134	137	134	137	202	Y*	14,360		
24	Ballina (Reticulator)	Inclining Block	Inclining Block	178	189	195		<350	<350	<350	191	202	208	>350	>350	>350	287	304	313	100	100	196	89	84	4,510	3,540	3,160	-0.2	0.7	1.8	-0.7	0.3	1.2	68	66	194	181	194	181	170	Y	14,360		
25	Kempsey (Groundwater)	Inclining Block	Inclining Block	248	255	268		<250	<250	<250	203	209	219	>250	>250	>250	292	301	316	76	95	154	157	157	9,040	9,300	9,450	-0.3	-0.8	0.7	0.3	0.0	1.3	59	59	157	156	157	156	174	Y	12,510		
26	Essential Energy	Two Part	Two Part	254	313	317		<400	All	All	167	172	174	>400			280			100	100	172	197	170															Y*	10,530				
27	Byron (Reticulator)	Inclining Block	Inclining Block	150	155	175		<450	<450	<450	221	232	242	>450	>450	>450	332	348	363	90	90	154	93	91	3,380	3,440	3,500	0.1	2.1	2.1	-0.5	1.6	1.6	74	73	181	180	181	180	233	Y	11,220		
28A	Goldenfields (Reticulator) (No Sge)	Two Part	Two Part	165	174	178		All	All	All	202	212	217							95	100	146	105	109	8,760	7,080	7,430	1.4	2.7	4.0	1.1	2.3	3.6	79	78	284	272	287	275	232	Y	10,280		
28B	Goldenfields (Bulk Supplier) (																																											









**Table 6A: Water supply - 2015-16 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)
29	Armidale Dumaresq	Armidale	Inclining Block	215	Y	Nil	up to 400kL 401kL to 1000kL >1000kL	241 320 364
		Armidale, untreated	Inclining Block	215	Y	Nil	up to 400kL 401kL to 1000kL >1000kL	118 209 257
100	Balranald (Dual Supply)	Balranald & Euston, Filtered	Inclining Block	187	Y	Nil	up to 600 kL >600 kL	94 141
		Balranald & Euston, Raw	Inclining Block	198	Y	Nil	up to 600 kL >600 kL	52 78
21	Bathurst Regional	Filtered	Inclining Block	156	Y	Nil	up to 250 kL >250 kL	180 270
		Raw Water	Inclining Block	156	Y	Nil	up to 250 kL >250 kL	79 119
		Hillview Water	Inclining Block	141	Y	Nil	up to 250 kL >250 kL	189 378
53	Berrigan (Dual Supply)	Berrigan, Barooga, Finley (Potable)	Two Part	497	Y	Nil	All	94
		Berrigan, Barooga, Finley (Non-Potable)	Two Part	497	Y	Nil	All	47
		Tocumwal (Filtered)	Two Part	497	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			
97	Bombala	Bombala	Inclining Block	565	Y	Nil	up to 350 kL >350 kL	130 180
		Delegate	Unmetered	433	Y			
87	Bourke (Dual Supply)	Bourke, Filtered	Two Part	176	Y	Nil	All	216
		Bourke, Raw	Unmetered	437	Y			
105	Brewarrina (Dual Supply)	Brewarrina, Filtered	Two Part	431	Y	Nil	All	190
		Brewarrina, Raw	Unmetered	374	Y	Nil		
		Goodooga, Filtered	Two Part	325	Y	Nil	All	190
		Goodooga, Raw	Unmetered	349	Y	Nil		
91	Cabonne	Molong, Cumnock, Yeoval	Inclining Block	312	Y	Nil	up to 300 kL 301 kL to 500 kL >500 kL	190 450 610
		North Yeoval Wellington	Inclining Block	211	Y	Nil	up to 300 kL 301 kL to 500 kL >500 kL	290 370 590
92	Carrathool	Carrathool, Hillston, Goolgowi Potable Water, Merriwaga Town Water	Two Part	402	Y	Nil	All	90
		Melbergen	Two Part	1540	Y	Nil	All	194
		Goolgowi Raw Water, Rankins Springs Town Water	Two Part	381	Y	Nil	All	56



**Table 6A: Water supply - 2015-16 residential multiple tariffs**

WATER UTILITY		Town	Tariff Type	Access Charge (\$)	Access Charge Independent of Land Value ?	Allowance (kL)	Usage Range (kL)	Usage Charge (c/kL)
			(1)	(2)	(3)	(4)	(5)	(6)
103	Central Darling	Wilcannia (Filtered)	Two Part	150	Y	Nil	All	350
		Wilcannia (Raw)	Unmetered	598	Y			
		White Cliffs, Raw	Two Part	569	Y	Nil	All	380
		Ivanhoe (Raw)	Two Part	294	Y	Nil	All	170
		Ivanhoe (Filtered)	Two Part	175	Y	Nil	All	390
67	Cobar	Cobar	Inclining Block	240	Y	Nil	up to 450kL 451kL to 550kL >550kL	210 310 400
		Nymagee, Euabalong, Euabalong West	Unmetered	585	Y			
		Mount Hope	Unmetered	680	Y			
75	Coonamble Shire	Coonamble	Inclining Block	210	Y	Nil	up to 370 kL >370 kL	70 110
		Gulargambone, Quambone	Inclining Block	272	Y	Nil	up to 430 kL >430 kL	80 125
26	Essential Energy	Broken Hill, Menindi, Pipeline Customers, Sunset Strip, Silverton (treated)	Two Part	317	Y	Nil	All	174
			Two Part	317	Y	Nil	All	75
51	Forbes	Filtered	Two Part	211	Y	Nil	All	103
		Raw	Two Part				All	44
		Ootha	Two Part	249	Y	Nil	All	103
84	Gilgandra (Groundwater)	Gilgandra	Two Part	233	Y	Nil	All	104
		Tooraweenah	Two Part	114	Y	Nil	All	136
20	Goulburn Mulwaree Council	Goulburn	Inclining Block	210	Y	Nil	up to 292 kL >292 kL	280 378
		Marulan	Inclining Block	284	Y	Nil	up to 292 kL >292 kL	280 378
30	Griffith	Griffith (Filtered)	Inclining Block	129	Y	Nil	up to 200 kL >200 kL	67 130
		Yenda (Dual), Filtered	Inclining Block	201	Y	Nil	up to 200 kL >200 kL	67 130
		Yenda (Dual), Raw	Two Part		Y	Nil	All	34
44	Gunnedah (Groundwater)	Gunnedah	Inclining Block	170	Y	Nil	up to 400 kL >400 kL	108 162
		Curlewis	Inclining Block	190	Y	Nil	up to 400 kL >400 kL	113 170
		Mullaley	Inclining Block	310	Y	Nil	up to 400 kL >400 kL	168 209
		Tambar Springs	Inclining Block	360	Y	Nil	up to 400 kL >400 kL	269 335

**Table 6A: Water supply - 2015-16 residential multiple tariffs**

WATER UTILITY		Town	Tariff Type	Access Charge (\$)	Access Charge Independent of Land Value ?	Allowance (kL)	Usage Range (kL)	Usage Charge (c/kL)
			(1)	(2)	(3)	(4)	(5)	(6)
86	Hay (Dual Supply)	Hay (Filtered)	Inclining Block	132	Y	Nil	up to 300 kL	110
		Hay (Unfiltered)	Unmetered	335			>300 kL	165
106	Jerilderie (Dual Supply)	Jerilderie, Filtered	Inclining Block	243	Y	Nil	up to 250 kL	152
		Jerilderie, Raw	Two Part	353	Y	Nil	>250 kL all	177 73
38	Moree Plains Shire	Moree, Mungindi, Boggabilla, Pallamallawa	Inclining Block, Potable	280	Y	Nil	up to 750 kL	158
		Garah, Boomi, Boggabilla, Gurley, Weemalah	Inclining Block, Non-Potable	280	Y	Nil	>750 kL up to 750 kL >750 kL	205 106 173
65	Murray	Murray, Filtered	Two Part	275	Y	Nil	All	96
		Murray, Raw	Two Part	102	Y	Nil	All (93c for stage 2 and 3, 94c for stage 4 water restrictions)	72
46	Narrabri (Groundwater)	Narrabri	Two Part	333	Y	Nil	All	90
		Narrabri, unmetered	Unmetered	486	Y			
		Gwabegar	Two Part	578	Y	Nil	All	118
		Wee Waa	Two Part	327	Y	Nil	All	91
		Boggabri	Two Part	356	Y	Nil	All	103
		Bellata	Two Part	506	Y	Nil	All	118
		Pilliga	Two Part	541	Y	Nil	All	118
35	Singleton	Singleton	Inclining Block	154	Y	Nil	up to 450 kL	135
		Mt Thorley	Two Part	473	Y	Nil	>450 kL All	245 220
		Jerry's Plains	Inclining Block	154	Y	Nil	up to 450 kL	170
		Broke Water	Inclining Block	154	Y	Nil	>450 kL up to 450 kL >450 kL	240 185 240
13	Tamworth	Tamworth	Inclining Block	254	Y	Nil	up to 400 kL	145
							401 to 800 kL	218
							>800 kL	327
		Calala Backwash Water	Two Part		Y	Nil	All	34
		Raw Water	Inclining Block		Y		up to 400 kL	99
						401 to 800 kL	109	
						>800 kL	120	
		Dungowan Dam Raw Water (if main traverses property)	Inclining Block	127	Y	Nil	up to 400 kL	50
							401 to 800 kL	109
							>800 kL	120



**Table 6A: Water supply - 2015-16 residential multiple tariffs**

WATER UTILITY		Town	Tariff Type	Access Charge (\$)	Access Charge Independent of Land Value ?	Allowance (kL)	Usage Range (kL)	Usage Charge (c/kL)
			(1)	(2)	(3)	(4)	(5)	(6)
43	Tumut	Tumut Potable - All towns	Two Part	130	Y	Nil	All	211
		Tumut Raw Water	Two Part	130	Y	Nil	All	80
45	Upper Hunter Shire Council	Murrurundi	Inclining Block	291	Y	Nil	up to 300 kL	227
		Merriwa/Cassilis, Aberdeen/Scone	Inclining Block	217	Y	Nil	>300 kL up to 300 kL >300 kL	307 192 307
88	Wakool (Dual Supply)	Barham, Tooleybuc, Moulamein (Filtered + Raw Water)	Inclining Block, Raw Water is unmetered	250+535	Y	Nil	up to 600 kL	100
		Wakool, Murray Downs, Koraleigh (Filtered)	Inclining Block	250	Y	Nil	>600 kL up to 600 kL >600 kL	158 100 158
79	Walgett	Walgett, Collarenebri (Filtered)	Inclining Block	455	Y	Nil	up to 500 kL	76
		Walgett, Collarenebri (Raw Water)	Inclining Block	455	Y	Nil	>500 kL up to 600 kL	106 25
		Lightning Ridge, Carinda, Rowena (Bore Water)	Inclining Block	300	Y	Nil	>600 kL up to 600 kL >600 kL	35 22 31
96	Warren (Dual Supply)	Warren Bore Water	Inclining Block	330	Y	Nil	up to 450 kL	103
		Warren River Water	Inclining Block	330		Nil	>450 kL up to 450 kL	155 38
		Nevertire Bore Water	Inclining Block	450	Y	Nil	>450 kL up to 450 kL	66 59
		Collie Bore Water	Inclining Block	335	Y	Nil	>450 kL up to 400 kL >400 kL	86 128 193
55	Warrumbungle	Coonabarabran, Timore Dam (Raw), Baradine, Binnaway, Villages: Bugaldie & Kenebri, Southern, Coolah, Dunedoo, Village Mendooran	Two Part	364	Y	Nil	All	190
			Two Part	816	Y	Nil	All	190
74	Wentworth (Dual Supply)	Filtered	Inclining Block	270	Y	Nil	up to 250 kL	120
		Raw	Inclining Block	145	Y	Nil	>250 kL up to 700 kL >700 kL	280 40 110
56	Yass Valley	Yass, Bowning, Binalong & Rural Areas	Two Part	450	Y	Nil	All	290
		Murrumbateman	Two Part	338	Y	Nil	All	290

**Table 6B: Water supply - 2015-16 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	
			(\$) (2)	*Proportional to square of size of service connection or water meter (3)	(4)	(kL) (5)	(kL) (6)	(c/kL) (7)	(8)	
		(1)								
11	Albury City	Albury	Two Part	128	Meter Size* (eg. 40mm :\$510)	Y	Nil	All	183	Y
29	Armidale Dumaesq	Armidale	Inclining Block	215	Uniform Access Charge	Y	Nil	up to 400 kL	241	N
		Armidale, Untreated Water	Inclining Block	215	Uniform Access Charge	Y	Nil	401 kL to 1000 kL	320	
								>1000 kL	364	
								up to 400 kL	118	
								401 kL to 1000 kL	209	
								>1000 kL	257	
24	Ballina (Reticulator)	Ballina	Inclining Block	195	Service Connection Size* (eg. 40mm \$779)	Y	Nil	up to 350 kL	208	Y
								>350 kL	313	
100	Balranald (Dual Supply)	Balranald & Euston, Filtered	Inclining Block	187	Service Connection Size* (eg. 40mm \$748)	Y	Nil	up to 600 kL	94	Y
		Balranald & Euston, Raw	Inclining Block	198	Service Connection Size* (eg. 40mm \$792)	Y	Nil	>600 kL	141	
								up to 600 kL	52	
								>600 kL	78	
21	Bathurst Regional	Bathurst (Filtered)	Inclining Block	156	Service Connection Size* (eg. 40mm \$623)	Y	Nil	up to 250kL	180	Y
								>250 kL	270	
23	Bega Valley (Unfiltered)	Bega Valley	Two Part	203	Service Connection Size* (eg. 40mm \$812)	Y	Nil	All	270	Y
47	Bellingen (Unfiltered)	Bellingen	Two Part	117	Service Connection Size* (eg. 40mm \$468)	Y	Nil	All	163	Y
53	Berrigan (Dual Supply)	Berrigan, Barooga, Finley (Potable)	Two Part	497	Uniform Access Charge	Y	Nil	All	94	N
		Berrigan, Barooga, Finley (Non-Potable)	Two Part	497	Uniform Access Charge	Y	Nil	All	47	
		Tocumwal (Filtered)	Two Part	497	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						
97	Bombala	Bombala	Inclining Block	565	Uniform Access Charge	Y	Nil	up to 350 kL	130	N
								>350 kL	180	
		Delegate	Unmetered	433	Uniform Access Charge	Y				
104	Boorowa	Boorowa	Inclining Block	472	Uniform Access Charge	Y	Nil	up to 200 kL	211	N
								>200 kL	422	
87	Bourke (Dual Supply)	Bourke, Filtered	Two Part	176	Service Connection Size (eg. 40mm \$602)	Y	Nil	All	216	Y
		Bourke, Raw	Unmetered	437	Service Connection Size (eg. 40mm \$1379)					
105	Brewarrina (Dual Supply)	Brewarrina, Filtered	Unmetered	431	Service Connection Size (eg. 40mm \$1725.40)	Y	Nil	All	190	Y
		Brewarrina, Raw	Unmetered	374	Service Connection Size (eg. 40mm \$1493)	Y	Nil			
		Goodooga, Filtered	Unmetered	425	Service Connection Size (eg. 40mm \$1299.50)	Y	Nil	All	190	
		Goodooga, Raw	Unmetered	349	Service Connection Size (eg. 40mm \$1396.70)	Y	Nil			
27	Byron (Reticulator)	Byron	Two Part	175	Service Connection* (40mm: \$700)	Y	Nil	All	260	Y
91	Cabonne	Molong, Cumnock, Yeoval	Inclining Block	312	Service Connection (40mm: \$623.20)	Y	Nil	up to 300 kL	190	Y
								301 kL to 500 kL	450	
								>500 kL	610	
		North Yeoval Wellington	Inclining Block	211	Service Connection (40mm: \$422.40)	Y	Nil	up to 300 kL	290	
								301 kL to 500 kL	370	
								>500 kL	590	
92	Carrathool	Carrathool, Hillston, Goolgowi Potable Water	Two Part	402	Service Connection (40mm: \$463)	Y	Nil	All	90	Y
		Melbergen	Two Part	1540	Uniform Access Charge	Y	Nil	All	194	
		Merriwagga Town Water	Two Part	402	Uniform Access Charge	Y	Nil	All	90	
		Goolgowi Raw Water, Rankins Springs	Two Part	381	Service Connection (40mm: \$453)	Y	Nil	All	56	

Table 6B: Water supply - 2015-16 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	
			(\$) (2)							*Proportional to square of size of service connection or water meter (3)
		(1)			(4)					
103	Central Darling	Wilcannia (Filtered)	Two Part	150	Uniform Access Charge	Y	Nil	All	350	N
		Wilcannia (Raw)	Unmetered	598	Uniform Access Charge	Y	Nil	All	350	
		White Cliffs (Raw)	Two Part	569	Uniform Access Charge	Y	Nil	All	380	
		Ivanhoe (Raw)	Two Part	294	Uniform Access Charge	Y	Nil	All	170	
		Ivanhoe (Filtered)	Two Part	175	Uniform Access Charge	Y	Nil	All	390	
40	Central Tablelands	Central Tablelands, Quandialla	Two Part	200	Meter Size*(40mm: \$800)	Y	Nil	All	236	Y
14	Clarence Valley	Treated	Two Part	177	Service Connection Size (40mm: \$708)	Y		All	191	Y
		Raw Water	Two Part	89	Service Connection Size (40mm: \$354)	Y		All	96	
67	Cobar	Cobar	Inclining Block	350	Service Connection Size (40mm: \$770)	Y	Nil	up to 450 kL	210	Y
								451 - 550 kL	310	
								>551 kL	400	
10	Coffs Harbour	Coffs Harbour, Nana Glen, Coramba	Two Part	143	Meter Size: 40mm \$572	Y	Nil	All	267	Y
50	Cooma-Monaro	Cooma, Bredbo, Nimmitabel	Two Part	324	Service Connection Size (40mm: \$1298)	Y	Nil	All	162	Y
75	Coonamble Shire	Coonamble	Inclining Block	210	Meter Size 40mm: \$840	Y	Nil	up to 370 kL	70	Y
		Gulargambone, Quambone	Inclining Block	272	Meter Size 40mm: \$1088	Y	Nil	>370 kL up to 430 kL >430 kL	110 80 125	
58	Cootamundra (Reticulator)	Cootamundra	Two Part	378	Meter Size 40mm: \$1512	Y	Nil	All	213	Y
42	Corowa	Corowa, Mulwala, Howlong	Two Part	100	Service Connection (eg. 40mm \$400)	Y	Nil	All	160	Y
39	Cowra	Cowra, Rural, Commercial, Government	Two Part	313	Meter Size: 40mm \$1252	Y	Nil	All	220	Y
		Cowra, Industrial	Two Part	313	Meter Size: 40mm \$1252	Y	Nil	All	86	
		Raw Water	Two Part	313	Meter Size: 40mm \$1252	Y	Nil	All	164	
54	Deniliquin	Deniliquin, Filtered	Two Part	275	Service connection (40mm: \$733)	Y	Nil	All	125	Y
		Deniliquin, Raw	Two Part	164	Uniform Access Charge	Y		All	60	
18	Dubbo	Dubbo	Two Part	250	Meter Size* (eg. 40mm \$1000)	Y	Nil	All	191	Y
26	Essential Energy	Broken Hill, Menindi Treated	Two Part	317	Service Connection (eg. 40mm \$1266.95)	Y	Nil	All	174	Y
		Chlorinated	Two Part	317	Service Connection (eg. 40mm \$1266.95)	Y	Nil	All	112	
		Untreated	Two Part	317	Service Connection (eg. 40mm \$1266.95)	Y	Nil	All	153	
		Pipeline Customers	Two Part	317	Service Connection (eg. 40mm \$1266.95)	Y	Nil	All	75	
15	Eurobodalla	Eurobodalla	Two Part	289	Meter Size*: 40mm \$1156	Y	Nil	up to 3650 kL	348	Y
		Bulk Tariff						> 3650 kL	174	
51	Forbes	Forbes	Two Part	211	Service Connection Size* (40mm: \$844)	Y	Nil	All	103	Y
84	Gilgandra (Groundwater)	Gilgandra	Two Part	233	Service Connection Size* (40mm: \$936)	Y	Nil	All	104	Y
		Tooraweenah	Two Part	114	Uniform Access Charge	Y	Nil	All	136	
60	Glen Innes Severn	Glen Innes, Deepwater	Two Part	284	Service Connection Size* (40mm: \$505)	Y	Nil	All	215	Y
28A	Goldenfields (Reticulator)	Retail	Two Part	312	Meter Size*(40mm: \$1247.60)	Y	Nil	All	181	Y
1	Gosford	Gosford	Two Part	174	Service Connection Size* (40mm: \$620.04)	Y	Nil	All	226	Y
20	Goulburn Mulwaree	Goulburn	Inclining Block	210	Meter Size*(40mm: \$872)	Y	Nil	up to 292 kL (for 20mm meter)	280	Y
		Marulan	Inclining Block	284	Meter Size*(40mm: \$1165)	Y	Nil	>292 kL (for 20mm meter) up to 292 kL (for 20mm meter) >292 kL (for 20mm meter)	378 280 378	
80	Greater Hume	Culcairn + Villages	Inclining Block	339	Service Connection Size (40mm: \$493)	Y	Nil	up to 200kL	160	Y
								>200kL	240	



Table 6B: Water supply - 2015-16 non-residential tariffs

WATER UTILITY	Town	Tariff Type (1)	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			
			(\$) (2)	*Proportional to square of size of service connection or water meter (3)	(4)	(kL) (5)	(kL) (6)	(c/kL) (7)	(8)			
30	Griffith	Griffith (Filtered)	Inclining Block	129	Meter Size*(40mm: \$516)	Y	Nil	up to 200 kL	67	Y		
		Yenda (Dual, Filtered)	Inclining Block	201	Uniform Access Charge	Y	Nil	>200 kL	130			
		Yenda (Dual, Raw)	Two Part			Y	Nil	up to 200 kL	67		>200 kL	130
94	Gundagai	Gundagai	Two Part	170	Service Connection Size: 40mm: \$680	Y	Nil	All	34	Y		
44	Gunnedah (Groundwater)	Gunnedah	Inclining Block	170	Service Connection Size: 20-40mm: \$170, 50mm: \$400	Y	Nil	up to 400 kL	108	Y		
		Curlewis	Inclining Block	190	Service Connection Size: 20-40mm: \$190, 50mm: \$400	Y	Nil	>400 kL	162			
		Mullaley	Inclining Block	310	Service Connection Size: 20-40mm: \$310, 50mm: \$500	Y	Nil	up to 400 kL	113		>400 kL	170
		Tambar Springs	Inclining Block	360	Service Connection Size: 20-40mm: \$360	Y	Nil	up to 400 kL	168		>400 kL	209
90	Guyra	Guyra, Tingha	Inclining Block	310	Uniform Access Charge	Y	Nil	up to 400 kL	269	N		
							401 to 1000 kL	185				
							> 1000 kL	195				
81	Gwydir	Gwydir	Inclining Block	390	Meter Size*(40mm: \$1560)	Y	Nil	up to 600 kL	125	Y		
								>600 kL	195			
76	Harden (Reticulator)	Harden	Two Part	367	Service Connection Size: 40 mm: \$1466.76	Y	Nil	All	220	Y		
7	Port Macquarie-Hastings (Unfiltered)	Hastings	Inclining Block	194	Meter Size* (eg. 40mm \$776)	Y	Nil	up to 270 kL	270	Y		
								>270 kL	540			
86	Hay (Dual Supply)	Hay (Filtered)	Inclining Block	132	Uniform Access Charge	Y	Nil	up to 300 kL	110	N		
		Hay (Unfiltered) - commercial users	Two Part	335	Uniform Access Charge	Y	Nil	> 300 kL	165			
								All	34			
37	Inverell	Inverell/Ashford/Yetman, Filtered	Inclining Block	347	Uniform Access Charge	Y	Nil	up to 600 kL	137	N		
								> 600 kL	160			
106	Jerilderie (Dual Supply)	Jerilderie, Filtered	Inclining Block	243	Service Connection Size*(32mm: \$609)	Y	Nil	up to 250 kL	152	Y		
		Jerilderie, Raw	Two Part	353	Uniform Access Charge	Y	Nil	>250 kL	177			
25	Kempsey (Groundwater)	Kempsey	Two Part	268	Meter Size: 40 mm: \$1047	Y	Nil	All	73	Y		
70	Kyogle	Kyogle, Bonalbo, Muli-Muli, Woodenbong	Inclining Block	344	Service Connection Size: 40mm: \$1376	Y	Nil	All	219	Y		
59	Lachlan	Condoblin	Two Part	355	Service Connection Size: 40mm: \$1343.90	Y	Nil	up to 200 kL	150	Y		
48	Leeton	Leeton, Whitton, Murrumbidgee	Inclining Block	264	Meter Size*(40mm: \$1056)	Y	Nil	> 200 kL	190	Y		
								up to 300 kL	91	Y		
								> 300 kL	133			
22	Lismore (Reticulator)	Lismore, Nimbin	Two Part	234	Service Connection Size*(40mm: \$937.88)	Y	Nil	All	322	Y		
31	Lithgow	Lithgow	Two Part	675	Service Connection Size (50mm: \$895)	Y	Nil	All	311	Y		
61	Liverpool Plains Shire Council	Quirindi, Werris Creek	Inclining Block	690	Service Connection Size (eg. 40mm \$1737)	Y	Nil	up to 300 kL	128	Y		
		Villages	Inclining Block	690	Service Connection Size (eg. 40mm \$1462)	Y	Nil	>300 kL	208			
								up to 300 kL	128			
								>300 kL	208			
5	MidCoast	Great Lakes and Greater Taree, Gloucester	Inclining Block	215	Meter Size* (eg. 40mm \$879)	Y	Nil	up to 200 kL	292	Y		
								>200 kL	326			
32	Mid-Western Regional Council	Mudgee, Gulgong, Rylstone	Two Part	144	Meter Size* (eg. 40mm \$576)	Y	Nil	All	281	Y		
38	Moree Plains Shire	Moree, Mungindi, Boggabilla, Pallamallawa, (Potable)	Inclining Block	280	Service Connection Size (eg. 40mm \$1120)	Y	Nil	up to 750 kL	158	Y		
		Garah, Boomi, Boggabilla, Gurley, Weemalah (Non-Potable)	Inclining Block	280	Service Connection Size (eg. 40mm \$1120)	Y	Nil	>750 kL	205			
								up to 750 kL	106			
								>750 kL	173			



**Table 6B: Water supply - 2015-16 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	
			(\$) (2)							(kL) (3)
65	Murray	Murray, Filtered Murray, Raw	Two Part Two Part	275 102	Service Connection Size (eg. 40mm \$1101.95) Service Connection Size (eg. 40mm \$406.01)	Y Y	Nil Nil	All All (93c for stage 2 and 3, 94c for stage 3 water restrictions)	96 72	Y
101	Murrumbidgee	Darlington Point, Coleambally	Inclining Block	195	Service Connection Size (eg. 40mm \$367)	Y	Nil	up to 500 kL >500 kL	40 60	Y
41	Muswellbrook	Muswellbrook, Denman, Sandy Hollow	Two Part	175	Service Connection Size* (eg. 40mm \$700)	Y	Nil	All	201	Y
34	Nambucca	Nambucca	Two Part	128	Service Connection Size (eg. 40mm \$512)	Y	Nil	All	290	Y
46	Narrabri (Groundwater)	Narrabri Narrabri, unmetered Gwabegar Wee Waa Boggabri Bellata Pilliga	Two Part Unmetered Two Part Two Part Two Part Two Part Two Part	333 486 578 327 356 506 541	Service Connection Size (eg. 40mm \$385) Service Connection Size (eg. 40mm \$1210) Service Connection Size* (eg. 40mm \$754) Service Connection Size* (eg. 40mm \$399) Service Connection Size* (eg. 40mm \$868) Service Connection Size* (eg. 40mm \$1156) Service Connection Size* (eg. 40mm \$720)	Y Y Y Y Y Y Y	Nil Nil Nil Nil Nil Nil Nil	All All All All All All All	90 118 91 103 118 118	Y
63	Narrandera (Groundwater)	Narrandera	Two Part	273	Meter Size (eg. 40mm \$1090)	Y	Nil	All	102	Y
62	Narromine (Groundwater)	Narromine, Trangie, Tomingley	Two Part	203	Service Connection Size* (eg. 40mm \$804)	Y	Nil	All	115	Y
83	Oberon (Unfiltered, Reticulator)	Oberon	Two Part	330	Uniform Access Charge	Y	Nil	All	280	N
19	Orange	Orange	Two Part	252	Service Connection Size* (eg. 40mm \$966.12)	Y	Nil	All	220	Y
71	Palerang	Bungendore, Braidwood, Captains Flat	Inclining Block	422	Service Connection Size* (eg. 40mm \$1689.48)	Y	Nil	up to 200 kL >200kL	222 349	Y
36	Parkes	Parkes	Two Part	180	Meter Size, eg : 40mm \$720	Y	Nil	All	220	Y
17	Queanbeyan (Reticulator)	Queanbeyan	Inclining Block	417	Meter Size, eg : 40mm \$1806	Y	Nil	up to 160 kL >160 kL	297 456	Y
33	Richmond Valley	All	Two Part	133	Service Connection Size* (eg. 40mm \$517)	Y	Nil	All	203	Y
8	Riverina	Wagga Wagga, Rural Towns & Villages	Inclining Block	180	Uniform Access Charge	Y	Nil	up to 500 kL >500 kL	140 210	N
4	Rous County Council	Bulk Supplier	Two Part	143	Service Connection Size* (eg. 40mm \$570.96)	Y	Nil	All	205	
3	Shoalhaven	Shoalhaven, treated	Inclining Block	80	Service Connection Size (40mm: \$320)	Y	Nil	All	165	Y
35	Singleton	Singleton Mt Thorley Jerry's Plains Broke	Two Part Two Part Two Part Two Part	154 473 154 154	Meter Size* (eg. 40mm \$612.85) Meter Size* (eg. 40mm \$933.20) Meter Size* (eg. 50mm \$957.90) Meter Size* (eg. 32mm \$391.40)	Y Y Y Y	Nil Nil Nil Nil	All All All All	140 220 240 240	Y
52	Snowy River (Unfiltered)	Snowy River	Inclining Block	363	Meter Size, eg : 40mm \$1452	Y	Nil	up to 300 kL >300 kL	230 350	Y
13	Tamworth	Tamworth  Calala Backwash Water Raw Water  Dungowan Dam Raw Water (if main traverses property)	Inclining Block  Two Part Inclining Block  Inclining Block	254   127	Service Connection Size* (eg. 40mm \$1028)   Uniform Access Charge	Y   Y	Nil   Nil	up to 400 kL 401 to 800 kL >800 kL All up to 400 kL 401 to 800 kL >800 kL up to 400 kL 401 to 800 kL >800 kL	145 160 176 34 99 109 120 50 109 120	Y
68	Tenterfield	Tenterfield, Jennings, Urbenville	Inclining Block	164	Meter Size* (eg. 40mm \$656.96)	Y	Nil	up to 450 kL > 450 kL	228 262	Y

Table 6B: Water supply - 2015-16 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	
			(\$) (2)	*Proportional to square of size of service connection or water meter (3)	(4)	(kL) (5)	(kL) (6)	(c/kL) (7)	(8)	
		(1)								
93	Tumbarumba	Tumbarumba, Khancoban	Inclining Block	343	Meter Size* (eg. 40mm \$1372)	Y	Nil	up to 200 kL >200 kL	184 310	Y
43	Tumut	Tumut	Two Part	130	Meter Size (eg. 40mm \$520)	Y	Nil	All	211	Y
		Tumut Raw Water	Two Part	130	Meter Size (eg. 40mm \$520)			All	80	
6	Tweed	Tweed	Two Part	159	Meter Size*(40mm: \$634)	Y	Nil	All	270	Y
45	Upper Hunter Shire Council	Murrurundi	Two Part	291	Meter Size (40mm: \$942)	Y	Nil	All	297	Y
		Merriwa/Cassilis, Aberdeen/Scone	Two Part	217	Meter Size (40mm: \$868)	Y	Nil	All	202	
73	Upper Lachlan Council	Crookwell, Taralga, Dalton, Gunning	Inclining Block	430	Uniform Access Charge	Y	Nil	up to 200 kL > 200 kL	269 356	N
85	Uralla	Uralla, Bundarra	Two Part	305	Uniform Access Charge	Y	Nil	All	220	N
88	Wakool (Dual Supply)	Barham, Tooleybuc, Moulamein (Filtered + Raw)	Two Part	250+535	Service Connection Size*(40mm: \$2140)	Y	Nil	All potable	100	Y
		Filtered	Two Part	250	Service Connection Size*(40mm: \$1000)	Y	Nil	All	100	
98	Walcha	Walcha	Two Part	210	Service Connection Size (38mm: \$740)	Y	Nil	All	272	Y
79	Walgett (Dual Supply)	Walgett, Collarenebri (Filtered)	Inclining Block	455	Service Connection Size*(40mm: \$1821.91)	Y	Nil	up to 500 kL >500 kL	76 106	Y
		Walgett, Collarenebri (Raw Water)	Inclining Block	455	Service Connection Size*(40mm: \$1821.91)	Y	Nil	up to 600 kL >600 kL	25 35	
		Lightning Ridge, Carinda, Rowena (Bore Water)	Inclining Block	300	Service Connection Size*(40mm: \$1201.31)	Y	Nil	up to 600 kL >600 kL	22 31	
96	Warren (Dual Supply)	Warren Bore Water	Inclining Block	330	Uniform Access Charge	Y	Nil	up to 450 kL >450 kL	103 155	N
		Warren River Water	Inclining Block	330	Uniform Access Charge		Nil	up to 450 kL >450 kL	38 66	
		Nevertire Bore Water	Inclining Block	450	Uniform Access Charge	Y	Nil	up to 450 kL >450 kL	59 86	
		Collie Bore Water	Inclining Block	335	Uniform Access Charge	Y	Nil	up to 400 kL >400 kL	128 193	
55	Warrumbungle	Coonabarabran, Timore Dam (Raw), Baradine, Binnaway, Southern, Coolah, Dunedoo, Village, Villages: Bugaldie, Kenebri	Two Part	364	Uniform Access Charge	Y	Nil	All	190	N
		Mendooran	Two Part	816	Uniform Access Charge	Y	Nil	All	190	
57	Wellington	Wellington, Geurie	Inclining Block	457	Service Connection Size (40mm: \$1818.78)	Y	Nil	up to 300 kL 301 to 500 kL 500 to 10000kL >10000 kL	141 152 185 229	Y
74	Wentworth (Dual Supply)	Filtered	Inclining Block	270	Service Connection Size*(40mm: \$1090)	Y	Nil	up to 250 kL >250 kL	120 280	Y
		Raw	Inclining Block	145	Service Connection Size (40mm: \$550)	Y	Nil	up to 700 kL >700 kL	40 110	
16	Wingecarribee	Wingecarribee	Two Part	158	Meter Size*(40mm: \$629)		Nil	All	178	Y
2	Wyong	Wyong	Two Part	167	Service Connection Size (40mm: \$586.09)	Y	Nil	All	226	Y
56	Yass Valley	Yass, Bowning, Binalong & Rural Areas	Two Part	450	Meter Size (40mm: \$704)	Y	Nil	All	290	Y
		Murrumbateman	Two Part	338	Meter Size (40mm: \$422.40)	Y	Nil	All	290	
49	Young (Reticulator)	Young	Two Part	275	Meter Size* (40mm: \$1100)	Y	Nil	All	270	Y



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/L)			(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/L)	(kL/prop)	(No.)					
	(1) P4.1	(2)	(3a)	(3b)	(4)	(5)	(6)	(7)	(8) P6	(9)	(11) F18	(11a)	(11b)	(11c) W19	(12) C8															
13/14	14/15	15/16	12/13	13/14	14/15	14/15	15/16	14/15	15/16	14/15	14/15	13/14	14/15	15/16	13/14	14/15	15/16	12/13	13/14	14/15	14/15	14/15	14/15	14/15						
Sydney Water	580	592	609				120	110	184	213	Y	Y				552	592	609				1.4	1.4	1.4	Y	178	309	1,827,000		
Hunter Water	579	586	594				67	67			Y	Y				616	623	631				2.1	1.8	1.7	Y	190	316	227,500		
<b>LWUs with &gt; 10,000 Properties</b>																														
1 Gosford	576	612	641	189	181	136	99	92	167	168	Y	Y	19	15	2,850	1,940	2,010	576	612	641	-0.4	-0.2	0.2	-0.4	-0.1	0.3	Y	167	278	70,000
2 Wyong	458	471	477	126	144	130	83	83	126	148	Y	Y	13	25	2,610	4,990	5,060	458	471	477	-0.2	-0.3	0.2	-0.2	-0.4	0.2	Y	112	259	61,930
3 Shoalhaven	714	750	772	255	239	223	130	140	164	168	Y	Y	14	15	8,340	8,340	8,340	714	750	772	1.4	1.6	3.4	1.9	2.2	3.9	Y		224	41,870
5 MidCoast (Combined)	920	948	970	263	304	279	245	252	250	263	Y	Y	13	20	9,150	9,400	9,680	920	948	970	1.3	1.3	1.3	2.8	2.8	2.6	Y		195	35,140
6 Tweed	691	732	782	175	229	199	140	150	200	210	Y	Y	17	25	6,040	6,200	6,310	691	732	782	0.5	1.5	1.0	0.6	1.7	1.1	Y		263	30,760
7 Port Macquarie-Hastings	704	736	769	145	160	170	111	116	155	158	Y	Y	12	6	4,650	3,530	3,620	704	736	769	0.7	2.6	1.3	0.6	2.9	1.5	Y	127	282	27,830
9 Wagga Wagga	434	434	454	188	191	195	200	200	175	180	Y	Y	32	15	3,500	3,730	3,760	434	434	454	-0.3	-0.5	0.5	0.5	0.3	1.3	Y	89	214	27,180
10 Coffs Harbour	783	806	806	199	267	199	206	209	163	166	Y	Y	21		9,260	9,940	9,690	783	806	806	-0.4	-0.4	-0.8	0.1	0.5	0.1	Y		310	23,710
11 Albury City	561	639	703	205	210	212	283	292	166	175	Y	Y	25	28	4,160	4,000	4,070	561	639	703	2.2	3.9	4.0	2.6	4.2	4.1	Y		185	23,970
13 Tamworth Regional	738	758	777	152	192	160	115	118	172	176	Y	Y	24	53	1,880	1,930	1,960	738	758	777	0.9	1.6	2.4	1.8	2.5	3.2	Y	10	265	19,680
15 Eurobodalla	844	865	886	296	324	260	170	175	136	140	Y	Y	13	12	9,830	10,080	10,250	844	865	886	0.7	0.6	1.3	1.1	1.0	1.7	Y		193	18,050
17 Queanbeyan	414	470	533	205	172	177	94	107	204	232	Y	Y	18	16	1,330	1,390	1,390	414	470	533	-1.0	3.6	2.4	-2.2	2.6	1.3	Y		213	17,280
19 Orange	384	423	452	137	163	172	202	216	202	216	Y	Y	24	27	4,500	4,600	4,640	384	423	452	2.2	2.7	3.7	1.2	1.7	2.7	Y		237	16,550
18 Dubbo	652	690	712	204	200	205	198	204	165	183	Y	Y	3	36	5,340	5,450	5,490	652	690	712	2.3	3.4	4.4	1.8	2.7	3.9	Y		170	16,420
16 Wingecarribee	711	739	756	151	237	133	130	133	165	182	Y	Y	15	17	8,030	8,250	8,330	711	739	756	0.8	0.6	2.4	1.4	1.1	3.0	Y		331	15,730
14 Clarence Valley	907	988	1076	232	287	238	299	326	260	260	Y	Y	17	11	7,480	7,670	7,810	907	988	1076	-0.3	0.6	0.9	1.1	2.3	2.5	Y		194	14,710
21 Bathurst Regional	456	479	503	137	139	168	135	145	210	230	Y	Y	35	46	4,820	4,970	5,260	456	479	503	1.1	2.2	3.0	0.7	1.8	2.7	Y		259	15,870
24 Ballina	734	807	864	201	306	169	205	219	163	167	Y	Y	19		7,470	7,700	4,880	734	807	864	-0.2	-0.2	0.5	0.6	1.4	2.7	Y	161	383	14,110
22 Lismore	738	772	808	128	159	145			103	106	Y	Y	21	21	8,310	10,330	10,810	738	772	808	1.0	0.3	0.6	0.5	0.2	0.5	Y		313	12,790
23 Bega Valley	1081	1109	1136	455	425	402	369	378	100	100	Y	Y	10	24	10,500	11,070	11,260	1081	1109	1136	-0.7	-0.1	0.3	-0.2	0.4	0.7	Y		184	12,180
27 Byron*	758	780	802	171	217	234	231	236	220	220	Y	Y	26	33	12,580	18,810	13,150	1060	1093	1121	-1.5	1.3	1.6	1.2	3.9	4.0	Y	1	291	10,660
26 Essential Energy	497	511	518	234	225	238	122	124	196	199	Y	Y	21	40				497	511	518							Y*	18	140	9,720
20 Goulburn Mulwaree	699	724	749	215	211	183	283	292	250	259	Y	Y	30	28	3,930	4,470	4,470	699	724	749	5.6	5.6	6.2	5.8	5.6	6.2	Y		180	10,740
25 Kempsey	736	791	850	216	275	241	192	206	192	206	Y	Y	24	19	7,630	7,840	7,970	736	791	850	-1.2	-1.1	-0.2	-0.6	-0.4	0.4	Y	93	233	9,780
<i>Medians (% of LWUs basis) for &gt;10,000 Properties</i>																														
	708	738	771	200	214	197	23 out of 24 have non-res sewer usage charges				181	24 out of 24 have trade waste charges				6,040	6,200	5,490	708	738	771	0.7	1.3	1.3	0.7	1.7	2.5	0 LWUs did not achieve FCR		235
<b>LWUs with 3,001 - 10,000 Properties</b>																														
29 Armidale Dumaresq	379	379	379	164	124	87			145	145	Y	Y	34	23	4,870	4,870	5,070	379	379	379	0.5	2.1	3.1	-0.1	1.8	2.6	Y		262	8,490
31 Lithgow*	836	836	878	155	222	198	155	163	160	170	Y	Y	7		1,790	2,160	2,160	836	836	878	1.8	1.8	0.6	3.5	1.7	1.8	Y		286	7,490
30A Hawkesbury	584	602	666	238	204	182			123	131	Y	Y	30	30	8,250	8,460	8,610	584	602	666	-0.1	-0.2	-0.3	-0.2	-0.4	-0.3	Y*	167	310	7,660
30 Griffith	729	750	774	199	209	196	144	148	119	122	Y	Y	22	14	3,100	3,620	4,130	729	750	774	0.6	0.3	0.4	1.6	1.3	1.4	Y		301	7,050
33 Richmond Valley	870	896	918	220	230	217	197	202	157	162	Y	Y	17		8,000	8,000	8,000	870	896	918	1.6	0.9	1.5	2.9	2.5	2.4	Y		274	6,640
32 Mid Western Regional	651	697	739	198	258	222	223	236					17	24	3,650	3,770	3,860	651	697	739	2.8	1.1	1.5	3.3	1.8	2.1	Y		166	7,350
34 Nambucca	588	580	612	178	214	163	330	331	174	177	Y	Y	26	7	9,090	9,340	9,490	588	580	612	-1.5	0.0	0.7	-1.1	0.4	1.2	Y		258	5,720
35 Singleton	468	480	495	142	161	150	161	166	148	152	Y	Y	22	7	3,060	3,140	3,230	468	480	495	8.6	5.6	4.8	5.3	2.9	2.2	Y		198	5,700
37 Inverell	440	454	476	106	111	151							9	10	3,510	3,610	3,670	440	454	476	1.1	1.3	0.7	0.5	0.6	0.8	Y		202	4,570
41 Muswellbrook	568	581	595	212	233	224	191	201	128	131	Y	Y	14		6,850	7,030	7,190	568	581	595	11.9	6.0	2.2	10.7	5.0	1.4	Y		168	5,730
36 Parkes	412	424	436	127	149	183	120	125	180	185	Y	Y	32	12	4,100	3,250	3,450	412	424	436	5.2	3.2	3.8	3.1	1.4	2.7	Y		165	5,070
42 Corowa	625	668	685	249	230	249	128	131	166	170	Y	Y	14	17	2,010	2,000	2,000	625	668	685	2.0	2.8	2.8	2.5	3.3	3.6	Y		170	5,190

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



Table 7: Sewerage - residential charges & bills, cost recovery

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

NOTES: 1. 79 LWUs have non-residential sewerage charges which substantially meet the requirements of the Best-Practice Management Guidelines (Appendix C, page 84) and 80 LWUs have appropriate trade waste fees and charges.  
 2. The charges, bills and costs shown for each financial year are those applicable at that time and involve no CPI adjustment.  
 3. Full Cost Recovery for sewerage has been achieved by 97 utilities. These comprised 87 utilities which had either an Economic Real Rate of Return or Return on Assets of >=0 for the 2014/15 financial year, shown as 'Y' in col (11a). In addition they include 10 utilities which have significantly increased their 2015/16 charges in order to recover all their costs which are shown as 'Y\*'. A total of 2 LWUs did not achieve full cost recovery. These are shown as 'N'.  
 4. Byron also has a residential sewer usage charge of 177c/kL. Lithgow removed its sewer usage charge in 2013/14.

**Table 7A: Sewerage - 2015-16 residential multiple tariffs**

WATER UTILITY		Town	Access Charge (or Minimum) (\$) (1)	Access Charge Independent of Land Value ? (2)
87	Bombala	Bombala	646	Y
		Delegate	524	Y
105	Brewarrina	Brewarrina	774	Y
		Goodooga	336	Y
91	Cabonne	Molong	235	Y
		Canowindra, Cudal, Manildra, Cumnock, Yeoval	481	Y
		Eugowra	409	Y
92	Carrathool	Hillston	425	Y
		Goolgowi	373	Y
75	Coonamble	Coonamble	479	Y
		Gulargambone	660	Y
60	Glen Innes Severn	Glen Innes	473	Y
		Deepwater	378	Y
20	Goulburn Mulwaree Council	Goulburn	749	Y
		Marulan	905	Y
44	Gunnedah	Gunnedah	505	Y
		Curlewis	692	Y
90	Guyra	Guyra	596	Y
		Tingha	421	Y
102	Lockhart	Lockhart	490	Y
		The Rock	450	Y
		Yerong Creek	440	Y
101	Murrumbidgee	Darlington Point	375	N
		Coleambally	299	N
46	Narrabri	Narrabri	697	Y
		Wee Waa	714	Y
		Boggabri	550	Y
88	Wakool	Barham, Moulamein, Murray Downs	595	Y
		Wakool, Tooleybuc	552	Y
79	Walgett	Walgett	454	Y
		Lightening Ridge	403	Y
		Collarenebri	495	Y
96	Warren	Warren	500	Y
		Nevertire	525	Y
57	Wellington	Wellington, Geurie	611	Y
		Mumbil	571	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 - 2015-16 non-residential tariffs**

WATER UTILITY	Town	Access Charge (or Minimum)	Access Charge Independent of Land Value?	Basis for Access Charge *Proportional to square of size of service connection or water meter	Sewer Usage Charge (for estimated volume discharged to sewerage system = water usage x sewer discharge factor)	Substantially Implemented 2(c) of BPFM Yes/No
		(\$) (1)	(2)	(3)	(4)	(5)
11	Albury	Albury	Y	Meter Size (40mm: \$994.20 x SDF)	292 c/kL	Y
29	Armidale Dumaresq	Armidale	Y	Uniform Access Charge Multiple Units: \$337.40/WC; Hotels, Motels: \$124.15/WC, \$53.05/Urinals		N
24	Ballina	Ballina	Y	Service connection size* (40mm \$2611)	219 c/kL	Y
100	Balranald	Balranald	Y	Service connection size* (40mm \$1076)	15 c/kL	Y
21	Bathurst Regional	Bathurst	Y	Service connection size* (40mm: \$1813)	145 c/kL	Y
23	Bega Valley	Bega Valley	Y	Meter size* (eg. 40mm \$4544)	378 c/kL	Y
47	Bellingen	Bellingen, Urunga, Dorrigo	Y	Meter size* (eg. 40mm \$3528)	97 c/kL	Y
53	Berrigan	Berrigan, Finley, Tocumwal, Barooga	Y	Uniform Access Charge After two WCs \$106/WC		N
72	Bland	Bland	Y	Uniform Access Charge \$138/WC, \$72/Urinal		N
78	Blayney	Blayney, Millthorpe	Y	Service connection size* (40mm \$1783)	115 c/kL	Y
89	Bogan	Nyngan	Y	Service connection size* (40mm \$1944)	207 c/kL	Y
97	Bombala	Bombala	Y	Uniform Access Charge	22 c/kL	Y
		Delegat	Y	Uniform Access Charge	92 c/kL	
104	Boorowa	Boorowa	Y	Uniform Access Charge		N
87	Bourke	Bourke	Y	Uniform Access Charge		N
105	Brewarrina	Brewarrina	Y	Uniform Access Charge	\$65.55/Urinals, Additional WCs (2-5) \$195.60, additional WC \$65.55/WC	N
		Goodooga	Y	Uniform Access Charge	\$65.55/Urinals, Additional WCs (2-5) \$195.60, additional WC \$65.55/WC	
27	Byron	Byron	Y	Service connection size* (40mm \$3208)	236 c/kL	Y
91	Cabonne	Molong	Y	Service connection size (40mm \$659.10)	120 c/kL	Y
		Canowindra, Manildra, Cudal, Cumnock, Yeoval	Y	Service connection size (40mm \$667)	120 c/kL	
		Eugowra	Y	Service connection size (40mm \$647.30)	120 c/kL	
92	Carrathool	Hillston	Y	Uniform Access Charge Motels: Base+10% Base charge/unit; Service Station: 1.5 Base Charge; laundromat, Clubs & Hotels: 2xBase Charge	\$135/WC, \$68/Urinal	N
		Goolgowi	Y	Uniform Access Charge Motels: Base+10% Base charge/unit; Service Station: 1.5 Base Charge; laundromat: 2xBase Charge, Clubs & Hotels \$897	\$135/WC, \$68/Urinal	
103	Central Darling	Wilcannia	Y	Uniform Access Charge After two fittings, \$168.75/additional fitting		Y
14	Clarence Valley	Clarence Valley	Y	Service connection size* (40mm: \$2488)	326 c/kL	Y
67	Cobar	Cobar	Y	Service connection size* (40mm: \$1320)	180 c/kL	Y
10	Coffs Harbour	Coffs Harbour	Y	MF - meter factor = [water meter size (mm)/20]^2 SDF - sewage discharge factor	209 c/kL	Y
99	Coolamon	Coolamon, Gainmain	Y	Uniform Access Charge	for >2 Pedestals, \$110/Pedestal	N
50	Cooma-Monaro	Cooma, Nimmitabel	Y	Sliding Access Charge \$919 for consumption < 100 kL, increasing to \$21750 for consumption > 8,000 kL		Y
75	Coonamble	Coonamble	Y	Uniform Access Charge	88 c/kL	Y
		Gulgambone	Y	Uniform Access Charge	104 c/kL	
58	Cootamundra	Cootamundra	Y	Meter Size* 40mm: \$936	222 c/kL	Y
42	Corowa	Corowa, Howlong, Mulwala	Y	Service connection size (40mm: \$1572)	131 c/kL	Y
39	Cowra	Cowra	Y	Service connection size* (40mm: \$720)	75 c/kL	Y
54	Deniliquin	Deniliquin	Y	Uniform Access Charge	135 c/kL	Y



**Table 7B: Sewerage - 2015-16 non-residential tariffs**

WATER UTILITY	Town	Access Charge (or Minimum)	Access Charge Independent of Land Value?	Basis for Access Charge *Proportional to square of size of service connection or water meter	Sewer Usage Charge (for estimated volume discharged to sewerage system = water usage x sewer discharge factor)	Substantially Implemented	
						Yes/No	
		(\$)	(2)	(3)	(4)	(5)	
18	Dubbo	Dubbo	374	Y	Service connection size* (40mm: \$1497.92)	204 c/kL	Y
26	Essential Energy	Broken Hill	739	Y	Service connection size* (40mm: \$2957.82)	124 c/kL	Y
15	Eurobodalla	Eurobodalla	886	Y	Meter Size (Availability Factor based)* (eg. 40mm \$3544)	175 c/kL	Y
51	Forbes	Forbes	504	Y	Service Connection Size* (40mm: \$2016)	153 c/kL	Y
84	Gilgandra	Gilgandra	268	Y	Service Connection Size*(40mm: \$1066)	150 c/kL	Y
60	Glen Innes Severn	Glen Innes, Deepwater	190	Y	Service Connection Size*(40mm: \$756)	103 c/kL	Y
1	Gosford	Gosford	641	Y	Meter Size*(40mm \$3489.42)	92 c/kL	Y
20	Goulburn Mulwaree	Goulburn	411	Y	Meter Size* (40mm: \$1653)	292 c/kL	Y
		Marulan	666	Y	Meter Size* (40mm: \$2434)	292 c/kL	
80	Greater Hume	Burrumbuttock, Jindera, Holbrook, Culcairn, Henty, Walla Walla	254	Y	Service Connection Size (40mm: \$390)	136 c/kL	Y
30	Griffith	Griffith	444	Y	Service Connection Size* (40mm: \$1479)	148 c/kL	Y
94	Gundagai	Gundagai	170	Y	Service Connection (40mm: \$680)	262 c/kL	Y
44	Gunnedah	Gunnedah	197	Y	Service Connection Size (40mm: \$787.30)	156 c/kL	Y
		Curlewis	213	Y	Service Connection Size (40mm: \$853.63)	244 c/kL	
90	Guyra	Guyra	596	Y	Uniform Access Charge	Ist WC/Urinal covered by rate, 2 to 6: \$251/WC or Urinal, All additional: \$131/WC or Urinal	N
		Tingha	421	Y	Uniform Access Charge		
81	Gwydir	Bingara, Warialda	425	Y	Meter Size (eg 40mm: \$1695)	245 c/kL	Y
76	Harden	Harden	236	Y	Service Connection*(eg 40mm: \$943.11)	220 c/kL	Y
7	Port Macquarie-Hastings	Hastings	769	Y	Uniform Access Charge	135 c/kL	Y
30A	Hawkesbury	Category 1, Vol < 1kL/d	776	Y	Uniform Access Charge		Y
		Category 2, Vol : 1kL to 5 kL/d	3890	Y	Uniform Access Charge		
		Category 3, Vol < 5kL to 10 kL/d	7749	Y	Uniform Access Charge		
		Category 4, Vol : 10kL to 20 kL/d	15450	Y	Uniform Access Charge		
		Category 5, Vol > 20 kL/d	15450	Y	Uniform Access Charge	for waste > 20 kL/d, 278c/kL	
86	Hay	Hay	542	Y	Uniform Access Charge	110 c/kL	Y
37	Inverell	Inverell, Ashford, Delungra, Gilgai	476	Y	Uniform Access Charge		N
106	Jerilderie	Jerilderie	480	Y	Service Connection*(eg 32mm: \$1280)	75 c/kL	Y
77	Junee	Junee	365	Y	Uniform Access Charge \$91.70/WC, \$35.30/Urinal		N
25	Kempsey	Kempsey	786	Y	Meter Size (eg 40mm: \$2800)	206 c/kL	Y
70	Kyogle	Kyogle	261	Y	Service Connection Size*(40mm: \$1044)	103 c/kL	Y
59	Lachlan	Lachlan	308	Y	Service Connection*(eg 40mm: \$1232)	125 c/kL	Y
48	Leeton	Leeton	519	Y	Service Connection Size*(40mm: \$440.84)	87 c/kL	Y
22	Lismore	Lismore, Nimbin, Perradenya	808	Y	Uniform Access Charge		N
31	Lithgow	Lithgow, Wallerawang, Portland	756	Y	Service Connection Size (50mm: \$1001.70)	163 c/kL	Y
61	Liverpool Plains	Quirindi, Werris Creek	334	Y	Service Connection Size*(40mm: \$1174)	174 c/kL	Y
102	Lockhart	Lockhart	168	Y	Service Connection Size*(40mm: \$646)	191 c/kL	Y
		The Rock	288	Y	Service Connection Size*(40mm: \$1117)	82 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	412	Y	Uniform Access Charge	236 c/kL	Y
38	Moree Plains Shire	Moree, Mungindi, Balone, Bogabilla, Gurly	650	Y	Service Connection Size (40mm: \$1259.40)	120 c/kL	Y
65	Murray	Moama, Mathoura	285	Y	Service Connection Size*(40mm: \$1141.34)	54 c/kL	Y
101	Murrumbidgee	Darlington Point	375	N	Land Value		N
		Coleambally	299	N	Land Value		
41	Muswellbrook	Muswellbrook, Denman	248	Y	Service Connection Size*(40mm: \$992)	201 c/kL	Y



Table 7B: Sewerage - 2015-16 non-residential tariffs

WATER UTILITY	Town	Access Charge (or Minimum)	Access Charge Independent of Land Value?	Basis for Access Charge *Proportional to square of size of service connection or water meter	Sewer Usage Charge (for estimated volume discharged to sewerage system = water usage x sewer discharge factor)	Substantially Implemented 2(c) of BPF Yes/No	
							(1)
34	Nambucca	Nambucca	239	Y	Service Connection Size (40mm: \$956)	331 c/kL	Y
46	Narrabri	Narrabri	697	Y	Uniform Access Charge	\$108/Pedestal, Cistern	N
		Wee Waa	714	Y	Uniform Access Charge	\$108/Pedestal, Cistern	
		Bogabri	550	Y	Uniform Access Charge	\$87/Pedestal/Cistern	
63	Narrandera	Narrandera	375	Y	Service Connection Size* (40mm: \$1500)	123 c/kL	Y
62	Narromine	Narromine, Trangie	202	Y	Service Connection Size*(40mm: \$806)	205 c/kL	Y
83	Oberon	Oberon	152	Y	Service Connection Size*(38mm: \$550)	225 c/kL	Y
19	Orange	Orange	146	Y	Service connection Size 40mm: \$584	216 c/kL	Y
71	Palerang	Bungendore, Braidwood, Captains Flat	1126	Y	Service connection Size 40mm: \$4504	279 c/kL	Y
36	Parkes	Parkes	242	Y	Meter Size* (40mm: \$968)	125 c/kL	Y
17	Queanbeyan	Queanbeyan	432	Y	Service Connection Size (40mm: \$1885)	107 c/kL	Y
33	Richmond Valley	All	133	Y	Service Connection Size*(40mm: \$534)	202 c/kL	Y
3	Shoalhaven	Shoalhaven	772	Y	Meter Size (40mm: \$2190)	140 c/kL	Y
35	Singleton	Singleton	495	Y	Service connection Size* 40mm: \$1980	166 c/kL	Y
52	Snowy River	Snowy River	870	Y	Meter Size (40mm: \$3480)	315 c/kL	Y
13	Tamworth	Tamworth	501	Y	Meter Size (40mm: \$2001)	118 c/kL	Strata lot availability: \$777
69	Temora	Temora	258	Y	Meter Size* (40mm: \$1030.80)	36 c/kL	Y
68	Tenterfield	Tenterfield, Urbenville	444	Y	Service Connection Size*(40mm: \$1776)	107 c/kL	Y
93	Tumbarumba	Tumbarumba, Khancoban	357	Y	Meter Size (40mm: \$1428)	119 c/kL	Y
43	Tumut	Tumut	615	Y	Meter Size* (40mm: \$2480)	190 c/kL	Y
6	Tweed	Tweed	782	Y	Service Connection Size*(40mm: \$3128)	150 c/kL	Y
45	Upper Hunter	Murrurundi, Merriwa, Aberdeen, Scone	603	Y	Meter Size (40mm \$1213)	96 c/kL	Y
73	Upper Lachlan	Crookwell, Gunning, Taralga	752	Y	Uniform Access Charge	269 c/kL	Y
85	Uralla	Uralla	378	Y	Uniform Access Charge	105 c/kL	Y
107	Urana		485	Y	Uniform Access Charge		N
9	Wagga Wagga	Wagga Wagga	112	Y	Meter Size (40mm \$448)	200 c/kL	Y
88	Wakool	Barham, Moulamein, Murray Downs	653	Y	Uniform Access Charge	Hotels: SC+20%SC/Cistern+10%SC/Room, Clubs: SC+20%SC/Cistern, Shops/Motels/Units: SC+10%SC	N
		Wakool, Tooleybuc	610	Y	Uniform Access Charge	Hotels: SC+20%SC/Cistern+10%SC/Room, Clubs: SC+20%SC/Cistern, Shops/Motels/Units: SC+10%SC	
98	Walcha	Walcha	450	Y	Service Connection Size*(40mm: \$1800)	97 c/kL	Y
79	Walgett	Walgett	454	Y	Uniform Access Charge	Additional SC/Pedestal, \$71.16/Cistern	N
		Lightening Ridge	403	Y	Uniform Access Charge	Additional SC/Pedestal, \$63.28/Cistern	
		Collarenebri	495	Y	Uniform Access Charge	Additional SC/Pedestal, \$64.05/Cistern	
96	Warren	Warren, Nevertire	460	Y	Uniform Access Charge	180 c/kL	Y
55	Warrumbungle	Coolah, Dunedoo, Coonabarabran, Baradine	301	Y	Meter Size* (40mm \$1202)	79 c/kL	Y
95	Weddin	Grenfell	561	Y	Uniform Access Charge		N
57	Wellington	Wellington, Mumbil, Geurie	335	Y	Meter Size* (40mm \$1340.97)	87 c/kL	Y
74	Wentworth	Wentworth, Nimatjira	720	Y	Uniform Access Charge	Additional SC/Pedestal, \$102/Cistern	N
16	Wingecarribee	Wingecarribee	622	Y	Meter Size* (40mm: \$2489)	133 c/kL	Y
2	Wyong	Wyong	477	Y	Meter Size* (40mm: \$1085.37)	83 c/kL	Y
56	Yass Valley	Yass	620	Y	Uniform Access Charge	230 c/kL	Y
49	Young	Young	720	Y	Uniform Access Charge		N

**Table 7C: Sewerage - Liquid trade waste fees and charges - 2015-16**

WATER UTILITY	Does LWU have appropriate Liquid Trade Waste Policy <sup>1,2</sup> ?  (1) <i>2014-15</i>	Appropriate Trade Waste Fees & Charges (Yes/No)  (2)	All liquid trade waste approvals (Yes/No)  (3)	ANNUAL TRADE WASTE FEE (\$)			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)			Non Compliance Excess Mass Charge for BOD (Yes/No)  (13)
				Category 1  (4)	Category 2  (6)	Category 3  (7)				BOD  (10)	Suspended Solids  (11)	Oil & Grease  (12)	
11 Albury City	Yes	Yes	Yes	80	80	344		175	4.9	36	24	60	
29 Armidale Dumaresq	Yes*	Yes	Yes	85	170	424	154	145	12.5				Yes
24 Ballina	Yes	Yes	Yes	85	175	580	124	167	12.7	76	96	134	
100 Balranald		Yes		113	113	510	77	130	12.9	65	80	115	
21 Bathurst Regional	Yes	Yes		103	103	686	96	230	18.1	91	115	160	
23 Bega Valley	Yes	Yes		128	128	128		100	9.0				Yes
47 Bellingen	Yes	Yes		200	200		134	142	14.9				
53 Berrigan		No											
72 Bland	Yes	Yes		95	170	564	80	156	14.4	71	91	127	Yes
78 Blayney	Yes	Yes	Yes	85	85	319	78	160	17.1	80	100	145	Yes
89 Bogan	Yes	Yes		85	169		85	161	15.1				Yes
97 Bombala		Yes		113	113	746		22					
104 Boorowa	Yes*	Yes		134	134	134	62						
87 Bourke	Yes	Yes						177	14.5				
105 Brewarrina	Yes	No											
27 Byron	Yes	Yes	Yes	150	250	420		220	14.0	152	152	179	Yes
91 Cabonne	Yes	Yes		92	184	620	85	160	15.8	60	80	110	
92 Carrathool		No											
103 Central Darling		Yes											
14 Clarence Valley	Yes	Yes		134	134	957	145	260	22.7				
67 Cobar	Yes	Yes	Yes	95	190	630	87	175	16.0	75	100	125	
10 Coffs Harbour	Yes	Yes		194	388	922	135	166	15.3	75	96	135	
99 Coolamon		No											
50 Cooma-Monaro	Yes*	Yes		95	95	95	123	170	15.5	235	209	109	
75 Coonamble		No											
58 Cootamundra	Yes	Yes		114	227	341	114	200	13.0	65	85	115	
42 Corowa	Yes	Yes		91	183	613	85	170	15.7				
39 Cowra	Yes*	Yes		90	180	610	80	161	14.8	73	93	130	Yes
54 Deniliquin	Yes	Yes		93	185	615	87	170	15.6	76	98	137	
18 Dubbo	Yes	Yes	Yes	91	182	609	85	183	15.6	76	99	138	Yes
26 Essential Energy	Yes	Yes		106	711		99	199	18.2	89	113	159	Yes
15 Eurobodalla	Yes	Yes	Yes	95	95	507		140	13.0	82	102	133	
51 Forbes	Yes	Yes		472	472		132	70					
84 Gilgandra	Yes	Yes	Yes	87	174	583	81	168	15.4	73	94		Yes
60 Glen Innes Severn	Yes	Yes		91	182	610	85	169	15.6	76	98	138	
1 Gosford	Yes	Yes	Yes	73	231	1943	117	168	14.4	75	95	134	
20 Goulburn Mulwaree	Yes	Yes	Yes	100	110	366	160	259	23.3	80	104	144	Yes
80 Greater Hume	Yes	Yes		84	170	570	80	160	13.5	70	95	130	
30 Griffith	Yes	Yes	Yes	81	180	486	65	122	7.0	139	138		
94 Gundagai		Yes		190	190	190		316					
44 Gunnedah	Yes	Yes		177	177	343	106	150	13.0	69	85	117	
90 Guyra	Yes*	Yes	Yes	147	147	147							
81 Gwydir	Yes	Yes		77	77	430	60	130	15.0				
76 Harden		Yes		160	160	160	160	220					
7 Port Macquarie-Hastings	Yes	Yes	Yes	188	188	580	99	158	14.4	72	87	128	
30A Hawkesbury	Yes	Yes		776	3890	7749	87	131		289	251	354	Yes
86 Hay	Yes	No	Yes										
37 Inverell		No											
106 Jerilderie	Yes	Yes		75	150	300	100	169	15.6	90	115	162	
77 Junee	Yes	No											
25 Kempsey	Yes	Yes	Yes	121	121	121	144	206	18.8	120	229	229	
70 Kyogle	Yes	Yes	Yes	84	84	480	68	103	3.0	54	69	97	



**Table 7C: Sewerage - Liquid trade waste fees and charges - 2015-16**

WATER UTILITY	Does LWU have appropriate Liquid Trade Waste Policy <sup>1,2</sup> ?	Appropriate Trade Waste Fees & Charges (Yes/No)	All liquid trade waste approvals (Yes/No)	ANNUAL TRADE WASTE FEE (\$)			Reinspection Fee \$/inspection Cat/1/2/3	Category 2 Trade Waste Usage Charge (c/kL)	Category 2 Non Compliance Trade Waste Usage Charge (\$/kL) (9A)	Excess Mass Charge (c/kg)			Non Compliance Excess Mass Charge for BOD (Yes/No)
				Category 1	Category 2	Category 3				BOD	Suspended Solids	Oil & Grease	
	(1) 2014-15	(2)	(3)	(4)	(6)	(7)	(8)	(9)	(9A)	(10)	(11)	(12)	(13)
59 Lachlan	Yes	Yes	Yes	149	149	149	149	145	15.0				
48 Leeton	Yes*	Yes		161	161	615	91	183	16.7	68	105	148	
22 Lismore	Yes*	Yes	Yes	98	98	98	98	106		74	100	124	
31 Lithgow	Yes	Yes	Yes	150	223	409	85	170	17.6	75	96	135	
61 Liverpool Plains	Yes*	Yes		87	87	589	83	300	14.0	200	200	300	
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		93	185	617	85	200	16.0	100	100	100	
65 Murray	Yes	Yes		91	182	608	84	169	15.6	77	98	137	
101 Murrumbidgee	Yes	No											
41 Muswellbrook	Yes	Yes	Yes	112	175	586	161	131	15.8	63	83	115	Yes
34 Nambucca	Yes	Yes	Yes	94	156	156	136	177	15.8	113	113		
46 Narrabri	Yes*	Yes	Yes	580	830	860	160	200		200			
63 Narrandera	Yes	No											
62 Narromine	Yes	Yes		91	91	585	84	205					
83 Oberon	Yes	No											
19 Orange	Yes	Yes	Yes	82	82	555	77	216	15.6	173	160	380	Yes
71 Palerang	Yes	Yes		95	191	637	90	250	18.0	150	200	200	
36 Parkes	Yes	Yes	Yes	190	190	680	96	185	14.4				
17 Queanbeyan	Yes	Yes	Yes	120	120	780	96	232	19.7	257	237	165	
33 Richmond Valley	Yes	Yes		91	168	567	159	162	14.9	73	94	131	
3 Shoalhaven	Yes	Yes	Yes	120	149	582	74	168	15.7	74	94	135	
35 Singleton	Yes	Yes	Yes	92	92	92	150	152	15.5	65	80	110	
52 Snowy River	Yes	Yes		207	805	1675	140	180	20.0	300	200	200	
13 Tamworth Regional	Yes	Yes	Yes	143	143	633	97	176	15.0	79	102	150	
69 Temora		No											
68 Tenterfield	Yes	Yes	Yes	130	130	591	80	149	14.9				
93 Tumarumba	Yes	Yes	Yes	69	69	69	65	135	11.9	75	105	176	
43 Tumut	Yes	Yes	Yes	145	300	610	141		14.5	165	150	270	
6 Tweed	Yes	Yes	Yes	106	152	791	99	210	15.0	90	110	170	
45 Upper Hunter	Yes	Yes		398	398	398	152		17.0	76	95	130	
73 Upper Lachlan	Yes	No											
85 Uralla		Yes	Yes	72	72	72		125					
107 Urana		No											
9 Wagga Wagga	Yes	Yes	Yes	98	98	639	92	180	16.4	80	100	140	
88 Wakool		No											
98 Walcha	Yes	Yes		83	165		79	150	13.9				
79 Walgett	Yes	No											
96 Warren	Yes	Yes		87	175	585	79	178	14.6	73	100	130	
55 Warrumbungle	Yes	No		85	85	200	80	160	14.5	73	95	132	Yes
95 Weddin	Yes*	No											
57 Wellington	Yes	Yes	Yes	82	82	82	175	157	15.0				
74 Wentworth	Yes	Yes		93	186	624	87	173	16.0	78	100	100	
16 Wingecarribee	Yes	Yes	Yes	56	174	592	84	182	16.1	76	94	140	
2 Wyong	Yes	Yes	Yes	90	360	605	84	148	14.4	75	96	135	Yes
56 Yass Valley	Yes	Yes	Yes	91	283	508		170					
49 Young	Yes	Yes		99	177	587	99	156	14.4	71	91	127	Yes

**Notes:**

1. Yes\* in column 1 indicates that the LWU has adopted a trade waste policy before 2009, which needs significant updating.
2. 85% of LWUs have an appropriate trade waste policy and 81% 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 (page 81 and 82).

**Table 8: 2014-15 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 (Potable + Non-potable) including Recycled	BULK WATER EXPORTS (Potable + Non-potable) See Table 8A <sup>11</sup>  W14 = W14.1+W14.2+W15+W28.1	RECYCLED WATER		WATER SOURCES FOR URBAN WATER USE (ML)								
	REVENUE WATER (Potable)							NON-REVENUE WATER (Potable) See Table 8A				Recycled <sup>11</sup>			Non-potable excluding recycled					Total Non-Potable Including Recycled	NON-URBAN See Table 8A <sup>11</sup>	TOTAL (Urban + Non-Urban) see also Table 15	Surface Water (15) W1	Ground Water (16) W2	Recycled Water (16b) W4	Bulk Purchase (17) W5	Total Sourced Water Excluding Non Urban Recycled  =Sum (15) to (17)  (17b) W7			
	Residential	Commercial	Industrial	Rural	Institutional	Public Parks & Gardens	Total Revenue Water	Losses	Unbilled	Total Non-Revenue Water	Res	Non Res	Total Non Potable	Res	Non Res	Total Non Potable	W11 =W11.1+W11.2+W20+W21+W25-W25.1+W28.4											W22+W23+W24+W25.1	W26	Urban Use Only
	W8.1	W9.1					W8.1 + W9.1	Real Loss (Leakage) <sup>8</sup>	Apparent Loss (Illegal use, meter error)	(Fire Fighting, Flushing, Public Amenities)	W10.1	W20	W21 + W25-W25.1	W20+W21+W25-W25.1	W8.2	W9.2 + W10.2	W11.2 = W8.2 + W9.2+W10.2											W20+W21+W25-W25.1+W11.2		
(1)	(2)	(3)	(4)	(5)	(6)	Sum (1) to (6) (7)	(8)	(8a)	(8b)	W10.1 (8) + (8a) + (8b) (9)	W11.1 = W8.1 + W9.1 + W10.1 (7) + (9) (10)	(11)	(11a)	(11b)	(12a)	(12b)	(12c)	(12d) (11b)+(12c)	(13)	(14)	(11c)	(11b)+(11c) (11d)	(15) W1	(16) W2	(16b) W4	(17) W5	(17b) W7			
Sydney Water	351,000						464,000				464,000	2,100	9,700	11,800	0	1200	1200	13000	529,000	0		43,100	6,500	0	38,300	510,000	554,000			
Hunter Water	38,000						56,000				67,000	0	2,900	2,900	0	0		2900	70,000	380		4,600	64,300	2,700	3,000	0	70,000			
Water NSW																		538,000	521,000			888,100	0		2,000	890,000				
<b>LWUs with &gt; 10,000 Properties</b>																														
1	Gosford	10,955	1,279	563	10	481	174	13,462	1,418	290	76	1,784	15,246	19	19	70	70	89	15,359	286		19	13,103	71	13	2,429	15,640			
2	Wyong	9,132	2,548	179	43	433	89	12,424	696	802	0	1,498	13,922	521	521	1	0	1	522	14,444	2,650	238	759	15,763	2	911	551	17,227		
3	Shoalhaven	6,273	1,685	1,255	620	279	75	10,187	1,596	215	67	1,878	12,065	178	178	3	1,923	1,926	2,104	14,169		1,527	1,705	13,740		173	77	13,990		
4	Rous (Bulk Supplier) (NO SGE)	0	38	0	768	0	0	806	230	225	53	508	1,314						1,314	9,869			11,183				11,183			
5	MidCoast	5,102	1,547	497	0	148	104	7,398	812	359	175	1,346	8,744	412	412				412	9,156		529	941	7,845	526	373		8,744		
6	Tweed	5,545	1,443	182	117	232	123	7,642	520	461	43	1,024	8,666	500	500				500	9,166	0	51	551	9,284		385	5	9,674		
7	Port Macquarie-Hastings (Unfiltered)	4,188	947	29	35	252	56	5,507	456	127	28	611	6,118	299	299	195	195	494	6,612		87	386	5,990		189		6,179			
8	Riverina (Groundwater) (NO SGE)	8,513	1,977	1,251	1,017	687	616	14,061	937	551	74	1,562	15,623						15,623				2,183	12,596		32	14,811			
10	Coffs Harbour	3,912	1,147	0	0	63	90	5,212	444	86	42	572	5,784	309	309	9	9	318	6,102		704	1,013	5,688				5,688			
11	Albury	4,835	585	223	38	600	387	6,668	445	261	35	741	7,409			1	217	218	7,627	379	2,398	2,398	6,238				6,238			
12	Fish River WS (Unfiltered, Bulk Supplier)	0	0	0	120	0	0	120	1,555		0	1,555	1,675				1,024	1,024	1,024	2,699	2,793			5,961				5,961		
13	Tamworth Regional	3,691	1,063	1,666	151	49	424	7,044	548	235	0	783	7,827				140	140	7,967		4,278	4,278	6,890	1,045			7,935			
14	Clarence Valley	2,793	747	368	488	0	93	4,489	850	253	450	1,553	6,042	195	195	47	47	242	6,284			195	5,894		195		6,089			
15	Eurobodalla	2,112	468	6	13	125	19	2,743	329	204	17	550	3,293	223	223				3,516		20	243	3,132	161	243		3,536			
16	Wingecarribee	3,092	537	0	141	250	20	4,040	400	67	28	495	4,535						4,535		164	164	515	163	4,447		5,125			
17	Queanbeyan (Reticulator)	2,837	253	140	0	69	145	3,444	375	73	45	493	3,937						3,937							3,937	3,937			
18	Dubbo	5,088	1,043	32	39	605	734	7,541	670	124	44	838	8,379			208	208	208	8,587		2,183	2,183	6,148	1,999			8,147			
19	Orange	2,717	670	79	115	201	50	3,832	403	81	165	649	4,481	2,826	2,826			2,826	7,307			2,826	4,748	53	2,826		7,627			
20	Goulburn Mulwaree	1,403	234	270	9	264	45	2,225	258	48	13	319	2,544	194	194	10	10	204	2,748	2	1,612	1,806	2,558		46		2,604			
21	Bathurst Regional	3,206	1,131	1,003	22	0	0	5,362	416	167	0	583	5,945			32	1,042	1,074	7,019	6	3,712	3,712	6,642	31	653		7,326			
22	Lismore (Reticulator)	1,959	788	0	116	0	0	2,863	194	121	0	315	3,178						3,178		5	5	195			3,238	3,433			
23	Bega Valley (Unfiltered)	1,811	445	72	5	182	43	2,558	213	217	49	479	3,037	367	367	57	57	424	3,461		79	446	1,635	1,402	436		3,473			
24	Ballina (Reticulator)	2,345	372	16	43	106	10	2,892	729	62	19	810	3,702	517	517				4,219			517	132		575	3,604	4,311			
25	Kempsey (Groundwater)	1,705	426	241	448	129	11	2,960	409	206	141	756	3,716	60	60				3,776	27	17	77		3,530	77		3,607			
26	Essential Energy	2,471	280	1,182	0	270	27	4,230	310	155	0	465	4,695	776	776	872	872	1,648	6,343			776	907		525	4,185	5,617			
27	Byron (Reticulator)	1,758	777	0	0	0	0	2,535	193	83	0	276	2,811	288	288	285	285	573	3,384		156	444	370		285	2,371	3,026			
28A	Goldenfields (Reticulator) (NO SGE)	1,918	625	10	2,430	304	157	5,444	363	176	66	605	6,049			22	112	134	6,183							5,759	5,759			
28B	Goldenfields (Bulk Supplier) (NO SGE)	0	0	0	0	0	0		440		0	440	440						440	8,988			4,136	4,435		417	8,988			
Totals (excluding bulk suppliers) for LWUs with >10,000 Properties												171,180		0	7,684	7,684	58	6,213	6,271	13,955		17,760	25,444	140,880	25,851	8,022	31,098	205,875		
<b>LWUs with 3,001 - 10,000 Properties</b>																														
29	Armidale Dumaresq	1,598	249	0	92	444	55	2,438	366	52	0	418	2,856			64	64	64	2,920			910	910	2,920				2,920		
30	Griffith	3,738	1,216	0	377	261	260	5,852	390	130	123	643	6,495			155	565	720	7,215			158	158			6,606	6,606			
31	Lithgow	999	309	61				1,369	91	61		152	1,521			1	1	1	1,522					1,298		693	1,991			
32	Mid-Western Regional	1,364	494	48	17	152	62	2,136	172	160	12	344	2,480			0	94	94	2,575			2	2	2,285	512		2,797			
33	Richmond Valley	1,082	390	1,068	17	0	1	2,558	192	71	14	277	2,835			13	13	13	2,848			407	420	2,451		579	3,030			
34	Nambucca (Groundwater)	784	314	42	77	54	1	1,272	155	18	8	181	1,453						1,453			79	79		1,481		1,481			
35	Singleton	1,499	525	77	24	238	0	2,363	177	71	13	261	2,624				1,118	1,118	1,118	3,742				3,711			3,711			
36	Parkes	1,410	178	0	126	144	170	2,028	380	122	41	543	2,571	172	172	20	1,920	1,940	4,683	13		172	1,950	1,600	95	336	3,981			
37	Inverell	950	200	300	0	0	150	1,600	109	100	0	209	1,809						1,809				90	20		2,500	2,610			



**Table 8: 2014-15 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 (Potable + Non-potable) including Recycled	BULK WATER EXPORTS (Potable + Non-potable) See Table 8A <sup>11</sup>  W14 = W14.1+W14.2+W15+W28.1	RECYCLED WATER		WATER SOURCES FOR URBAN WATER USE (ML)									
	REVENUE WATER (Potable)							NON-REVENUE WATER (Potable) See Table 8A				Total Potable Urban Water Supplied Revenue + Non-Revenue Water	Recycled <sup>11</sup>			Non-potable excluding recycled				Total Non-Potable Including Recycled	NON-URBAN See Table 8A <sup>11</sup>	TOTAL (Urban + Non-Urban) see also Table 15	Surface Water (15) W1	Ground Water (16) W2	Recycled Water (16b) W4	Bulk Purchase (17) W5	Total Sourced Water Excluding Non Urban Recycled =Sum (15) to (17) (17b) W7				
	Residential	Commercial	Industrial	Rural	Institutional	Public Parks & Gardens	Total Revenue Water	Losses		Unbilled	Total Non-Revenue Water		Res	Non Res	Total Non Potable	W11 =W11.1+W11.2+W20+W21+W25-W25.1+W28.4	W14											W22+W23+W24+W25.1	W26	Urban Use Only	
	W8.1	W9.1					W8.1 + W9.1	Real Loss (Leakage) <sup>8</sup>	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
(1)	(2)	(3)	(4)	(5)	(6)	Sum (1) to (6) (7)	(8)	(8a)	(8b)	(9)	(7) + (9) (10)	(11)	(11a)	(11b)	(12a)	(12b)	(12c)	(12d)	(10)+(12d) (13)	(14)	(11c)	(11b)+(11c) (11d)	(15) W1	(16) W2	(16b) W4	(17) W5	(17b) W7				
38	Moree Plains (Groundwater)	2,123	305	0	38	0	63	2,529	288	120	25	433	2,962			322	322	38	13	51	373	3,335	25	471	793	433	2,803	827		4,063	
39	Cowra	1,032	638	175	0	18	41	1,904	220	0	774	994	2,898					116		116	116	3,014	5			2,878			141	3,019	
40	Central Tablelands (NO SGE)	756	208	193	301	43	18	1,519	121	2	70	193	1,712								1,712	141			1,787	198				1,985	
41	Muswellbrook	1,315	338	23	0	134	77	1,887	126	74	10	210	2,097			892	892				892	2,989			2,100	29				2,129	
42	Corowa	1,413	289	998	2	17	86	2,805	223	74	14	311	3,116								3,116		184	184	3,077	26				3,103	
43	Tumut	863	105	209	53	29	28	1,287	114	23	6	143	1,430			94	94	5	45	50	144	1,574		7	101	1,397		132		1,529	
44	Gunnedah (Groundwater)	1,698	823	0	55	190	90	2,856	124	124	0	248	3,104								3,104		603	603		2,553				2,553	
45	Upper Hunter	1,247	196	549	5	50	101	2,148	373	54	0	427	2,575			125	125				125	2,700		1	126	2,165	410	125		2,700	
46	Narrabri (Groundwater)	1,185	805	0	0	4	12	2,006	292	292	18	602	2,608								2,608		432	432		2,372				2,372	
47	Bellingen (Unfiltered)	555	107	99	125	33	36	955	110	27	12	149	1,104						34	34	34	1,138	2			164	959			1,123	
48	Leeton	1,528	180	185	64	68	372	2,397	243	60	0	303	2,700								2,700				2,397					2,397	
49	Young (Reticulator)	687	160	110	0	65	99	1,121	92	26	6	124	1,245			176	176				176	1,421		4	180			180	1,311	1,491	
50	Cooma-Monaro	1,090	140	55	65	15	15	1,380	92	61	0	153	1,533						292	292	292	2,349	358	9	9	2,466	190			2,656	
51	Forbes	1,177	529	0	0	98	28	1,832	123	58	44	225	2,057								2,057		5	39	745		39			784	
52	Snowy River (Unfiltered)	404	38	27	3	60	1	533	73	0	0	73	606			39	39				39	645			590					1,590	
53	Berrigan (Dual Supply)	750	180	0	22	110	60	1,122	115	14	0	129	1,251			590	590	490	214	704	1,294	2,545			54	54	2,315			2,315	
54	Deniliquin	1,450	220	0	0	0	25	1,695	150	37	0	187	1,882								1,882		54	54	2,315					2,315	
55	Warrumbungle	543	205	0	0	0	0	748	239	13	0	252	1,000					10	10	10	1,010		59	59	717	553				1,270	
56	Yass Valley	480	125	0	0	0	30	635	106	3	100	209	844								844		4		821	27				848	
<i>Totals (excluding bulk suppliers) for 3,000 - 10,000 Properties</i>													61,370			0	2,423	2,423	835	4,359	5,195	7,618	68,990	553	3,385	5,808	40,797	13,769	1,398	12,166	68,130
<i>LWUs with 1,501 - 3,000 Properties</i>																															
57	Wellington	548	450	0	0	28	20	1,046	90	156	3	249	1,295								1,295					1,196	36				1,232
58	Coolamundra (Reticulator)	507	57	29	1	50	8	652	75	11	30	116	768			138	138				138	906		348	486				757		757
59	Lachlan	1,123	634	0				1,793	134	79		213	2,006					29		29	29	2,035		116	116						
60	Glen Innes Severn	341	90	0	0	28	1	460	38	11	1	50	510								510					489	12				501
61	Liverpool Plains	501	75	45	16	24	75	736	95	25	5	125	861						9	9	9	870	50			261	721				982
62	Narromine (Groundwater)	840	180	0	5	20	15	1,060	133	18	8	159	1,219						73	73	73	1,292				73	1,332				1,405
63	Narrandera (Groundwater)	1,219	688	0				1,946	146	86		232	2,177									2,177		3	3						
65	Murray (Dual Supply)	453	193	3	2	10	1	662	92	16	0	108	770					302	204	506	506	1,275		90	90	1,683					1,683
66	Cobar WB (NO SGE)							273	20	12		32	305					37		37	37	342				4,569					4,569
67	Cobar	658	76	36	20	14	49	853	57	38	0	95	948								948					1,222					1,222
68	Tenterfield	249	62	2	2	2	4	321	21	14	0	35	356			44	44				44	400	60		44	444			14		458
70	Kyogle	241	45	28	29	22	7	372	25	17	0	42	414			80	80				80	494			80	313	12		59		384
71	Palerang	320	70	0	1	1	1	393	74	21	3	98	491			58	58				58	549		27	85	213	278				491
73	Upper Lachlan	250	25	0	0	15	30	320	23	30	15	68	388									388		50	50	435	20				455
74	Wentworth (Dual Supply)	212	160	0				372	25	17		42	414					869		869	869	1,283				2,271					2,271
76	Harden (Reticulator)	220	3	0	387	6	6	620	41	22	6	69	689			34	34				34	723			34			34	514		548
75	Coonamble (Groundwater)	882	50	0	58	21	100	1,111	74	49	0	123	1,234								1,234	5	59	59		1,146					1,146
79	Walgett (Dual Supply)	1,160	875	0	0	0	0	2,035	140	81	0	221	2,256					1,000		1,000	1,000	3,256				1,020	600				1,620
80	Greater Hume	371	55	0	50	4	6	486	65	16	20	101	587			61	61				61	648			61	169	61	379			609
<i>Totals (excluding bulk suppliers) for 1,500 - 3,000 Properties</i>													17,690			0	415	415	2,237	286	2,523	2,938	20,620	115	693	1,108	14,189	4,326	95	1,723	20,333







## Table 8: 2014-15 NSW urban water supplied

### Notes:

1. **Source:** Data provided by the 105 regional NSW water utilities for the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*. 96 of these utilities are responsible for water supply. Columns (11) and (11a) report the volume of recycled water use and include a further 9 utilities which are responsible for sewerage only.
2. The volumes of water supplied by Sydney and Hunter Water Corporations and Water NSW (from January 2015, formerly Sydney Catchment Authority) were obtained from the *National Performance Report 2014-15* 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 on pages 33 and 34), 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 on page 172)), 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 2014-15 urban water supplied for regional NSW was 291,000 ML (column (13)), of which 260,000 ML (i.e. 89%) (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 2% 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 20,000 ML (column (12c)) which included 11,600 ML recycled urban water supply (column (11)+(11a)). These volumes are 7% and 4% respectively of the 291,000 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 section H4.7 on page 357). This results in a volume of recycled water of 39,000 ML (see also Table 15 on page 192) which is 22% of the total volume of sewage collected. Refer also to Figure 55 on page 92, figures 27 and 26a of Table 4 on page 111 and graph 13 on page 208.
12. All LWUs reported nil for Volume Sourced from Desalination (W3), Bulk Recycled Water Purchased (W6), Water Supplied for Environmental Flows (W13) and Bulk Recycled Water Exports (W15).







**Table 8A: 2014-15 Total urban potable water supplied/produced**

WATER UTILITY	NON-REVENUE POTABLE WATER SUPPLIED <sup>2</sup> - (ML)												REVENUE WATER <sup>1</sup> Potable (ML) Excl Bulk	TOTAL URBAN WATER SUPPLIED Potable (ML)		TOTAL URBAN WATER PRODUCED Potable (ML)	BULK WATER EXPORTS			RECYCLED WATER (ML)						
	REAL LOSS <sup>4</sup> (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 <sup>2</sup>	Apparent Loss + Unbilled Water		Reported	Adopted	Reported	Adopted			Col(14) + Col(17)			Col(15) + Col(17)	Col(19) + Col(20a) - W5.1	Potable <sup>1</sup>	Non Potable	Recycled	Agricultural	Environmental	On-site	Mngd Aquifer Recharge
	Reported	Adopted	Reported	Reported	Adopted		Reported	Adopted						(1) + (10)			(2) + (12)									
	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)	(17) W8.1+W9.1	Col(14) + Col(17)	Col(15) + Col(17)	Col(19) + Col(20a) - W5.1	W14=W14.1+W14.2+W15	(21) W22	(22) W23	(23) W24	(24) W25.1	(24) W26				
44	Gunnedah Shire Council	45	124	4%	19	20	39		39	1%	124	4%	84	248	8%	2,856	2,940	3,104						603	603	
45	Upper Hunter Shire Council	373	373	14%	3	51	54		54	2%	54	2%	427	427	17%	2,148	2,575	2,575						126	126	
46	Narrabri Shire Council	292	292	11%	283	9	292	18	310	12%	310	12%	602	602	23%	2,006	2,608	2,608						432	432	
47	Bellingen Shire Council	93	110	10%	12	15	27	12	39	4%	39	4%	132	149	13%	955	1,087	1,106	2							
48	Leeton Shire Council	150	243	9%	10	50	60		60	2%	60	2%	210	303	11%	2,397	2,607	2,700								
49	Young Shire Council	92	92	7%	1	20	21	6	27	2%	32	3%	119	124	10%	1,121	1,240	1,245						180	180	
50	Cooma-Monaro Council		92	6%							61	4%		153	10%	1,380	1,380	1,533						5	5	
51	Forbes Shire Council	58	123	6%	14	44	58	44	102	5%	102	5%	160	225	11%	1,832	1,992	2,057	358					9	9	
52	Snowy River Shire Council	45	73	12%							0	0%	45	73	12%	533	578	606	5					39	39	
53	Berrigan Shire Council	115	115	9%	8	6	14		14	1%	14	1%	129	129	10%	1,122	1,251	1,251						590	590	
<i>Medians (% of LWUs basis) for 3,000 to 10,000 Properties</i>				7%							4%				11%											
<i>LWUs with 1,501 - 3,000 Properties</i>																										
54	Deniliquin Council	150	150	8%		20	20		20	1%	37	2%	170	187	10%	1,695	1,865	1,882						54	54	
55	Warrumbungle Shire Council	239	239	24%	5	8	13		13	1%	13	1%	252	252	25%	748	1,000	1,000						59	59	
56	Yass Valley Council	106	106	13%	1	2	3	100	103	12%	103	12%	209	209	25%	635	844	844	4							
57	Wellington Council	90	90	7%	6	150	156	3	159	12%	159	12%	249	249	19%	1,046	1,295	1,295								
58	Cootamundra Shire Council	75	75	10%	1	10	11	30	41	5%	41	5%	116	116	15%	652	768	768						486	486	
59	Lachlan Shire Council		134	7%							79	4%		213	11%	1,793	0	2,006								
60	Glen Innes Severn Shire Council	38	38	7%	1	1	2	1	3	1%	12	2%	41	50	10%	460	501	510								
61	Liverpool Plains Shire Council	77	95	11%	9	16	25	5	30	3%	30	3%	107	125	15%	736	843	861	50							
62	Narramine Shire Council	133	133	11%	2	16	18	8	26	2%	26	2%	159	159	13%	1,060	1,219	1,219								
63	Narrandera Shire Council		146	7%							86	4%		232	11%	1,946	0	2,177								
65	Murray Shire Council	77	92	12%	1	15	16		16	2%	16	2%	93	108	14%	662	755	770						90	90	
66	Cobar Water Board																	0								
67	Cobar Shire Council		57	6%							38	4%		95	10%	853	853	948								
68	Tenterfield Shire Council		21	6%							14	4%		35	10%	321	321	356						44	44	
70	Kyogle Council	8	25	6%		4	4		4	1%	17	4%	12	42	10%	372	384	414						80	80	
71	Palerang Council	74	74	15%	5	16	21	3	24	5%	24	5%	98	98	20%	393	491	491						85	85	
73	Upper Lachlan Council	15	23	6%	5	25	30	15	45	12%	45	12%	60	68	18%	320	380	388						50	50	
74	Wentworth Shire Council		25	6%							17	4%		42	10%	372	372	414								
75	Coonamble Shire Council	9	74	6%	2	1	3		3	0%	49	4%	12	123	10%	1,111	1,123	1,234	5					59	59	
<i>Medians (% of LWUs basis) for 1,500 to 3,000 Properties</i>				7%							4%				12%											
<i>LWUs with 200 - 1,500 Properties</i>																										
76	Harden Shire Council		41	6%				6	6	1%	28	4%	6	69	10%	620	626	689							34	34
79	Walgett Shire Council	140	140	6%							81	4%	140	221	10%	2,035	2,175	2,256								
80	Greater Hume Shire Council	26	65	11%	10	6	16	20	36	6%	36	6%	62	101	17%	486	548	587							61	61
81	Gwydir Shire Council	16	48	6%	1	12	13	35	48	6%	48	6%	64	96	12%	700	764	796							20	20
83	Oberon Council	25	49	7%	3	25	28	15	43	6%	43	6%	68	92	13%	612	680	704								
84	Gilgandra Shire Council	67	67	7%	1	14	15	4	19	2%	25	3%	86	92	10%	833	919	925						238	238	
85	Uralla Shire Council	6	9		1	2	3	18	21	7%	21	7%	27	30	9%	290	317	320								
86	Hay Shire Council	3	45	12%							0	0%	3	45	12%	329	332	374								
87	Bourke Shire Council	35	35	9%	1	5	6		6	2%	6	2%	41	41	11%	332	373	373								
88	Wakool Shire Council	4	26	7%							11	3%	4	37	10%	330	334	367								
89	Bogan Shire Council	77	77	11%	1	14	15	45	60	9%	60	9%	137	137	20%	556	693	693						25	25	
90	Guyra Shire Council	20	36	8%	1	3	4	7	11	2%	11	2%	31	47	11%	399	430	446								
91	Cabonne Council	32	32	15%		2	2	2	4	2%	4	2%	36	36	17%	172	208	208								
92	Carrathool Shire Council	1	48	10%	1	10	11		11	2%	11	2%	12	59	12%	417	429	476				276				



**Table 8A: 2014-15 Total urban potable water supplied/produced**

WATER UTILITY	NON-REVENUE POTABLE WATER SUPPLIED <sup>2</sup> - (ML)												REVENUE WATER <sup>1</sup> Potable (ML) Excl Bulk	TOTAL URBAN WATER SUPPLIED Potable (ML)		TOTAL URBAN WATER PRODUCED Potable (ML)	BULK WATER EXPORTS			RECYCLED WATER (ML)										
	REAL LOSS <sup>4</sup> (Leakage)			APPARENT LOSS + UNBILLED WATER						TOTAL NON-REVENUE WATER (Real Loss + Apparent Loss + Unbilled)		Adopted		Revenue + Non-revenue water			Adopted	W14			NON URBAN				TOTAL					
	Reported	Adopted		Apparent Loss			Unbilled <sup>2</sup>	Apparent Loss + Unbilled Water			Reported			Adopted	Reported			Adopted	Potable	Non Potable	Recycled	Agricultural	Environmental	On-site		Mngd Aquifer Recharge	URBAN + NON URBAN			
		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)
93	Tumbarumba Shire Council	35	35	13%	1	2	3	20	23	8%	23	8%	58	58	21%	217	275	275	275											
94	Gundagai Shire Council		40	7%							24	4%	64	64	11%	536	0	600	600											
96	Warren Shire Council	35	35	9%	5	20	25	5	30	8%	30	8%	65	65	17%	314	379	379	379											
97	Bombala Council	2	10	6%		1	1		1	1%	7	4%	3	17	10%	155	158	172	172									20		
98	Walcha Council		19	11%				1	1	1%	1	1%	1	20	12%	150	151	170	172	2										
100	Balranald Council		11	6%							8	4%		19	10%	171	171	190	190											
101	Murrumbidgee Shire Council		53	7%							31	4%		84	11%	710	0	794	794											
103	Central Darling Shire Council	2	8	7%	1	1	2		2	2%	5	4%	4	13	11%	108	4	121	121											
104	Boorowa Council	8	9	4%	0	3	3		3	1%	9	4%	11	18	8%	196	207	214	214											
105	Brewarrina Shire Council	5	22	7%		5	5		5	2%	9	3%	10	31	10%	283	293	314	314											
106	Jerilderie Shire Council		7	6%							5	4%		12	10%	106	106	118	118									50		
Medians (% of LWUs basis) for 200 to 1,500 Properties				7%								4%			11%															
LWUs without Water Supply																														
9	Wagga Wagga (NO WS)																												247	
30A	Hawkesbury																												5,116	
69	Temora																												8	
72	Bland																													5,620
77	Junee																													171
78	Blayney																													99
95	Weddin																													262
99	Coolamon																													147
102	Lockhart																													211
107	Urana																													12
Median All LWUs (% of LWUs basis)				7%											11%															
Median All LWUs (Statewide basis)				6%											10%															
Total for all LWUs													35,000			224,000		260,000	255,000		24,000	2,000	0		15,800	10,000	1,600	0	39,000	

**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 on page 172, 74 of the 93 reticulating local water utilities have recently carried out a water loss management program.

**Table 8B: 2014-15 water supplied from source catchments in regional NSW**

SOURCE CATCHMENT	POTABLE URBAN WATER SUPPLIED (ML)									RECYCLED WATER		Non-Potable Urban Water Supplied  (Excluding Bulk Exports & Recycled)	Total Urban Water Supplied Excluding BULK Exports Including Recycled  =(10)+(11)+(12)	BULK Bulk Water Exports	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				Surface Water	Ground Water	Desalination	Recycling	Bulk Purchases	Bulk Recycled Water Purchased
	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)	= SUM (1) to (9) (10)	(11)	(11b)				W1 (15)	W2 (16)	W3 (17)	W4 (18)	W5 (19)	W6 (20)
Bega	1,810	445	72	5	182	43	49	479	3,085	367	79	57	3,509		1,640	1,400		436		
Bellinger	555	107	99	125	33	36	12	149	1,116			34	1,150	2	164	959				
Castlereagh/Macquarie	16,860	4,670	1,550	380	1,050	1,040	301	5,169	31,020	2,830	6,278	3,930	37,780	2,800	32,480	6,930		3,480		
Clarence	6,950	1,940	396	517	85	190	492	2,167	12,737	584	704	56	13,377		11,900	12		195	59	
Clyde	2,110	468	6	13	125	19	17	550	3,308	223	20		3,531		3,130	161		243		
Darling	3,730	561	1,220	20	284	76		656	6,547	776		3,360	10,683		10,560			525	4,190	
Gwydir	3,920	631	469	49	45	400	85	815	6,414	342	471	51	6,807	25	1,660	3,180		847	2,550	
Hastings	4,190	947	29	35	252	56	28	611	6,148	299	87	195	6,642		5,990			189		
Hawkesbury (Country Towns only)	16,450	2,360	894	160	995	239	117	2,750	23,965	231	1,929	81	24,277	288	17,470	071		194	7,620	
Hunter (Country Towns only)	4,060	1,060	649	29	422	178	23	898	7,319	1,020	1	1,120	9,459		7,980	439		125		
Lachlan	6,000	2,250	373	427	328	343	946	2,290	12,957	756	284	2,420	16,133	517	9,940	2,040		679	477	
Macleay	3,400	711	241	543	583	73	142	1,194	6,887	60	927	67	7,014	29	3,070	3,530		77		
Manning	5,100	1,550	497		148	104	175	1,346	8,920	412	529		9,332		7,850	526		373		
Moonie/Macintyre	590	152	2	2	30	5	1	85	867	44			911	60	933	12			14	
Murray	9,660	1,710	1,230	158	767	575	89	1,684	15,873	701	2,726	2,210	18,784	379	16,520	195		061	485	
Murrumbidgee	27,230	6,620	2,340	2,170	1,460	1,730	459	5,460	47,469	898	6,259	3,160	51,527	9,270	14,650	19,300		744	20,200	
Nambucca	784	314	42	77	54	1	8	181	1,461		79		1,461			1,480				
Namoi	8,240	3,640	1,710	222	267	601	23	1,979	16,682		5,313	1,150	17,832	50	8,170	7,290				
Shoalhaven	6,273	1,685	1,255	620	279	75	67	1,878	12,132	178	1,527	1,930	14,240		13,740			173	77	
Snowy	544	45	27	3	67	2		90	778	59		83	920	5	1,150			39		
Tuggerah Lake	9,130	2,550	179	43	433	89		1,498	13,922	521	238	1	14,444	2,650	15,760	2		911	551	
Tweed/Richmond	12,690	3,810	1,270	1,060	338	134	129	3,210	22,640	1,320	619	285	24,245	9,870	23,620			1,250	9,800	
<b>Totals</b>	<b>151,000</b>	<b>39,000</b>	<b>14,300</b>	<b>8,100</b>	<b>8,400</b>	<b>6,100</b>	<b>3,200</b>	<b>33,000</b>	<b>259,000</b>	<b>11,600</b>	<b>27,900</b>	<b>20,300</b>	<b>291,000</b>	<b>26,100</b>	<b>208,000</b>	<b>47,500</b>	<b>0</b>	<b>10,500</b>	<b>46,000</b>	<b>0</b>

**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: 2014-15 water conservation initiatives

WATER UTILITY	CUSTOMER FOCUSED MEASURES					BUSINESS FOCUSED		OTHER MEASURES							WATER SUPPLIED					IWCN	
	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	Sound Water Conservation Implemented?	Sound Drought Management Implemented?	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)		Status of IWCN	
	Yes/No	Yes/No	Yes/No	Yes/No	\$	Yes/No	Yes/No					(Yes/No)	(Yes/No)					(Yes/No)	Step 1 (c/kL)	Step 2 (c/kL)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(9)	(10)	(11)	(11a)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	
											2014/15	2014/15	F4	W12	W11	W10.1	2013/14	2013/14	2013/14	2013/14	2013/14
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	Yes	Yes	130	227	75	205	7,627	741	445	50	Y	Y
29 Armidale Dumaresq	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on website, giveaway shower timers and trigger nozzles, water saving tips on Council's website.	Yes	Yes	Yes	241	320	79	198	2,920	418	366	110		
24 Ballina (Reticulator)	Yes	Yes	Yes	Yes	1500	Yes	Yes	Voluntary permanent water saving measures, water saving tips on Council's website.	Yes	Yes	Yes	208	313	66	181	4,219	810	729	160	Y	Y
100 Balranald (Dual Supply)	No	No	No			No	No		Yes	Yes	Yes	94	141	47	167	774	19	11	40		
21 Bathurst Regional	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	Yes	Yes	180	270	82	223	7,019	583	416	80	Y	Y
23 Bega Valley (Unfiltered)	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance.	Yes	Yes	Yes	270		65*	137	3,461	479	213	50		
47 Bellingen (Unfiltered)	Yes	No	No	No		No	Yes	Member of the Savewater! Alliance.	Yes	Yes	Yes	163	245	77	152	1,138	149	110	70	Y	Y
53 Berrigan (Dual Supply)	Yes	No	No	No		Yes	Yes	Permanent water saving rules.	Yes	Yes	Yes	94		40	241	2,545	129	115	100		
72 Bland (No WS)						Yes	No									262					
78 Blayney (No WS)						Yes	No									211				Y	Y
89 Bogan	Yes	Yes	No	No		Yes	Yes	Member of the Savewater! Alliance.	Yes	Yes	Yes	187		57	339	723	137	77	200	Y	Y
97 Bombala	No	No	No	No		Yes	No	Water restriction information on Council's website.		Yes	Yes	130	180	30*	188	275	17	10	30		
104 Boorowa	Yes	No	No	No		No	Yes	Member of the Savewater! Alliance.	Yes	Yes	Yes	211	422	49	185	214	18	9	30		
87 Bourke (Dual Supply)	Yes	No	No	No		No	No	Member of the Savewater! Alliance, waterwise program with local schools.	Yes	Yes	Yes	216		79	284	1,755	41	35	80	Y	Y
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	Yes	Yes	190		73	614	1,255	31	22	110	Y	Y
27 Byron (Reticulator)	Yes	Yes	Yes	Yes	2170	Yes	Yes	Pressure reduction	Yes	Yes	Yes	242	363	73	180	3,384	276	193	50	Y	Y
91 Cabonne	Yes	Yes	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	Yes	Yes	190	450	56	150	255	36	32	70	Y	Y
92 Carrathool (Groundwater)	Yes	No	No	No		No	Yes	Tips/suggestions in Council monthly newsletter.	Yes	Yes	Yes	90		62	488	1,049	59	48	100		
103 Central Darling (Dual Supply)	Yes	No	No	No		No	Yes	Water saving tips on Council's website.	Yes	Yes	Yes	350		79	128	361	13	8	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	Yes	Yes	236		69*	187	1,712	193	121	60	Y	Y
14 Clarence Valley	Yes	Yes	Yes	Yes	1,100	Yes	Yes	School waterwise program, water saving tips on Council's website.	Yes	Yes	Yes	191	287	66	147	6,284	1,553	850	110	Y	Y
67 Cobar			No			No	Yes	Member of the Savewater! Alliance.	Yes	Yes	Yes	210	310	77	342	948	95	57	70	Y	Y
66 Cobar WB (Bulk Supplier) (No S)	No	No	No	No		No	No									342					
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	Yes	Yes	267	401	76*	167	6,102	572	444	50	Y	Y
99 Coolamon (No WS)						Yes	No														
50 Cooma-Monaro	Yes	Yes	No	No		Yes	Yes	Member of the Savewater! Alliance, rebate for water audits, separate metering for new multi-unit developments, monitoring to review effectiveness of conservation measures, water saving tips on Council's website.	Yes	Yes	Yes	162	256	64*	339	1,533	153	92	60	Y	
75 Coonamble (Groundwater)	No	Yes	No	No		Yes	No			Yes	Yes	70	110	71*	603	1,234	123	74	120		
58 Cootamundra (Reticulator)	No	Yes	No	No		Yes	Yes			Yes	Yes	193		53*	190	906	116	75	70		
42 Corowa	No	No	No	No		Yes	Yes	Water saving tips on Council's website.	Yes	Yes	Yes	160	240	82	287	3,116	311	223	120	Y	Y
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	Yes	Yes	174		59	257	6,343	465	310	80	Y	Y
39 Cowra	Yes	Yes	No	No		No	Yes		Yes	Yes	Yes	295		79	241	3,014	994	220	110		
54 Deniliquin	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	Yes	Yes	85	125	55*	474	1,882	187	150	110	Y	
18 Dubbo	Yes	No	No	No		Yes	Yes	Water saving tips on Council's website.	Yes	Yes	Yes	191		74	327	8,587	838	670	120	Y	Y
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	Yes	Yes	348		58	114	3,516	550	329	50	Y	Y
12 Fish River WS (Bulk Supplier) (N)	No	No	No	No		No	No		Yes	Yes						2,699	1,555	1,555			
51 Forbes	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website, free garden mulch.	Yes	Yes	Yes	103		66	352	2,349	225	123	90		
84 Gilgandra (Groundwater)	No	No	No	No		Yes	Yes	Member of the Savewater! Alliance & Lower Macquarie Water Utilities Alliance.	Yes	Yes	Yes	104		70	521	930	92	67	140		
60 Glen Innes Severn	Yes	No	No	No		Yes	Yes	Water saving tips on Council's website.	Yes	Yes	Yes	215	323	52	131	510	50	38	30	Y	Y
28B Goldenfields (Bulk Supplier) (No S)						No	No		Yes	Yes						440	440	440			
28A Goldenfields (Reticulator) (No S)	Yes	No	No	No		No	Yes	Inclusion of meter reading information for customers to do overnight leakage meter readings with two quarterly water accounts. Also included on the website.	Yes	Yes	Yes	217		78	272	6,183	605	363	90		



Table 8C: 2014-15 water conservation initiatives

WATER UTILITY	CUSTOMER FOCUSED MEASURES					BUSINESS FOCUSED		OTHER MEASURES							WATER SUPPLIED					IWCN	
	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	Sound Water Conservation Implemented?	Sound Drought Management Implemented?	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)		Status of IWCN	
	Yes/No	Yes/No	Yes/No	Yes/No	\$	Yes/No	Yes/No					(Yes/No)	(Yes/No)					(Yes/No)	Step 1 (c/kL)	Step 2 (c/kL)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(9)	(10)	(11)	(11a)	(12)	(13)	(14) F4	(15) W12	(16) W11	(17) W10.1	(18) 2013/14	(19) A10	(20) 2013/14	(21) 2013/14	
1 Gosford	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	Yes	Yes	226	73	160	15,359	1,784	1,418	60	70	Y	Y
20 Goulburn Mulwaree	Yes	Yes	Yes	No		Yes	Yes	Showerhead and dual flush toilet rebates.	Yes	Yes	Yes	280	378	65*	139	2,748	319	258	70	Y	Y
80 Greater Hume	Yes	No	No	No		Yes	Yes	Water saving tips on Council's website.	Yes	Yes	Yes	160	240	59	244	648	101	65	90	Y	
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	Yes	Yes	67	130	82*	545	7,215	643	390	110	Y	
94 Gundagai						Yes	Yes	Water Restriction information on website and in news articles	Yes	Yes	Yes	125	170	77	396	600	64	40	90		
44 Gunnedah (Groundwater)	No	No	No	No		Yes	Yes	Member of Save Water Alliance	Yes	Yes	Yes	108	162	74*	427	3,104	248	124	80	Y	Y
90 Guyra	No	No	No	No		No	Yes		Yes	Yes	Yes	155	185	65	177	446	47	36	70		
81 Gwydir	Yes	No	No	No		Yes	Yes		Yes	Yes	Yes	125	195	76	320	816	96	48	80	Y	Y
76 Harden (Reticulator)	Yes	Yes	No	No		Yes	Yes	Water saving tips on Council's website.	Yes	Yes	Yes	220	329	52	181	723	69	41	60		
7 Port Macquarie-Hastings (Unfiltered)	Yes	No	No	No		Yes	Yes	Encourage use of rainwater tank, separate metering for new and encourage separate metering for existing multi-unit development, permanent water conservation measures, meter replacement program, water saving tips on Council's website.	Yes	Yes	Yes	270	540	68	151	6,612	611	456	40	Y	
30A Hawkesbury (No WS)						Yes	No								18					Y	
86 Hay (Dual Supply)	Yes	No	No	No		No	Yes		Yes	Yes	Yes	110	165	57	159	1,469	45	45	50		
37 Inverell	No	No	No	No		No	No		Yes	Yes	Yes	137	160	45	180	1,809	209	109	50		
106 Jerilderie (Dual Supply)	Yes	No	No	No		Yes	No	Water saving tips on Council's website.	Yes	Yes	Yes	152	177	58*	219	545	12	7	40		
77 Junee (No WS)						Yes	No								147						
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	Yes	Yes	219	316	59	156	3,776	756	409	100	Y	Y
70 Kyogle	Yes	Yes	No	Yes	670	Yes	No	Member of the Savewater! Alliance	Yes	Yes	Yes	150	190	41	145	494	42	25	30	Y	Y
59 Lachlan	Yes	No	No	No		Yes	No		Yes	Yes	Yes	220	330	78	517	2,035	213	134	140		
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	Yes	Yes	91	133	66	431	2,700	303	243	150	Y	
22 Lismore (Reticulator)	Yes	Yes	No	No		Yes	No	Water Saving Tips on Council's website, information on rainwater tanks, educational centre	Yes	Yes	Yes	322	70	155	3,178	315	194	40	40	Y	Y
31 Lithgow	Yes	No	Yes	Yes	300	No	No	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	Yes	Yes	311	467	83	132	1,522	152	91	30	Y	
61 Liverpool Plains	Yes	No	No	No		No	Yes	Member of the Savewater! Alliance.	Yes	Yes	Yes	128	208	41	190	870	125	95	100	Y	
102 Lockhart (No WS)						Yes	No								2					Y	
5 MidCoast	Yes	Yes	Yes	Yes	1500	Yes	Yes	Water saving tips on Council's website and in customer newsletters.	Yes	Yes	Yes	292	326	72	142	9,156	1,346	812	60	Y	Y
32 Mid Western Regional	Yes	No	No	No		Yes	Yes	Links to Save water web sites on council's own site	Yes	Yes	Yes	281	80	185	2,575	344	172	60			
38 Moree Plains (Groundwater)	No	No	No	No		Yes	Yes	Member of the Savewater! Alliance.	Yes	Yes	Yes	158	205	75*	538	3,335	433	288	160	Y	
65 Murray (Dual Supply)	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	Yes	Yes	96	51	168	1,275	108	92	90	90	Y	
101 Murrumbidgee (Groundwater)	No	No	No	No		Yes	Yes	Rainwater tank guidelines, encouraging retrofit program.			Yes	40	60	63	635	794	84	53	170		
41 Muswellbrook	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance (restructured in March 2015), water saving tips on Council's website. Continued application of 2 tier billing system.	Yes	Yes	Yes	160	240	69*	245	2,989	210	126	60	Y	Y
34 Nambucca (Groundwater)	No	No	Yes	Yes	1500	Yes	Yes	Member of the Savewater Alliance, rainwater tank rebates, water saving tips on Council's website.	Yes	Yes	Yes	290	77	134	1,453	181	155	70	70	Y	Y
46 Narrabri (Groundwater)	Yes	Yes	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	Yes	Yes	90	56	308	2,608	602	292	200			
63 Narrandera (Groundwater)	No	No	No	No		Yes	No	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	Yes	Yes	102	72	678	2,177	232	146	180			
62 Narromine (Groundwater)	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	Yes	Yes	115	74	452	1,292	159	133	160	160	Y	Y
83 Oberon (Reticulator)	Yes	No	No	No		No	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	Yes	Yes	280	75	148	719	92	49	100	100	Y	
19 Orange	Yes	Yes	No	Yes	650	Yes	Yes	Showerhead replacement program, Rainwater Tank Rebates, Orange Water Security website, Savewater Alliance	Yes	Yes	Yes	220	330	70	170	7,307	649	403	60	Y	Y
71 Palerang	Yes	Yes	Yes	Yes	800	Yes	Yes	Mandatory water conservation measures.	Yes	Yes	Yes	222	349	47	158	549	98	74	90		
36 Parkes	Yes	Yes	Yes	No		Yes	Yes	Member of the Savewater! Alliance, non-potable supply for stock, roadworks and swimming pools, IWCN Strategy, water saving tips on Council's website.	Yes	Yes	Yes	180	320	76	276	4,683	543	380	160	Y	Y

Table 8C: 2014-15 water conservation initiatives

WATER UTILITY	CUSTOMER FOCUSED MEASURES					BUSINESS FOCUSED		OTHER MEASURES							WATER SUPPLIED					IWCM	
	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	Sound Water Conservation Implemented?	Sound Drought Management Implemented?	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)		Status of IWCM	
	Yes/No	Yes/No	Yes/No	Yes/No	\$	Yes/No	Yes/No					(Yes/No)	(Yes/No)					(Yes/No)	Step 1 (c/kL)	Step 2 (c/kL)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(9)	(10)	(11)	(11a)	(12)	(13)	(14) F4	(15) W12	(16) W11	(17) W10.1	(18) 2013/14	(19) A10	(20) 2013/14	(21) 2013/14	
17 Queanbeyan (Reticulator)	Yes	Yes	Yes	Yes	1100	No	Yes	Subsidised garden mulch, free water audits, free home tune-up, free AAA shower rose, free dual flush toilet, subsidies for commercial properties.	Yes	Yes	Yes	297	456	61	173	3,937	493	375	80	Y	
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	Yes	Yes	203	307	75	172	2,848	277	192	80	Y	Y
8 Riverina (Groundwater) (No Sge)	Yes	Yes	No	No		No	Yes	Community awareness at regional and local expo's, school education, WTP site visits	Yes	Yes	Yes	140	210	74	311	15,623	1,562	937	90	Y	Y
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	Yes	Yes					1,314	508	230		Y	Y	
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	Yes	Yes	165		75*	142	14,169	1,878	1,596	90	Y	Y
35 Singleton	Yes	Yes	Yes	Yes	450	Yes	No	Member of the Savewater! Alliance, rebates for dual flush toilets & 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	Yes	Yes	135	245	69*	251	3,742	261	177	70	Y	
52 Snowy River (Unfiltered)	Yes	No	No	No		Yes	Yes	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	Yes	Yes	230	350	41	83	645	73	73	70	Y	Y
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	Yes	Yes	145	218	55	188	7,967	783	548	70	Y	Y
69 Temora (No WS)						Yes	No								99						
68 Tenterfield	No	No	No	No		Yes	Yes		Yes	Yes	Yes	228	262	44	143	400	35	21	30	Y	Y
93 Tumbarumba	Yes	Yes	No	No		No	Yes	Council guidance and support with planning and installation of rainwater systems. Town night flow trend is monitored to find out major leaks.	Yes	Yes	Yes	209	351	49	139	275	58	35	80	Y	
43 Tumut	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	Yes	Yes	211		78*	219	1,574	143	114	70	Y	
6 Tweed	Yes	No	Yes	No		Yes	Yes	Target 170L/p/d for residential customers	Yes	Yes	Yes	270	405	75*	178	9,166	1,024	520	60	Y	Y
45 Upper Hunter	Yes	Yes	No	Yes	400	Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	Yes	Yes	192	307	73*	306	2,700	427	373	240		
73 Upper Lachlan	Yes	No	No	No		Yes	No	Member of the Savewater! Alliance.	Yes	Yes	Yes	269	356	47*	143	388	68	23	30		
85 Uralla	No	No	No	No		No	Yes	Member of the Namoi Water Alliance	Yes	Yes	Yes	220		57*	185	320	30	9	20	Y	Y
107 Urana (No WS)						No	No													Y	
9 Wagga Wagga (No WS)						Yes	No	Water saving tips on Council's website.							249					Y	
88 Wakool (Dual Supply)	Yes	Yes		No		Yes	Yes	Permanent water saving rules, water saving tips on Council's website.	Yes	Yes	Yes	100	158	36	142	772	37	26	50		
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		Yes	272	396	64	124	173	20	19	60	Y	Y
79 Walgett (Dual Supply)	No	No	No	No		No	No	Member of the Savewater! Alliance, installation of water meters in residential properties, water use restrictions throughout the year.	Yes	Yes	Yes	76	106	57*	720	3,256	221	140	200	Y	
96 Warren (Dual Supply)	Yes	No	No	No		No	Yes	Member of the Savewater! Alliance.	Yes	Yes	Yes	103	155	52	328	836	65	35	100	Y	Y
55 Warrumbungle	No	No	No	No		Yes	No	Voluntary water restrictions.	Yes	Yes	Yes	190		51*	197	1,010	252	239	210	Y	
95 Weddin (No WS)						Yes	No								12					Y	Y
57 Wellington	Yes	No	No	No		No	Yes	Member of the Savewater Alliance.	Yes	Yes	Yes	203	207	66	213	1,295	249	90	90	Y	Y
74 Wentworth (Dual Supply)	No	No	No	No		No	No		Yes	Yes	Yes	120	280	48	99	1,283	42	25	20	Y	
16 Wingecarribee	Yes	No	No	No		Yes	Yes	Water Wise Initiatives on Council's website.	Yes	Yes	Yes	178	267	68	178	4,535	495	400	60	Y	Y
2 Wyong	Yes	No	No	No		Yes	Yes		Yes	Yes	Yes	226		67*	150	14,444	1,498	696	30	Y	Y
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	Yes	Yes	290		53	161	844	209	106	90	Y	Y
49 Young (Reticulator)	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, some stormwater use, separate metering of new and some existing multi-unit developments, water saving tips on Council's website.	Yes	Yes	Yes	270		69	166	1,421	124	92	60		
<b>Total LWUs</b>	<b>73</b>	<b>33</b>	<b>17</b>	<b>18</b>	<b>17</b>	<b>75</b>	<b>75</b>		<b>93</b>	<b>93</b>	<b>93</b>	<b>Median</b>	<b>Median</b>	<b>Median</b>	<b>Median</b>	<b>Median</b>	<b>Median</b>	<b>Median</b>	<b>69</b>	<b>48</b>	
<b>Percent "Yes" (Retail)</b>	<b>79%</b>	<b>36%</b>	<b>18%</b>	<b>20%</b>	<b>18%</b>	<b>76%</b>	<b>82%</b>		<b>97%</b>	<b>97%</b>	<b>100%</b>	<b>226</b>	<b>72</b>	<b>166</b>	<b>7,000</b>	<b>60</b>	<b>66%</b>	<b>46%</b>			



**Table 8D: 2014-15 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)		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) + (151) (63i)	W9 =W9.1+W9.2+W21	W11.3 =W11.1+W14.1 - W5.1	W21 (151)	W28.4 (63j)
Sydney Water																			515,834			515,834	9,682	
Hunter Water																			67,014			67,014	2,858	0

*LWUs with > 10,000 Properties*

1	Gosford	1,279	5	563	388	2	173					10		481	174		3	2,507	21	2,541	13,103	13	24		
2	Wyong	2,548		179	179							43	0	433	89			3,292	521	4,334	16,021	521			
3	Shoalhaven	1,685	6	1,255	1,255			1,897	1,897			620	20	279	75			3,914	2,101	6,193	12,065	178			
4	Rous (Bulk Supplier) (NO SGE)	38										768						806		806	11,183				
5	MidCoast	1,547		497			497							148	104			2,296	412	3,120	8,744	412			
6	Tweed	1,443		182	119		63					117		232	123			2,097	500	3,097	8,661	500			
7	Port Macquarie-Hastings (Unfiltered)	947	28	29			29					35		252	56	164	3	1,319	494	2,112	6,118	299			
8	Riverina (Groundwater) (NO SGE)	1,977		1,251	1,234	17						1,017		687	616			5,548		5,548	15,591				
10	Coffs Harbour	1,147											9	63	90			1,300	318	1,927	5,784	309			
11	Albury	585	213	223			223	3			3	38		600	387	1		1,833	217	2,050	7,788				
12	Fish River WS (Unfiltered, Bulk Supplier) (NO SGE)							1,024	1,024			120						120	1,024	1,144	2,426				
13	Tamworth Regional	1,063		1,666			1,666					151	140	49	424			3,353	140	3,493	7,827				
14	Clarence Valley	747		368			368					488	47		93			1,696	242	2,133	6,042	195			
15	Eurobodalla	468		6	6							13		125	19			631	223	1,077	3,293	223			
16	Wingecarribee	537										141		250	20			948		948	4,535				
17	Queanbeyan (Reticulator)	253		140			140							69	145			607		607	0				
18	Dubbo	1,043		32			32					39		605	734	28	180	2,453	208	2,661	8,379				
19	Orange	670		79	79							115		201	50			1,115	2,826	6,767	4,481	2,826			
20	Goulburn Mulwaree	234	9	270			270	0			0	9	1	264	45			822	204	1,220	2,546	194			
21	Bathurst Regional	1,131		1,003	1,003			1,003			1,003	22				5	34	2,156	1,042	3,198	5,951				
22	Lismore (Reticulator)	788										116						904		904	0				
23	Bega Valley (Unfiltered)	445		72	29		43					5	57	182	43			747	424	1,538	3,037	367			
24	Ballina (Reticulator)	372		16	13	1	2					43		106	10			547	517	1,581	98	517			
25	Kempsey (Groundwater)	426		241	5	236						448		129	11			1,255	60	1,375	3,743	60			
26	Essential Energy	280	61	1,182	1,182			366	366				107	270	27	143	195	1,759	1,648	4,183	4,695	776			
27	Byron (Reticulator)	777															285	777	573	1,638	440	288			
28A	Goldenfields (Reticulator) (NO SGE)	625	9	10			10					2,430	86	304	157	8	8	3,526	111	3,637	290				
28B	Goldenfields (Bulk Supplier) (NO SGE)																			0	9,151				
<i>Totals for LWUs with &gt;10,000 Properties</i>		23,055	331	9,264	1,366	4,362	20	3,516	4,293	366	1,897	1,024	1,006	6,788	467	5,729	3,492	349	708	48,328	13,826	69,832	171,992	7,678	24

*LWUs with 3,001 - 10,000 Properties*

29	Armidale Dumaresq	249	8									92	56	444	55			840	64	904	2,856		
30	Griffith	1,216	180									377	12	261	260	187	186	2,114	565	2,679	6,495		
31	Lithgow	309		61	39	22												370		370	828		
32	Mid-Western Regional	494	5	48	10	16	22	8			8	17		152	62	4	77	773	94	867	2,480		
33	Richmond Valley	390		1,068	1,068							17			1			1,476	13	1,502	2,256	13	
34	Nambucca (Groundwater)	314		42	26		16					77		54	1			488		488	1,453		
35	Singleton	525		77	77			1,048	1,048			24	70	238				864	1,118	1,982	2,624		
36	Parkes	178						1,920	1,920			126		144	170			618	2,092	2,882	2,248	172	
37	Inverell	200		300			300								150			650		650	1,809		

**Table 8D: 2014-15 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) + (151) (63i)	W9 =W9.1+W9.2+ W21	W11.3 =W11.1+W14.1 - W5.1	W21 (151)	W28.4 (63j)
38 Moree Plains (Groundwater)	305											38			63		13	406	335	1,063	2,987	322		
39 Cowra	638		175		175									18	41			872		872	2,762			
40 Central Tablelands (NO SGE)	208		193	4	175		14					301		43	18			763		763	1,853			
41 Muswellbrook	338		23	21			2							134	77			572	892	2,356	2,097	892		
42 Corowa	289		998		640		358					2		17	86			1,392		1,392	3,116			
43 Tumut	105	45	209				209					53		29	28			424	139	657	1,430	94		
44 Gunnedah (Groundwater)	823											55		190	90			1,158		1,158	3,104			
45 Upper Hunter	196		549		549							5		50	101			901	125	1,151	2,575	125		
46 Narrabri (Groundwater)	805													4	12			821		821	2,608			
47 Bellingen (Unfiltered)	107		99				99	34			34	125		33	36			400	34	434	1,106			
48 Leeton	180		185				185					64		68	372			869		869	2,700			
49 Young (Reticulator)	160		110				110							65	99			434	176	786	0	176		
50 Cooma-Monaro	140		55				55					65		15	15			290		290	1,533			
51 Forbes	529	10											12	98	28	196	74	655	292	947	2,415			
52 Snowy River (Unfiltered)	38		27				27					3		60	1			129	39	207	611	39		
53 Berrigan (Dual Supply)	180	94										22		110	60		120	372	804	1,766	1,251	590	20	
54 Deniliquin	220														25			245		245	1,882			
55 Warrumbungle	205																	205		205	1,000			
56 Yass Valley	125														30			155		155	848			
<i>Totals for 3,000 - 10,000 Properties</i>	<i>9,466</i>	<i>342</i>	<i>4,219</i>	<i>151</i>	<i>2,671</i>	<i>0</i>	<i>1,397</i>	<i>3,010</i>	<i>2968</i>	<i>0</i>	<i>0</i>	<i>42</i>	<i>1,463</i>	<i>150</i>	<i>2,227</i>	<i>1,881</i>	<i>387</i>	<i>470</i>	<i>19,256</i>	<i>6,782</i>	<i>28,461</i>	<i>58,927</i>	<i>2,423</i>	<i>20</i>
<i>LWUs with 1,501 - 3,000 Properties</i>																								
57 Wellington	450													28	20			498		498	1,295			
58 Cootamundra (Reticulator)	57		29				29					1		50	8			145	136	417	0	136		
59 Lachlan																				0	2,006			
60 Glen Innes Severn	90													28	1			119		119	510			
61 Liverpool Plains	75		45				45					16		24	75		9	235	9	244	911			
62 Narromine (Groundwater)	180	11										5		20	15		62	220	73	293	1,219			
63 Narrandera (Groundwater)																				0	2,177			
65 Murray (Dual Supply)	193	133	3				3	3				2		10	1		68	209	204	413	770			
66 Cobar WB (NO SGE)																				0	0			
67 Cobar	76		36	24	12							20		14	49			195		195	948			
68 Tenterfield	62		2				2					2		2	4			72	44	160	402	44		
70 Kyogle	45		28				28					29		22	7			131	80	291	355	80		
71 Palerang	70											1		1	1			73	30	133	491	30		
73 Upper Lachlan	25													15	30			70		70	388			
74 Wentworth (Dual Supply)																				0	414			
76 Harden (Reticulator)	3											387		6	6			402	34	470	0	34		
75 Coonamble (Groundwater)	50											58		21	100			229		229	1,239			
79 Walgett (Dual Supply)	875																	875		875	2,256			
80 Greater Hume	55											50		4	6			115	61	237	208	61		
<i>Totals for 1,500 - 3,000 Properties</i>	<i>2,306</i>	<i>144</i>	<i>143</i>	<i>24</i>	<i>12</i>	<i>0</i>	<i>107</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>3</i>	<i>571</i>	<i>0</i>	<i>245</i>	<i>323</i>	<i>0</i>	<i>139</i>	<i>3,588</i>	<i>671</i>	<i>4,644</i>	<i>15,588</i>	<i>385</i>	<i>0</i>



**Table 8D: 2014-15 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) + (151) (63i)	W9 =W9.1+W9.2+ W21	W11.3 =W11.1+W14.1 - W5.1	W21  (151)	W28.4  (63j)	
<i>LWUs with 200 - 1,500 Properties</i>																									
81	Gwydir	72										11		44	165			292	20	332	796	20			
83	Oberon (Reticulator)	25	385		265		120					4		15	21			450		450	704				
84	Gilgandra (Groundwater)	179	6		6									10	12			207		207	925				
85	Uralla	33												1	15			49		49	320				
86	Hay (Dual Supply)																50		50	50	374				
87	Bourke (Dual Supply)	7											20				100	7	270	277	373				
88	Wakool (Dual Supply)	118										44			8			170		170	261				
89	Bogan	175											4	2	26		26	203	30	233	693				
90	Guyra	21	169				169								7			197		197	395				
91	Cabonne	19	5		5													24	10	34	208				
92	Carrathool (Groundwater)	46											478		2		2	48	480	528	476				
93	Tumbarumba	40	7		7									25	2			74		74	275				
94	Gundagai																			0	600				
96	Warren (Dual Supply)	35															50	35	96	131	379				
97	Bombala	7												7	1			15	20	55	172	20			
98	Walcha	36										3	3	10	7			56	3	59	172				
100	Balranald (Dual Supply)	44															132	44	209	253	190				
101	Murrumbidgee (Groundwater)																			0	794				
103	Central Darling (Dual Supply)																			0	121				
104	Boorowa	21												10	56			87		87	214				
105	Brewarrina (Dual Supply)	30															371	30	621	651	314				
106	Jerilderie (Dual Supply)	25												1			3	26	53	129	118	50			
<i>Totals for 200 - 1,500 Properties</i>		933	533	572	0	283	0	289	0	0	0	0	0	62	505	125	322	0	734	2,014	1,862	3,966	8,873	90	0
<i>LWUs without Water Supply</i>																									
9	Wagga Wagga (NO WS)																		249				249		
30A	Hawkesbury																		18				18		
69	Temora																		99				99		
72	Bland																		262				262		
77	Junee																		147				147		
78	Blayney																		211				211		
95	Weddin																		12				12		
99	Coolamon																								
102	Lockhart																		2				2		
107	Urana																								
<i>Totals for LWUs without water supply</i>																			1,000				1,000		
<b>Totals for all LWUs</b>		<b>39,000</b>	<b>1,350</b>	<b>14,300</b>	<b>1,540</b>	<b>7,330</b>	<b>20</b>	<b>5,310</b>	<b>7,300</b>	<b>3,300</b>	<b>1,900</b>	<b>1,020</b>	<b>1,050</b>	<b>8,100</b>	<b>1,120</b>	<b>8,400</b>	<b>6,100</b>	<b>740</b>	<b>2,050</b>	<b>76,000</b>	<b>24,100</b>	<b>100,000</b>	<b>255,000</b>	<b>11,600</b>	<b>44</b>

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											
	(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)											
	2012/13	2013/14	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15											
Sydney Water					1,876,000			1,752,000				4,657,000	4,755,000	4,833,000		22,293	84	9					80	150	0																		
Hunter Water					238,800			224,800				545,000	550,000	558,000		4,945	48	6					154	37	219																		
Water NSW																							14																				
<b>LWUs with &gt; 10,000 Properties</b>																																											
1	Gosford	67,460	67,730	67,830	60,520	1.06	71,830	0.95	1.06	68,357	0.2	0.2	0.3	163,200	165,200	166,300		48	987	73	2	2	22	24	2	94	6.8	101	1.2	59	5	2	5	5	0								
2	Wyong	62,550	63,370	65,500	57,990	0.97	63,490	0.95	0.97	60,727	1.2	0.3	1.2	149,900	153,700	156,000	160		1,218	52	1	1	12	24	2	250	15.8	61	0.9	100	0	1	6	0	0								
3	Shoalhaven	50,660	51,070	51,260	47,400	0.92	47,150	0.92	0.93	44,021	0.9	1.2	1.5	90,000	89,400	89,100	380	35	1,510	31	4	4		26	2	218	10.3	0	1.4	100	0	4	3	64	0								
4	Rous (Bulk Supplier) (NO SGE)	42,140	42,650	42,940		0.96	41,230	0.88	0.96	36,395	0.0	0.0		113,100	105,700	107,100		26	441		2	2	3	4			12.1	0		101	0	0	2	0	0								
5	MidCoast	40,090	40,170	40,330	36,260	0.96	38,710	0.93	0.96	36,027	0.7	0.9	0.9	81,700	82,500	82,800	120	21	1,395	28	5	2	15	27	2	80	3.1	0	1.4	100		3	3	75	1								
6	Tweed	34,680	34,990	35,430	25,260	0.91	32,240	0.95	0.93	31,188	0.5	0.8	1.6	79,200	78,400	79,000	130	3	716	45	3	1		27	4	61	2.0	4	2.0	82	11	2	4	35	0								
7	Port Macquarie-Hastings (Unfiltered)	31,300	31,680	32,020	27,810	0.95	30,420	0.91	0.95	27,740	1.1	1.3	1.7	80,200	80,500	80,800	130		810	38	4	2	1	19	2	325	9.9	0	1.1	78	0	2	0	0	0								
8	Riverina (Groundwater) (NO SGE)	30,570	30,780	31,120	29,970	0.96	29,870	0.92	0.96	27,352	0.8	1.2	1.0	70,200	70,700	71,600	110	60	1,660	18	17	3	28	37	2	397	11.9	0	3.2	82	0	5	3	12	0								
10	Coffs Harbour	26,330	26,480	26,660	24,310	0.94	25,060	0.94	0.94	23,455	1.1	1.3	1.6	69,200	70,200	71,300	120	14	621	40	2	2		7	1	53	1.3	0	1.9	71	0	5	3	30	0								
11	Albury City	22,590	22,910	24,960	22,360	1.03	25,700	0.92	1.03	23,643	1.0	1.7	1.7	49,400	49,700	50,900	110	7	599	43	1			21	4	88	2.3	0	0.7	60	91	2	2	75	2								
12	Fish River WS (Unfiltered, Bulk Supplier)	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			0.0	0		100	7	0	2	0	0								
13	Tamworth Regional	21,240	21,420	21,680	21,680	1.00	21,680	0.91	1.00	19,653	1.5	2.3	2.0	44,000	44,600	45,300	180	114	640	34	5	2	14	21	3	305	6.6	602	2.0	77	0	4	2	8	0								
14	Clarence Valley	21,790	21,840	21,890	20,900	0.98	21,460	0.88	0.98	18,966	0.6	0.6	0.5	45,700	45,700	45,700	130	104	1,123	19	0	1		19	2	90	1.9	0	1.4	66	0	10	0	13	0								
15	Eurobodalla	20,700	20,820	20,830	18,970	0.94	19,580	0.95	0.94	18,594	0.7	0.9	0.9	31,300	31,200	31,400	320	36	884	22	2	1	5	14	2	131	2.6	49	1.5	100	0	9	5	33	0								
16	Wingecarribee	19,720	19,960	20,150	17,860	0.95	19,150	0.90	0.96	17,398	0.6	1.5	1.4	39,600	40,200	40,600	120	7	661	29	2	2		15	2	146	2.8	0	1.1	78	46	3	4	14	0								
17	Queanbeyan (Reticulator)	15,810	15,930	16,850	12,630	1.03	17,350	0.94	1.04	16,417	1.4	7.9	1.7	38,100	38,500	39,200	110		300	58	0			4	1	52	0.9	0	0.6	100	5	2	0	5	0								
18	Dubbo	15,260	15,450	15,850	15,540	1.11	17,590	0.88	1.11	15,538	0.7	1.1	2.3	34,500	34,800	35,200	110	8	508	35	1		7	9	2	123	2.2	0	0.6	73	0	1	4	1	0								
19	Orange	16,930	17,190	17,520	18,150	1.00	17,520	0.91	1.00	16,011	1.7	1.7	1.4	40,100	40,900	41,400	100	3	634	28	1	3	6	8	1	1,055	18.5	9,130	1.1	100		0	0	0	0								
20	Goulburn Mulwaree	9,640	10,080	10,860	10,030	1.03	11,190	0.90	1.03	10,107	1.5	3.0	0.9	22,500	22,500	22,500	100	94	282	40	2	2		9	3	551	6.2	1,150	1.5	100	21	1	3	3	0								
21	Bathurst Regional	14,500	14,830	14,970	13,720	1.05	15,720	0.90	1.07	14,393	1.5	1.3	1.1	33,600	34,000	34,300	170	15	395	40	1	2	2	11	3	473	7.4	0	1.4	32	4	1	0	0	0								
22	Lismore (Reticulator)	13,560	13,620	13,640	13,410	1.05	14,320	0.88	1.06	12,675	0.9	0.4	0.4	30,700	30,800	31,600	100		343	42	0	1		5	1	87	1.2	0	1.1	100	5	1	2	68	2								
23	Bega Valley (Unfiltered)	14,630	14,680	14,650	11,730	0.98	14,360	0.92	0.98	13,190	0.6	0.9	0.8	24,200	24,400	24,600	160	114	615	23	0	3	11	20	3	284	4.1	0	1.6	100	0	0	3	14	0								
24	Ballina (Reticulator)	15,030	15,250	15,440	12,800	0.93	14,360	0.90	0.93	12,936	1.1	1.2	1.6	37,100	37,500	37,800	130	0	333	43	1	1	2	4	1	215	3.1	0	0.7	100	37	0	4	0	0								
25	Kempsey (Groundwater)	12,130	11,990	12,030	11,590	1.04	12,510	0.88	1.03	10,962	0.4	0.7	0.8	25,300	25,000	26,800	140	224	491	25	4	1	37	22	4	428	5.4	0	1.6	100	34	1	5	3	0								
26	Essential Energy	10,510	10,520	10,530	10,400	1.00	10,530	0.91	1.00	9,600	0.0		0.0	19,200	19,000	19,000	100	156	382	28	3	3		11	3	350	3.7	0	6.2	15	0	0	0	0	0								
27	Byron (Reticulator)	11,500	11,620	11,690	10,030	0.96	11,220	0.87	0.96	9,744	0.8	0.9	2.6	20,700	20,700	20,700	170	1	239	47	1			8	3	31	0.3	0	0.8	100	1	0	6	0	0								
28A	Goldenfields (Reticulator) (NO SGE)	10,800	10,850	10,940	10,940	0.94	10,280	0.69	0.94	7,061	0.4	0.8	1.0	22,900	22,900	22,900	100		1,834	6	1			37	2	162	1.7	0	4.1	43	3	18	5	45	0								
28B	Goldenfields (Bulk Supplier) (NO SGE)	20,230	20,900	20,520		0.94	19,290	0.75	0.94	14,536				37,600	37,600	37,600			315		3		6				0.7	0															
Medians (% of LWUs basis excl bulk suppliers) or Totals for >10,000 Properties		Total 625,000			Total 613,000			Total 1,370,000			Total 1,100			Total 19,180			Median 35			Total 69			Total 42			Total 171			Total 436			Median 162			Total 144.7			Median 1.4			Median 3.0		
<b>LWUs with 3,001 - 10,000 Properties</b>																																											
29	Armidale Dumaresq	8,690	8,770	8,930	8,870	0.98	8,750	0.92	0.98	8,086	0.5	0.9	0.8	21,200	21,200	21,400	110	62	290	30	1	3		11	4	424	3.7	0	2.0	45	5	0	3	0	0								
30	Griffith	9,870	10,470	9,970	9,970	0.85	8,470	0.82	0.84	6,864	0.9	0.8	0.9	24,600	25,600	25,400	100	1	467	18	2			4	1	98	0.8	0	2.6	91	0	2	1	36	1								
31	Lithgow	8,230	8,240	8,240	8,320	0.98	8,080	0.94	0.98	7,582	0.5	0.7	0.4	20,900	20,900	16,700	100	5	117	69	1	1		4	3	106	0.9</																



**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				
	(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)			
	2012/13	2013/14	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15				
39	Cowra	5,650	5,540	5,600	5,640	0.95	5,320	0.80	0.95	4,281	0.4	0.7	0.7	8,600	8,600	8,600	120	2	482	11	2	2	19	4	324	1.7	201	0.6	100	0	0	2	0	0	
40	Central Tablelands (NO SGE)	5,710	5,730	5,780	5,880	0.95	5,490	0.74	0.95	4,052	0.9	0.7	0.9	12,200	13,100	14,000	110	24	561	10	2	1	7	27	5	154	0.8	0	3.4	43	1	0	1	0	0
41	Muswellbrook	6,090	6,130	6,160	6,160	0.94	5,810	0.91	0.96	5,370	2.8	4.2	2.6	13,000	13,200	13,300	5	165	35	3	3	9	5	406	2.4	0	2.1	92	24	1	6	6	0		
42	Corowa	5,770	5,860	5,860	5,190	0.93	5,450	0.90	0.93	4,917	1.1	1.1	1.3	10,100	10,100	9,700	190	2	177	31	3	2	8	5	254	1.4	0	1.7	100	0	1	3	1	0	
43	Tumut	4,660	4,690	4,740	4,740	0.95	4,500	0.88	0.95	3,946	0.4	0.7	0.8	8,600	8,600	8,600	140	17	185	24	4	1	3	12	6	63	0.3	0	1.3	83	0	0	0	0	0
44	Gunnedah (Groundwater)	4,590	4,370	4,270	4,320	1.02	4,350	0.91	1.02	3,979	1.6	1.2	1.0	9,900	10,000	10,100	120	42	183	24	0	17	21	11	274	1.2	0	1.6	100	5	1	4	9	1	
45	Upper Hunter	5,060	4,780	4,780	4,330	0.92	4,400	0.92	0.93	4,079	1.3	3.4	1.5	11,100	12,100	13,200	100	1	175	25	1	1	9	13	7	692	3.0	0	2.0	100	3	9	5	37	2
46	Narrabri (Groundwater)	4,540	4,590	4,480	3,940	0.98	4,390	0.88	0.98	3,853	0.7	0.7	0.4	11,800	12,200	12,100	100		152	29	0	11	12	8	261	1.1	191	2.1	100	0	6	1	4	0	
47	Bellingen (Unfiltered)	4,290	4,300	4,300	4,410	0.95	4,090	0.89	0.95	3,655	0.6	0.4	0.2	9,600	9,600	9,900	100	4	167	24	2	1	4	6	4	130	0.5	0	1.0	100	10	0	5	0	0
48	Leeton	4,060	4,250	4,440	4,360	0.92	4,080	0.87	0.92	3,543	0.6	0.6	0.8	8,900	9,000	9,000	100	2	192	21	3	3	6	3	254	1.0	0	1.7	57	0	1	7	100	6	
49	Young (Reticulator)	4,510	4,550	4,700	4,460	1.04	4,880	0.85	1.04	4,137	0.9	0.8	1.0	9,500	9,600	9,600	110		150	33	0		3	2	40	0.2	0	1.0	100	10	0	3	0	0	
50	Cooma-Monaro	3,850	3,860	3,860	3,900	0.95	3,670	0.88	0.95	3,215	0.3	0.3	0.2	7,100	7,400	7,400	130		134	27	1	4	3	2	535	2.0	1,475	2.6	100	0	1	2	5	0	
51	Forbes	3,610	3,650	3,680	3,640	1.01	3,720	0.90	1.01	3,345	0.7	0.4	0.6	7,900	7,900	7,900	110	10	138	27	1	2	6	4	167	0.6	0	2.2	75	8	0	3	0	0	
52	Snowy River (Unfiltered)	3,610	3,660	3,710	2,930	1.43	5,310	0.92	1.43	4,879	0.3	0.2	0.3	4,000	4,300	4,400	370	2	128	41	7	1	19	15	198	1.1	21	1.3	72	30	0	4	0	0	
53	Berrigan (Dual Supply)	3,580	3,590	3,620	3,280	0.98	3,540	0.88	0.98	3,112	0.8	1.0	1.1	6,800	6,800	6,900	110	4	208	17	4	4	8	4	41	0.1	0	1.6	55	0	1	1	5	0	
54	Deniliquin	3,650	3,660	3,650	3,720	0.96	3,500	0.88	0.95	3,057	0.4	0.2	0.1	6,600	6,600	6,600	170	1	149	23	1	1	5	3	32	0.1	0	1.4	40	0	0	1	0	0	
55	Warrumbungle	3,350	3,340	3,350	3,120	0.99	3,310	0.85	0.97	2,750	0.5	0.2	0.4	5,900	5,900	5,900	100		148	22	4	1	6	8	5	164	0.5	12	3.8	100	65	0	5	0	0
56	Yass Valley	3,240	3,290	3,320	3,160	0.98	3,250	0.92	0.98	2,976	1.2	1.1	1.6	6,700	6,700	6,700	110	2	162	20	1	1	5	8	5	0	0.0	0	1.4	67	10	0	1	0	0
Medians (% of LWUs basis) or totals 3,001 to 10,000 Properties		Total 153,000			Total 149,000		Total 330,000			Total 316	Total 6,329	Median 26	Total 56	Total 23	Total 150	Total 266	Median 166	Total 47.2	Median 1.7	Median 2.4															
<b>LWUs with 1,501 - 3,000 Properties</b>																																			
57	Wellington	2,950	2,970	2,970	2,840	0.98	2,910	0.88	0.98	2,576	0.3	0.3	0.2	6,500	6,500	6,600	130	5	104	28	2	2	7	7	32	0.1	0	1.7	40	3	2	0	0	0	
58	Cootamundra (Reticulator)	3,030	3,030	3,040	3,150	0.99	3,010	0.89	0.99	2,667	0.7	0.6	0.4	5,600	5,600	5,600	130		70	43	0				24	0.1	0	1.3	50	10	2	4	25	3	
59	Lachlan	2,780	2,780	2,790	2,700	1.02	2,840	0.76	1.02	2,171	0.5	1.0		5,400	5,400	5,400	110	35	233	12	3	5	4	16	7	913	2.6	2,094	2.8						
60	Glen Innes Severn	3,280	3,280	3,390	3,230	0.90	3,050	0.84	0.91	2,597	0.5	0.5	0.4	6,200	6,200	6,200	120	5	108	28	2	2	2	3	3	481	1.5	700	1.1	100	0	0	0	0	0
61	Liverpool Plains	2,820	2,850	2,820	2,590	0.98	2,760	0.95	0.98	2,640	0.2	0.7	0.4	5,900	5,900	5,900	110	16	132	21	1	1	12	13	10	283	0.8	354	2.2	100	0				
62	Narramine (Groundwater)	2,230	2,230	2,240	2,280	0.95	2,120	0.87	0.95	1,858	0.2	0.4	0.1	4,900	5,200	5,100	130	5	72	29	2	2	8	3	4	137	0.3	371	1.4	100	1	1	5	34	5
63	Narrandera (Groundwater)	2,260	2,250	2,270	2,250	0.92	2,090	0.86	0.92	1,798	0.2	0.2		4,800	4,800	4,500	110	2	88	24	0	4	4	5	394	0.8	0	2.9	17						
65	Murray (Dual Supply)	3,070	3,160	3,210	2,800	0.95	3,050	0.88	0.95	2,692	1.2	1.6	2.9	7,300	6,700	6,800	210	7	167	18	2	1	9	5	155	0.5	0	1.1	100	0	0	0	0	0	
67	Cobar	2,380	2,380	2,380	2,350	0.95	2,260	0.85	0.95	1,923	0.5	0.4	0.5	6,000	6,000	6,000	120	3	116	19	1	1	6	5	0	0.0	0	1.8							
66	Cobar WB																	336		4		3			0			100							
68	Tenterfield	2,130	2,120	2,090	2,080	0.95	1,990	0.87	0.95	1,737	0.6	1.0	0.3	3,700	3,700	3,700	100		69	29	2	1	1	4	6	258	0.5	0	1.5	100	0	2	0	20	3
70	Kyogle	2,000	2,010	2,020	1,980	0.95	1,910	0.87	0.95	1,666	0.2	1.2	1.0	3,700	3,700	3,700	120	15	56	34	2	1	3	5	9	81	0.2	508	3.7	86	5	0	4	0	0
71	Palerang	2,230	2,330	2,360	2,300	0.95	2,240	0.91	0.95	2,028	2.4	4.7	1.1	5,000	5,100	5,300	100	8	75	30	4	2	5	4	5	516	1.2	0	1.6	100	0	0	0	0	0
73	Upper Lachlan	1,960	1,970	1,990	1,860	1.00	1,990	0.88	1.00	1,748	0.3	1.6	1.1	2,900	2,900	2,900	110	2	64	31	3	3	6	3	5	192	0.4	252	1.8	100	1	0	0	0	0
74	Wentworth (Dual Supply)	2,460	2,390	2,440	4,530	0.95	2,320	0.92	0.95	2,145	1.3	2.1		4,000	3,800	3,800	130		182	13	3			12	7	207	0.5	0	1.7	50		4	3	0	0
75	Coonamble (Groundwater)	1,660	1,630	1,650	1,750	1.02	1,680	0.87	1.02	1,464		0.7	0.4	3,000	3,200	4,000	150	4	68	25	1	6	2	3	118	0.2	0	3.6	100	0	0	0	0	0	
76	Harden (Reticulator)	1,900	2,010	1,850	1,850	0.96	1,770	0.69	0.95	1,216	0.3	0.1	0.4	3,900	3,700	3,700	100		171	10</															



**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			
	(18)			(18a)	(19)	(20)	(21)	(22)	(22a)	(22b)	(23)	(24)	(25)	(25a)	(26)	(27)	(28)	(29)	(30)	(30a)	(31)	(31a)	(31b)	(32)	(34)	(37)	(38)	(39)	(40a)	(40b)				
	2012/13	2013/14	2014/15	2014/15	(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.	(%)				
<b>LWUs with 200 - 1,500 Properties</b>																																		
81	Gwydir	1,550	1,550	1,550	1,690	0.95	1,470	0.87	0.95	1,276	0.5	0.2	0.2	2,600	2,600	2,600	130	1	90	16	2	9	1	1	0	0.0	0	2.7	100	0	0	0	0	
83	Oberon (Reticulator)	1,320	1,330	1,280	1,280	1.01	1,300	0.84	1.02	1,098	1.0	0.3	0.8	3,200	3,200	3,200	130	4	39	33	1				115	0.1	0	3.1	75	8	0	0	0	
84	Gilgandra (Groundwater)	1,380	1,380	1,370	1,350	0.98	1,350	0.89	0.98	1,199	0.2		0.7	2,900	2,900	3,400	120	10	54	25	1	5	2	4	205	0.3	0	1.7	44		1	19	23	
85	Uralla	1,410	1,420	1,440	1,440	1.01	1,450	0.89	1.02	1,303	0.9	0.6	0.8	2,800	2,900	2,900	110	0	62	23	2	1		2	3	21	0.0	0	1.7	100	7	0	2	0
86	Hay (Dual Supply)	1,360	1,360	1,360	2,430	0.98	1,330	0.88	0.98	1,176	0.2	0.2	0.2	2,400	2,400	2,400	100	2	47	28	1			3	6	43	0.1	0	1.5	100	0	0	0	0
87	Bourke (Dual Supply)	1,310	1,380	1,380	1,180	1.00	1,380	0.83	1.00	1,144	0.4	0.7	0.7	2,100	2,100	2,100	130	0	41	34	1		1	2	5	0	0.0	641	2.2	100	0	0	0	0
88	Wakool (Dual Supply)	1,550	1,580	1,530	1,460	0.95	1,450	0.77	0.95	1,125	0.4	0.4	0.4	2,600	2,600	2,600	150		166	9	5	1		8	5	259	0.4	0	4.1	67	5	0	0	0
89	Bogan	1,100	1,120	1,180	1,080	1.01	1,190	0.87	1.01	1,042	1.1	1.4	2.7	2,500	2,600	2,600	130	34	58	21	1			1	2	0	0.0	0	1.7		2		0	
90	Guyra	1,420	1,310	1,330	1,360	0.95	1,260	0.90	0.95	1,140	0.3	2.5	3.4	2,500	2,500	2,500	100	10	60	21	1	2		1	2	39	0.0	0	2.0	100	5	0	10	0
91	Cabonne	1,200	1,220	1,230	1,230	0.95	1,170	0.84	0.95	987	0.6	0.7	0.8	1,800	1,800	1,800	100	58	52	23	2	3	7	4	8	389	0.5	0	6.0	100	14	0	2	0
92	Carrathool (Groundwater)	1,170	1,350	1,280	1,280	0.95	1,210	0.62	0.95	756	0.4	0.2	0.9	2,000	2,000	2,000	110	10	476	3	0	3	9	21	4	183	0.2	0	5.0	100	10			
93	Tumbarumba	1,230	1,230	1,230	1,240	0.95	1,170	0.88	0.95	1,026	3.0		1.8	1,700	1,700	1,700	130	16	66	18	2	1	2	2	3	591	0.7	392	1.7	100	0	0	0	0
94	Gundagai	1,070	1,150	1,160	1,160	0.85	990	0.87	0.84	848	0.6	0.8		2,400	2,400	2,400	210	0	36	28	1			2	6	27	0.0	0	2.0					
96	Warren (Dual Supply)	1,050	1,050	1,030	970	0.91	940	0.91	0.90	851	0.0		0.1	1,900	1,900	2,100	110	8	30	31	0		5	2	7	215	0.2	102	2.1	100	0	0	2	0
97	Bombala	940	940	940	850	0.95	890	0.84	0.95	746	0.0		0.1	1,900	1,900	1,900	110	4	39	23	2			3	8	55	0.0	0	2.2	100	0	0	0	0
98	Walcha	860	910	910	940	1.01	920	0.83	1.01	758	0.0		0.4	1,700	1,700	1,700	110	17	57	16	1	1		3	5	87	0.1	0	2.2	100	0	0	0	0
100	Balranald (Dual Supply)	960	960	960	840	0.95	910	0.84	0.95	761	0.0		0.3	2,300	1,600	1,600	160	2	30	30	2			5	17	0	0.0	0	1.1	100	0	0	0	0
101	Murrumbidgee (Groundwater)	770	770	770	840	1.03	790	0.88	1.03	700	0.4	0.1		1,700	1,600	1,700			32	25	1		4	3	9	59	0.0	0	5.1					
103	Central Darling (Dual Supply)	740	740	740	680	1.00	740	0.72	1.00	530	0.9	0.4		1,000	1,000	1,000	110		66	11	3	4	3	8	12	0	0.0	0	3.4	80	0	1	5	2
104	Boorowa	680	690	700	730	0.94	650	0.90	0.94	589	3.1	1.5	0.3	1,700	1,400	1,400	460	1	48	14	1	1	2	1	2	202	0.1	0	2.8	83	10	2	4	18
105	Brewarrina (Dual Supply)	600	570	550	540	0.86	470	0.88	0.86	412	1.1	0.9		1,500	1,500	1,600	110	7	38	12	2	1	1	2	5	66	0.0	22	4.3	100	0	0	0	0
106	Jerilderie (Dual Supply)	530	530	530	530	0.93	490	0.75	0.93	365	0.3			800	800	780	120	3	43	11	1			1	2	216	0.1	15	2.0		0	0	0	0
<b>Medians (% of LWUs basis) or totals 200 to 1,500 Properties</b>		<b>Total 24,450</b>			<b>Total 23,520</b>					<b>Total 45,980</b>			<b>Total 187</b>	<b>Total 1,630</b>	<b>Median 22</b>	<b>Total 33</b>	<b>Total 18</b>	<b>Total 48</b>	<b>Total 77</b>	<b>Median 63</b>	<b>Total 3.0</b>	<b>Median 2.2</b>	<b>Median 0.0</b>											
<b>Median All LWUs (% of LWUs basis)</b>																<b>New res dwellings 0.8 %</b>			<b>Properties served per km of main 27</b>			<b>Capital Expenditure/prop \$150</b>			<b>1.7</b>									
<b>Median All LWUs (Statewide basis)</b>																<b>0.9 %</b>			<b>32</b>			<b>\$181</b>			<b>1.5</b>									
<b>Totals (excluding bulk suppliers)</b>		<b>871,000 WS assessments</b>								<b>Total WS Population 1.83 M</b>								<b>163 water treatment works (Note 1)</b>					<b>Total WS Capital Expenditure \$206 M (including bulk suppliers)</b>											
<b>96 LWUs with WS services</b>		<b>828,000 WS connected properties</b>																<b>104 dams</b>					<b>Total No. of WS employees 1,370</b>											
		<b>774,000 WS residential connected properties</b>																<b>32,200 km of Transfer, Trunk &amp; Retic mains (includes bulk suppliers)</b>																

Notes: 1. In addition to these 163 water treatment works, the LWUs also have 73 chlorinators/aerators (see Appendix D1 on page 280).

2. Refer also to pages 21, 23 and 27 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)+(12a)] Potable (kL/property)			From Tables 6 & 8 [(1)+(11)+(12a)] 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																	
2012/13	2013/14	2014/15	2014/15	2014/15	2014/15	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15	2014/15	2014/15	2014/15	2014/15	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15	2013/14	2014/15	2013/14	2014/15	2013/14	2014/15	2013/14	2014/15	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15	
Sydney Water	87	81	74	4.6	1.3				29	30	26	160	183	179					523,509	541,492	528,825											198	206	201	198	206	201		
Hunter Water	75	82	91	4.1	1.3				32	30	29	236	303	267					70,238	73,725	69,749										176	181	168	176	181	168			

LWUs with > 10,000 Properties

1	Gosford	30	120	60	3.9	1.0	L1, P1	2011	58	112	68	23	22	17	171	187	126	0.4	-	3.4	373	0.4	490	14,400	16,530	15,400	123	117	70	0	0	158	144	137	124	156	161	160	156	161	160		
2	Wyong	30	30	30	1.6	1.0	Z5	2004	5	72	63	65	10	17	16	86	70	57	0.1	0.9	1.3	1015	0.8	292	14,200	14,800	14,400	658	1	1	7	5	167	163	120	130	155	157	150	166	158	150	
3	Shoalhaven	40	60	90	2.9	1.1	L15	2010	8	68	75	109	10	10	8	82	65	78	1.2	0.7	8.4	164	0.4	72	14,300	14,700	14,200	2,609	2,413	1,926	16	12	260	245	169	155	147	147	142	148	148	143	
4	Rous (Bulk Supplier) (NO SGE)				1.4								11	12	10	2	1	1	1.1		0.5	459	0.4	169	1,370	1,480	1,310																
5	MidCoast	60	60	60	1.6	1.0	NF	2015	9	97	92	95	8	8	9	2	2	6	0.4	-	2.6	173	0.4	253	8,700	9,560	9,160	133			15	10	166	154	140	136	143	150	142	143	150	142	
6	Tweed	60	60	60	2.0	1.0	L9, RDT	2011	6	131	102	87	4	8	4	27	50	19	-	-	4.1	66	0.1	125	9,090	9,770	9,170	382			6	6	186	240	129	152	176	184	178	176	184	178	
7	Port Macquarie-Hastings (Unfiltered)	40	40	40	1.5	1.0	L6	2011		62	57	55	3	2	3	11	10	14	1.0	0.0	3.3	207	0.3	124	6,470	6,670	6,610	300	141	195	5	6	209	167	125	117	155	157	151	155	157	151	
8	Riverina (Groundwater) (NO SGE)	80	80	90	1.5	1.0	Z4, L3	2011	6	135	146	143	14	19	7	55	63	57	1.7	1.3	3.0	345	1.6	61	15,900	15,790	15,600						239	202	219	166	330	324	311	330	324	311	
10	Coffs Harbour	70	60	50	2.0	1.0	Z77, L13	2010	5	95	67	63	10	3	3	35	9	11	0.3	0.1	5.8	12	0.0	272	6,150	6,530	6,100	265	9	9	22	17	147	179	126	120	161	169	167	161	169	167	
11	Albury City	60	60	50	2.0	1.0		2006		96	88	79	8	10	5				1.0	0.0	2.7			40	7,940	7,880	7,630	4	194	218	31	31	276	244	240	217	250	232	205	250	232	205	
12	Fish River WS (Unfiltered, Bulk Supplier)				17.7								5	8	6	1	0	0	-		0.1																						
13	Tamworth Regional	80	90	70	2.3	2.6	Z5, L7	2011	7	124	130	99	8	7	14	1			0.6	0.1	5.8	299	0.5	175	9,990	10,280	7,970	195	140	140	40	54	215	155	205	137	258	287	188	258	287	188	
14	Clarence Valley	100	110	110	2.1	1.1				126	179	198	12	13	11				0.3	0.0	8.3	79	0.2	154	5,920	6,550	6,280	192	63	47	3	3	145	145	128	133	155	161	147	155	161	147	
15	Eurobodalla	50	50	50	1.0	1.0	Z59	2007	8	89	75	77	11	13	13	57	93	120	0.5	-	11.1	243	0.5	106	3,570	3,610	3,520	170			6	7	203	188	162	168	116	119	114	116	119	114	
16	Wingecarribee	120	130	60	1.7	1.0	Z10, L12	2010	9	139	140	71	6	12	5	53	73	14	0.5	0.2	11.4	155	0.4	193	5,080	5,450	4,540	98			2	4	161	209	128	144	184	200	178	184	200	178	
17	Queanbeyan (Reticulator)	120	100	80	3.4	1.0	RDT44	2007		155	98	78	5	2	6	0	0	1	0.3	0.2	4.6	90	0.2	272	3,830	4,000	3,940				1	0	219	176	185	147	172	178	173	172	178	173	
18	Dubbo	100	120	120	3.6	2.4	L44	2011	8	168	138	131	4	4	5	27	58	20	0.2	-	2.7	322	0.7	216	9,600	8,920	8,590	260	269	208	22	25	265	248	237	214	365	350	327	365	350	327	
19	Orange	60	60	60	1.7	1.0	L98	2011	9	76	74	101	9	9	7	66	73	51	0.2	0.2	6.3	400	0.8	73	5,860	7,140	7,310	1,573			41	39	231	172	199	141	178	174	170	178	174	170	
20	Goulburn Mulwaree	70	80	70	2.5	1.0	NF	2015	10	86	92	78	11	11	10	276	17	3	0.4	0.2	12.3	865	0.8	412	2,830	3,030	2,750	227	37	10	53	66	210	187	152	127	159	165	139	159	165	139	
21	Bathurst Regional	80	60	80	2.9	1.1	Z5	2007	5	121	95	102	5	8	7	1	2	2	0.3	0.2	2.4	287	0.4	320	6,990	7,030	7,020	1,006	1,049	1,074	56	53	254	240	221	193	257	227	223	257	227	225	
22	Lismore (Reticulator)	40	40	40	1.5	1.0				62	61	60	25	37	20	123	32	49	0.6	0.6	5.9	348	0.9		3,010	3,190	3,180				1	0	163	140			151	155	155	151	155	155	
23	Bega Valley (Unfiltered)	140	50	50	0.9	1.0	NF	2010	7	257	102	91	8	9	6	3	1	3	0.5	1.0	20.4	329	0.7	165	4,460	3,770	3,460	511	66	57	17	13			156	168	139	134	137	139	134	137	
24	Ballina (Reticulator)	160	140	160	6.0	2.7	L7, P, RDT	2010	10	172	156	154	12	6	5	1	1	0	-		3.9	160	0.5	134	3,680	4,130	4,220				7	12	180	128	135	116	185	194	181	185	194	181	
25	Kempsey (Groundwater)	50	100	100	2.3	1.6	L100	2008	11	149	184	166	7	10	7	68	72	124	0.4	0.9	4.5	467	0.9	201	3,520	3,750	3,780	73			3	2	132	156	128	127	155	157	156	155	157	156	
26	Essential Energy	100	90	80	2.2	1.4	Z18	2009		137	134	121	24	16	14				0.3	0.0	0.5	66		368	6,960	6,840	6,340	1,723	957	872	10	12	172	150	159	133	280	281	257	285	281	257	
27	Byron (Reticulator)	80	70	50	2.2	1.2	WM	2015	7	82	68	67	7	9	9	14	13	13	0.4	1.1	5.3	93	0.2	156	3,310	3,240	3,380	547	285		15	13	142	146			175	181	180	175	181	180	
28A	Goldenfields (Reticulator) (NO SGE)	90	90	90	0.5	1.0		2009		137	164	161	26	10	13	95	77	96	0.7	0.8	2.4	36	0.3	48	5,520	6,220	6,180	107	132	134			278		276			259	284	272	263	287	275
28B	Goldenfields (Bulk Supplier) (NO SGE)				3.8					0	0	0							-		-	91	0.3	50			440	440															
Medians (% of LWUs basis excl bulk suppliers) for >10,000 Properties		70	60		2.0	1.0	Note: ILI < 1.0 is meaningless & has been increased to 1.0			9	9	7	36	44	19				225		170			6,150	6,670	6,340				10	12					159	172	170	159	172	170		

LWUs with 3,001 - 10,000 Properties

29	Armidale Dumaresq	60	140	110	3.5	1.5	L5	2008	7	106	151	131	15	32	14	115	136	74	0.7	1.1	5.3	458	0.7	254	3,120	3,240	2,920	72	75	64	32	31	196	204	183	181	263	223	198	272	231	198
30	Griffith	100	100	110	2.3	1.0	L48, P	2011	3	183	186	208	3	12	13	24	22	24	1.1	0.2	9.5	103	0.3	36	7,380	7,080	7,220	761	711	720		2	291	253	236	196	551	505	545	572	525	567
31	Lithgow	50	40	30	2.1					76	64	52			58				0.9	-	0.4	732	1.0	3																		







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																							
2012/13	2013/14	2014/15	2014/15	2014/15	2014/15	2014/15	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15	2014/15	2014/15	2014/15	2014/15	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15	2012/13	2013/14	2014/15								
88	Wakool (Dual Supply)	90	50	50	0.4	1.1	2004	7	92	68	70	2	7	6	3	10	6	0.6	-	-	226	1.16	64	780	770	770	405	405	405	0	109	109	109	146	143	142	517	507	502						
89	Bogan	300	350	200	3.6	5.0	L99	2011	10	680	759	315	19	23	48	47	34	24	0.8	7.9		222	850	870	720	5	10	30	9	3	213	263	183	181	379	381	339	379	381	339					
90	Guyra	70	110	70	1.6	1.0	RDT80	2009	8	116	168	102	6	5	7	45	52	44	-	0.2	3.5	82	0.2	520	640	450				0	240	255	172	158	201	263	177	201	263	177					
91	Cabonne	130	80	70	1.7	1.5	RDT	2015	9	139	97	84	19		23	7	5	1.9	0.7	0.7	15	0.0	10	390	340	260	138	45	47	31	42	361	351	207	201	106	144	150	144	180	187				
92	Carrathool (Groundwater)	60	70	100	0.3	1.0	Z77	2009	10	99	101	134	24	22	20	72	1		-	6.2	46	1.0	61	1,020	860	1,050	533	504	573	0	0	451			447	313	488	532	392	611					
93	Tumbarumba	40	90	80	1.5	1.0	Z73	2011	12	135	222	136	8	3	0	26	22	9	0.4	2.6	1047	2.1	108	320	370	270				0	220	266		190	188	203	139	188	203	139					
94	Gundagai	90	100	90	3.0			2011	7	180	212	176	17	11		13	41		-	-	-	75	0.1	67	590	820	600			29	39	256		256	398	354	396	398	354	396					
96	Warren (Dual Supply)	90	90	100	3.2	3.6	L94	2011	5	168	168	189	103	110	350	10	16	21	3.3	1.3	6.6	557	1.2	413	800	790	840	426	442	457	0	0	212	193	152	138	330	302	328	804	797	752			
97	Bombala	30	40	30	0.7	1.0				55	55	52	33	33	26				-	0.1	2.8	126	0.2	177	340	180	280			83	24	7	223	231	127	132	175	188	188	352	188	299			
98	Walcha	30	60	60	0.9	4.2	RDT95	2010	11	44	63	60	0		7	2		14	-	6.6	0.3		81	160	190	170	4	5	3	0	224	242	224	173	107	154	124	107	154	124					
100	Balranald (Dual Supply)	60	30	40	1.0	1.0				97	45	57	3	33	67			66		-	1.4		257	1,100	580	770	795	419	584	23	0	213		213	351	133	167	1,396	516	660					
101	Murrumbidgee (Groundwater)	130	180	170	4.5		Z78	2011	7	221	271	292	59	16					-	-	2.3	147	0.5	100	700	780	790			4	3	312		119	513	571	635	513	571	635					
103	Central Darling (Dual Supply)	30	30	30	0.3	1.0		2010		48	44	47	18	30	39	14	14	16		0.4	0.5		142	360	400	360	246	276	240	0	329		235	179	179	128	632	632	581						
104	Boorowa	50	160	30	0.5	1.0		2010	4	53	185	76	15	8	6	3		55	2.1	2.5	7.4	235	0.5	254	130	190	210	1		1	0	194	353	166	252	161	193	185	163	193	185				
105	Brewarrina (Dual Supply)	60	130	110	1.6	1.9	RDT	2012	7	131	218	181	68	55	111	6	20	4	2.6	0.9	0.6	24	0.1	316	780	790	1,260	400	400	941	14	0	207	374	133	107	552	581	614	1,103	1,163	1391			
106	Jerilderie (Dual Supply)	40	50	40	0.4	1.0				73	84	67	7	12	19	20	6	16		2.2	0.2	21	0.1	140	510	560	550	372	358	377	9	9	270	344	116	148	229	246	219	1,242	1,187	1242			
Medians (% of LWUs basis) for 200 to 1,500 Properties		75			2	1	Note: ILI < 1.0 is meaningless & has been increased to 1.0			22	18	20	21	13	14	2					123		142	615	705	720			12	0				209	215	186	302	440	449						
Median All LWUs (% of LWUs basis)		Leakage 80			2.0	1.1	Main Breaks per 100km of main			10	Interruptions			14	Mains			0.7	Renewals			0.5% of CRC	Median % Water Recycled			5%	Av Annual Res Water Supplied						205												
Median All LWUs (Statewide basis)		60								9	24			Rehabilitations			0.4%							166																					
Totals for all LWUs (excluding bulk suppliers)		74 LWUs reported recent leakage testing																		Total Urban Water Supplied 291,000 ML			Non-potable Water (Urban) (excl recycled) 20,000 ML																						

+ There are 12 LWUs with a dual water supply in 2014-15; Balranald, Berrigan, Bourke, Brewarrina, Central Darling, Hay, Jerilderie, Murray, Wakool, Walgett, Warren, Wentworth.

For these 12 LWUs, note 8 on page 33 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 on page 33, Non-Revenue Water (L/connection/d) should be used for tracking system performance over time. Use of Unaccounted for water (UFW) is not appropriate (see page 33) and should no longer be used by LWUs.

5. 74 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 (1)	Zone (2)	Utility Connections 2009-10 (No.) (3)	Zone Connections (4)	Connection Ratio Zone:Utility (5)	ILI Before (6) A9	Utility Potable Annual Water Supplied (ML) 2009-10 (7) W11.1	Estimated Water Loss - Before			Estimated Water Loss - After			Annual Water Savings (ML) (14)	Test (15)	Test Year (16)	Page (17)	Comments (MNF refers to Minimum Night Flow) (18)		
							(L/c/d) (8) A10	(ML) (9)	(%) (10)	(L/c/d) (11) A10	(ML) (12)	(%) (13)							
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 Wide Bay Water job - big leak found
24	Ballina	Jameson Ave		370	3%	18.8		905	122	89%	54	7.3	5%	115					
	<b>Ballina</b>	<b>2 Zones</b>	<b>10960</b>	<b>820</b>	<b>7%</b>		<b>4050</b>	<b>511</b>	<b>153</b>	<b>50%</b>			<b>10%</b>	<b>124</b>	<b>L7, P</b>	<b>2010</b>	<b>22</b>		
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 Tiny zone, MNF of 0.1 L/s measured Tiny zone, MNF of 0.1 L/s measured
	Bega Valley	Wallaga		105	1%	0.5		24	0.9	3%									
	Bega Valley	Pambula South		160	1%	0.4		19	1.1	2%									
	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	<b>Bega Valley</b>	<b>10 Zones</b>	<b>11530</b>	<b>6779</b>	<b>59%</b>		<b>3600</b>	<b>149</b>	<b>368</b>	<b>17%</b>			<b>12%</b>	<b>120</b>	<b>WM20, Z39</b>	<b>2008</b>	<b>27</b>		
	Bellingen	Yellow Rock		140	3%	0.8		31	1.6	4%	27	1.4	3%	0.2					PM only PM only Estimated reduction for leak results Estimated reduction for leak results Includes trunk and retic leak detection
	Bellingen	Newry Island		130	3%	1.0		76	3.6	9%	13	0.6	2%	3.0					
	Bellingen	Urunga		923	22%	3.6		89	30.1	11%	69	23.2	8%	6.9					
	Bellingen	Mylestom		185	4%	3.8		178	12.0	22%	43	2.9	5%	9.1					
	Bellingen	North Bellingen PMZ		670	16%	1.9		137	33.4	17%	28	6.9	3%	26.5					
47	<b>Bellingen</b>	<b>5 Zones</b>	<b>4260</b>	<b>2048</b>	<b>48%</b>		<b>1279</b>	<b>108</b>	<b>80.7</b>	<b>13%</b>			<b>6%</b>	<b>45.7</b>	<b>L48, P</b>	<b>2011</b>	<b>29</b>		
	Berrigan	Barooga		671	21%	1.3		29	7.2	4%				9.4					
	Berrigan	Berrigan		470	14%	2.1		73	12.6	11%	19	3.2	3%	28.4					
	Berrigan	Finley		1018	31%	3.5		116	43.2	17%	40	14.8	6%	91.4					
	Berrigan	Tocumwal		974	30%	9.3		389	138	57%	131	46.7	19%	129	<b>L76</b>	<b>2011</b>	<b>30</b>		
53	<b>Berrigan</b>	<b>4 Zones</b>	<b>3250</b>	<b>3133</b>	<b>96%</b>		<b>811</b>	<b>176</b>	<b>201</b>	<b>26%</b>			<b>9%</b>	<b>129</b>					
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%				8.8					No impact from leak repairs here
	Byron	Orana Rd DMA		240	3%	2.4		159	13.9	19%	58	5.1	7%	76.2					
	Byron	Balemo Dr DMA (Net)		480	5%	6.7		455	79.7	54%	20	3.5	2%	85.0					
27	<b>Byron</b>	<b>3 Zones</b>	<b>9590</b>	<b>1600</b>	<b>17%</b>		<b>2954</b>	<b>185</b>	<b>108</b>	<b>22%</b>			<b>5%</b>	<b>85.0</b>	<b>Z9, L8</b>	<b>2009</b>	<b>38</b>	Updated flow results August 11	
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 Lack of Council funds to proceed Lack of Council funds to proceed
	Carrathool	Goolgowi Potable		143	13%	0.9		50	2.6	2%									
	Carrathool	Hillston		553	52%	9.3		276	55.8	11%									
92	<b>Carrathool</b>	<b>3 Zones</b>	<b>1070</b>	<b>823</b>	<b>77%</b>		<b>1028</b>	<b>253</b>	<b>76.1</b>	<b>10%</b>			<b>10%</b>	<b>0.0</b>	<b>Z77</b>	<b>2010</b>	<b>40</b>		
	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					
14	<b>Clarence Valley</b>	<b>4 Zones</b>	<b>21430</b>	<b>14260</b>	<b>67%</b>		<b>6503</b>	<b>228</b>	<b>1185</b>	<b>27%</b>			<b>15%</b>	<b>545</b>	<b>L61, Z5</b>	<b>2011</b>	<b>44</b>	Big leak found	
	Coffs Harbour	Sawtell		1433	6%	0.4		25	12.9	3%									No significant leakage No significant leakage Council not willing to pursue this zone No significant leakage No significant leakage No significant leakage Total predicted savings low - 2.2ML/y
	Coffs Harbour	Toormina		4669	21%	0.5		18	30.3	2%									
	Coffs Harbour	South Coffs		4148	18%	1.6		95	143	12%									
	Coffs Harbour	North Coffs - Red Hill		4978	22%	0.8		42	75.9	6%									
	Coffs Harbour	Sandy Beach		745	3%	0.7		30	8.1	4%									
	Coffs Harbour	Sapphire Beach		552	2%	0.1		5	1.0	1%									
	Coffs Harbour	Moonee		207	1%	1.7		78	5.9	10%									
	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	<b>Coffs Harbour</b>	<b>9 Zones</b>	<b>22620</b>	<b>20472</b>	<b>91%</b>		<b>6273</b>	<b>45</b>	<b>339</b>	<b>6%</b>			<b>5%</b>	<b>27.2</b>	<b>Z77, L13</b>	<b>2010</b>	<b>48</b>		
	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	<b>Cooma-Monaro</b>	<b>4 Zones</b>	<b>3780</b>	<b>3024</b>	<b>80%</b>		<b>1227</b>	<b>131</b>	<b>145</b>	<b>15%</b>			<b>9%</b>	<b>58.1</b>	<b>L59</b>	<b>2011</b>	<b>50</b>		
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 (1)	Zone (2)	Utility Connections 2009-10 (No.) (3)	Zone Connections (4)	Connection Ratio Zone:Utility (5)	ILI Before (6) A9	Utility Potable Annual Water Supplied (ML) 2009-10 (7) W11.1	Estimated Water Loss - Before			Estimated Water Loss - After			Annual Water Savings (ML) (14)	Test (15)	Test Year (16)	Page (17)	Comments (MNF refers to Minimum Night Flow) (18)	
							(L/c/d) (8) A10	(ML) (9)	(%) (10)	(L/c/d) (11) A10	(ML) (12)	(%) (13)						
42 Corowa	Howlong	4900	952	19%	0.8	2183	35	12.2	3%	171	154	5%	0.0	Z57	2008	54		
	Corowa		1844	38%	1.9		68	45.4	6%									5%
	Corowa LL		2796	57%			56	57.6	5%									
39 Cowra	ICL1	5470	18	0.3%	NA	2790	0	0.0	0%	171	154	12%	44.1	L42	2011	58	New Zone with zero MNF. ILI calc not possible No major change in night flow	
	Low Level		1746	32%	1.2		89	56.4	6%									
	High & Intermediate		2459	45%	4.2		221	198	16%									
54	Deniliquin	3560	3613	100%	3.9	2430	151	199	8%	118	155	6%	44.2	L100	2011	60	High industrial usage overnight	
18 Dubbo	Dubbo	14830	344	2%	1.0	7692	38	4.7	3%	252	70.1	18%	47.3	L44	2011	64		
	Dubbo		861	6%	4.3		229	71.8	16%									
	Dubbo		2800	19%	2.8		125	128	9%									
	Dubbo		267	2%	6.0		357	34.8	25%									
	Dubbo		835	6%	2.5		175	53.2	12%									
	Dubbo		622	4%	10.7		566	129	40%									
	Dubbo		763	5%	6.7		422	117	30%									
26	Essential Water	10370	1867	18%	0.9	4747	28	19.1	2%					WM18	2011	56	No significant leakage	
15 Eurobodalla	Eurobodalla	17880	139	1%	0.5	4034	32	1.6	5%	65	82.9	11%	17.7	Z59	2007	66		
	Eurobodalla		300	2%	0.6		38	4.2	6%									
	Eurobodalla		301	2%	1.0		91	10.0	15%									
	Eurobodalla		464	3%	0.9		51	8.7	8%									
	Eurobodalla		569	3%	0.1		3	0.7	1%									
	Eurobodalla		670	4%	0.9		36	8.7	6%									
	Eurobodalla		847	5%	0.1		8	2.6	1%									
	Eurobodalla		862	5%	0.5		30	9.5	5%									
	Eurobodalla		1042	6%	3.0		129	49.2	21%									
	Eurobodalla		1162	6%	1.3		86	36.4	14%									
	Eurobodalla		1313	7%	0.5		31	14.8	5%									
	Eurobodalla		1445	8%	1.1		42	22.0	7%									
	Eurobodalla		1466	8%	0.4		23	12.3	4%									
	Eurobodalla		3471	19%	1.1		79	101	13%									
51	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	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	
1 Gosford	Gosford	59510	244	0.4%	8.8	13594	717	63.9	115%	8	1.5	1%	63.1	L1, P	2011	72	Pressure reduced from 74mH to 50m Pressure reduced from 78mH to 50m	
	Gosford		530	1%	3.0		219	42.4	35%									
20	Goulburn Mulwaree	9100	6973	77%	4.7	2213	296	752	44%	70	177	10%	575	L77	2011	74		
80 Greater Hume	Greater Hume	1740	600	34%	2.9	488	89	19.4	12%			11%	0.0	L73, RDT	2008	76		
	Greater Hume		675	39%	0.5		81	20.0	11%									
30 Griffith	Griffith	8970	3282	37%	2.8	6988	282	337	13%	71	85.1	3%	252	L48, P	2011	78		
	Griffith		251	3%	1.9		388	35.5	18%									
	Griffith		737	8%	2.3		116	31.2	5%									
44 Gunnedah	Gunnedah	4460	1210	27%	1.2	2299	49	21.4	3%	60	62.1	4%	39.3	L63	2011	84	No significant leakage Reservoir repairs were expensive	
	Gunnedah		2826	63%	1.4		98	101	7%									
90	Guyra	1120	900	80%	1.4	491	92	30.1	8%					RDT80	2009	86	Lack of resources	
81 Gwydir	Gwydir	1670	872	52%	2.3	626	142	45.3	14%	105	33.5	10%	11.8	L95	2011	88	One leak already found and fixed	
	Gwydir		721	43%	11.5		458	121	45%									
76 Harden	Harden	1850	70	4%	NA	747	0	0.0	0%	101	29.6	9%	4.7	L43	2011	90	MNF is zero, ILI calc not possible MNF is zero, ILI calc not possible MNF is zero, ILI calc not possible	
	Harden		104	6%	NA		0	0.0	0%									
	Harden		214	12%	NA		0	0.0	0%									
	Harden		800	43%	1.6		118	34.3	11%									
86 Hay	Hay	2430	1200	49%	3.9	388	102	44.6	23%	66	28.8	15%	15.8	L98	2011	92		
	Hay		1200	49%	4.1		131	57.4	30%									
	Hay		2400	99%			116	102	27%									



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

WATER UTILITY (1)	Zone (2)	Utility Connections 2009-10 (No.) (3)	Zone Connections (4)	Connection Ratio Zone:Utility (5)	ILI Before (6) A9	Utility Potable Annual Water Supplied (ML) 2009-10 (7) W11.1	Estimated Water Loss - Before			Estimated Water Loss - After			Annual Water Savings (ML) (14)	Test (15)	Test Year (16)	Page (17)	Comments (MNF refers to Minimum Night Flow) (18)	
							(L/c/d) (8) A10	(ML) (9)	(%) (10)	(L/c/d) (11) A10	(ML) (12)	(%) (13)						
25	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	4340	4027	93%	8.5	2956	274	403	15%	161	236	9%	167	L93	2011	96		Large industrial component
61	Liverpool Plains	2540	137	5%	3.0	920	148	7.4	15%	22	1.1	2%	6.3	L13	2011	102	Updated June 2011	
	Liverpool Plains		190	7%	16.9		880	61.0	89%	198	13.7	20%	47.3					
5	MidCoast Water	32910	2346	7%	2.3	9163	175	150	23%	122	105	16%	45.3	P7	2010	106	Pressure managed only, no leak detection	
32	Mid-Western	6490	1664	26%	1.3	2536	132	80.2	12%	79	48.1	7%	32.1	L59	2011	108		
	Mid-Western		2147	33%	2.2		132	103	12%	67	52.7	6%	50.8					
38	Moree Plains	4790	4554	95%	4.4	3183	129	215	7%	56	93.2	3%	122	L95	2011	110		
65	Murray	2640	2263	86%	0.6	711	20	16.2	3%	30	4.6	4%	12.6	Z86, L16	2011	112		
	Murray		424	16%	4.4		111	17.2	15%									
101	Murrumbidgee	990	373	38%	5.4	672	176	24.0	9%			7%	0.0	Z78	2010	114		
	Murrumbidgee		398	40%	1.9		72	10.4	4%									
41	Muswellbrook	5410	620	11%	4.9	2385	182	41.1	15%	70	15.8	6%	25.3	L12	2010	116		
	Muswellbrook		60	1%	5.5		315	6.9	26%	87	1.9	7%	5.0					
34	Nambucca	5820	720	12%	1.3	1534	30	7.8	4%			6%	6.0	Z32, L59	2010	118	No significant leakage	
	Nambucca		500	9%	0.4		9	1.6	1%									9.4
	Nambucca		615	11%	1.7		37	8.3	5%									45.0
	Nambucca		440	8%	1.6		79	12.7	11%									6.0
	Nambucca		504	9%	2.8		86	15.9	12%									9.4
	Nambucca		2502	43%	2.9		101	91.8	14%									45.0
46	Narrabri	3980	716	18%	2.2	2295	63	16.4	4%				Z18	2010	120	No significant leakage		
62	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	1360	1314	97%	5.7	568	223	107	19%	78	37.6	7%	69.4	L97	2011	126		
19	Orange	15370	15055	98%	2.2	3896	152	836	22%	61	335	9%	501	L98	2011	128		
71	Palerang	2030	250	12%	0.3	490	26	2.4	4%	55	21.1	8%	22.4	L91	2011	130		
	Palerang		692	34%	0.6		22	5.5	3%									
	Palerang		1051	52%	2.9		113	43.5	17%									
36	Parkes	6500	615	9%	3.1	6606	232	52.1	8%	29	10.6	1%	72.6	Z9, L15	2011	132	No significant results. Costs in High Zone	
	Parkes		1004	15%	4.3		227	83.2	8%									
7	Port Macquarie-Hastings	26210	1486	6%	3.0	6391	134	72.9	20%	94	50.9	14%	22.0	L6	2011	134		
17	Queanbeyan	11470	4251	37%	4.8	4279	288	447	28%			27%	0.0	RDT44	2007	136	Project not undertaken	
	Queanbeyan		235	2%	1.9		124	10.6	12%									
	Queanbeyan		574	5%	2.3		223	46.7	22%									
33	Richmond Valley	6850	282	4%	2.2	3180	108	11.1	8%			7%	80.4	L92	2011	138	Leak detection/repairs done but no savings	
	Richmond Valley		303	4%	1.6		100	11.1	8%									
	Richmond Valley		525	8%	3.6		96	18.3	8%									5.4
	Richmond Valley		1494	22%	1.2		57	31.3	5%									13.9
	Richmond Valley		1205	18%	2.5		91	40.1	7%									15.4
	Richmond Valley		3051	45%	3.4		167	186	13%									45.7
8	Riverina Water	30110	480	2%	3.9	15853	122	21.3	8%			6%	20.8	Z4, L3	2011	140	No savings achieved from leak repairs?	
	Riverina Water		525	2%	0.8		46	8.8	3%									
	Riverina Water		35	0%	0.9		791	10.1	55%									
	Riverina Water		308	1%	0.6		87	9.8	6%									
	Riverina Water		54	0%	6.3		167	3.3	12%									2.2
	Riverina Water		171	1%	4.2		181	11.3	13%									7.9
	Riverina Water		263	1%	2.7		74	7.1	5%									5.9
	Riverina Water		278	1%	1.8		208	21.1	14%									4.8

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

WATER UTILITY (1)	Zone (2)	Utility Connections 2009-10 (No.) (3)	Zone Connections (4)	Connection Ratio Zone:Utility (5)	ILI Before (6) A9	Utility Potable Annual Water Supplied (ML) 2009-10 (7) W11.1	Estimated Water Loss - Before			Estimated Water Loss - After			Annual Water Savings (ML) (14)	Test (15)	Test Year (16)	Page (17)	Comments (MNF refers to Minimum Night Flow) (18)	
							(L/c/d) (8) A10	(ML) (9)	(%) (10)	(L/c/d) (11) A10	(ML) (12)	(%) (13)						
3 Shoalhaven	Berry	45670	899	2%	3.4	12902	356	117	46%	221	72.5	29%	44.2	L15	2008	144		
	Shoalhaven		1287	3%	2.9		143	67.1	18%	59	27.7	8%	39.4					
	Shoalhaven		1919	4%	1.5		122	85.2	16%	58	40.4	7%	44.8					
	Shoalhaven		2807	6%	4.7		390	400	50%	326	334	42%	66.2					
	FM 14 (Nowra CBD/Manildra)		2807	6%	4.7		390	400	50%	326	334	42%	66.2					
3 Shoalhaven	4 Zones		6912	15%			265	669	34%			24%	195					
52 Snowy River	High Level	2750	940	34%	1.7	846	110	37.8	13%	62	12.2	7%	22.0	L29, RDT	2011	146	Big leak found	
	Snowy River		541	20%	2.5		173	34.2	21%	172	15.4	20%	94.6					
	Snowy River		245	9%	17.3		1230	110	146%									
	Jindabyne Low Level		245	9%	17.3		1230	110	146%									
52 Snowy River	3 Zones		1726	63%			289	182	34%			12%	117					
13 Tamworth	Barraba	19430	1004	5%	2.2	9354	86	31.6	7%	89	43.5	7%	36.6	Z5, L7	2011	148		
	Tamworth		1339	7%	3.6		164	80.1	12%									
13 Tamworth	2 Zones		2343	12%			131	112	10%			7%	36.6					
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		
43 Tumut	Brungle	4900	47	1%	NA	1302	0	0.0	0%					L67	2011	154	MNF is zero, ILI calc not possible	
	Tumut		150	3%	0.6		44	2.4	6%									
	Tumut		320	7%	NA		0	0.0	0%									
	Tumut		450	9%	0.6		43	7.1	6%									
	Tumut		762	16%	2.1		131	36.3	18%	108	30.0	15%	6.3					
	Tumut		447	9%	2.4		153	25.0	21%	105	17.2	14%	7.8					
	Tumut		2071	42%	1.1		71	53.3	10%	37	28.1	5%	25.2					
	Tumut ML		2071	42%	1.1		71	53.3	10%	37	28.1	5%	25.2					
43 Tumut	7 Zones		4247	87%			80	124	11%			8%	39.3					
6 Tweed	Hartigans Hill	23880	740	3%	0.3	9674	13	3.6	1%					L9, RDT	2010	156	No significant leakage, no project undertaken	
	Tweed		1807	8%	0.9		41	26.8	4%									
	Tweed		2107	9%	2.7		174	134	16%	115	88.2	10%	45.6					
	Tweed		100	0%	26.3		2260	82.5	204%	200	7.3	18%	75.2					
6 Tweed	4 Zones		4754	20%			142	247	13%			7%	121				Big leak found	
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		
16 Wingecarribee	Kimberley	16920	72	0%	0.5	4789	61	1.6	8%					Z10, L12	2010	170		
	Wingecarribee		171	1%	0.9		66	4.1	8%									
	Wingecarribee		271	2%	0.4		27	2.7	4%									
	Wingecarribee		1241	7%	0.6		36	16.1	5%									
	Wingecarribee		201	1%	3.1		327	24.0	42%	70	5.1	9%	18.9					
	Wingecarribee		84	0%	8.1		564	17.3	73%	444	13.6	57%	3.7					
	Wingecarribee		860	5%	1.5		108	33.8	14%	57	18.0	7%	15.8					
	Wingecarribee		840	5%	3.1		303	93.0	39%	116	35.6	15%	57.4					
16 Wingecarribee	8 Zones		3740	22%			141	193	18%			9%	95.8					
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	
56 Yass Valley	O'Connel A	2950	320	11%	0.5	838	33	3.9	4%					RDT94	2009	174		
	Yass Valley		140	5%	1.9		174	8.9	22%									
	Yass Valley		1977	67%	0.4		23	16.3	3%									
	Yass Valley		350	12%	1.9		125	16.0	16%									
56 Yass Valley	4 Zones		2787	94%			44	45.1	6%			6%	0.0					
49 Young	Young	3960	3180	80%	1.5	1523	89	104	8%	34	39.2	3%	64.5	L80	2011	176		
<b>Totals</b>		<b>644,800</b>	<b>238,500</b>	<b>37%</b>		<b>224,600</b>	<b>154</b>	<b>13,400</b>	<b>16%</b>	<b>92</b>	<b>8,000</b>	<b>10%</b>	<b>5,500</b>	<b>68 LWUs</b>				

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

### Notes

- 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.
- 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](http://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.  $(12.9 + 30.3 + 143.2 + 75.9 + 8.1 + 1.0 + 5.9 + 16.7 + 17.9) / (6273 \times 0.91) = 5.4\%$ .
- 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).
- 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.
- 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.
- Calculations for columns: (10) =  $[(9) \times 100] / (7)$ . (13) =  $[(11) \times 100] / (7)$ . (9) =  $(8) \times (3) \times 365 / 10^6$ . (12) =  $(11) \times (3) \times 365 / 10^6$ . (5) =  $[(4) \times 100] / (3)$ .
- 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.
- 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.
- 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).
- 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 on page 172.



**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	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		Cross Subsidies		Externalities (Fees to Water NSW)	Loan Payment			Operating Cost (OMA)				Management Cost						
	(\$'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)	%			%			(\$/property)		Annual Fees & Charges (\$/assessment)	Developer Charge (\$/ET)	(\$/property)	(\$/property)			(\$/property)										
	(57) F1	(57) F1	(57a) F5	(58)	(59)	(58a) F4	(60) F9	(61)	(62)	(63) F22	(63) F22	(63) F22	(62a) F9/C4	(63a) F17	(63a) F17	(63b)	(63b)	(63b)	(65)	(64a)	(64b)	(66)	(66a)	(67) F11**	(67) F11**	(67) F11**	(67) F11**	(68) <sup>+</sup>	(68) <sup>+</sup>	(68) <sup>+</sup>	(68) <sup>+</sup>							
13/14	14/15	14/15	14/15	14/15	14/15	14/15	14/15	14/15	12/13	13/14	14/15	14/15	12/13	13/14	14/15	12/13	13/14	14/15	13/14	14/15	14/15	14/15	12/13	13/14	14/15	11/12	12/13	13/14	14/15	11/12	12/13	13/14	14/15					
Sydney Water	1,300,000	1,320,000	705		80	12,400			100	96	98	6600	1.9	1.9	2.3											365	408	408	386									
Hunter Water	147,000	140,000	588		95	2,420			75	78	81	10000	2.8	3.5	2.5											240	244	233	270									
Water NSW	209,000	205,000																																				
<b>LWUs with &gt; 10,000 Properties</b>																																						
1	Gosford	44,400	45,600	635	87	81	73	551	952	14,000	5	6	6	7,670	0.7	0.8	1.3	-0.2	0.0	0.4	6	36				4.3	109	117	466	344	373	367	331	130	133	122	109	
2	Wyong	48,400	52,400	825	90	74	67*	956	1471	22,500	10	9	9	15,100	1.2	1.4	1.5	-0.2	0.0	0.4	-47	-1				2.2	355	367	353	319	319	319	319	146	80	95	103	
3	Shoalhaven	23,200	26,800	568	68	62	75*	357	621	12,100	1	0	-1	7,570	1.2	0.9	1.7	2.0	1.6	2.3	119	158				1.9	10	11	6	280	281	274	276	133	139	131	129	
4	Rous (Bulk Supplier) (NO SGE)	22,500	23,000					326	465		6	4	5		1.1	1.7	1.8	0.8	1.2	1.3	40	61				4.5	89	87	98	192	234	238	268	93	109	104	123	
5	MidCoast	30,600	31,200	806	69	69	72	436	684	17,000	25	23	22	11,300	0.1	0.7	0.7	-1.5	-0.7	-0.9	-187	-148				1.7	301	295	809	484	429	411	477	113	110	99	126	
6	Tweed	32,400	28,800	893	75	73	75*	495	661	18,700	3	2	0	15,400	0.6	2.4	1.6	-0.2	1.7	0.9	212	104				6.9	184	182	180	393	429	423	419	171	186	176	185	
7	Port Macquarie-Hastings (Unfiltered)	30,200	26,700	878	69	76	68	348	573	17,900	-4	-5	-8	11,400	-0.5	1.7	1.2	-0.2	1.8	1.6	172	142				6.2	87	86	84	336	365	386	398	120	132	150	153	
8	Riverina (Groundwater) (NO SGE)	27,300	30,500	1,021	71	61	74	203	358	11,500	-4	-7	-9	6,810	3.5	5.3	7.5	3.6	5.6	7.9	235	376				2.9	11	33	30	318	384	338	271	106	152	122	72	
10	Coffs Harbour	20,200	22,100	882	76	75	76*	286	423	15,900	15	14	13	11,400	1.8	1.2	2.0	0.6	-0.2	0.6	-43	58				2.6	526	523	454	337	388	396	395	130	139	144	153	
11	Albury City	16,400	16,800	654	64	73	75	207	398	15,900	1	-2	-6.0	8,060	0.7	1.7	1.9	0.8	1.9	2.2	165	121				2.8	0	0	0	293	328	306	277	109	112	112	91	
12	Fish River WS (Unfiltered, Bulk Supplier)	10,000	10,000					35	255		0	0			10.9	15.6		10.9	15.6		191						0				164	192	143		56	66	43	0
13	Tamworth Regional	22,600	20,100	927	63	52	55	210	365	16,800	-2	-2	-4	9,690	1.5	3.3	2.0	1.9	3.6	2.3	366	68				17.7	50	44	58	504	517	536	518	180	171	198	201	
14	Clarence Valley	14,400	14,900	694	68	62	66	400	456	20,800	10	10	11	18,600	-0.1	0.7	0.4	-0.5	0.2	-0.1	31	-62				0.2	156	137	128	354	380	380	388	143	155	157	168	
15	Eurobodalla	15,500	17,000	868	84	77	58	278	418	20,100	2	1	-1	14,200	-0.3	0.4	1.1	-0.5	0.3	1.0	29	92				1.4	66	64	356	429	391	423	405	158	162	210	206	
16	Wingecarribee	13,500	13,200	689	76	77	68	169	284	14,100	0	-1	-4	8,820	0.7	1.8	1.5	0.9	2.1	1.8	180	132				0.3	21	20	20	322	348	375	371	141	135	139	143	
17	Queanbeyan (Reticulator)	18,900	19,100	1,101	90	82	61	95	163	9,650	-17	-19	-20	5,460	-0.9	0.9	0.4	-0.7	1.1	0.8	65	42				0.07	0	0	0	465	498	589	577	150	154	189	201	
18	Dubbo	17,800	20,600	1,171	75	67	74	170	223	14,100	0	-4	-3	9,650	2.9	3.3	5.0	2.1	2.6	4.4	204	392				8.9	107	106	104	379	457	504	482	161	169	159	160	
19	Orange	15,600	17,600	1,005	90	71	70	220	333	19,000	-13	-14	-12	12,500	3.7	2.9	4.0	4.3	3.3	4.4	284	436				4.1	59	55	56	316	345	383	339	127	139	141	144	
20	Goulburn Mulwaree	10,100	10,100	903	72	63	65*	211	300	27,700	-2	-5	-6	18,900	1.0	1.0	0.8	0.6	0.7	0.4	119	45				1.5	180	172	160	384	407	418	426	120	127	115	149	
21	Bathurst Regional	14,800	15,200	967	62	60	82	163	295	19,700	-11	-12	-12	10,400	0.9	1.8	1.6	1.1	2.0	1.7	175	126				8.1	0	0	0	426	510	532	545	125	124	154	143	
22	Lismore (Reticulator)	10,800	11,800	824	74	68	70	75	128	9,370	-1	-1	-2.2	5,250	-0.9	0.2	1.6	-0.8	-0.1	1.3	-35	38				0.2	29	45	48	416	481	495	493	109	112	127	111	
23	Bega Valley (Unfiltered)	10,300	9,990	696	80	71	65*	191	308	21,000	-2	-3	-3	13,300	-1.4	-0.6	-0.8	-1.1	-0.3	-0.5	-41	-68				3.5	0	0	0	550	520	506	543	181	236	265	298	
24	Ballina (Reticulator)	11,300	11,600	808	75	81	66	69	112	7,280	8	11	17	4,790	-0.7	0.3	1.2	-0.2	0.7	1.8	41	82				0.7	0	0	0	384	515	510	494	129	159	150	152	
25	Kempsey (Groundwater)	9,900	12,500	999	64	58	59	192	267	22,200	8	8	8	15,300	0.3	0.0	1.3	-0.3	-0.8	0.7	-162	43				7.1	196	248	237	411	433	481	477	164	170	188	182	
26	Essential Energy	15,000	14,600	1,387	52	58	59																				0	0	0	1247	1139	1281	1025	257	96	66	134	
27	Byron (Reticulator)	8,780	8,880	791	70	69	73	56	92	7,830	21	17	14	4,970	-0.5	1.6	1.6	0.1	2.1	2.1	88	83				0.5	6	6	37	396	463	479	482	126	127	130	137	
28A	Goldenfields (Reticulator) (NO SGE)	13,500	14,700	1,430	38	35	78	145	263	24,000	-9	-9	-13	14,100	1.1	2.3	3.6	1.4	2.7	4.0	399	575				4.8	0	0	0	715	809	811	830	156	177	212	248	
28B	Goldenfields (Bulk Supplier) (NO SGE)	4,930	5,510					63	114		-10	-11	-15		0.7	0.9	0.0	1.2	1.3	0.5	44	17					0	0	0	185	147	146	150	58	43	50	60	
Medians (% of LWUs basis excl bulk suppliers) for >10,000 Properties		551,280						16,900			2	1	-2		0.4	0.7	1.5				-25	75					371	384	418	423	134	131	139	147				
<b>LWUs with 3,001 - 10,000 Properties</b>																																						
29	Armidale Dumaresq	8,720	9,030	1,032	90	66	79	145	194	21,700	-4	-6	-7	16,600	2.7	1.0	2.0	2.7	0.9	2.1	204	352				6.6	71	70	52	613	436	581	420	87	136	185	112	
30	Griffith	8,470	8,900	1,051	69	64	82*	130	178	17,900	5	-5	2	15,300	0.4	0.7	0.7	1.0	1.0	0.9	149	137					0	0	108	674	683	625	702	298	297	280	297	
31	Lithgow	6,460	6,440																																			

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	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		Cross Subsidies		Externalities (Fees to Water NSW)	Loan Payment			Operating Cost (OMA)				Management Cost					
	(\$'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)	%			%		(\$/property)		Annual Fees & Charges (\$/assessment)	Developer Charge (\$/ET)	(\$/property)	(\$/property)			(\$/property)										
	(57) F1	(57a) F5	(58)	(59)	(58a) F4	(60) F9	(61)	(62)	(63) F22			(62a) F9/C4	(63a) F17			(63b)		(65)		(64a)	(64b)	(66)	(66a)			(67) F11**				(68) <sup>+</sup>							
	13/14	14/15	14/15	14/15	14/15	14/15	14/15	14/15	14/15	12/13	13/14	14/15	14/15	12/13	13/14	14/15	12/13	13/14	14/15	13/14	14/15	14/15	14/15	12/13	13/14	14/15	11/12	12/13	13/14	14/15	11/12	12/13	13/14	14/15			
37	Inverell	4,510	4,430	768	87	59	45	77	101	17,100	-6	-7	-6	13,400	0.5	1.0	0.8	0.7	1.3	0.9	172	115			6.6	62	100	45	539	549	547	524	104	60	57	61	
38	Moree Plains (Groundwater)	6,160	5,790	1,259	75	84	75*	49	81	17,000	7	8	3	10,700	1.4	3.9	4.1	0.2	3.0	3.1	322	328			9.2	154	155	185	615	658	707	598	286	231	282	208	
39	Cowra	5,480	6,830	1,284	60	54	79	53	127	22,600	5	6	6	9,940	2.5	0.1	2.0	2.2	-0.4	1.2	-201	-33			12.0	51	72	166	629	677	722	746	65	49	56	56	
40	Central Tablelands (NO SGE)	5,250	5,220	951	50	50	69*	53	121	20,900	-1	-4	-6	9,630	0.7	1.0	0.1	0.7	0.9	0.1	52	13			6.6	107	106	106	464	565	552	626	248	239	263	252	
41	Muswellbrook	5,610	4,860	836	67	70	69*	50	86	13,900	-22	-21	-21	8,550	2.3	0.1	-0.5	3.7	1.9	0.8	162	44			11.4	72	71	69	619	662	715	626	203	214	248	192	
42	Corowa	4,180	5,140	943	70	50	82	39	58	9,850	-7	-9	-11	7,130	3.5	1.7	3.6	4.1	2.3	4.2	142	239			6.6	0	0	0	420	491	479	469	202	221	201	113	
43	Tumut	3,540	3,420	760	63	67	78*	40	62	13,100	3	1	-1	8,900	1.2	1.2	0.4	0.5	-0.4	0.0	-129	-12			3.7	135	248	150	390	393	411	467	117	104	101	160	
44	Gunnedah (Groundwater)	4,260	4,320	993	71	59	74*	40	66	15,400	-20	-21	-22	9,160	1.6	3.6	3.3	2.6	4.4	4.1	391	283			6.6	0	0	0	397	410	429	475	186	154	162	168	
45	Upper Hunter	5,070	6,450	1,466	68	58	73*	50	76	15,900	-9	-11	-12	11,500	4.8	2.0	5.1	4.9	2.0	5.1	213	585			11.7	82	87	87	481	533	720	659	168	185	213	267	
46	Narrabri (Groundwater)	4,560	3,630	827	90	59	56	24	56	12,500	-31	-22	-24	5,570	8.6	6.8	2.6	13.0	8.7	4.2	439	225			8.2	1	0	0	344	432	453	480	144	166	192	267	
47	Bellingen (Unfiltered)	2,870	2,200	538	90	58	77	44	58	13,500	-19	-20	-18	10,700	0.3	1.4	-0.3	1.0	2.3	0.9	241	58			2.6	0	0	0	335	349	363	391	190	203	186	250	
48	Leeton	3,480	3,680	902	75	64	66	35	72	16,300	-20	-20	-19	8,570	0.7	-0.4	0.4	1.5	0.3	1.1	-5	27				4	4	26	531	613	632	590	125	142	140	141	
49	Young (Reticulator)	3,140	3,770	773	74	61	69	16	50	10,700	-8	6	3	3,370	-1.8	-2.0	-0.7	-1.2	-1.8	-0.2	-75	-33			0.1	8	8	8	203	214	230	254	58	53	63	69	
50	Cooma-Monaro	3,360	3,280	894	69	79	64*	41	82	21,200	-7	-7	-10	11,100	0.5	0.2	0.8	0.8	0.5	1.1	7	95			6.1	0	0	0	477	553	599	540	205	327	266	228	
51	Forbes	2,740	2,970	798	90	64	66	33	73	19,700	-14	-15	-16	8,980	-1.1	-1.7	-1.6	-0.1	-1.0	-0.8	-88	-73			21.1	0	0	0	479	597	623	671	110	179	70	72	
52	Snowy River (Unfiltered)	3,050	2,980	561	70	76	41	24	50	13,400	-4	-6	-8	4,600	0.3	1.1	1.0	0.6	1.3	1.2	61	60			0.9	27	22	20	360	368	340	311	158	162	112	105	
53	Berrigan (Dual Supply)	2,880	3,120	881	90	67	40	27	43	12,000	-13	-16	-19	7,560	2.4	2.6	3.2	2.7	2.9	3.6	180	231			3.7	9	7	6	450	474	455	467	109	112	118	117	
54	Deniliquin	2,430	2,590	740	84	86	55*	38	53	14,400	-7	-10	-8	10,800	2.2	-0.4	0.4	2.7	0.4	1.1	-16	73			7.7	0	0	0	450	507	550	528	223	220	252	230	
55	Warrumbungle	2,750	2,720	822	79	73	51*	28	62	18,400	-5	-7	-8	8,430	0.2	-0.2	-1.2	0.3	0.1	-1.1	-17	-118			5.4	25	23	12	476	551	601	673	103	114	143	145	
56	Yass Valley	3,480	3,750	1,154	90	76	53	42	60	18,200	20	21	18	12,900	1.7	0.0	3.8	-0.3	0.9	1.7	65	386			6.1	433	308	290	396	596	448	439	172	225	227	218	
Medians (% of LWUs basis) for 3,000 to 10,000 Properties		136,320						15,650			-6	-7	-8		0.4	1.3	0.9				101	105					420	470	536	531	151	151	158	165			
LWUs with 1,501 - 3,000 Properties																																					
57	Wellington	3,010	3,150	1,082	86	52	66	20	36	12,200	16	11	6	6,880	4.1	4.6	5.7	2.6	3.3	4.6	191	291			9.9	147	146	146	522	535	552	522	189	202	203	200	
58	Cootamundra (Reticulator)	2,270	2,270	754	80	78	53*	4	15	5,090	-13	-15	-16	1,380	1.9	4.3	-1.6	1.9	4.3	-1.6	55	-31			0.11	0	0	0	240	224	227	287	53	54	59	100	
59	Lachlan	3,030	3,430	1,208	90	63	78	55	103	36,800	-13	-13	-14	19,300	-0.8	-1.2	-1.0	-0.3	-0.7	-0.7	-128	-140			16.0	0	0	0	693	791	848	798	142	147	152	160	
60	Glen Innes Severn	1,870	1,890	620	90	74	52	21	37	11,000	4	6	6	6,740	0.7	1.2	1.2	0.0	0.3	0.3	18	6			5.2	108	104	98	421	422	412	390	198	188	199	194	
61	Liverpool Plains	2,990	2,650	960	90	68	41	41	56	19,800	-5	-7	-8	14,800	1.1	1.3	0.5	1.3	1.3	0.5	204	74			5.8	76	93	135	469	491	648	587	189	208	356	257	
62	Narromine (Groundwater)	1,520	1,590	750	90	79	74	7	17	7,680	-28	-30	-29	3,490	3.7	4.8	2.8	5.4	6.5	4.4	180	111			7.5	0	0	0	422	480	515	603	150	179	219	329	
63	Narrandera (Groundwater)	1,840	1,770	847	80	63	72	11	22	9,760	-30	-30	-27	5,250	9.6	5.5	3.9	12.7	8.4	6.3	365	269			5.6	0	0	0	377	507	450	555	96	90	79	132	
65	Murray (Dual Supply)	2,380	2,630	862	68	68	51	17	25	7,770	-10	-10	-13	5,630	3.6	4.3	4.6	3.7	4.4	4.7	244	267			3.8	67	64	84	379	446	441	476	105	114	126	129	
67	Cobar	3,070	4,320	1,912	90	77	77	12	27	11,200	-6	-9	-15	5,130	2.6	-0.2	14.7	2.6	-0.1	14.8	-4	760			19.9	0	0	0	600	867	1225	1015	43	72	103	139	
66	Cobar WB (Bulk Supplier)	4,180	4,040					89	163			0	-5		-2.1	-0.6	-0.5	-2.0	-0.6	-0.4																	
68	Tenterfield	1,830	1,610	809	84	78	44	16	43	20,600	6	1	1	8,150	-0.7	1.8	0.1	-0.8	1.8	0.2	139	18			3.7	15	15	15	489	491	527	546	203	204	194	250	
70	Kyogle	1,270	1,300	681	69	65	41	12	23	11,300	1	1	0	6,450	0.1	-1.4	0.6	-0.1	-1.6	0.4	-110	22			3.9	17	17	149	509	503	701	610	111	165	150	147	
71	Palerang	2,090	2,280	1,018	90	81	47	25	41	17,200	4	3	3	11,100	0.8	0.8	1.4	0.9	0.3	1.0	38	120			3.1	269	298	293	446	577	595	573	100	117	131	129	
73	Upper Lachlan	1,720	1,510	759	90	78	47*	22	36	17,900	-17	-8	-10	11,000	4.5	1.7	-0.7	5.2	1.7	-0.8	99	-105			5.2	37	65	58	442	406	514	579	122	93	122	134	
74	Wentworth (Dual Supply)	2,280	2,250	970	90	57	48	22	41	16,700	-8	-12	-15	9,620	4.5	4.7	4.6	5.0	4.6	4.2	378	341			16.5	0	0	0	461	461	482	463	70	71	73	71	
75	Coonamble (Groundwater)	868	987	588	90	79	71*	14	21	12,800	-20	-21	-22	8,090	0.9	-0.8	-1.7	2.3	0.3	-1.1	-65	-110			7.1	0	0	0	240	261	286	430	72	61	63	0	
76	Harden (Reticulator)	2,130	2,180	1,232	44	35	52	15	28	15,300	-9	-12	-13	8,660	0.5	1.0	-0.8	0.7	1.2	-0.3	79	-28			0.2	115	5	5	370	352	316	463	91	100	147	235	
79	Walgett (Dual Supply)	1,580	1,540	798	85	57	57*	20	38	16,500	-16	-15	-17	10,500	-0.9	-12.0	5.1	-1.1	-12.8	5.1	-1246	497															



**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	Residential Revenue			Current Replacement Cost of System Assets (CRC)			Net Debt to Equity WS & Sge			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)		Cross Subsidies Annual Fees & Charges (\$/assessment) Developer Charge (\$/ET) (64a) (64b)		Externalities (Fees to Water NSW) (\$/property) (66)	Loan Payment (\$/property) (66a)			Operating Cost (OMA) (\$/property) (67) F11**				Management Cost (\$/property) (68) <sup>+</sup>									
			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)	(%) (63) F22	(%) (63a) F17	(%) (63b)		(65)	(64a)	(64b)	(66)	(66a)	(67) F11**	(68) <sup>+</sup>																					
			13/14	14/15	14/15	14/15	14/15	14/15	14/15	14/15	12/13		13/14	14/15	14/15	12/13	13/14	14/15	13/14	14/15	14/15	14/15		14/15	14/15	11/12	12/13	13/14	14/15	11/12	12/13	13/14	14/15							
<b>LWUs with 200 - 1,500 Properties</b>																																								
81	Gwydir	1,500	1,350	918	48	58	76	11	16	10,300	-4	-6	-5	7,490	3.0	6.0	3.0	1.7	4.5	1.3	74	-14			8.4	159	261	268	389	490	456	539	21	32	32	35				
83	Oberon (Reticulator)	1,350	1,440	1,108	<b>90</b>	26	75	8	12	9,540	-4	-4	-7	6,030	-0.4	-0.5	2.2	-0.4	-0.8	2.1	-48	191				20	27	8	703	851	913	837	97	147	123	97				
84	Gilgandra (Groundwater)	934	915	678	<b>79</b>	75	70	11	17	12,600	-12	-12	-12	8,010	0.8	0.8	0.4	1.5	1.4	1.0	-79	9			18.0	0	4	31	346	341	417	424	63	53	60	75				
85	Uralla	917	921	635	<b>90</b>	83	57*	14	16	11,100	-7	-9	-11	9,970	-0.8	0.1	0.8	-0.1	0.4	1.1	48	136			2.5	0	0	0	395	475	478	385	168	193	210	135				
86	Hay (Dual Supply)	1,100	1,180	887	<b>85</b>	57	57	11	24	17,500	-14	-16	-17	8,040	-0.4	-0.7	0.8	-0.1	-0.5	1.0	-44	77			6.8	0	0	0	545	618	650	595	226	249	265	235				
87	Bourke (Dual Supply)	1,750	1,940	1,406	<b>90</b>	98	79	10	23	16,700	-16	-17	-13	7,250	0.2	-0.9	1.5	0.8	-0.2	2.1	-11	153			19.7	49	49	26	1017	925	1063	1017	259	225	290	339				
88	Wakool (Dual Supply)	1,480	1,540	1,062	<b>65</b>	48	36	23	32	21,200	-8	-8	-9	15,500	0.1	0.1	0.2	0.3	0.3	0.4	-30	23			6.8	37	37	23	548	644	647	701	85	88	95	112				
89	Bogan	1,770	2,230	1,874	<b>90</b>	63	57	14	32	27,400	-12	-14	-15	11,600	0.6	-0.6	-0.6	1.0	-0.3	-0.3	-124	-44			50.1	0	0	0	835	1045	1263	1586	179	226	354	508				
90	Guyra	1,230	1,100	873	<b>90</b>	51	65	21	25	19,100	-4	-6	-7	16,400	0.0	0.1	-1.2	0.5	0.6	-0.7	241	-123			5.9	16	16	16	468	512	655	775	150	124	126	222				
91	Cabonne	924	900	769	<b>78</b>	86	56	25	45	37,000	-7	-4	-4	21,000	-1.8	-0.8	-0.8	-1.3	-0.3	-0.4	-66	-84			6.5	2	0	0	563	643	555	521	169	130	105	89				
92	Carrathool (Groundwater)	1,690	1,980	1,636	<b>90</b>	88	62	15	22	16,900	3	4	2	12,400	-1.4	0.9	3.2	-1.4	1.0	3.1	109	364			15.2	34	30	79	958	1118	982	993	107	94	102	112				
93	Tumbarumba	928	1,030	880	<b>70</b>	66	49	20	33	26,500	-5	-5	-3	17,100	0.0	-0.2	0.1	-0.3	-0.6	-0.3	-141	-88			7.3	82	108	80	373	391	443	500	144	149	163	169				
94	Gundagai	898	919	928	<b>53</b>	63	77	9	18	15,600	-8	-11	-12	9,450	-0.1	0.6	-0.1	0.5	1.1	0.3	112	54			4.3	0	0	0	566	566	586	664	203	196	213	275				
96	Warren (Dual Supply)	651	675	718	<b>89</b>	89	52	7	14	13,500	-20	-20	-19	6,950	-1.7	-1.0	0.3	-1.3	-0.7	0.5	-84	20			20.5	0	0	0	447	581	551	495	145	197	186	168				
97	Bombala	594	661	743	<b>74</b>	90	30*	11	20	21,400	-13	-14	-15	12,800	-1.4	-1.2	-0.8	-0.6	-0.6	-0.2	-83	-20			3.1	0	0	0	445	501	516	538	82	88	100	127				
98	Walcha	641	580	630	<b>90</b>	63	64	16	18	19,700	-7	-8	-7	17,200	-0.7	-0.9	-1.7	-0.6	-0.8	-1.6	-141	-271			2.5	0	0	0	607	671	635	689	139	155	150	254				
100	Balranald (Dual Supply)	902	1,080	1,187	<b>82</b>	74	47	7	16	16,400	-2	-4	-7	7,950	-0.8	2.2	2.1	-2.0	1.1	1.6	71	251			29.3	137	87	149	554	567	578	548	161	96	153	105				
101	Murrumbidgee (Groundwater)	415	421	533	<b>90</b>	63	63	6	9	11,300	-15	-15	-16	8,020	-0.1	-1.0	0.2	0.4	-0.4	0.7	-35	53			9.4	0	0	0	379	365	429	363	120	154	146	148				
103	Central Darling (Dual Supply)	2,700	1,840	2,486	<b>90</b>	63	79	26	45	60,700	0	-3	-2	34,700	-1.6	4.4	2.2	-1.6	4.4	2.3	1392	791			12.0	0	0	0	783	799	1466	942	26	22	11	16				
104	Boorowa	617	657	1,011	<b>90</b>	56	49	10	21	30,500	0	-10	-11	15,100	-0.8	-0.6	-0.6	-0.6	-0.5	-0.5	-229	-500			1.3	53	0	0	651	627	568	634	309	259	143	175				
105	Brewarrina (Dual Supply)	971	1,050	2,234	<b>89</b>	89	73	5	15	26,700	-14	-11	-17	11,400	5.8	6.4	-0.2	6.0	0.1	-0.5	-57	-162			16.2	21	67	70	1507	1248	1457	1638	263	299	473	560				
106	Jerilderie (Dual Supply)	439	427	871	<b>65</b>	75	58*	3	9	16,200	-28	-25	-27	7,060	-1.5	-0.8	-1.8	0.0	0.3	-0.7	-86	-114			7.6	0	0	0	560	698	706	739	119	139	171	176				
Medians (% of LWUs basis) for 200 to 1,500 Properties		24,836					17,200			-7 -7 -11			-0.6 -0.4 0.2						-69 15					526 557 623 649			139 145 148 158													
Median All LWUs (% of LWUs basis)					Current Replacement Cost \$/Assessment			16,450			Net D/E			-8			ERRR			1.1						Loan payment \$/prop			OMA \$ per property			\$520			Management Cost			\$150		
Median All LWUs (Statewide basis)								16,400			-1						1.6									\$69			\$400			\$141								
Totals for all LWUs (including bulk suppliers)		\$757 M Total Water Supply Revenue						Total WS CRC \$14,800M			Total WDC			\$9,100M																										

\* 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 section H4.5 on page 355.

+ 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.



**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		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)		Restrictions (75a) C18		Legal Action (75b) C19		(No./1000 properties)			(Minutes)			(% of time)		
			(69)	(69a)	(70)		(70a)	No. zones compliant (70b)	% Pop'n with Compliance (70c) H4	(71)		(71a)	No. zones compliant (71b)	% Pop'n with Compliance (71c) H3	(73) C9	(74) C10	(74a)	(75a) C18	(75b) C19	(77) C17			(78) C15			(78a)										
Basis (68a)	External Assmnt (68b)	% Samples complying with 2011 NHMRC/NRMMC Guidelines	Complied ?	% Samples complying with 2011 NHMRC/NRMMC Guidelines	Complied ?			% Samples complying with 2011 NHMRC/NRMMC Guidelines	Complied ?			12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15				
Sydney Water	ISO9001	Yes			100	100	100	Yes	13/13	100	100	100	100	Yes	13 of 13	100	0.5	0.4	0.2	0.2	0.2	0.2		3.90	0.60	160	183	179	153	151	147					
Hunter Water	ADWG	No			100	100	100	Yes	5 of 5	100	100	100	100	Yes	5 of 5	100	3	3	3	0.2	0.1	0.1		7.27	2.19	236	303	267	142	128	136					
Water NSW																																				

**LWUs with > 10,000 Properties**

1	Gosford	ADWG			100	100	100	Yes		100	100	100	100	Yes	2 of 2	100	25	15	12	-	-	-	-	0	6	171	187	126	199	311	382	0	0	0	
2	Wyong	ADWG			100	100	100	Yes		100	100	100	100	Yes	1 of 1	100	18	5	10	5	6	6	-	0	2	86	70	57	204	200	133	100	100	0	
3	Shoalhaven	HACCP			99	99	100	Yes		100	100	100	100	Yes	4 of 4	100	0.3	0.3	0.5	0	0	1	-	0.6	1.6	82	65	78	194	220	135	0	0	0	
4	Rous (Bulk Supplier) (NO SGE)	ADWG			100	100	100	Yes		100	100	100	100	Yes	3 of 3	100	0	0.6	0	-	0	0	7	0	0	2	1	1	180	195	237	0	0	0	
5	MidCoast	ADWG	Yes		99	99	97	Yes		97	99	100	100	Yes	5 of 5	100	3	3	3	1	2	4	74	0.3	2	2	2	6				0	9	0	
6	Tweed	ADWG			100	100	100	Yes		100	100	100	100	Yes	3 of 3	100	4	5	6	24	28	17	105	0.0	12	27	50	19	160	149	134	0	0	0	
7	Port Macquarie-Hastings (Unfiltered)	ADWG			99	99	100	Yes		100	100	100	100	Yes	5 of 5	100	9	7	6	8	14	20	4	0.3	1	11	10	14	163	174	210	100	100	100	
8	Riverina (Groundwater) (NO SGE)	HACCP	Yes		100	94	100	Yes		100	100	100	100	Yes	14 of 14	100	4	3	3	2	3	2	0	7	0.1	55	63	57	308	173	185	0	0	0	
10	Coffs Harbour	ADWG			100	100	100	Yes		100	100	100	100	Yes	3 of 3	100	0	0	0	0	0	0	0	2	0	35	9	11	120	120	120	0	0	0	
11	Albury City	ADWG			100	100	100	Yes		100	100	100	100	Yes	1 of 1	100	4	3	3	2	1	1	16	1	23	-	-	-	104	124	137	0	0	0	
12	Fish River WS (Unfiltered, Bulk S)	ADWG			100	100	100	Yes		100	100	98	100	Yes	1 of 1	100	0	0	0	0	0	0	1	0	0	1	0.2	0.4	1640	600	600	0	0	0	
13	Tamworth Regional	ADWG			96	89	91	Yes		100	100	100	100	Yes	7 of 7	100	0.8	0.2	0	47	56	43	-	0	0	1	-	-				0	60	100	
14	Clarence Valley	ADWG			100	100	100	Yes		100	100	100	100	Yes	5 of 5	100	8	23	14	28	57	68	6	0	5	-	-	-	120		120	0	0	0	
15	Eurobodalla	ADWG			95	94	100	Yes		100	100	100	100	Yes	2 of 2	100	0.5	0.9	0.7	0	0	0	99	0	6	57	93	120	240	190	220	0	0	0	
16	Wingecarribee	ADWG			100	100	100	Yes		100	100	100	100	Yes	2 of 2	100	13	12	8	72	72	55	0	0	7	53	73	14	91	108	122	100	100	100	
17	Queanbeyan (Reticulator)	ADWG			100	98	100	Yes		100	100	100	100	Yes	1 of 1	100	0	0	0	31	23	19	12	0	0	0	0	1	180	180	180	100	100	100	
18	Dubbo	ADWG			100	100	100	Yes		100	100	100	100	Yes	1 of 1	100	0.6	0.4	0.7	4	3	3	46	0	0	27	58	20	152	75	131	0	0	0	
19	Orange	ADWG			100	100	100	Yes		100	100	100	100	Yes	2 of 2	100	2	1	1	59	53	62	-	0.7	0	66	73	51	240	238	255	100	100	100	
20	Goulburn Mulwaree	ADWG			95	92	98	Yes		100	100	100	100	Yes	2 of 2	100	3	8	5	28	28	36	-	4	0.1	276	17	3	180	180	180	100	100	100	
21	Bathurst Regional	ADWG			100	100	100	Yes		100	100	99	100	Yes	1 of 1	100	38	35	34	45	24	28	-	0	0	1	2	2	120	120	120	0	0	0	
22	Lismore (Reticulator)	ADWG			98	99	100	Yes		100	100	100	100	Yes	2 of 2	100	0.5	0	0	0	1	2	67	0	3.5	123	32	49	288	120	140	0	0	0	
23	Bega Valley (Unfiltered)	ADWG			100	100	100	Yes		100	100	100	100	Yes	8 of 8	100	9	13	13	5	1	2	6	0	4	3	1	3	120	95	95	0	0	0	
24	Ballina (Reticulator)	ADWG			99	99	100	Yes		100	100	100	100	Yes	3 of 3	100	0.4	4	0	0	4	0	62	0	2.0	1	1	0	120	120	120	0	0	0	
25	Kempsey (Groundwater)	ADWG			100	100	100	Yes		100	100	100	100	Yes	7 of 7	100	0.4	0.7	0.2	0	0	0.2	106	1	0	68	72	124	165	127	215	0	30	16	
26	Essential Energy	ADWG			100	92	100	Yes		100	100	100	100	Yes	2 of 2	100	8	0	0	1	0	0.1	-	31	0	-	-	-				0	0	56	
27	Byron (Reticulator)	ADWG			100	98	100	Yes		100	100	100	100	Yes	2 of 2	100	0.5	1	2	0	0	0	4	3	0.1	14	14	13	120	120	120	0	0	0	
28A	Goldenfields (Reticulator) (NO SGE)	ADWG			100	100	100	Yes		100	100	100	100	Yes	1 of 1	100	10	7	5	39	1	0	47	1	0	95	77	96	235	192	205	0	0	0	
28B	Goldenfields (Bulk Supplier) (NO SGE)	ADWG			100	98	100	Yes		100	100	100	100	Yes	3 of 3	100	-	0	0	0	-	-	-	-	-	-	-	-	-				0	0	0

Medians (% of LWUs basis excl bulk suppliers) for >10,000 Properties

2 3 2 5 5 5 36 35 16 147 163 135 0 0 0

**LWUs with 3,001 - 10,000 Properties**

29	Armidale Dumaresq	ADWG			100	100	100	Yes		100	100	100	100	Yes	1 of 1	100	0	5	1	0	1	0	0	1	0	115	136	74	134	139	133	0	0	0
30	Griffith	ADWG			100	100	100	Yes		100	100	99	100	Yes	2 of 2	100	3	2	2	43	27	48	0	3	144	24	23	24	90	90	90	0	0	0
31	Lithgow	HACCP			100	98	100	Yes		99	100	100	100	Yes	1 of 1	100	43	10	35	24	67	74	-	0	0	-	-	-	180		180	100	100	100
32	Mid-Western Regional	ADWG			100	96	100	Yes		100	100	100	99	Yes	3 of 3	100	6	8	11	62	74	21	38	12	1	64	71	14				0	0	0
33	Richmond Valley	HACCP			100	100	100	Yes		100	100	100	100	Yes	1 of 1	100	0	0	0	0	-	-	133	-	-	-	-	-				0	0	38
34	Nambucca (Groundwater)	ADWG			100	98	100	Yes		100	100	100	100	Yes	1 of 1	100	2	1	2	8	13	1	18	8	0	-	-	0	120	120	120	100	100	100
35	Singleton	ADWG			100	100	100	Yes		100	100	100	100	Yes	1 of 1	100	1	2	4	24	38	24	43	0	8	46	48	24	120	110	120	0	0	0
36	Parkes	ADWG			100	100	100	Yes		100	100	100	100	Yes	1 of 1	100	2	3	3	17	42	60	7	0	12	1	2	2	120	120	120	100	100	100
37	Inverell	ADWG			99	99	100	Yes		100	99	99	100	Yes	3 of 3	100	0.7	0.5	0.3	2	2	1	1	4	0.0	2	2	2	60	60	60	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		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)		Restrictions (75a) C18		Legal Action (75b) C19		(No./1000 properties)			(Minutes)			(% of time)				
			(69)		(69a)		(70)		(70a)		No. zones compliant (70b)	% Pop'n with Compliance (70c) H4	(71)		(71a)		No. zones compliant (71b)	% Pop'n with Compliance (71c) H3	(73) C9	(74) C10		(74a)	(75a) C18		(75b) C19		(77) C17			(78) C15			(78a)					
Basis (68a)	External Assmnt (68b) H5	12/13	13/14	14/15	14/15	12/13	13/14	14/15	14/15	14/15	12/13	13/14	14/15	14/15	14/15	14/15	14/15	12/13	13/14	14/15	14/15	14/15	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15
38	Moree Plains (Groundwater)	ADWG	98	99	100	Yes	100	100	100	Yes	6 of 6	100	100	99	100	Yes	6 of 6	100	0	6	3	88	90	87	-	0.0	0	22	613	-	90	60	60	0	0	0		
39	Cowra	ADWG	100	95	100	Yes	100	100	100	Yes	1 of 1	100	99	99	100	Yes	1 of 1	100	24	5	12	20	20	0	0	8	0.2	-	-	-	180	180	180	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	3	2	5	6	12	15	39	6	0	48	50	41	180	180	120	0	0	0		
41	Muswellbrook	ADWG	94	91	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	16	20	18	1	2	2	64	1	0	2	2	2	163	234	270	0	0	0		
42	Cowra	ADWG	100	100	100	Yes	100	100	100	Yes	3 of 3	100	99	100	100	Yes	3 of 3	100	6	3	3	17	22	2	0	0	10	168	46	46	120	120	120	0	0	0		
43	Tumut	ADWG	100	99	100	Yes	100	100	100	Yes	4 of 4	100	100	100	99	Yes	3 of 4	99	2	3	3	2	5	4	26	0.2	34	-	-	-	120	120	120	41	41	50		
44	Gunnedah (Groundwater)	ADWG	89	92	98	Yes	100	98	98	Yes	3 of 4	99	100	99	99	Yes	3 of 4	99	0	0	1	-	24	33	9	0	0	-	7	3	104	180	150	100	100	100		
45	Upper Hunter	ADWG	97	98	97	Yes	100	100	100	Yes	4 of 4	100	100	100	100	Yes	4 of 4	100	1	2	1	44	49	27	-	0	0	26	25	27	45	50	60	0	65	56		
46	Narrabri (Groundwater)	ADWG	100	99	100	Yes	100	100	100	Yes	6 of 6	100	100	100	100	Yes	6 of 6	100	25	32	11	36	113	18	6	0	11	-	4	3	110	90	120	0	0	0		
47	Bellingen (Unfiltered)	ADWG	98	97	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	3.9	0.2	2	10	17	16	7	1	1	2	2	2	120	120	120	0	68	78		
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	1	0	0	0	0	20	14	15	120	120	120	0	0	0		
49	Young (Reticulator)	ADWG	100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	2	2	2	11	2	3	13	1	17	17	19	41	120	120	120	0	0	0		
50	Cooma-Monaro	ADWG	97	96	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	0	3	2	-	18	15	-	0	0	-	3	3	180	180	100	100	100			
51	Forbes	ADWG	100	98	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	1	4	2	3	38	53	2	2	0.0	118	106	115	120	120	120	100	36	0		
52	Snowy River (Unfiltered)	ADWG	100	100	100	Yes	100	100	100	Yes	5 of 5	100	100	100	100	Yes	5 of 5	100	1	1.7	2	6	17	24	0	0	0	15	26	25	120	120	120	0	0	0		
53	Berrigan (Dual Supply)	ADWG	98	100	100	Yes	100	100	100	Yes	4 of 4	100	100	100	100	Yes	4 of 4	100	3	3	7	19	3	10	11	0	7	34	14	21	90	60	60	0	0	0		
54	Deniliquin	ADWG	100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	99	100	Yes	1 of 1	100	2	1	1	3	2	3	14	0	0	428	14	25	60	65	90	0	0	0		
55	Warrumbungle	ADWG	80	90	100	Yes	100	100	100	Yes	8 of 8	100	100	100	100	Yes	8 of 8	100	3	2	2	0	8	12	35	0	0	-	1	1	120	104	142	0	46	79		
56	Yass Valley	ADWG	85	95	100	Yes	100	100	100	Yes	1 of 1	100	99	100	100	Yes	1 of 1	100	10	22	2	10	14	20	12	0	0.0	44	50	54	240	240	240	100	0	0		
<i>Medians (% of LWUs basis) for 3,000 to 10,000 Properties</i>															2	2	2				25	26	21	120	120	120	0	0	0									
<i>LWUs with 1,501 - 3,000 Properties</i>																																						
57	Wellington	ADWG	100	100	100	Yes	100	100	100	Yes	2 of 2	100	100	99	99	Yes	1 of 2	91	0	0	0	26	26	30	25	4	31	31	14	120	120	120	0	0	0			
58	Cootamundra (Reticulator)	ADWG	100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	-	0	0	48	44	55	4	1	3	8	8	15	120	90	90	0	0	0		
59	Lachlan	ADWG	100	100	100	Yes	100	100	100	Yes	3 of 3	100	99	100	100	Yes	3 of 3	100	1.4	1	0	2	25	-	-	9	-	-	100	100	0	0	0					
60	Glen Innes Severn	ADWG	100	96	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	0	0	0	0	0	0	16	2	0	34	34	13	180	180	180	0	0	40		
61	Liverpool Plains	HACCP	100	87	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	-	0.7	1.8	63	61	75	7	0	0	55	48	46	45	40	35	0	0	49		
62	Narromine (Groundwater)	ADWG	100	100	100	Yes	98	100	100	Yes	1 of 1	100	98	100	100	Yes	1 of 1	100	7	0	0	3	16	0	133	0	6	-	-	0	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	12	26	25	-	-	24	73	19	120	120	120	0	0	0			
65	Murray (Dual Supply)	ADWG	100	100	100	Yes	100	100	100	Yes	2 of 2	100	100	99	100	Yes	2 of 2	100	0	0	0	0	0	0	-	0	1	14	6	11	90	90	90	100	100	0		
67	Cobar	ADWG	95	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	12	13	10	22	23	-	-	-	2	3	-	60	90	100	100	100				
66	Cobar WB (Bulk Supplier Raw Wa																		-	-	-	-	-	-	-	-	-	-	60	60	0	0	0					
68	Tenterfield	ADWG	100	100	100	Yes	100	100	100	Yes	3 of 3	100	99	99	100	Yes	3 of 3	100	7	5	1	3	20	2	3	5	0	7	13	13	120	180	180	0	0	0		
70	Kyogle	ADWG	100	100	100	Yes	100	100	100	Yes	1 of 1	100	99	99	100	Yes	1 of 1	100	7	5	2	6	16	19	1	0	0	13	-	9	90	90	0	0	69			
71	Palerang	ADWG	100	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	3	1	0	54	2	5	22	0	0	5	5	45	90	90	90	0	0	0		
73	Upper Lachlan	ADWG	90	83	100	Yes	100	100	100	Yes	3 of 3	100	99	100	100	Yes	3 of 3	100	1	0	0	0	0	1	6	0	0	1	2	2	100	120	120	0	0	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	0	6	-	22	10	17	2	-	132	-	30	35	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	-	26	45	4	0	63	-	3	5	60	60	60	0	0	0		
76	Harden (Reticulator)	ADWG	100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	9	5	9	8	8	46	14	2	0	2	1	6	60	60	60	0	0	0		
79	Walgett (Dual Supply)	ADWG	88	85	100	Yes	100	100	100	Yes	3 of 3	100	99																									







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

WATER UTILITY	OPERATION & MAINTENANCE (O&M) COST <sup>2</sup>												MANAGEMENT COST			OMA <sup>1</sup>		O & M Cost Components for TYPE of ASSET															
	Total O&M Cost \$/prop (79a)	Components (1) - Process						Components (2) - Type of Asset						Components			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	Total OMA Cost	Head works	Distribution	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) (80) 2014/15	(\$/property) (81)	(\$/property) (82)	(\$/property) (82a)		(\$/property) (83)	(\$/property) (84)	(\$/property) (85)	(\$/property) (86)	(\$/property) (87)	(\$/property) (88)	(\$/property) (89)	(\$/property) (90)	(\$/prop) (91a)	(c/kL) (91)	(\$/prop) (91b)	(\$/property) (92)	(c/kL) (93)	(c/kL) (94)	(c/kL) (95)	(\$'000/pumping station) (96)	(97)	(98)	(c/kL) (100)	(c/kL) (101)	(\$'000/100km) (102)	(103)	(c/kL) (104)	(\$/property) (105)	(\$/property) (106)	(107)	
	(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)		
<b>LWUs with &gt; 10,000 Properties</b>																																	
1	Gosford	222	102	84	19	14	3	23	75	13	35	64	9	97	12	109	50	331	136	195	16	105	27	21	57	34	544	54	490	30	38	13	14
2	Wyong	216	78	108	14	13	2	9	88	9	28	58	21	66	38	103	38	319	70	249	10	75	20	18	37	33	460	168	292	21	38	7	13
3	Shoalhaven	146	36	80	17	13	0	3	50	6	22	45	21	91	39	129	43	276	52	223	7	39	5	4	30	17	157	85	72	15	23	9	13
4	Rous (Bulk Supplier) (NO SGE)	145	47	47	31	20		6	18	6	33	59	22	94	29	123	45	268	255	13	12	343	3	19	322	7	169		169	22	20	20	20
5	MidCoast	351	126	159	54	11	1	0	102	14	67	66	102	76	51	126	53	477	191	286	28	96	2	15	78	43	283	30	253	28	41	14	11
6	Tweed	234	96	84	24	29	1	14	32	10	36	80	60	133	52	185	65	419	235	185	13	43	7	7	29	11	144	19	125	28	40	11	29
7	Port Macquarie-Hastings (Unfiltered)	245	100	98	28	14	6	18	64	11	44	45	57	97	56	153	70	398	119	279	20	71	1	25	45	29	240	116	124	21	19	11	14
8	Riverina (Groundwater) (NO SGE)	199	76	41	70	12	0		65	9	76	32	16	30	41	72	14	271	173	97	15	62	0	5	56	12	116	55	61	6		20	12
10	Coffs Harbour	241	104	108	9	17	3	19	93	22	13	76	17	102	51	153	63	395	162	233	5	45	7	4	34	38	375	103	272	31	43	15	17
11	Albury City	187	31	71	73	6	5		37	11	84	38	11	83	7	91	29	277	152	127	27	103	0	13	90	12	159	119	40	12	23	9	6
12	Fish River WS (Unfiltered, Bulk Supplier)								0	0	0	0	0									0				0	0		0				
13	Tamworth Regional	317	105	155	7	12	37	41	74	10	20	134		67	134	201	55	518	326	192	5	20	4	9	8	20	252	76	175	37	96	27	12
14	Clarence Valley	221	105	98	5	13	0	13	81	13	10	30	73	126	41	168	57	388	19	369	3	11	3	3	6	28	155	1	154	10	15	3	13
15	Eurobodalla	199	59	107	21	12		3	107	10	26	36	17	206		206	115	405	150	255	14	36	4	3	29	60	237	131	106	20	21	4	12
16	Wingecarribee	228	109	24	21	11	63	1	67	9	25	28	36	121	23	143	60	371	275	96	11	32	4	1	27	28	193		193	12	16	1	11
17	Queanbeyan (Reticulator)	375	49	48	3		276		87	8	4		1	149	52	201	89	577		577	2	17	3	2	12	38	502	230	272				
18	Dubbo	322	98	162	13	49	0	0	74	14	18	191	25	136	24	160	33	482	333	149	4	35	6	4	25	15	256	40	216	39	121	21	49
19	Orange	195	39	102	40	13		16	56		47	67	9	84	61	144	35	339	153	186	11	102	14		89	13	155	82	73	16	49	5	13
20	Goulburn Mulwaree	277	152	102	5	18	0	51	104	2	6	71	44	95	54	149	61	426	196	230	3	8		2	6	42	414	2	412	29	44	8	18
21	Bathurst Regional	402	138	208	10	45		53	147	8	13	181		80	63	143	32	545	245	300	3	19	2	2	15	33	585	265	320	41	100	36	45
22	Lismore (Reticulator)	382	56	96	6	0	223	0	70	3	8	0	78	77	34	111	50	493		493	3	22	2	3	17	31	290	290		0			
23	Bega Valley (Unfiltered)	245	102	108	35			28	115	16	48	39		131	167	298	124	543	234	310	20	35	2	7	25	48	268	103	165	16	34	5	
24	Ballina (Reticulator)	342	65	26	3	0	248	0	43	5	7	9	30	131	21	152	52	494	5	489	2	24	12		12	15	186	52	134	3	9	0	
25	Kempsey (Groundwater)	296	126	114	45	11		16	83	2	72	116	6	104	78	182	60	477			24	41		15	26	27	211	10	201	38	86	19	11
26	Essential Energy	891	317	293	207	74	0	0	157	47	308	379	0	70	64	134	22	1025	615	410	51	294	29	67	198	26	434	66	368	63	225	80	74
27	Byron (Reticulator)	346	37	95		5	209		61	18		27	31	120	17	137	45	482		458						20	288	132	156	9	20	2	5
28A	Goldenfields (Reticulator) (NO SGE)	581	179	61	159	10	172	0	120	12	205	25	47	124	124	248	41	830	423	407	34	57	1	12	44	20	67	20	48	4	9	5	10
28B	Goldenfields (Bulk Supplier) (NO SGE)	90	22	18	39	11			13	2	44	23	8	30	30	60	12	150			9					3	78	28	50	5	8	4	11
	<i>Medians (% of LWUs basis excl bulk suppliers) for &gt;10,000 Properties</i>	245	99	100	18	12	1	6	75	10	25	51	19	97	46	147	53	423	162	249	11	38	4	5	29	28	254	82	175	20	38	10	13
<b>LWUs with 3,001 - 10,000 Properties</b>																																	
29	Armidale Dumaresq	308	219	43	8	37	0	39	84	12	11	117	43	58	54	112	34	420	189	231	3	8		2	6	25	254		254	35		80	37
30	Griffith	405	52	255	5	39	54		108	2	7	153	82	249	48	297	35	702	316	386	1	15	1	4	10	13	196	160	36	18	102	11	39
31	Lithgow	426	123	103	3	12	184	0	128	15	8	90	0	147	49	196	104	622	124	498	4	16		9	7	68	886	537	350	48	22	57	12
32	Mid-Western Regional	407	231	117	17	31	11	5	149	30	59	154		41	85	126	40	533	325	208	19	37	5	21	11	47	449		449	49	91	32	31
33	Richmond Valley	282	66	91	18	27	80	0	42	8	25	113	13	169	86	254	64	537	317	220	6	26		8	18	11	160	54	106	28	66	20	27
34	Nambucca (Groundwater)	224	106	77	42				46	27	54	16	82	74	51	124	54	349	209	140	24	172		40	133	20	137		137	7		16	
35	Singleton	337	56	217	23	21	20	0	88	7	31	156	36	87	75	162	29	499	65	434	6	23	4	2	17	16	243	181	61	28	111	24	21
36	Parkes	440	133	98	136	27	44	28	52	6	159	65	86	195	20	215	27	655	164	491	20	79	5	6	68	7	67		67	8	32	6	27
37	Inverell	463	77	221	115	37	14	0	53	8	131	125	134	41	19	61	19	524	419	105	42	108		13	94	17	117		117	40	88		37
38	Moree Plains (Groundwater)	390	225	151	5	9		83	160	2	10	126	8	189	18	208	28	598	78	114	1	12		5	6	22	453		453	17	78	39	9
39	Cowra	690	124	375	84	43																											

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

WATER UTILITY	OPERATION & MAINTENANCE (O&M) COST <sup>2</sup>											MANAGEMENT COST				OMA <sup>1</sup>		O & M Cost Components for TYPE of ASSET																									
	Total O&M Cost \$/prop (79a)	Components (1) - Process					Components (2) - Type of Asset						Components			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	Distribution	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												
		(79)	(\$/property)				(82)	(82a)	(83)	(84)	(\$/property)			(87)	(88)	(\$/property)	(\$/prop)	(c/kL)	(91)	(\$/prop)	(91b)	(91a)	(91)	(c/kL)	(92)	(93)	(c/kL)	(94)	(95)	(\$'000/pumping station)			(98)	(c/kL)	(100)	(101)	(\$'000/100km)		(103)	(c/kL)	(104)	(105)	(\$/property)
	2014/15					2014/15						2014/15			2014/15		2014/15					2014/15			2014/15			2014/15			2014/15												
40	Central Tablelands (NO SGE)	373	189	111	41	33	24	82	10	58	148	51	197	56	252	75	626	300	325	17	12	3	1	8	24	80	80	44	46	68	33												
41	Muswellbrook	434	297	29	40	49	19	0	32	8	66	229	80	130	63	192	37	626	407	219	13	43	1	16	26	6	112	7	105	45	10	170	49										
42	Corowa	357	124	174	40	19		86	10	57	160	43	113		113	20	469	352	117	10	39	5	7	27	15	266	40	225	28	106	35	19											
43	Tumut	307	198	16	71	23	0	0	38	6	81	130	52	143	17	160	46	467	215	252	23	31	2	2	27	11	93	93	37	11	97	23											
44	Gunnedah (Groundwater)	307	205	14	79	3	6		151	15	112	4	20	122	46	168	23	475	119	356	16	23		7	16	21	358	358	1		1	3											
45	Upper Hunter	392	135	179	68	10	0	24	158	8	121	36	44	88	179	267	43	659	224	435	20	41	10	8	23	26	398	142	255	6	19	7	10										
46	Narrabri (Groundwater)	213	154		59				13	3	132		64	194	73	267	45	480	288	192	22	48		27	22	2	38		38														
47	Bellingen (Unfiltered)	141	46	48	40	8	0	0	33	4	47	49	7	194	56	250	90	391	59	333	17	32		5	27	12	82	26	56	18	33	9	8										
48	Leeton	449	236	88	50	34	41		169	0	55	165	18	74	67	141	21	590	354	236	8	37		4	34	26	360		360	25	88	43	34										
49	Young (Reticulator)	186	68	33	2	0	83	0	77	6	5	0	15	32	36	69	24	254	20	234	2	8		4	4	26	250	63	187	0													
50	Cooma-Monaro	312	101	188	7	17		89	33	23	117	49	124	104	228	55	540	297	243	6	28	15	5	8	21	244	234	10	28	26	75	17											
51	Forbes	599	293	144	1	64	98	0	163	7	2	298	32	51	20	72	10	671	456	215	0	2		1	1	22	438		438	41	112	122	64										
52	Snowy River (Unfiltered)	206	87	67	42	10		46	19	70	40	32	61	44	105	86	311	165	146	57	20	6	2	12	38	191	5	186	32	21	8	10											
53	Berrigan (Dual Supply)	350		350	0	0	0	0	86	0	24	236	4	47	70	117	16	467	140	421	3	11	11		12	146	146	33	236														
54	Deniliquin	297	19	203	76				79		91	123	4	189	41	230	43	528	385	142	17	64		10	53	15	186	186		23	123												
55	Warrumbungle	528	251	173	70	34	0	5	107	36	104	195	82	124	21	145	47	673	235	437	34	43	6	8	29	35	239	6	232	64	108	53	34										
56	Yass Valley	221	13	153	18	37		2	13	24	26	121	36	120	98	218	83	439	241	198	10	10	3		8	5	25		25	46	84		37										
<i>Medians (% of LWUs basis) for 3,000 to 10,000 Properties</i>		353	124	117	40	22	0	0	85	8	56	124	39	121	51	165	39	531	238	235	14	27	5	6	18	21	193	63	127	28	84	34	27										
<i>LWUs with 1,501 - 3,000 Properties</i>																																											
57	Wellington	322	94	153	19	34	22		81	5	30	184		108	92	200	45	522	313	209	7	12		4	8	18	228	8	220	41	150		34										
58	Cootamundra (Reticulator)	187	63	47	0	0	77	0	49	5	0	0	57	33	67	100	33	287	52	235	0	0			16	209	1	207	0														
59	Lachlan	638	174	266	106	92			114	8	130	285	100	55	105	160	22	798			18	23		4	19	16	139		139	40	193		92										
60	Glen Innes Severn	196	134		43	18	0	0	45	1	48	67	35	28	166	194	116	390	156	234	29	49		5	44	27	126		126	40		49	18										
61	Liverpool Plains	330	231	36	41	21		20	46	14	91	72	87	253	4	257	77	587	352	235	27	19	1	10	9	14	96	4	92	22	4	46	21										
62	Narromine (Groundwater)	274	174	30	70	0	0	0	74	5	146	35	14	150	179	329	54	603			24	103	5	49	49	12	218		218	6	15	20											
63	Narrandera (Groundwater)	422	178	111	122	12			174	4	233	12		109	23	132	13	555			22	122	58		64	17	413		413	1			12										
65	Murray (Dual Supply)	347	164	132	38	0	12	0	96	9	62	150	18	70	60	129	31	476	290	186	15	21	4	4	13	23	176	64	112	36	70	80											
67	Cobar	875	222	594		59			139	24		712		86	54	139	33	1015	507	507						33	271	98	172	170	539	114	59										
66	Cobar WB (Bulk Supplier)															83			0	0	488	557	17	81	459	141																	
68	Tenterfield	296		235	12	33	17	10	70	4	18	171	7	228	22	250	108	546	218	328	8	9	3		6	30	203	203		74	138		33										
70	Kyogle	463	148	209	18	17	71	0	77	21	67	226	0	108	39	147	57	610	427	183	26	26		19	7	30	264		264	87	209		17										
71	Palerang	443	80	303	48	12		35	31	5	136	114	121	73	56	129	53	573	487	86	55	76	41	8	27	13	93	40	53	47	86	17	12										
73	Upper Lachlan	445	61	283	72	29	0	9	97	15	134	158	33	66	67	134	69	579	289	289	69	89	32	9	48	50	303	261	42	81	117	12	29										
74	Wentworth (Dual Supply)	391	110	169	93		19		81		115	161	15	50	22	71	13	463	291	171	21	22	2	2	18	15	103		103	29	155	6											
75	Coonamble (Groundwater)	430	135	90	65	140	0	0	31	21	95	226	57	0	0	0	0	430	215	215	13	80		26	55	4	76		76	31	33	52	140										
76	Harden (Reticulator)	228	94	37	2	6	89		75	13	6	23	23	235		235	58	463		463	2	4		2	1	18	77		77	6	17		6										
79	Walgett (Dual Supply)	435	88	337	1	9	0	0	86	9	121	146	73	76	0	76	4	510			7	33	30	4	0	5	151	99	52	9	123	15	9										
80	Greater Hume	350	62	67	40	4	178		79	15	51	17	10	38	110	148	42	498	149	349	15	48	9	2	38	23	97	37	60	5	13	1	4										
<i>Medians (% of LWUs basis) for 1,500 to 3,000 Properties</i>		371	134	153	41	14	0	0	78	8	79	148	20	74	55	143	45	534	290	234	18	26	9	5	19	18	163	52	112	33	117	20	20										

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

WATER UTILITY	OPERATION & MAINTENANCE (O&M) COST <sup>2</sup>												MANAGEMENT COST			OMA <sup>1</sup>		O & M Cost Components for TYPE of ASSET																	
	Total O&M Cost \$/prop (79a)	Components (1) - Process					Components (2) - Type of Asset							Components			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	Distribution	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					
		(79)	(\$/property)				(82a)	(83)	(84)	(85)	(86)	(87)	(88)	(\$/property)	(90)	(\$/prop)	(c/kL)	(91)	(\$/prop)	(91b)	(92)	(93)	(c/kL)	(94)	(95)	(\$'000/pumping station)			(98)	(c/kL)	(\$'000/100km)		(103)	(c/kL)	(\$/property)
		(80)	(81)	(82)				(85)	(86)	(87)		(89)	(90)	(91a)	(91)	(91b)	(92)	(93)	(94)	(95)	(96)	(97)	(98)	(100)	(101)	(102)	(103)	(104)	(105)	(106)	(107)				
		2014/15						2014/15					2014/15			2014/15			2014/15				2014/15			2014/15			2014/15						
<b>LWUs with 200 - 1,500 Properties</b>																																			
81	Gwydir	503	157	164	152	31	0	0	144	18	231	78	32	35	0	35	6	539	291	248	42	340	101	16	223	26	234	84	150	14	10	38	31		
83	Oberon (Reticulator)	740	27	178		29	505		26			208		72	25	97	18	837	460	377						5	87		87	38	178	1	29		
84	Gilgandra (Groundwater)	350	210	73	47	21	0	0	64	5	136	134	10	68	7	75	11	424	21	403	20	92	19	42	32	9	161		161	19	37	76	21		
85	Uralla	250	188		3	59		20	51	3	8	168		83	52	135	61	385	300	85	3	6		4	2	23	119		119	76		110	59		
86	Hay (Dual Supply)	361	244	17	68	26	6	0	80	26	111	121	17	226	9	235	21	595	405	191	10	49		19	30	7	228		228	11		95	26		
87	Bourke (Dual Supply)	678	657	5	16			5	114	1	69	343	146	248	91	339	27	1017	203	813	5	48		37	11	9	383		383	27		343			
88	Wakool (Dual Supply)	588	121	292	66	37	72	3	84	0	97	306	27	68	44	112	21	701			18	18	3	3	12	16	73	10	64	57	246	23	37		
89	Bogan	1078	443	467	67	101		258	231	92	282	101	114	97	411	508	84	1586	1221	365	47	336		256	80	38	474	252	222	17			101		
90	Guyra	553		551	2	0	0	34	102	0	2	401	13	222	0	222	63	775	628	147	1	3		3	29	215	215		113	401					
91	Cabonne	432	41	362	21	9		68	130	34	55	103	42	89		89	41	521	260	260	25	16	9	1	6	60	292	283	10	47	76	18	9		
92	Carrathool (Groundwater)	882	251	188	381	9	52	0	238	12	536	44	0	91	21	112	10	993	298	695	49	31	9		22	22	61		61	4	33	2	9		
93	Tumbarumba	331	262	59	10				100	57	29	144		48	121	169	72	500	150	350	12	17	1	10	6	43	177	70	108	62	18	126			
94	Gundagai	389	131	210	17	30	0	0	61	7	17	303	1	189	86	275	45	664			3	9			9	10	167	100	67	50	174	99	30		
96	Warren (Dual Supply)	327	165	64	54	20	23		153	11	81	36	22	112	56	168	19	495	173	322	9	38	2	11	26	17	480	67	413	4	16		20		
97	Bombala	411	146	180	31	54	0	2	78	0	47	284	0	127	0	127	41	538			15	14		5	9	25	177		177	92	180	51	54		
98	Walcha	435	168	180	84	2		11	52	3	172	197		143	111	254	134	689	517	172	90	53	6	21	26	27	84	4	81	103	153	41	2		
100	Balranald (Dual Supply)	443	273	19	96	38	18	0	85	23	235	38	44	105	0	105	12	548	313	236	28	43		25	17	10	257		257	5			38		
101	Murrumbidgee (Groundwater)	215	89		108	19			41	19	118	20	18	10	138	148	15	363			12	31		3	28	4	100		100	2		1	19		
103	Central Darling (Dual Supply)	926	257	493	96	80	0	36	185	1	103	569	31	16	0	16	3	942	396	546	21	10		1	9	38	208	65	142	117	369	120	80		
104	Boorowa	458	317	46	62	34		9	188		63	162	37	134	42	175	53	634	330	304	19	41		1	40	57	254		254	49		128	34		
105	Brewarrina (Dual Supply)	1079	340	498	98	143	0	0	274	23	198	560	23	383	177	560	21	1638	1147	491	7	47	22	2	23	10	339	24	316	21	340	77	143		
106	Jerilderie (Dual Supply)	563	410	10	98	33	12		124	8	153	245	20	92	84	176	16	739	259	480	14	75		27	48	11	142	2	140	22	2	210	33		
<b>Medians (% of LWUs basis) for 200 to 1,500 Properties</b>		451	210	179	64	30	0	0	101	8	100	165	19	94	43	158	21	649	306	336	15	35	9	11	22	19	192	68	142	32	153	76	31		

**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).



**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					
	(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)					
	2012/13	2013/14	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15				
Sydney Water				1,827,000				1,716,000	4,721,000					25,090	73	26	184	14	418	29.3	0	1.3	14	70	5	3	5	28	0
Hunter Water				228,000				216,000	535,000					4,950	46	19			179	41	0								
<b>LWUs with &gt; 10,000 Properties</b>																													
1	Gosford	65650	65,770	65,860	1.06	70,000	0.95	1.06	66,700	162,400				1,325	53	2	184	14	418	29.3	0	1.3	14	70	5	3	5	28	0
2	Wyong	61090	61,870	63,520	0.98	61,930	0.96	0.97	59,400	153,900	160			1,212	51	6	142	12	186	11.5	0	1.0	10	100	0	4	6	91	1
3	Shoalhaven	46420	46,910	47,250	0.89	41,870	0.94	0.90	39,900	81,200	420			1,217	34	13	217	18	295	12.4	8,502	2.1	7	100	0	3	4	54	0
5	MidCoast	36380	36,500	36,610	0.96	35,140	0.92	0.96	32,400	81,300	120			1,125	31	13	208	18	105	3.7	0	1.6	18	100		3	3	75	1
6	Tweed	33050	33,370	33,810	0.91	30,760	0.95	0.93	29,800	76,800	130			706	44	8	185	26	164	5.0	0	2.5	6	97	11	4	3	30	0
7	Port Macquarie-Hastings	28690	28,940	29,290	0.95	27,830	0.93	0.95	25,900	78,000	130			689	40	5	157	23	215	6.0	0	1.6	11	100	5	2	0	0	0
9	Wagga Wagga	25050	25,280	26,130	1.04	27,180	0.93	1.05	25,400	62,800	110			626	43	6	39	6	161	4.4	0	1.1	7	100	10	1	3	2	0
10	Coffs Harbour	25160	25,310	25,500	0.93	23,710	0.94	0.93	22,200	70,200	120			701	34	5	117	17	533	12.6	294	1.9	2	86	0	5	7	260	3
11	Albury	21850	22,160	24,210	0.99	23,970	0.92	0.99	22,200	49,200	110			548	44	4	58	11	78	1.9	0	0.6	0	7	46	0	0	0	0
13	Tamworth Regional	19170	19,350	19,680	1.00	19,680	0.92	1.00	18,000	45,300	180			554	36	4	24	4	123	2.4	0	2.2	9	44	0	0	2	0	0
15	Eurobodalla	19060	19,170	19,200	0.94	18,050	0.94	0.94	17,000	29,500	340			527	34	5	130	25	218	3.9	110	1.9	3	100	0	2	5	86	1
17	Queanbeyan	15810	16,180	16,780	1.03	17,280	0.93	1.04	16,100	39,000	110			336	51	1	15	4	107	1.9	0	0.6	19	67	5	1	0	5	0
19	Orange	16200	16,470	16,550	1.00	16,550	0.92	1.00	15,300	41,400	100			450	37	2	27	6	204	3.4	0	0.9	13	100		6	0	6	0
18	Dubbo	14270	14,430	14,800	1.11	16,420	0.91	1.12	15,000	34,900	110			410	40	2	13	3	1,152	18.9	0	0.7	9	73	0	0	4	0	0
16	Wingecarribee	15460	16,420	16,550	0.95	15,730	0.94	0.96	14,900	38,800	120			558	28	6	73	13	199	3.1	450	2.2	3	64	41	1	3	11	0
14	Clarence Valley	15580	15,570	15,650	0.94	14,710	0.93	0.94	13,700	32,400	120			417	35	6	93	22	1,603	23.6	878	2.1	7	66	0	10	0	13	0
21	Bathurst Regional	14000	14,300	14,700	1.08	15,870	0.90	1.08	14,200	33,700	180			400	40	1	33	8	352	5.6	0	0.8	15	38	4	1	0	0	0
24	Ballina	14770	14,990	15,170	0.93	14,110	0.90	0.93	12,800	36,500	130			327	43	4	113	35	364	5.1	0	1.6		100	23	0	4	0	0
22	Lismore	12060	12,150	12,190	1.05	12,790	0.91	1.06	11,700	29,000	110			359	36	3	33	9	367	4.7	0	1.9	0		5	0	0	0	0
23	Bega Valley	12390	12,430	12,430	0.98	12,180	0.93	0.98	11,300	20,800	170			401	30	10	58	14	334	4.1	0	1.9		100	7	0	3	14	0
27	Byron	10800	10,930	11,100	0.96	10,660	0.86	0.96	9,220	20,500	170			251	42	4	81	32	80	0.9	0	1.8	0	100	1	1	6	7	0
26	Essential Energy	9720	9,720	9,720	1.00	9,720	0.93	1.00	9,040	19,000	100			246	40	2	11	4	269	2.6	0	0.8		88	0	0	0	0	0
20	Goulburn Mulwaree	9340	10,260	10,430	1.03	10,740	0.91	1.03	9,760	22,100	100			285	38	2	24	8	212	2.3	450	2.0	9	100	4	1	5	3	0
25	Kempsey	8970	9,360	9,400	1.04	9,780	0.92	1.04	8,990	19,500	150			273	36	7	84	31	166	1.6		2.3	13	100	16	1	4	3	0
Medians (% of LWUs basis) and totals for >10,000 Properties		550,940	566,530						1,278,200					13,943	39				213	170.8		2	7			1	3		
<b>LWUs with 3,001 - 10,000 Properties</b>																													
29	Armidale Dumaresq	8500	8,550	8,660	0.98	8,490	0.93	0.98	7,870	20,600	110			239	36	1	2	1	220	1.9	0	1.7	0	34	2	2	3	24	1
31	Lithgow	7630	7,640	7,640	0.98	7,490	0.94	0.98	7,020	20,900	76			163	46	3	36	22	156	1.2	0	1.5		100		1	0	0	0
30A	Hawkesbury	7830	7,830	7,840	0.98	7,660	0.88	0.99	6,830	24,000	100			184	42	2	24	13	46	0.4	0	2.1	0	81	0	1	5	1	0
30	Griffith	9250	8,250	8,300	0.85	7,050	0.90	0.84	6,240	25,400	100			225	31	3	29	13	61	0.4		3.1	5	45	0	1	0	19	0
33	Richmond Valley	6960	7,000	6,990	0.95	6,640	0.90	0.95	5,980	17,000	110			197	34	4	31	16	180	1.2	20	2.7		100					
32	Mid-Western Regional	6990	7,150	7,350	1.00	7,350	0.91	1.00	6,680	15,500	140			228	32	4	14	6	98	0.7	100	1.3	21	100	1	2	8	36	2
34	Nambucca	5980	6,010	6,020	0.95	5,720	0.91	0.95	5,190	12,800	140			175	33	4	53	30	101	0.6	0	1.7	10	60	9	0	3	0	0
35	Singleton	5790	5,850	5,940	0.96	5,700	0.92	0.93	5,080	16,000	100			151	38	1	15	10	96	0.5		1.9	28	69	20	4	3	10	0
37	Inverell	4830	4,850	4,710	0.97	4,570	0.96	0.97	4,410	11,600	110			126	36	4	21	17	52	0.2	0	1.5	14	29	0	0	0	0	0

**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			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(13a)	(13b)	(14)	(15)	(16)	(19)	(20)	(21)	(22)	(22a)				
	2012/13	2013/14	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15			
41	Muswellbrook	5910	5,990	6,000	0.96	5,730	0.94	0.96	5,410	12,900	176	33	2	15	9	267	1.5	505	1.7	20	80	22	1	6	2	0	
36	Parkes	5280	5,290	5,340	0.95	5,070	0.88	0.95	4,440	12,200	144	35	4	2	1	412	2.1	505	3.1	6	96	0	0	1	0	0	
42	Corowa	4910	5,490	5,460	0.95	5,190	0.89	0.95	4,600	10,100	154	34	3	64	42	224	1.2	0	1.9	10	100	0	1	4	1	0	
38	Moree Plains	4210	4,200	4,080	0.97	3,950	0.85	0.96	3,340	9,800	89	44	4	28	31	501	2.0	130	1.5	17	100	20	2	11	86	6	
44	Gunnedah	3870	3,850	3,850	1.03	3,970	0.91	1.03	3,630	9,300	111	36	2	3	3	381	1.5	0	1.5	0	100	5	0	5	8	1	
46	Narrabri	4030	4,020	4,040	0.98	3,960	0.86	0.98	3,410	12,100	114	35	3	22	19	146	0.6	0	1.8	0	57	0	3	0	2	0	
43	Tumut	4420	4,440	4,450	0.95	4,230	0.89	0.95	3,750	8,600	148	29	5	20	14	180	0.8	0	1.4	0	100	0	0	0	0	0	
49	Young	3630	3,650	3,670	1.04	3,810	0.90	1.04	3,440	8,800	95	40	1	5	5	176	0.7	412	1.3	20	100	10	1	4	10	1	
39	Cowra	3600	3,730	3,730	0.95	3,550	0.92	0.95	3,250	8,700	100	36	1	7	7	228	0.8	0	1.1	0	100	0	0	2	0	0	
45	Upper Hunter	4610	4,450	4,670	0.92	4,290	0.91	0.92	3,890	13,200	118	36	4	13	11	234	1.0	0	1.7	13	100	3	0	2	0	0	
52	Snowy River	3290	3,310	3,400	1.43	4,870	0.91	1.43	4,430	4,100	93	52	4	18	19	189	0.9	0	1.4	14	72	30	0	4	0	0	
51	Forbes	3190	3,180	3,200	1.00	3,200	0.88	1.00	2,830	7,900	89	36	1	17	19	98	0.3	50	1.9	33	67	18	0	1	0	0	
50	Cooma-Monaro	3440	3,430	3,460	0.95	3,290	0.88	0.95	2,900	7,200	110	30	2	7	6	154	0.5	0	2.9	11	100	0	0	3	0	0	
53	Berrigan	3420	3,590	3,650	0.98	3,580	0.88	0.98	3,140	6,900	109	33	4	49	45	13	0.0	0	1.5	0	36	0	1	2	4	0	
48	Leeton	3480	3,480	3,540	0.94	3,330	0.87	0.94	2,880	7,900	101	33	3	44	44	463	1.5	0	1.8	0	67	0	0	8	100	7	
54	Deniliquin	3300	3,310	3,380	0.96	3,250	0.88	0.95	2,830	6,600	107	30	1	24	22	147	0.5	0	1.8	0	17	0	0	1	0	0	
<i>Medians (% of LWUs basis) and totals for 3,000 to 10,000 Properties</i>		120,520	121,530							286,100	3,362	35				178	22.6		2	10			0	3			
<i>LWUs with 1,501 - 3,000 Properties</i>																											
47	Bellingen	3150	3,190	3,210	0.95	3,050	0.90	0.95	2,740	7,900	100	31	3	28	28	1,709	5.2	1,391	2.3	0	100	10	0	2	0	0	
60	Glen Innes Severn	3080	3,090	3,030	0.91	2,760	0.87	0.91	2,400	6,200	111	25	2	6	5	187	0.5	0	1.3	0	100	5	0	0	0	0	
58	Cootamundra	2890	2,880	2,880	0.98	2,820	0.89	0.98	2,510	5,600	63	45	1	4	6	46	0.1	0	0.4	0	100	1	0	12	0	0	
57	Wellington	2710	2,700	2,700	0.98	2,650	0.87	0.98	2,320	6,000	91	29	3	13	14	96	0.3	0	1.9	0	100	7	0	0	0	0	
91	Cabonne	2460	2,320	2,100	0.92	1,930	0.86	0.92	1,670	4,400	74	26	5	11	15	765	1.5	1,374	3.6	14	100	10	0	3	0	0	
80	Greater Hume	2730	2,740	2,760	0.95	2,620	0.87	0.95	2,270	6,000	77	34	6	21	27	76	0.2	0	1.3	0	100	86	0	15	0	0	
59	Lachlan	2110	2,110	2,130	1.03	2,200	0.85	1.03	1,870	5,000	76	29	3	21	28	38	0.1	0	1.8	0	100	0	0	0	0	0	
65	Murray	3120	3,300	3,310	0.95	3,140	0.89	0.95	2,790	6,800	99	32	2	43	43	73	0.2	0	1.1	0	100	0	0	0	0	0	
62	Narromine	2060	2,060	2,060	0.95	1,960	0.87	0.95	1,690	5,100	54	36	2	13	24	351	0.7	0	1.5	33	100	0	0	0	0	0	
56	Yass Valley	2430	2,480	2,620	0.94	2,470	0.91	0.94	2,240	6,100	80	31	1	11	14	0	0.0	0	1.2	0	67	20	0	2	0	0	
61	Liverpool Plains	2110	2,080	2,060	0.98	2,020	0.91	0.98	1,840	4,900	58	35	2	9	16	43	0.1	0	1.5	0	100	0	0	0	0	0	
55	Warrumbungle	2570	2,560	2,560	0.99	2,540	0.83	0.92	1,960	4,900	80	32	4	9	11	15	0.0	0	3.5	22	100	35	0	4	0	0	
69	Temora	2130	2,150	2,160	1.00	2,160	0.86	1.00	1,860	4,600	54	40	1	4	7	0	0.0	0	0.9	0	100	0	0	3	0	0	
71	Palerang	2260	2,200	2,220	0.95	2,110	0.91	0.95	1,920	5,100	67	31	3	15	22	623	1.3	75	1.7	0	57	0	0	0	0	0	
72	Bland	1930	1,930	1,940	0.95	1,840	0.86	0.95	1,590	3,800	49	38	3	10	20	0	0.0	0	1.1	0	100	10	0	0	0	0	
63	Narrandera	1850	1,850	1,860	0.92	1,710	0.89	0.92	1,510	4,800	41	42	1	4	10	129	0.2	0	1.8	0	100	0	0	0	0	0	
67	Cobar	1830	1,830	1,830	0.95	1,740	0.91	0.95	1,580	5,000	52	33	1	5	10	0	0.0	0	1.1	0	100	0	0	0	0	0	
74	Wentworth	1930	1,680	1,720	0.95	1,630	0.88	0.95	1,440	3,500	65	25	5	27	42	72	0.1	0	2.5	0	50	0	0	3	0	0	
75	Coonamble	1350	1,260	1,170	1.02	1,190	0.82	1.02	972	4,000	46	26	2	12	26	59	0.1	0	2.5	0	100	0	0	0	0	0	
70	Kyogle	1800	1,800	1,800	0.95	1,710	0.90	0.95	1,530	3,600	62	28	3	9	15	229	0.4	0	4.1	14	100	10	0	2	0	0	



**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			
	(1)	(2)	(3)	(4)	(5)	(5a)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(13a)	(13b)	(14)	(15)	(16)	(19)	(20)	(21)	(22)	(22a)			
	2012/13	2013/14	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15	2014/15		
77	Junee	1700	1,710	1,730	0.95	1,640	0.93	0.95	1,520	4,600	120	43	38	1	0	0	56	0.1	0	1.2	0	100	20	0	0	0	0
78	Blayney	1930	1,880	1,880	1.03	1,940	0.85	1.03	1,640	3,900	100	76	26	1	7	9	184	0.4	56	1.0	0	100	8	0	2	0	0
79	Walgett	2000	1,900	1,900	0.85	1,620	0.94	0.85	1,510	6,500	180	48	34	3	9	19	128	0.2	0	2.5	0	50	0	0	0	0	0
68	Tenterfield	1800	1,810	1,800	0.95	1,710	0.85	0.95	1,460	3,700	99	67	26	2	5	7	409	0.7	0	1.8	0	100	5	0	0	0	0
<i>Medians (% of LWUs basis) and totals for 1,500 to 3,000 Properties</i>		53,930	53,430							122,000		1,633	32				74	12.4		2	0		0	0			
<b>LWUs with 200 - 1,500 Properties</b>																											
84	Gilgandra	1400	1,400	1,270	0.98	1,240	0.88	0.98	1,100	3,400	120	37	34	1	17	46	69	0.1	0	1.8	0	44	1	19	23	4	
73	Upper Lachlan	1530	1,530	1,530	1.00	1,530	0.85	1.00	1,310	2,800	140	56	27	3	8	14	157	0.2	0	2.0	0	100	0	0	0	0	0
87	Bourke	1220	1,220	1,210	1.00	1,210	0.89	1.00	1,080	2,100	120	34	36	1	8	24				2.5	0	100	0	0	0	0	0
86	Hay	1320	1,300	1,300	0.98	1,280	0.86	0.98	1,100	2,400	100	37	35	1	8	22	116	0.1	0	1.6	0	100	30	0	0	0	0
83	Oberon	1200	1,200	1,230	1.02	1,250	0.85	1.02	1,060	3,200	130	38	33	1	4	11	74	0.1	0	2.4	0	100	5	0	0	0	0
81	Gwydir	1210	1,210	1,220	0.95	1,150	0.90	0.95	1,040	2,600	140	41	28	2	8	20	0	0.0	0	2.6	33	100	8	0	0	0	0
85	Uralla	1100	1,110	1,120	1.00	1,120	0.91	1.01	1,040	2,500	100	35	32	1	6	17	38	0.0	0	1.3	0	100	5	0	2	0	0
95	Weddin	990	990	1,000	0.94	940	0.88	0.93	812	2,100	110	31	30	1	0	0	0	0.0	0	1.3	0	100	0	0	0	0	0
89	Bogan	1020	960	950	1.01	960	0.85	1.01	811	2,300	150	20	48		4	20				2.1	0	50	0	0	0	0	0
76	Harden	990	990	990	0.95	940	0.85	0.94	792	2,100	100	42	22	1	0	0	11	0.0	0	0.5	0	100	0	0	0	0	0
88	Wakool	1060	1,060	1,060	0.95	1,010	0.86	0.95	863	2,100	120	47	21	4	14	30	352	0.4	0	5.9	0	33	10	0	0	0	0
93	Tumbarumba	1040	1,060	1,060	0.95	1,000	0.87	0.95	873	1,700	120	47	21	2	3	6	2,335	2.3	1,477	1.0	100	100	0	0	0	0	0
94	Gundagai	900	960	980	0.85	830	0.86	0.84	707	2,400	130	73	11	1	5	7	404	0.3	0	2.4	0						
92	Carrathool	880	880	880	0.95	830	0.85	0.95	711	1,900	120	23	36	3	11	48	31	0.0	0	2.8	0	100	0	0	11	0	0
96	Warren	880	860	890	0.92	820	0.89	0.92	729	1,800	130	17	48	2	8	47	282	0.2	0	2.4	0	100	0	0	2	0	0
99	Coolamon	1050	1,060	1,070	0.95	1,020	0.91	0.95	924	2,400	100	44	23	2	8	18	109	0.1	0	1.0	0	50	0	0	0	0	0
102	Lockhart	910	920	920	0.95	880	0.83	0.95	729	1,800	100	42	21	3	6	14				1.5	0	100	0	0	2	0	0
98	Walcha	800	790	790	1.01	800	0.87	1.01	689	1,700	110	30	27	1	1	3	56	0.0	0	2.5	50	100	0	0	0	0	0
100	Balranald	900	900	900	0.95	850	0.86	0.95	735	1,600	160	38	22	2	10	26				1.2	0	100	0	0	0	0	0
97	Bombala	810	810	810	0.95	770	0.84	0.95	651	1,800	110	35	22	2	5	14	51	0.0	0	2.6	0	100	0	0	0	0	0
101	Murrumbidgee	770	770	770	1.03	790	0.94	1.05	760	1,600		23	34	2	12	52	91	0.1	0	5.1	0						
90	Guyra	1250	1,240	1,260	0.95	1,200	0.89	0.95	1,070	2,400	110	57	21	2	2	4	25	0.0	0	1.3	0		5	0	10	0	0
104	Boorowa	690	700	700	0.94	660	0.90	0.94	597	1,500	430	30	22	1	4	13	247	0.2	20	2.7	0	83	28	1	10	18	4
105	Brewarrina	580	590	560	0.86	480	0.88	0.85	416	1,500	80	16	30	3	8	50	165	0.1	250	4.2	0	100	0	0	0	0	0
106	Jerilderie	450	450	450	0.95	430	0.77	0.95	331	780	120	12	36	1	5	42	28	0.0	0	2.3	0		0	0	0	0	0
103	Central Darling	230	380	370	1.00	370	0.92	1.00	339	710	110	23	16	1	6	26	0	0.0	0	2.7	0		0	0	0	0	0
107	Urana	330	330	340	0.95	320	0.87	0.95	276	720	200	15	21	2	9	60				7.8	40	80	0	0	0	0	0
<i>Medians (% of LWUs basis) and totals for 200 to 1,500 Properties</i>		25,510	25,630							53,910		943	27				51	4.5		2	0		0	0			
<i>Median All LWUs (% of LWUs basis)</i>											<i>Properties served per km of main</i>			<i>34</i>			<i>Capital Expenditure \$150 per property</i>			<i>1.8 employees per 1000 properties</i>							
<i>Median All LWUs (Statewide basis)</i>											<i>38</i>			<i>\$204 per property</i>			<i>1.6 employees per 1000 properties</i>										
<b>Totals for all LWUs</b>		<b>Sewerage Assessments 767,000</b>			<b>Connected Sge properties 751,000</b>			<b>Total Sge populaton 1.74M</b>			<b>19,880 km of Sge mains</b>			<b>Total Capital Expenditure \$210M</b>			<b>Total Days Lost Due to Injury 1,030</b>										
<b>99 LWUs with Sge services</b>					<b>Total No. of Sewage Treatment Works 299</b>						<b>Pumping Stations 3130</b>			<b>No. of Sge Employees 1,200</b>			<b>Note: Refer also to pages 21, 23 and 27 on employees and employee awareness of training.</b>										









**Table 15: Sewerage - asset management and resource management**

WATER UTILITY	ASSET MANAGEMENT														RESOURCE MANAGEMENT																													
	Infiltration			Breaks & Chokes			Overflows <small>see also Col (31a)</small>			Rehabilitations		Renewals		Mains Maintenance Cost		Overflows Reported to Regulator		Total Vol of Sewage Collected <small>(Res, NonRes + Trade Waste)</small>			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)		(\$'000 per 100 km of Main)		(No. per 100km of main)		(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	
12/13 13/14 14/15			12/13 13/14 14/15			12/13 13/14 14/15			14/15 14/15		14/15 14/15		14/15 14/15		13/14 14/15		12/13 13/14 14/15			14/15	14/15	14/15	14/15			14/15	14/15	14/15	14/15	14/15	14/15	14/15	12/13 13/14 14/15			12/13 13/14 14/15			14/15	14/15	12/13 13/14 14/15			
<b>LWUs with 200 - 1,500 Properties</b>																																												
84	Gilgandra	139	70	71	50	35	41	3	3	11	0.0	0.0	138	0.3	124	0.0	0.0	310	257	238		100	100	1 of 1	11	70	19			100	226	188	192	-	238	50	100	100						
73	Upper Lachlan	541	304	214	14	9	9	0	0	0	8.9	1.3	429	1.0	36	0.0	0.0	652	519	543		100	100	3 of 3	22	72	6			100	428	339	355	-	50	0	9	9						
87	Bourke	44	44	44	112	129	53	0	0	3	0.0	0.8			197	0.0	2.9	191	191	200	1	85	100	1 of 1	8	90	3	1		85	156	157	165	-	0	0	0	0						
86	Hay	54	54	54	81	81	81	0	0	0	0.0	0.2	403	0.7	151	0.0	0.0	287	287	282		98	100	1 of 1	7	89	4			98	222	224	220	-	0	0	0	0						
83	Oberon	53	39	39	24	26	21	47	13	63	0.0	0.4			68	0.0	0.0	318	315	355	9	100	100	1 of 1	4	91	3	2			261	258	284	-	0	100	100	0						
81	Gwydir	68	56	44	78	93	78	49	51	39	0.0	0.2			59	2.4	2.4	299	275	250		100	100	2 of 2	7	78	14	1			260	239	217	10	10	10	20	20	3	14	8			
85	Uralla	86	46	49	17	29	34	6	0	3	0.0	0.0	123	0.6	166	0.0	2.9	147	123	131	3	100	42	0 of 1	13	82	3	2			134	111	117	-	0	0	0	0						
95	Weddin	65	65	65	123	213	203	0	0	10	3.2	0.2			10	0.0	9.7	165	165	165		100	100	1 of 1	12	79	8	1	0	100	178	178	176	-	12	12	8	8	7					
89	Bogan	50	50	50	0	0	0	0	0	0	0.0	0.1			380	0.0	0.0	622	190	180		100	0	0 of 1	6	44	51			100	606	196	188	-	-	25		100	44	14				
76	Harden	190	12	5	12	7	5	0	5	2	2.4	0.1			431	4.8	2.4	510	586	<b>586</b>		44	70	0 of 1				86	15	15	15	541	623	<b>623</b>	90	90	34	34	63	3	13			
88	Wakool				0	0	0	0	0	0	2.1	0.0	757	1.3	47	0.0	0.0	343	343	343		100	100	5 of 5					43	6	51	340	339	339	100	6	6	0		0	0	0		
93	Tumbarumba				2	0	9	0	0	0	2.1	0.1	4,968	10.0	87	0.0	0.0	275	199	132	11	100	85	1 of 2				8	1	100	279	199	132	-	-	0		0	0	0				
94	Gundagai	3	5		16	14	-	3	4		-	-	459	2.2	16	0.0		117	234	<b>234</b>		-	100	1 of 1	-	-	-	-	-		154	285	<b>282</b>	-	-	<b>234</b>		100	100	<b>100</b>				
92	Carrathool				39	65	4	4	0	0	0.0	0.0	113	0.4	78	0.0	0.0	108	191	101		100	100	3 of 3					100	129	230	122	-	-	0		1	1	0					
96	Warren	12	12	65	388	176	441	0	0	0	5.9	0.7	624	0.8	388	0.0	0.0	203	176	<b>176</b>		100	30	1 of 2	6	84	10			100	251	223	<b>215</b>	-	0		1	1	0					
99	Coolamon	5	5	5	7	9	7	2	2	0	0.0	0.3	209	0.5	114	0.0	0.0	105	105	<b>105</b>		100	100	2 of 2	2	94	4			29	71	105	105	<b>103</b>	-	75		25	71	71				
102	Lockhart				7	0	0	0	0	0	0.0	0.1			24	0.0	0.0	137	114	124		96	69	1 of 3					37	59	158	130	141	-	2	2	1	1	2					
98	Walcha	67	30		27	37	23	27	10	30	0.0	0.1			70	10.0	30.0	127	153	<b>153</b>		100	33	0 of 1				100			158	194	<b>191</b>	-	-	0		0	0	0				
100	Balranald	11			3	18	21	0	0	0	0.0	0.2				0.0	0.0	179	180	184		100	100	2 of 2				100			210	212	216	-	0		73	73	0					
97	Bombala	3	3	3	51	40	34	0	0	0	0.0	0.0	111	0.1	49	0.0	0.0	173	173	<b>173</b>		100	44	1 of 2	1	2	1		96	100	224	225	<b>225</b>	-	20	20	21	21	10					
101	Murrumbidgee				96	0	-	0	0		-	-	313	0.7	113	0.0		153	144	<b>144</b>		-	0	1 of 2	-	-	-	-	-		193	182	<b>182</b>	-	-	27		19	19	<b>19</b>				
90	Guyra	14	116	102	18	11	21	5	0	2	0.0	0.0	53	0.1		0.0	0.0	203	220	214		100	100	2 of 2	27	65	7	1		100	171	186	178	-	0		0	0	0					
104	Boorowa	60	90	67	53	59	97	0	0	0	6.7	0.3	543	1.3	220	0.0	0.0	138	147	127	1	99	100	1 of 1	16	76	8	1		99	212	223	192	-	0		1	1	0					
105	Brewarrina	69	31	75	75	88	6	0	0	0	0.0	0.4	494	0.7	225	0.0	0.0	191	198	182		80	100	3 of 3	7	80	14			80	380	396	379	-	0		57	57	0					
106	Jerilderie	83	83	83	33	0	17	0	0	0	0.0	0.0			58	0.0	0.0	72	81	77		100	0	0 of 1	13	87				100	167	188	179	-	50	50	6	62	65					
103	Central Darling				22	87	26	9	9	4	13.0	0.5			235	0.0	0.0	40	45	80		100	100	1 of 1				100		100	172	118	216	-	0		0	0	0					
107	Urana				0	0	0	0	0	0	0.0	0.0			73	0.0	0.0	90	90	<b>90</b>		100	100	2 of 2				100		100	284	281	<b>281</b>	-	0		0	0	0					
<i>Medians (% of LWUs basis) for 200 to 1,500 Properties</i>		57	46	54	24	26	21	0	0	0	0.0	0.1	403	0.7	87	0.0	0.0															212	212	192	Total Vol			787				1	3	0
<i>Median All LWUs (% of LWUs basis)</i>			<i>Breaks &amp; Chokes</i>			<i>Overflows</i>			<i>3</i>			<i>Renewals 0.5% of CRC</i>			<i>Median % sge treated that was compliant was 100%</i>														<i>Median % of Effluent Recycled</i>			<i>9</i>												
<i>Median All LWUs (Statewide basis)</i>			<i>35</i>			<i>10</i>			<i>Renewals 0.5% of CRC</i>																				<i>12</i>															
<b>Totals for all LWUs</b>														<b>Total volume of sewage collected = 179,000 ML</b>														<b>No. of LWUs Reporting Biosolids Reuse 25 (ie. 25% of LWUs)</b>			<b>Total volume of effluent recycled = 39,000 ML</b>													
																												<b>No. of LWUs Reporting Recycling for Urban use 41 (ie. 41% of LWUs)</b>			<b>Effluent Recycled % of total volume collected = 22%</b>													
																												<b>No. of LWUs Reporting Effluent Recycling 69 (ie. 70% of LWUs)</b>																

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 = 69 (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) = 41 (ie. 41% 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 section H4.7 on page 356.



**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 (\$)	Residential Revenue Vs Vol Collected		Current Replacement Cost of System Assets (CRC)			Net Debt to Equity WS & Sge (%)			Return on Assets (%)			ERRR			Cross Subsidies		Operating Result (\$/property)		WDV CRC per Property (\$/property)	Externalities (Annual Fees to EPA) (\$/property)	Loan Payment (\$/property)			Operating Cost (OMA) (\$/property)				Management Cost (\$/property)						
	(42) F2	(42a) F6	(43)	(44)	Written Down CRC (\$'M)	CRC (\$'M)	CRC per Assessment (\$/assmnt)	(48) F22	(48a)	(48b) F18	Annual Fees & Charges (\$/assessment) (49a)	Developer Charge (\$/ET) (49b)	(50)	(47a) F10/C8	(51)	(51a)	(52) F12	(54)																			
	13/14	14/15	14/15	14/15	14/15	14/15	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	14/15	14/15	13/14	14/15	14/15	14/15	12/13	13/14	14/15	11/12	12/13	13/14	14/15	11/12	12/13	13/14	14/15				
Sydney Water	1,270,000	1,320,000	721		31,661			100	96	98			1.4	1.4	1.4					17,330							293	279	268	278							
Hunter Water	160,650	172,061	756		4,474			75	78	81			2.1	1.8	1.7					19,622							308	374	346	353							
<b>LWUs with &gt; 10,000 Properties</b>																																					
1	Gosford	44,300	49,700	710	81	82	1,537	2,031	30,800	5	6	6	-0.4	-0.2	0.2	-0.4	-0.1	0.3																			
2	Wyong	31,700	35,400	572	87	75	712	1,058	16,700	10	10	9	-0.2	-0.3	0.2	-0.2	-0.4	0.2																			
3	Shoalhaven	40,500	46,700	1,115	83	83	465	700	14,800	1	0	-1	1.4	1.6	3.4	1.9	2.2	3.9																			
5	MidCoast	38,500	39,800	1,133	87	78	453	657	17,900	25	23	22	1.3	1.3	1.3	2.8	2.8	2.6																			
6	Tweed	35,700	33,500	1,089	83	70	604	817	24,200	3	2	0	0.5	1.5	1.0	0.6	1.7	1.1																			
7	Port Macquarie-Hastings	31,900	24,600	884	88	90	261	404	13,800	-4	-5	-8	0.7	2.6	1.3	0.6	2.9	1.5																			
9	Wagga Wagga	16,600	19,600	721	68	86	255	352	13,500	6	6	5	-0.3	-0.5	0.5	0.5	0.3	1.3																			
10	Coffs Harbour	27,500	28,600	1,206	79	90	458	659	25,800	15	14	13	-0.4	-0.4	-0.8	0.1	0.5	0.1																			
11	Albury City	20,500	20,900	872	75	72	183	338	13,900	1	-2	-6	2.2	3.9	4.0	2.6	4.2	4.1																			
13	Tamworth Regional	20,500	21,500	1,092	76	47	233	295	15,000	-2	-2	-4	0.9	1.6	2.4	1.8	2.5	3.2																			
15	Eurobodalla	18,800	19,300	1,069	87	80	232	399	20,800	2	1	-1	0.7	0.6	1.3	1.1	1.0	1.7																			
17	Queanbeyan	12,600	11,700	677	82	83	116	241	14,400	-17	-19	-20	-1.0	3.6	2.4	-2.2	2.6	1.3																			
19	Orange	11,700	14,000	846	76	72	159	248	15,000	-13	-14	-12	2.2	2.7	3.7	1.2	1.7	2.7																			
18	Dubbo	14,200	17,200	1,048	90	64	180	244	16,500	0	-4	-3	2.3	3.4	4.4	1.8	2.7	3.9																			
16	Wingecarribee	14,900	16,800	1,068	85	74	207	273	16,500	0	-1	-4	0.8	0.6	2.4	1.4	1.1	3.0																			
14	Clarence Valley	15,900	18,000	1,224	83	88	282	323	20,700	10	10	11	-0.3	0.6	0.9	1.1	2.3	2.5																			
21	Bathurst Regional	10,800	12,300	775	65	54	91	196	13,300	-11	-12	-12	1.1	2.2	3.0	0.7	1.8	2.7																			
24	Ballina	15,500	16,800	1,191	81	90	196	250	16,500	8	11	17	-0.2	-0.2	0.5	0.6	1.4	2.7																			
22	Lismore	10,800	11,300	884	79	72	190	319	26,200	-1	-1	-2	1.0	0.3	0.6	0.5	0.2	0.5	96	3	31	9	14,900	1.3	62	61	68	452	458	466	454	119	109	122	130		
23	Bega Valley	16,500	16,600	1,363	90	75	182	297	23,900	-2	-3	-3	-0.7	-0.1	0.3	-0.2	0.4	0.7																			
27	Byron	15,700	16,300	1,529	73	62	147	204	18,300	21	17	14	-1.5	1.3	1.6	1.2	3.9	4.0																			
26	Essential Energy	6,300	6,400	658	79	60												0.0																			
20	Goulburn Mulwaree	10,800	11,000	1,024	70	68	83	149	14,200	-2	-5	-6	5.6	5.6	6.2	5.8	5.6	6.2																			
25	Kempsey	8,200	9,300	951	76	70	158	215	22,900	8	8	8	-1.2	-1.1	-0.2	-0.6	-0.4	0.4																			
Medians (% of LWUs basis) for >10,000 Properties							16,500			1	-1		1	1		1	2			1	131		12,800		168	181		448	447			165	170				
<b>LWUs with 3,001 - 10,000 Properties</b>																																					
29	Armidale Dumaresq	5,150	5,070	597	66	65	62	89	10,300	-4	-6	-7	0.5	2.1	3.1	-0.1	1.8	2.6																			
31	Lithgow	7,040	6,710	896	90	90	62	105	13,800	10	12	10	1.8	1.8	0.6	3.5	1.7	1.8																			
30A	Hawkesbury	5,430	5,770	753	70	65	83	166	21,100	-5	3	1	-0.1	-0.2	-0.3	-0.2	-0.4	-0.3																			
30	Griffith	7,590	7,860	1,115	78	86	134	177	21,300	5	-5	2	0.6	0.3	0.4	1.6	1.3	1.4																			
33	Richmond Valley	7,310	7,580	1,142	83	90	102	126	18,000	3	3	3	1.6	0.9	1.5	2.9	2.5	2.4																			
32	Mid-Western Regional	5,570	6,050	823	82	74	70	105	14,300	3	0	-4	2.8	1.1	1.5	3.3	1.8	2.1																			
34	Nambucca	4,550	4,970	869	74	90	76	110	18,300	-5	4	7	-1.5	0.0	0.7	-1.1	0.4	1.2																			
35	Singleton	3,710	3,470	609	77	90	31	70	11,800	-32	-35	-37	8.6	5.6	4.8	5.3	2.9	2.2																			
37	Inverell	2,220	2,450	536	90	89	46	64	13,500	-6	-7	-6	1.1	1.3	0.7	0.5	0.6	0.8																			
41	Muswellbrook	5,770	4,090	714	85	90	53	85	14,200	-22	-22	-21	11.9	6.0	2.2	10.7	5.0	1.4																			
36	Parkes	2,910	3,080	607	68	88	33	62	11,600	-30	-31	-29	5.2	3.2	3.8	3.1	1.4	2.7																			
42	Corowa	3,930	4,260	821	86	82	35	48	8,900	-7	-9	-11	2.0	2.8	2.8	2.5	3.3	3.6																			

**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 (\$)	Residential Revenue Vs Vol Collected		Current Replacement Cost of System Assets (CRC)			Net Debt to Equity WS & Sge (%)			Return on Assets (%)			ERRR			Cross Subsidies		Operating Result (\$/property)		WDV CRC per Property (\$/property)	Externalities (Annual Fees to EPA) (\$/property)	Loan Payment (\$/property)			Operating Cost (OMA) (\$/property)				Management Cost (\$/property)				
	(42) F2	(42a) F6	(43)	(44)	Written Down CRC (\$'M) (45) F10	CRC (\$'M) (46)	CRC per Assessment (\$/assmnt) (47)	(48) F22			(48a)			(48b) F18			Annual Fees & Charges (\$/assessment) (49a)	Developer Charge (\$/ET) (49b)	(50)	(47a) F10/C8	(51)	(51a)			(52) F12				(54)						
	13/14	14/15	14/15	14/15	14/15	14/15	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	14/15	14/15	13/14	14/15	14/15	12/13	13/14	14/15	11/12	12/13	13/14	14/15	11/12	12/13	13/14	14/15			
38	Moree Plains	3,020	3,960	1,003	66	84	28	57	14,000	7	9	3	0.4	0.2	4.0	0.3	0.3	4.1		9	325	7,200	2.0	90	90	93	470	537	473	444	114	124	114	130	
44	Gunnedah	2,420	3,420	861	74	73	31	53	13,700	-20	-21	-22	3.2	3.5	5.8	2.3	2.7	4.9		268	473	7,800	0.8	0	0	0	168	192	233	284	51	76	106	134	
46	Narrabri	3,440	3,160	798	82	66	38	91	22,600	-31	-22	-24	5.5	1.5	0.5	4.6	1.0	0.0		139	41	9,500	0.8	23	10	8	373	397	408	432	23	45	35	155	
43	Tumut	3,300	3,530	835	74	90	33	51	11,400	3	1	-1	2.0	2.1	0.0	1.6	1.5	-0.2		68	-80	7,900		34	126	18	464	436	451	630	157	137	143	238	
49	Young	2,870	2,970	780	79	70	37	55	15,000	-8	6	3	5.1	1.3	1.4	5.3	2.9	2.7		282	227	9,600	0.8	75	316	2034	154	179	307	330	59	71	86	113	
39	Cowra	3,100	3,230	910	78	90	33	48	12,900	5	6	6	1.3	1.5	1.5	3.5	3.1	3.1		131	131	9,300	0.9	1191	380	196	326	437	418	441	91	160	176	179	
45	Upper Hunter	2,300	2,800	653	81	90	31	65	14,000	-9	-11	-12	1.9	-1.0	1.0	0.9	-1.9	0.2		-79	68	7,200	1.6	0	0	0	431	427	495	453	166	172	195	178	
52	Snowy River	3,580	3,910	803	65	64	33	65	19,000	-4	-6	-8	0.1	1.2	2.5	0.0	1.4	2.6		70	173	6,700	1.5	86	85	83	426	407	392	359	77	115	82	75	
51	Forbes	2,290	2,320	725	78	60	30	45	14,100	-14	-15	-16	-1.6	0.9	1.0	-1.8	0.8	0.9		87	106	9,500	2.5	41	36	29	447	661	470	465	19	20	58	57	
50	Cooma-Monaro	3,060	3,240	985	85	90	32	56	16,100	-7	-7	-10	1.1	1.4	2.4	0.6	1.0	2.0		-20	214	9,800	1.1	42	44	44	447	572	561	532	148	213	165	176	
53	Berrigan	1,810	1,770	494	90	89	16	39	10,600	-13	-16	-19	-2.0	1.9	1.3	-2.9	0.8	0.4		49	9	4,500	0.0	0	0	0	306	388	309	312	97	99	100	98	
48	Leeton	2,070	2,140	643	68	83	25	56	15,800	-20	-20	-19	1.0	0.4	0.2	-0.5	-0.7	-0.6		0	-26	7,700	1.8	33	1	0	457	480	461	466	124	130	156	158	
54	Deniliquin	2,780	2,660	818	84	90	38	52	15,200	-7	-10	-8	5.5	4.7	2.0	5.3	5.0	2.1		334	210	11,600	0.9	0	25	20	399	444	419	429	208	218	207	209	
<i>Medians (% of LWUs basis) for 3,000 to 10,000 Properties</i>									14,050	-7	-8		2	1		2	2			119	145	8,800		37	29		435	426			127	146			
<i>LWUs with 1,501 - 3,000 Properties</i>																																			
47	Bellingen	3,020	3,150	1,033	90	88	43	60	18,800	-19	-20	-18	0.0	0.9	0.9	-0.4	0.3	0.3		91	552	14,100	2.3	0	0	0	592	591	637	662	180	196	194	245	
60	Glen Innes Severn	1,340	1,390	504	90	90	15	22	7,200	4	6	6	1.3	1.7	1.8	1.5	1.9	1.8		75	66	5,300	1.1	87	87	86	278	262	282	287	165	152	167	164	
58	Cootamundra	1,380	1,390	493	75	81	20	38	13,000	-13	-15	-16	1.3	1.3	1.4	1.3	1.3	1.4		73	101	7,200	1.1	9	9	9	228	258	254	229	63	65	68	68	
57	Wellington	1,730	2,080	785	76	90	21	37	13,700	16	11	6	-1.3	-1.2	0.8	-0.6	-0.4	1.5		-128	41	8,000	1.2	150	150	150	414	415	424	405	153	167	174	180	
91	Cabonne	1,580	1,650	855	83	90	39	50	24,000	-7	-4	-4	-0.5	-0.5	-1.0	-0.6	-0.7	-1.2		1459	504	20,400	3.2	106	44	93	352	444	500	725	41	60	190	321	
80	Greater Hume	1,390	1,560	595	74	83	31	47	16,900	-5	-6	-7	-0.4	0.4	0.5	-0.6	0.1	0.3		6	42	62	11,700	2.3	1	1	0	314	311	318	350	122	119	125	146
59	Lachlan	1,020	1,060	482	90	90	21	37	17,500	-13	-13	-14	-0.7	-0.7	-1.7	-2.2	-2.1	-2.6		-66	-163	9,500	3.2	0	0	0	360	427	444	452	82	85	90	99	
65	Murray	1,740	1,740	554	70	63	17	24	7,400	-10	-10	-13	2.2	2.6	2.5	1.6	2.0	1.9		136	132	5,400	1.0	27	0	0	286	328	344	333	103	114	118	118	
62	Narromine	1,210	1,230	628	78	90	18	29	13,900	-28	-30	-29	0.8	1.3	0.4	0.3	0.7	-0.2		105	33	9,000	1.6	0	0	0	371	363	498	474	156	207	331	349	
56	Yass Valley	1,830	2,180	883	90	74	18	38	14,700	20	21	18	1.4	1.7	3.2	1.0	0.0	2.9		126	-111	7,500	1.2	0	0	0	437	519	446	433	172	176	185	188	
61	Liverpool Plains	1,060	1,150	569	86	71	27	29	14,100	-5	-7	-8	2.0	2.2	1.9	1.4	1.8	1.2		279	255	13,200	3.0	0	0	0	250	245	254	320	78	93	108	109	
55	Warrumbungle	1,220	1,210	476	78	70	21	36	14,100	-5	-7	-8	0.4	0.0	-0.3	-0.3	-1.1	-1.0		-4	-28	8,300	3.0	0	0	15	351	338	415	432	69	67	97	122	
69	Temora	690	750	347	78	82	11	19	8,700	-8	-7	-8	0.3	0.1	1.7	0.0	0.0	1.5		11	85	4,900	1.4	0	0	0	199	231	229	179	16	20	15	24	
71	Palerang	2,390	2,750	1,303	90	90	30	43	19,500	4	3	3	0.3	0.6	1.6	1.1	1.7	2.5		135	288	14,200	3.4	373	369	360	440	503	498	512	140	152	169	168	
72	Bland	1,180	1,280	696	90	90	10	23	11,800	-1	-2	-2	2.2	2.7	3.4	2.1	2.6	3.3		159	207	5,700	1.7	0	0	0	341	357	357	359	53	54	54	52	
63	Narrandera	1,100	1,070	626	80	90	11	20	11,000	-30	-30	-27	3.9	2.8	1.7	3.4	2.1	1.2		129	34	6,500	1.8	0	0	0	347	452	395	435	109	106	98	121	
67	Cobar	720	680	391	89	90	9	17	9,500	-6	-9	-15	-0.6	-1.3	-1.1	-0.6	-1.7	-1.5		-69	-56	5,100	1.8	0	0	0	221	190	295	257	52	47	112	97	
74	Wentworth	1,380	1,400	859	90	15	17	38	21,900	-8	-12	-15	3.7	2.4	2.7	3.7	2.1	2.4		201	253	10,500	3.4	90	104	83	287	258	303	321	57	57	65	64	
75	Coonamble	720	750	630	82	87	12	28	23,600	-20	-21	-22	0.4	0.5	1.0	-1.0	-0.3	0.1		39	96	10,400	3.4	0	5	9	307	333	245	243	63	22	23		
70	Kyogle	1,170	1,210	708	81	66	23	30	16,500	2	1	0	-0.2	0.1	-0.1	0.1	0.4	0.2		-16	-84	13,500	2.9	53	53	49	483	530	511	559	138	144	161	160	
77	June	680	700	427	87	83	11	21	11,900	-13	-14	-16	0.4	-0.1	0.3	-0.2	-0.8	-0.2		-9	22	6,400	1.9	0	0	0	268	296	304	260	65	65	67	57	
78	Blayney	1,450	1,200	619	90	89	20	29	15,400	-11	-15	-17	0.2	1.8	0.4	-0.3	1.2	-0.2		210	67	10,300	1.6	58	61	145	317	363	367	363	95	114	127	167	
79	Walgett	820	850	525																															



**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 (\$)	Residential Revenue Vs Vol Collected		Current Replacement Cost of System Assets (CRC)			Net Debt to Equity WS & Sge (%)			Return on Assets (%)			ERRR			Cross Subsidies		Operating Result (\$/property)		WDV CRC per Property (\$/property)	Externalities (Annual Fees to EPA) (\$/property)	Loan Payment (\$/property)			Operating Cost (OMA) (\$/property)				Management Cost (\$/property)			
	(42) F2	(42a) F6	(43)	(44)	Written Down CRC (\$'M)	CRC (\$'M)	CRC per Assessment (\$/assmnt)	(48) F22	(48a)	(48b) F18	Annual Fees & Charges (\$/assessment) (49a)	Developer Charge (\$/ET) (49b)	(50)	(47a) F10/C8	(51)	(51a)	(52) F12	(54)																
	13/14	14/15	14/15	14/15	14/15	14/15	14/15	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	14/15	14/15	13/14	14/15	12/13	13/14	14/15	11/12	12/13	13/14	14/15	11/12	12/13	13/14	14/15		
<b>LWUs with 200 - 1,500 Properties</b>																																		
84	Gilgandra	870	790	637	78	79	8	18	14,000	-12	-12	-12	-1.5	0.8	-0.2	-1.6	0.6	-0.5		-149	-39	6,500	2.5	50	0	2	312	322	330	363	42	65	64	74
73	Upper Lachlan	1,300	1,330	869	81	<b>90</b>	13	23	15,000	-17	-8	-10	1.4	2.5	1.5	1.1	1.9	1.0		220	102	8,700	2.6	64	28	37	422	404	392	476	123	108	124	150
87	Bourke	740	760	628	89	<b>90</b>	8	15	12,600	-16	-17	-13	3.0	2.0	1.1	1.9	1.1	0.3		128	69	6,400	2.5	7	7	7	389	296	394	455	136	114	173	203
86	Hay	870	920	719	84	<b>90</b>	10	22	16,600	-14	-16	-17	2.0	1.3	1.5	1.5	0.9	1.1		105	122	8,000	0.5	0	0	0	465	403	460	482	254	200	241	203
83	Oberon	700	860	688	58	<b>90</b>	12	19	15,200	-4	-4	-7	-0.1	-0.9	2.0	-0.5	-1.3	1.7		-88	278	9,400	2.4	0	0	0	539	587	563	399	184	281	260	123
81	Gwydir	720	<b>710</b>	617	69	84	9	12	9,900	-4	-6	-5	-15.2	7.0	3.4	-16.4	5.7	2.9		214	214	7,900	3.5	1	6	5	283	234	250	323	17	22	21	53
85	Uralla	530	580	518	90	<b>90</b>	6	8	6,900	-7	-9	-11	1.0	-0.7	0.3	-0.6	-1.4	-0.4		-39	17	5,600	2.7	0	0	0	395	344	377	364	138	124	132	95
95	Weddin	390	470	500	90	<b>90</b>	7	13	12,700	-8	-10	-9	1.2	1.9	2.0	1.0	1.8	1.9		103	107	6,900	3.2	0	0	0	178	180	259	334	28	28	28	116
89	Bogan	680	790	823	57	47	7	11	11,600	-12	-14	-15	3.7	3.4	4.7	2.8	2.5	3.7		247	348	7,400	3.2	0	0	0	254	275	432	456	127	114	208	281
76	Harden	640	<b>650</b>	691	80	14	7	16	15,700	-9	-12	-13	2.6	2.2	-0.8	1.8	1.5	-1.2		145	-62	7,600	3.2	89	0	0	358	265	312	516	136	133	167	189
88	Wakool	750	800	792	77	<b>90</b>	12	27	25,200	-8	-8	-9	-0.7	0.2	0.5	-1.3	-0.3	0.1		-16	29	12,300		47	3	3	309	416	361	350	95	84	105	116
93	Tumbarumba	650	700	700	79	67	14	23	21,900	-5	-5	-3	0.9	2.0	1.1	0.0	1.1	1.0		205	1594	14,400	4.0	0	1	167	390	399	318	325	85	86	94	98
94	Gundagai	710	790	952	61	<b>90</b>	8	15	15,500	-8	-11	-12	2.3	3.1	3.1	2.1	2.8	2.8		310	314	10,100	3.7	0	0	0	475	446	438	510	135	147	118	190
92	Carrathool	280	280	337	90	<b>90</b>	6	7	8,000	3	4	2	-1.6	0.6	0.6	-1.6	0.6	0.9		46	40	7,100		0	0	33	211	252	205	184	24	20	16	22
96	Warren	490	490	598	76	89	4	14	15,300	-20	-20	-19	-1.0	-1.6	-1.8	-3.5	-3.6	-3.4		-120	-112	5,300	3.7	0	0	0	552	543	541	488	192	242	235	189
99	Coolamon	440	520	510	90	<b>90</b>	13	18	16,700	-10	-10	-11	0.1	-0.3	0.6	-0.4	-0.7	0.2		-111	12	12,600	0.6	0	0	0	248	289	318	271	55	53	52	35
102	Lockhart	400	410	466	90	<b>90</b>	7	13	13,800	-24	-23	-26	0.0	0.4	1.5	-0.9	-0.2	1.0		25	82	7,600	2.2	0	0	0	297	319	295	213	73	97	32	18
98	Walcha	370	380	475	79	<b>90</b>	4	5	6,900	-7	-8	-7	2.1	1.8	1.4	1.2	0.9	0.6		97	76	5,400	3.8	6	1	0	292	312	427	363	56	72	97	98
100	Balranald	270	260	306	90	<b>90</b>	7	13	14,600	-2	-4	-7	-0.1	-1.0	-2.2	-0.9	-1.8	-2.3		-84	-178	8,100	0.0	0	0	0	182	178	268	271	49	52	99	53
97	Bombala	430	440	571	80	2	13	29	35,900	-13	-14	-15	-0.9	-0.8	-1.0	-1.4	-1.3	-1.5		-149	-174	17,400	4.0	54	0	0	284	322	334	373	82	98	97	130
101	Murrumbidgee	240	230	291	90	<b>90</b>	7	10	13,400	-15	-15	-16	-0.5	-0.5	-0.5	-1.2	-1.3	-1.1		-48	-43	9,300	1.2	0	0	0	213	212	237	233	73	77	82	72
90	Guyra	650	660	550	86	89	18	22	17,300	-4	-6	-7	-0.2	0.0	0.2	-0.2	0.1	0.2		31	32	15,400	2.5	178	97	99	390	362	347	333	123	119	20	85
104	Boorowa	410	440	667	90	<b>90</b>	6	13	17,900	0	-11	-11	0.6	0.3	0.5	-0.3	-0.3	-0.2		-14	67	8,600	0.9	34	35	32	380	356	385	420	207	160	130	150
105	Brewarrina	420	440	917	88	86	5	11	20,500	-14	-11	-17	4.5	-0.1	0.2	4.4	6.0	0.1		-46	477	11,200		6	6	6	1058	472	576	583	147	92	162	183
106	Jerilderie	250	240	558	67	<b>90</b>	3	8	16,800	-28	-25	-27	2.6	1.3	0.7	0.0	-0.9	-1.1		42	19	8,100	2.3	0	0	0	380	343	419	419	79	83	135	98
103	Central Darling	110	<b>110</b>	297	90	<b>90</b>	3	5	12,800	0	-3	-2	-1.7	1.4	4.0	-1.7	2.0	6.6		108	297	7,500		0	0	0	1359	1026	250	200	78	47	29	
107	Urana	190	200	625	90	<b>90</b>	7	9	25,100	-8	-9	-9	-0.2	0.2	-0.4	-0.4	0.0	-0.6		34	-78	22,100		234	213	216	386	376	356	509	114	114	113	159
<i>Medians (% of LWUs basis) for 200 to 1,500 Properties</i>								15,200																										
<i>Median All LWUs (% of LWUs basis)</i>		<i>Revenue/prop</i>		<i>\$710</i>		<i>CRC \$/Assessment</i>		<i>\$15000</i>		<i>Net D/E</i>		<i>-8</i>		<i>1.2</i>		<i>ERRR</i>		<i>1.2</i>		<i>Loan Payment per property</i>		<i>\$20</i>		<i>OMA \$ per property</i>		<i>\$420</i>		<i>Mngmnt \$/prop</i>		<i>\$150</i>				
<i>Median All LWUs (Statewide basis)</i>		<i>\$882</i>				<i>\$16500</i>		<i>-1</i>		<i>1.3</i>		<i>1.7</i>								<i>\$110</i>				<i>\$420</i>				<i>\$160</i>						
<b>Totals for all LWUs</b>		<b>Total Sge Revenue \$663 M</b>		<b>Total Sge CRC \$13,600M</b>		<b>Total Sge WDC \$9,200M</b>																												

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*.





Table 17: Sewerage - environmental and levels of service

WATER UTILITY	ENVIRONMENTAL																	LEVELS OF SERVICE												
	EPA DISCHARGE LICENCE COMPLIANCE												Sewage Treated that was Compliant (%) (59e)	STWs Compliant at all times (59f)	Fully Complied with Environmental Regulator (60)	Odour Complaints (per 1000 properties) (61)			Service Complaints (per 1000 properties) (62) C11			Total Sewerage Complaints (Odour, service, Other, Billing) (per 1000 properties) (62a) [C13]			Customer Inquiries (per 1000 properties) (63)	Average Sewerage Interruption (minutes) (65) C16				
	BOD			SS				N (%) (59a)	P (%) (59b)	Oil & Grease (%) (59c)	Faecal Coliform (%) (59d)	12/13				13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	12/13	13/14	14/15	14/15	13/14	14/15	
	Compliance (%) (55)	90 %-ile Limit (mg/L) (56)	Compliance (%) (57)	90 %-ile Limit (mg/L) (58)																										
38	Moree Plains	100	100	100	20	75	100	100	30	100	100	100	100	75	100	100	4 of 4	Yes	0.5	0.0	0.0	24	23	23	24	24	23	-	180	180
44	Gunnedah	100	100	100	20	100	100	100	30	100	100	100	100	100	100	100	2 of 2	Yes	1.0	0.5	1.0	9	13	11	9	13	11	2	88	80
46	Narrabri	100	100	71	20	100	100	100	NL	100	100	100	100	91	100	71	2 of 3	No	0.5	2.0	0.8	53	46	17	53	46	17	4	45	45
43	Tumut	100	100	100	10	100	100	100	15	97	100	100	100	100	100	97	3 of 5	No	0.2	0.0	0.0	24	23	21	31	23	22	0	90	90
49	Young	100	98	100	10	33	94	100	15	100	100	100	83	33	94	83	0 of 1	No	0.5	1.6	3.1	32	7	7	32	7	7	1	100	100
39	Cowra	100	100	100	10	75	100	100	15	100	50	100	100	42	67	50	0 of 1	No	1.5	0.0	0.0	38	41	44	40	42	44	0	240	240
45	Upper Hunter	95	100	100	20	54	100	100	30	100	100	100	100	54	100	100	4 of 4	Yes	0.0	0.2	0.7	15	14	12	15	14	12	-	120	120
52	Snowy River	100	100	100	10	88	100	99	15	100	85	100	89	88	79	81	1 of 4	No	0.0	0.0	0.0	8	8	7	13	8	7	0	120	120
51	Forbes	100	100	100	10	100	100	100	15	100	100	100	100	75	75	100	1 of 1	Yes	0.3	0.6	1.3	3	7	29	3	8	29	4	60	90
50	Cooma-Monaro	100	100	100	10	100	100	100	15	100	100	100	100	86	100	100	2 of 2	Yes	0.0	1.5	0.3	60	69	41	60	69	41	0	90	90
53	Berrigan	100	100	100	NL	100	100	100	NL	100	100	100	100	100	100	100	4 of 4	Yes	3.0	3.4	5.0	49	47	51	54	48	54	4	90	90
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	0	2	0	0	2	0	120	120
54	Deniliquin	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	11	13	12	11	13	12	11	-	120
<i>Medians (% of LWUs basis) for 3,000 to 10,000 Properties</i>		100	100	100		99	100	100		100	100	100	100	90	100	99			0.5	0.4	0.7	17	13	17	17	13	17	1	90	90
<i>LWUs with 1,501 - 3,000 Properties</i>																														
47	Bellingen	100	100	100	10	93	100	100	15	100	100	100	100	88	100	100	3 of 3	Yes	1.0	0.7	0.7	9	7	11	11	8	11	8	60	60
60	Glen Innes Severn	100	100	100	10	100	100	100	15	100	100	100	100	100	100	100	2 of 2	Yes	0.0	0.0	0.0	86	37	18	86	37	18	0	40	40
58	Cootamundra	100	100	100	30	100	100	100	40	100	100	100	100	75	100	100	1 of 1	Yes	0.4	0.0	0.4	71	66	73	71	68	75	5	100	90
57	Wellington	100	100	100	15	100	100	100	30	100	100	100	100	100	100	100	2 of 2	Yes	0.0	0.0	0.0	11	11	13	11	11	13	-	90	90
91	Cabonne	100	100			90	91							69	82	0	5 of 6	No	0.0	0.0	0.0	19	13	13	20	13	13	6	240	240
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	0	4	5	0	4	5	20	100	90
59	Lachlan	100	100			59	80							59	80	0	2 of 2	No	0.0	0.9	0.0	5	8	-	5	8	-	-	75	-
65	Murray	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	2	4	4	2	4	4	-	50	50
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	1	9	6	1	9	6	0	60	60
56	Yass Valley	100	100	100	10	100	100	100	15	100	100	100	100	100	67	100	1 of 1	Yes	0.0	0.0	0.0	24	20	23	24	20	23	6	180	180
61	Liverpool Plains	91	100	100	20	66	87	65	30	100	100	91	100	66	87	56	0 of 2	No	0.5	0.0	0.0	31	26	25	34	29	27	1	35	40
55	Warrumbungle	96	100	100	45	80	85	95	65	95	95	89	100	73	78	83	3 of 4	No	1.2	2.4	2.4	22	2	44	33	4	61	49	80	118
69	Temora	83	100	100	30	49	100	100	40	100	100	100	58	49	58	58	0 of 1	No	0.0	0.0	0.0	19	49	12	19	49	12	0	90	90
71	Palerang	100	100	100	10	82	83	100	15	100	95	100	100	47	76	95	2 of 3	No	3.3	4.8	0.9	18	16	20	22	16	20	2	60	60
72	Bland	100	100	100	20	100	100	100	30	100	100	100	100	100	100	100	2 of 3	Yes	0.0	0.0	0.0	66	28	13	66	28	13	5	60	55
63	Narrandera	89	100	-	20	100	100	-	30	100	-	-	-	50	11	-	0 of 1	No	0.0	0.0	0.0	88	71	73	88	71	73	-	120	120
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	0.0	27	27	18	27	27	18	-	120	120
74	Wentworth	100	100	100	NL	100	100	100	NL	100	100	100	100	100	100	100	5 of 5	Yes	1.1	4.4	3.7	13	17	26	13	17	26	-	60	60
75	Coonamble		100	100	20		57	53	50	100	100	100	98		25	46	0 of 2	No	0.0	0.0	0.0	0	16	8	0	16	8	0	60	60
70	Kyogle	100	100	100	NL	96	96	100	NL	100	100	100	100	60	96	100	2 of 3	Yes	1.2	1.8	1.2	9	11	13	9	11	13	0	90	90
77	Junee	100	100	100	30	100	100	100	30	100	100	100	100	100	100	50	0 of 1	No	0.0	0.0	0.0	0	0	0	0	0	0	0	30	30
78	Blayney	100	100	100	30	100	100	100	30	100	100	100	100	83	100	100	1 of 1	Yes	0.0	0.5	0.5	12	11	12	12	11	12	0	60	60
79	Walgett	100	33	67	20	100	100	67	50	67	100	67	100		33	67	2 of 3	No	0.0	0.0	0.0	6	4	2	6	4	2	0	-	180
68	Tenterfield	100	99	100	40	100	99	97	45	100	100	100	100	100	83	73	0 of 2	No	0.0	0.0	0.0	35	53	40	35	53	40	0	120	120
<i>Medians (% of LWUs basis) for 1,500 to 3,000 Properties</i>		100	100	67		100	100	59		100	100	100	100	98	100	100			0.0	0.0	0.0	14	13	13	14	13	8	1	78	90







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

WATER UTILITY	OPERATION & MAINTENANCE (O&M) COST*										MANAGEMENT COST (A)*				OMA* Total OMA Cost (\$/prop) (76b)	O&M COST COMPONENTS for TYPES of ASSET														
	Total O&M Cost (\$/prop) (66a)	Components (1) - Process					Components (2) - Type of Asset				Components					Components		Pumping					Sewer Main			Treatment				
		Maintenance	Operation	Energy	Chemicals	Effluent & Biosolids	Mains	Pumping Stations	Sewage Treatment	Other	Admin	Engineering & Supervision	Total Management Cost			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
		(66)	(67)	(68)	(69)	(69a)	(70)	(71)	(72)	(73)	(74)	(75)	(\$/prop) (76a)	(c/kL) (76)		(77)	(78)	(c/kL) (79)	(80)	(\$'000/pumping station)			(c/kL) (85)	(86)	(87)	(88)	(c/kL) (89)	(90)	(91)	(92)
2014/15	2014/15					2014/15				2014/15				2014/15		2014/15					2014/15			2014/15						
<b>LWUs with &gt; 10,000 Properties</b>																														
1 Gosford	203	88	80	32	3	0	36	74	78	16	167	9	176	63	379	78	109	26	28	5	16	7	13	188	40	148	28	44	18	3
2 Wyong	287	89	159	37	2		54	96	132	4	49		49	19	336	132	150	37	42	19	16	7	21	277	138	139	51	85	25	2
3 Shoalhaven	312	58	200	32	7	17	51	89	134	39	144	44	188	84	500	134	140	40	17	9	5	3	23	176	150	26	60	70	24	7
5 MidCoast	415	121	194	55	5	40	33	78	160	145	81	47	128	65	543	160	110	40	13	2	7	4	17	102	10	92	82	51	32	5
6 Tweed	352	140	97	64	21	29	54	100	187	12	122	50	172	65	524	187	153	38	17	4	9	4	20	234	29	205	71	59	38	21
7 Port Macquarie-Hastings	353	140	101	61	8	43	26	72	198	58	71	55	126	45	480	198	98	26	13	2	7	4	9	103	40	64	70	23	83	8
9 Wagga Wagga (NO WS)	354	29	311	8	0	6	54	36	226	39	64	0	64	30	418	226	90	17	25	16	4	5	25	235	137	99	105	219		
10 Coffs Harbour	418	149	122	78	15	55	72	123	208	15	133	67	201	65	619	208	196	40	25	9	10	6	23	245	56	189	67	47	41	15
11 Albury City	273	98	77	46	3	49	29	54	147	42	112	8	120	65	393	147	83	29	22	0	14	7	16	129		129	79	35	32	3
13 Tamworth Regional	256	99	89	43	3	22	65	26	165		54	115	169	64	425	165	91	10	21	7	10	4	25	232	80	151	62	57	45	3
15 Eurobodalla	314	61	186	47	19	0	61	96	149	8	187	0	187	97	501	149	157	50	13	6	4	3	32	209	158	50	78	88	19	19
17 Queanbeyan	173	35	83	27	27	1	39	20	104	9	134	70	205	96	377	104	59	9	23	8	5	10	18	201	123	78	49	42	16	27
19 Orange	232	33	140	39	19	0	42	13	134	43	139	39	178	75	409	134	55	5	8	3	0	5	18	154	58	96	56	76	7	19
18 Dubbo	193	31	124	37	2		25	38	116	13	142	15	156	92	350	116	64	23	49	16	19	13	15	102	102		68	74	14	2
16 Wingecarribee	250	101	77	43	24	5	54	51	133	13	81	108	189	57	439	133	105	15	11	3	3	5	16	153		153	40	62	20	24
14 Clarence Valley	317	110	95	52	28	33	32	68	201	16	91	54	145	75	462	201	100	35	11	2	5	3	16	112	5	107	104	64	46	28
21 Bathurst Regional	251	102	113	34	0	1	63	42	145	0	172	13	185	71	435	145	105	16	20	15	3	2	24	250	15	235	56	78	36	0
24 Ballina	389	153	134	92		10	38	110	223	18	213	44	258	67	647	223	148	29	14	1	10	3	10	166		166	58	116	30	
22 Lismore	324	157	79	36	33	19	68	44	198	14	89	41	130	42	454	198	113	14	17	1	11	5	22	244	23	221	63	69	54	33
23 Bega Valley	455	82	349	20		4	75	102	273	6	114	171	285	155	740	273	177	56	22	7	10	4	41	227	127	100	148	269		
27 Byron	530	129	256	75	38	32	102	114	296	18	132	17	149	51	680	296	216	39	15	5	6	4	35	432	305	127	102	127	52	38
26 Essential Energy	254	177	68	8	1		93	36	125		41	38	78	56	332	125	128	25	31		25	7	66	367	4	363	90	67	57	1
20 Goulburn Mulwaree	226	78	80	36	3	29	66	28	125	7	72	32	104	58	330	125	94	16	13	8	2	4	36	247		247	69	57	8	3
25 Kempsey	379	146	143	51	16	23	69	89	216	5	82	103	184	79	563	216	158	38	10	3	4	3	29	247	5	241	92	111	39	16
Medians (% of LWUs basis)	100	118	41	6	13	54	70	155	13	113	43	170	65	447	155	110	28	17	5	7	4	21	218	57	139	69	68	32	8	
<b>LWUs with 3,001 - 10,000 Properties</b>																														
29 Armidale Dumaresq	161	144	-70	11	0	76	84	2	145	-70	47	19	66	25	227	145	86	1	9		8	1	32	298		298	55		58	
31 Lithgow	416	274		55		87	63	53	300		113	38	150	52	566	300	116	18	11		9	2	22	291		291	105		168	
30A Hawkesbury (NO WS)	292	26	226	0	0	40	143	24	121	4	71	199	270	87	563	121	167	8	8		8		46	597	597		39	80	2	
30 Griffith	378	41	255	56	22	4	84	116	159	19	163	49	212	71	590	159	199	38	28	22	2	4	28	262	221	40	53	78	17	22
33 Richmond Valley	286	112	114	36	6	18	43	78	155	11	212	98	310	113	596	155	120	28	17	5	8	3	16	144	101	43	57	59	51	6
32 Mid-Western Regional	207	106	53	37	11		68	42	97		66	96	162	97	369	97	110	25	22	9	5	8	41	220		220	58	36	29	11
34 Nambucca (Groundwater)	278	178	46	51	0	3	27	71	134	46	104	38	142	55	420	134	98	27	8		5	3	11	90		90	52		105	
35 Singleton	174	81	67	26	1		60	35	77	1	61	62	123	62	297	77	95	18	13		13	0	31	228	74	154	39	46	5	1
37 Inverell	211	60	116	35	0	0	60	54	97	0	28	66	94	46	305	97	114	26	12	8		4	30	219		219	48	79		
41 Muswellbrook	210	148	35	20	8		39	65	87	18	87	79	165	99	375	87	105	39	25	4	13	8	24	128		128	52	14	65	8
36 Parkes	191	106	75	4	0	6	85	0	106	0	100	11	112	67	303	106	85	0	0				52	301		301	64	75	21	
42 Corowa	325	102	164	36	21	3	38	90	160	38	98		98	58	424	160	128	53	7	2	3	2	22	128	10	118	94	98	23	21

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

WATER UTILITY	OPERATION & MAINTENANCE (O&M) COST*										MANAGEMENT COST (A)*				OMA* Total OMA Cost (\$/prop) (76b)	O&M COST COMPONENTS for TYPES of ASSET														
	Total O&M Cost (\$/prop) (66a)	Components (1) - Process					Components (2) - Type of Asset				Components					Components		Pumping					Sewer Main				Treatment			
		Maintenance	Operation	Energy	Chemicals	Effluent & Biosolids	Mains	Pumping Stations	Sewage Treatment	Other	Admin	Engineering & Supervision	Total Management Cost			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)	(\$/property)	(\$/property)	(\$/prop)	(\$/property)	(\$/property)	(\$/property)	(\$/property)	(\$/property)	(\$/property)	(\$/prop)	(c/KL)		(\$/property)	(c/KL)	(c/KL)	(c/KL)	(\$'000/pumping station)	(\$'000/pumping station)	(\$'000/pumping station)	(\$'000/pumping station)	(c/KL)	(c/KL)	(\$'000/100km)	(c/KL)	(c/KL)	(c/KL)	(\$/property)
(66a)	(66)	(67)	(68)	(69)	(69a)	(70)	(71)	(72)	(73)	(74)	(75)	(76a)	(76)	(77)	(78)	(79)	(80)	(81)	(82)	(83)	(85)	(86)	(87)	(88)	(89)	(90)	(91)	(92)		
	2014/15					2014/15				2014/15				2014/15		2014/15					2014/15				2014/15					
38 Moree Plains	314	191	51	67	0	4	89	90	122	13	113	17	130	37	444	122	179	26	13	3	7	3	25	393	393	35	14	55		
44 Gunnedah	151	133		17	1		50	28	53	20	101	33	134	70	284	53	79	15	38		15	23	26	179	179	28		52	1	
46 Narrabri	277	97	145	35	0	0	80	89	107	1	93	62	155	81	432	107	169	47	16	5	6	5	42	278	144	134	56	75	22	
43 Tumut	392	256	13	50	60	14	83	22	272	16	202	36	238	114	630	272	104	10	5	1	3	1	40	236		236	131	10	143	60
49 Young	218	46	90	47	16	19	29	11	168	10	41	72	113	78	330	168	40	8	9		7	1	20	116	12	104	116	77	10	16
39 Cowra	263	103	95	38	26		66	43	111	43	83	95	179	115	441	111	109	28	22	10	9	4	42	233		233	71	34	19	26
45 Upper Hunter	275	115	112	36	6	7	106	40	127	2	64	114	178	85	453	127	146	19	13	7	3	2	50	385	65	319	61	70	16	6
52 Snowy River	284	55	152	39	8	30	13	65	157	49	56	19	75	71	359	157	78	62	18	8	5	4	12	67	16	51	148	69	27	8
51 Forbes	408	123	195	62	28	0	117	35	248	9	37	20	57	27	465	248	151	17	7	0	1	5	56	419		419	120	184		28
50 Cooma-Monaro	356	29	238	60	13	16	122	26	207	1	104	72	176	74	532	207	148	11	12	8	1	4	51	365	355	10	87	103	24	13
53 Berrigan	214	0	214	0	0	0	34	70	102	8	39	59	98	50	312	102	104	36	5	5			18	113	113		53	102		
48 Leeton	308	153	73	54	28		56	97	148	7	82	76	158	63	466	148	153	39	7		6	2	23	185		185	59	67	20	28
54 Deniliquin	220	170	0	46	0	4	42	32	142	3	189	20	209	120	429	142	74	18	4		1	3	24	128		128	82			114
Medians (% of LWUs basis) for 3,000 to 10,000 Properties		109	82	38	6	3	62	48	138	9	90	54	146	70	426	138	110	25	12	5	6	3	27	224	87	179	59	70	27	13
LWUs with 1,501 - 3,000 Properties																														
47 Bellingen	417	155	138	59	15	50	50	95	268	5	211	33	245	98	662	268	144	38	10	3	5	3	20	151	53	98	107	88	80	15
60 Glen Innes Severn	123	87	2	34			16	3	96	8		164	164	86	287	96	19	2	1		1		9	41		41	50		62	
58 Cootamundra	161	94	13	33	8	13	44	11	106	0	20	48	68	39	229	106	55	6	8	1	4	3	25	198	10	189	60	10	47	8
57 Wellington	225	74	102	32	16		49	32	144		85	95	180	86	405	144	81	16	7		5	1	23	142		142	69	102		16
91 Cabonne	404	43	308	39	13	0	88	97	213	6	321	0	321	209	725	213	185	63	17	13	2	2	57	230	186	43	138	154	16	13
80 Greater Hume	204	37	134	32	0		11	48	126	19	36	110	146	94	350	126	59	31	6	3	1	2	7	36	22	14	81	90	18	
59 Lachlan	353	30	299	24	0	0	29	85	190	49	55	44	99	45	452	190	114	38	9	6		3	13	84		84	86	190		
65 Murray	215	104	72	39			25	143	30	16	61	57	118	65	333	30	168	78	10	3	5	2	14	80	29	51	17	13	11	
62 Narromine	125	23	79	22	0	0	19	30	73	3	142	207	349	189	474	73	49	16	5	4	0		10	69		69	40	50	1	
56 Yass Valley	245		182	49	15		32	46	165	3	98	90	188	98	433	165	78	24	10	8		3	17	99	99		86	113		15
61 Liverpool Plains	210	184	14	12	0	0	11	66	120	13	107	2	109	83	320	120	78	50	15	0	14	1	9	40	3	36	91	5	106	
55 Warrumbungle	311	131	146	27	5	2	55	82	172	1	106	15	122	87	432	172	137	59	23	6	12	5	39	174	8	166	123	122	36	5
69 Temora (NO WS)	155	23	49	19	0	65	45	4	106	0	24	0	24	16	179	106	49	3	2	2		0	30	180	180		70		23	
71 Palerang	345	70	206	57	12		16	50	224	55	82	86	168	95	512	224	65	28	7	3	2	2	9	49	7	42	127	130	39	12
72 Bland (NO WS)	307	134	149	24	0	0	58	59	187	3	52	0	52	26	359	187	117	30	11	10		1	30	218	218		96	36	134	
63 Narrandera	313	106	156	51			59	49	206		81	40	121	69	435	206	108	28	21	0	20	1	34	246		246	117	156		
67 Cobar	160	76	54	2	3	25	47	32	82	0	22	74	97	39	257	82	79	13	11		10	1	19	156		156	33	54		3
74 Wentworth	258	109	113	34		2	40	117	88	12	45	18	64	5	321	88	158	9	7	1	4	2	3	102	68	34	7	56	28	
75 Coonamble	243	95	103	45	0	0	36	81	126	0		0	0	0	243	126	117	34	8	2	3	3	15	93		93	53	82	30	
70 Kyogle	399	45	314	28	12		45	98	256		126	35	160	65	559	256	143	39	19	15		4	18	124		124	103	237		12
77 Junee (NO WS)	203	174	0	19	0	10	62	0	141	0	51	5	57	25	260	141	62	0	0				27	235		235	61		112	
78 Blayney (NO WS)	196		149	35	12		14	11	171		167		167	105	363	171	25	7	3	0		3	9	36	36		107	134		12
79 Walgett	156	31	125	0	0	0	27	57	70	2	9	0	9	5	164	70	84	32	10	8	3		15	90	90		39	53	17	
68 Tenterfield	296		213	29	49	5	51	28	218		226	29	255	151	551	218	79	17	10	8		1	30	130	130		129	139		49
Medians (% of LWUs basis) for 1,500 to 3,000 Properties		75	130	32	0	0	42	49	143	2	81	34	121	76	361	143	80	28	9	3	4	2	17	113	53	89	84	90	33	12

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

WATER UTILITY	OPERATION & MAINTENANCE (O&M) COST*										MANAGEMENT COST (A)*			OMA*	O&M COST COMPONENTS for TYPES of ASSET															
	Total O&M Cost (\$/prop) (66a)	Components (1) - Process					Components (2) - Type of Asset				Components			Total OMA Cost (\$/prop) (76b)	Components		Pumping					Sewer Main			Treatment					
		Maintenance	Operation	Energy	Chemicals	Effluent & Biosolids	Mains	Pumping Stations	Sewage Treatment	Other	Admin	Engineering & Supervision	Total Management Cost		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	
		(\$/prop) (66)	(\$/property) (67)	(\$/property) (68)	(\$/property) (69)	(\$/prop) (69a)	(\$/property) (70)	(\$/property) (71)	(\$/property) (72)	(\$/property) (73)	(\$/property) (74)	(\$/property) (75)	(\$/prop) (76a)		(c/kL) (76)	(\$/property) (77)	(c/kL) (78)	(c/kL) (79)	(c/kL) (80)	(\$'000/pumping station) (81)	(c/kL) (82)	(c/kL) (83)	(c/kL) (85)	(c/kL) (86)	(\$'000/100km) (87)	(c/kL) (88)	(c/kL) (89)	(\$/property) (90)	(\$/property) (91)	(c/kL) (92)
2014/15	2014/15					2014/15				2014/15		2014/15	2014/15		2014/15					2014/15			2014/15							
<b>LWUs with 200 - 1,500 Properties</b>																														
84 Gilgandra	289	230	32	27	0	0	37	61	154	36	74	0	74	39	363	154	98	32	4	4	19	124	124	80	14	114				
73 Upper Lachlan	326	82	171	58	7	8	31	84	203	7	70	80	150	42	476	203	116	24	16	5	2	10	9	86	50	36	57	122	58	7
87 Bourke	252	131	100	21	0	0	64	125	64	0	165	38	203	123	455	64	188	76	19	4	11	3	39	226	29	197	39	64		
86 Hay	279	82	158	39			44	84	151		199	4	203	92	482	151	128	38	14	8	3	2	20	151		151	68	107	20	
83 Oberon	276	22	202	39	13	0	21	38	217	0	84	39	123	43	399	217	59	14	12	12		1	7	68		68	76	165	2	13
81 Gwydir	270	70	161	30	8	2	22	56	193		53		53	24	323	193	77	26	8	5	2	1	10	61	2	59	89	127	35	8
85 Uralla	270	179	0	0	27	63	52	12	138	69	84	11	95	81	364	138	63	10	2		2		44	166		166	118		47	27
95 Weddin (NO WS)	218	28	180	11			37		181		67	49	116	66	334	181	37					21	113	103	10	103	146	24		
89 Bogan	175	79	79	9	7	0	139	29	7	0	15	267	281	150	456	7	168	16	7	5		2	74	665	285	380	4			7
76 Harden	327	197	111	17		2	193		127	7	113	77	189	30	516	127	193					31	431		431	20	103	4		
88 Wakool	234	42	125	66	1	0	50	62	122	0	52	63	116	34	350	122	112	18	5	1	1	2	15	106	60	47	36	78	8	1
93 Tumbarumba	227	174	41	3	9		78	5	144		31	67	98	74	325	144	83	4	2		1	0	59	166	79	87	109	4	129	9
94 Gundagai	319	208	22	29	18	42	14	70	233	2	160	30	190	68	510	233	84	25	12	1	7	3	5	16		16	82	13	147	18
92 Carrathool	163	125		37			22	94	47		10	12	22	18	184	47	116	77	7		4	3	18	78		78	39		47	
96 Warren	299	162	93	44	0	0	84	133	82	0	118	71	189	88	488	82	217	62	14	3	6	4	39	406	18	388	38	57	21	
99 Coolamon (NO WS)	235	82	111	35		7	49	49	137		35		35	34	271	137	98	48	6		4	2	48	114		114	133	111		
102 Lockhart (NO WS)	194	131	10	39	0	15	11	18	165	0	18	0	18	13	213	165	30	13	3		3		8	24		24	117	10	101	
98 Walcha	265	90	163	13			31	33	201		69	29	98	51	363	201	64	17	26	7	9	10	16	83	13	70	105	149	53	
100 Balranald	218	58	146	12	2	0	59	69	2	87	53	0	53	24	271	2	128	32	6		5	1	27	132	132		1			2
97 Bombala	243	219		23			22	56	165		130		130	58	373	165	78	25	9		6	3	10	49		49	73		160	
101 Murrumbidgee	161	109	6	46	0	0	33	59	23	46		72	72	40	233	23	92	33	4		2	2	18	113		113	13		1	
90 Guyra	248	19	121	25	32	52	21	25	200	3	85		85	48	333	200	46	14	15		12	4	12	44	44		112	98		32
104 Boorowa	270	214	41	12	0	3	100	38	123	9	111	39	150	78	420	123	138	20	6	1	4	2	52	220		220	64	29	91	
105 Brewarrina	400	129	221	46	4		75	163	163		131	52	183	48	583	163	238	43	10	4	3	3	20	225		225	43	154		4
106 Jerilderie	321	279	9	33	0	0	16	98	198	9	51	47	98	55	419	198	114	55	8		7	2	9	58		58	110		184	
103 Central Darling	200	184		16			146	51	3						200	3	197	24	3		2	1	68	235		235	1		3	
107 Urana (NO WS)	350	297	31	22	0	0	34	244	72	0	13	147	159	57	509	72	278	87	9	1	7	1	12	73		73	26	13	59	
<b>Medians (% of LWUs basis) for 200 to 1,500 Properties</b>		129	93	27	0	0	37	56	144		70	38	116	48	364	144	112	25	7	4	4	2	19	113	50	87	68	98	47	8

\* 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).



# APPENDIX A

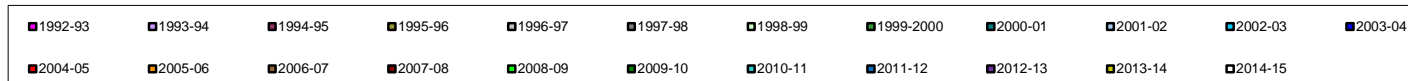
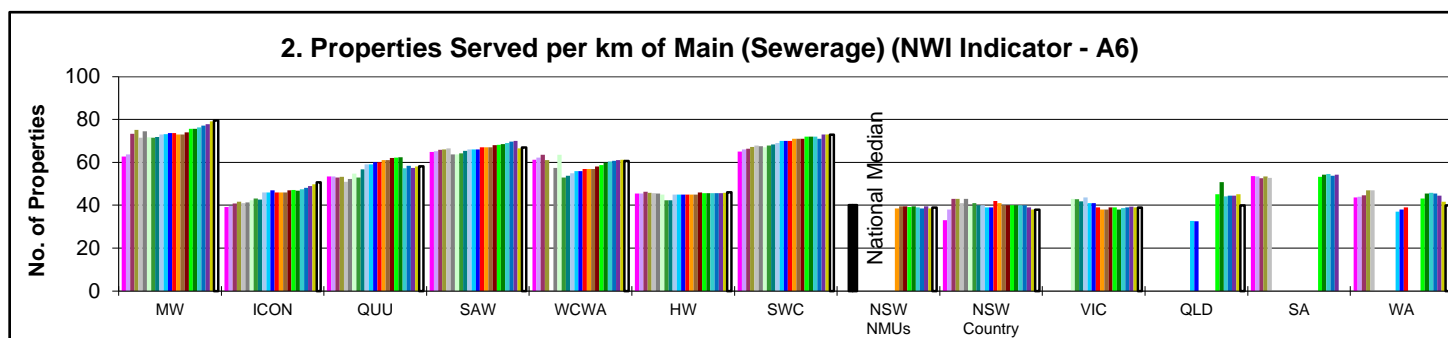
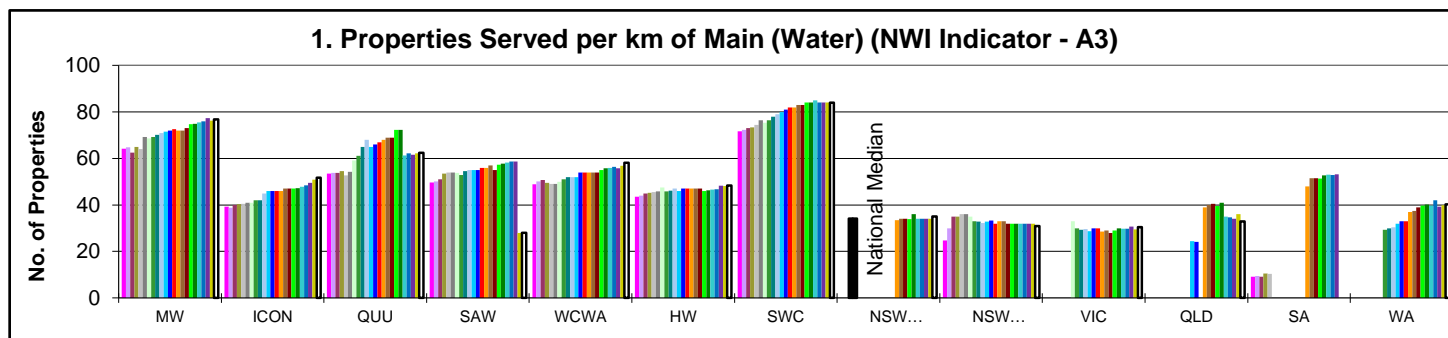
## NATIONAL PERFORMANCE COMPARISONS 1992-93 TO 2014-15

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Refer also to Appendix K on page 364.

## PERFORMANCE COMPARISONS - Utility Characteristics



### Metropolitan Water Utilities

MW	Melbourne Water Consolidated (see note 1)
ICON	Icon Water (Canberra)
QUU	Queensland Urban Utilities (Brisbane) (see note 3)
SAW	SA Water Corporation (Adelaide)
WCWA	WA Water Corporation (Perth)
HW	Hunter Water Corporation
SWC	Sydney Water Corporation

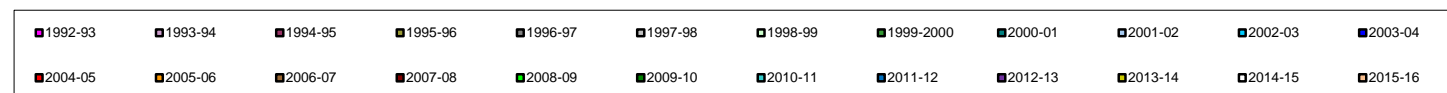
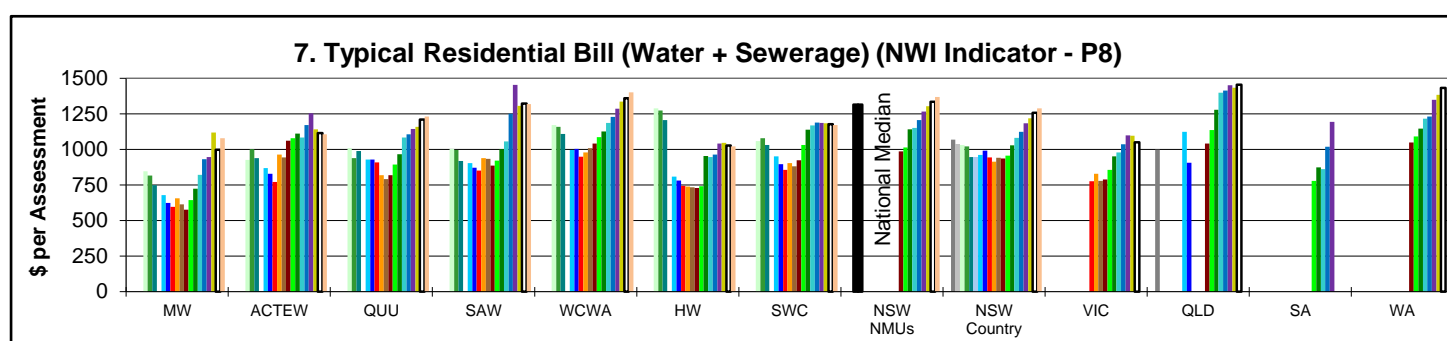
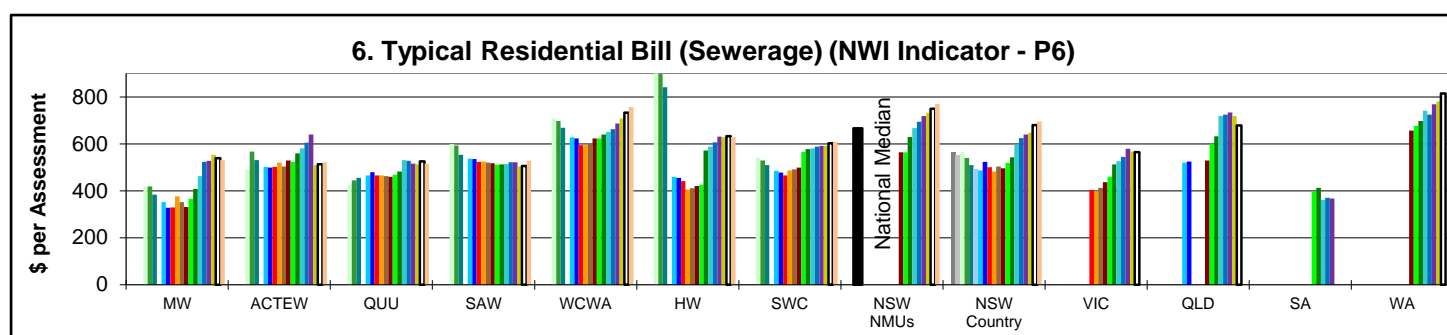
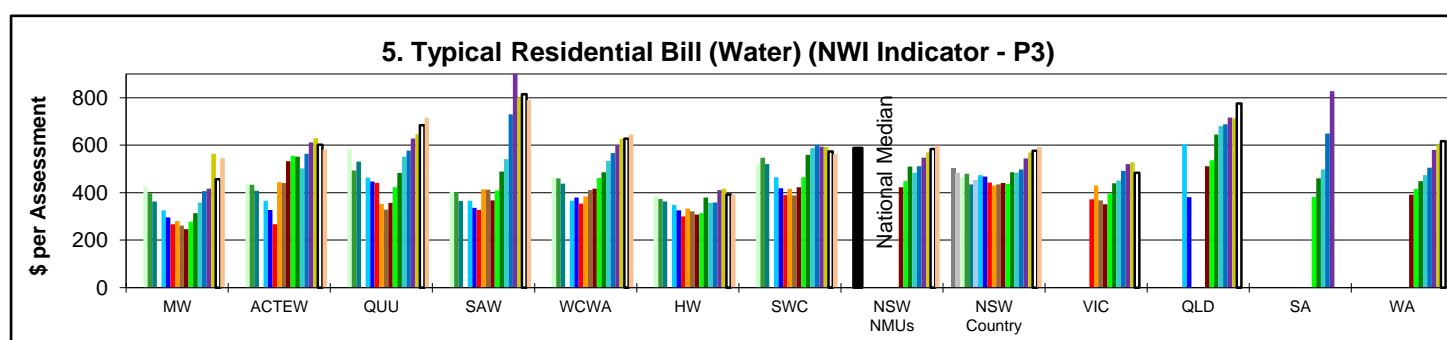
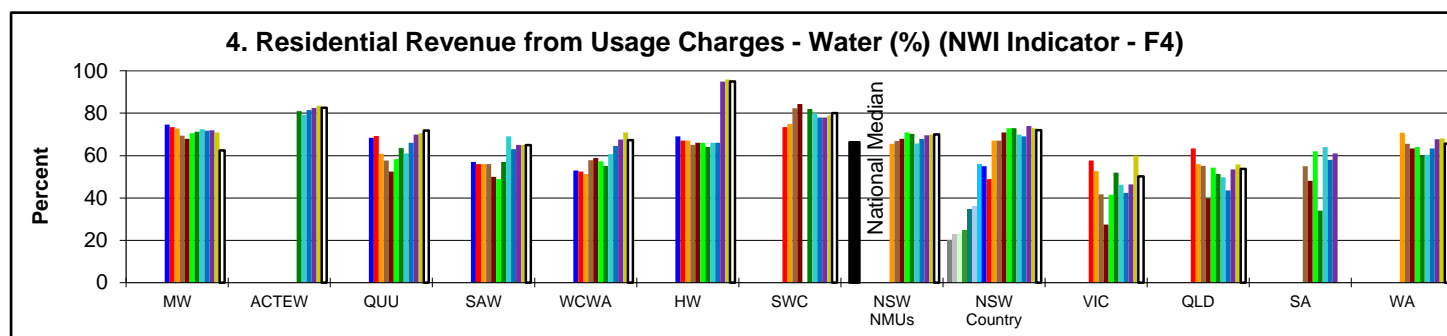
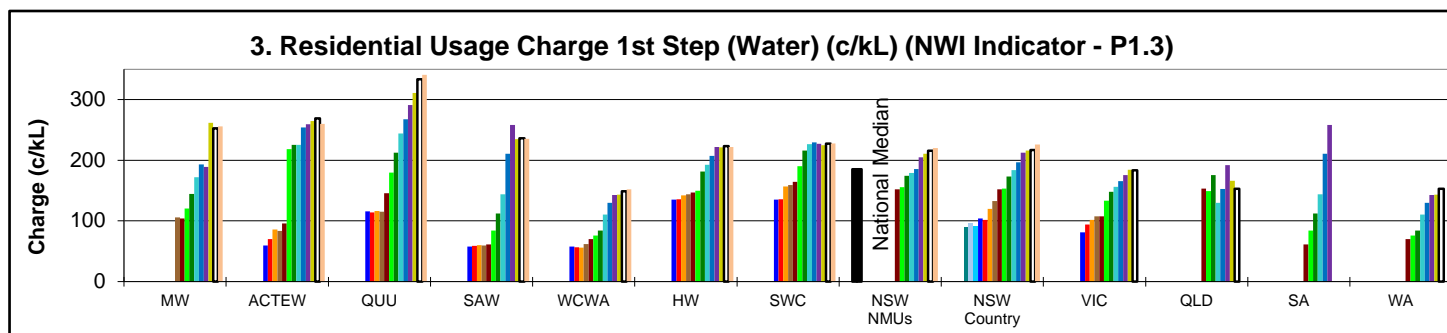
### Country Water Utilities

NSW NMUs	Median of NSW regional LWUs with > 10,000 connected properties
NSW Country	Statewide median for all NSW regional LWUs
VIC	VIC Country (see note 4)
QLD	QLD Country (see note 6)
SA	SA Country (see note 5)
WA	WA Country (see note 7)

### NOTES:

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

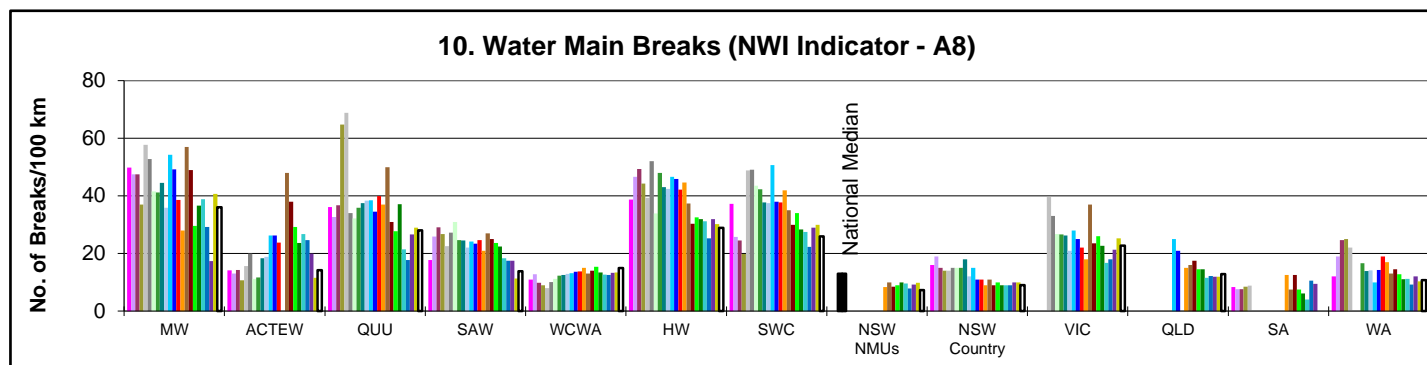
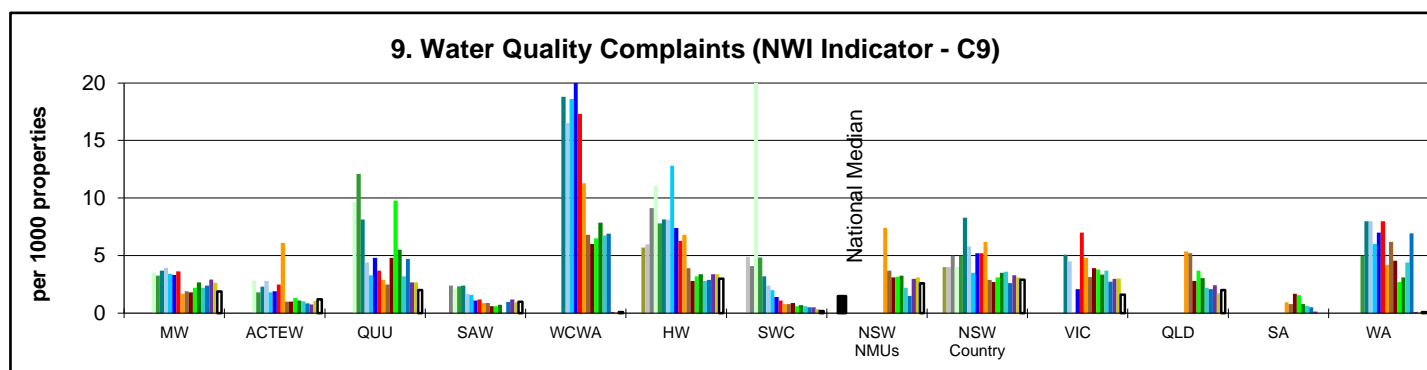
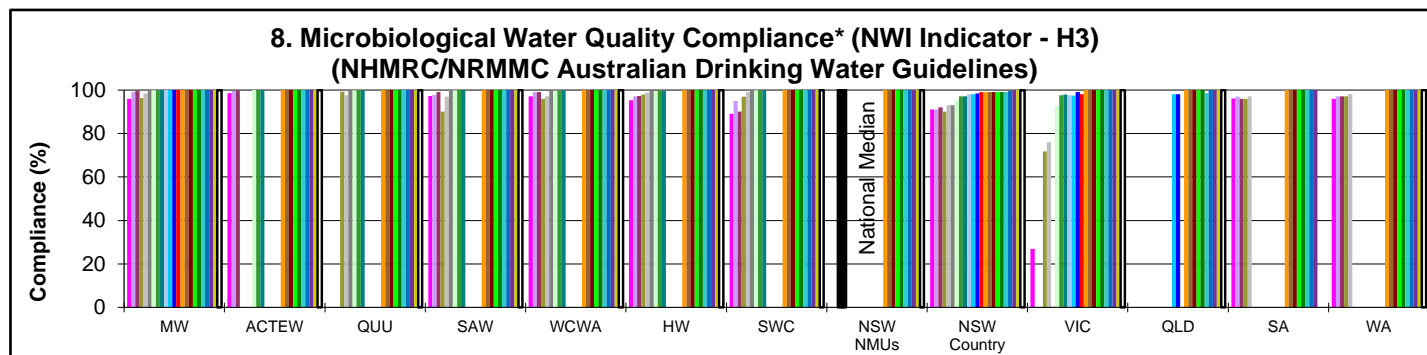
## PERFORMANCE COMPARISONS - Social



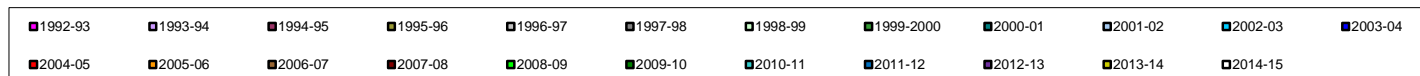
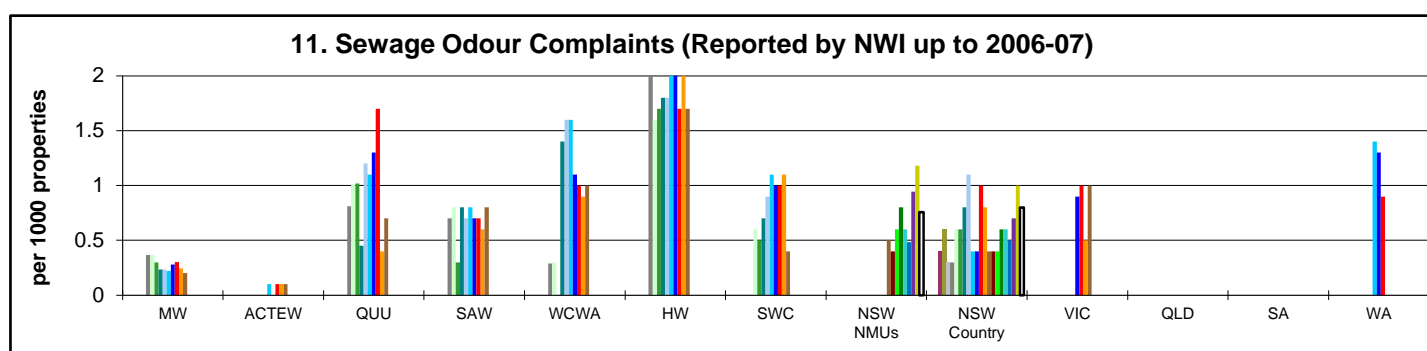
- NOTES**
- The Typical Residential Bill (TRB) is the annual bill paid by a residential customer using the utility's average annual residential water supplied.
  - The TRB is the principal indicator of the overall cost of a water supply or sewerage system.
  - The 2015-16 Usage Charge and TRB (graphs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



## PERFORMANCE COMPARISONS - Social (Water)



## PERFORMANCE COMPARISONS - Social (Sewerage)



### \* Microbiological Water Quality Compliance

1991 to 1998 results are generally on the basis of the 1987 NHMRC/AWRC Drinking Water Quality Guidelines.

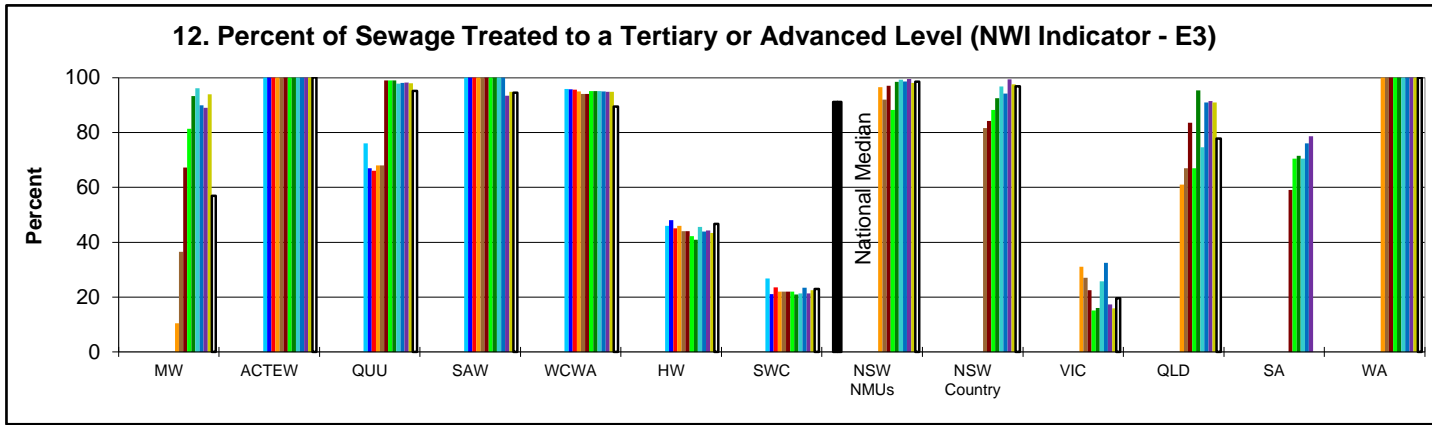
1998-99 and subsequent results are generally on the basis of E. coli in the more stringent 1996 NHMRC/ARMCANZ and 2004 NHMRC/NRMMC Australian Drinking Water Guidelines (ADWG) [refer also to page 8].

The exceptions are Victorian country utilities where results up to 2003-04 are on the basis of the less stringent 1984 World Health Organisation Guidelines and which are now on the basis of the Victorian Safe Drinking Water Regulations 2005, and also Melbourne Water where prior to 2004-05 the results are on the basis of the above 1987 Guidelines and which were subsequently on the basis of the 2004 ADWG.

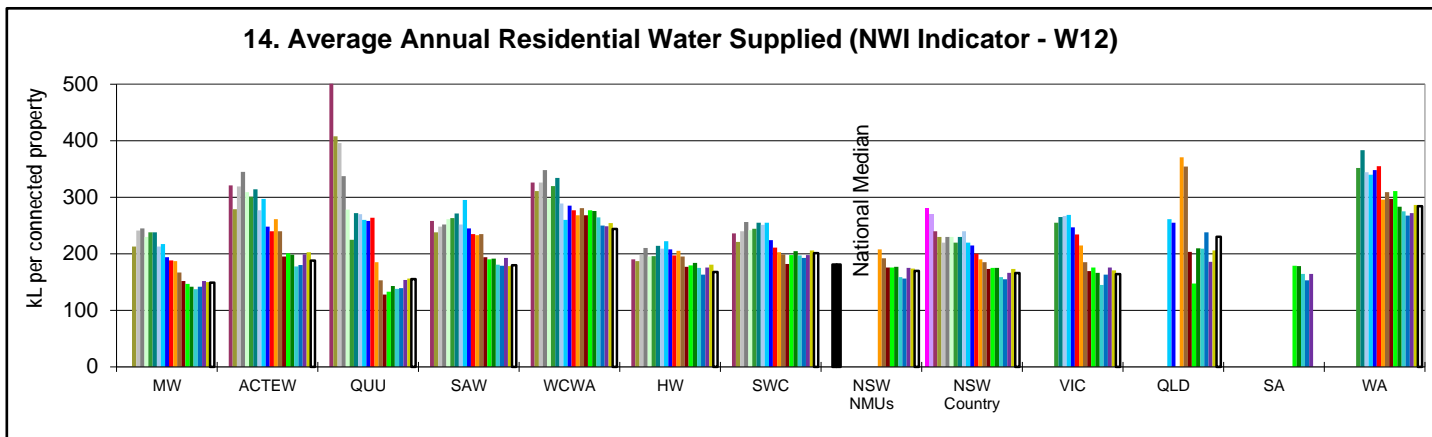
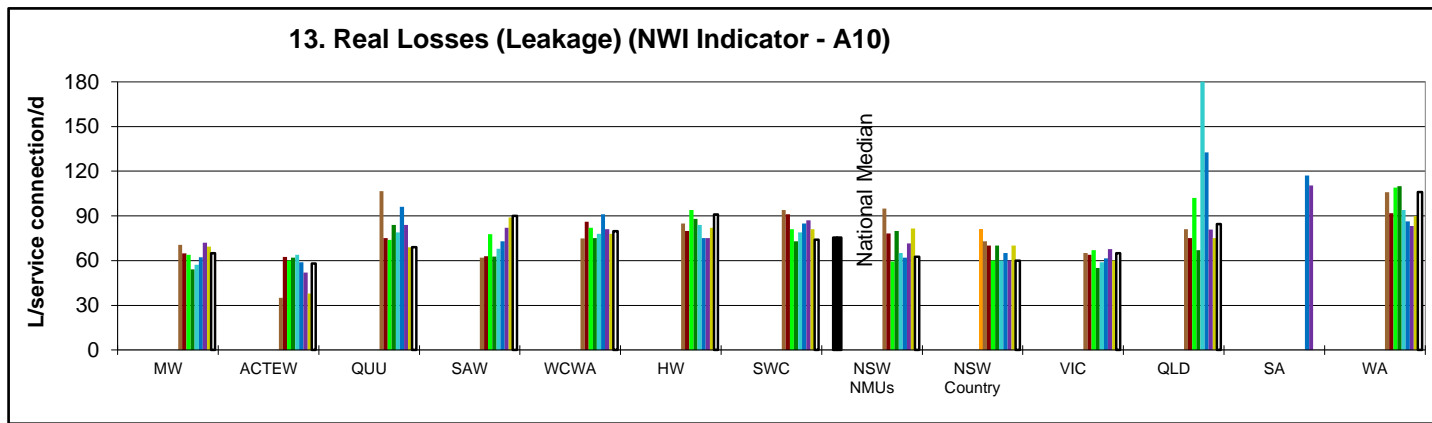
For 2005-06 to 2014-15, the results shown are for "% of population where microbiological compliance was achieved", in accordance with NWI Indicator H3.

As noted on page 7 of the 2014-15 NSW Water Supply and Sewerage Performance Monitoring Report ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)), from 2012 to 2015, the public drinking water supply for 99.9% of the urban population in regional NSW complied with 2011 ADWG for both microbiological and chemical water quality. In 2014-15 99.9% of the 19,400 samples tested complied for microbiological water quality (health related) and 99.9% of the 4,800 samples tested complied for chemical water quality (health related). Refer also to Table 12 on page 183 and Appendix D1 on page 280.

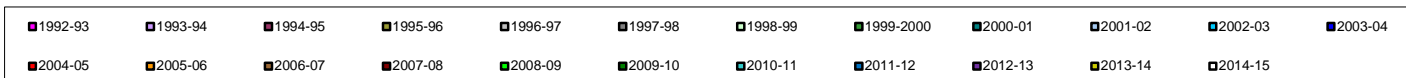
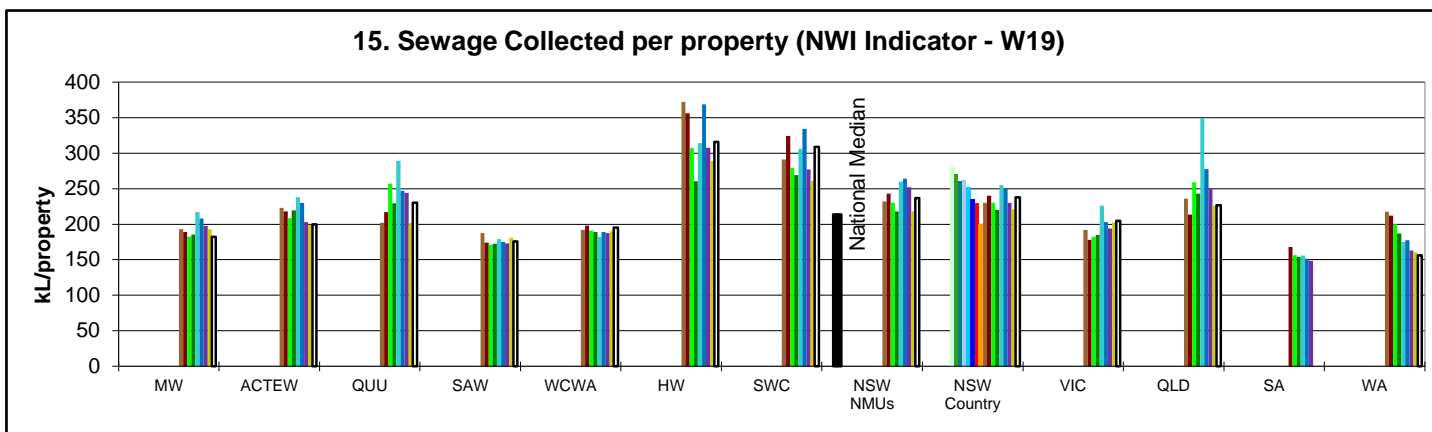
## PERFORMANCE COMPARISONS - Social (Sewerage)



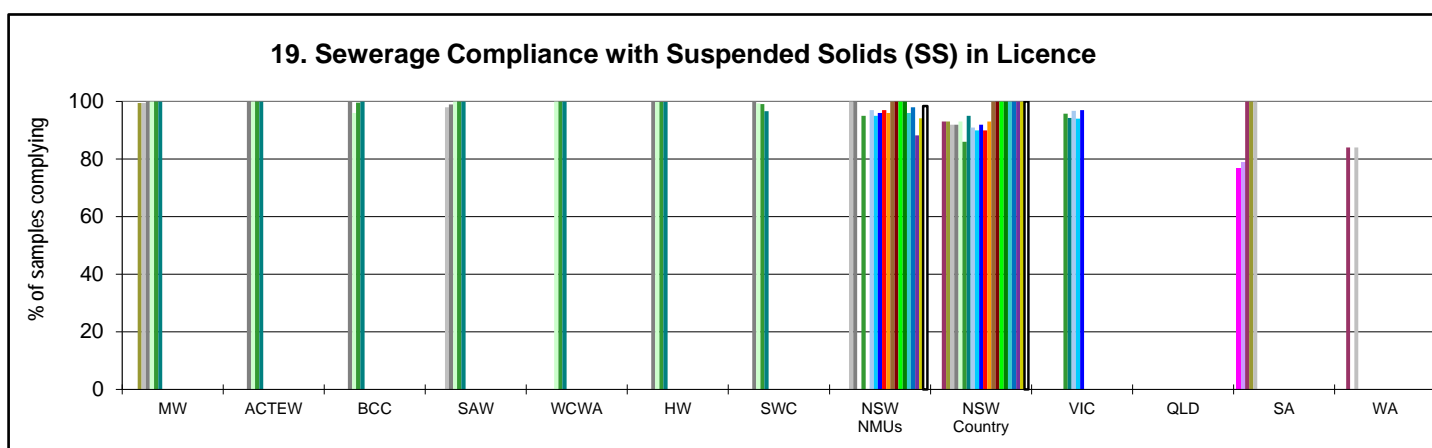
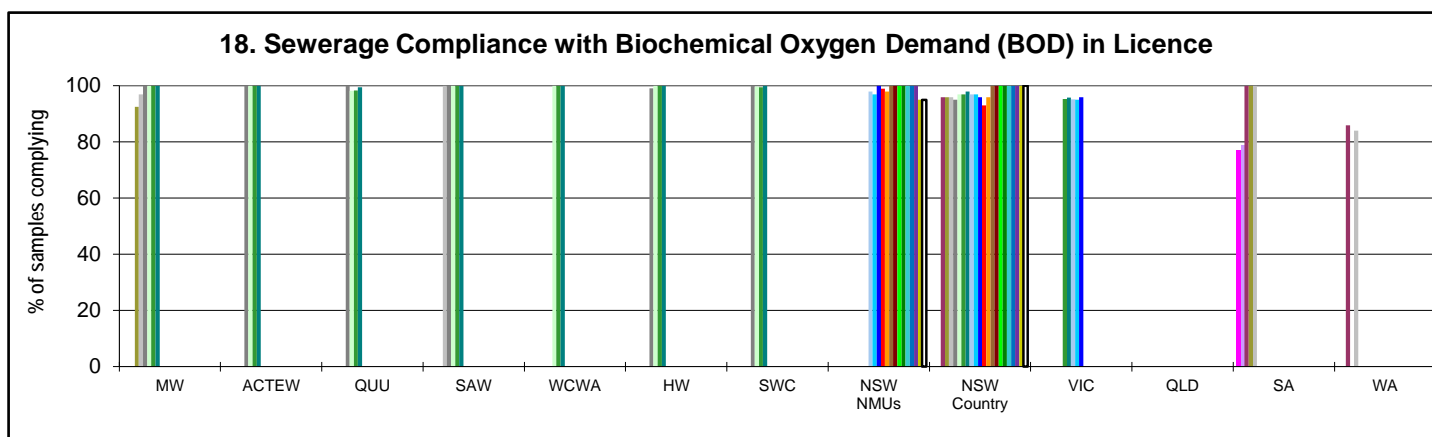
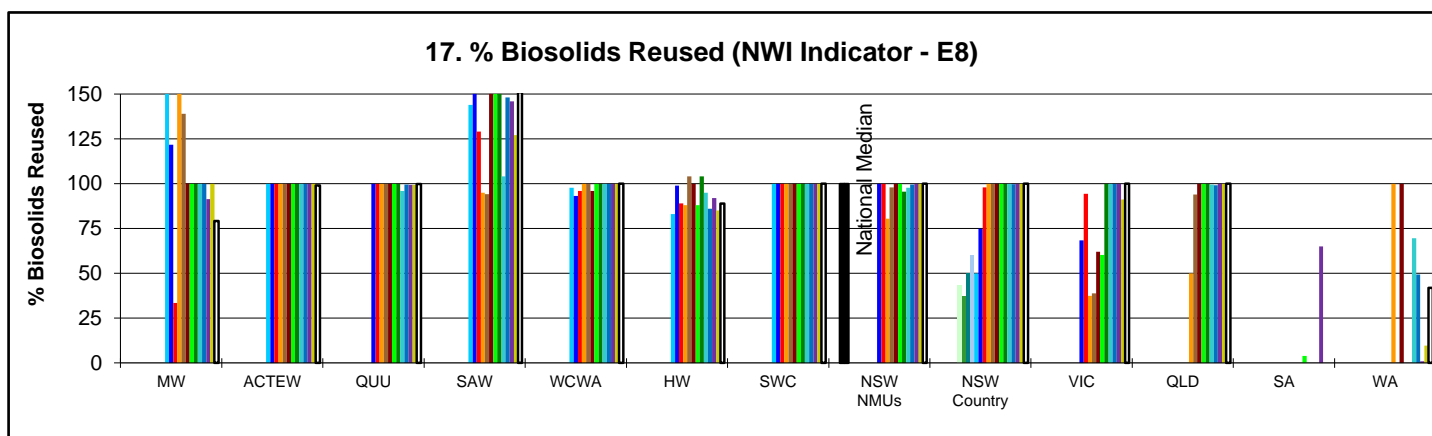
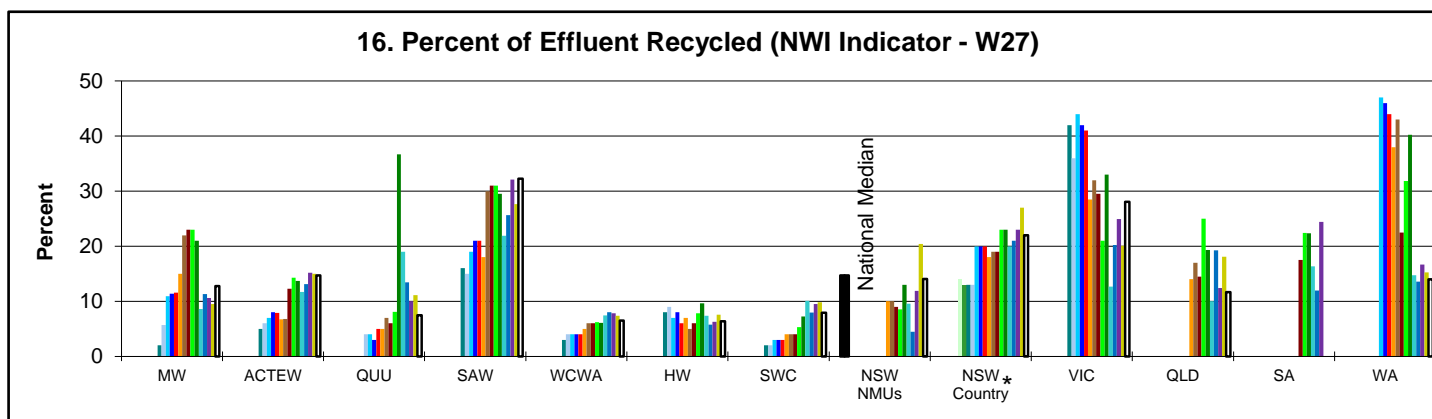
## PERFORMANCE COMPARISONS - Environmental (Water)



## PERFORMANCE COMPARISONS - Environmental (Sewerage)



## PERFORMANCE COMPARISONS - Environmental (Sewerage)



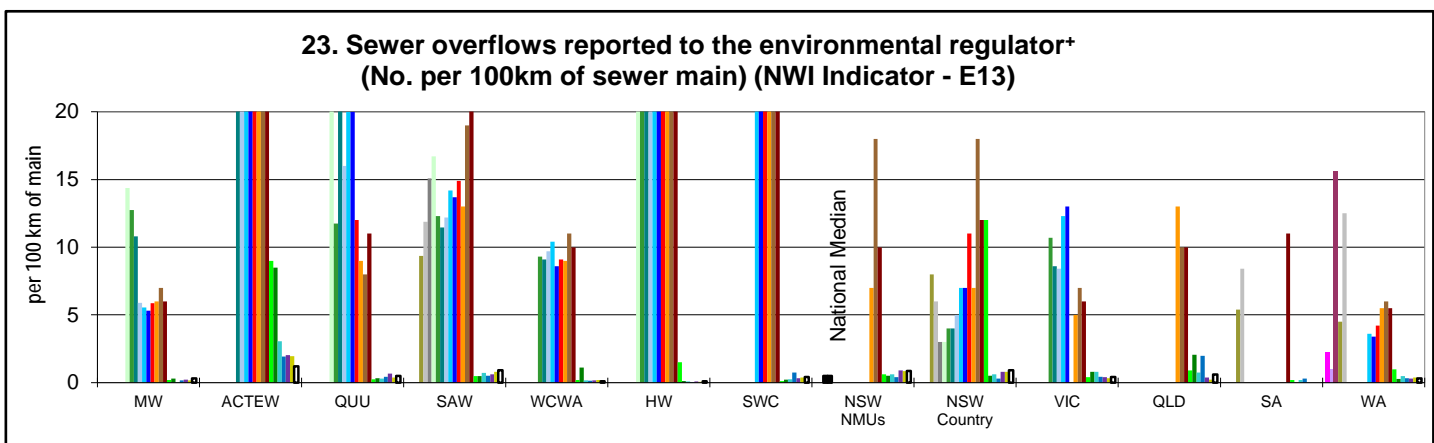
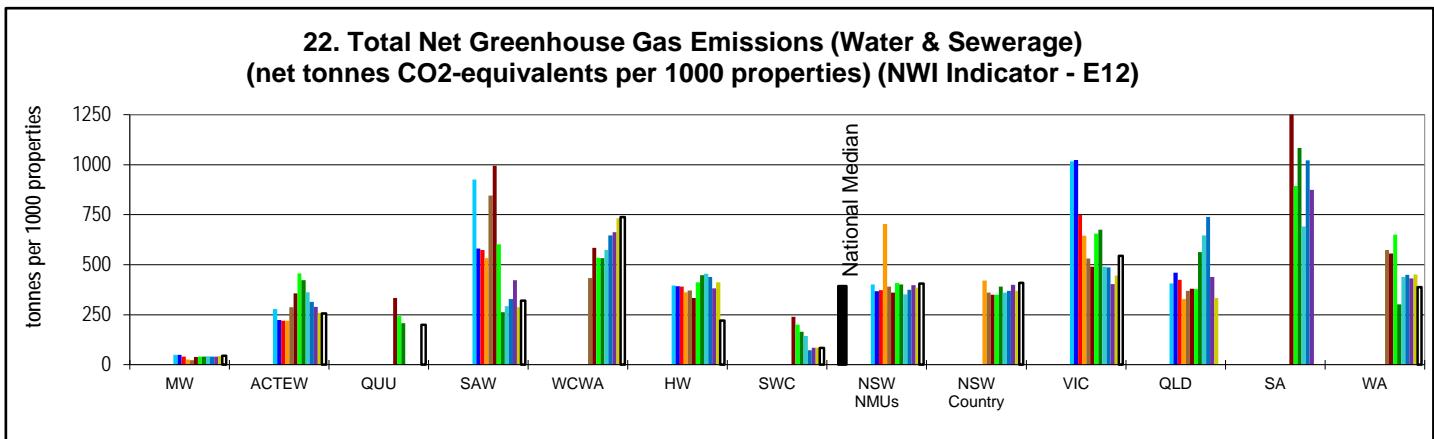
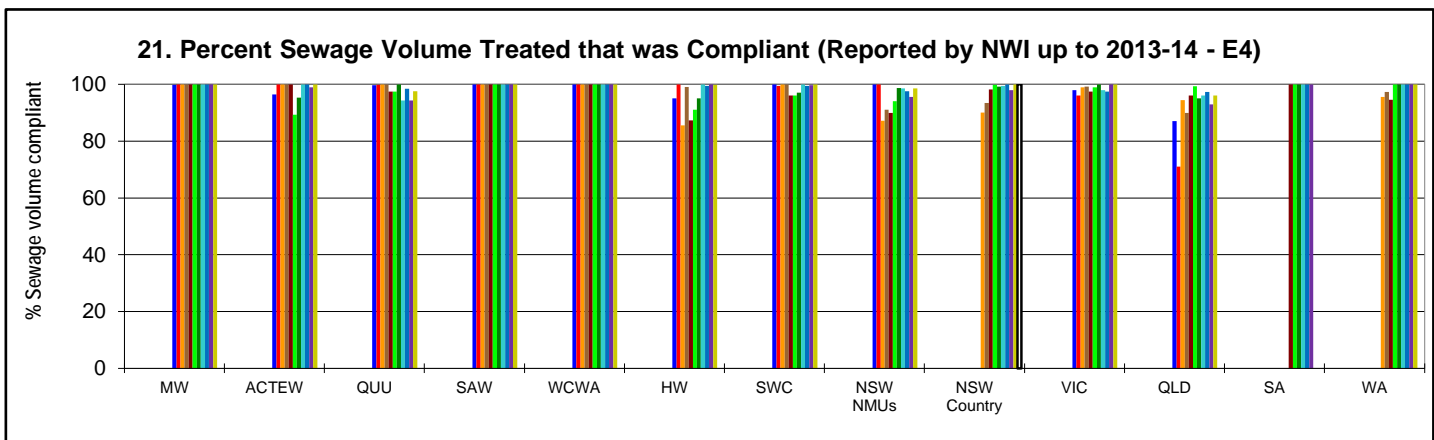
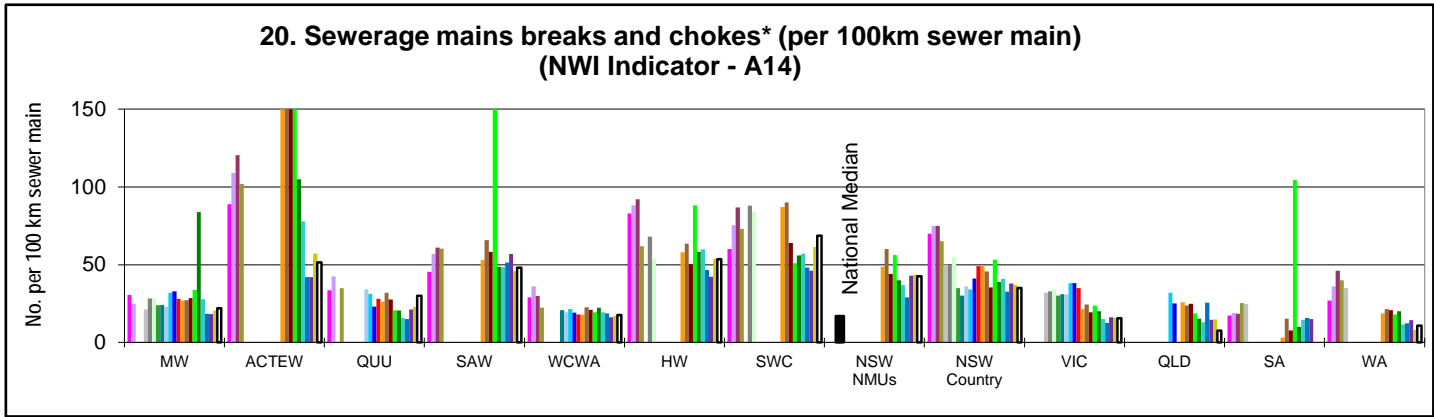
1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	

**\* NSW Effluent Result**

The values shown for country NSW are the percentages of total volume of sewage collected in regional NSW that was recycled. For country NSW, 39,000 ML of wastewater was recycled in 2014-15, which is 22 per cent of the total volume of sewage collected and was carried out by 70 per cent of the utilities, mostly for agriculture. Refer also to figures 26a and 27 on page 111.



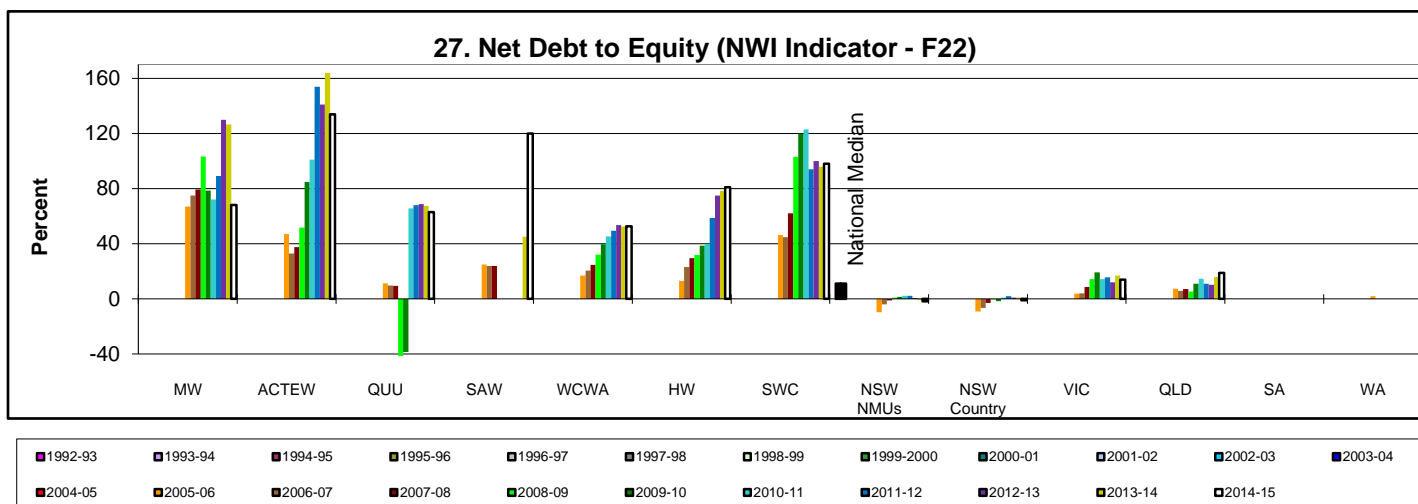
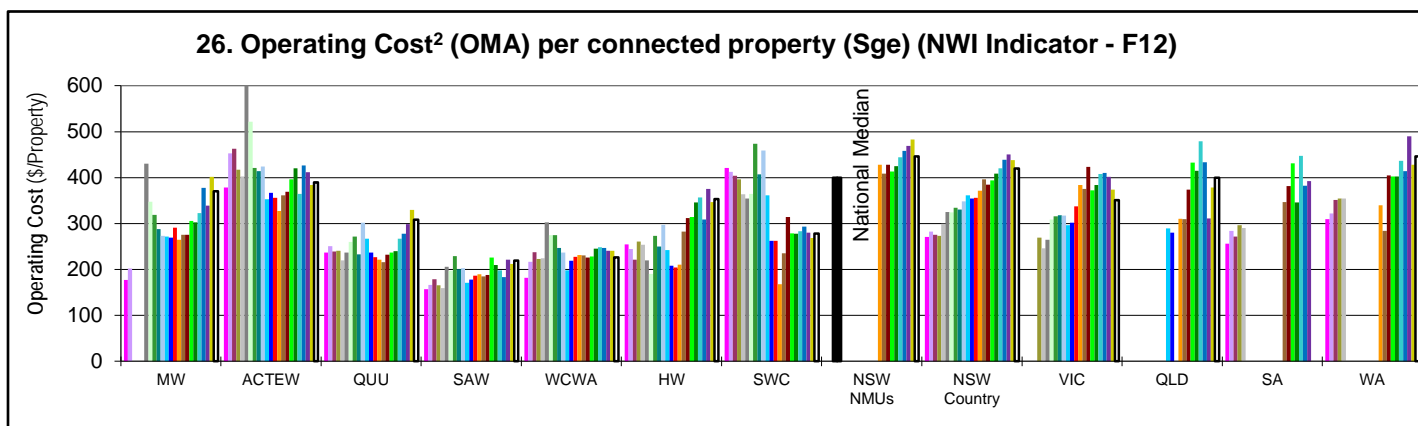
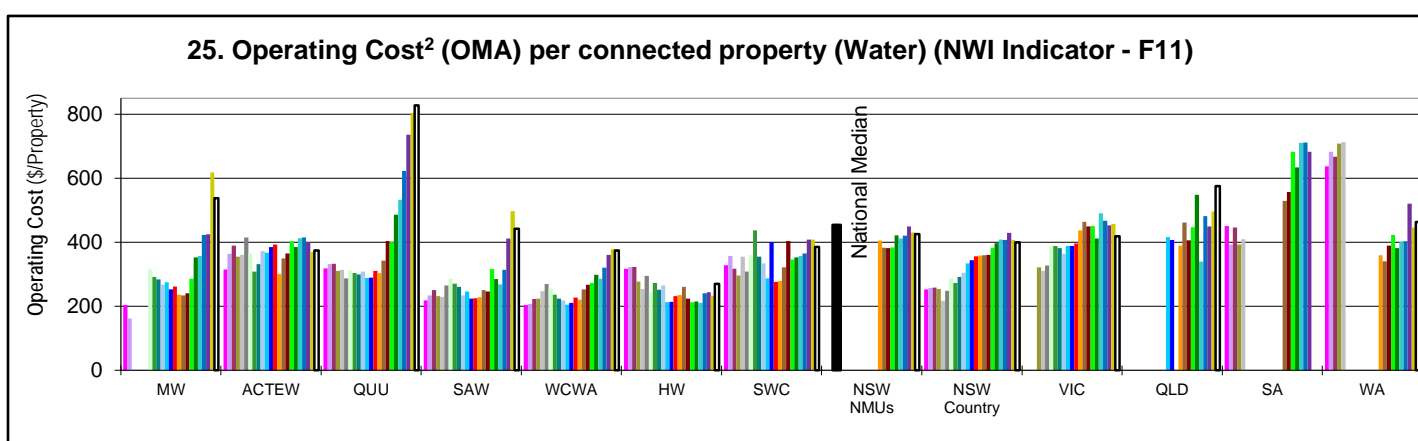
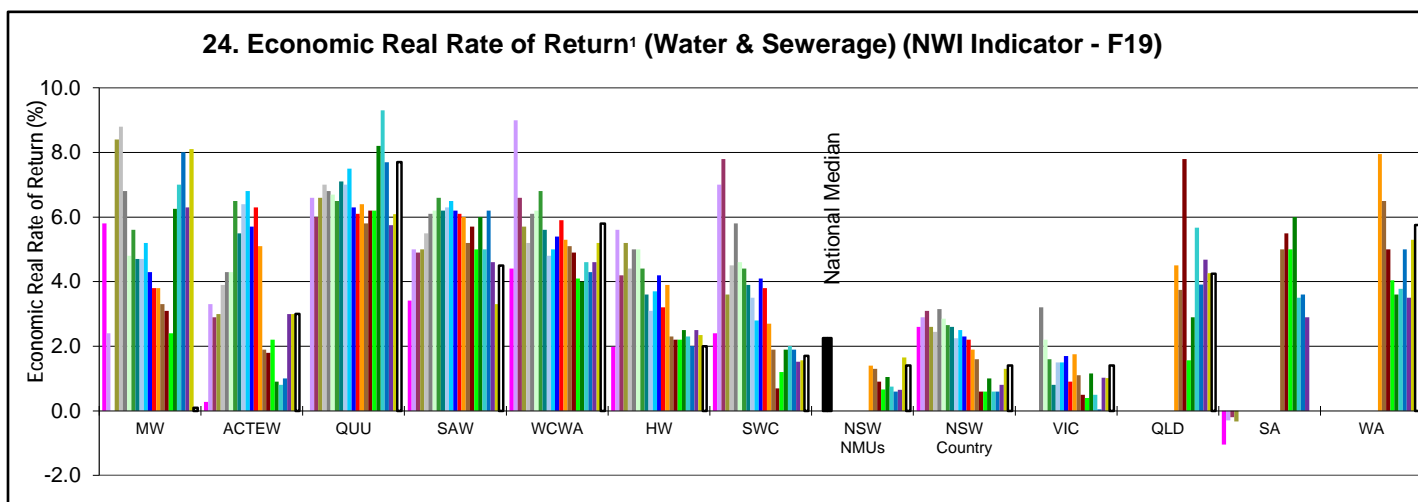
## PERFORMANCE COMPARISONS - Environmental (Sewerage)



1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	

\* 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.

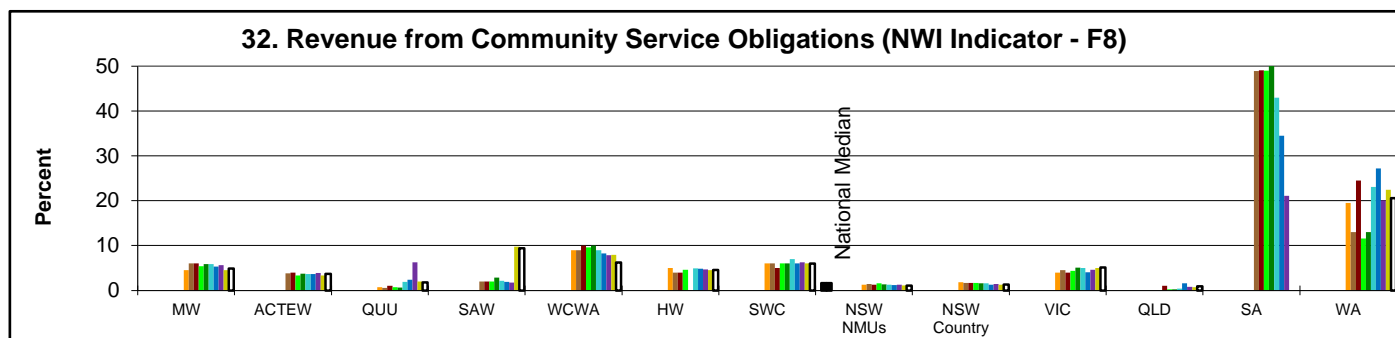
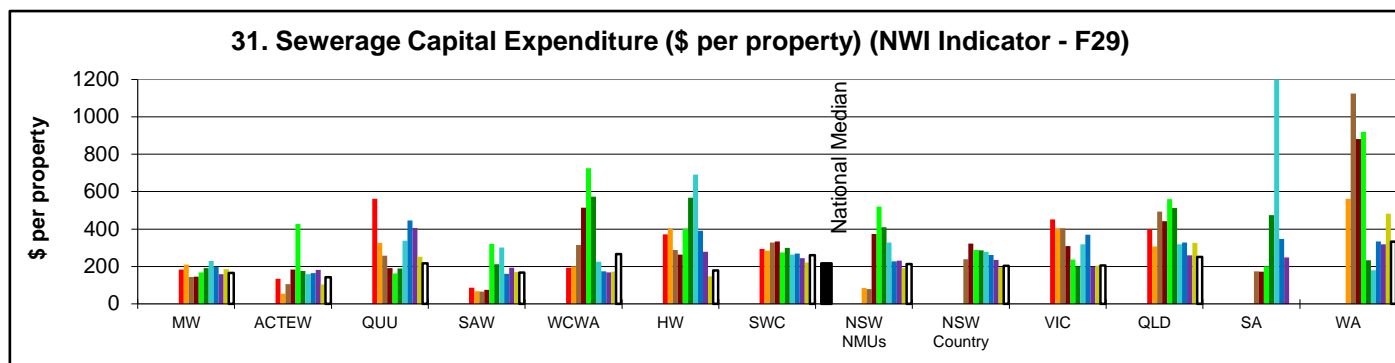
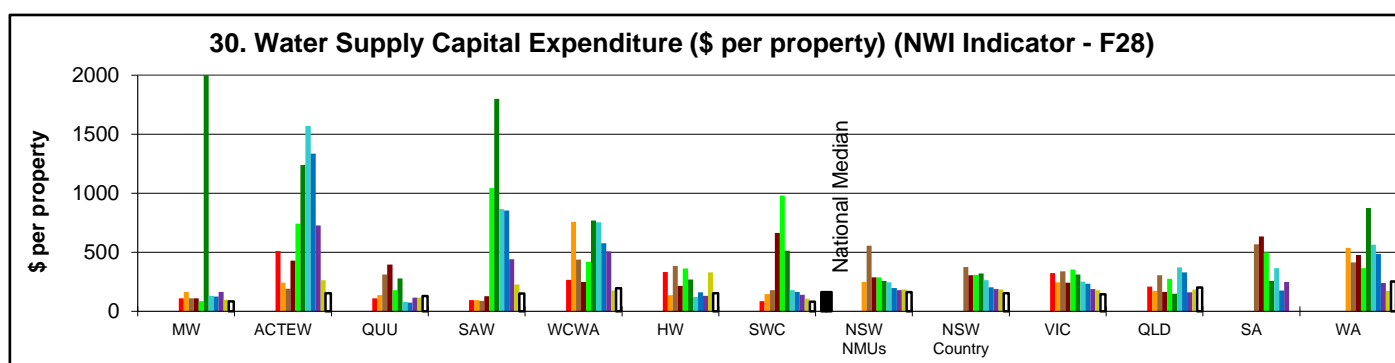
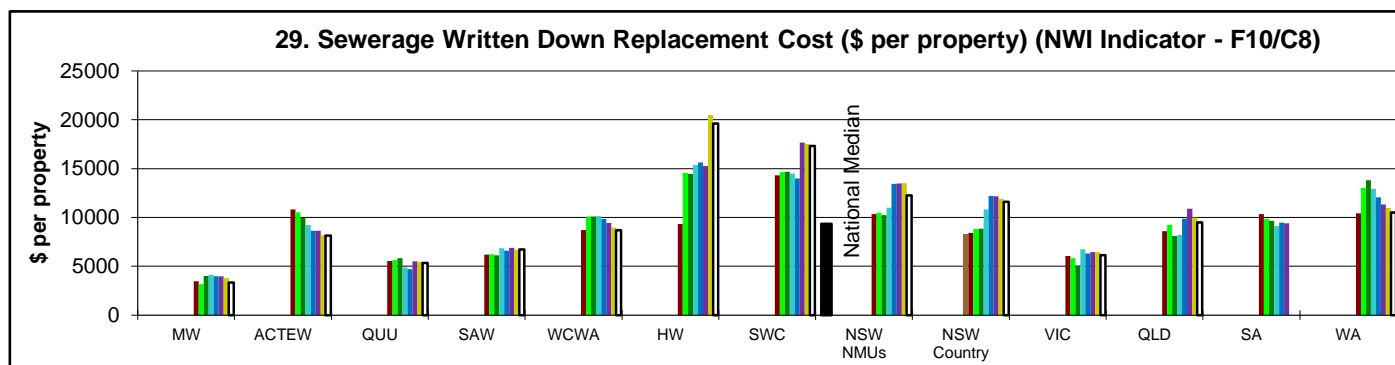
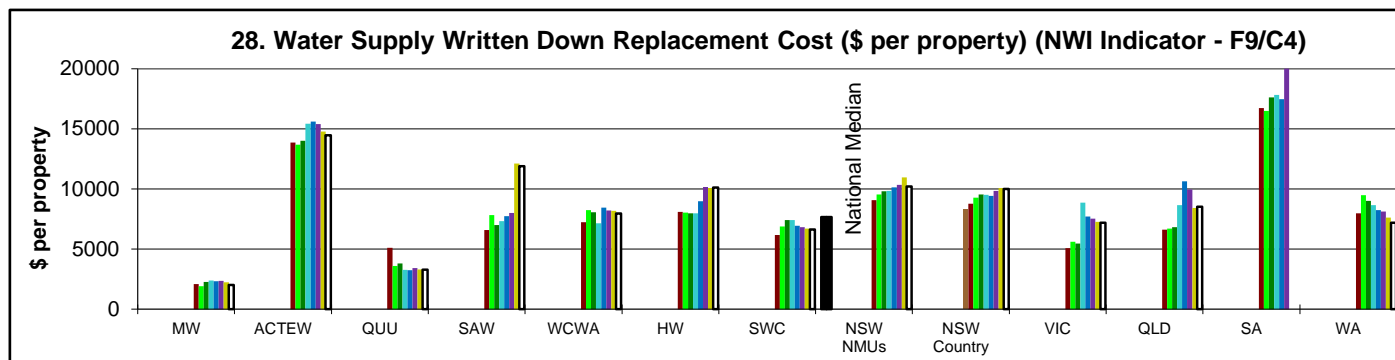
## PERFORMANCE COMPARISONS - Economic



■ 1992-93	■ 1993-94	■ 1994-95	■ 1995-96	■ 1996-97	■ 1997-98	■ 1998-99	■ 1999-2000	■ 2000-01	■ 2001-02	■ 2002-03	■ 2003-04
■ 2004-05	■ 2005-06	■ 2006-07	■ 2007-08	■ 2008-09	■ 2009-10	■ 2010-11	■ 2011-12	■ 2012-13	■ 2013-14	■ 2014-15	

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

## PERFORMANCE COMPARISONS - Economic



1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	

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



## APPENDIX B: NSW PERFORMANCE MONITORING DATABASE

## Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
<b>Population</b>							
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.
<b>Infrastructure</b>							
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 ( <a href="http://www.water.nsw.gov.au/ArticleDocuments/36/utilities_nsw_water_sewerage_strategic_planning_guidelines.pdf.aspx">http://www.water.nsw.gov.au/ArticleDocuments/36/utilities_nsw_water_sewerage_strategic_planning_guidelines.pdf.aspx</a> ).
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.	
<b>Connections</b>							
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.

## Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	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		Unserviced properties and population	Unserviced 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 unserviced 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		Unserviced properties and population	Unserviced urban population		n	Estimated permanent population occupying unserviced urban properties.	
WB40a		Unserviced properties and population	Unserviced urban population - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Unserviced urban population ADOPTED BY DPI WATER after data validation.	Refer to Appendix H of Benchmarking Report.

## Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
<b>Water Data (Losses)</b>							
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).	
<b>Water Data (Sourced)</b>							
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.	



## Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	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 utility 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		
<b>Water Data (Supplied Non Potable)</b>							
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	2014/15	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).
<b>Water Data (Supplied Potable)</b>							
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.	<p>For industrial customers within urban zoned land or industrial customers that are supplied with potable water outside of urban zoned land.</p> <p>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.</p> <p>Mining is distinguished by two basic activities: mine operation and mining support activities.</p> <p>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.</p> <p>Mining support activities include units that perform mining services on a contract or fee basis, and exploration (except geophysical surveying).</p> <p>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.</p>
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.	<p>For industrial customers within urban zoned land or industrial customers that are supplied with potable water outside of urban zoned land.</p> <p>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.</p> <p>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.</p>
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.

## Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	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.
<b>Water Data (Supplied Recycled)</b>							
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.
<b>Demand Management</b>							
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		



## Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	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.
WB92		Demand management initiatives	Other initiative				
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.	
<b>Service Levels</b>							
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'.	<p>Include bursts, leaks, service interruptions, adequacy of service, water pressure, affordability, behaviour of staff or agents.</p> <p>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.</p> <p>Exclude complaints about planned service interruptions unless the customer expresses dissatisfaction about the interruption. Australian Standard AS ISO 10002-2006 refers.</p> <p>Examples: Include complaints about pressure when found to be caused by a leaking mains or when a customer expresses dissatisfaction with the normal pressure.</p> <p>If the operator is uncertain whether the customer is DISSATISFIED, the operator should ask 'Do you wish to report a complaint on this matter?'.</p>
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.
WB98		Complaints	Frequent service complaint 2				
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).	<p>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.</p> <p>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.</p> <p>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?'.</p>
WB100	[C10]	Complaints	Other complaints		n	Complaints other than water quality, service or billing. Exclude queries (WB98a).	<p>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.</p> <p>If the operator is uncertain whether the customer is DISSATISFIED, the operator should ask 'Do you wish to report a complaint on this matter?'.</p>

## Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
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)).
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 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 interruptions		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.
<b>Health</b>							
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).

## Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
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.
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 2013-14 NSW Benchmarking Report ( <a href="http://www.water.nsw.gov.au">www.water.nsw.gov.au</a> ). 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 2013-14 NSW Benchmarking Report ( <a href="http://www.water.nsw.gov.au">www.water.nsw.gov.au</a> ). (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 2013-14 NSW Benchmarking Report ( <a href="http://www.water.nsw.gov.au">www.water.nsw.gov.au</a> ).
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 on page 237 of the 2013-14 NSW Water Supply and Sewerage Benchmarking Report ( <a href="http://www.water.nsw.gov.au/_data/assets/pdf_file/0006/562758/nsw_water_supply_and_sewerage_benchmarking_report_2013_14.pdf">http://www.water.nsw.gov.au/_data/assets/pdf_file/0006/562758/nsw_water_supply_and_sewerage_benchmarking_report_2013_14.pdf</a> ).
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).
<b>Workforce</b>							
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.
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.
WB128		Workforce outsourced	Management costs outsourced		%	The percentages expended by the water supply business on outsourcing of management, operational and maintenance costs.	
WB129		Workforce outsourced	Operational costs outsourced		%		
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.



## Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
<b>Expenses, Charges And Bills</b>							
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.	Utilities 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		\$		
<b>Environment</b>							
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).	
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 on page 332 of the 2013-14 NSW Water Supply and Sewerage Benchmarking Report).

## Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
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).
<b>Integrated Water Cycle Management</b>							
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).	
WB94c		Rainwater tanks	Total volume of rainwater tanks - Commercial		kL	Total volume of rainwater tanks for commercial premises in your area.	
WB94d		Rainwater tanks	Total volume of rainwater tanks - Industrial		kL	Total volume of rainwater tanks for industrial premises in your area.	
WB94e		Rainwater tanks	Number of rainwater tanks used for stormwater attenuation		No.	Total number rainwater tanks where 'emptiness' is provided for stormwater attenuation.	Eg. tanks remain empty, or not more than say 50% full in order to provide capacity for stormwater attenuation. Excludes reticulated urban stormwater use.
WB94f		Rainwater tanks	Percentage of rainwater tank 'emptiness' for stormwater attenuation		%	Typical percentage of rainwater tank 'emptiness' for stormwater attenuation for the rainwater tanks in (WB94c).	
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.
WB95b		Water Sensitive Urban Design	WSUD implementation – new lots – commercial		No.	Total number of lots in new commercial subdivisions where Water Sensitive Urban Design (WSUD) has been implemented by your Council.	See (WB95a). Includes car parks.
WB95c		Water Sensitive Urban Design	WSUD implementation – new lots – industrial		No.	Total number of lots in new industrial subdivisions where Water Sensitive Urban Design (WSUD) has been implemented by your Council.	See (WB95a). Includes car parks.
WB95d		Water Sensitive Urban Design	WSUD implementation – existing lots – residential		No.	Total number of lots in existing residential development areas where Water Sensitive Urban Design (WSUD) has been implemented retrospectively.	See (WB95a) for information on WSUD implementation.
WB95e		Water Sensitive Urban Design	WSUD implementation – existing lots – commercial		No.	Total number of lots in existing commercial development areas where Water Sensitive Urban Design (WSUD) has been implemented retrospectively.	See (WB95a). Includes car parks.
WB95f		Water Sensitive Urban Design	WSUD implementation – existing lots – industrial		No.	Total number of lots in existing industrial development areas where Water Sensitive Urban Design (WSUD) has been implemented retrospectively.	See (WB95a). Includes car parks.
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.
WB95i		Water Sensitive Urban Design	Development Control Plan details		-	If 'Yes' was answered for 95h, provide the name, date and web link of the Development Control Plan.	
WB95j		Water Sensitive Urban Design	Stormwater Harvesting		Y/N	Does your Council have infrastructure in place for urban stormwater harvesting? Uses may include irrigation of sports fields and parks, agriculture or industrial uses.	Excludes stormwater supplied for managed aquifer recharge.
WB95k		Water Sensitive Urban Design	Price for urban stormwater use		c/kL	Price (c/kL) for urban stormwater use in your utility's area.	Guidance on suitable water pricing for urban stormwater use is available in the NWI Pricing Principles (2010) [ <a href="http://www.environment.gov.au/water/publications/action/nwi-pricing-principles.html">http://www.environment.gov.au/water/publications/action/nwi-pricing-principles.html</a> ].
WB95l		Water Sensitive Urban Design	Annual budget for maintaining WSUD systems		\$		
WB95m		Water Sensitive Urban Design	Are your WSUD systems maintained at the required frequency?		Y/N	The required frequency may have been determined at the project design phase, or is determined as the frequency required for proper functioning of the WSUD system.	
WB95n		Water Sensitive Urban Design	No. of staff (FTE) maintaining your WSUD systems		No.		
WB95o		Water Sensitive Urban Design	What is your annual stormwater levy per assessment?		\$		

## Water treatment data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
<b>Works Parameters</b>							
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.	
WT4		Works parameters	Comments				
WT6		Volume treated	Volume treated		ML	Volume treated by this treatment works this reporting year.	
WT31		Chemical usage	Alum		tonnes	For this treatment works only.	
WT32		Chemical usage	Alkali		tonnes	For this treatment works only.	
WT33		Chemical usage	Chlorine		tonnes	For this treatment works only.	
WT34		Chemical usage	Fluoride		tonnes	For this treatment works only.	
<b>Operator Training</b>							
WT7i		Qualifications	Operator 1 name			The name of the operator.	This information is needed in view of the National Certification of Water Treatment Operators being developed by the National Water Commission ( <a href="http://nwc.gov.au/_data/assets/pdf_file/0019/25345/Proposed-National-Certification-Framework.pdf">http://nwc.gov.au/_data/assets/pdf_file/0019/25345/Proposed-National-Certification-Framework.pdf</a> ).
WT7a		Qualifications	Operator 1 qualification			Highest qualification obtained by this operator. Qualification level ie. Cert III in Water Industry Operations (Water Treatment Operator) issued by NSW TAFE; Office of Water Certificate Part 2 (Water Treatment Operator) or Certificate Part 1 (Chemical Dosing Systems) issued by the NSW Office of Water; Certificate IV, III, II or I from NSW TAFE; Certificate IV, III, II or I by OTHER RTO.	
WT7e		Qualifications	Year of qualification or update		year	Year qualification obtained or updated.	
WT7j		Qualifications	Operator 1 qualification level			Qualification level obtained by this operator. A – Office of Water Certificate Part 1 (Chemical Dosing Systems) and Certificate Part 2 (Water Treatment Operator) or another Acceptable* Certificate III qualification; B – Office of Water Certificate Part 1 (Chemical Dosing Systems) and a supplementary chlorination safety training course or an Acceptable** Certificate II qualification; C – Operator in training.  * Such a certificate must include at least 9 of the 11 Units offered in the Water Treatment Operator Course on the Office of Water's website (page 6 of NOW Training Booklet – <a href="http://www.water.nsw.gov.au/ArticleDocuments/36/water_industry_training_non_metro_nsw.pdf.a">http://www.water.nsw.gov.au/ArticleDocuments/36/water_industry_training_non_metro_nsw.pdf.a</a> spx).  ** Such a certificate must include relevant chemical dosing subjects and a supplementary chlorination safety training course.	
WT7k		Qualifications	Operator 2 name			The name of the operator.	See (WT7i).
WT7b		Qualifications	Operator 2 qualification			Highest qualification obtained by this operator. See (WT7a).	See (WT7a).
WT7f		Qualifications	Year of qualification or update		year	Year qualification obtained or updated.	
WT7l		Qualifications	Operator 2 qualification level			Qualification level obtained by this operator. See (WT7j).	
WT7m		Qualifications	Operator 3 name			The name of the operator.	See (WT7i).
WT7c		Qualifications	Operator 3 qualification			Highest qualification obtained by this operator. See (WT7a).	
WT7g		Qualifications	Year of qualification or update		year	Year qualification obtained or updated.	
WT7n		Qualifications	Operator 3 qualification level			Qualification level obtained by this operator. See (WT7j).	
WT7o		Qualifications	Operator 4 name			The name of the operator.	See (WT7i).
WT7d		Qualifications	Operator 4 qualification			Highest qualification obtained by this operator. See (WT7a).	
WT7h		Qualifications	Year of qualification or update		year	Year qualification obtained or updated.	
WT7p		Qualifications	Operator 4 qualification level			Qualification level obtained by this operator. See (WT7j).	



## Water treatment data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
<b>Sampling Results</b>							
WT26		E.coli	Number of system samples		n	Include samples taken at this treatment works for system performance monitoring. Exclude samples for operational monitoring.	<p>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 page 235 of the 2013-14 NSW Water Supply and Sewerage Benchmarking Report and ADWG 2011.</p> <p>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.</p> <p>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.</p> <p>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 on page 288 of the 2013-14 NSW Water Supply and Sewerage Benchmarking Report (<a href="http://www.water.nsw.gov.au/_data/assets/pdf_file/0006/562758/nsw_water_supply_and_sewerage_benchmarking_report_2013_14.pdf">http://www.water.nsw.gov.au/_data/assets/pdf_file/0006/562758/nsw_water_supply_and_sewerage_benchmarking_report_2013_14.pdf</a>)].</p>
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.	
WT22		pH	Number of system samples		n	Include samples taken at this treatment works for system performance monitoring. Exclude samples for operational monitoring.	<p>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 page 235 of the 2013-14 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.</p> <p>THE RESULTS OF THE SAMPLES TESTED BY YOUR UTILITY SHOULD CONTINUE TO BE INCLUDED.</p>
WT23		pH	Percent complying		%	Number of samples taken for system compliance monitoring divided by the total number of such samples.	See (WT22).

## Water treatment data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
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.
WT30		Non-compliance	Most frequent reason for non-compliance				
<b>Service Levels</b>							
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.	
WT39		Water quality complaints	Frequent complaint 2				

## Sewerage business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
<b>Population</b>							
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.
<b>Infrastructure</b>							
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 ( <a href="http://www.water.nsw.gov.au/ArticleDocuments/36/utilities_nsw_water_sewerage_strategic_planning_guidelines.pdf.aspx">http://www.water.nsw.gov.au/ArticleDocuments/36/utilities_nsw_water_sewerage_strategic_planning_guidelines.pdf.aspx</a> ).
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.	
<b>Connections</b>							
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.



## Sewerage business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	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.
<b>Service Levels</b>							
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.	
SB36		Complaints	Frequent service complaint 2				
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?'.

## Sewerage business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	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.
<b>Health</b>							
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).
<b>Workforce</b>							
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.
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.
SB57		Workforce outsourced	Management costs outsourced		%	The percentages expended by the sewerage business on outsourcing of management, operational and maintenance costs.	
SB58		Workforce outsourced	Operational costs outsourced		%		
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.

## Sewerage business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
<b>Charges and Bills</b>							
SB60		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 the sewerage business to the community. Exclude pensioner rebates.	Utilities 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.
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		\$		
<b>Environment</b>							
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.	
SB66		Breaks and chokes	Sewer chokes and breaks attended within 5 hours		n		
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 on page 332 of the 2013-14 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).



## Sewerage treatment data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
<b>Works Parameters</b>							
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.	
ST25a		Charge for recycled town water from this works	Usage charge for recycled town water		c/kL		
<b>Operator Training</b>							
ST7i		Qualifications	Operator 1 name			The name of the operator.	
ST7a		Qualifications	Operator 1 qualification			Highest qualification obtained by this operator. Qualification level ie. Certificate III in Water Industry Operations (Wastewater Treatment Operator) issued by NSW TAFE: Office of Water Phosphorus Removal Certificate (Level 1A or Level 1B Certificate pre-requisite), Certificate Level 1B (Activated Sludge), Certificate Level 1A (Trickling Filter and Aerated Lagoons) or Certificate Level 0B (STW with <3,000 ep Activated Sludge) or Certificate Level 0A (STW with < 3,000 ep Trickling Filter and Aerated Lagoons) issued by the NSW Office of Water or its predecessors. Certificate IV, III, II or I from NSW TAFE: Certificate IV, III, II or I by OTHER RTO.	
ST7e		Qualifications	Year of qualification or update		year	Year qualification obtained or updated.	
ST7j		Qualifications	Operator 1 qualification level			Qualification level obtained by this operator.	
ST7k		Qualifications	Operator 2 name			The name of the operator.	
ST7b		Qualifications	Operator 2 qualification			Highest qualification obtained by this operator. See (ST7a).	
ST7f		Qualifications	Year of qualification or update		year	Year qualification obtained or updated.	
ST7l		Qualifications	Operator 2 qualification level			Qualification level obtained by this operator.	
ST7m		Qualifications	Operator 3 name			The name of the operator.	
ST7c		Qualifications	Operator 3 qualification			Highest qualification obtained by this operator. See (ST7a).	
ST7g		Qualifications	Year of qualification or update		year	Year qualification obtained or updated.	
ST7n		Qualifications	Operator 3 qualification level			Qualification level obtained by this operator.	
ST7o		Qualifications	Operator 4 name			The name of the operator.	
ST7d		Qualifications	Operator 4 qualification			Highest qualification obtained by this operator. See (ST7a).	
ST7h		Qualifications	Year of qualification or update		year	Year qualification obtained or updated.	
ST7p		Qualifications	Operator 4 qualification level			Qualification level obtained by this operator.	
<b>Trade Waste</b>							
ST36		Large trade waste dischargers serviced by this works	Number of large trade waste dischargers		n	A large trade waste discharger (LTWD) is one approved to discharge over 20 kL/d into the sewerage system.	
ST37		Large trade waste dischargers serviced by this works	Maximum daily volume		kL/d		
ST38		Large trade waste dischargers serviced by this works	Equivalent BOD load		EP	Total approved trade waste BOD-5 concentration converted to EP.	EP = (concentration (mg/L) x discharge volume (kL/d))/70.
ST39		Large trade waste dischargers serviced by this works	Equivalent TSS load		EP	Total approved trade waste SS concentration converted to EP.	EP = (concentration (mg/L) x discharge volume (kL/d))/70.

## Sewerage treatment data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
<b>Service Levels</b>							
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).
<b>Sampling Results</b>							
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.
ST65		Compliance summary	Penalty or litigation for non-compliance		Y/N	Include successful litigation against your utility by an environmental regulator, a financial penalty, any other penalty imposed by an environmental regulator.	
ST66		Compliance summary	Details of penalty or litigation			Provide brief details of penalties and litigation.	
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 specify 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.	
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	

## Sewerage treatment data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
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.	
<b>Water Data</b>							
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 un-metered 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.	
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.	



## Sewerage treatment data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2014/15	Unit	Indicator Definition	Instruction
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.	
ST29		Biosolids produced by this works	Percent of total disposed to landfill		%	Include injection below ground level, burial and disposal to tip or treatment works site.	
ST30		Biosolids produced by this works	Percent to other		%	Include incineration.	

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

### 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 and implement a risk based drinking water management system by 1 September 2014 in accordance with the NSW guidelines for drinking water management systems, NSW Health and NSW Office of Water, 2013. Refer also to pages 9 and 10 of the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*. 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.

### 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>).

### 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

<b>Discrete systems</b> (supplying a single town and surrounds)	
<b>Town population</b>	<b>Recommended minimum number of samples<sup>+</sup></b>
<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.	
<b>Complex systems</b> (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.

## Performance

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

**Table 4 - Microbiological performance**

Indicator	Guideline value
<i>E. coli</i>	Should not be detected in a minimum 100mL sample of drinking water. If detected, immediate corrective action must be taken <sup>1</sup> .

<sup>1</sup> 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.



## Examples of environmental and public health incidents

### Water supply

**Environmental incidents** (NSW Indicators WB137 to WB140 on page 222)

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 on page 221)

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:

(16) Environmental regulations include any licence conditions.

(17) An incident with both environmental and public health impacts should be reported in both categories.

### Sewerage

**Environmental incidents** (NSW Indicators SB69 to SB72 on page 230)

- 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 on page 229)

#### 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.

## Special schedules (financial statements)

### NSW Council

#### Special Schedule No. 3

#### Water Supply Income Statement

#### (Gross including Internal Transactions)

#### for the year ended 2015

\$'000

A	2015	2014
<b>Expenses and Income</b>		
<b>Expenses</b>		
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. Revaluation decrements		
c. Other expenses		
d. Impairment system assets		
e. Impairment plant and equipment		
f. Aboriginal Communities Water & Sewerage Program		
5. <b>Total expenses</b>		
<b>Income</b>		
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 No. 3 (continued) Water Supply Income Statement (Gross including Internal Transactions) for the year ended 2015 \$'000

	2015	2014
<b>A Expenses and Income (continued)</b>		
12. Contributions		
a. Developer charges		
b. Developer provided assets		
c. Other contributions		
13. <b>Total income</b>		
14. Gain or loss on disposal of assets		
15. Operating result		
15a. <b>Operating result</b> (less grants for acquisition of assets)		
<b>B Capital transactions</b>		
<b>Non-operating expenditures</b>		
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		
a. Loans		
b. Advances		
c. Finance leases		
18. Transfer to sinking fund		
19. <b>Totals</b>		
<b>Non-operating funds employed</b>		
20. Proceeds from disposal of assets		
21. Borrowing utilised		
a. Loans		
b. Advances		
c. Finance leases		
22. Transfer from sinking fund		
23. <b>Totals</b>		
<b>C Rates and charges</b>		
24. Number of assessments		
a. Residential (occupied)		
b. Residential (unoccupied ie vacant lot)		
c. Non-residential (occupied)		
d. Non-residential (unoccupied ie vacant lot)		
25. Number of ETs for which developer charges were received		ET
26. Total amount of pensioner rebates		\$

## NSW Council

### Special Schedule No. 3 (continued)

#### Water Supply – Cross-subsidies

as at 30 June 2015

\$'000

	Yes	No	Amount
<b>D Best practice annual charges and developer charges<sup>#</sup></b>			
<b>27. Annual charges</b>			
a. Does Council have best-practice water supply annual charges and usage charges*?	<input type="checkbox"/>	<input type="checkbox"/>	
If Yes, go to 28a.			
If No, please report if council has removed <b>land value</b> from access charges (ie rates)?	<input type="checkbox"/>	<input type="checkbox"/>	
* Such charges for both residential customers and non-residential customers comply with section 3.2 of <i>Water Supply, Sewerage and Trade Waste Pricing Guidelines</i> , NSW Office of Water, December, 2002. Such charges do not involve significant cross-subsidies.			
b. Cross-subsidy <b>from</b> residential customers using less than allowance (page 25 of Guidelines)			
c. Cross-subsidy <b>to</b> non-residential customers (page 24 of Guidelines)			
d. Cross-subsidy <b>to</b> large connections in unmetered supplies (page 26 of Guidelines)			
<b>28. Developer charges</b>			
a. Has council completed a water supply Development Servicing** Plan?	<input type="checkbox"/>	<input type="checkbox"/>	
b. Total cross-subsidy in water supply developer charges for 2014/15 (page 47 of Guidelines)			
** In accordance with page 9 of <i>Developer Charges Guidelines for Water Supply, Sewerage and Stormwater</i> , NSW Office of Water, December, 2002.			
<b>29. Disclosure of cross-subsidies</b>			
<b>Total of cross-subsidies (27b +27c + 27d + 28b)</b>			

# Councils which have not yet implemented best practice water supply pricing should disclose cross-subsidies in items 27b, 27c and 27d above.

However, disclosure of cross-subsidies is **not** required where a Council has implemented best practice pricing and is phasing in such pricing over a period of three years.

## NSW Council

### Special Schedule No. 4 Water Supply – Statement of Financial Position (Gross including Internal Transactions) as at 30 June 2015 \$'000

	Current	Non current	Total
<b>ASSETS</b>			
30. Cash and investments			
a. Developer charges			
b. Special purpose grants			
c. Accrued leave			
d. Unexpended loans			
e. Sinking fund			
f. Other			
31. Receivables			
a. Specific purpose grants			
b. Rates and charges			
c. User charges			
d. Other			
32. Inventories			
33. Property, plant and equipment			
a. System assets			
b. Plant and equipment			
34. Other assets			
35. <b>Total assets</b>			
<b>LIABILITIES</b>			
36. Bank overdraft			
37. Creditors			
38. Borrowings			
a. Loans			
b. Advances			
c. Finance leases			
39. Provisions			
a. Tax equivalents			
b. Dividend			
c. Other			
40. <b>Total liabilities</b>			
41. <b>Net assets committed</b>			
<b>EQUITY</b>			
42. Accumulated surplus			
43. Asset revaluation reserve			
44. <b>Total equity</b>			
<b>Note to system assets:</b>			
45. Current replacement cost of system assets			
46. Accumulated current cost depreciation of system assets			
47. Written down current cost of system assets			



## NSW Council

### Special Schedule No. 5 Sewerage Income Statement (Gross including Internal Transactions) as at 30 June 2015 \$'000

	2015	2014
<b>A Expenses and Income</b>		
<b>Expenses</b>		
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. Revaluation decrements		
c. Other expenses		
d. Impairment of system assets		
e. Impairment of plant and equipment		
f. Aboriginal Communities Water and Sewerage Program		
5. <b>Total expenses</b>		
<b>Income</b>		
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 No. 5 (continued) Sewerage Income Statement (Gross including Internal Transactions) as at 30 June 2015 \$'000

	2015	2014
<b>A Expenses and Income (continued)</b>		
13. Contributions		
a. Developer charges		
b. Developer provided assets		
c. Other contributions		
14. <b>Total income</b>		
15. Gain or loss on disposal of assets		
16. Operating result		
16a. <b>Operating result</b> (less grants for acquisition of assets)		
<b>B Capital transactions</b>		
<b>Non-operating expenditures</b>		
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		
a. Loans		
b. Advances		
c. Finance leases		
19. Transfer to sinking fund		
20. <b>Totals</b>		
<b>Non-operating funds employed</b>		
21. Proceeds from disposal of assets		
22. Borrowing utilised		
a. Loans		
b. Advances		
c. Finance leases		
23. Transfer from sinking fund		
24. <b>Totals</b>		
<b>C Rates and charges</b>		
25. Number of assessments		
a. Residential (occupied)		
b. Residential (unoccupied ie vacant lot)		
c. Non-residential (occupied)		
d. Non-residential (unoccupied ie vacant lot)		
26. Number of ETs for which developer charges were received		ET
27. Total amount of pensioner rebates	\$	

## NSW Council

### Special Schedule No. 5 (continued)

#### Sewerage – Cross-subsidies

as at 30 June 2015

\$'000

	Yes	No	Amount
<b>D Best practice annual charges and developer charges<sup>#</sup></b>			
<b>28. Annual charges</b>			
a. Does Council have best-practice sewerage annual charges, usage charges and trade waste fees and charges*?	<input type="checkbox"/>	<input type="checkbox"/>	
If Yes, go to 29a.			
If No, please report if council has removed <b>land value</b> from access charges (ie rates)?	<input type="checkbox"/>	<input type="checkbox"/>	
* Such charges for both residential customers and non-residential customers comply with sections 4.2 and 4.3 of <i>Water Supply, Sewerage and Trade Waste Pricing Guidelines</i> , NSW Office of Water, December, 2002. Such charges do not involve significant cross-subsidies.			
b. Cross-subsidy <b>to</b> non-residential customers (page 45 of Guidelines)			
c. Cross-subsidy <b>to</b> trade waste discharges (page 46 of Guidelines)			
<b>29. Developer charges</b>			
a. Has council completed a sewerage Development Servicing** Plan?	<input type="checkbox"/>	<input type="checkbox"/>	
b. Total cross-subsidy in sewerage developer charges for 2014/15 (page 47 of Guidelines)			
** In accordance with page 9 of <i>Developer Charges Guidelines for Water Supply, Sewerage and Stormwater</i> , NSW Office of Water, December, 2002.			
<b>30. Disclosure of cross-subsidies</b>			
<b>Total of cross-subsidies (28b +28c + 29b)</b>			

# Councils which have not yet implemented best practice sewerage pricing and liquid trade waste pricing should disclose cross-subsidies in items 28b and 28c above.

However, disclosure of cross-subsidies is **not** required where a Council has implemented best practice sewerage and liquid trade waste pricing and is phasing in such pricing over a period of three years.



## NSW Council

### Special Schedule No. 6 Sewerage service – Statement of Financial Position (Gross including Internal Transactions) as at 30 June 2015 \$'000

	Current	Non current	Total
<b>Assets</b>			
31. Cash and investments			
a. Developer charges			
b. Special purpose grants			
c. Accrued leave			
d. Unexpended loans			
e. Sinking fund			
f. Other			
32. Receivables			
a. Specific purpose grants			
b. Rates and charges			
c. User charges			
d. Other			
33. Inventories			
34. Property, plant and equipment			
a. System assets			
b. Plant and equipment			
35. Other assets			
36. <b>Total assets</b>			
<b>Liabilities</b>			
37. Bank overdraft			
38. Creditors			
39. Borrowings			
a. Loans			
b. Advances			
c. Finance leases			
40. Provisions			
a. Tax equivalents			
b. Dividend			
c. Other			
41. <b>Total liabilities</b>			
42. <b>Net assets committed</b>			
<b>Equity</b>			
43. Accumulated surplus			
44. Asset revaluation reserve			
45. <b>Total equity</b>			
<b>Note to system assets:</b>			
46. Current replacement cost of system assets			
47. Accumulated current cost depreciation of system assets			
48. Written down current cost of system assets			

## Notes to Special Schedules 3 and 5

**Administration<sup>(1)</sup>** (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<sup>(1)</sup>** (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 4c of Special Schedules 3 and 5) include all expenses not recorded elsewhere.

**Impairment losses** (items 4d and 4e of Special Schedules 3 and 5) are to be used when the carrying amount of an asset exceeds its recoverable amount (refer to page D-31).

**Aboriginal Communities Water and Sewerage Program** (item 4f 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.

**Revaluation decrements** (item 4b of Special Schedules 3 and 5) is to be used when infrastructure assets have decreased in fair value.

**Residential charges<sup>(2)</sup>** (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<sup>(2)</sup>** (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.

## NSW Council Special Schedule No. 7: Report on Infrastructure Assets as at 30 June 2015

Asset class	Asset category	Estimated cost to bring to a satisfactory standard \$'000	Required annual maintenance \$'000	2014/15 Actual maintenance \$'000	Written Down Value (WDV) \$	Assets in Condition as a % of WDV*				
						1	2	3	4	5
Buildings	Council Offices/ Administration Centres									
	Council Works Depot									
	Council Public Halls									
	Libraries									
	Cultural Facilities									
	Other Buildings									
	Specialised Buildings									
	Sub total									
	Other Structures									
	Sub total									
Roads	Sealed Roads Surface									
	Sealed Roads Structure									
	Unsealed Roads									
	Bridges									
	Footpaths									
	Cycle ways									
	Kerb and Gutter									
	Other Road Assets									
	Sub total									
	Water Supply Network	Dams/Weirs								
Mains										
Reservoirs										
Pumping Station/s										
Treatment										
Buildings										
Other										
Sub total										



## NSW Council Special Schedule No. 7: Report on Infrastructure Assets as at 30 June 2015 (continued)

Asset class	Asset category	Estimated cost to bring to a satisfactory standard \$'000	Required annual maintenance \$'000	2014/15 Actual maintenance \$'000	Written Down Value (WDV) \$	Assets in Condition as a % of WDV*				
						1	2	3	4	5
Sewerage Network	Mains									
	Pumping Station/s									
	Treatment									
	Buildings									
	Other									
	Sub total									
Stormwater Drainage	Retarding Basins									
	Outfalls									
	Stormwater Conduits									
	Inlet and Junction Pits									
	Head Walls									
	Outfall Structures									
Open Space/Recreational Assets	Stormwater Converters									
	Other									
	Sub total									
	Swimming pools									
	Other Open Space/Recreational Assets									
	Sub total									
Other Infrastructure Assets	Sub total									
	<b>Total – all assets</b>									

\* In accordance with Note 9.

Note:- Written Down Value must be disclosed

### Infrastructure Asset Condition Assessment

Level	Condition	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

## NSW Council

### Special Schedule No. 7: Report on Infrastructure Assets as at 30 June 2015

#### Infrastructure Asset Performance Indicators – Consolidated

\$'000	Amounts	Current year indicators	2014	2013
<b>Building and infrastructure renewals ratio</b>				
<u>Asset renewals (building, infrastructure and other structures)</u>	\$ _____.			
Depreciation, amortisation and impairment (building, infrastructure and other structures)	\$			
<b>Infrastructure backlog</b>				
<u>Estimated cost to bring assets to a satisfactory condition</u>	\$ _____.			
Total value * of infrastructure, building, other structures and depreciable land improvement assets	\$			
<b>Asset maintenance ratio</b>				
<u>Actual asset maintenance</u>	\$ _____.			
Required asset maintenance	\$			
<b>Capital expenditure ratio</b>				
<u>Annual capital expenditure</u>	\$ _____.			
Annual depreciation	\$			

#### Infrastructure Asset Performance Indicators – General, Water & Sewer Funds

Current year \$'000	General	Water	Sewer
<b>Building and infrastructure renewals ratio</b>			
<u>Asset renewals (building, infrastructure and other structures)</u>			
Depreciation, amortisation and impairment (building, infrastructure and other structures)			
<b>Infrastructure backlog</b>			
<u>Estimated cost to bring assets to a satisfactory condition</u>			
Total value* of infrastructure, building, other structures and depreciable land improvement assets			
<b>Asset maintenance ratio</b>			
<u>Actual asset maintenance</u>			
Required asset maintenance			
<b>Capital expenditure ratio</b>			
<u>Annual capital expenditure</u>			
Annual depreciation			

\*Written down value

## Commentary – Report on Infrastructure Assets

The Report on Infrastructure Assets provides information on a council's assets in addition 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 the condition, maintenance and renewal of infrastructure assets.

### Asset Condition

Asset condition assessment 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 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. Asset condition should be based on up to date asset condition assessments rather than an engineering estimates.

**WDV** is the written down value of the assets. The WDV \$ column which the condition assessments are to be made against is mandatory & cannot be changed to any other "base" figure. Should a Council want to publish condition assessments against "GBV \$" then they should publish a second SS7 within the Special Schedules.

**Estimated cost to bring to a satisfactory standard (BTS).** Satisfactory is defined as "*satisfying expectations or needs, leaving no room for complaint, causing satisfaction, adequate*"<sup>1</sup>. The estimated cost to bring assets to a satisfactory standard is the amount of money that is required to be spent on an asset to ensure that it is in a satisfactory standard. This should not include any planned enhancements.

Unless Council has undertaken consultation with their community and has agreed to a level of service from councils assets the BTS should be measured against the second condition rating of Good as stated in the Integrated Planning and Reporting Manual for local government in NSW.

**Renewal** is defined by the IIMM as "works to upgrade, refurbish or replace existing facilities with facilities of equivalent capacity or performance capability".

**Enhancement** means to "heighten, intensify or improve the facilities".

**Required annual maintenance** is "what should be spent to maintain assets in a satisfactory standard".

### Actual maintenance

Actual maintenance, previously referred to as current annual maintenance is what has been spent in the current year to maintain the assets (This figure should be sourced from Note 4). This may be higher or lower than the required annual maintenance due to the timing of when the maintenance actually occurs.

For further information, councils should consult the Integrated Planning and Reporting Guidelines and Manual for local government in NSW located on the Office of Local Government's website ([www.olg.nsw.gov.au](http://www.olg.nsw.gov.au)).

### Asset Classes

It should be noted that within the Buildings asset class 'Other Buildings' Category may include assets such as childcare centres, aged care facilities and multi-purpose centres for example. Cultural Facilities may include assets such as museums, art galleries and entertainment centres. 'Other Structures' is designed for the following types of infrastructure assets: statues, fences, monuments, clock towers and so on. 'Open Space/Recreational Assets' may include assets such as swimming pools (but not including buildings, plant & equipment, car parks etc. that are associated with the swimming pool), playground equipment, BBQ's and outdoor fitness facilities. 'Other infrastructure' may include jetties, boat ramps, sea/rock/retaining walls etc. The Asset Classes & Asset Categories as listed in SS7 are MANDATORY. If Councils want to add more line items to SS7, then they must be sub-categories (or individual assets) of the listed Asset Categories.

### 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:

#### 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 (building, infrastructure and other structures)*

*Depreciation, amortisation and impairment (building, infrastructure and other structures)*

(Expressed as a ratio)

#### 2. Infrastructure backlog ratio

Purpose:- This ratio shows what proportion the 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*

*Total value\* of infrastructure, building, other structures and depreciable land improvement assets*



### 3. Asset maintenance ratio

Purpose:- This ratio compares actual versus required annual asset maintenance. A ratio of above 1.0 indicates that the Council is investing enough funds within the year to stop the Infrastructure Backlog from growing. The benchmark is greater than 1.0.

Actual asset maintenance

Required asset maintenance

### 4. Capital expenditure ratio

Purpose:- This indicates the extent to which a Council is forecasting to expand its asset base with capital expenditure spent on both new assets, and replacement and renewal of existing assets. The benchmark is greater than 1.1. The calculation is based on Note 9 and the balance sheet i.e. building, infrastructure and other structures additions less WDV of disposals over annual depreciation.

Annual capital expenditure

Annual depreciation

## 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.

1. The Australian Concise Oxford Dictionary of Current English \* *Written down value*

## 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 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 and the importance of infrastructure assets in the delivery of services and making sure the auditing process is appropriate.

### Stage one

Local Government auditors will be required to check the systems and processes councils have in place for capturing, recording and reporting councils' asset information. The purpose of this is to test how prepared councils are for an audit.

The Office of Local Government will issue a circular to all councils and auditors with the format and a list of questions that should be used to inform the auditor, council and the OLG of how well prepared councils are for an audit. The councils will also be able to use this document to assess if there are any areas that need improving. Stage one will be conducted during the audit of the 2014/15 financial reports, that is, July to October 2015.

### Stage two

This stage involves reviewing the Report on Infrastructure Assets (SS7) and also 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. The plan for this stage is to prepare an updated SS7 and to release it to the industry for comment in the second half of 2015.

A review of the IP&R asset management information should also take place at the same time to ensure there is consistency between the two.

### Stage three

Stage three involves auditing the information contained within SS7. The OLG will work with the NSW Audit Office and the LG Auditor's Association of NSW to develop an audit framework.

The audit will be conducted on the information reported as at 30 June 2016.

**Note 2 Water Supply Business best practice management disclosure requirements**

2015

**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 2015, less cumulative dividends paid for 2 years to 30 June 2014	\$	
(iv)	Maximum Dividend from Surplus (least of (i), (ii) and (iii))	\$	
(v)	Dividend paid from Surplus	\$	

**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 (w47)	\$ ('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 (w47) + Plant and equipment (w33b)).	%	
NWI F26	Capital Works Grants (Water) = Grants for acquisition of assets (w11a)	\$ ('000)	

- Notes:
- References to w (eg. w12) refer to item numbers in Special Schedules Nos. 3 and 4 of each Council's Annual Financial Statements.
  - 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.

### Note 3 Sewerage Business best practice management disclosure requirements

		2015
<b>1. Calculation and Payment of Tax-Equivalents</b>		
(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	\$
<b>2. Dividend from Surplus</b>		
(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 2015, less cumulative dividends paid for 2 years to 30 June 2014	\$
(iv)	Maximum Dividend from Surplus (least of (i), (ii) and (iii))	\$
(v)	Dividend paid from Surplus	\$
<b>3. Required Outcomes for 4 Criteria</b>		
(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
<b>National Water Initiative (NWI) Financial Performance Indicators</b>		
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 (s48)	\$ ('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 (s48) + Plant and equipment (s34b))	%
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 (w33b + s34b))	%
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) = (Overdraft (w36 + s37) + Borrowings (w38 + s39) - Cash and investments (w30 + s31)) x 100 / (Total assets (w35 + s36) - Total liabilities (w40 + s41))	%
NWI F23	Interest Cover (Water and Sewerage) = EBIT / NI <b>Earnings before Interest and Tax (EBIT)</b> = Operating result (w15a+s16a) + Interest expense (w4a + s4a) - Interest income (w9 + s10) - Gain/loss on disposal of assets (w14 + s15) + Miscellaneous expenses (w4b + w4c + s4b + s4c) <b>Net Interest (NI)</b> = Interest expense (w4a+s4a) - Interest income (w9+s10) <b>Note:</b> 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:
- References to s (eg s12) refer to item numbers in Special Schedules Nos. 5 and 6 of each Council's Annual Financial Statements.
  - 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.



## Formulae for calculation of performance indicators in tables 5 to 18

### Formulae for calculation of performance indicators in table 5

5. 2014/15 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).	$W_{6b} \times 100 \div [W_{6a} + W_{6b}]$
(4)	Typical Residential Bill - Water Supply (\$/assessment) (see note B)	Calculated using the average residential water supplied for 2014/15 multiplied by the usage charges for 2014/15 plus the access charge for 2014/15.	$Col (5) \times Col (14a) \div 100 + Col (2) Table 6$
(5)	Typical Residential Bill - Sewerage (\$/assessment) (see note B)	Calculated using the access charge for 2014/15 plus, if council has residential sewer usage charges, the average residential water consumption for 2014/15 multiplied by the usage charges and usage factor for 2014/15.	$Col (1) + Col (1a) Table 7$
(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.	$SB64 \div (SB9 \div 100)$
(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.	$[Col (57) Table 11 + Col (42) Table 16] \div 1000$
(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 $\geq 0$ , 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 $\geq 0$ , 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
(34)	Strategic Business Plans Completed? (Yes/No)	30-year Strategic Business Plan and financial plan are soundly based and are less than 5 years old.	From Col (1) 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 section H2 on page 351.
- 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 pages 213 and 227.

## Formulae for calculation of performance indicators in table 5A

Column No.	Performance Indicator	Background to Formula	Formula
<b>Water Supply &amp; Sewerage</b>			
(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
(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.	$[(W_{13} + W_{14} - W_{11a} - W_9) + (S_{14} + S_{15} - S_{12a} - S_{10})] \div 1,000,000$
(24b)	Capital Expenditure (\$/property)	Assets, Renewals, Plant/Equipment.	$(W_{16} \div \text{Col (20) Table 9}) + (S_{17} \div \text{Col (3) Table 14})$
(24c)	Return on Assets (%)	Total revenue less grants for acquisition of assets less total expenses plus revaluation decrements 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.	$[(W_{13} - W_{11a} - W_5 + W_{4b} + W_{4c}) + (S_{14} - S_{12a} - S_5 + S_{4b} + S_{4c})] \times 100 \div (W_{47} + W_{33b} + S_{48} + S_{34b})$
(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.	$[(W_{13} - W_9 - W_{11a} - W_1 - W_2 - W_3) + (S_{14} - S_{10} - S_{12a} - S_1 - S_2 - S_3)] \times 100 \div (W_{47} + W_{33b} + S_{48} + S_{34b})$
(26)	Net Debt to Equity - W&S (%)	Net debt (water supply and sewerage) divided by equity (water supply and sewerage). Net debt is borrowings plus bank overdrafts less cash and investments. Equity is Total Assets less Total Liabilities.	$[(W_{36} + W_{38} - W_{30}) + (S_{37} + S_{39} - S_{31})] \times 100 \div (W_{44} + S_{45})$
(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.	$[(W_{15a} + W_{4a} - W_9 - W_{14} + W_{4b} + W_{4c}) + (S_{16a} + S_{4a} - S_{10} - S_{15} + S_{4b} + S_{4c})] \div (W_{4a} - W_9 + S_{4a} - S_{10})$
(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	$(\text{Dividend paid or payable or proposed}) \times 100 \div (\text{Net profit after tax})$
(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).	$[\text{Col (30)} \div \text{Col (24a) Table 5A}] \times 100$
(32)	Net Profit After Tax (NPAT) (\$'000)	Surplus before dividends less tax paid.	$[(W_{15a} + S_{16a}) - \text{Tax paid}] \div 1000$ From SPFR Notes 2 & 3
(32a)	NPAT Ratio	Net profit after tax divided by Total Income.	$\text{Col (32)} \div [\text{Col (24a) Table 5A} \times 1000] \times 100$

### Notes:

- 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.
- Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with section H2 on page 351.
- 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 pages 213 and 227.



## Formulae for calculation of performance indicators in table 5B

Column No.	Performance Indicator	Background to Formula	Formula
<b>Water Supply &amp; Sewerage</b>			
(33)	Billing Complaints (per 1000 properties)	Billing complaints for both water supply and sewerage businesses.	$(WB99 + SB37) \div \text{Col (20) Table 9}$
(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 CO <sub>2</sub> per 1000 properties)	The greenhouse gas emissions (CO <sub>2</sub> -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 CO <sub>2</sub> per 1000 properties)	The greenhouse gas emissions (CO <sub>2</sub> -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 CO <sub>2</sub> 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 CO <sub>2</sub> 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 section H2 on page 351.
- 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 pages 213 and 227.



## Formulae for calculation of performance indicators in table 5C

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 WDV	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
(60)	Capital Expenditure Ratio (%)	Annual capital expenditure divided by Annual depreciation.	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 plus bank overdrafts 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 2014/15 multiplied by the usage charges for 2015/16 plus the access charge for 2015/16.	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
(72)	Strategic Business Plans Completed? (Yes/No)	30-year Strategic Business Plan and financial plan are soundly based and are less than 5 years old.	From Col (1) 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 section H2 on page 351.



## Formulae for calculation of performance indicators in table 5D

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 WDV	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	From Special Schedule 7
(89)	Asset Maintenance Ratio (%)	Actual asset maintenance divided by Required asset maintenance.	From Special Schedule 7
(90)	Capital Expenditure Ratio (%)	Annual capital expenditure divided by Annual depreciation.	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 plus bank overdrafts 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.	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 2014-15 plus, if council has residential sewer usage charges, the average residential water consumption for 2013-14 multiplied by the usage charges and usage factor for 2014-15.	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
(102)	Strategic Business Plans Completed? (Yes/No)	30-year Strategic Business Plan and financial plan are soundly based and are less than 5 years old.	From Col (1) 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 section H2 on page 351.

## Formulae for calculation of performance indicators in table 6

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
(4)	Special Levies (\$)	Charges directly levied upon properties and are neither a fixed or pay-for-use charge for water or sewage (e.g. environmental improvement levy).	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).	$[W\_1 + W\_2] \times 100 \div [Col (13) + Col (14) Table 8] \times 1000$
(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 2013-14 multiplied by the usage charges for 2014-15 plus the access charge for 2014-15.	$Col (5) \times Col (14a) \div 100 + Col (2) Table 6$
(11)	Return on Assets (%)	Total revenue less grants for acquisition of assets less total expenses plus revaluation decrements 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.	$[(W\_13 - W\_11a - W\_5 + W\_4b + W\_4c)] \times 100 \div (W\_47 + W\_33b)$
(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.	$(W\_13 - W\_9 - W\_11a - W\_1 - W\_2 - W\_3) \times 100 \div (W\_47 + W\_33b)$
(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).	$W\_6b \times 100 \div [W\_6a + W\_6b]$
(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.	$[Col (1) Table 8] \div [Cols (18) \times (21) \times (22) Table 9]$
(14b)	Average Annual Residential Water Supplied (potable + non potable) (kL/property)	Average annual residential water supplied (potable and non potable).	$[Col (1) + Col (11) + Col (12a) Table 8] \div [Cols (18) \times (21) \times (22) Table 9]$
(14c)	Average Annual Residential Water Supplied (potable + non potable) (L/c/d)	Average annual residential water supplied per capita per day.	$[Col (1) + Col (11) + Col (12a) Table 8] \div [Col (23) Table 9] \div 365$
(14d)	Full Cost Recovery? (N / Y* / Y)	Achieved if either the economic real rate of return or return on assets is $\geq 0$ , 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 page 213.
- 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 section H2 on page 351.



## Formulae for calculation of performance indicators in table 7

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.	$[S_1 + S_2] \times 100 \div [\text{Col (32) Table 15} \times 1000]$
(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).	$[S_7 + S_8] \times 100 \div [S_6 + S_7 + S_8]$
(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 2014-15 plus, if council has residential sewer usage charges, the average residential water consumption for 2013-14 multiplied by the usage charges and usage factor for 2014-15.	Col (1) + Col (1a) Table 7
(9)	Return on Assets (%)	Total revenue less grants for acquisition of assets less total expenses plus revaluation decrements 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.	$[(S_{14} - S_5 - S_{12a} + S_{4b} + S_{4c}) \times 100 \div (S_{48} + S_{34b})]$
(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.	$(S_{14} - S_{10} - S_{12a} - S_1 - S_2 - S_3) \times 100 \div (S_{48} + S_{34b})$
(11a)	Full Cost Recovery? (N / Y* / Y)	Achieved if either the economic real rate of return or the return on assets is $\geq 0$ , 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 page 227.
- 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 section H2 on page 351.

## Formulae for calculation of performance indicators in table 8

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, abattoirs, 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
(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 .	WB64 + WB157
(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 (12c) Table 8 - WB156 + WB47a
(14)	Bulk Water Exports	Sales to other Local Water Utilities (LWUs) of potable and non-potable water.	WB59
(11b)	Recycled Water - Non-Urban	Total metered and estimated non-metered water supplied for agricultural purposes, environmental purposes and on-site use, excluding urban stormwater.	WB152 + WB153 + WB154
(11c)	Recycled Water - Total	Total recycled water supplied.	Col (11) + Col (11a) + Col (11b) 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 page 213.
- 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 section H2 on page 351.



## Formulae for calculation of performance indicators in table 9

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 page 213.
- 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 section H2 on page 351.



## Formulae for calculation of performance indicators in table 10

Column No.	Performance Indicator	Background to Formula	Formula
(41)	Real Losses (Leakage) (L/d/c)	Real loss or leakage L per day per connection.	$WB68 \div 365 \div \text{Col (18a) Table 9}$
(41a)	Real Losses (Leakage) (kL/km/d)	Real loss or leakage kL per km of main per day.	$WB68 \times 1000 \div WB22 \div 365$
(41b)	Infrastructure Leakage Index (ILI)	Ratio of Current Annual Real Loss to Unavoidable Annual Real Loss.	Determined as per NPF
(41c)	Leakage Test (Type & Extent)	Type and extent of Leakage Test undertaken, the year and the result of the test.	Most 2014/15 results from Regional NSW Water Loss Management Program
(41d)	(Year)		
(41e)	(Result %)		
(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.	$WB104 \div (WB22 \div 100)$
(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.	$WB106 \times 1000 \div \text{Col (20) Table 9}$
(44)	Rehabilitation of mains (% of total length)	Length of mains rehabilitated as % of total length of main.	$WB23 \div (WB22 \div 100)$
(45)	Rehabilitation of service connections (%)	Number of service connections rehabilitated as % of total.	$WB24 \times 100 \div \text{Col (18a) Table 9}$
(45a)	Rehabilitation of water meters (%)	Number of water meters rehabilitated as % of total.	$WB25 \times 100 \div \text{Col (18a) Table 9}$
(46)	Renewals (\$'000 per 100km of main)	Expenditure on renewals per 100km of main.	$W_{16c} \div (WB22 \div 100)$
(47)	Renewals (% of CRC)	Expenditure on renewals as percentage of Current Replacement Cost (CRC) of systems assets.	$W_{16c} \times 100 \div (\text{Col (61) Table 11} \times 1000)$
(48)	Mains Maintenance Cost (\$'000/100km of main)	Expenditure on maintenance of mains per 100km of main.	$(W_{2d} \div 1000) \div (WB22 \div 100)$
(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.	$\text{Col (11c)} \times 100 \div \text{Col (13) Table 8}$
(52)	Peak Day to Average Consumption (%)	Maximum 24 hour potable water supplied in reporting year (ML/d) divided by average daily consumption.	$WB82 \div [\text{Col (49)} \div 365]$
(53)	Peak Week to Average Consumption (%)	Average daily consumption over peak week (ML/d) divided by average daily consumption.	$WB83 \div [\text{Col (49)} \div 365]$
(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.	$[\text{Col (1) Table 8}] \div [\text{Cols (18)} \times (21) \times (22) \text{ Table 9}]$
(56)	Average Annual Residential Water Supplied (Potable + Non Potable) (kL/property)	Average annual residential consumption (potable + non potable). See column 56a above.	$[\text{Col (1)} + \text{Col (11)} + \text{Col (12a) Table 8}] \div [\text{Cols (18)} \times (21) \times (22) \text{ Table 9}]$

### Notes:

- References to WB (eg. WB99) refer to questions in each LWU's Water Supply Performance Monitoring Database. Eg. refer to page 213.
- 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.
- Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with section H2 on page 351.

## Formulae for calculation of performance indicators in table 10A

10A. Water Supply - 2014/15 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.	$100 \times \text{Col (4)} \div \text{Col (3)}$
(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.	$\text{Col (8)} \times \text{Col (3)} \times 365 \div 10^6$
(10)	Estimated Water Loss - Before (%)	Estimated water losses before leakage detection and repair.	$100 \times \text{Col (9)} \div \text{Col (7)}$
(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.	$\text{Col (11)} \times \text{Col (3)} \times 365 \div 10^6$
(13)	Estimated Water Loss - After (%)	Estimated water losses after leakage detection and repair.	$100 \times \text{Col (11)} \div \text{Col (7)}$
(14)	Annual Water Savings (ML)	Annual water savings for each zone and the water utility as a whole after leakage detection and repair.	$\text{Col (9)} - \text{Col (12)}$
(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 section H2 on page 351.

## Formulae for calculation of performance indicators in table 11

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)].	$(W_{13} - W_9 - W_{11a}) \div 1000$
(57a)	Revenue per property (\$)	Total revenue per connected property.	$[\text{Col (57) Table 11}] \times 1000 \div [\text{Col (20) Table 9}]$
(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.	$(W_{6a} + W_{6b}) \times 100 \div (W_6 + W_7)$
(59)	Residential Water Supplied (% of potable water supplied excluding water losses)	% of potable water <u>excluding</u> water losses.	$(WB54a \div WB62) \times 100$
(58a)	Residential Revenue from usage charges (%)	Residential revenue from usage charges.	$W_{6b} \times 100 \div (W_{6a} + W_{6b})$
(60)	Written Down Replacement Cost (\$M)	Written down replacement cost of system assets.	$W_{47} \div 1,000,000$
(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).	$W_{45} \div 1,000,000$
(62)	Current Replacement Cost per Assessment (\$)	The value of the infrastructure assets divided by the number of assessments.	$W_{45} \div \text{Col (18) Table 9}$
(63)	Net Debt to Equity - W&S (%)	All overdrafts, repayable borrowings, interest bearing non-repayable borrowings, advances and leases less cash and investments divided by total equity.	$[(W_{36} + W_{38} - W_{30}) + (S_{37} + S_{39} - S_{31})] \times 100 \div (W_{44} + S_{45})$
(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.	$W_{47} \div \text{Col (20) Table 9}$
(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.	$W_{15a} \div \text{Col (20) Table 9}$
(64a)	Cross Subsidies (Annual Fees & Charges) (\$/assessment)	Cross subsidies from residential customers using less than allowance to non-residential customers and to large connections in unmetered supplies.	$(W_{27b} + W_{27c} + W_{27d}) \div \text{Col (18) Table 9}$
(64b)	Cross Subsidies (Developer Charges) (\$/ET)	Cross subsidies in water supply developer charges.	$W_{28b} \div \text{Col (18) Table 9}$
(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).	$(W_{4a} + W_{17a} + W_{17b} + W_{17c}) \div \text{Col (20) Table 9}$
(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.	$[W_1 + W_2] \div \text{Col (20) Table 9}$ plus bulk suppliers OMA
(68)	Management Cost (\$/property)	Total management costs divided by total number of connected properties.	$W_1 \div \text{Col (20) Table 9}$

### Notes:

- References to WB (eg. WB99) refer to questions in each LWU's Water Supply Performance Monitoring Database. Eg. refer to page 213.
- 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.
- Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with section H2 on page 351.



## Formulae for calculation of performance indicators in table 12

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) $\geq$ 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) $\geq$ 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) $\geq$ 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 $\div$ 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 $\div$ 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 $\div$ 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 $\div$ 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 $\div$ 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 $\div$ 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 page 213.
- 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 section H2 on page 351.

## Formulae for calculation of performance indicators in table 13

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.	$[W_{2b} + W_{2d} + W_{2f} + W_{2i} + W_{2l} + W_{2n}] \div \text{Col (20) Table 9}$
(80)	Operating Cost Components - Operation (\$/property)	Operation cost of all water system assets.	$[W_{2a} + W_{2c} + W_{2e} + W_{2g} + W_{2j} + W_{2m}] \div \text{Col (20) Table 9}$
(81)	Operating Cost Components - Energy (\$/property)	Energy cost of water pumping and treatment.	$W_{2h} \div \text{Col (20) Table 9}$
(82)	Operating Cost Components - Chemicals (\$/property)	The chemicals cost for water treatment.	$W_{2k} \div \text{Col (20) Table 9}$
(82a)	Operating Cost Components - Bulk Purchase (\$/property)	Purchase of water cost.	$W_{20} \div \text{Col (20) Table 9}$
(83)	Operating Cost Components - Dams & Weirs (\$/property)	Operation and Maintenance cost of dams and weirs.	$[W_{2a} + W_{2b}] \div \text{Col (20) Table 9}$
(84)	Operating Cost Components - Mains (\$/property)	Operation and Maintenance cost of water mains.	$[W_{2c} + W_{2d}] \div \text{Col (20) Table 9}$
(85)	Operating Cost Components - Reservoirs (\$/property)	Operation and Maintenance cost of reservoirs.	$[W_{2e} + W_{2f}] \div \text{Col (20) Table 9}$
(86)	Operating Cost Components - Pumping Stations (\$/property)	Operation, Energy and Maintenance cost of water pumping stations.	$[W_{2g} + W_{2h} + W_{2i}] \div \text{Col (20) Table 9}$
(87)	Operating Cost Components - Water Treatment (\$/property)	Operation, Chemical, Maintenance and Bulk Purchase cost of water treatment works.	$[W_{2j} + W_{2k} + W_{2l}] \div \text{Col (20) Table 9}$
(88)	Operating Cost Components - Other (\$/property)	Operation and Maintenance cost of other water system assets.	$[W_{2m} + W_{2n} + W_{2o}] \div \text{Col (20) Table 9}$
(89)	Management Cost Components - Administration (\$/property)	Administration costs.	$W_{1a} \div \text{Col (20) Table 9}$
(90)	Management Cost Components - Engineering & Supervision (\$/property)	Engineering and Supervision costs.	$W_{1b} \div \text{Col (20) Table 9}$
(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.	$[W_{1a} + W_{1b}] \times 100 \div [\text{Col (49) Table 10} \times 1000]$
(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.	$[W_{11} + W_{12}] \times [WB133 \div 100] \div \text{Col (20) Table 9}$
(93)	Distribution Component (\$/property)	From the distribution component estimated in the reporting forms.	$[W_{11} + W_{12}] \times [WB134 \div 100] \div \text{Col (20) Table 9}$
(94)	Pumping Cost Components - Total Water Pumping Cost (c/kL)	From special schedule No. 3.	$[W_{2g} + W_{2h} + W_{2i}] \times 100 \div [\text{Col (49) Table 10} \times 1000]$
(95)	Pumping Cost Components - Total Water Pumping Cost (\$'000/pumping station)	From special schedule No. 3.	$[W_{2g} + W_{2h} + W_{2i}] \div 1000 \div \text{Col (30) Table 9}$
(96)	Pumping Cost Components - Operation (\$'000/pumping station)	From special schedule No. 3.	$[W_{2g} \div 1000] \div \text{Col (30) Table 9}$
(97)	Pumping Cost Components - Maintenance (\$'000/pumping station)	From special schedule No. 3.	$[W_{2i} \div 1000] \div \text{Col (30) Table 9}$
(98)	Pumping Cost Components - Energy (\$'000/pumping station)	From special schedule No. 3.	$[W_{2h} \div 1000] \div \text{Col (30) Table 9}$
(100)	Water Main Cost Components - Total Water Main Cost (c/kL)	From special schedule No. 3.	$[W_{2c} + W_{2d}] \times 100 \div [\text{Col (49) Table 10} \times 1000]$
(101)	Water Main Cost Components - Total Water Main Cost (\$'000/100km)	From special schedule No. 3.	$[W_{2c} + W_{2d}] \div 1000 \div [\text{Col (25a) Table 9} \div 100]$
(102)	Water Main Cost Components - Operation (\$'000/100km)	From special schedule No. 3.	$[W_{2c} \div 1000] \div [\text{Col (25a) Table 9} \div 100]$
(103)	Water Main Cost Components - Maintenance (\$'000/100km)	From special schedule No. 3.	$[W_{2d} \div 1000] \div [\text{Col (25a) Table 9} \div 100]$
(104)	Treatment Cost Components - Total Water Treatment Cost (c/kL)	From special schedule No. 3.	$[W_{2j} + W_{2k} + W_{2l}] \div [10 \times \text{Col (49) Table 10}]$
(105)	Treatment Cost Components - Operation (\$/property)	From special schedule No. 3.	$W_{2j} \div \text{Col (20) Table 9}$
(106)	Treatment Cost Components - Maintenance (\$/property)	From special schedule No. 3.	$W_{2l} \div \text{Col (20) Table 9}$
(107)	Treatment Cost Components - Chemical (\$/property)	From special schedule No. 3.	$W_{2k} \div \text{Col (20) Table 9}$

### Notes:

- References to WB (eg. WB99) refer to questions in each LWU's Water Supply Performance Monitoring Database. Eg. refer to page 213.
- 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.
- Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with section H2 on page 351.



## Formulae for calculation of performance indicators in table 14

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 page 227.
- 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 section H2 on page 351.



## Formulae for calculation of performance indicators in table 15

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.	$\Sigma ST31 \div (SB9 \div 100)$
(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.	$SB64 \div (SB9 \div 100)$
(25)	Overflows (No. per 100km of main)	Recorded overflows in sewers, access chambers and pumping stations. Overflows in risers and sidelines are excluded.	$SB63a \div (SB9 \div 100)$
(27)	Rehabilitation of mains (% of total length)	Length of mains rehabilitated as % of total length of main.	$(SB10 \div SB9) \times 100$
(28)	Rehabilitation of service connections (%)	Number of service connections rehabilitated as % of total.	$SB11 \times 100 \div \text{Col(3) Table 14}$
(29)	Renewals (\$'000 per 100km of main)	Expenditure on renewals per 100km of main.	$(S_{17c} \div 1000) \div (SB9 \div 100)$
(30)	Renewals (% of CRC)	Expenditure on renewals as % of Current Replacement Cost (CRC) of systems assets.	$S_{17c} \times 100 \div [\text{Col (46) Table 16} \times 1000]$
(31)	Mains Maintenance Cost (\$'000 per 100km of main)	Expenditure on maintenance of mains per 100km of main.	$(S_{2b} \div 1000) \div (SB9 \div 100)$
(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.	$SB63b \div (SB9 \div 100)$
(32)	Total Volume of Sewage Collected (ML)	Total volume transported through sewerage network.	$\Sigma ST15$
(32a)	Volume of Trade Waste (ML)	Network trade waste.	$\Sigma ST34$
(33)	Percentage of Sewage Treated (%)	% of total sewage treated.	$[\Sigma ST18 + \Sigma ST19] \times 100 \div \text{Col (32) Table 15}$
(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.	$(\text{No. of scheduled samples complying with licence limits}) \times 100 \div \text{Total No. of scheduled samples in reporting period.}$
(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.	$\Sigma ST31 \times 100 \div \Sigma ST15$
(35)	Percentage of Total Sewage Collected - Residential	% of total sewage collected.	$\Sigma ST32 \times 100 \div \Sigma ST15$
(36)	Percentage of Total Sewage Collected - Non-residential	% of total sewage collected.	$\Sigma ST33 \times 100 \div \Sigma ST15$
(37)	Percentage of Total Sewage Collected - Trade Waste	% of total sewage collected.	$\Sigma ST34 \times 100 \div \Sigma ST15$
(38)	Percentage of Total Sewage Collected - Other	Remainder not reported under columns (34), (35), (36) or (37). % of total sewage collected.	$100 - \text{Col (34)} - \text{Col (35)} - \text{Col (36)} - \text{Col (37) Table 15}$
(39a)	Level of Treatment - Primary Level	Primary treatment only.	$[\Sigma ST17 \times 100] \div \text{Col (32) Table 15}$
(39b)	Level of Treatment - Secondary Level	Secondary treatment only.	$[\Sigma ST18 \times 100] \div \text{Col (32) Table 15}$
(39c)	Level of Treatment - Tertiary Level	Tertiary treatment only.	$[\Sigma ST19 \times 100] \div \text{Col (32) Table 15}$
(39)	Volume of Sewage Collected per property (kL/property)	Includes residential, non-residential and trade waste.	$\text{Col (32) Table 15} \div \text{Col (3) Table 14}$
(40)	Biosolids Reused (%)	% of biosolids (sludge) to farmland, landfill etc.	$\Sigma [ST27 \div 100 \times ST26] \div \Sigma ST26$
(41a)	Effluent Recycled - Total (ML)	Total volume recycled.	$\Sigma ST25$
(41b)	Effluent Recycled - Urban Water (ML)	Total urban water recycled (excluding agricultural, environmental and bulk).	$\Sigma [ST21 + ST22 + ST23 + ST24 + ST24a]$
(41c)	% of Effluent Recycled	Percentage of effluent that is recycled.	$100 \times \text{Col (41a)} \div \text{Col (32) Table 15}$

### Notes:

- References to SB and ST (eg. SB9, ST32) refer to questions in each LWU's Sewerage Performance Monitoring Database.  $\Sigma ST17$  refers to the sum of values for each treatment works. Eg. refer to page 227.
- 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.
- Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with section H2 on page 351.

## Formulae for calculation of performance indicators in table 16

### 16. Sewerage - 2014/15 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)].	$(S_{14} - S_{10} - S_{12a}) \div 1000$
(42a)	Revenue per property (\$)	Total revenue per connected property.	$[\text{Col (42) Table 16} \times 1000] \div [\text{Col (3) Table 14}]$
(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.	$(S_6) \times 100 \div (S_6 + S_7 + S_8)$
(44)	Residential Sewage (% of total collected excl infiltration/inflow)	% of total collected <u>excluding</u> infiltration and inflow.	$[\text{EST32} \div (\text{EST15} - \text{EST31})] \times 100$
(45)	Written Down Replacement Cost (\$M)	Written down replacement cost of system assets.	$S_{48} \div 1,000,000$
(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).	$S_{46} \div 1,000,000$
(47)	Current Replacement Cost per Assessment (\$)	The value of the infrastructure assets divided by the number of assessments.	$S_{46} \div \text{Col (1) Table 14}$
(48)	Net Debt to Equity - W&S (%)	All overdrafts, repayable borrowings, interest bearing non-repayable borrowings, advances and leases less cash & investments $\div$ total equity.	$[(W_{36} + W_{38} - W_{30}) + (S_{37} + S_{39} - S_{31})] \times 100 \div (W_{44} + S_{45})$
(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
(49a)	Cross Subsidies (Annual Charges & Fees) (\$/assessment)	Cross subsidies from residential customers to non-residential customers and trade waste dischargers.	$(S_{28b} + S_{28c}) \div \text{Col (1) Table 14}$
(49b)	Cross Subsidies (Developer Charges) (\$/ET)	Cross subsidies in sewerage developer charges.	$(S_{29b}) \div \text{Col (1) Table 14}$
(50)	Operating Result (\$/property)	Total revenue less total expenses less grants for acquisition of assets divided by total number of connected properties.	$(S_{16a}) \div \text{Col (3) Table 14}$
(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.	$S_{48} \div \text{Col (3) Table 14}$
(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).	$(S_{4a} + S_{18a} + S_{18b} + S_{18c}) \div \text{Col (3) Table 14}$
(52)	Operating Cost OMA (\$/property)	Total operation, maintenance and administration costs divided by total number of connected properties.	$[S_1 + S_2] \div \text{Col (3) Table 14}$
(54)	Management Cost (\$/property)	Total management costs divided by total number of connected properties.	$S_1 \div \text{Col (3) Table 14}$

#### Notes:

- References to SB and ST (eg. SB9, ST32) refer to questions in each LWU's Sewerage Performance Monitoring Database.  $\Sigma$ ST17 refers to the sum of values for each treatment works. Eg. refer to page 227.
- 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.
- Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with section H2 on page 351.



## Formulae for calculation of performance indicators in table 17

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.	$SB39 \times 1000 \div \text{Col (3) Table 14}$
(62)	Service Complaints (per 1000 properties)	Service complaints including chokes and odour, but excluding billing. Exclude queries.	$[SB38 + SB34 + SB39] \times 1000 \div \text{Col (3) Table 14}$
(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 page 227.
- 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 section H2 on page 351.
- 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

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.	$[S_{2b} + S_{2e} + S_{2k} + S_{2m}] \div \text{Col (3) Table 14}$
(67)	Operating Cost Components - Operation (\$/property)	Operation cost of all sewerage system assets.	$[S_{2a} + S_{2c} + S_{2f} + S_{2l}] \div \text{Col (3) Table 14}$
(68)	Operating Cost Components - Energy (\$/property)	Energy cost of sewage treatment and pumping	$S_{2h} \div \text{Col (3) Table 14}$
(69)	Operating Cost Components - Chemical Treatment (\$/property)	The chemical cost of sewage treatment.	$S_{2g} \div \text{Col (3) Table 14}$
(69a)	Operating Cost Components - Effluent & Biosolids (\$/property)	Effluent Management and Biosolids Management cost of sewage treatment.	$[S_{2i} + S_{2j}] \div \text{Col (3) Table 14}$
(70)	Operating Cost Components - Mains (\$/property)	Operation and Maintenance cost of sewage mains.	$[S_{2a} + S_{2b}] \div \text{Col (3) Table 14}$
(71)	Operating Cost Components - Pumping Stations (\$/property)	Operation, Energy and Maintenance cost of sewage pumping stations.	$[S_{2c} + S_{2d} + S_{2e}] \div \text{Col (3) Table 14}$
(72)	Operating Cost Components - Sewage Treatment (\$/property)	Operation, Chemical, Energy, Effluent Management, Biosolids Management and Maintenance cost of sewage treatment.	$[S_{2f} + S_{2g} + S_{2h} + S_{2i} + S_{2j} + S_{2k}] \div \text{Col (3) Table 14}$
(73)	Operating Cost Components - Other (\$/property)	Operation and maintenance cost of other sewerage system assets.	$[S_{2l} + S_{2m}] \div \text{Col (3) Table 14}$
(74)	Management Cost Components - Administration (\$/property)	Administration costs.	$S_{1a} \div \text{Col (3) Table 14}$
(75)	Management Cost Components - Engineering & Supervision (\$/property)	Engineering and Supervision costs.	$S_{1b} \div \text{Col (3) Table 14}$
(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.	$[S_{1a} + S_{1b}] \times 100 \div \text{Col (32) Table 15}$
(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.	$[S_{2f} + S_{2g} + S_{2h} + S_{2i} + S_{2j} + S_{2k}] \div \text{Col (3) Table 14}$
(78)	Retail Component (Reticulation) (\$/property)	The cost of transportation and reticulation.	$[S_{2a} + S_{2b} + S_{2c} + S_{2d} + S_{2e}] \div \text{Col (3) Table 14}$
(79)	Pumping Cost Components - Total Sewage Pumping Cost (c/kL)	From special schedule No. 5.	$[S_{2c} + S_{2d} + S_{2e}] \times 100 \div [\text{Col (32) Table 15} \times 1000]$
(80)	Pumping Cost Components - Total Sewage Pumping Cost (\$'000/pumping station)	From special schedule No. 5.	$[S_{2c} + S_{2d} + S_{2e}] \div 1000 \div \text{Col (11) Table 14}$
(81)	Pumping Cost Components - Operation (\$'000/pumping station)	From special schedule No. 5.	$[S_{2c} \div 1000] \div \text{Col (11) Table 14}$
(82)	Pumping Cost Components - Maintenance (\$'000/pumping station)	From special schedule No. 5.	$[S_{2e} \div 1000] \div \text{Col (11) Table 14}$
(83)	Pumping Cost Components - Energy (\$'000/pumping station)	From special schedule No. 5.	$[S_{2d} \div 1000] \div \text{Col (11) Table 14}$
(85)	Sewer Main Cost Components - Total Sewer Main Cost (c/kL)	From special schedule No. 5.	$[S_{2a} + S_{2b}] \times 100 \div [\text{Col (32) Table 15} \times 1000]$
(86)	Sewer Main Cost Components - Total Sewer Main Cost (\$'000/100km)	From special schedule No. 5.	$[S_{2a} + S_{2b}] \div 1000 \div [\text{Col (8) Table 14} \div 100]$
(87)	Sewer Main Cost Components - Operation (\$'000/100km)	From special schedule No. 5.	$[S_{2a} \div 1000] \div [\text{Col (8) Table 14} \div 100]$
(88)	Sewer Main Cost Components - Maintenance (\$'000/100km)	From special schedule No. 5.	$[S_{2b} \div 1000] \div [\text{Col (8) Table 14} \div 100]$
(89)	Treatment Cost Components - Total Sewage Treatment Cost (c/kL)	From special schedule No. 5.	$[S_{2f} + S_{2g} + S_{2h} + S_{2i} + S_{2j} + S_{2k}] \div [10 \times \text{Col (32)}]$
(90)	Treatment Cost Components - Operation (\$/property)	From special schedule No. 5.	$[S_{2f}] \div \text{Col (3) Table 14}$
(91)	Treatment Cost Components - Maintenance (\$/property)	From special schedule No. 5.	$[S_{2k}] \div \text{Col (3) Table 14}$
(92)	Treatment Cost Components - Chemical (\$/property)	From special schedule No. 5.	$[S_{2g}] \div \text{Col (3) Table 14}$

### Notes:

- A. References to SB (eg. SB9) refer to questions in each LWU's Sewerage Performance Monitoring Database. Eg. refer to page 227.
- 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 section H2 on page 351.



# APPENDIX C: 2014-15 LOCAL WATER UTILITY TBL PERFORMANCE REPORTS

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

<b>Coffs Harbour City Council</b>	<b>TBL Water Supply Performance</b>	<b>2014-15</b>
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**WATER SUPPLY SYSTEM** - Coffs Harbour City Council serves a population of 71,300 (25,060 connected properties). Water is sourced from the Nymboida River (part of the Regional Water Supply which includes Shannon Creek Dam) and also from the Orara River. Water is transferred to Karangi Dam where it is treated and supplied to the Coffs Harbour area which stretches from Sawtell to Corindi. Council has 2 storage dams at Karangi and Woolgoolga (total storage capacity 5,870ML), not including the 30,000ML Shannon Creek Dam. Council has 2 smaller systems providing treated water to Coramba and Nana Glen villages. The water supply network comprises a dissolved air flotation treatment works, a conventional water treatment works and a chlorinator, 18 service reservoirs (88 ML), 7 pumping stations, 43 ML/d delivery capacity into the distribution system, 157 km of transfer and trunk mains and 478 km of reticulation. 95% of water supplied is potable and 5% nonpotable (recycled).

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

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

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

### TRIPLE BOTTOM LINE (TBL) PERFORMANCE INDICATORS

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

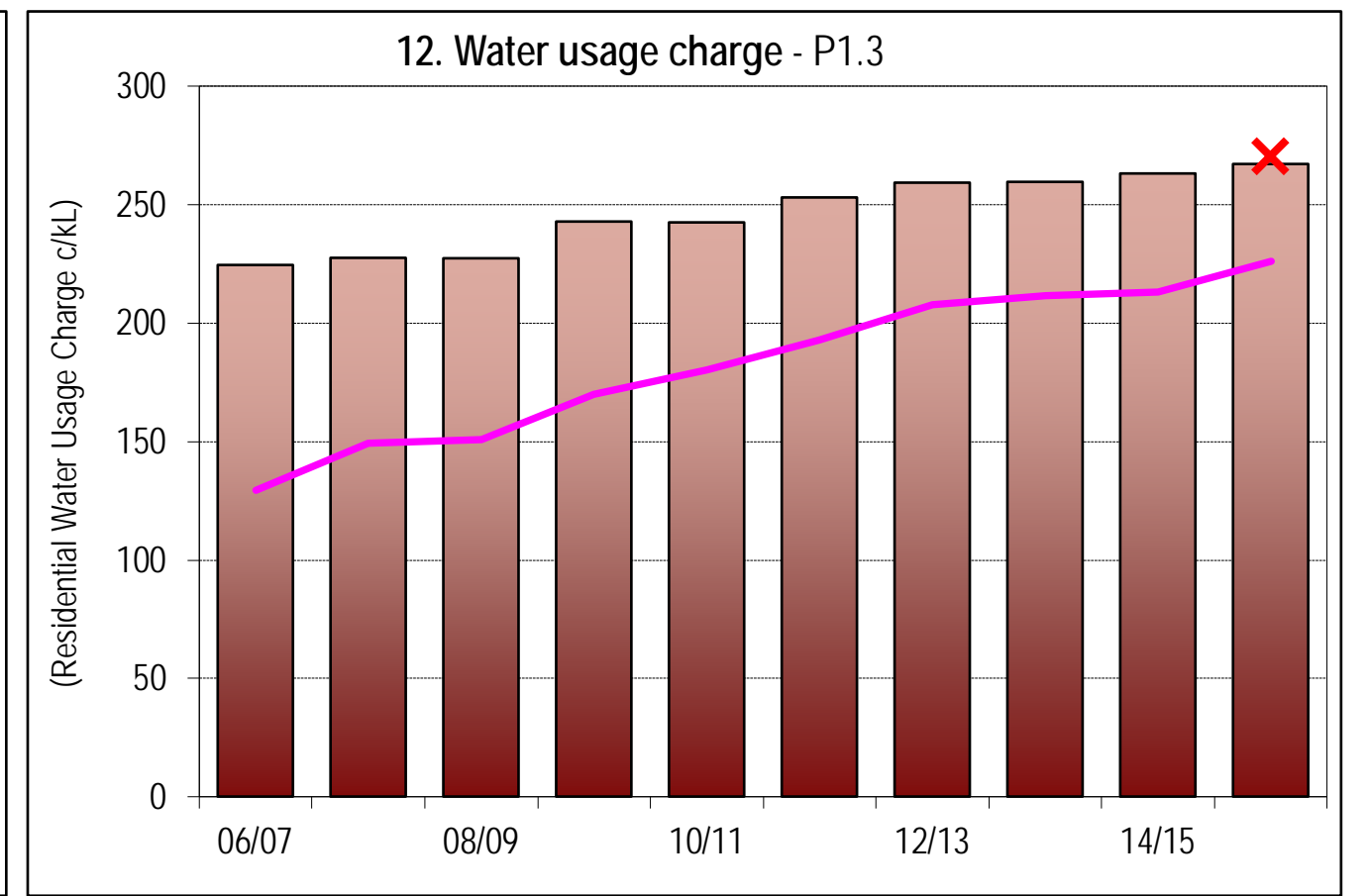
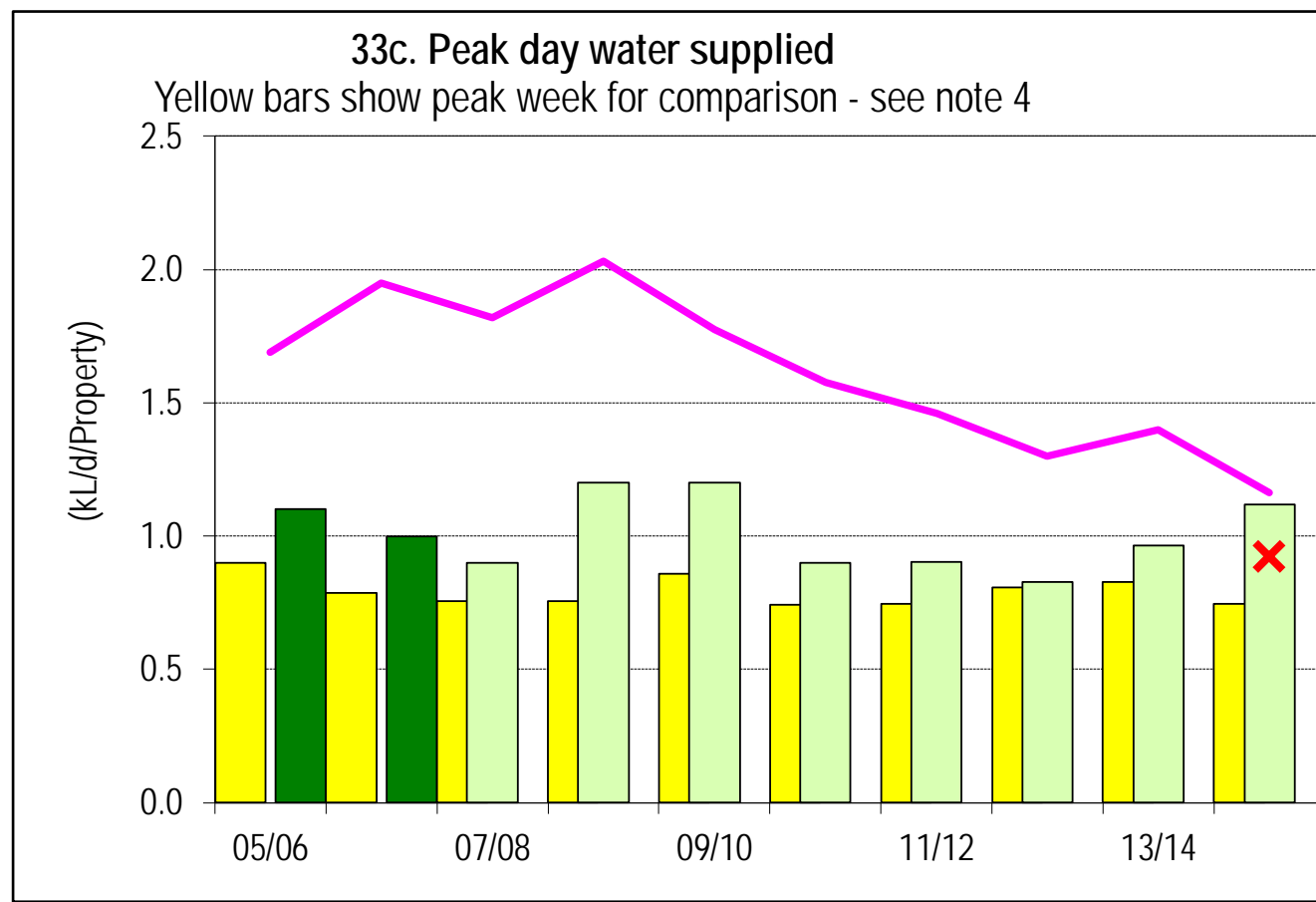
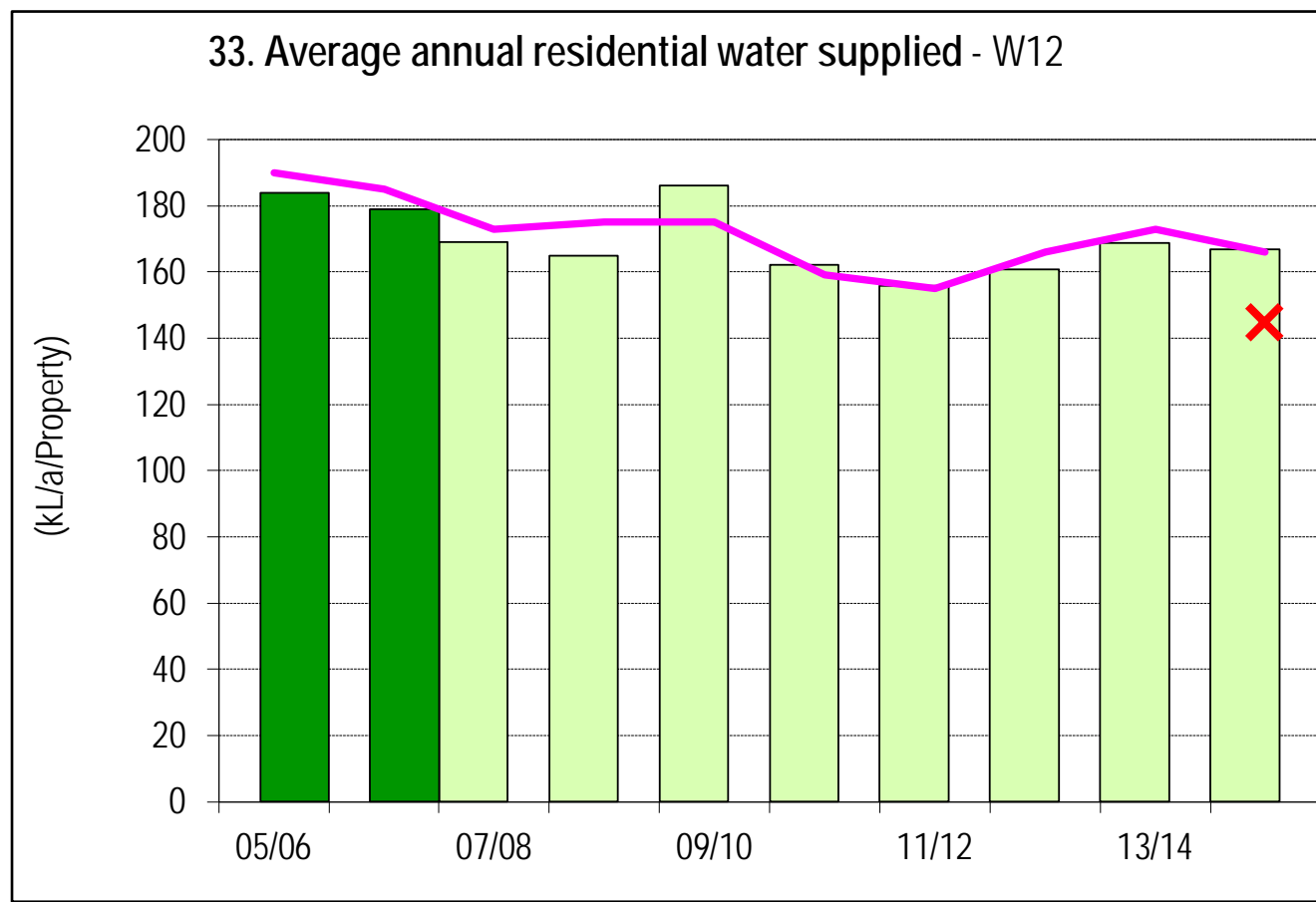
- NOTES:
- Col 2 rankings are on a % of LWUs basis - best reveals performance compared to similar sized LWUs (ie. Col 1 is compared with LWUs with >10,000 properties).
  - Col 3 rankings are on a % of LWUs basis - best reveals performance compared to all LWUs (ie. Col 1 is compared with all LWUs).
  - 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).
  - Col 5 (National Median) is the median value for the 76 utilities reporting water supply performance in the National Performance Report 2014-15 (www.bom.gov.au).
  - 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.
  - 2015-16 Non-residential Tariff: Access Charge based on Meter Size: 40mm \$572, Two Part Tariff: Usage Charge 267c/kL.
  - Non-residential water supplied was 25% of potable water supplied excluding non-revenue water.
  - Non-residential revenue was 24% of annual rates and charges, indicating fair pricing of services between the residential and non-residential sectors.
  - The operating cost (OMA) per property was \$395. Components were: management (\$153), operation (\$108), maintenance (\$104), energy (\$9) & chemical (\$17).
  - Rehabilitations included 0.3% of water mains, 0.14% of service connections and 5.8% of water meters. Renewals expenditure was \$12,000/100km of main.
  - Compliance with ADWG 2011 for drinking water quality is shown as "Yes" if compliance has been achieved (indicators 19, 19a & 20).
  - Coffs Harbour City Council has 3 fully qualified water treatment operators who meet the requirements of the National Certification Framework.
  - As Council's IWCM Strategy is over 6 years old, it will need to prepare a new 30-year IWCM Strategy, financial plan and report in accordance with the July 2014 IWCM Check List (www.water.nsw.gov.au).



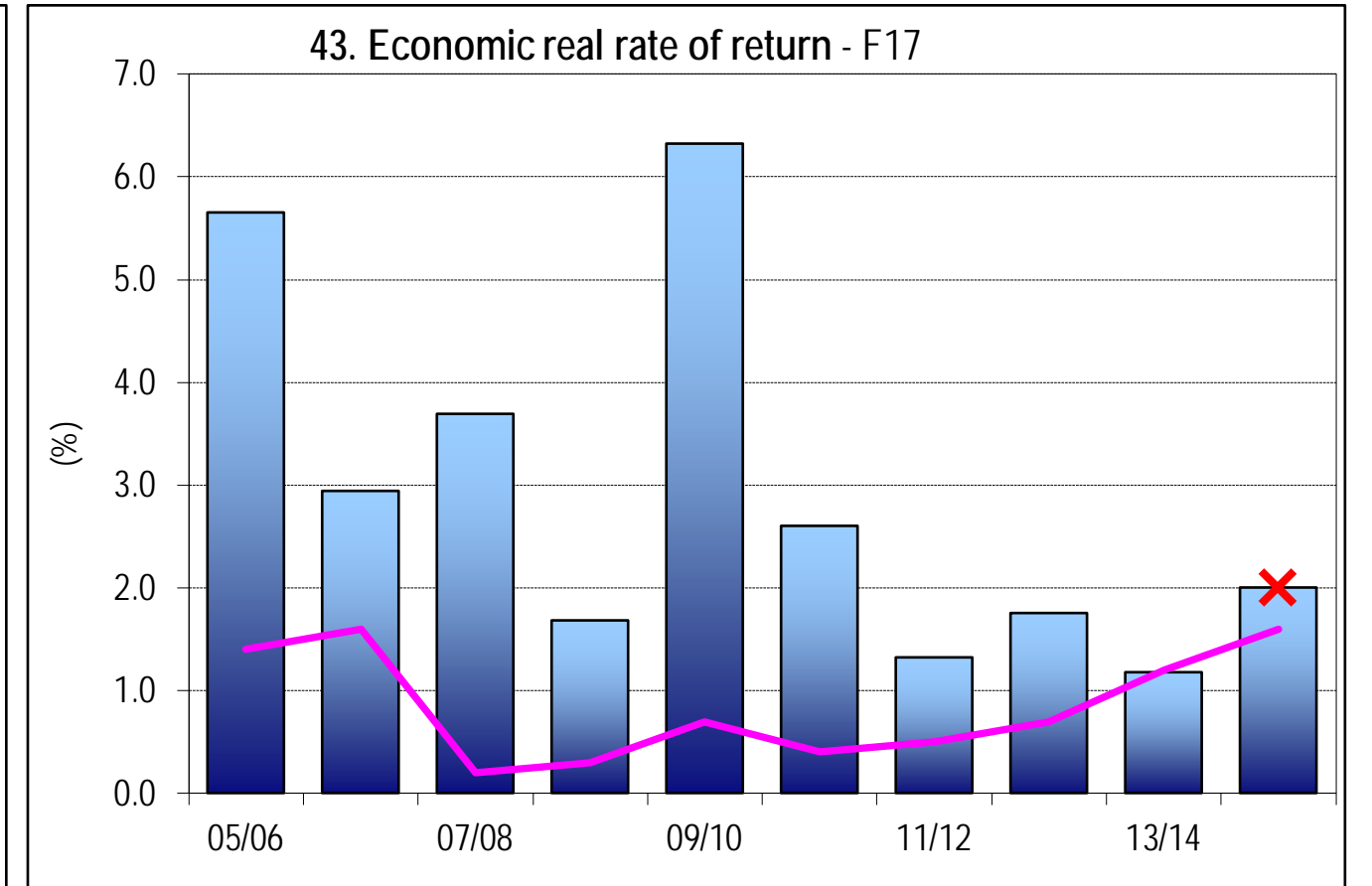
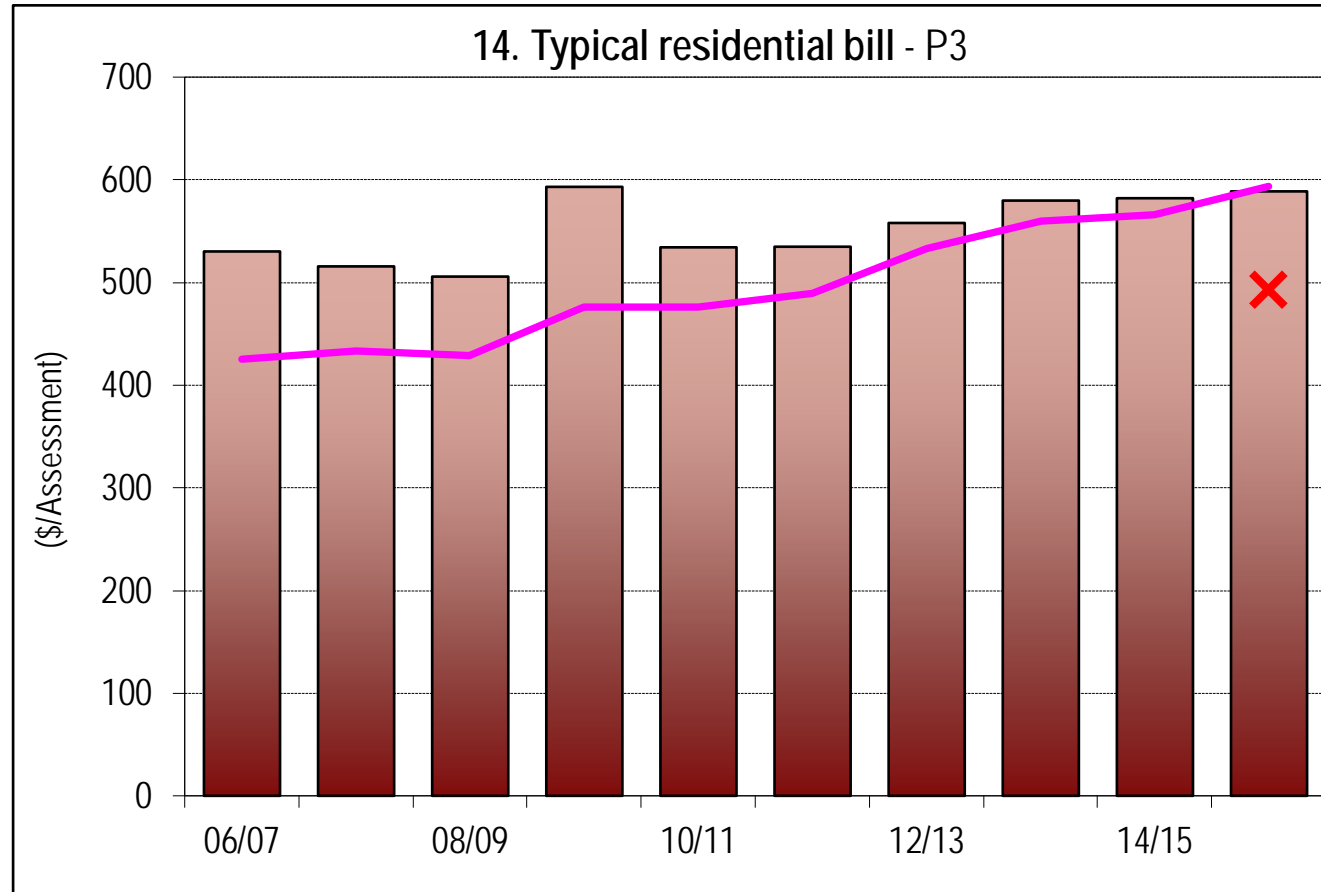
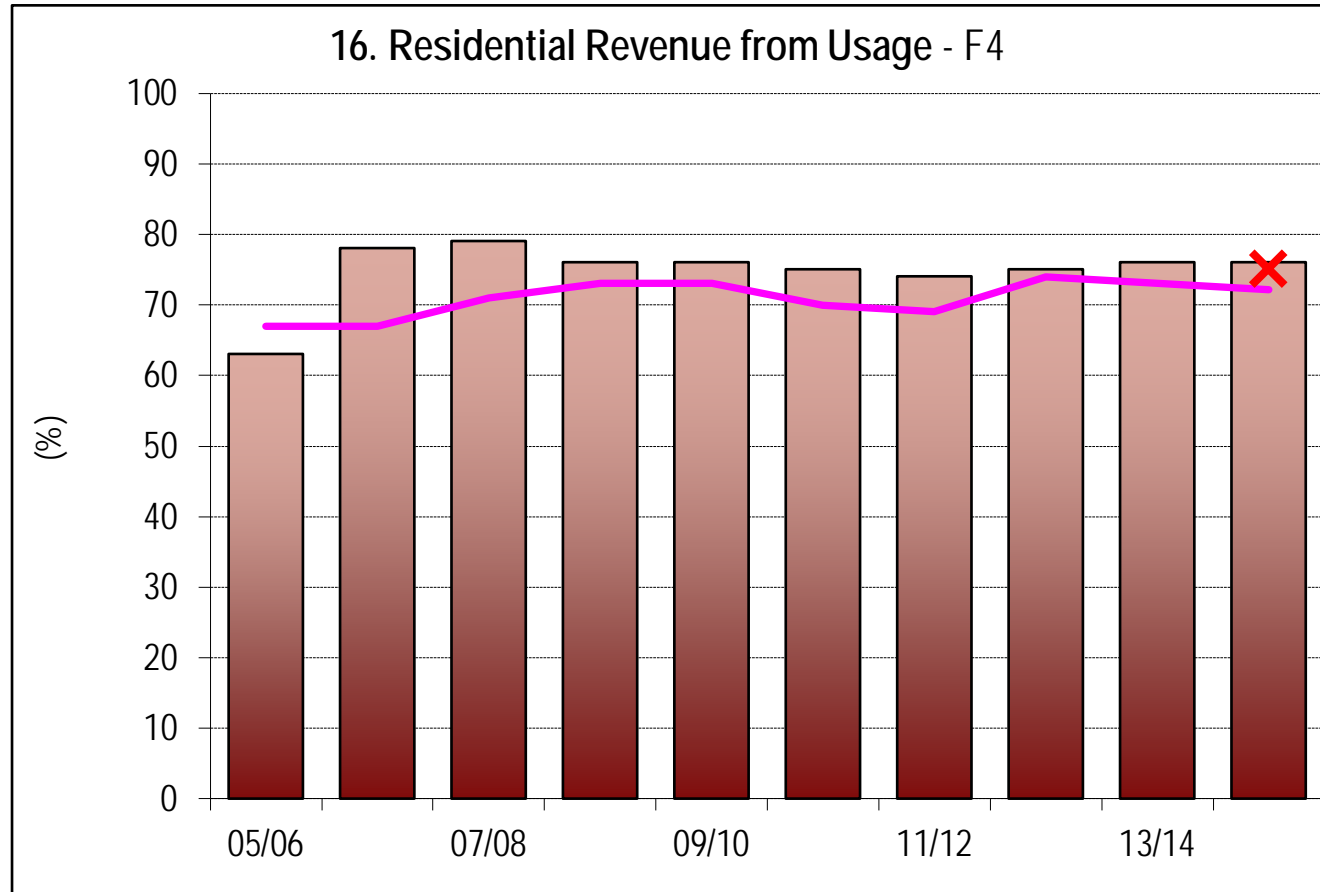
**Coffs Harbour City Council TBL Water Supply Performance (page 2) 2014-15**

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

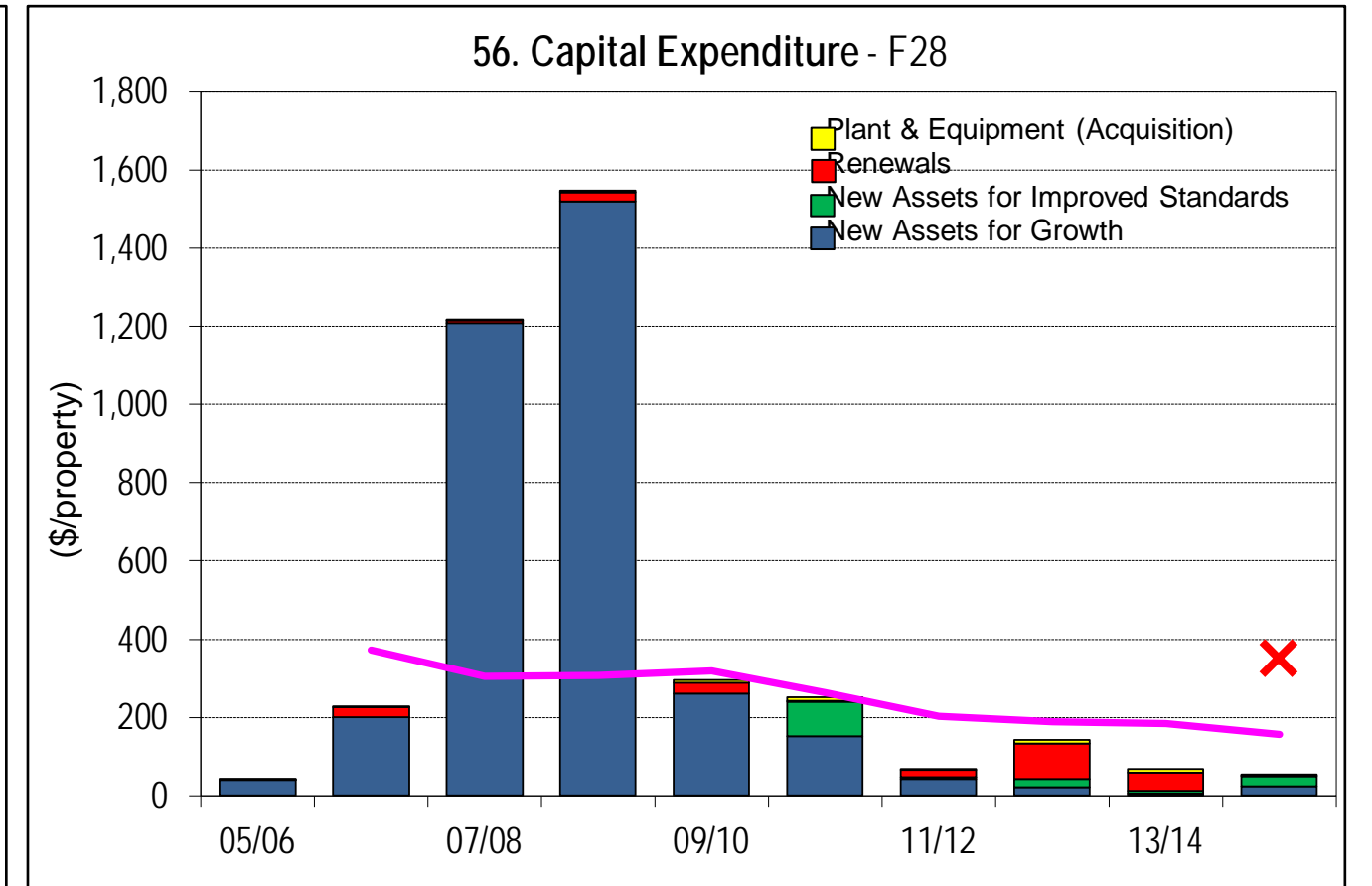
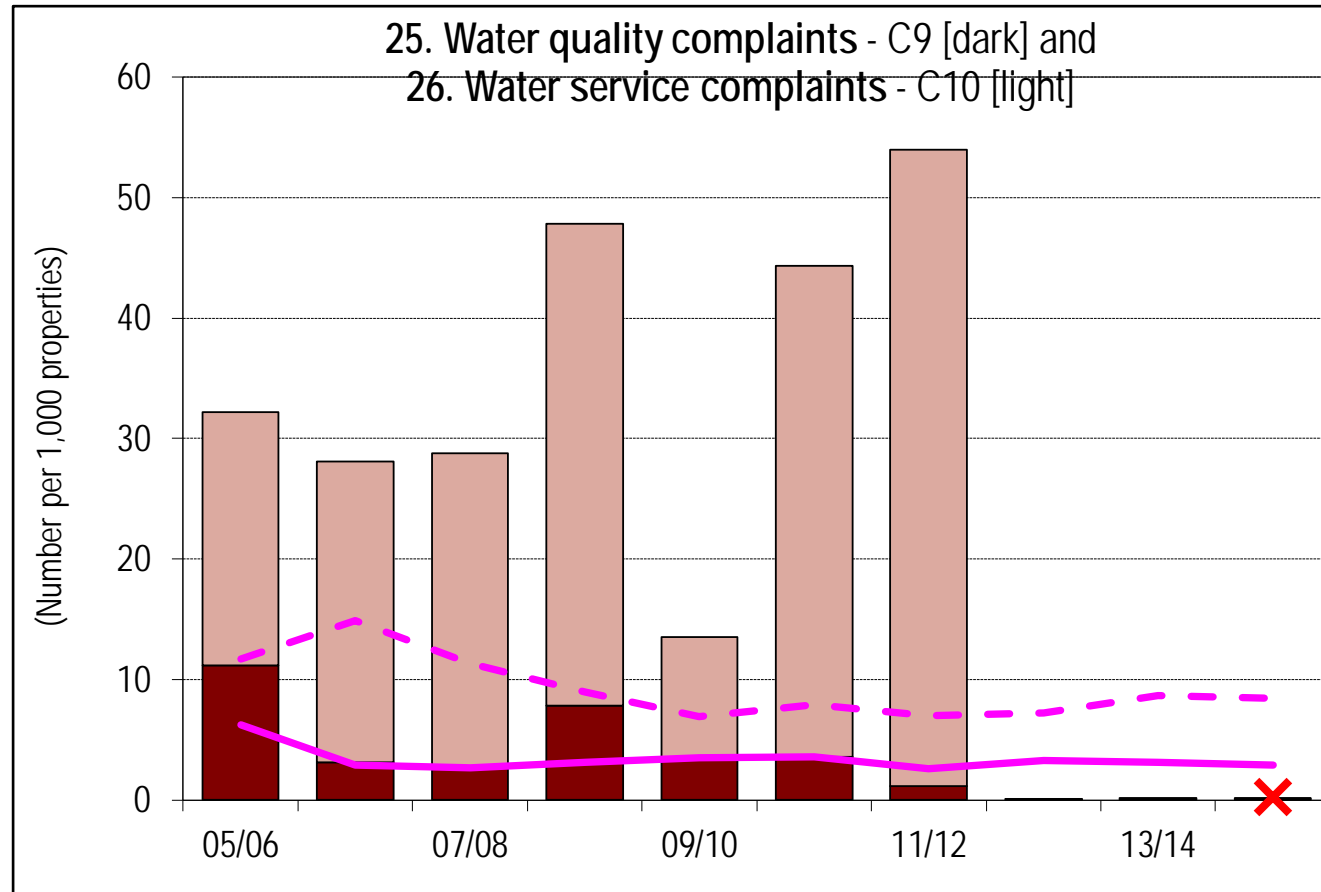
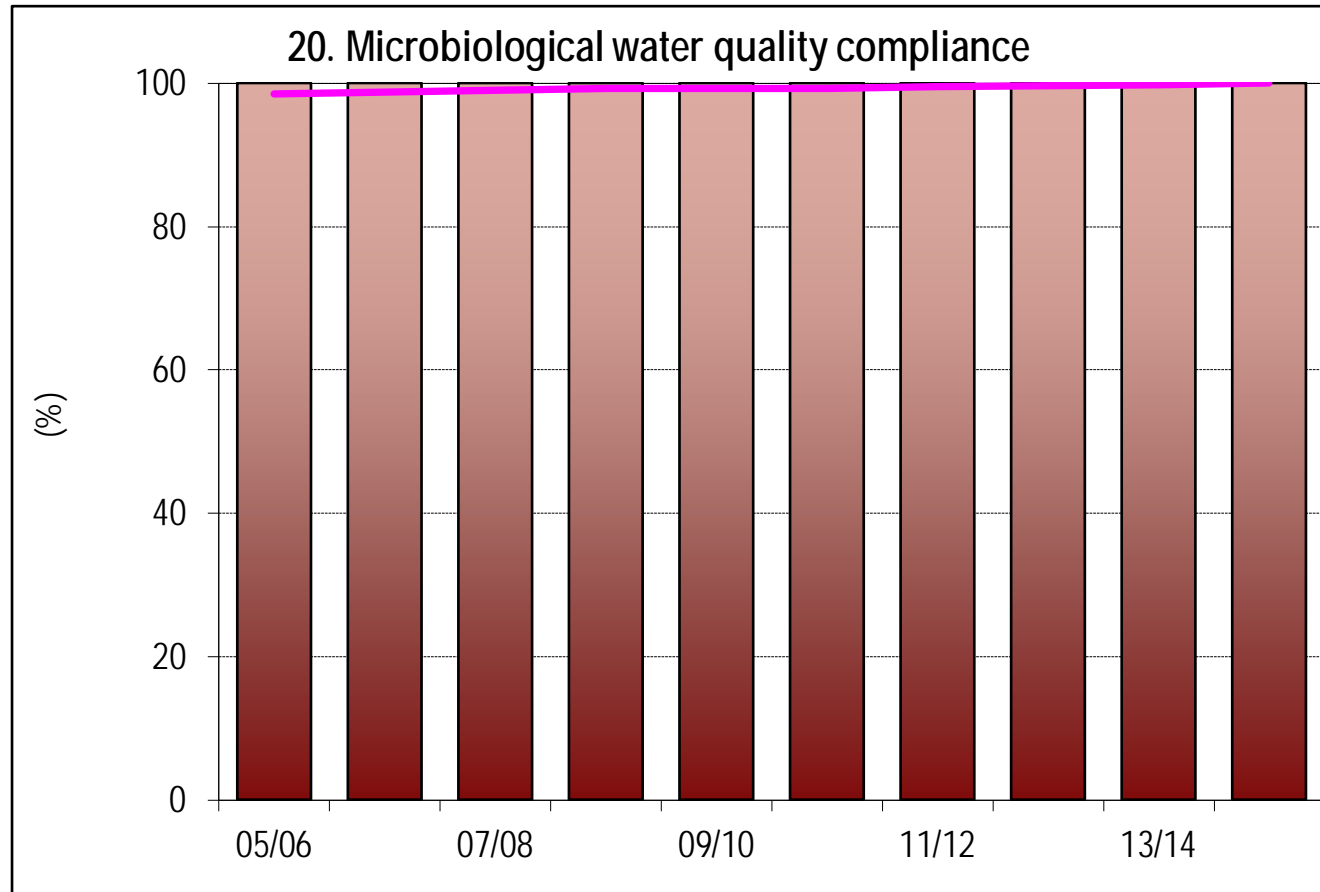
**RESIDENTIAL USE/REVENUE FROM USAGE**



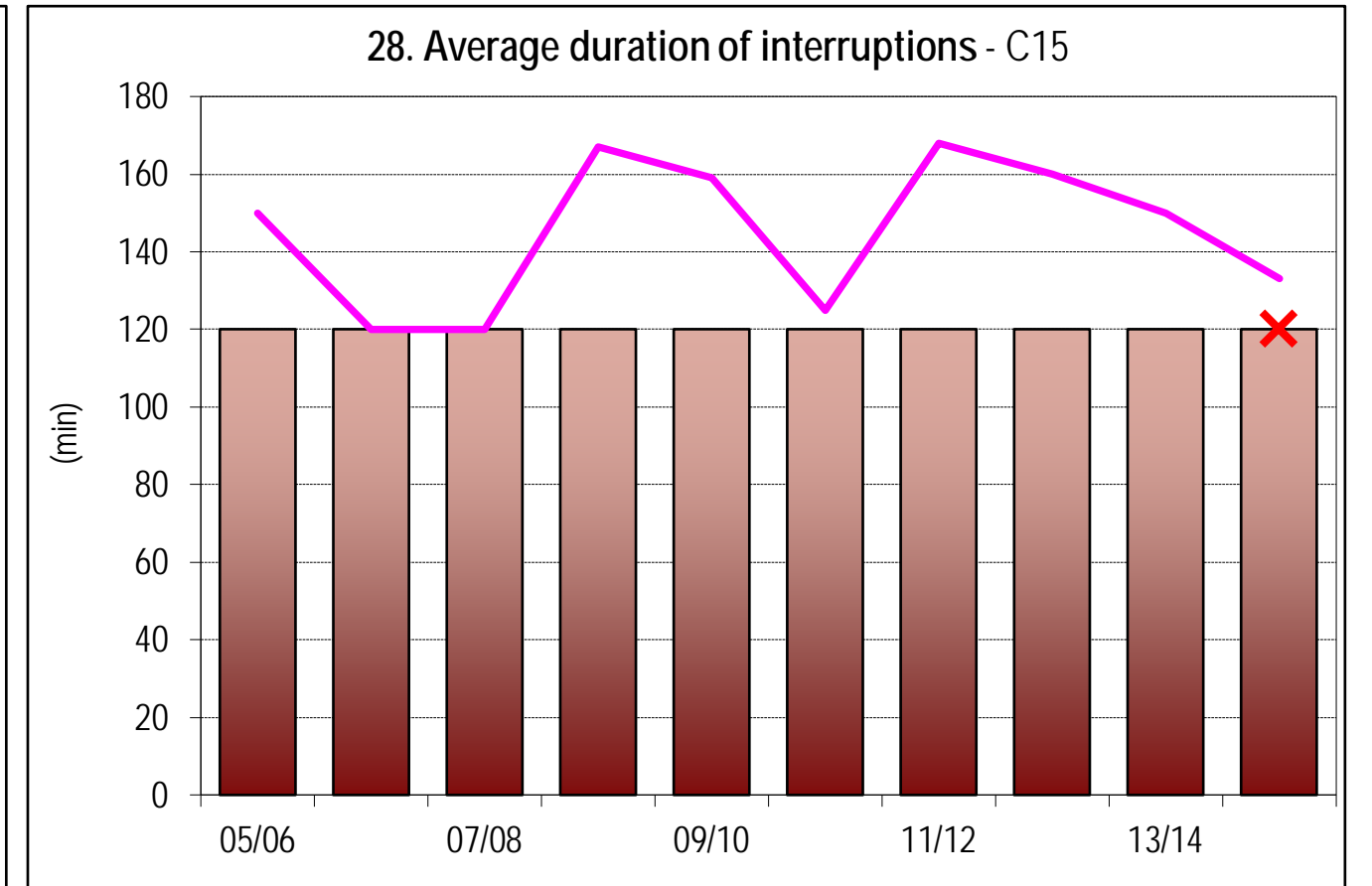
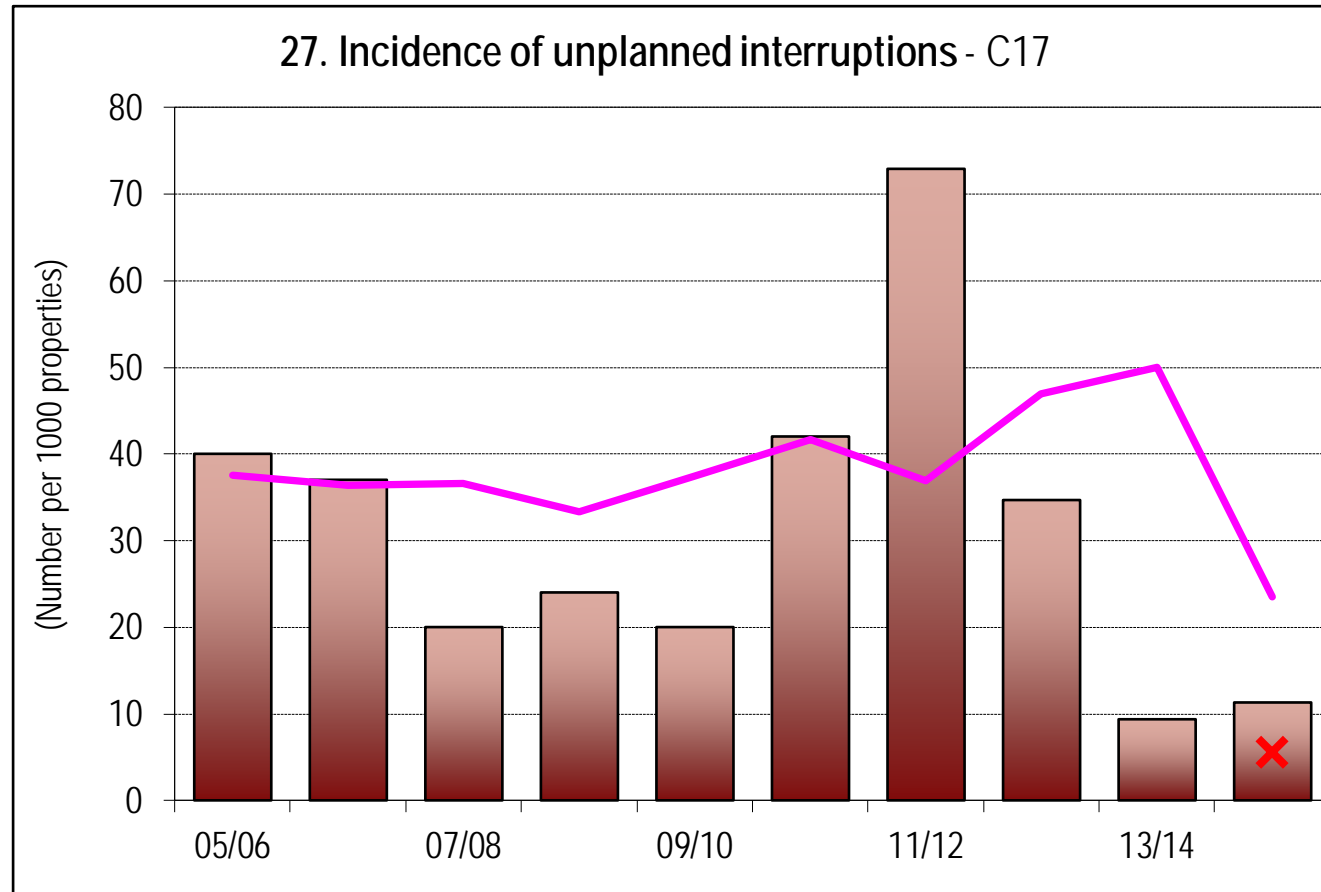
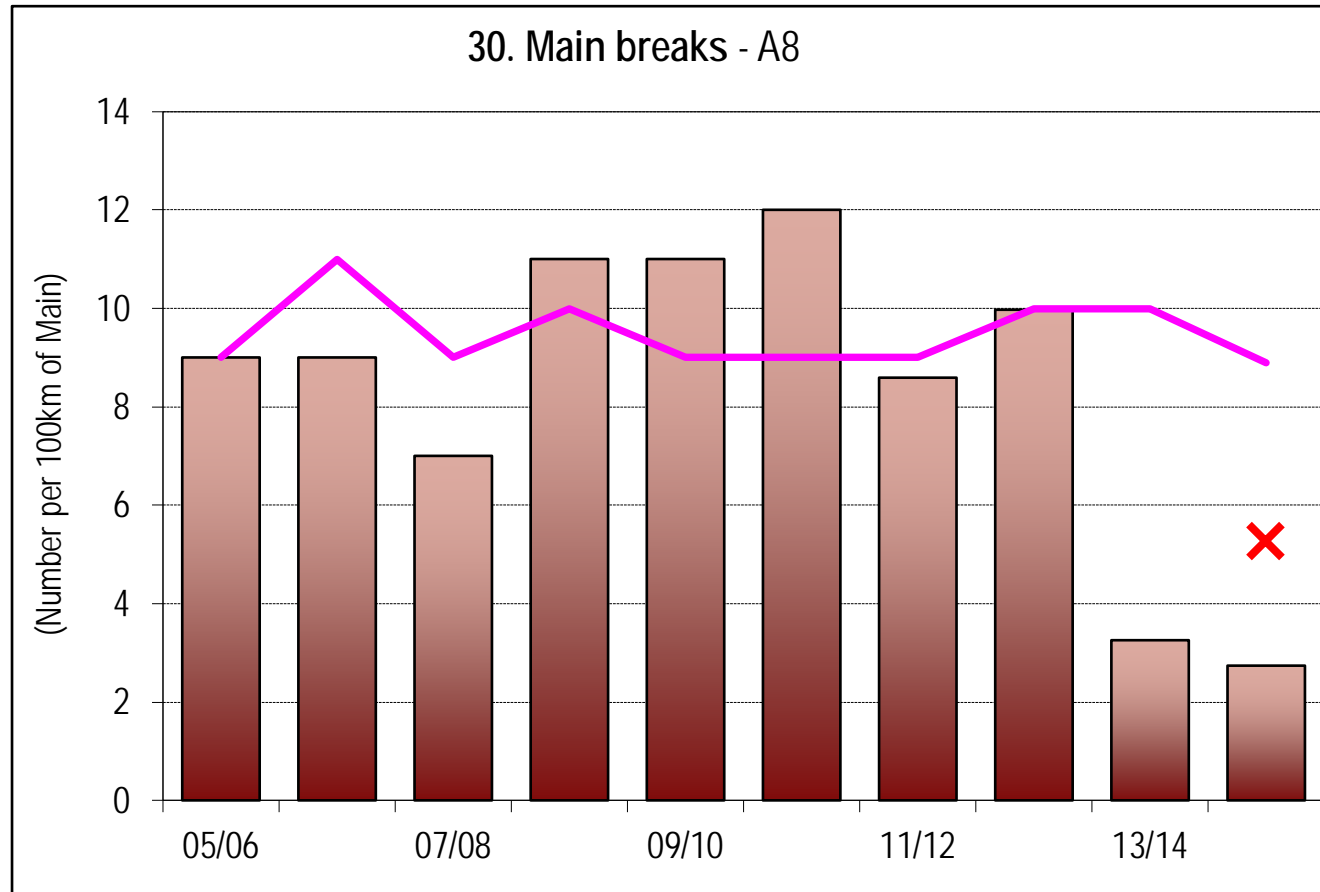
**COST RECOVERY**



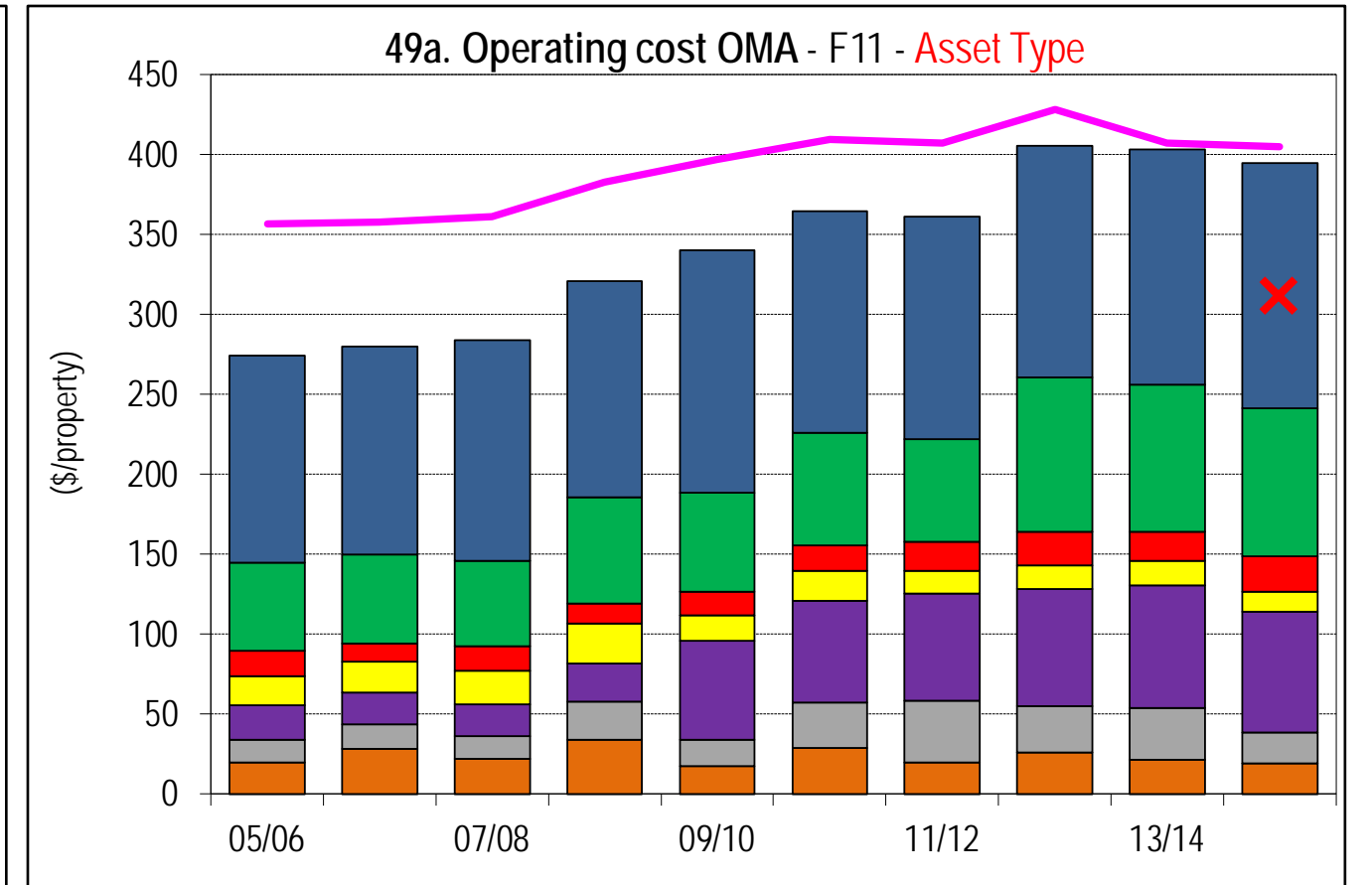
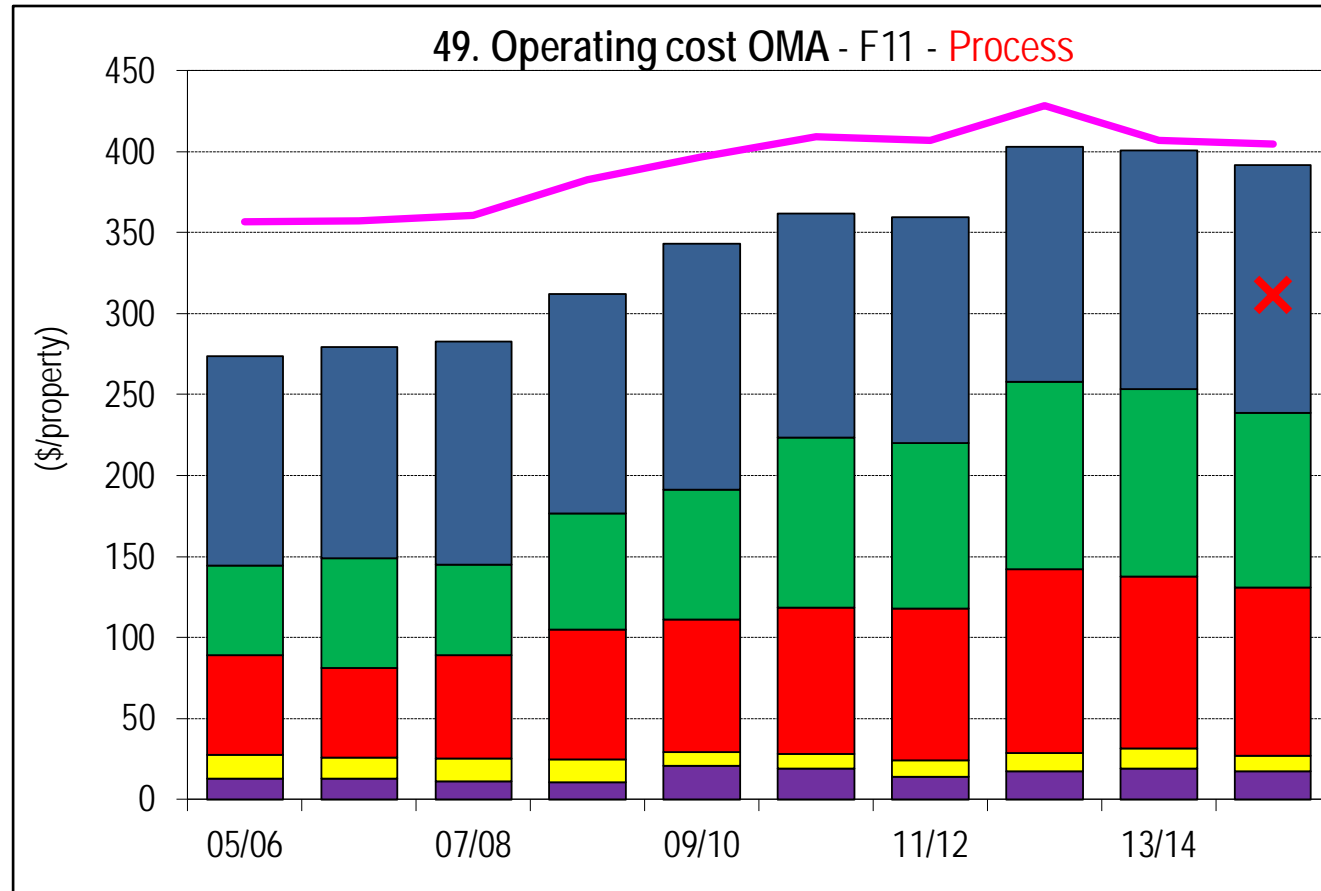
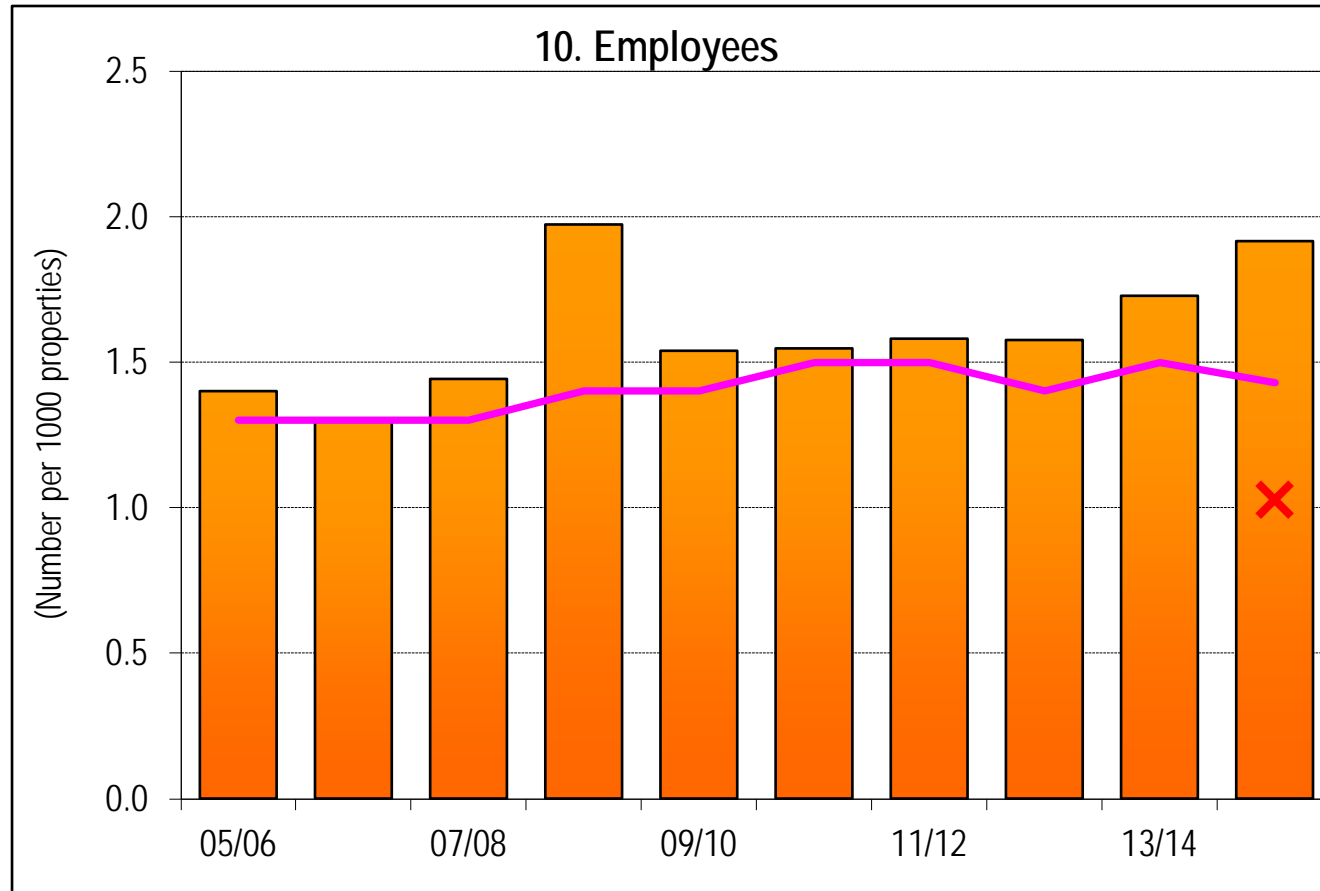
**WATER QUALITY/CUSTOMER SERVICE/CAPITAL EXPENDITURE**



**RELIABILITY**



**EFFICIENCY**



**NOTES:**

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

**LEGEND**

State Median for all years ———

Top 20% for 2014-15 X

0 - 30% (light green bar)

30-50% (medium green bar)

>50% of time (dark green bar)



Coffs Harbour City Council Sewerage TBL Report (Page 1)

**Coffs Harbour City Council TBL Sewerage Performance 2014-15**

SEWERAGE SYSTEM - Coffs Harbour City Council serves a population of 70,200 (23,710 connected properties) and has 5 sewage treatment works providing secondary, advanced secondary, tertiary and advanced tertiary treatment. The system comprises 114,500 EP treatment capacity (Intermittent and Continuous Extended Aeration (Activated Sludge) and Biological Nutrient Removal), 117 pumping stations, 188 km of rising mains and 513 km of gravity trunk mains and reticulation. 14% of effluent was recycled (Indicator 27).

PERFORMANCE - Residential growth for 2014-15 was 1.3% which is higher than the statewide median. Coffs Harbour City Council achieved 100% implementation of the outcomes required by the NSW BPM Framework. The 2015-16 typical residential bill was \$806 which was above the statewide median of \$697 (Indicator 12). The economic real rate of return was 0.1% which was less than the statewide median (Indicator 46). The operating cost per property (OMA) was \$619 which was well above the statewide median of \$420 (Indicator 50). Sewage odour complaints were less than the statewide median of 0.8 (Indicator 21). Coffs Harbour Council reported 5 Category 2 (limited impact) environmental incidents. Council complied with the requirements of the environmental regulator for effluent discharge. The current replacement cost of system assets was \$659M (\$25,800 per assessment), cash and investments were \$48M, debt was \$93M and revenue was \$28.6M (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 <sup>11</sup>	(2e) Pricing - DSP with commercial developer charges	Yes
(2) (2a) Pricing - Full Cost Recovery without significant cross subsidia	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	YESC <sup>11</sup>
(2d) Pricing - Appropriate Trade Waste Fees and Charges	Yes	<b>IMPLEMENTATION OF ALL OUTCOMES</b>	<b>100%</b>

TRIPLE BOTTOM LINE (TBL) PERFORMANCE INDICATORS

Category	NW I	No.	Description	Unit	LWU RESULT	RANKING			MEDIANS	
						>10,000 properties	All LWUs	Statewide	National	
					Col 1	Note 1	Note 2	Note 3	Note 4	
UTILITY	CHARACTERISTICS	C5	1 Population served: 70,200							
		C8	2 Number of connected properties: 23,710	Number of assessments: 25,500						
		C6	3 Number of residential connected properties: 22,200							
			4 New residences connected to sewerage (%)	%	1.3	3	2	1.0		
		A6	5 Properties served per kilometre of main	Prop/km	34			38	40	
		W18	6 Volume of sewage collected (ML)	ML	7,360			5,200	5,640	
			7 Renewals expenditure (% of current replacement cost of system assets)	%	0.0	5	5	0.5		
			8 Employees per 1000 properties	per 1,000 prop	1.9	3	3	1.6		
SOCIAL	CHARGES & BILLS	P4	Description of residential tariff structure: access charge/prop; independent of land value							
		P4.1	11a Residential access charge for 2014-15 (\$/assessment)	\$	2014-15	806	4	5	669	620
			11 Residential access charge for 2015-16 (\$/assessment)	\$	2015-16	806	4	5	697	
		P6	12a Typical residential bill for 2014-15 (\$/assessment)	\$	2014-15	806	4	5	669	667
			12 Typical residential bill for 2015-16 (\$/assessment)	\$	2015-16	806	4	5	697	
		13 Typical developer charge for 2015-16 (\$/equivalent tenement)	\$	2015-16	9,690	1	1	5,100		
		14 Non-residential sewer usage charge (c/kL)	c/kL	209	2	2	150			
	F6	15 Revenue per property - Sge (\$)	\$/prop	1210	1	1	882	947		
	HEALTH		16 Sewerage Coverage (% of Urban Population with Reticulated Sge Service)	%	97.9	3	2	97.9		
		E3	17 Percent of sewage treated to a tertiary level (%)	%	100	2	3	97	91	
			18 Percent of sewage volume treated that was compliant (%)	%	100	1	1	100		
			19 Number of sewage treatment works compliant at all times		5 of 5					
	SERVICE LEVELS		21 Odour complaints per 1000 properties	per 1,000 prop	0.3	2	3	0.8		
		C11	22 Service complaints - sewerage per 1000 properties	per 1,000 prop	0.3	1	1	6	1	
		C16	23a Average sewerage interruption (minutes)	min	95	3	3	95	102	
		25 Total days lost (%)	%	6.6	5	5	3.1			
ENVIRONMENTAL		NATURAL RESOURCE MANAGEMENT	W19	26 Volume of sewage collected per property (kL)	kL/prop	310	5	5	238	214
			W26	26a Total recycled water supplied (ML)	ML	1,010	2	1	520	1,580
	W27		27 Recycled water (% of effluent recycled)	%	14	3	3	10	15	
	E8		28 Biosolids reuse (%)	%	100	1	1	100	100	
		30 Energy consumption - sewerage (kWh/ML)	kWh/ML	1,066	4	5	790			
		31 Renewable energy consumption (% of total energy consumption)	%	0	2	1	0			
	E12	32 Net greenhouse gas emissions - WS & Sge (net tonnes CO2 equivalents per 1000 properties)	t CO2	490	5	5	410	393		
ENVIRONMENTAL PERFORMANCE		33 90 <sup>th</sup> 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 100 km of main)	per 100km main	89	5	5	35	17		
	37a Sewer overflows (per 100 km of main)	per 100km main	7	3	4	10				
E13	37b Sewer overflows reported to environmental regulator (per 100km of main)	per 100km main	3.0	5	5	0.9	0.5			
	39 Non res & trade waste % of total sge volume	%				20				
ECONOMIC	FINANCE		43 Revenue from non-residential plus trade waste charges (% of total revenue)	%	21	2	2	18		
			44 Revenue from trade waste charges (% of total revenue)	%	1.8	3	2	2.0		
		F18	46 Economic real rate of return - Sge (%)	%	0.1	5	4	1.7	3.0	
			46a Return on assets - Sge (%)	%	-0.8	5	5	1.3		
			48a Loan payment per property - Sge (\$)	\$/prop	650	1	1	110		
	F24	48b Net profit after tax - WS & Sge (\$'000)	\$'000	-3,274	5	5	2,340	7,120		
	EFFICIENCY		49 Operating cost (OMA) per 100 km of main (\$'000)	\$'000	2,100	5	5	1,720		
		F12	50 Operating cost (OMA) per property (\$) (Note 9)	\$/prop	619	5	5	420	400	
			51 Operating cost (OMA) per kL (cents)	c/kL	199	4	3	193		
			52 Management cost per property (\$)	\$/prop	201	5	5	160		
		53 Treatment cost per property (\$)	\$/prop	208	5	5	145			
	54 Pumping cost per property (\$)	\$/prop	123	5	5	72				
	55 Energy cost per property (\$)	\$/prop	78	5	5	37				
	56 Sewer main cost per property (\$)	\$/prop	72	5	4	51				
F29	57 Capital Expenditure per property - Sewerage (\$)	\$/prop	530	1	1	204	217			

NOTES :

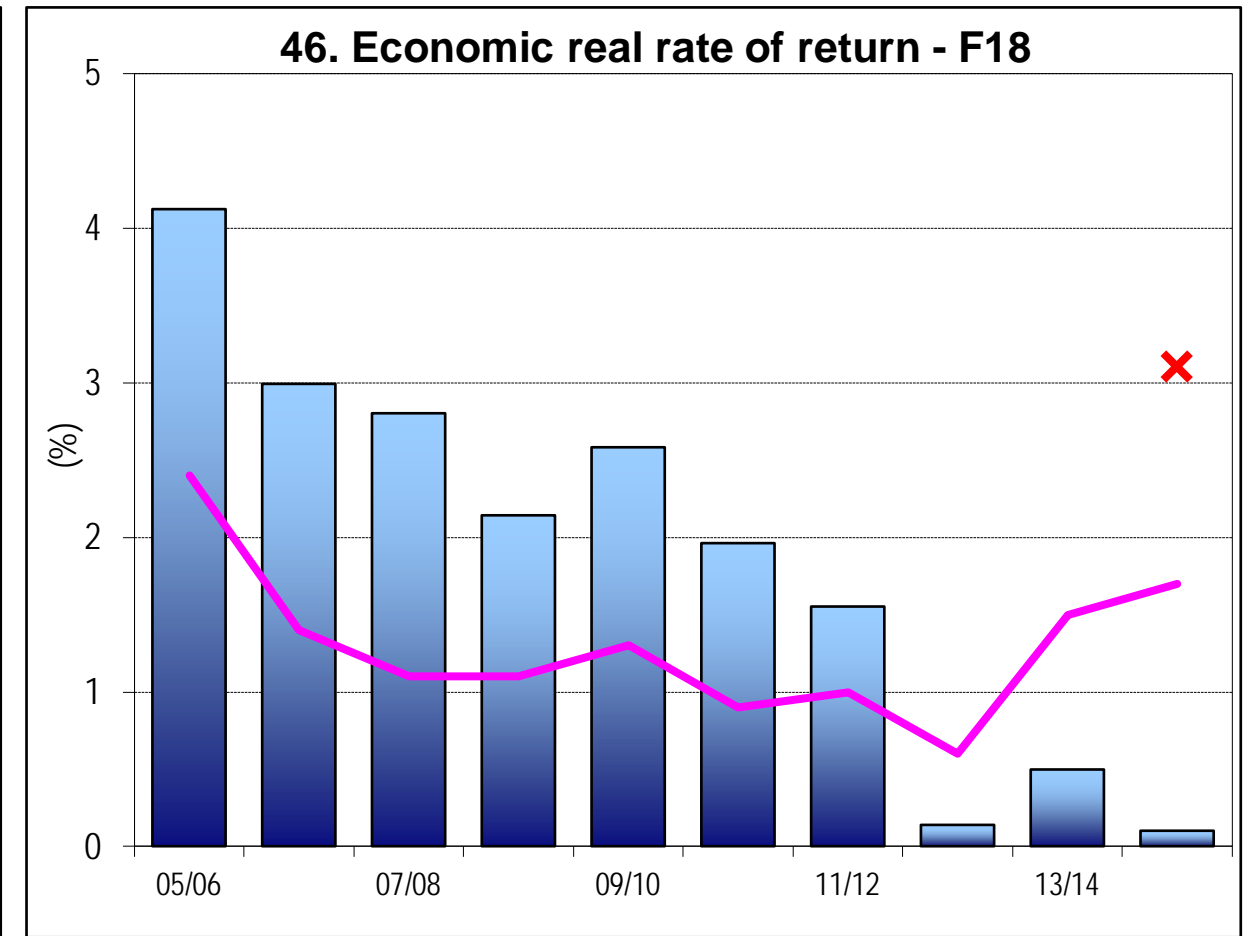
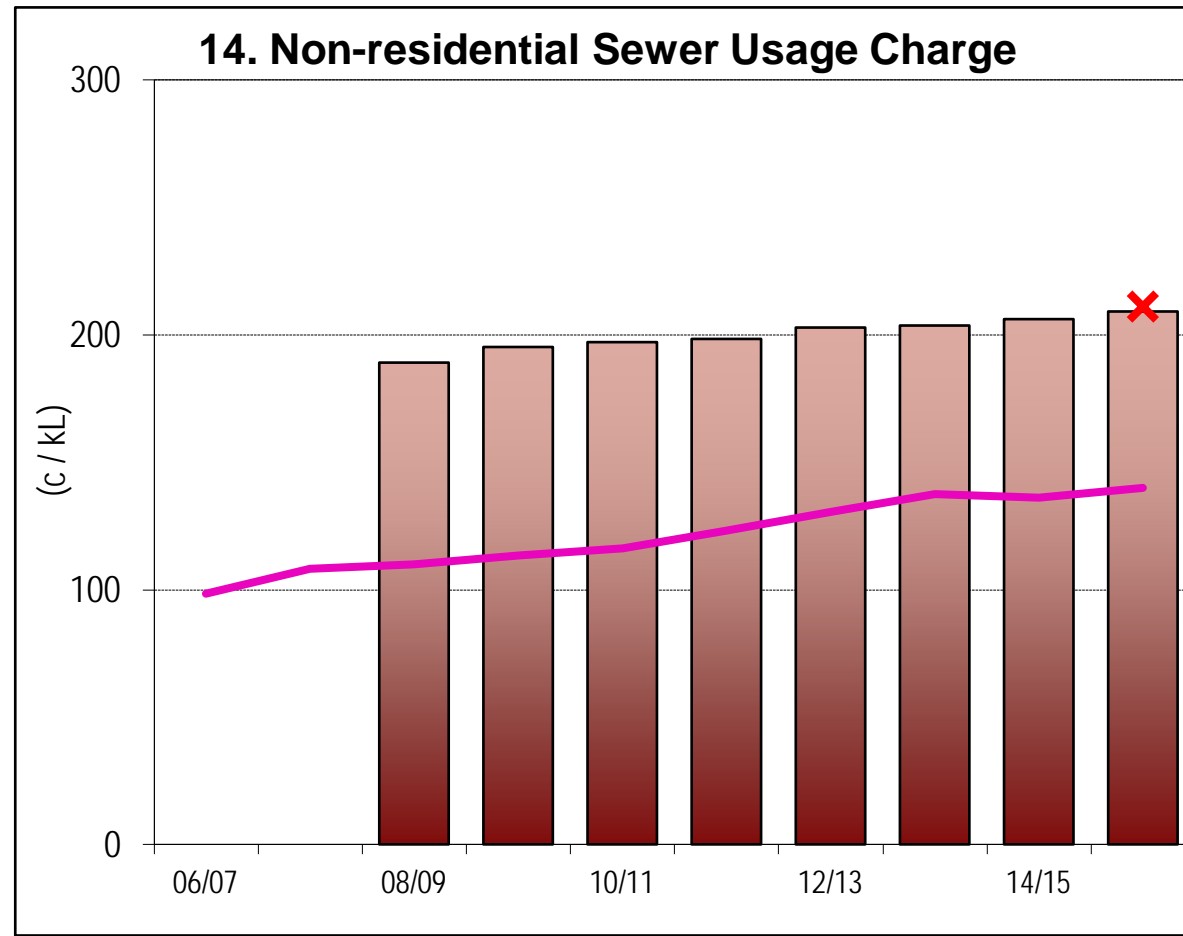
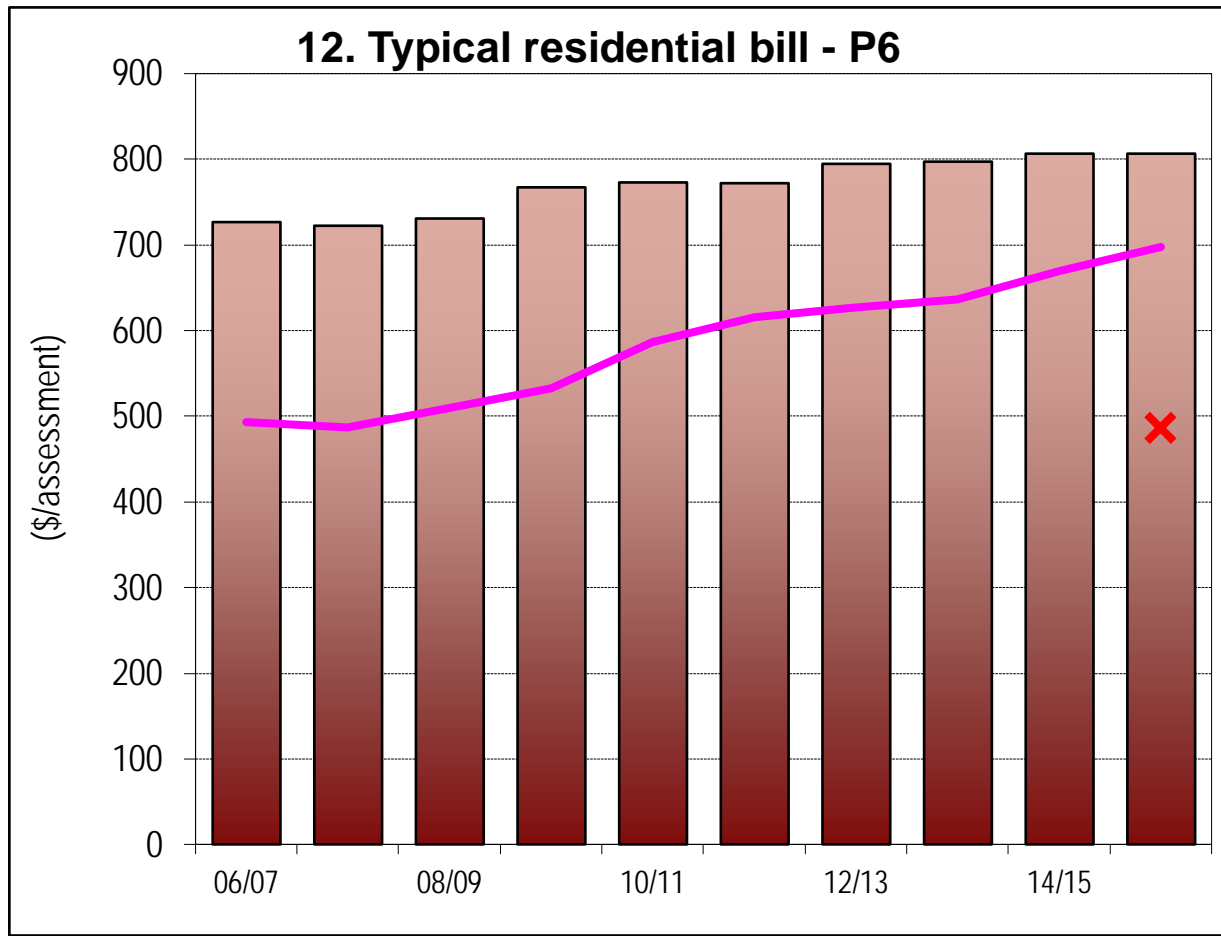
- Col 2 rankings are on a % of LWUs basis - best reveals performance compared to similar sized LWUs (ie. Col 1 is compared with LWUs with >10,000 properties).
- Col 3 rankings are on a % of LWUs basis - best reveals performance compared to all LWUs (ie. Col 1 is compared with all LWUs). - see attachment.
- 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).
- Col 5 (National Median) is the median value for the 75 utilities reporting sewerage performance in the National Performance Report 2014-15 (www.bom.gov.au).
- 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.
- Non-residential access charge - \$789 x MF x SDF (MF - meter factor = [water meter size (mm)/20]<sup>2</sup> SDF - sewage discharge factor). Sewer usage charge - 209 c/kL.
- Non-residential revenue was 21% of revenue from access, usage & trade waste charges. The sewage collected (residential, non-residential & trade waste) was not reported.
- Compliance with Total N in Licence was 100%. Compliance with Total P in Licence was 100%.
- Operating cost (OMA)/property was \$619. Components were: management (\$201), operation (\$122), maintenance (\$149), energy (\$78), chemical (\$15) & effluent/biosolids (\$55).
- Coffs Harbour City Council rehabilitations included 0.7% of its sewerage mains and 0.2% of its service connections. Renewals expenditure was \$23,000/100km of main.
- As Council's IWCM Strategy is over 6 years old, it will need to prepare a new 30-year IWCM Strategy, financial plan & report in accordance with the July 2014 IWCM Check List (www.water.nsw.gov.au).
- Council has 5 fully qualified wastewater treatment operators who meet the NSW Certification requirements. 93% of employees received 2 or more days of training.



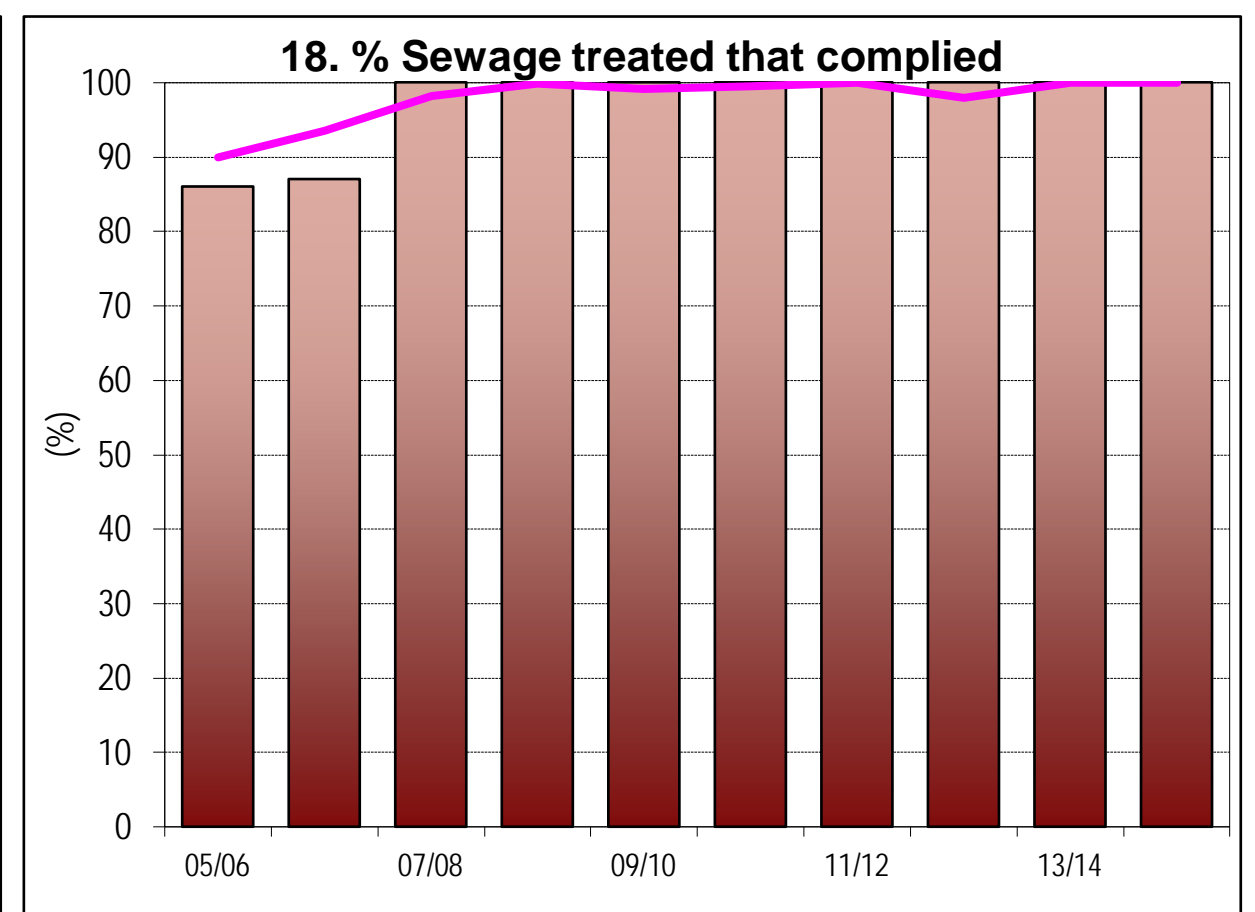
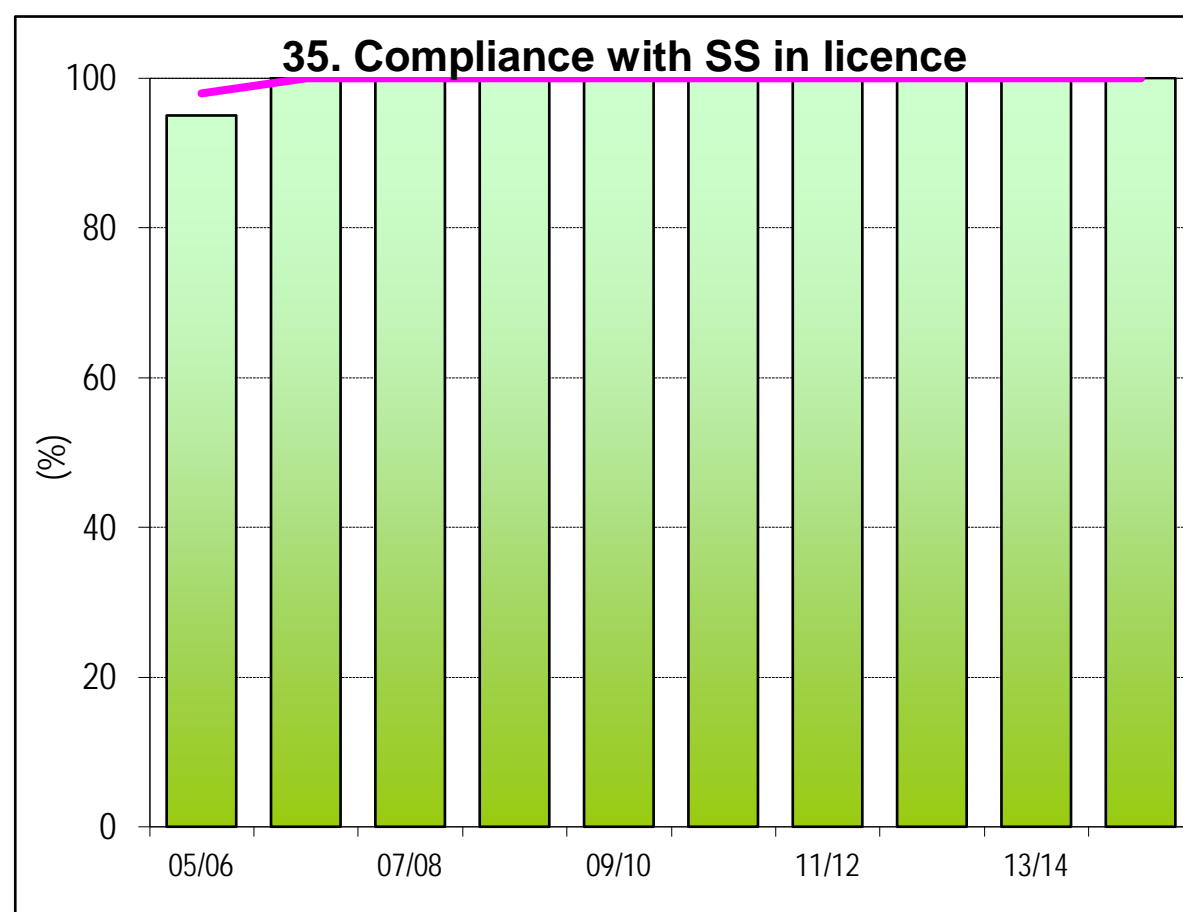
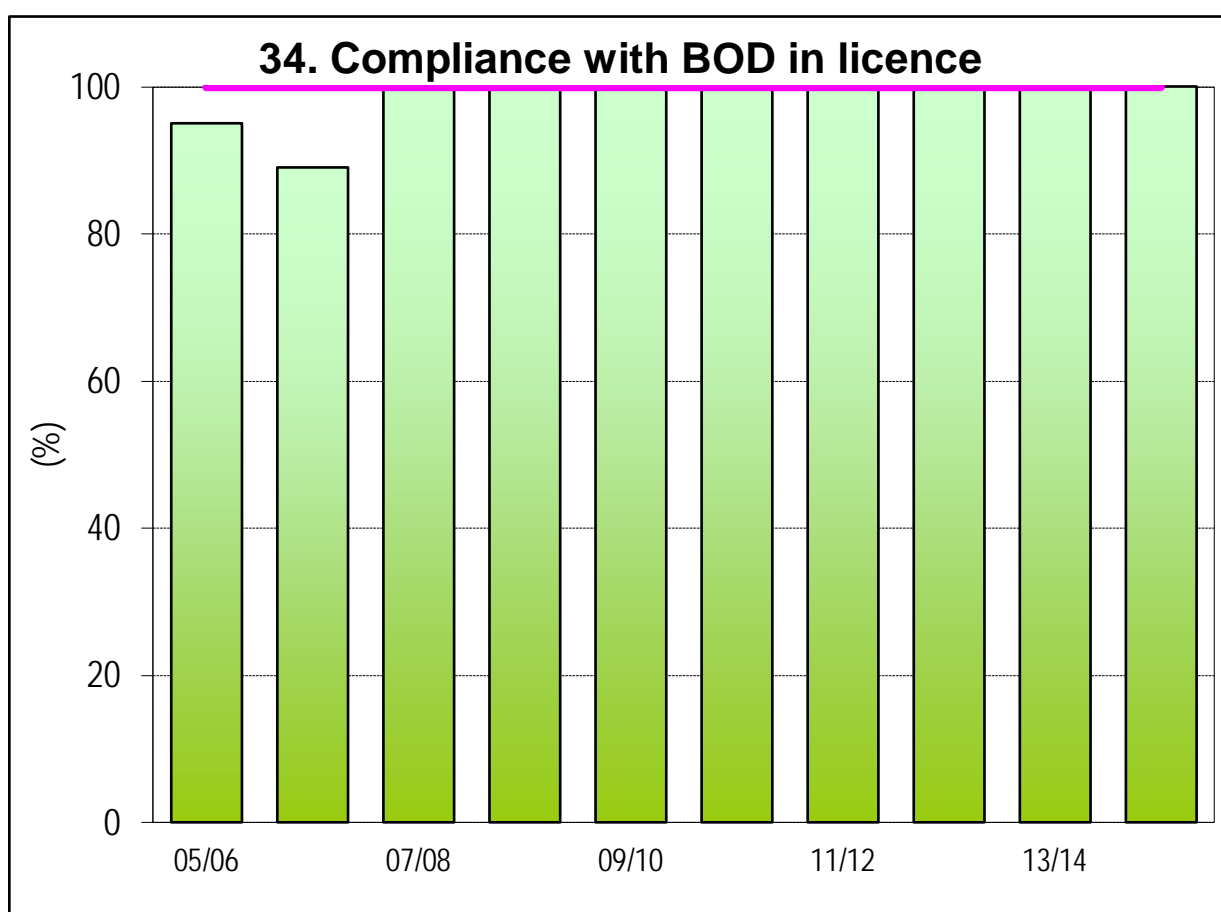
**Coffs Harbour City Council TBL Sewerage Performance (page 2) 2014-15**

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

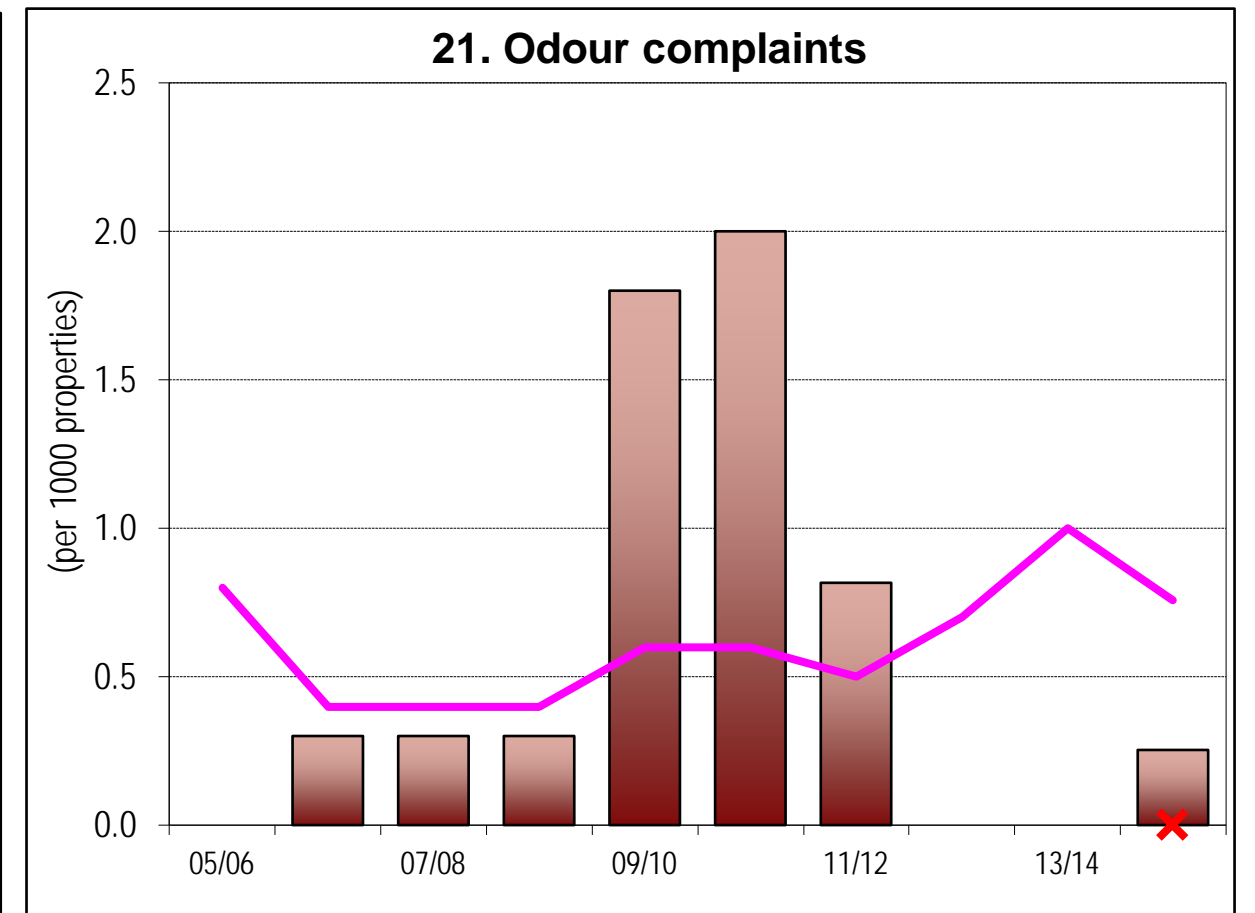
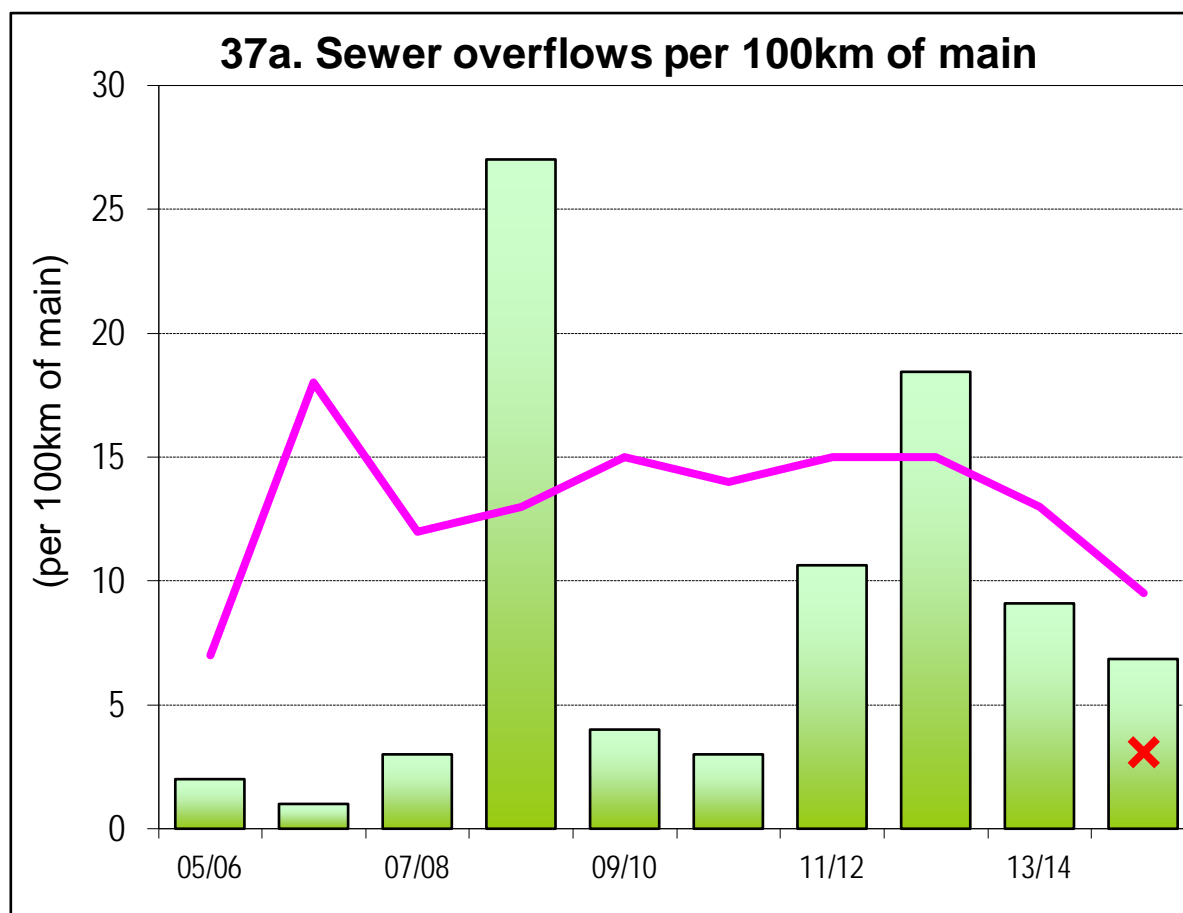
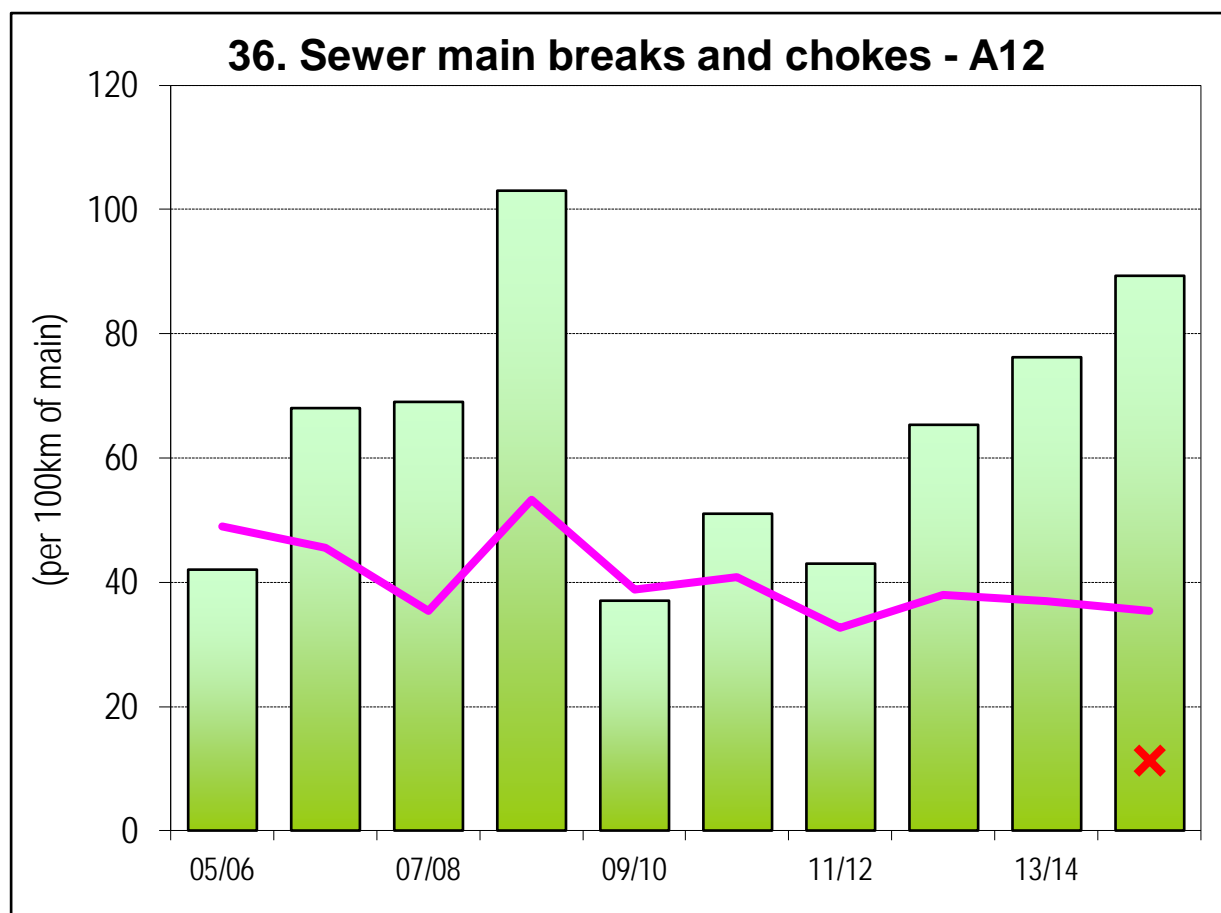
**COST RECOVERY**



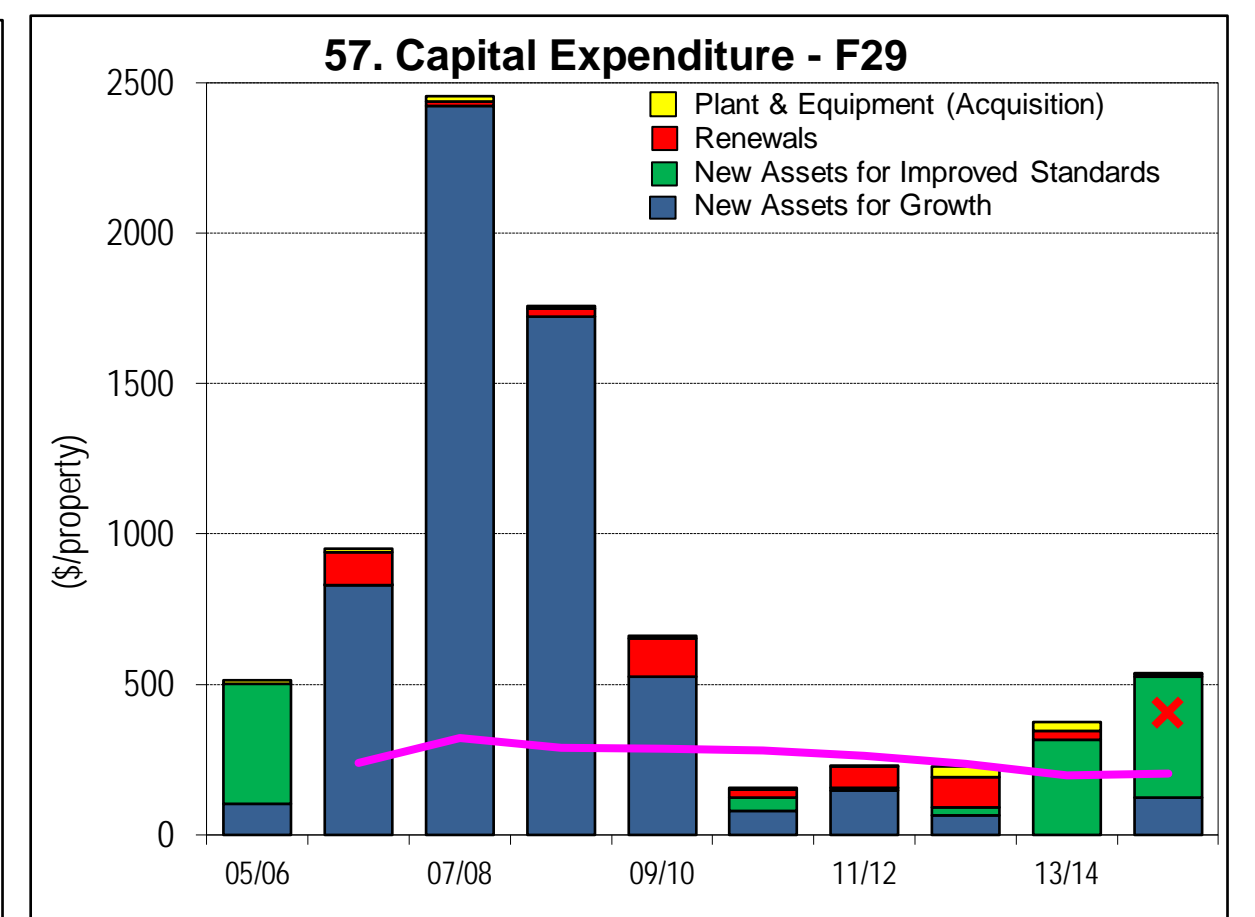
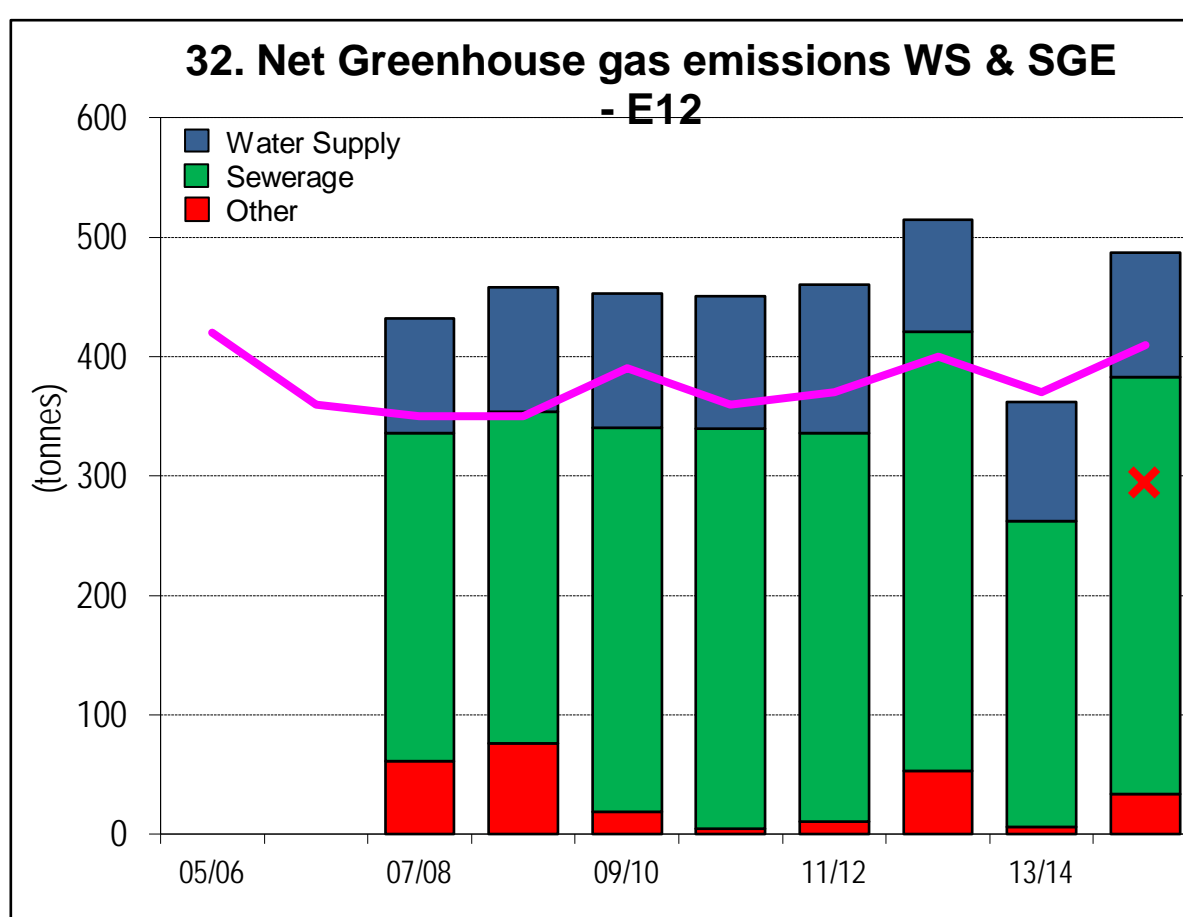
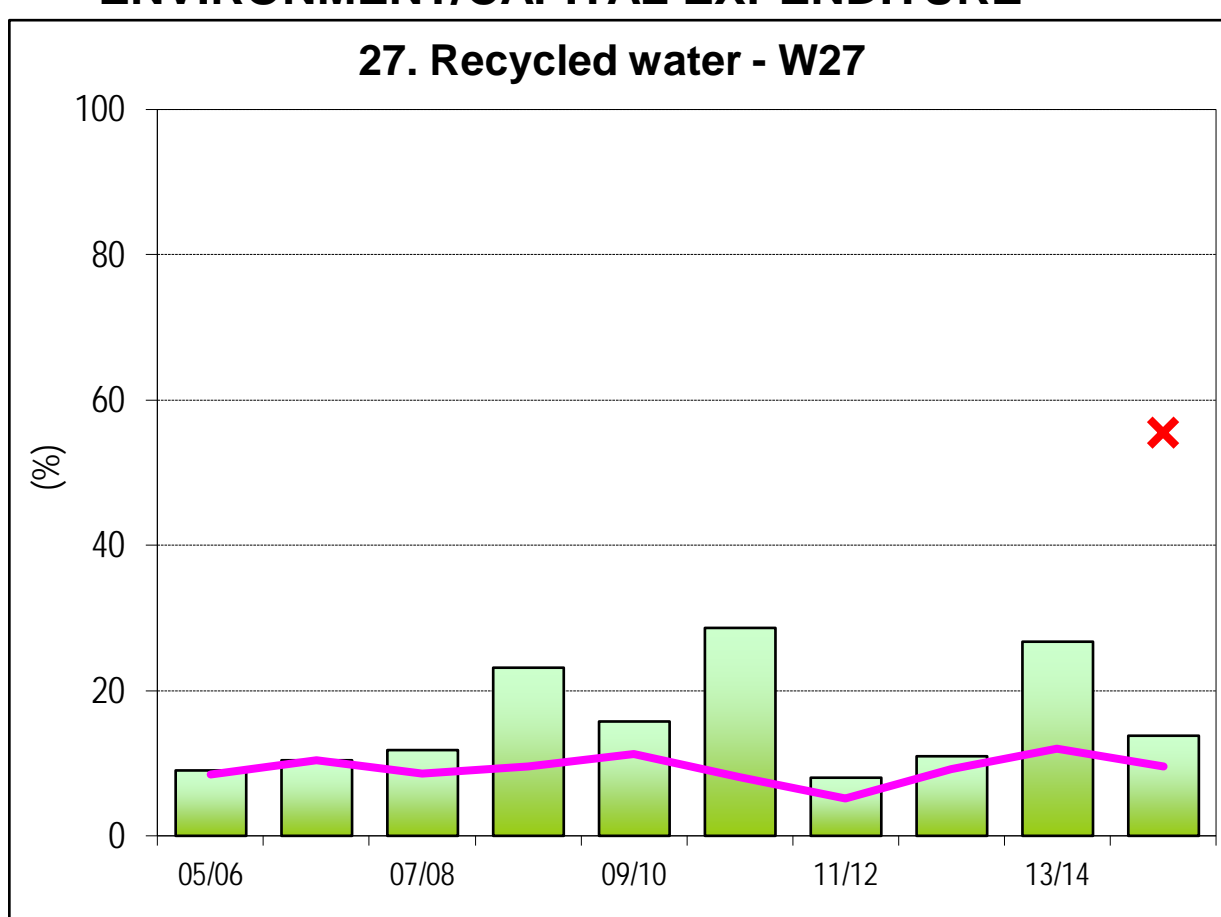
**COMPLIANCE**



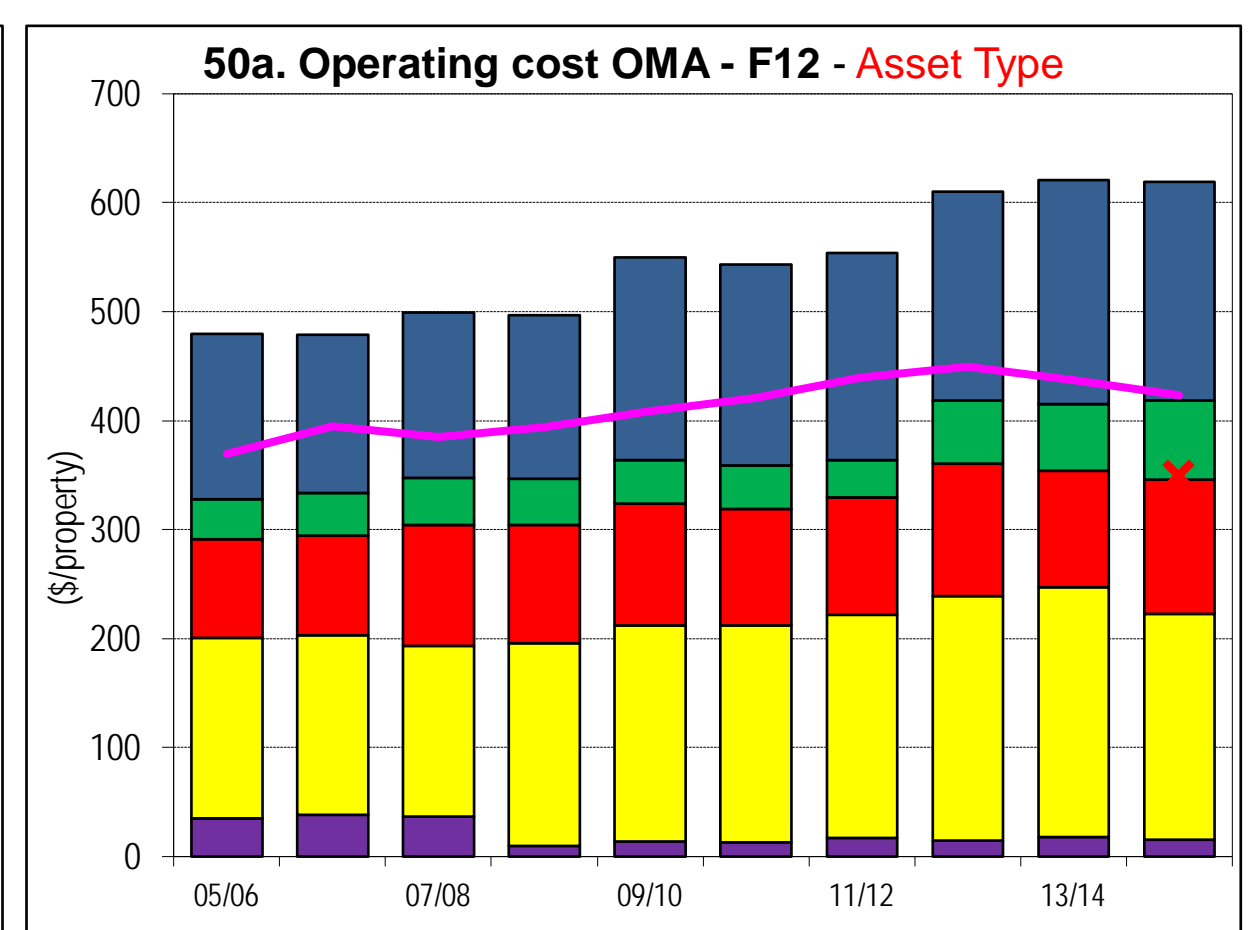
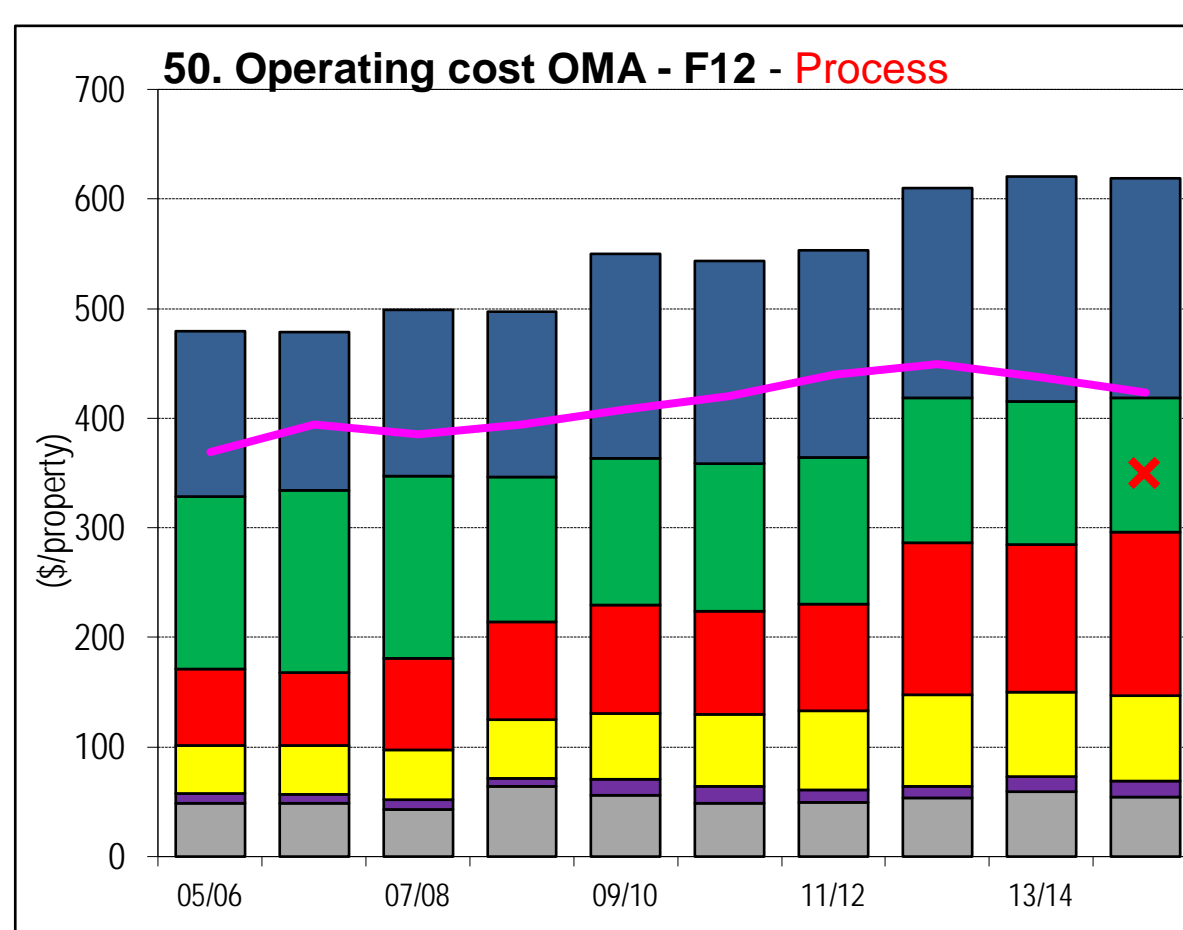
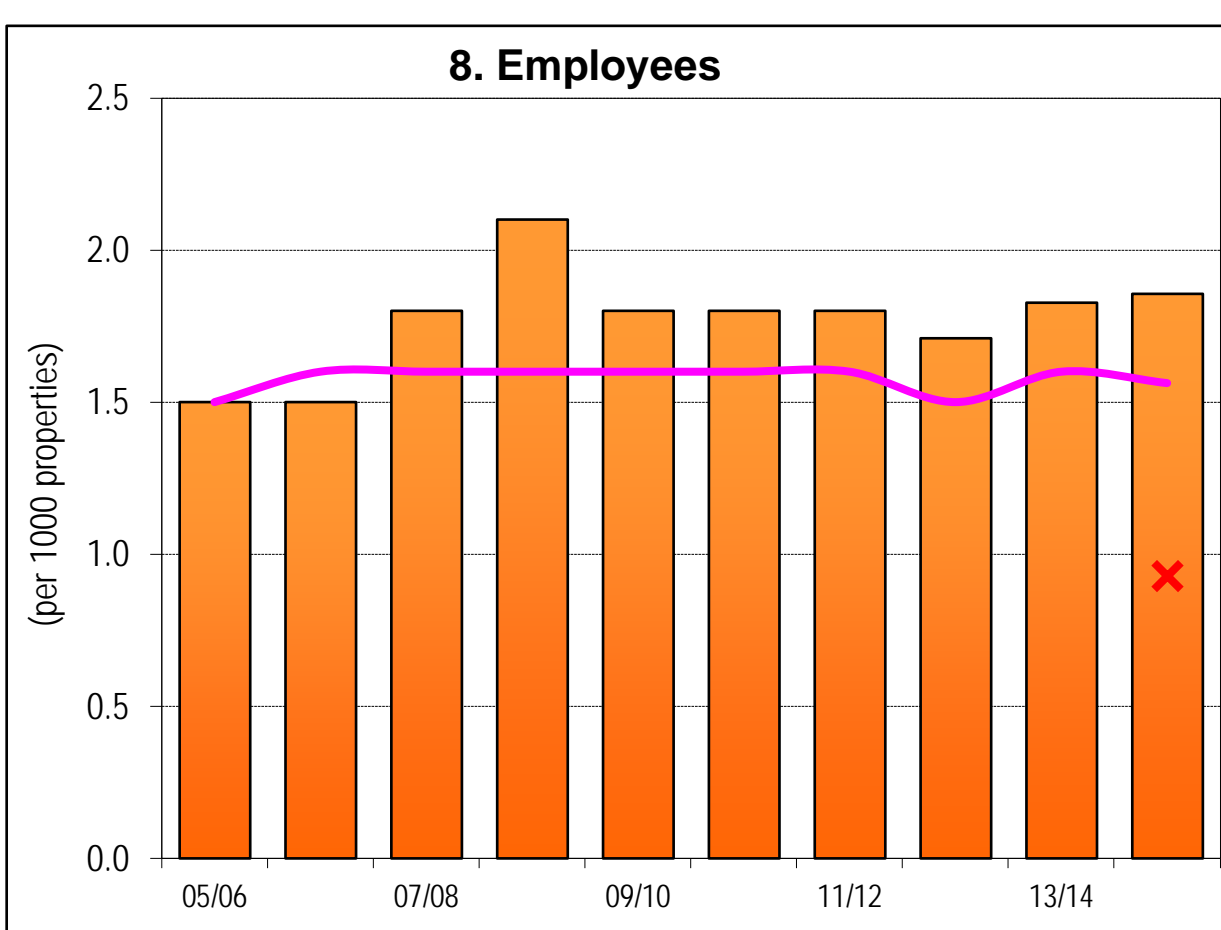
**CUSTOMER SERVICE/RELIABILITY**



**ENVIRONMENT/CAPITAL EXPENDITURE**



**EFFICIENCY**



**NOTES:**

1. Costs are in Jan 2015\$ except for graphs 12 and 14, which are in Jan 2016\$.

**LEGEND**  
 State Median for all years (pink line)  
 Top 20% for 2014-15 (red 'x')

## Water Performance Percentiles (% of LWUs Basis) 2014-15

NWI No.	NSW No.	UTILITY CHARACTERISTICS	NSW Regional Percentiles <sup>1,2</sup>					National Reporting <sup>3</sup>	
			20%	40%	50% Median	60%	80%	NWI No.	National Median Utilities with >10,000 props
	3	Residential connected properties (% of total)	92	90	88	88	85		
	4	New Residential Dwellings Connected to Water Supply (%)	1.6	1.0	0.9	0.8	0.4		
A3	5	Properties Served per km of Main	34	28	27	24	18	A3	34
	6	Rainfall (% of average annual rainfall)	118	102	98	93	81		
W11	7	Total Urban Water Supplied (at Master Meters - ML)	4,500	2,700	1,800	1,300	700	W11	9,060
	8	Peak Week to Average Consumption (%)	130	145	153	164	191		
	9	Renewals Expenditure (% of current replacement cost of system assets)	1.2	0.7	0.5	0.4	0.2		
	10	Employees (employees per 1000 properties)	1.3	1.6	1.7	2.0	2.6		
<b>SOCIAL - Charges/Bills</b>									
P1.3	12a	Residential Water Usage Charge (c/kL for 2014-15)	241	203	179	154	118	P1.3	185
	12	Residential Water Usage Charge (c/kL for 2015-16)	267	211	190	163	120		
P3	14a	Typical Residential Bill (\$/assessment for 2014-15)	539	590	662	690	805	P3	589
	14	Typical Residential Bill (\$/assessment for 2015-16)	567	629	691	732	841		
	15a	Typical Developer Charge (\$/equivalent tenement for 2014-15)	7,700	5,600	5,000	3,700	2,300		
	15	Typical Developer Charge (\$/equivalent tenement for 2015-16)	8,000	5,900	5,400	3,600	2,400		
F4	16	Residential Revenue from Usage Charges (% of residential revenue)	75	70	66	63	52	F4	66
F5	17	Revenue per property - Water (\$)	1,101	928	878	827	748	F5	881
<b>SOCIAL - Health</b>									
	18	Water Supply Coverage (% of Urban Population with reticulated WS)	99.6	98	97	96	92		
	19	Physical Water Quality Compliance (%)	100	100	100	100	100		
	19a	Chemical Water Quality Compliance (%)	100	100	100	100	100		
	20	Microbiological (E. coli) Water Quality Compliance (%)	100	100	100	100	100.0		
H3	20a	Percent Population with Microbiological Compliance	100	100	100	100	100	H3	100
<b>SOCIAL - Levels of Service</b>									
C9	25	Water Quality Complaints (per 1000 properties)	0	1	2	3	8	C9	1.5
C10	26	Water Service Complaints (per 1000 properties)	1	4	10	16	33	C10	0.5
C17	27	Incidence of unplanned interruptions (per 1000 properties)	3	11	14	19	46	C17	91
C15	28	Average Duration of Interruption (minutes)	90	120	120	120	180	C15	117
A8	30	Number of Main Breaks (per 100 km of main)	6	8	10	14	23	A8	13
	31	Drought Water Restrictions (% of time)	0	0	0	0	59		
	32	Total Days Lost (%)	0	1	2	3	4		
<b>ENVIRONMENTAL</b>									
W12	33	Average Annual Residential Supplied (kL/property)	152	185	205	275	452	W12	181
	33a	Average Annual Residential Supplied - COASTAL (kL/property)	139	147	152	160	180		
	33b	Average Annual Residential Supplied - INLAND (kL/property)	181	225	287	339	548		
	33c	Peak Day Water Supplied (kL/d/connected property)	1.1	1.5	1.8	2.0	3.0		
	33d	Total Urban Recycled Water Supplied (ML)	44	125	176	195	412		
A10	34	Real Loss (leakage) (L/service connection/d)	50	70	70	90	110	A10	76
	34a	Non Revenue Water (NRW) (L/service connection/d)	70	99	106	124	187		
	35	Energy Consumption (kWh/ML)	270	460	490	550	730		
	36	Renewable Energy Consumption (% of Total Energy)	0	0	0	0	0		
E12	36a	Net Greenhouse Gas Emissions - WS & Sge (net tonnes CO2 - equivalents/1000props)	230	330	360	390	460	E12	393
<b>ECONOMIC - Financial</b>									
	42	Current Replacement Cost per Assessment - Water (\$)	21,000	17,200	16,500	14,800	11,500		
F17	43	Economic Real Rate of Return - Water (%)	2.8	1.5	1.1	0.7	-0.3	F17	1.9
	44	Return on Assets - Water (%)	3.1	1.3	1.0	0.8	-0.2		
F9/C4	44a	Written Down Replacement Cost - Water (\$/property)	14,200	11,000	9,700	8,600	6,900		7,660
F22	45	Net Debt to Equity - WS & Sge(%)	3	-4	-7	-10	-16	F22	11
F23	46	Interest Cover - WS & Sge	4	2	2	1	0	F23	2
	47	Loan Payment - Water (\$/property)	135	48	16	0	0		
F30	47a	Net Profit After Tax Ratio - WS & Sge (%)	24	15	11	5	-2	F30	10
F24	47b	Net Profit After Tax - WS & Sge (\$'000)	2,640	980	680	290	-50	F24	7,120
<b>ECONOMIC - Efficiency</b>									
	48	Operating Cost (OMA) per 100 km of Main (\$'000)	890	1,110	1,230	1,390	1,690		
F11	49	Operating Cost (OMA) per property (\$/property)	420	500	540	590	670	F11	455
	50	Operating Cost (OMA) per kL (c/kL)	77	99	118	133	193		
	51	Management Cost (\$/property)	111	139	149	168	228		
	52	Treatment Cost (\$/property)	38	90	121	148	197		
	53	Pumping Cost (\$/property)	18	47	58	70	121		
	54	Energy Cost (\$/property)	9	21	40	47	73		
	55	Water Main Cost (\$/property)	49	75	82	88	124		
F28	56	Capital Expenditure - Water Supply (\$/property)	389	207	155	106	52	F28	163

Notes:

- The above NSW performance indicators are on a **percentage of LWUs** basis as this is the most appropriate basis for comparing the performance of one LWU with other LWUs. Throughout the rest of the report and in Table 1 on page 111 the performance indicators are on a **percentage of connected properties** basis as this is the most appropriate for judging **Statewide Performance** by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
- 20% is the top 20% of LWUs, **Median (50%)** is the median of LWUs and **80%** is the bottom 20% of LWUs.
- National Medians are from the National Performance Report 2014-15 which shows the performance indicators for 76 Australian urban water utilities providing reticulated water supply services to >10,000 properties [Note 14 on page 34]. The 7 bulk supply utilities are excluded.



## Sewerage Performance Percentiles (% of LWUs Basis) 2014-15

NWI No.	NSW No.	UTILITY CHARACTERISTICS	NSW Regional Percentiles <sup>1,2</sup>					National Reporting <sup>3</sup>	
			20%	40%	50% Median	60%	80%	NWI No.	National Median Utilities with >10,000 props
	3	Residential connected properties (% of total)	93	91	90	88	86		
	4	New Residential Dwellings Connected to Sewerage (%)	1.5	0.9	0.7	0.5	0.3		
A6	5	Properties Served per km of Main	40	35	34	33	28	A6	40
W18	6	Volume of Sewage Collected (ML)	2,800	800	600	400	200	W18	5,640
	7	Renewals Expenditure (% of current replacement cost of system assets)	1.3	0.7	0.6	0.4	0.2		
	8	Employees (per 1000 properties)	1.2	1.6	1.8	1.9	2.5		
<b>SOCIAL - Charges/Bills</b>									
P4.1	11a	Residential Access Charge for 2014-15 (\$/assessment)	454	511	580	630	750	P4.1	620
	11	Residential Access Charge for 2015-16 (\$/assessment)	479	540	611	651	774		
P6	12a	Typical Residential Bill for 2014-15 (\$/assessment)	454	511	580	630	750	P6	667
	12	Typical Residential Bill for 2015-16 (\$/assessment)	479	540	611	651	774		
	13a	Typical Developer Charge for 2014-15 (\$/equivalent tenement)	7,000	4,600	3,900	3,300	1,400		
	13	Typical Developer Charge for 2015-16 (\$/equivalent tenement)	7,200	4,500	4,100	3,600	1,600		
	14	Non-residential sewer usage charge (c/kL)	222	180	150	125	103		
F6	15	Revenue per property - Sge (\$)	1,002	820	717	659	553	F6	947
<b>SOCIAL - Health</b>									
	16	Sewerage Coverage (% of Urban Population with Reticulated Sge Service)	98	95	94	93	88		
E3	17	Percent of sewage treated to a tertiary level (%)	100	100	99	97	82	E3	91
	18	Percent of sewage volume treated that was compliant (%)	100	100	100	99	73		
<b>SOCIAL - Levels of Service</b>									
	21	Odour Complaints (per 1000 properties)	0.0	0.0	0.0	0.3	1.0		
C11	22	Sewerage Service Complaints (per 1000 properties)	2	9	12	15	29	C11	1.0
C16	23a	Average Sewerage Interruption (min)	60	90	90	99	120	C16	102
	25	Total Days Lost	0	0	2	2	4		
<b>ENVIRONMENTAL</b>									
W19	26	Volume of Sewage Collected per property (kL)	265	216	198	191	170	W19	214
W26	26a	Total recycled water supplied (ML)	490	110	60	20	0	W26	1,580
W27	27	Recycled Water (% of effluent recycled)	54	14	8	5	0	W27	15
E8	28	Biosolids Reuse (%)	100	0	0	0	0	E8	100
	30	Energy Consumption - sewerage (kWh/ML)	360	600	700	790	910		
	31	Renewable Energy Consumption (% of total energy consumption)	0	0	0	0	0		
E12	32	Net greenhouse gas emissions - WS & Sge (net tonnes CO2 equivalents per 1000 prop)	230	330	360	390	460	E12	393
	33	90th Percentile Licence Limits for Effluent Discharge: BOD 35 mg/L; SS 40 mg/L; Total N 25 mg/L; Total P 5 mg/L							
	34	Compliance with BOD in Licence (%)	100	100	100	100	100		
	35	Compliance with SS in Licence (%)	100	100	100	100	99		
A14	36	Sewerage Main Breaks and Chokes (per 100 km of main)	7	22	29	39	74	A14	17
	37a	Sewer Overflows (per 100 km of main)	0	2	3	6	18		
E13	37b	Sewer Overflows Reported to Environmental Regulator (per 100 km of main)	0.0	0.0	0.0	0.4	1.5	E13	0.5
	39	Non-residential percentage of sewage collected (%)	28	19	15	14	8		
<b>ECONOMIC - Financial</b>									
	43	Revenue from Non-residential and Trade Waste Charges (% of total rates & charges)	26	21	19	17	11		
	44	Revenue from Trade Waste Charges (% of total rates & charges)	3	2	1	0	0		
	45	Current Replacement Cost of Fixed Sewerage Assets (\$/assessment)	19,000	16,100	15,000	14,100	12,700		
F18	46	Economic Real Rate of Return - sewerage (%)	2.7	1.7	1.2	0.9	0.1	F18	3.0
	46a	Return on Assets - sewerage (%)	2.7	1.5	1.3	0.7	0.3		
F10/CE	46b	Written Down Replacement Cost - sewerage (\$/property)	13,500	10,100	9,400	8,100	6,800		9,350
F22	47	Net Debt to Equity - WS & Sge (%)	3	-4	-7	-10	-16	F22	11
F23	48	Interest Cover - WS & Sge	4	2	2	1	0	F23	2
	48a	Loan Payment - sewerage (\$/property)	196	83	27	3	0		
F24	48b	Net Profit After Tax - WS & Sge (\$'000)	2,640	980	680	290	-50	F24	7,120
<b>ECONOMIC - Efficiency</b>									
	49	Operating Cost - sewerage (OMA) per 100 km of Main (\$'000)	920	1,240	1,370	1,540	1,810		
F12	50	Operating Cost - sewerage (OMA) per property (\$/property)	310	370	420	430	510	F12	400
	51	Operating Cost - sewerage (OMA) per kL (c/kL)	145	183	196	218	243		
	52	Management Cost - sewerage (\$/property)	85	122	145	159	188		
	53	Treatment Cost - sewerage (\$/property)	97	133	145	159	201		
	54	Pumping Cost - sewerage (\$/property)	28	44	54	66	94		
	55	Energy Cost - sewerage (\$/property)	19	32	36	38	51		
	56	Sewer Main Cost (\$/property)	27	40	49	54	72		
F29	57	Capital Expenditure - sewerage (\$/property)	351	184	154	105	46	F29	217

Notes:

- The above NSW performance indicators are on a **percentage of LWUs** basis as this is the most appropriate basis for comparing the performance of one LWU with other LWUs. Throughout the rest of the report and in Table 2 on page 112 the performance indicators are on a **percentage of connected properties** basis as this is the most appropriate for judging **Statewide Performance** by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
- 20% is the top 20% of LWUs, **Median (50%)** is the median of LWUs and 80% is the bottom 20% of LWUs.
- National Medians are from the National Performance Report 2014-15 which shows the performance indicators for 75 Australian urban water utilities providing reticulated sewerage services to >10,000 properties [Note 14 on page 34].

# APPENDIX D1: 2014-15 WATER TREATMENT PERFORMANCE

Water Utility	Source /type (Bulk Supplier) <sup>9</sup>	Water Treatment Works <sup>1</sup> 37a	Total Potable Water Produced W11.3 ML 37c	Year built or Augmented	Capacity ML/d 37b	Type of Treatment Works <sup>2</sup> 38a	Volume Treated to Potable ML 38b	Colour Units				Turbidity Units				Compliance with 2011 NHMRC/NRMMC Australian Drinking Water Guidelines <sup>3,7</sup>										Water Quality Complaints C9		No. of Samples ÷ Allocation <sup>6</sup>		Drinking Water Mgmt System (DWMS)? Yes/No 44c	No. WTW Operators No. 44d	Chlorination System Failure days 45	Major Malfunction of Treatment Processes days 46				
								Raw Water		Treated Water		Raw Water		Treated Water		Colour		Turbidity		pH		Physical		Chemical		E. coli		E. coli % Pop'n						No.	/ 1,000 Props	Chemical	E. coli
								Max	Avg	Max	Avg	Max	Avg	Max	Avg	Samples	%	Samples	%	Samples	%	Samples	%	Samples	%	Samples	%	Samples	%					42n	42n	%	%
								39a	39b	39c	39d	40a	40b	40c	40d	42a	42b	42c	42d	42e	42f	42g	42h	42i	42j	42k	42l	42m	42n					42n	42n	44a	44b
Albury City Council	RA	Albury	7788	1992	140	DF	7487	21	3	17	0	54	4	1	0.5	220	100	220	100	458	100	215	100	215	100	145	100	100	66	3	100	99	Yes	3	0	0	
Armidale Dumaresq Council		Armidale	2856	2009	23	C,OZ	2920	203	58	1		14	4	0	0.2	365	100	365	100	365	100	15	100	15	100	94	100	100	4	0	100	85	Yes	4	0	0	
Ballina Shire Council	B-RW	Wollongbar (Bulk From Rous)		-		-																															
	B-RW	Ballina (Bulk From Rous)		-		-																															
		Marom Creek	98	1997	3	DF	132																														
		Total/Weighted Average	98		3		132																														
Balranald Council	DS	Euston	51	2006	0.4	MF	63	550	266	1		98	31	1	0.1	365	100	365	100	365	97	1	100	1	100	20	100										
	UF	Balranald	139	1988	1	C	174	1,058	441	142	3	79	22	2	0.1	365	83	365	99	365	89	2	100	9	100	48	100	5									
		Total/Weighted Average	190		2		237	1,058	394	142	2	98	24	2	0.1	730	92	730	100	730	93	3	100	10	100	68	100	100	5	5	100	77	Yes	5	0	0	
Bathurst Regional Council		Bathurst	5951	1989	60	C	6642	307	43	3	1	103	15	2	0.4	14	100	14	100	14	100	12	100	12	100	183	100	100	534	34	100	100	Yes	4	0	0	
Bega Valley Shire Council	UF	Wyndham		-		-																															
	UF	Tantawangalo	94	2011	0.5	CH	92	108	41	1	1	11	3	0	0.3	2	100	2	100	2	100	2	100	2	100	25	100										
	UF	Tilba (Couria Ck)		1985	1	CH																															
	UF	Yellow Pinch	1145	1988	25	CH	1123	14	10	3	2	13	1	47	5.0	11	100	11	91	11	100	11	100	11	100	132	100										
	GW	Bega	982	1987	16	CH	963	10	5	1	1	2	1	1	0.5	11	100	11	100	11	100	11	100	11	100	105	100										
	UF	Brogo	307	2008	6	CH	301	44	31	4	4	4	2	3	1.0	4	100	4	100	4	100	2	100	2	100	86	100										
	GW	Kiah	476	1972	6	CH	467			2	1				5	1.7	11	100	11	100	11	100	11	100	11	100	63	100									
	UF	Bemboka	34	1988	1	CH	33	191	52	12	8	61	9	8	4.1	3	100	3	67	3	100	3	100	3	100	23	100										
		Total/Weighted Average	3037		55		2979	191	10	12	2	61	1	47	2.5	44	100	43	95	43	100	43	100	43	100	500	100	100	182	13	100	87	Yes	16	0	0	
	Bellingen Shire Council	GW	Bellingen / Seaboard	974	1993	12	CH	959			1	1			25	0.2	12	100	12	92	12	100	12	100	12	100	94	100									
		Dorrigo	132	1993	3	C	130	76	53	18	3	14	3	2	0.2	366	99	366	100	220	98	1	100	12	100	55	100										
		Total/Weighted Average	1106		15		1089	76	6	18	1	14	0	25	0.2	378	99	378	100	232	98	13	100	24	100	149	100	100	10	2	100	100	Yes	1	0	0	
Berrigan Shire Council		Tocumwal	788	2002	7	DAF	591	90	40	5	3	100	20	1.5	0.1	2	100	2	100	2	100	1	100	11	100	52	100										
		Finley	129	2004	2	C	97	100	50	5	3	200	50	10	0.5	2	100	365	95	365	99	1	100	12	100	52	100										
		Berrigan	115	1990	1	C	86	60	40	5	3	100	50	19	1.0	2	100	365	100	365	100	1	100	12	100	52	100										
		Barooga	219	2000	1	DAF	164	100	50	5	1	80	20	2	0.2	2	100	2	100	2	100	1	100	12	100	52	100										
		Total/Weighted Average	1251		11		938	100	43	5	3	200	26	19	0.2	8	100	734	98	734	100	4	100	47	100	208	100	100	24	7	100	100	Yes	4	0	0	
Bogan Shire Council	RA	Nyngan	693	1984	9	C	681	450	196	5	0	296	93	1	0.7	365	100	365	100	50	100	1	100	10	100	50	100	100	0	0	100	98	Yes	2	0	0	
Bombala Council		Bombala	127	1983	3	C	232																														
	UF	Delegate	45	-	1	CH	83																														
		Total/Weighted Average	172		5		315																														
Boorowa Council		Boorowa	214	1993	3	CH,DF,LS	178	130	35	3	2	38	14	1	0.2	2	100	2	100	48	100	2	100	2	100	48	100	100	2	3	100	94	Yes	1	0	0	
Bourke Shire Council	DS	Bourke	373	2003	3	C	200	400	80	3	2	1,500	100	2	0.5	12	100	12	100	12	100	2	100	11	100	47	100	100	0	0	100	75	Yes	1	0	0	
Brewarrina Shire Council	DS	Brewarrina	202	2013	1	C	163			1	1	2,000	1,000	3	1.9	2	100	365	100	2	100	2	100	2	100	61	100										
	DS	Goodooga	112	1996	1	CH	90			1	1			1	0.2	1	100	1	100	1	100	2	100	2	100	28	100										
		Total/Weighted Average	314		2		253			1	1	2,000	644	3	1.3	3	100	366	100	3	100	4	100	4	100	89	100	100	4	9	100	79	Yes	5	0	0	
Byron Shire Council	B-RW	Rocky Ck (Bulk From Rous)		-		-																															
		Mullumbimby	440	2011	4	DF	370	46	18	8	1	20	3	0	0.0	45	100	348	100	52	100	3	100	3	100	51	100										
		Total/Weighted Average	440		4		370	46	18	8	1	20	3	0	0.0	45	100	348	100	52	100	15	100	15	100	216	100	100	9	1	100	99	Yes	4	0	0	
Cabonne Council	NP	Yeoval Nonpotable		1964	1																																
	NP	Delgany Nonpotable		1977	0.3																																
	NP	Cumnock Nonpotable		1971	1																																
		Molong		2015	2	C,CH	192	45	1			4	1	1	0.3	52	100	52	100	53	98	2	100	2	100	85	100										
	Total/Weighted Average	208		2	C,CH	192	45	1			4	1	1	0.3	52</																						







# APPENDIX D1: 2014-15 WATER TREATMENT PERFORMANCE

Water Utility	Source /type (Bulk Supplier) <sup>9</sup>	Water Treatment Works <sup>1</sup> 37a	Total Potable Water Produced W11.3 ML 37c	Year built or Augmented	Capacity ML/d 37b	Type of Treatment Works <sup>2</sup> 38a	Volume Treated to Potable ML 38b	Colour Units				Turbidity Units				Compliance with 2011 NHMRC/NRMMC Australian Drinking Water Guidelines <sup>3,7</sup>										Water Quality Complaints C9		No. of Samples ÷ Allocation <sup>6</sup>		Drinking Water Mgmt System (DWMS)? Yes/No 44c	No. Operators 44d	Chlorination System Failure days 45	Major Malfunction of Treatment Processes days 46								
								Raw Water		Treated Water		Raw Water		Treated Water		Colour		Turbidity		pH		Physical		Chemical		E. coli		E. coli % Pop'n						No. 43	/ 1,000 Props	% 44a	% 44b				
								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													
Dubbo City Council	RA, GW	John Gilbert	8379	2007	80	C	7875	230	24	11	0	49	10	1	0.2	246	100	359	100	119	98	12	100	12	100	12	100	166	100	100	12	1	100	100	Yes	3	0	0			
Eurobodalla Shire Council		Eurobodalla Southern	161	2012	6	DF	161	29	1	9	0	8	3	9.2	0.6	70	100	77	100	12	83	12	100	12	100	121	100		1		100	97									
		Eurobodalla Northern	3132	2010	20	C,DAF,UV	3132	18	12	3	1	1	1	0.6	0.1	365	100	365	100	12	92	24	100	24	100	382	100		13		100	100									
		<b>Total/Weighted Average</b>	<b>3293</b>		<b>26</b>		<b>3293</b>	<b>29</b>	<b>11</b>	<b>9</b>	<b>1</b>	<b>8</b>	<b>1</b>	<b>9.2</b>	<b>0.1</b>	<b>435</b>	<b>100</b>	<b>442</b>	<b>100</b>	<b>24</b>	<b>88</b>	<b>36</b>	<b>100</b>	<b>36</b>	<b>100</b>	<b>503</b>	<b>100</b>	<b>100</b>	<b>14</b>	<b>1</b>	<b>100</b>	<b>100</b>	<b>Yes</b>	<b>5</b>	<b>0</b>	<b>0</b>					
Fish River Water Supply		Duckmaloi	2426	2003	11	MF	871															16	100	16	100	162	100	100	-	-	100	100	Yes	1	0	0					
Forbes Shire Council		Forbes	2415	1966	26	C	2466	220	89	5	3	440	41	1	0.3	354	100	66	100	14	100	13	100	13	100	66	100	100	8	2	100	100	Yes	3	0	0					
Gilgandra Shire Council	GW	Gilgandra	925	1973	5	C	837					10	1	3	0.5			2	100	52	100	52	100	12	100	49	100	100	6	4	100	96	Yes	4	0	0					
		Martins Lookout	489	1982	12	C	501	1,116	83	27	2	134	8	1	0.3	365	99	365	99	12	100	12	100	12	100	51	100				100	100									
		Deepwater	21	2011	7	DAF	22	432	145	20	4	32	6	1	0.2	198	98	223	100	2	100	2	100	2	100	27	100				100	100									
<b>Total/Weighted Average</b>	<b>510</b>		<b>19</b>		<b>523</b>	<b>1,116</b>	<b>85</b>	<b>27</b>	<b>2</b>	<b>134</b>	<b>8</b>	<b>1</b>	<b>0.3</b>	<b>563</b>	<b>99</b>	<b>588</b>	<b>99</b>	<b>14</b>	<b>100</b>	<b>14</b>	<b>100</b>	<b>14</b>	<b>100</b>	<b>78</b>	<b>100</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>100</b>	<b>Yes</b>	<b>3</b>	<b>0</b>	<b>0</b>							
Goldenfields Water Reticulator	GW	Oura	290	1975	26	CH	3940			5		0	0	2	0.2	44	100	44	100	44	84	44	100	44	100	268	100	100	27	3	100	100	Yes	3	0	0					
Goldenfields Water County Council	GW	Jugiong	7714	1991	40	C	4140	25	22	5	2	7	4	4	0.6	14	100	14	100	14	100	23	100	33	100	188	100		2		100	100									
		Mount Arthur	922	-	4	CH	495	1							0	0.2	8	100	8	100	8	100	8	100	8	100	64	100		20		100	100								
		Mount Daylight	514	-	1	CH	276										2	100	2	100	2	100	2	100	2	100	26	100				100	100								
<b>Total/Weighted Average</b>	<b>9151</b>		<b>46</b>		<b>4911</b>	<b>25</b>	<b>19</b>	<b>5</b>	<b>1</b>	<b>7</b>	<b>3</b>	<b>4</b>	<b>0.5</b>	<b>24</b>	<b>100</b>	<b>24</b>	<b>100</b>	<b>24</b>	<b>100</b>	<b>33</b>	<b>100</b>	<b>43</b>	<b>100</b>	<b>278</b>	<b>100</b>	<b>100</b>	<b>22</b>	<b>1</b>	<b>100</b>	<b>100</b>	<b>Yes</b>		<b>0</b>	<b>0</b>							
Gosford City Council		Somersby	13103	1986	140	C	13080	605	124	8	1	60	8	0	0.2	12	100	12	100	12	100	12	100	12	100	382	100		852		100	98									
		Woy Woy		2007	5	MF																																			
		<b>Total/Weighted Average</b>	<b>13103</b>		<b>145</b>		<b>13080</b>	<b>605</b>	<b>124</b>	<b>8</b>	<b>1</b>	<b>60</b>	<b>8</b>	<b>0</b>	<b>0.2</b>	<b>12</b>	<b>100</b>	<b>12</b>	<b>100</b>	<b>12</b>	<b>100</b>	<b>12</b>	<b>100</b>	<b>24</b>	<b>100</b>	<b>382</b>	<b>100</b>	<b>100</b>	<b>852</b>	<b>12</b>	<b>100</b>	<b>98</b>	<b>Yes</b>	<b>4</b>	<b>0</b>	<b>0</b>					
Goulburn Mulwaree Council		Goulburn	2463	2006	35	C	2519	854	143	4	2	58	5	4	1.0	26	100	26	100	24	100	26	100	10	100	107	100		49		91	96									
		Marulan	83	1997	2	MF	85	112	34	9	5	22	1	5.4	1.0	25	100	25	96	24	100	25	96	1	100	56	100		1		100	100									
		<b>Total/Weighted Average</b>	<b>2546</b>		<b>37</b>		<b>2604</b>	<b>854</b>	<b>140</b>	<b>9</b>	<b>2</b>	<b>58</b>	<b>5</b>	<b>5</b>	<b>1.0</b>	<b>51</b>	<b>100</b>	<b>51</b>	<b>98</b>	<b>48</b>	<b>100</b>	<b>51</b>	<b>98</b>	<b>11</b>	<b>100</b>	<b>163</b>	<b>100</b>	<b>100</b>	<b>50</b>	<b>4</b>	<b>92</b>	<b>100</b>	<b>Yes</b>	<b>4</b>	<b>0</b>	<b>0</b>					
Greater Hume Shire Council	UF	Villages	144	2005	5	DF	379							1	0.4			2	100	2	100	52	100	2	100	50	100				100	98									
		Culcairn	64	2007	3	CH,U	169	1	1	1	1	2	2	2	1.0	2	100	2	100	2	100	2	100	2	100	50	100				100	98									
		<b>Total/Weighted Average</b>	<b>208</b>		<b>7</b>		<b>548</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0.6</b>	<b>2</b>	<b>100</b>	<b>4</b>	<b>100</b>	<b>4</b>	<b>100</b>	<b>54</b>	<b>100</b>	<b>4</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>98</b>	<b>Yes</b>	<b>2</b>	<b>0</b>	<b>0</b>					
Griffith City Council	B-Mrm	Griffith	6460	1987	60	DAF	6473	66	29	4	2	25	11	2	0.2	329	100	334	100	13	100	13	100	13	100	176	100		14		100	100									
		Yenda	35	2001	2	MF	35					39	21	1	0.1			93	100	1	100	1	100	11	100	60	100				100	100									
		<b>Total/Weighted Average</b>	<b>6495</b>		<b>62</b>		<b>6508</b>	<b>66</b>	<b>29</b>	<b>4</b>	<b>2</b>	<b>39</b>	<b>11</b>	<b>2</b>	<b>0.2</b>	<b>329</b>	<b>100</b>	<b>427</b>	<b>100</b>	<b>14</b>	<b>100</b>	<b>14</b>	<b>100</b>	<b>24</b>	<b>100</b>	<b>236</b>	<b>100</b>	<b>100</b>	<b>14</b>	<b>2</b>	<b>100</b>	<b>100</b>	<b>Yes</b>	<b>2</b>	<b>1</b>	<b>0</b>					
Gundagai Shire Council		Gundagai	600	1988	5	C	-															2	100	12	100	50	100	100	-	-	100	98	Yes	2	0	0					
Gunnedah Shire Council	GOGW	Gunnedah	2943	2009	20	CH	2419			5	0			0	0.1	12	100	12	100			22	97	12	100	65	100		1		100	100									
		Curlewis	120	2004	1	CH	99			1	1			0	0.1	2	100	2	100			2	100	2	100	52	100		1		100	100									
		Tambar Springs	22	2006		CH	18			1	1			0.3	0.2	2	100	2	100			5	100	2	100	12	100		1		100	100									
		Mullaley	19	2006	1	CH	16																3	100	3	100	13	92				100	100								
		<b>Total/Weighted Average</b>	<b>3104</b>		<b>22</b>		<b>2552</b>			<b>5</b>	<b>0</b>			<b>0.3</b>	<b>0.1</b>	<b>16</b>	<b>100</b>	<b>16</b>	<b>100</b>	<b>8</b>	<b>100</b>	<b>29</b>	<b>98</b>	<b>19</b>	<b>98</b>	<b>142</b>	<b>99</b>	<b>99</b>	<b>3</b>	<b>1</b>	<b>100</b>	<b>100</b>	<b>Yes</b>	<b>2</b>	<b>0</b>	<b>0</b>					
Guyra Shire Council		Guyra	395	2003	6	C	379	78	33	15	4	21	4	1	0.5	1	100	48	100	47	100	1	100	13	100	50	100	100	7	6	100	98	Yes	4	0	0					
Gwydir Shire Council	NP	Gravesend Non Potable		2003	1																								2												
		Bingara	441	2011	3	DAF	388			3	2			3	0.6	11	100	11	100	11	100	12	100	12	100	53	100		6		100	100									
		Warialda	321	2003	3	CH	282			1	1			0	0.2	3	100	3	100	3	100	3	100	3	100	55	100		1		100	100									
		North Star	34	2007	0.2	D	30			1	1																														

# APPENDIX D1: 2014-15 WATER TREATMENT PERFORMANCE

Water Utility	Source /type (Bulk Supplier) <sup>9</sup>	Water Treatment Works <sup>1</sup>  37a	Total Potable Water Produced W11.3 ML 37c	Year built or Augmented	Capacity ML/d 37b	Type of Treatment Works <sup>2</sup> 38a	Volume Treated to Potable ML 38b	Colour Units				Turbidity Units				Compliance with 2011 NHMRC/NRMMC Australian Drinking Water Guidelines <sup>3,7</sup>												Water Quality Complaints C9		No. of Samples ÷ Allocation <sup>6</sup>		Drinking Water Mgmt System (DWMS)? Yes/No 44c	No. of Operators 44d	Chlorination System Failure days 45	Major Malfunction of Treatment Processes days 46		
								Raw Water		Treated Water		Raw Water		Treated Water		Colour		Turbidity		pH		Physical		Chemical		E. coli		E. coli % Pop'n		No. 43	/ 1,000 Props					% 44a	% 44b
								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	Samples 42m	% 42n								
								Compliance 42n																													
Inverell Shire Council	GW	Copeton	1710	1982	18	C	2500	200	120	3	2	6	2	1	0.2	360	100	360	100	360	100	360	100	13	100	13	100	90	100	2	0	100	100	Yes	2	0	0
		Ashford	82	1984	1	C	120	250	150			75	15	2	0.2	360	100	360	100	360	100	360	100	2	100	14	100	26	100			100	68				
		Yetman	16	1980	1	CH	24								0	0.2									2	100	2	100	27	100			100	100			
		<b>Total/Weighted Average</b>	<b>1809</b>		<b>20</b>		<b>2644</b>	<b>250</b>	<b>120</b>	<b>3</b>	<b>2</b>	<b>75</b>	<b>3</b>	<b>2</b>	<b>0.2</b>	<b>720</b>	<b>100</b>	<b>721</b>	<b>100</b>	<b>720</b>	<b>100</b>	<b>720</b>	<b>100</b>	<b>17</b>	<b>100</b>	<b>29</b>	<b>100</b>	<b>143</b>	<b>100</b>	<b>2</b>	<b>0</b>	<b>100</b>	<b>95</b>	<b>Yes</b>	<b>2</b>	<b>0</b>	<b>0</b>
Jerilderie Shire Council	DS	Jerilderie	118	1980	1	CH	105	250	228			321	75	1	0.6	365	100	365	100	365	100	2	100	2	100	52	100	100	4	8	100	100	Yes	2	0	0	
Kempsey Shire Council	GW	Sherwood	2663	2000	38	CH,U	2511			1	1			9	1.5	12	100	270	99	284	99	24	100	12	100	271	100	1		100	100						
		South West Rocks	643	2006	6	MF	606			1	0			1	0.3	4	100	55	99	72	99	8	100	12	100	67	100	1		100	100						
		Stuarts Point	239	2010	3	DF	225			1	0			2	0.4	10	100	52	100	63	98	20	100	10	100	53	100			91	100						
		Crescent Head	137	2012	3	CH,U	129			14	14			7.0	2.6	2	100	64	97	70	94	4	100	2	100	67	100	1		100	100						
		Hat Head	47	2000	1	CH,DF	44			3	3			2	0.7	2	100	22	100	26	100	4	100	2	100	24	100			100	96						
		Willawarrin	7	1972	0.2	CH	7			2	1			2	0.6	8	100	8	100	36	92	16	100	8	100	27	100			73	100						
		Bellbrook	7	2010	0.9	DF	7			1	0			2	0.3	12	100	40	100	40	100	24	100	12	100	27	100			100	100						
		<b>Total/Weighted Average</b>	<b>3743</b>		<b>52</b>		<b>3529</b>			<b>14</b>	<b>1</b>			<b>9</b>	<b>1.3</b>	<b>50</b>	<b>100</b>	<b>511</b>	<b>99</b>	<b>591</b>	<b>98</b>	<b>100</b>	<b>100</b>	<b>58</b>	<b>100</b>	<b>536</b>	<b>100</b>	<b>100</b>	<b>3</b>	<b>0</b>	<b>100</b>	<b>100</b>	<b>Yes</b>	<b>7</b>	<b>0</b>	<b>0</b>	
Kyogle Council	NP	Bonalbo		2010	0.3																																
		Woodenbong		-																																	
		Kyogle		1988	3	C	287	550	189	136	44	244	10	18	0.6	365	100	102	99	52	100	2	100	12	100	100	100	4		100	100						
		<b>Total/Weighted Average</b>	<b>355</b>		<b>3</b>	<b>C</b>	<b>287</b>	<b>550</b>	<b>189</b>	<b>136</b>	<b>44</b>	<b>244</b>	<b>10</b>	<b>18</b>	<b>0.6</b>	<b>365</b>	<b>100</b>	<b>102</b>	<b>99</b>	<b>52</b>	<b>100</b>	<b>2</b>	<b>100</b>	<b>12</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>4</b>	<b>2</b>	<b>100</b>	<b>100</b>	<b>Yes</b>	<b>7</b>	<b>0</b>	<b>0</b>		
Lachlan Shire Council		Condobolin		2000	71	C	-																														
		Lake Cargelligo		2004	5	DAF,MF	-																														
		Tottenham		1994	1	C,LS	-																														
		<b>Total/Weighted Average</b>	<b>2006</b>		<b>76</b>																																
Leeton Shire Council		Leeton	2591	1993	25	C	2300	139	44	1	0	89	23	1	0.0	365	100	365	100	365	100	12	100	12	100	66	100			100	100						
		Whitton	89	2003	0.9	C	79	215	84	0	0	175	49	1	0.1	365	100	365	100	365	100	2	100	2	100	24	100			100	96						
		Murrumbidgee	20	1993	0.3	LS	18	100	50	1	0	82	32	6	0.8	365	100	365	100	365	100	2	100	2	100	25	100			100	100						
		<b>Total/Weighted Average</b>	<b>2700</b>		<b>26</b>		<b>2397</b>	<b>215</b>	<b>45</b>	<b>1</b>	<b>0</b>	<b>175</b>	<b>24</b>	<b>6</b>	<b>0.0</b>	<b>1,095</b>	<b>100</b>	<b>1,095</b>	<b>100</b>	<b>1,095</b>	<b>100</b>	<b>16</b>	<b>100</b>	<b>16</b>	<b>100</b>	<b>115</b>	<b>100</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>100</b>	<b>Yes</b>	<b>4</b>	<b>0</b>	<b>0</b>	
Lismore City Council	B-RW	Rocky Ck (Bulk From Rous)		-		-																															
		UF	Nimbin		1949	0.3	CH	195	43	27	16	9	17	4	2	1.4	13	92	51	90	52	100	2	100	2	100	24	100			100	96					
		<b>Total/Weighted Average</b>		<b>0.3</b>		<b>195</b>	<b>43</b>	<b>27</b>	<b>16</b>	<b>9</b>	<b>17</b>	<b>4</b>	<b>2</b>	<b>1.4</b>	<b>13</b>	<b>92</b>	<b>51</b>	<b>90</b>	<b>52</b>	<b>100</b>	<b>14</b>	<b>100</b>	<b>14</b>	<b>100</b>	<b>212</b>	<b>100</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>96</b>	<b>Yes</b>	<b>3</b>	<b>0</b>	<b>0</b>		
Lithgow City Council	B-FR	Oakey Park	828	1985	15	C	1298																														
Liverpool Plains Shire Council	GW	Werris Creek	291	2004	3	C	261	200	60	5	1	10	4	1	0.4	365	98	365	99	365	100	2	100	2	100	49	100	5		100	96						
		Quirindi	620	2010	6	CH	557	2	1	1	1	0	0	0	0.2	2	100	2	100	2	100	2	100	2	100	49	100			100	96						
		Willow Tree		-		-																															
		<b>Total/Weighted Average</b>	<b>911</b>		<b>9</b>		<b>818</b>	<b>200</b>	<b>20</b>	<b>5</b>	<b>1</b>	<b>10</b>	<b>1</b>	<b>1</b>	<b>0.3</b>	<b>367</b>	<b>98</b>	<b>367</b>	<b>99</b>	<b>367</b>	<b>100</b>	<b>6</b>	<b>100</b>	<b>6</b>	<b>100</b>	<b>124</b>	<b>100</b>	<b>100</b>	<b>5</b>	<b>2</b>	<b>100</b>	<b>98</b>	<b>Yes</b>	<b>4</b>	<b>0</b>	<b>0</b>	
MidCoast County Council	GW	Gloucester	329	1981	5	C	329	27	16	4	0	29	4	4	0.4	74	100	74	100	74	76	224	92	193	99	79	100	10		100	100						
		Bootawa Dam	7659	2010	60	MF,OZ	7658	55	12	3	0	21	3	0	0.1	486	100	486	100	486	97	1,467	99	1,744	100	452	100	101		100	100						
		Tea Gardens	526	2013	8	MF	526	16	11	3	1	0	0	3	0.5	55	100	55	100	55	100	172	100	192	99	53	100	6		100	100						
		Bulahdelah	118	2009	2	C	118	130	76	3	0	31	9	1	0.2	55	100	55	100	55	100	167	100	200	100	53	100			100	100						
		Stroud	112	1997	2	C	112	42	28	21	6	21	6	1	0.6	55	100	55	100	53	13	167	84	198	100	53	100			100	100						
		<b>Total/Weighted Average</b>	<b>8744</b>		<b>77</b>		<b>8743</b>	<b>130</b>	<b>13</b>	<b>21</b>	<b>0</b>	<b>31</b>	<b>3</b>	<b>4</b>	<b>0.2</b>	<b>725</b>	<b>100</b>	<b>725</b>	<b>100</b>	<b>723</b>	<b>89</b>	<b>2,197</b>	<b>97</b>	<b>2,527</b>	<b>100</b>	<b>690</b>	<b>100</b>	<b>100</b>	<b>117</b>	<b>3</b>	<b>100</b>	<b>100</b>	<b>Yes</b>	<b>15</b>	<b>2</b>	<b>0</b>	
Mid-Western Regional Council		Mudgee	1780	2005	15	C	1707	30	28			607	38	1	0.2	12	100	87	100	86	100	12	100	12	100	81	98	11		100	100						
		Rylstone	363	1998	4	C	348	92	50	16	3	8	3	1	0.4	2	10																				







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								Raw Water		Treated Water		Raw Water		Treated Water		Colour		Turbidity		pH		Physical		Chemical		E. coli		Compliance 42n	No. 43					/ 1,000 Props	Chemical %	E. coli %	
								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										
																												E. coli % Pop'n									
Riverina Water County Council	GW	Waterworks	6384	1961	80	C	6051	210	55	7	2	34	80	9	0.6	12	100	383	99	382	98	12	100	12	100	384	100		36		100	100					
	GW	West Wagga	5229	1979	32	C	4956	26		7	4	7	2	5	1.1	4	100	13	92	13	92	4	100	16	100	13	100		30								
		North Wagga	2650	1977	25	C	2512	27	3	1	1	1	0	7	0.6	12	100	126	98	127	100	12	100	12	100	126	100		15		100	100					
	GW	Ralvona	318	1989	4	C	301	15	5	1	1	1	1	1	0.4	2	100	47	100	47	98	2	100	2	100	50	100		2		100	98					
	GW	Bulgary	523	1983	3	C	496	11	3	1	1	2	1	8	0.6	2	100	49	98	47	85	2	100	12	100	75	100		2		100	100					
	GW	Gardiners Crossing	193	1983	2	C	183	2		1	1	0	0	1	0.4	1	100	51	100	50	78	1	100	6	100	51	100		1		100	100					
		Urana	55	1964	1	C	52	754	161	1	1	90	23	2	0.4	2	100	50	100	50	96	2	100	5	100	50	100				100	98					
	GW	Walbundrie	42	2005	1	C	40	14	3	1	1	1	0	0	0.4	2	100	25	100	25	100	2	100	2	100	25	100		1		100	100					
	GW	Humula	9	2003	0.3	C	9	12	12	1	1	13	3	1	0.4	2	100	25	100	25	100	2	100	2	100	25	100				100	100					
	GW	Woomargama	17	1960	0.2	C	16	31	7	1	1	13	2	2	0.5	2	100	25	100	25	96	2	100	2	100	25	100				100	100					
	GW	Collingullie	77	2006	0.1	C	73	6	1	1	1	1	0	0	0.3	2	100	12	100	12	100	2	100	2	100	12	100		1		100	100					
	GW	Tarcutta	47	2009	1	C	45	372	156	1	1	39	8	0	0.4	2	100	25	100	25	100	2	100	2	100	25	100				100	100					
	GW	Oura	36	1982	1	C	34	22	2	1	1	1	0	2	0.7	2	100	13	100	13	100	2	100	2	100	13	100		1		100	100					
			Morundah	11	1992	0.2	C	10	445	131	1	1	85	23	1	0.4	2	100	25	100	25	96	2	100	2	100	25	100				100	100				
		<b>Total/Weighted Average</b>	<b>15591</b>		<b>150</b>		<b>14778</b>	<b>754</b>	<b>24</b>	<b>7</b>	<b>2</b>	<b>90</b>	<b>34</b>	<b>9</b>	<b>0.8</b>	<b>49</b>	<b>100</b>	<b>869</b>	<b>99</b>	<b>866</b>	<b>97</b>	<b>49</b>	<b>100</b>	<b>79</b>	<b>100</b>	<b>899</b>	<b>100</b>	<b>100</b>	<b>89</b>	<b>3</b>	<b>100</b>	<b>100</b>	<b>Yes</b>	<b>4</b>	<b>0</b>	<b>0</b>	
Rous County Council		Emigrant Creek Dam	454	2008	8	MF	410	89	27	3		23	6	0		18	100	18	100	18	100	18	100	18	100	18	100										
		Rous Villages		-		-																															
		Nightcap	10729	2007	70	DAF,DF,O	9680	44	25	2		3	2	0		50	100	50	100	50	100	50	100	50	100	50	100										
		<b>Total/Weighted Average</b>	<b>11183</b>		<b>78</b>		<b>10090</b>	<b>89</b>	<b>25</b>	<b>3</b>		<b>23</b>	<b>2</b>	<b>0</b>		<b>68</b>	<b>100</b>	<b>68</b>	<b>100</b>	<b>68</b>	<b>100</b>	<b>80</b>	<b>100</b>	<b>80</b>	<b>100</b>	<b>164</b>	<b>100</b>	<b>100</b>	<b>0</b>	<b>0</b>			<b>Yes</b>	<b>4</b>	<b>0</b>	<b>0</b>	
Shoalhaven City Council		Bamarang	9391	1999	75	C	9178	45	31	3	0	3	1	2.8	0.5	12	100	12	100	92	97	92	100	92	100	586	100		8		100	100					
		Flatrock	1549	1998	28	C	1514	45	31	5	0	3	1	2	0.5	5	100	5	100	31	100	31	100	31	100	72	100		4		100	100					
		Milton	1045	2000	11	DF	1021	65	60	3	3	3	2	0	0.2	12	100	12	100	42	96	49	100	49	100	154	100		13		100	98					
		Kangaroo Valley	80	1993	2	MF	78	175	56	10	0	27	8	1	0.1	2	100	2	100	14	100	14	100	23	100	50	100				100	98					
		<b>Total/Weighted Average</b>	<b>12065</b>		<b>115</b>		<b>11791</b>	<b>175</b>	<b>34</b>	<b>10</b>	<b>0</b>	<b>27</b>	<b>1</b>	<b>3</b>	<b>0.4</b>	<b>31</b>	<b>100</b>	<b>31</b>	<b>100</b>	<b>179</b>	<b>97</b>	<b>186</b>	<b>100</b>	<b>195</b>	<b>100</b>	<b>862</b>	<b>100</b>	<b>100</b>	<b>25</b>	<b>1</b>	<b>100</b>	<b>100</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>0</b>	
Singleton Council		Obanvale	2624	1993	30	DF	2591	5	5	5	3	4	1	0.7	0.1	694	100	594	100	553	99	12	100	12	100	512	100	<b>100</b>	<b>24</b>	<b>4</b>	<b>100</b>	<b>100</b>	<b>Yes</b>	<b>4</b>	<b>0</b>	<b>164</b>	
Snowy River Shire Council	UF	East Jindabyne	205	2012	9	CH,U	251			2	2			1	0.8	2	100	2	100	2	100	2	100	14	100	52	100		5		100	100					
	UF	Jindabyne	341	2007	8	CH,U	417			3	2			3	1.7	4	100	4	100	4	100	2	100	3	100	65	100		1		100	100					
	UF	Adaminaby	44	2005	2	CH	54			1	1			1.6	1.1	1	100	2	100	2	100	2	100	11	100	26	100				100	100					
	UF	Kalkite	12	2007	2	CH	15			2	2			1	0.7	2	100	2	100	2	100	2	100	2	100	12	100				100	55					
		Dalgety	8	2004	0.2	CH,MF	10			1	1				0.1	2	100	2	100	2	50	2	100	2	100	27	100		1		100	100					
		<b>Total/Weighted Average</b>	<b>611</b>		<b>21</b>		<b>747</b>			<b>3</b>	<b>2</b>			<b>3</b>	<b>1.3</b>	<b>11</b>	<b>100</b>	<b>12</b>	<b>100</b>	<b>12</b>	<b>92</b>	<b>10</b>	<b>100</b>	<b>32</b>	<b>100</b>	<b>182</b>	<b>100</b>	<b>100</b>	<b>7</b>	<b>1</b>	<b>100</b>	<b>100</b>	<b>Yes</b>	<b>7</b>	<b>0</b>	<b>0</b>	
Tamworth Regional Council		Calala	6936	2014	80	C	6961	71	22	1	1	8	3	2	0.5	8	100	8	100	8	100	16	100	8	100	176	100				73	100					
		Manilla	285	1990	5	C	286	85	25	4	2	31	5	0	0.1	5	100	5	100	5	100	10	100	16	100	54	100				100	100					
		Barraba	191	2015	4	DAF	192	216	8	1	1	252	3	0	0.2	2	100	2	100	2	100	4	100	2	100	51	100				100	100					
	GW	Attunga	64	1991	3	CH	64			1	1				0.1	2	100	2	100	2	100	4	50	2	100	28	100				100	100					
	GW	Nundle	43	1995	1	LS	43	78	11	1	1	8	1	1	0.5	2	100	2	100	2	100	4	50	2	100	39	100				100	100					
		Bendemeer	23	2007	1	C	24	336	88	1	1	29	6	0	0.1	2	100	2	100	2	100	4	100	2	100	26	100				100	100					
	GW	Kootingal/Moonbi	285	1991		CH	286	7	0	1	1	2	0	0	0.2	2	100	2	100	2	100	4	100	2	100	55	100				100	100					
		<b>Total/Weighted Average</b>	<b>7827</b>		<b>93</b>		<b>7856</b>	<b>336</b>	<b>21</b>	<b>4</b>	<b>1</b>	<b>252</b>	<b>3</b>	<b>2</b>	<b>0.5</b>	<b>23</b>																					





# APPENDIX D1: 2014-15 WATER TREATMENT PERFORMANCE

Water Utility	Source /type (Bulk Supplier) <sup>9</sup>	Water Treatment Works <sup>1</sup> 37a	Total Potable Water Produced W11.3 ML 37c	Year built or Augmented	Capacity ML/d 37b	Type of Treatment Works <sup>2</sup> 38a	Volume Treated to Potable ML 38b	Colour Units				Turbidity Units				Compliance with 2011 NHMRC/NRMMC Australian Drinking Water Guidelines <sup>3,7</sup>										Water Quality Complaints C9		No. of Samples ÷ Allocation <sup>6</sup>		Drinking Water Mgmt System (DWMS)? Yes/No 44c	No. WTW Operators No. 44d	Chlorination System Failure days 45	Major Malfunction of Treatment Processes days 46					
								Raw Water		Treated Water		Raw Water		Treated Water		Colour		Turbidity		pH		Physical		Chemical		E. coli		E. coli % Pop'n						No. / 1,000 Props 43	%	%	%	
								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	Samples 42m	% 42n									Compliance 42n
Wellington Council	RA	Wellington	1176	1993	15	LS	1064	8	5	1	1	14	3	1	0.2	52	100	365	100	365	100	13	100	13	100	100	100			100	100							
	RA	Geurie	119	1996	2	LS	108	8	5	1	1	18	6	8	0.3	365	100	365	100	365	100	4	100	4	100	33	97			100	65							
	<b>Total/Weighted Average</b>			<b>1295</b>		<b>16</b>		<b>1172</b>	<b>8</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>18</b>	<b>3</b>	<b>8</b>	<b>0.2</b>	<b>417</b>	<b>100</b>	<b>730</b>	<b>100</b>	<b>730</b>	<b>100</b>	<b>17</b>	<b>100</b>	<b>17</b>	<b>100</b>	<b>133</b>	<b>99</b>	<b>91</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>100</b>	<b>Yes</b>	<b>2</b>	<b>1</b>	<b>0</b>	
Wentworth Shire Council	RA	Buronga/Gol-Gol/Dareton	294	1994	4	LS	527			1	1			1	0.3	2	100	14	100	14	16	1	100	2	100	88	100			6	100	99						
	RA	Wentworth	116	1991	1	C	208			1	1			0	0.2	2	100	2	100	2	100	1	100	2	100	51	100			8	100	100						
	RA	Pooncarie	4	1996	0.2	LS	7			2	1			0	0.2	2	100	2	100	2	100	26	100	2	100	24	100			100	96							
	<b>Total/Weighted Average</b>			<b>414</b>		<b>5</b>		<b>742</b>			<b>2</b>	<b>1</b>			<b>1</b>	<b>0.3</b>	<b>6</b>	<b>100</b>	<b>18</b>	<b>100</b>	<b>18</b>	<b>35</b>	<b>28</b>	<b>100</b>	<b>6</b>	<b>100</b>	<b>163</b>	<b>100</b>	<b>100</b>	<b>14</b>	<b>6</b>	<b>100</b>	<b>99</b>	<b>Yes</b>	<b>2</b>	<b>0</b>	<b>0</b>	
Wingecarribee Shire Council	B-NSW	Wingecarribee	4032	2001	40	DAF	4446	100	51	3	3	57	11	1	0.4	330	100	330	100	11	100	10	100	10	100	338	100			136	91	100						
		Bundanoon	503	1988	10	DAF	555	150	69	3	3	37	6	1	0.5	362	100	362	100	7	100	7	100	12	100	71	100			11	100	100						
		<b>Total/Weighted Average</b>			<b>4535</b>		<b>50</b>		<b>5001</b>	<b>150</b>	<b>53</b>	<b>3</b>	<b>3</b>	<b>57</b>	<b>11</b>	<b>1</b>	<b>0.4</b>	<b>692</b>	<b>100</b>	<b>692</b>	<b>100</b>	<b>18</b>	<b>100</b>	<b>17</b>	<b>100</b>	<b>22</b>	<b>100</b>	<b>409</b>	<b>100</b>	<b>100</b>	<b>147</b>	<b>8</b>	<b>100</b>	<b>100</b>	<b>Yes</b>	<b>3</b>	<b>0</b>	<b>0</b>
Wyong Water		Mardi	16021	1994	160	DF	17027	83	66	10	5	10	5	1	0.3	360	100	360	100	472	100	12	100	12	100	435	100	100	635	10	100	100	Yes	3	0	0		
Yass Valley Council		Yass	848	1989	13	DAF	821	662	146	40	7	76	24	2	0.5	365	97	365	100	101	100	12	100	12	100	100	100	100	6	2	100	100	Yes	3	0	0		
Young Shire Council	B-GF	Reticulator								2	1			1	0.3	6	100	6	100	6	100	8	100	8	100	42	100	100	5	1	73	67	Yes		0	0		
<b>Total Capacity of 2,790 ML/d</b>						163	WTWs (Note 1)										<b>Total No. of Samples</b>			<b>4,600</b>		<b>4,800</b>		<b>19,400</b>		<b>4,430 water quality complaints</b>												
<b>Total Potable Water Produced of 255,000 ML</b>						73	Chlorinators/aerators (Note 1)										<b>% of Samples Complying</b>			<b>98.3%</b>		<b>99.9%</b>		<b>99.9%</b>		<b>3 per 1,000 properties</b>												
						236	Total										<b>LWUs Complying</b>			<b>100%</b>		<b>100%</b>		<b>100%</b>														

- Notes:**
- The total number of water treatment works (WTW) involving at least filtration and disinfection is 163. These include C, DF, DAF, LS, MF and D (Note 2 below). The total number of chlorinators/aerators is 73. 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.
  - 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.
  - Physical, Chemical and E. coli results are from the NSW Health Drinking Water Monitoring Program and/or from the NSW Performance Monitoring Database.
  - 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.
  - 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 on pages 116 and 183 and Figures 15 to 17 on pages 53 to 55. As shown above and in Table 9 on page 169, the number of LWU water treatment works is 163 and the number of chlorinator/aerators is 73 (ie. a total of 236).
  - 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.
  - The basis for assessing drinking water quality compliance is set out in section H4.6 on page 355. 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).
  - The total water treatment capacity in regional NSW is 2,790 ML/d (column 37b) and the total potable water produced is 255 GL (column 37c). The total number of water quality complaints is 4,430 and the Statewide median is 3 complaints per 1,000 properties (columns 43).
  - All LWUs have met the physical, chemical and E. coli water quality requirements of ADWG (columns 42h, 42j and 42k).
  - All LWUs have a Drinking Water Management System (DWMS - column 44c).
  - The total number of fully qualified water treatment operators is 348 (column 44d). Refer also to Appendix I on page 360 and to page 36. Information on the DPI Water section 61 Reports for each treatment works is available in the NSW Performance Monitoring Database (refer to page 356).
  - 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 (ACTEW), 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: 2014-15 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits <sup>5</sup>	Sewage Treatment Works <sup>1,6</sup>	Year built or Augmented	Design Capacity	Standard of Treatment <sup>3</sup>	Type of Treatment Works <sup>4</sup>	Nitrogen Removal	Phosphorus Removal	Effluent Discharge <sup>3</sup>	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits <sup>5</sup> and EPA Licence Compliance																		Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan? <sup>7</sup>	No. of STW Operators	Sampling Days	Major Malfunction (Treatment Processes)	
												BOD		SS		Total N		NH <sub>3</sub> N		Oil & Grease		Total P		E.coli		pH		Overall Result	No.	No./1000 props							
												mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	cfu/100mL	% Samples	range	% Samples				%						68
W18.5 ML	W26 ML	49	50	51	52	53	54	55	56	57	58	59	60	61	62	70	71	72																			
Albury City Council	100% No	Albury (Kremur St)	1987	40,000	T	BNR	Y	Y	L	2,560	1,199	15	100	20	100	15	100	5	100	10	100	1	85	NL	100	6.5 - 8.5	100	85	11			Yes		13	0		
		Albury (Waterview)	1999	26,500	AT	BNR	Y	Y	L	1,855	1,199	12	100	15	100	15	100	5	77	2	85	1	100	300	31	6.5 - 8.5	100	31	8			Yes		13	0		
		Hume Weir	1980	500	T	IEA			R	18		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0					4	0		
		Lara Lakes	1990	200	S	A			L	11		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					12	0		
		Total/Weighted Average		67,200					L R	4,444	2,398	15	100	20	100	15	100	5	90	10	94	1	91	NL	100	71	6.5 - 8.5	100	63	19	0.8	63		4	42	0	
Armidale Dumaesq Council		Armidale	1989	22,000	T	TF			R	2,227	910	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	13	1.5	100	Yes	4	12	0		
Ballina Shire Council	100% 100% 100% 100%	Ballina	2014	37,000	AT	MBR	Y	Y	O	2,954	233	10	100	15	100	10	74	2	100	5	100	0.5	100	200	100	NL	100	74	10			Yes		23	0		
		Lennox Head	2011	28,000	AS	IEA	Y	Y	O	1,619	10	10	100	15	100	NL	100	NL	100	5	100	NL	100	200	100	NL	100	100	17			Yes		26	1		
		Alstonville	1986	8,000	AS	IEA	Y	Y	R	626	254	10	100	15	76	10	100	NL	100	5	100	0.5	88	200	100	NL	100	76	5			Yes		133	1		
		Wardell	1997	1,750	AS	IEA	Y		R	198	20	15	100	20		NL	100	NL	100	10	100	NL	100	200	100	NL	100		0			Yes		26	1		
		Total/Weighted Average		74,750					R O	5,397	517	10	100	15	94	10	86	2	100	5	100	0.5	99	200	100	NL	100	79	32	2.3	79		13	208	3		
Balranald Council	No No	Balranald	1999	2,000	S	AN			L	105		NL	100	NL	100	NL	100	NL	100	100	100	NL	100	NL	100	NL	100	100	0					-	0		
		Euston	1995	1,100	S	AN			L	79		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					-	0		
		Total/Weighted Average		3,100					L	184	0	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0	0	100		1	0	0		
Bathurst Regional Council		Bathurst	1998	55,000	T	IEA	Y	Y		3,731	3,712	20	100	25	100	15	100	NL	100	10	100	1	100	200	100	6.5 - 8.5	100	100	1	0.1	100	Yes	4	52	0		
Bega Valley Shire Council	No No No No	Wolumla	2007	800	T	MBR	Y			21	20	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					0	0		
		Cobargo	2006	800	T	MBR	Y		R	22	18	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					-	0		
		Candelo	2007	800	T	MBR	Y		R	18	10	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					-	0		
		Kalaru	2008	800	T	MBR	Y			13	12	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					0	0		
		Tura Beach	2015	4,500	T	CEA	Y		L	201	25	10	100	20	83	10	100	2	100	2	100	2	100	NL	100	NL	100	6.5 - 8.5	100	83	4			Yes		12	0
		Eden	2015	8,000	T	IEA	Y		O	361	64	10	100	20	100	10	100	2	100	2	100	2	100	NL	100	NL	100	6.5 - 8.5	100	100	4			Yes		12	0
		Tathra	2004	6,200	T	CEA	Y	Y		139	126	10	100	15	100	10	100	2	100	2	100	2	100	1	100	100	100	6.5 - 8.5	100	100	0			Yes		12	0
		Bega	2008	8,000	T	IEA	Y	Y	R	455		10	100	10	100	10	100	2	100	2	100	0.5	100	200	100	100	6.5 - 8.5	100	100	1			Yes		12	0	
		Bermagui	2008	6,000	AS	CEA	Y		O	216	38	10	100	15	100	10	100	2	100	2	100	8	100	200	100	100	6.5 - 8.5	100	100	2			Yes		12	0	
		Merimbula	2008	15,500	AS	IEA	Y		L O	798	133	10	100	20	100	10	100	2	100	2	100	13	100	200	83	6.5 - 8.5	100	83	2			Yes		12	0		
		Total/Weighted Average		51,400					L R O	2,244	446	10	100	20	98	10	100	2	100	2	100	13	100	200	94	6.5 - 8.5	100	92	13	1.1	92		5	72	0		
Bellingen Shire Council	100%	Urunga	1989	6,650	T	IEA	Y	Y	R	345		10	100	15	100	10	100	2	100	2	100	0.5	100	200	100	6.5 - 8.5	100	100	0					26	1		
		Bellingen	1994	5,000	T	IEA	Y	Y	R	322		10	100	15	100	10	100	2	100	2	100	0.5	100	200	100	6.5 - 8.5	100	100	0					26	1		
		Dorrigo	1970	1,500	T	TF			R	97		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	2					26	0		
		Total/Weighted Average		13,150					R	764	0	10	100	15	100	10	100	2	100	2	100	0.5	100	200	100	6.5 - 8.5	100	100	2	0.7	100		4	78	2		
Berrigan Shire Council	No No No No	Tocumwal	1944	4,000	T	TF			L	275	270	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	5					2	0		
		Finley	1967	3,200	T	TF			L	274	225	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	10					2	5		
		Barooga	1989	3,000	S	A			L	105		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					2	0		
		Berrigan	1968	1,500	T	TF			L	96	95	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	3					2	0		
		Total/Weighted Average		11,700					L	750	590	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	18	5.0	100		4	8	5		
Bland Shire Council	100% No No	West Wyalong	1986	4,000	AS	C				262	262	20	100	30	100	NL	100	NL	100	NL	100	600	100	100	6.0 - 9.0	100	100	0			Yes		4	0			
		Ungarie	1961	600	AS	C				0		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					0	0		
		Barmedman	1940	400	T	A	Y	Y	L	24		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					0	0		
		Total/Weighted Average		5,000					L	286	262	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	AS	IEA	Y	Y		308	211	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	2	13	0		
Bogan Shire Council	100%	Nyngan	1991	3,735	S	A			180	25	30	100	30	0	15	100	5	100	10	100	10																

# APPENDIX D2: 2014-15 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits <sup>5</sup>	Sewage Treatment Works <sup>1,6</sup>	Year built or Augmented	Design Capacity	Standard of Treatment <sup>3</sup>	Type of Treatment Works <sup>4</sup>	Nitrogen Removal	Phosphorus Removal	Effluent Discharge <sup>3</sup>	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits <sup>5</sup> and EPA Licence Compliance														Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan? <sup>7</sup>	No. of STW Operators	Sampling Days	Major Malfunction (Treatment Processes)			
												BOD		SS		Total N		NH <sub>3</sub> N		Oil & Grease		Total P		E.coli		pH							Overall Result	No.	No./1000 props
												mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	cfu/100mL	% Samples	range	% Samples								
W18.5 ML	W26 ML	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80		
Byron Shire Council		Byron Bay West	2005	29,000	T	BNR	Y	Y	R	1,894	409	10	100	15	100	10	100	2	100	5	100	0.5	100	200	100	6.5 - 8.5	100	100	6			Yes		27	0
		Ocean Shores	1997	8,000	AS	IEA	Y	Y	R	568		15	100	20	100	15	100	5	100	10	100	1	100	200	100	6.5 - 8.5	100	100	3			Yes		27	0
		Brunswick Valley	2011	16,500	T	BNR	Y	Y	LR	505	27	10	100	15	100	10	100	2	100	5	100	0.3	85	200	100	6.5 - 8.5	100	85	3			Yes		27	0
		Bangalow	2007	3,500	AT	MBR	Y	Y	LR	131	8	10	100	15	100	10	100	2	88	5	100	0.3	100	200	100	6.5 - 8.5	100	88	2			Yes		27	0
		<b>Total/Weighted Average</b>		<b>57,000</b>						<b>3,098</b>	<b>444</b>	<b>10</b>	<b>100</b>	<b>15</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>2</b>	<b>99</b>	<b>5</b>	<b>100</b>	<b>0.5</b>	<b>98</b>	<b>200</b>	<b>100</b>	<b>6.5 - 8.5</b>	<b>100</b>	<b>97</b>	<b>14</b>	<b>1.3</b>	<b>97</b>		<b>4</b>	<b>108</b>	<b>0</b>
Cabonne Council	100%	Canowindra	2000	2,500	S	TF				-	-	30	100	50	75	15	50	NL	100	10	100	10	100	600	50	6.5 - 8.5	50	50	0			Yes		4	0
	100%	Molong	2010	2,000	AS	AL	Y			-	-	30	-	50	-	15	-	NL	100	10	-	10	-	600	-	6.5 - 8.5	-	-	-			Yes		12	-
	No	Manildra	2012	800	0	A				-	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	-	-	-			-	-
	No	Cumnock			0	0				-	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	-	-	-			-	-
	No	Yeoval			0	0				-	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	-	-	-			-	-
	No	Cudal	2010	500	P	A	Y			-	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	-	-	-			-	-
	No	Eugowra	1999	550	S	A				-	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	-	-	-			-	-
	<b>Total/Weighted Average</b>		<b>6,350</b>						<b>0</b>	<b>108</b>																	<b>0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>		<b>6</b>	<b>16</b>	<b>0</b>	
Carrathool Shire Council	No	Hillston	1978	1,000	AS	IEA		Y	L	101	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					-	0
	No	Goolgowi	2010	400	S	A				-	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					-	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					-	0
		<b>Total/Weighted Average</b>		<b>1,550</b>						<b>101</b>	<b>0</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>100</b>	<b>0</b>	<b>0.0</b>	<b>100</b>		<b>1</b>	<b>0</b>	<b>0</b>
Central Darling Shire Council	No	Wilcannia	1992	1,510	S	A			L	80	0	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	3	8.1	100		1	4	0
Clarence Valley Council	100%	Grafton North	2010	14,700	T	TF			R	725	15	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	6			Yes		26	0
		Yamba	1999	7,500	T	IEA	Y	Y	O	779	-	15	100	20	100	15	100	5	100	10	100	1	100	200	100	6.5 - 8.5	100	100	2			Yes		26	0
		Clarenza	2010	12,800	T	IEA	Y	Y	R	762		10	100	15	100	10	81	NL	100	5	100	0.5	88	200	88	NL	100	81	5			Yes		26	0
	100%	Coutts Crossing	1988	1,000	AS	IEA			R	36	13	20	100	30	83	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	83	0			Yes		12	0
		Woodford Island	2010	8,000	AT	IEA	Y	Y	O	450	113	10	100	15	100	10	89	2	100	5	100	0.5	100	200	100	6.5 - 8.5	100	89	3			Yes		26	0
		Iluka	2013	5,800	AT	IEA	Y	Y	O	105	54	10	100	10	100	10	75	2	79	2	71	0.3	100	200	100	6.5 - 8.5	100	71	2			Yes		24	0
		<b>Total/Weighted Average</b>		<b>49,800</b>						<b>2,856</b>	<b>195</b>	<b>15</b>	<b>100</b>	<b>20</b>	<b>100</b>	<b>15</b>	<b>92</b>	<b>5</b>	<b>99</b>	<b>10</b>	<b>99</b>	<b>1</b>	<b>97</b>	<b>200</b>	<b>97</b>	<b>6.5 - 8.5</b>	<b>100</b>	<b>92</b>	<b>18</b>	<b>1.2</b>	<b>92</b>		<b>9</b>	<b>140</b>	<b>0</b>
Cobar Shire Council	No	Cobar	1982	10,000	S	CEA			L	435	0	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0	0.0	100	Yes	0	12	0
Coffs Harbour City Council	100%	Coffs Harbour	2009	70,000	AT	CEA	Y	Y	O	5,362	495	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	4			Yes		52	0
		Sawtell	1996	18,000	S	IEA	Y	Y	O	535	21	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	1			Yes		20	0
		Moonee/Emerald	2000	7,000	AT	BNR	Y	Y	O	244	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes		17	0
		Woolgoolga	2005	18,000	AS	IEA	Y	Y	O	1,101	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	1			Yes		17	0
		Corindi Beach	2000	1,500	T	IEA	Y	Y	L	111	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes		13	0
		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	0
		<b>Total/Weighted Average</b>		<b>114,500</b>						<b>7,353</b>	<b>1,013</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>100</b>	<b>6</b>	<b>0.3</b>	<b>100</b>		<b>5</b>	<b>119</b>	<b>0</b>
Coolamon Shire Council	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		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					0	0
		<b>Total/Weighted Average</b>		<b>2,200</b>						<b>105</b>	<b>75</b>	<b>30</b>	<b>100</b>	<b>20</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>5.5 - 9.5</b>	<b>100</b>	<b>100</b>	<b>0</b>	<b>0.0</b>	<b>100</b>		<b>2</b>	<b>4</b>	<b>0</b>
Cooma-Monaro Council		Cooma (The Glen)	1998	15,000	AT	IEA	Y	Y	R	753	5	10	100	15	100	10	100	2	100	2	100	0.3	100	200	100	6.5 - 8.5	100	100	0			Yes		13	0
		Nimmitabel	2008	500	AS	IEA		Y	R	29		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	1			Yes		12	0
		<b>Total/Weighted Average</b>		<b>15,500</b>						<b>782</b>	<b>5</b>	<b>10</b>	<b>100</b>	<b>15</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>2</b>	<b>100</b>	<b>2</b>	<b>100</b>	<b>0.3</b>	<b>100</b>	<b>200</b>	<b>100</b>	<b>6.5 - 8.5</b>									







# APPENDIX D2: 2014-15 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits <sup>5</sup>	Sewage Treatment Works <sup>1,6</sup>	Year built or Augmented	Design Capacity	Standard of Treatment <sup>3</sup>	Type of Treatment Works <sup>4</sup>	Nitrogen Removal	Phosphorus Removal	Effluent Discharge <sup>3</sup>	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits <sup>5</sup> and EPA Licence Compliance														Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan? <sup>7</sup>	No. of STW Operators	Sampling Days	Major Malfunction (Treatment Processes)				
												BOD		SS		Total N		NH <sub>3</sub> N		Oil & Grease		Total P		E.coli		pH							Overall Result	No.	No./1000 props	
												mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	cfu/100mL	% Samples	range	% Samples									%
W18.5 ML	W26 ML	49	50	51	52	53	54	55	56	57	58	59	60	61	62	70	71	72	68	69	63	64a	64b	65	67											
Inverell Shire Council	No	Inverell	1986	12,000	AS	IEA			R	680		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes		4	14	0
		Ashford	1970	1,000	AS	IEA			R	35		20	100	30	80	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	80	80	-			Yes		2	14	-
		Delungra	1970	500	AS	IEA			R	20		20	100	30	80	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	-	80	0			Yes		2	14	0
		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					-	-	0
		<b>Total/Weighted Average</b>								R	765	0	20	100	30	99	NL	100	NL	100	10	100	NL	100	NL	100	NL	96	99	0	0.0	99		4	42	0
Jerilderie Shire Council	100%	Jerilderie	1996	2,000	S	A				77	50	20	50	30	0	NL	100	NL	100	10	50	NL	100	NL	100	NL	100	0	0	0.0	0	Yes		2	4	0
Junee Shire Council	100%	Junee	1992	7,000	T	TF			R	367	147	30	100	30	100	NL	100	NL	100	10	100	NL	100	600	100	5.5 - 9.5	50	50	0	0.0	50		2	4	0	
Kempsey Shire Council	100%	Kempsey West	2011	12,000	T	TF			R	1,169	14	15	100	20	50	81	15	5	77	10	100	1	100	600	88	6.5 - 8.5	88	50	5			Yes		2	26	0
		South West Rocks	2010	12,000	AT	IEA	Y	Y	L	496	3	10	100	15	100	10	100	3	100	2	100	3	83	200	100	6.5 - 8.5	100	83	2			Yes		2	12	0
		Kempsey South	2014	5,400	T	TF			R	474	39	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	3			Yes		2	26	0
		Crescent Head	2012	4,000	T	IEA	Y	Y	O	143	5	15	100	20	100	15	100	5	100	10	100	1	100	200	100	6.5 - 8.5	100	100	0			Yes		2	26	0
		Smithtown/Gladstone	1983	2,000	T	IEA			R	159		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes		2	12	0
		Frederickton	1980	1,000	T	IEA			R	76	15	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes		2	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		2	26	0
		<b>Total/Weighted Average</b>								L R O	2,558	77	15	100	20	77	15	91	5	89	10	100	1	97	600	95	6.5 - 8.5	95	74	11	1.1	74		8	140	0
Kyogle Council	Reuse 100% 100%	Kyogle	2010	3,200	AS	TF	Y	Y	R	341	25	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	1					2	12	0
		Bonalbo	2002	500	AS	IEA	Y		R	36	33	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0					2	12	0
		Woodenbong	2007	662	AS	IEA	Y		R	47	22	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	1					2	12	0
		<b>Total/Weighted Average</b>							R	424	80	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	2	1.2	100		7	36	0	
Lachlan Shire Council	No No	Condobolin	1982	4,000	AS	TF				-	-	20	-	30	-	40	-	NL	100	10	-	10	-	1500	-	6.5 - 8.5	-	-	-			Yes		2	-	
		Tottenham			0	0				-	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	-					-	-	
		Lake Cargelligo			0	0				-	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	-					-	-	
		<b>Total/Weighted Average</b>								0	116																0	0	0.0	0		1	12	0		
Leeton Shire Council	100% No	Leeton	1999	27,000	T	TF		Y	L	742		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
		Yanco	1980	1,000	T	IEA			L R	69		30	100	40	100	NL	100	NL	100	15	100	NL	100	600	100	5.5 - 9.5	100	100	0					2	4	0
		Whitton	2000	500	S	A				20		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					-	-	0
		<b>Total/Weighted Average</b>							L R	831	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		3	10	0	
Lismore City Council	100%	Lismore East	2004	30,500	AT	IEA	Y	Y	R	2,284	5	15	100	20	100	15	100	5	100	10	100	1	76	NL	100	6.5 - 8.5	100	76	0			Yes		2	52	0
		Lismore South	2004	22,000	T	TF	Y	Y	R	1,549		15	100	20	100	15	100	5	100	10	100	1	55	NL	100	NL	100	55	0			Yes		2	52	0
		Nimbin	1993	600	T	IEA	Y	Y	R	87		20	100	30	100	15	100	5	100	10	100	1	100	NL	100	NL	100	100	0			Yes		2	12	0
		<b>Total/Weighted Average</b>							R	3,920	5	15	100	20	100	15	100	5	100	10	100	1	68	NL	100	6.5 - 8.5	100	68	0	0.0	68		4	116	0	
Lithgow City Council	100% 100% 100%	Lithgow	2012	23,000	T	IEA	Y	Y	R	1,780		10	100	15	83	10	100	2	100	10	100	0.5	83	200	100	6.5 - 8.5	100	83	5			Yes		2	12	0
		Portland	1990	2,300	S	TF			R	218		30	100	50	100	35	100	NL	100	10	100	10	100	600	66	6.5 - 8.5	100	66	0			Yes		2	12	0
		Wallerawang	2012	3,300	T	IEA	Y	Y	R	144		10	100	15	100	10	83	2	75	10	100	0.5	100	200	100	6.5 - 8.5	100	75	0			Yes		2	12	0
		<b>Total/Weighted Average</b>							R	2,142	0	10	100	15	86	10	99	2	98	10	100	0.5	86	200	97	6.5 - 8.5	100	81	5	0.7	81		6	36	0	
Liverpool Plains Shire Council	100%	Quirindi	1984	7,000	AS	TF			R	145		20	100	30	35	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	35	0			Yes		2	27	0
		Werris Creek	1969	3,200	AS	TF			R	122		20	100	30	100	NL	100	NL	100	10	81	NL	100	NL	100	NL	100	81	0			Yes		2	26	0
		<b>Total/Weighted Average</b>							R	267	0	20	100	30	65	NL	100	NL	100	10	91	NL	100	NL	100	NL	100	56	0	0.0	56		3	53	0	
Lockhart Shire Council	100% 100% No	Lockhart	1967	3,000	T	TF			L	74	2	20	100	30	75	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	75	0			Yes		2	4	0
		The Rock	1979	2,000	AS	C			L	46		20	100	30	60	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	60	0			Yes		2	4	0
		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					-	-	

# APPENDIX D2: 2014-15 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits <sup>5</sup>	Sewage Treatment Works <sup>1,6</sup>	Year built or Augmented	Design Capacity	Standard of Treatment <sup>3</sup>	Type of Treatment Works <sup>4</sup>	Nitrogen Removal	Phosphorus Removal	Effluent Discharge <sup>3</sup>	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits <sup>5</sup> and EPA Licence Compliance															Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan? <sup>7</sup>	No. of STW Operators	Sampling Days	Major Malfunction (Treatment Processes)			
												BOD		SS		Total N		NH <sub>3</sub> N		Oil & Grease		Total P		E.coli		pH		Overall Result						No.	No./1000 props	
												mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	cfu/100mL	% Samples	range	% Samples									% Samples
W18.5 ML	W26 ML	49	50	51	52	53	54	55	56	57	58	59	60	61	62	70	71	72	68	69	63	64a	64b	days	days											
MidCoast County Council	100%	Gloucester	1985	4,600	S	TF	Y		R	345	-	20	100	30	100	35	100	10	100	NL	100	NL	100	NL	100	6.5 - 8.5	100	100	3			Yes		16	193	8
		Dawson River	1999	30,000	T	CEA	Y		R	1,819	286	30	100	30	100	NL	100	5	100	NL	100	NL	100	NL	100	6.5 - 8.5	100	100	13			Yes		12	0	
		Tea Gardens	1997	14,000	AT	IEA	Y	Y	L	369	87	10	100	15	100	10	100	2	100	5	100	1	69	10	85	6.5 - 8.5	100	69	2			Yes		26	1	
	100%	Forster	1996	32,000	AT	IEA	Y	Y	O	1,681	26	20	100	35	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	15			Yes		52	0	
		Harrington	1994	8,000	AS	CEA	Y		L	450	3	20	100	30	100	NL	100	NL	100	NL	100	NL	100	NL	100	6.5 - 8.5	100	100	1			Yes		12	0	
	100%	Wingham	2008	7,500	AS	CEA	Y		R	403	89	30	100	30	100	NL	100	10	100	NL	100	NL	100	NL	100	6.5 - 8.5	100	100	1			Yes		26	0	
		Old Bar	2004	7,000	T	CEA	Y	Y	L	356		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes		12	5	
	100%	Hallidays Point	2007	25,000	T	CEA	Y	Y	L	1,170	377	30	100	20	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	10			Yes		12	0	
		Bulahdelah	1996	3,000	AT	IEA	Y	Y	R	124	12	10	100	15	100	10	-	1	100	10	100	0.5	100	200	100	6.5 - 8.5	100	100	0			Yes		12	0	
	100%	Stroud	2010	1,500	T	CEA	Y	Y	R	56	41	10	100	15	100	10	100	2	100	7	100	4	100	200	100	6.5 - 8.5	100	100	0			Yes		12	2	
		Manning Point	2003	600	T	IEA	Y	Y	L	21		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes		0	0	
100%	Lansdowne	2002	600	AS	IEA	Y		R	27	9	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes		3	0		
	Cooperook	2002	600	AS	IEA	Y		R	28	12	30	100	30	100	NL	100	NL	100	10	100	NL	100	200	50	6.5 - 8.5	50	50	0			Yes		2	0		
		<b>Total/Weighted Average</b>		<b>134,400</b>					<b>6,849</b>	<b>941</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>	<b>NL</b>	<b>98</b>	<b>5</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>98</b>	<b>NL</b>	<b>99</b>	<b>6.5 - 8.5</b>	<b>100</b>	<b>98</b>	<b>45</b>	<b>1.3</b>	<b>98</b>		<b>16</b>	<b>193</b>	<b>8</b>		
Mid-Western Regional Council	100%	Mudgee (New)	2014	16,000	AT	IEA	Y	Y	R	982	2	10	100	10	100	10	100	NL	100	2	100	0.5	50	200	42	6.5 - 8.5	100	42	5					12	0	
		Gulgong	1997	3,500	AS	IEA	Y		L	119		20	100	50	100	40	100	NL	100	10	100	10	100	600	75	6.5 - 8.5	0	0	2			Yes		4	0	
	Kandos	1972	2,800	T	TF			R	68		30	100	50	100	35	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	42	42	1			Yes		12	0		
	Rylstone	1972	1,300	T	TF	Y	Y	R	50		30	100	50	100	35	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	100	100	0			Yes		12	0		
		<b>Total/Weighted Average</b>		<b>23,600</b>					<b>1,219</b>	<b>2</b>	<b>10</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>2</b>	<b>100</b>	<b>0.5</b>	<b>60</b>	<b>200</b>	<b>51</b>	<b>6.5 - 8.5</b>	<b>87</b>	<b>40</b>	<b>8</b>	<b>1.1</b>	<b>40</b>		<b>8</b>	<b>40</b>	<b>0</b>		
Moree Plains Shire Council	No	Ashley	2005	400	nil	A			L	-	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	100	0					-	0		
		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	
	Moree	2006	15,000	AS	IEA			L	1,281	793	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	100	100	0					4	0		
	Mungindi	1998	1,400	AS	IEA			L	56	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					-	0		
		<b>Total/Weighted Average</b>		<b>17,906</b>					<b>1,357</b>	<b>793</b>	<b>20</b>	<b>100</b>	<b>30</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>6.5 - 8.5</b>	<b>100</b>	<b>100</b>	<b>0</b>	<b>0.0</b>	<b>100</b>		<b>4</b>	<b>4</b>	<b>0</b>		
Murray Shire Council	No	Moama	1997	10,000	T	A			L	528	90	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	100	0			Yes		12	0		
		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					2	0	
		<b>Total/Weighted Average</b>		<b>11,600</b>						<b>572</b>	<b>90</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>100</b>	<b>0</b>	<b>0.0</b>	<b>100</b>		<b>6</b>	<b>14</b>	<b>0</b>	
Murrumbidgee Shire Council	100%	Darlington Point	2009	1,500	T	CEA	Y		-	-	10	-	15	-	10	-	NL	100	10	100	10	-	200	-	6.5 - 8.5	-	-	-			Yes		90	-		
		Coleambally	2010	600	P	A			-	-	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	-					-	-		
		<b>Total/Weighted Average</b>		<b>2,100</b>						<b>0</b>	<b>27</b>																<b>0</b>	<b>0</b>	<b>0.0</b>	<b>0</b>		<b>2</b>	<b>90</b>	<b>0</b>		
Muswellbrook Shire Council	100%	Muswellbrook	2013	14,000	T	TF				845	784	20	83	30	70	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	50	50	2					20	0	
		Denman		1,500	T	IEA				116	108	20	100	30	26	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	47	26	0					12	0	
		<b>Total/Weighted Average</b>		<b>15,500</b>						<b>961</b>	<b>892</b>	<b>20</b>	<b>85</b>	<b>30</b>	<b>65</b>	<b>NL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>6.5 - 8.5</b>	<b>50</b>	<b>47</b>	<b>2</b>	<b>0.3</b>	<b>47</b>		<b>3</b>	<b>32</b>	<b>0</b>	
Nambucca Shire Council	100%	Nambucca Heads	2012	15,000	T	IEA	Y	R	675		10	100	15	100	10	100	NL	100	5	100	0.5	56	200	81	NL	100	56	5			Yes		27	0		
		Macksville	1998	5,500	T	IEA	Y	O	536		10	88	20	77	10	85	2	85	5	100	0.5	88	200	88	6.5 - 8.5	100	77	2			Yes		26	0		
	Scotts Head	1985	2,000	S	IEA			L	148		20	100	30	54	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	54	0			Yes		13	0		
	Bowraville	2001	1,200	S	TF			O	116	79	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	2			Yes		13	0		
		<b>Total/Weighted Average</b>		<b>23,700</b>						<b>1,475</b>	<b>79</b>	<b>10</b>	<b>96</b>	<b>15</b>	<b>87</b>	<b>10</b>	<b>95</b>	<b>NL</b>	<b>95</b>	<b>5</b>	<b>100</b>	<b>0.5</b>	<b>75</b>	<b>200</b>	<b>87</b>	<b>NL</b>	<b>100</b>	<b>67</b>	<b>9</b>	<b>1.6</b>	<b>67</b>		<b>5</b>	<b>79</b>	<b>0</b>	
Narrabri Shire Council	No	Narrabri	2001	8,300	S	TF				626	432	20	64	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	6.5 - 8.5	83	64								



# APPENDIX D2: 2014-15 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits <sup>5</sup>	Sewage Treatment Works <sup>1,6</sup>	Year built or Augmented	Design Capacity	Standard of Treatment <sup>3</sup>	Type of Treatment Works <sup>4</sup>	Nitrogen Removal	Phosphorus Removal	Effluent Discharge <sup>3</sup>	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits <sup>5</sup> and EPA Licence Compliance															Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan <sup>7</sup>	No. of STW Operators	Sampling Days	Major Malfunction (Treatment Processes)		
												BOD		SS		Total N		NH <sub>3</sub> N		Oil & Grease		Total P		E.coli		pH		Overall Result						No.	No./1000 props
												mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	cfu/100mL	% Samples	range	% Samples								
W18.5 ML	W26 ML	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67															
Palerang Council	100%	Braidwood	2010	2,000	AT	IEA	Y	Y	R	113	15	10	100	15	100	10	100	2	100	2	100	0.5	84	200	100	6.5 - 8.5	100	84	0		Yes	64b	13	0	
	100%	Bungendore	2012	5,000	AT	IEA	Y	Y	R	214	70	10	100	15	100	10	100	10	100	10	100	0.5	100	200	100	6.5 - 8.5	100	100	2		Yes	64b	13	0	
	100%	Captains Flat	1984	500	T	IEA	Y		R	46		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0		Yes	64b	4	0	
		Total/Weighted Average		7,500					R	373	85	10	100	15	100	10	100	10	100	10	100	0.5	95	200	100	6.5 - 8.5	100	95	2	0.9	95	6	30	0	
Parkes Shire Council	100%	Parkes	1996	14,500	AS	TF		Y	R	716	170	30	100	50	100	40	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	57	57	0		Yes	64b	7	0	
	No	Tullamore	2009	370	S	A			L	0	2	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				-	0	
	No	Trundle	2011	670	S	A				0		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				-	0	
	No	Peak Hill	1983	2,000	AS	TF			L	110		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				0	0	
		Total/Weighted Average		17,540					L R	826	172	30	100	50	100	40	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	63	63	0	0.0	63	3	7	0	
Queanbeyan City Council	No	Queanbeyan	1986	34,500	AS	TF	Y	Y	L R	3,675	0	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0	0.0	100	Yes	3	365	0
Richmond Valley Council	100%	Casino	1986	13,300	T	TF	Y		R	1,110	410	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	-		Yes	26	-		
	100%	Evans Head	2013	5,500	T	IEA	Y	Y	R	579		10	100	15	100	10	100	2	100	2	100	0.3	100	200	100	6.5 - 8.5	100	100	-		Yes	26	-		
	100%	Coraki	2011	1,200	T	TF			R	125	10	20	100	30	77	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	77	-		Yes	13	0		
	100%	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	-		Yes	13	-		
		Total/Weighted Average		20,200					R	1,821	420	20	100	30	98	NL	100	NL	100	10	100	10	100	NL	100	NL	100	98	0	0.0	98	4	78	0	
Shoalhaven City Council	100%	Bendalong	2008	4,600	AS	IEA	Y	Y	L	86		10	100	20	100	10	100	2	100	2	100	10	100	200	100	6.5 - 8.5	100	100	1		Yes	12	0		
	100%	Nowra	1989	21,000	AS	TF	Y		R	2,199	32	40	100	40	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0		Yes	12	0		
	100%	St Georges Basin	1990	8,000	AS	IEA	Y		O	1,305	708	10	100	15	100	10	100	2	100	2	100	NL	100	200	100	6.5 - 8.5	100	100	0		Yes	12	0		
	100%	Vincentia	2010	14,000	AS	IEA	Y	Y	O	561	309	10	100	15	100	10	100	2	100	2	100	NL	100	200	100	6.5 - 8.5	100	100	1		Yes	12	0		
	100%	Bomadery	1990	12,500	AS	TF	Y		R	849		20	100	40	42	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	42	2		Yes	12	0		
	100%	Milton Ulladulla	2006	28,000	AS	IEA	Y		O	1,312		15	100	20	100	NL	100	NL	100	2	100	NL	100	200	100	NL	100	100	0		Yes	12	0		
	100%	Culburra	2005	10,500	AS	IEA	Y		O	597	328	10	100	15	100	10	100	2	100	2	100	NL	100	200	100	6.5 - 8.5	100	100	0		Yes	12	0		
	100%	Sussex Inlet	1990	8,000	AS	IEA	Y		L	511	6	10	100	15	100	10	100	2	100	2	100	NL	100	200	100	6.5 - 8.5	100	100	1		Yes	12	0		
	100%	Callala	2000	6,000	AS	IEA	Y	Y	O	291	160	10	100	15	100	10	100	2	100	2	100	NL	100	200	100	6.5 - 8.5	100	100	0		Yes	12	0		
	100%	Conjola	2008	2,700	AS	IEA	Y	Y	L	84		10	100	20	100	10	100	2	100	2	100	10	100	200	100	6.5 - 8.5	100	100	0		Yes	12	0		
	100%	Shoalhaven Heads	2012	8,000	AS	IEA	Y	Y	L	233	106	10	100	15	100	10	100	2	100	2	100	NL	100	200	100	6.5 - 8.5	100	100	1		Yes	12	0		
	100%	Berry	2006	3,000	AS	IEA	Y	Y	R	230	20	10	100	10	100	10	100	2	100	2	100	0.5	100	200	100	6.5 - 8.5	100	100	0		Yes	12	0		
	100%	Kangaroo Valley	2013	1,410	AS	MBR	Y	Y		40	36	10	100	15	100	10	100	2	100	2	100	1	100	200	100	NL	100	100	0		Yes	12	0		
	Total/Weighted Average		127,710					L R O	8,298	1,705	40	100	40	94	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	94	6	0.1	94	7	156	0		
Singleton Council		Singleton	1988	2,000	AS	IEA	Y	Y	R	1,126	0	30	100	30	100	25	100	NL	100	15	100	15	100	NL	100	6.5 - 8.5	100	100	5	0.9	100	Yes	3	12	0
Snowy River Shire Council	100%	Jindabyne	2012	8,000	AT	IEA	Y	Y	R	336		10	100	15	100	10	100	2	100	2	100	0.3	77	200	88	6.5 - 8.5	100	77	0		Yes	18	0		
	100%	Berridale	2011	2,000	AS	IEA			L R	142	39	10	100	15	100	10	100	1	100	2	100	9	100	100	88	6.5 - 8.5	100	88	0		Yes	12	0		
	No	Adaminaby	1961	750	T	TF	Y			28		20	100	30	83	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	83	0		Yes	12	0		
	No	Interlaken	1981	1,200	S	IEA	Y			10		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				-	0	
		Total/Weighted Average		11,950					L R	516	39	10	100	15	99	10	100	2	100	2	100	0.3	85	200	89	6.5 - 8.5	100	81	0	0.0	81	6	42	0	
Tamworth Regional Council	No	Tamworth (Westdale)	2011	61,000	AS	TF	Y	Y		4,844	3,913	20	100	20	100	25	100	12	100	10	100	12	100	NL	100	6.5 - 8.5	100	100	0		Yes	52	0		
	No	Manilla	2000	2,850	S	TF				173	173	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				75	75	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				4	0	
	No	Barraba	1956	1,500	S	TF				117	117	20	100	30	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0		Yes	12	0		
		Total/Weighted Average		67,350						5,209	4,278	20	100	20	100	25	100	12	100	10	100	12	100	NL	100	6.5 - 8.5	100	100	0	0.0	100	11	72	0	
Temora Shire Council	100%	Temora	2005	8,000	T	AL			L R	326	99	30	100	40	100	NL	100	NL	100	10	100	NL	100	600	58	5.5 - 9.5	100	58	0	0.0	58	Yes	1	12	0
Tenterfield Shire Council	100%	Tenterfield	2009	3,700	T																														



# APPENDIX D2: 2014-15 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits <sup>5</sup>	Sewage Treatment Works <sup>1,6</sup>	Year built or Augmented	Design Capacity	Standard of Treatment <sup>3</sup>	Type of Treatment Works <sup>4</sup>	Nitrogen Removal	Phosphorus Removal	Effluent Discharge <sup>3</sup>	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits <sup>5</sup> and EPA Licence Compliance															Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan <sup>7</sup>	No. of STW Operators	Sampling Days	Major Malfunction (Treatment Processes)		
												BOD		SS		Total N		NH <sub>3</sub> N		Oil & Grease		Total P		E.coli		pH		Overall Result						No.	No./1000 props
												mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	cfu/100mL	% Samples	range	% Samples								
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				
Tweed Shire Council		Banora Point	2012	75,000	T	BNR	Y	Y	R	4,378	160	10	100	15	100	10	100	2	100	10	100	0.5	100	200	100	6.5 - 8.5	100	100	4		Yes	52	0		
		Murwillumbah	2007	16,000	AT	TF	Y	Y	R	1,395	301	10	100	15	100	10	100	2	100	5	100	0.5	100	200	100	6.5 - 8.5	100	100	3		Yes	26	0		
		Kingscliff	2008	25,000	AS	BNR	Y	Y	R	1,100	40	10	100	15	100	5	100	2	100	5	100	0.5	100	100	100	6.5 - 8.5	100	100	1		Yes	26	0		
		Hastings Point	2005	16,000	AS	IEA	Y	Y	L	1,018	0	10	100	15	100	10	100	NL	100	5	100	1	100	NL	100	6.5 - 8.5	100	100	2		Yes	26	0		
		Tumbulgum	2000	700	AS	IEA	Y	Y	R	45	0	15	100	20	100	15	100	5	100	NL	100	1	100	200	100	6.5 - 8.5	100	100	0		Yes	26	0		
		Tyalgum	1990	500	AS	IEA	Y	Y		27	27	25	100	50	58	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	58	0		Yes	12	0		
		Uki	2004	600	AS	CEA	Y	Y		23	23	15	100	25	100	30	100	5	81	10	100	6	100	NL	100	6.5 - 8.5	100	81	0		Yes	12	0		
		Burringbar/Mooball	2013	750	AS	IEA	Y	Y	R	26	0	10	100	15	100	10	100	2	81	5	100	0.5	100	200	100	6.8 - 8.5	100	81	2		Yes	26	0		
	<b>Total/Weighted Average</b>		<b>134,550</b>						<b>8,011</b>	<b>551</b>	<b>10</b>	<b>100</b>	<b>15</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>2</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>0.5</b>	<b>100</b>	<b>200</b>	<b>100</b>	<b>6.5 - 8.5</b>	<b>100</b>	<b>100</b>	<b>12</b>	<b>0.4</b>	<b>100</b>	<b>10</b>	<b>206</b>	<b>0</b>		
Upper Hunter Shire Council	100%	Scone	1988	7,000	AS	TF			R	587	126	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	2		Yes	12	0		
	100%	Aberdeen	1983	4,000	AS	IEA			R	178		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	1		Yes	12	0		
	No	Merriwa	1970	1,600	S	TF			R	65		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0		Yes	4	0		
	No	Murrurundi	1979	1,000	AS	IEA			R	70		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				0	0	
		<b>Total/Weighted Average</b>		<b>13,600</b>					<b>900</b>	<b>126</b>	<b>20</b>	<b>100</b>	<b>30</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>100</b>	<b>3</b>	<b>0.7</b>	<b>100</b>	<b>3</b>	<b>28</b>	<b>0</b>		
Upper Lachlan Council	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	12	0		
	No	Taralga	2011	400	AT	IEA	Y	Y	L	50	50	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				12	0	
	No	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	12	0		
		<b>Total/Weighted Average</b>		<b>5,600</b>					<b>900</b>	<b>50</b>	<b>20</b>	<b>100</b>	<b>30</b>	<b>100</b>	<b>15</b>	<b>100</b>	<b>5</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>1</b>	<b>100</b>	<b>200</b>	<b>100</b>	<b>6.5 - 8.5</b>	<b>100</b>	<b>100</b>	<b>0</b>	<b>0.0</b>	<b>100</b>	<b>4</b>	<b>36</b>	<b>0</b>		
Uralla Shire Council		Uralla	1994	3,960	AS	CEA	Y	Y	R	131	0	15	100	20	100	15	100	5	42	10	100	1	100	200	100	6.5 - 8.5	100	42	0	0.0	42	Yes	2	12	0
Urana Shire Council	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				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				51	0	
		<b>Total/Weighted Average</b>		<b>1,274</b>					<b>90</b>	<b>0</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>100</b>	<b>0</b>	<b>0.0</b>	<b>100</b>	<b>2</b>	<b>102</b>	<b>0</b>		
Wagga Wagga City Council	No	Wagga (Narrung St)	2010	72,917	T	IEA	Y	Y		4,015	4,015	10	100	15	100	10	100	2	100	2	100	0.3	100	NL	100	NL	100	100	12		Yes	12	0		
	No	Wagga (Koorinal)	2010	18,750	T	IEA	Y	Y		1,358	1,358	10	100	15	100	10	100	2	100	2	100	0.3	100	NL	100	NL	100	100	8		Yes	12	0		
	100%	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				0	0	
	No	Forest Hill	1974	6,000	T	IEA				247	247	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0		Yes	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	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				0	0	
		<b>Total/Weighted Average</b>		<b>99,417</b>					<b>900</b>	<b>5,822</b>	<b>5,620</b>	<b>10</b>	<b>100</b>	<b>15</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>2</b>	<b>100</b>	<b>2</b>	<b>100</b>	<b>0.3</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>100</b>	<b>21</b>	<b>0.8</b>	<b>100</b>	<b>8</b>	<b>28</b>	<b>0</b>	
Wakool Shire Council	No	Barham	1967	1,600	0	TF			L	95		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				-	0	
	No	Moulamein	1967	700	AS	IEA	Y	Y	L	20		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				0	0	
	No	Wakool	2013		P	A						NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	-				-	-	
	No	Murray Downs	2005	260	T	BNR		Y	L	81		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				-	0	
	No	Tooleybuc	1987	500	P	A	Y	Y	L	146		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				-	0	
		<b>Total/Weighted Average</b>		<b>3,060</b>					<b>900</b>	<b>342</b>	<b>0</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>100</b>	<b>0</b>	<b>0.0</b>	<b>100</b>	<b>4</b>	<b>0</b>	<b>0</b>	
Walcha Council		Walcha	1971	2,400	S	TF				0	20	100	30	33	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	58	33	0	0	33	Yes	0	12	0	
Walgett Shire Council	100%	Walgett	1958	3,200	S	TF			L	290		20	67	50	67	20	67	NL	100	10	67	10	100	NL	100	6.5 - 8.5	100	67	0		Yes	90	0		
	No	Lightning Ridge	1979	1,000	S	CEA						NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				-	0	
	No	Collarenebri	1970	600	S	CEA						NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				-	0	
		<b>Total/Weighted Average</b>		<b>4,800</b>					<b>900</b>	<b>290</b>	<b>0</b>	<b>20</b>	<b>67</b>	<b>50</b>	<b>67</b>																				



## APPENDIX D2: 2014-15 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits <sup>5</sup>	Sewage Treatment Works <sup>1,6</sup>	Year built or Augmented	Design Capacity	Standard of Treatment <sup>3</sup>	Type of Treatment Works <sup>4</sup>	Nitrogen Removal	Phosphorus Removal	Effluent Discharge <sup>3</sup>	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits <sup>5</sup> and EPA Licence Compliance														Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan <sup>7</sup>	No. of STW Operators	Sampling Days	Major Malfunction (Treatment Processes)									
												BOD		SS		Total N		NH <sub>3</sub> N		Oil & Grease		Total P		E.coli		pH							Overall Result	No.	No./ 1000 props						
												mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	cfu /100mL	% Samples	range	% Samples									% Samples	%	E4 %	64a	64b	days
W18.5 ML	W26 ML	49	50	51	52	53	54	55	56	57	58	59	60	61	62	70	71	72	68	69	63	64a	64b	65	67																
Wentworth Shire Council	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	5			Yes		2	16	0					
	100%	Wentworth	1964	2,000	AT	TF			L	80	-	30	100	45	100	NL	100	NL	100	10	100	NL	100	200	100	5.5 - 9.5	100	100	0			Yes		4	4	0					
	100%	Dareton	1969	2,000	AT	TF			L	36	-	30	100	45	100	NL	100	NL	100	10	100	NL	100	600	100	5.5 - 9.5	100	100	1			Yes		4	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					-	-	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	0			Yes		4	4	0					
			<b>Total/Weighted Average</b>		<b>11,400</b>				L	<b>328</b>	<b>0</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>6</b>	<b>3.7</b>	<b>100</b>		<b>2</b>	<b>16</b>	<b>0</b>					
Wingecarribee Shire Council	100%	Mittagong	2002	14,000	AT	CEA	Y	Y	L R	1,273	42	10	100	15	100	10	100	2	100	10	100	0.3	100	NL	100	6.5 - 8.5	100	100	4			Yes		26	26	0					
	100%	Bowral	2006	14,600	AT	IEA	Y	Y	R	1,803	18	10	100	15	100	10	100	2	100	5	100	0.3	88	200	100	6.5 - 8.5	100	88	8			Yes		26	26	0					
	100%	Moss Vale	1995	9,000	AT	IEA	Y	Y	R	1,371		20	100	30	100	15	100	2	100	NL	100	1	100	NL	100	6.5 - 8.5	100	100	1			Yes		26	26	0					
	100%	Bundanoon	2010	5,400	AT	CEA	Y	Y	L R	397	12	10	100	15	100	10	100	2	100	10	100	0.3	100	NL	100	6.5 - 8.5	100	100	1			Yes		26	26	0					
	100%	Berrima	1990	2,000	T	IEA	Y	Y	R	142		20	100	30	100	15	100	2	100	NL	100	1	100	NL	100	6.5 - 8.5	100	100	4			Yes		13	13	0					
			<b>Total/Weighted Average</b>		<b>47,000</b>				L R	<b>5,194</b>	<b>163</b>	<b>10</b>	<b>100</b>	<b>15</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>2</b>	<b>100</b>	<b>5</b>	<b>100</b>	<b>0.3</b>	<b>96</b>	<b>200</b>	<b>100</b>	<b>6.5 - 8.5</b>	<b>100</b>	<b>96</b>	<b>24</b>	<b>1.5</b>	<b>96</b>		<b>9</b>	<b>117</b>	<b>0</b>						
Wyong Water		Bateau Bay	1989	58,000	S	TF			O	3,278	368	NL	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	22			Yes		30	30	0					
		Wyong South	1988	48,000	S	IEA			O	5,568	-	NL	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	11					30	30	0					
		Charmhaven	1989	40,000	S	IEA			O	3,146	-	NL	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	20					30	30	0					
		Toukley	1973	41,500	S	TF			O	2,778	347	NL	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	21			Yes		30	30	0					
		Gwandalan	1989	12,000	S	IEA			O	370		NL	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	3					30	30	0					
		Manning Park	1987	12,000	S	IEA			O	911	-	NL	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	6					30	30	0					
		<b>Total/Weighted Average</b>			<b>211,500</b>				O	<b>16,051</b>	<b>759</b>	<b>NL</b>	<b>100</b>	<b>50</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>10</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>NL</b>	<b>100</b>	<b>100</b>	<b>83</b>	<b>1.3</b>	<b>100</b>		<b>14</b>	<b>180</b>	<b>0</b>						
Yass Valley Council		Yass	2010	6,800	AS	IEA		Y	R	474	0	10	100	15	100	10	100	2	100	2	100	0.3	100	200	100	6.5 - 8.5	100	100	0	0	100	Yes	2	12	12	0					
Young Shire Council		Young (New)	2013	12,000	T	IEA	Y	Y	R	552	180	10	100	15	100	10	100	2	100	2	100	0.5	100	200	83	6.5 - 8.5	100	83	12	3.1	83	Yes	3	12	12	0					
Total Capacity 2,700,000										Total Volume										173,000	39,000	No. of Samples Complying and % of Samples Complying										Total No. of Sampling Days 4,184									
																				4,014	3,836	4,071	4,209	4,182	4,030	4,074	4,038	3,711	672 Odour Complaints (1 per 1,000 props)												
																				96%	92%	96%	99%	98%	95%	96%	95%	87%													

- Notes:**
- 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.
  - 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.
  - For "Standard of Treatment" (3); P = Primary; S = Secondary; AS = Advanced Secondary; T = Tertiary; AT = Advanced Tertiary; nil = No Treatment. For "Effluent Discharge"; L = Land, O = Ocean, R = River.
  - 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.
  - 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).
  - 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 39 GL (column 16). The total volume of sewage collected is 179,000 ML (column 32 of Table 15 on page 192). The Statewide medians for % of sewage treated that was compliant (E4) and odour complaints per 1,000 properties are 100% and 1 respectively. Refer also to Tables 15 and 17 on pages 192 and 198.
  - Pollution Incident Response Management Plan - PIRMP - the sewage treatment works with a PIRMP available on the utility's website is shown in column 64a.
  - The total number of fully qualified sewage treatment works operators is 419. Refer also to Appendix I on page 360 and to page 36. Information on the DPI Water section 61 Reports for each treatment works is available in the NSW Performance Monitoring Database (refer to page 356).

# APPENDIX D3: 2014-15 ABORIGINAL COMMUNITIES DRINKING WATER QUALITY RESULTS

Community [DOH Town reference shown in square brackets]	Population (1)	Supply System (2)	Water Utility (3)	Compliance with 2011 NHMRC/NRMMC Australian Drinking Water Guidelines						Drinking Water Quality Plan Prepared? (Yes/No) (13)			
				Physical			Chemical				Microbiological		
				Compliance Achieved? (4)	% of Samples Compliant (5)	No. of Samples (6)	Compliance Achieved? (7)	% of Samples Compliant (8)	No. of Samples (9)		Compliance Achieved? (10)	% of Samples Compliant (11)	No. of Samples (12)
<b>Communities which provide their own drinking water supply</b>													
Baryulgil Square	50	Baryulgil Community	Baryulgil	Yes	80	2	Yes	100	2	Yes	100	11	Yes
Malabugilmah	50	Malabugilmah Community	Malabugilmah	Yes	80	2	Yes	100	2	Yes	100	11	Yes
Thungutti	150	Thungutti (Bellbrook Community)	Thungutti	Yes	100	2	Yes	100	2	Yes	100	26	Yes
Clara Hart (Enngonia Reserve)	60	Enngonia	Clara Hart - <b>NON-POTABLE</b>	Yes	100	1	Yes	100	1	Yes	100	2	Yes
Jubullum Village	200	Jubullum	Jubullum Community	Yes	100	2	Yes	100	2	No	94	16	Yes
Toomelah	125	Toomelah	Toomelah	Yes	80	2	Yes	100	2	Yes	100	27	Yes
Weilmoringle/Wythalbar	60	Weilmoringle Community	Weilmoringle - <b>NON-POTABLE</b>	Yes	100	1	Yes	100	1	Yes	100	10	Yes
<i>Percent of communities tested which achieved compliance</i>				<b>100% 5/5</b>			<b>100% 5/5</b>			<b>80% 4/5</b>			<b>100% (7/7)</b>
<b>Communities provided with a bulk drinking water supply by the local water utility</b>													
Cummeragunja	80	Cummeragunja	Goulburn Valley Water (Vic)	Yes	100	3	Yes	100	3	Yes	100	12	Yes
Gundurimba	60	Rocky Creek LM	Lismore City Council	#	#	#	#	#	#	Yes	100	18	Yes
Wamba Wamba	20	Murray Downs	Wakool Shire Council	Yes	100	1	Yes	100	1	Yes	100	16	Yes
Brungle Reserve	90	Brungle	Tumut Shire Council	#	#	#	#	#	#	No	93	15	Yes
Nanima Reserve	110	Wellington	Wellington Council	#	#	#	#	#	#	Yes	100	14	Yes
Alice Edwards Village	100	Bourke	Bourke Shire Council	#	#	#	#	#	#	Yes	100	18	Yes
Balranald Reserve (Endeavour Drive)	20	Balranald	Balranald Shire Council	#	#	#	#	#	#	Yes	100	8	Yes
Barwon 4	200	Brewarrina	Brewarrina Shire Council	Yes	100	1	Yes	100	1	Yes	100	10	Yes
Box Ridge	100	Rocky Creek RM	Richmond Valley Shire Council	#	#	#	#	#	#	Yes	100	12	Yes
Brewarrina West (Dodge City)	100	Brewarrina	Brewarrina Shire Council	#	#	#	#	#	#	Yes	100	6	Yes
Collarenebri Reserve (The Walli)	50	Collarenebri	Walgett Shire Council	#	#	#	#	#	#	No	89	9	Yes
Erambie	100	Cowra	Cowra Shire Council	#	#	#	#	#	#	Yes	100	12	Yes
Warrali	40	Wilcannia	Central Darling Shire Council	#	#	#	#	#	#	Yes	100	11	Yes
Gingie Community	40	Gingie	Walgett Shire Council - <b>NON-POTABLE</b>	#	#	#	#	#	#	Yes	100	11	Yes
Gulgambone Mission	6	Gulgambone	Coonamble Shire Council	#	#	#	#	#	#	#	#	#	Yes
Karuah	200		Hunter Water	#	#	#	#	#	#	#	#	#	Yes
Moonahcullah	50			#	#	#	#	#	#	#	#	#	No
Goodooga Reserve	45	Goodooga	Brewarrina Shire Council	Yes	80	1	Yes	100	1	Yes	100	11	Yes
Mallee	140	Wilcannia	Central Darling Shire Council	Yes	60	1	Yes	100	1	No	92	13	Yes
Mehi Crescent	300	Moree	Moree Plains Shire Council	#	#	#	#	#	#	Yes	100	6	Yes
Murrin Bridge	200	Murrin Bridge	Murrin Bridge Community	Yes	100	2	Yes	100	2	Yes	100	27	Yes
Namatijira Avenue	150	Gol Gol	Wentworth Shire Council	#	#	#	#	#	#	Yes	100	13	Yes
Namoi Reserve	60	Walgett	Walgett Shire Council	#	#	#	#	#	#	Yes	100	8	Yes
New Merinee [Dareton]	600	Gol Gol	Wentworth Shire Council	#	#	#	#	#	#	Yes	100	25	Yes
Stanley Village	175	Moree	Moree Plains Shire Council	#	#	#	#	#	#	Yes	100	6	Yes
Summervale	30	Walcha	Walcha Council	#	#	#	#	#	#	Yes	100	11	Yes
Wallaga Lake Community	150	Couria Creek	Bega Valley Shire Council	#	#	#	#	#	#	Yes	100	10	Yes
Willow Bend	75	Condobolin	Lachlan Shire Council	#	#	#	#	#	#	Yes	100	21	Yes
Narwon	100	Armidale	Armidale Dumaresq Council	#	#	#	#	#	#	Yes	100	4	Yes
Cabbage Tree Island	253	Marom Creek	Ballina Shire Council	Yes	80	1	Yes	100	2	Yes	100	12	Yes
Corindi Beach	25	Coffs Harbour	Coffs Harbour City Council	Yes	100	1	Yes	100	1	Yes	100	2	Yes
Quambone	15	Quambone	Coonamble Shire Council	Yes	100	1	Yes	100	1	Yes	100	10	Yes
Walhollow Reserve	178	Walhollow	Liverpool Plains Shire Council	Yes	80	2	Yes	100	2	Yes	100	26	Yes
Wongala	70	Coffs Harbour	Coffs Harbour City Council	Yes	100	1	Yes	100	1	Yes	100	2	Yes
<i>Percent of communities tested which achieved compliance</i>				<b>100% 11/11</b>			<b>100% 11/11</b>			<b>90% 27/30</b>			<b>97% (33/34)</b>
<b>Communities provided with a full reticulated water supply service by the local water utility</b>													
Bellwood	50	Bowraville	Nambucca Shire Council	#	#	#	#	#	#	Yes	100	12	Yes
Boona Road Condobolin	20	Condobolin	Lachlan Shire Council	#	#	#	#	#	#	Yes	100	13	Yes
Browns Flat [Nowra (Flat Rock)]	30	Flat Rock	Shoalhaven City Council	Yes	100	26	Yes	100	26	Yes	100	61	Yes
Cabarita [Tobwabba (Cabarita Community)]	250	Manning District WSS	MidCoast Water	#	#	#	#	#	#	Yes	100	12	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	16	Yes
Figtree	50	South West Rocks	Kempsey Shire Council	#	#	#	#	#	#	#	#	#	No
Green Hill	248	Kempsey and Lower Macleay	Kempsey Shire Council	Yes	100	3	Yes	100	3	Yes	100	50	Yes
Gunnedah Hill	10	Coonabarabran	Warrumbungle Shire Council	#	#	#	#	#	#	Yes	100	11	Yes
Gulgambone Top	120	Gulgambone	Coonamble Shire Council	#	#	#	#	#	#	Yes	100	8	Yes
La Perouse			Sydney Water	#	#	#	#	#	#	#	#	#	No
Macleay [Macleay Lookout]	160	Lower Clarence	Clarence Valley Council	#	#	#	#	#	#	Yes	100	16	Yes
Muli Muli	150	Urbenville	Tenterfield Shire Council	#	#	#	#	#	#	Yes	100	51	Yes
New Burnt Bridge	72	Kempsey and Lower Macleay	Kempsey Shire Council	#	#	#	#	#	#	Yes	100	19	Yes
Orient Point	200	Northern Shoalhaven (Bamarang)	Shoalhaven City Council	Yes	100	1	Yes	100	1	Yes	100	5	Yes
Peak Hill [Peak Hill Village]	50	Parkes	Parkes Shire Council	#	#	#	#	#	#	Yes	100	2	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	3	Yes
<i>Percent of communities tested which achieved compliance</i>				<b>100% 3/3</b>			<b>100% 3/3</b>			<b>100% 16/16</b>			<b>90% (18/20)</b>
<b>ALL COMMUNITIES - Percent of communities tested which achieved compliance</b>				<b>100% 19/19</b>			<b>100% 19/19</b>			<b>92% 47/51</b>			<b>95% (58/61)</b>

**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 4 communities where the potable 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 33 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 2013-14 (Table 12 on page 183). 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: 2014-15 RECYCLING PERFORMANCE

Water Utility	Sewage Treatment Works <sup>1,6</sup>	Type of Treatment Works <sup>4</sup>	Sewage taken from sewer mining W18.3 ML 3	Total Sewage Collected W18 ML 4	Sewage supplied to other utilities W18.1 ML 5	Sewage with no treatment ML 6	Sewage at inlet to STW W18.4 = W18 - W18.1 W18.4 ML 7	Recycled Sewage Effluent										Treated Sewage Effluent W18.5 ML 19	Percent treated sewage effluent recycled (W26 + W15 - W6) / W18.5 W27 ML 20	Volume Effluent Disposed W29			Flows						
								Residential W20 ML 8	Commercial, Industrial, Municipal W21 ML 9	Agricultural W22 ML 10	Environmental W23 ML 11	On-Site W24 ML 12	Other Includes aquifer recharge W25 ML 13	Managed Aquifer Recharge Included in W25 W25.1 ML 14	Total Recycled Effluent Supplied W26 = W20, W21, W22, W23, W24, W25 W26 ML 15	Bulk Recycled Water Exports W15 ML 16	Recycled Sewage Effluent W26 + W15 - W6 ML 18			Ocean ML 21	River - Creek ML 22	Land ML 23	Av. Dry weather - Perm Pop L/s	Av. Dry weather - Peak Pop L/s	Peak Dry weather - Perm Pop L/s	Peak Dry weather - Peak Pop L/s	Flow max 24hr L/s	Flow max 1hr L/s	
																													W18.5
Byron Shire Council	Byron Bay West	BNR		1,894		0	1,894	0	288	121	0	0	0	0	409	0	409	1,894	22	0	1,485	0	50	55	149	-	13	227	
	Ocean Shores	IEA		568		0	568	0	0	0	0	0	0	0	0	0	568	0	0	568	0	15	-	31	-	13	228		
	Brunswick Valley	BNR		505		0	505	0	0	27	0	0	0	0	27	0	27	505	5	0	478	27	16	19	31	70	20	250	
	Bangalow	MBR		131		0	131	0	0	8	0	0	0	0	8	0	8	131	6	0	123	8	4	4	5	5	4	45	
	<b>Total/Weighted Average</b>			<b>3,098</b>		<b>0</b>	<b>3,098</b>	<b>0</b>	<b>288</b>	<b>156</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>444</b>	<b>0</b>	<b>444</b>	<b>3,098</b>	<b>14</b>	<b>0</b>	<b>2,654</b>	<b>35</b>	<b>85</b>	<b>77</b>	<b>216</b>	<b>75</b>	<b>49</b>	<b>750</b>	
Cabonne Council	Canowindra	TF				0											0												
	Molong	AL				0											0												
	Cudal	A				0											0												
	Eugowra	A				0											0												
	<b>Total/Weighted Average</b>			<b>0</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>108</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Carrathool Shire Council	Hillston	IEA		101		-	101		-	-	-	-	-	-	-	-	101	0	-	-	101	-	-	-	-	-	-	-	-
	Goolgowi	A		0		-	0		0	0	0	0	0	0	0	0	0	0	-	-	0	-	-	-	-	-	-	-	-
	Rankins Springs	A		0		-	0		-	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-
	<b>Total/Weighted Average</b>			<b>101</b>		<b>0</b>	<b>101</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>101</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>101</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Central Darling Shire Council	Wilcannia	A		80		-	80		0	0	0	0	0	0	0	0	80	0	0	0	80	6	7	15	18	0	0	0	
Clarence Valley Council	Grafton North	TF		725		0	725		15	-	-	-	-	-	15	-	725	2	0	710	0	30	30	35	35	10	-	-	
	Yamba	IEA		779		0	779		-	-	-	-	-	-	-	-	779	0	779	0	0	23	33	30	40	6	-	-	
	Clarenza	IEA		762		0	762		0	0	0	0	0	0	0	0	762	0	0	761	0	20	20	30	30	18	-	-	
	Coutts Crossing	IEA		36		0	36		13	-	-	-	-	-	13	-	36	36	0	23	0	1.0	1.0	1.5	1.5	0.9	-	-	
	Woodford Island	IEA		450		0	450		113	-	-	-	-	-	113	-	450	25	261	0	0	12	12	15	15	7	-	-	
	Iluka	IEA		105		0	105		54	-	-	-	-	-	54	-	105	51	2	0	0	3	7	5	10	0	-	-	
	<b>Total/Weighted Average</b>			<b>2,856</b>		<b>0</b>	<b>2,856</b>	<b>0</b>	<b>195</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>195</b>	<b>0</b>	<b>195</b>	<b>2,856</b>	<b>7</b>	<b>1,042</b>	<b>1,494</b>	<b>0</b>	<b>89</b>	<b>103</b>	<b>117</b>	<b>132</b>	<b>41</b>	<b>-</b>	<b>-</b>
Cobar Shire Council	Cobar	CEA		435		0	435		-	-	-	-	-	-	-	-	435	0	0	0	70	8	9	9	10	2	20	-	
Coffs Harbour City Council	Coffs Harbour	CEA		5,369		-	5,369		288	-	-	207	-	-	495	-	495	5,362	9	4,867	-	-	113	113	184	184	106	-	
	Sawtell	IEA		535		-	535		21	-	-	-	-	-	21	-	535	4	514	-	-	40	40	48	48	22	-	-	
	Moonee/Emerald	BNR		244		-	244		-	92	-	-	-	-	-	-	244	0	152	-	-	6	6	9	9	5	-	-	
	Woolgoolga	IEA		1,101		-	1,101		-	369	-	-	-	-	-	-	1,101	0	732	-	-	23	23	29	29	20	-	-	
	Corindi Beach	IEA		111		-	111		-	36	-	-	-	-	-	-	111	0	-	75	-	3	3	4	4	1	-	-	
	Deep Sea Release						0										0	0											
	<b>Total/Weighted Average</b>			<b>7,360</b>		<b>0</b>	<b>7,360</b>	<b>0</b>	<b>309</b>	<b>497</b>	<b>0</b>	<b>207</b>	<b>0</b>	<b>0</b>	<b>516</b>	<b>0</b>	<b>1,013</b>	<b>7,353</b>	<b>14</b>	<b>6,265</b>	<b>0</b>	<b>75</b>	<b>184</b>	<b>184</b>	<b>273</b>	<b>273</b>	<b>153</b>	<b>-</b>	<b>-</b>
Coolamon Shire Council	Coolamon	TF		75		0	75		0	0	0	75		0	0	75		75	100	0	0	75	3	3	4	4	-	-	
	Ganmain	A		30		0	30		0	0	0	0		0	0	30		30	0	0	0	30	-	-	-	-	-	-	
	<b>Total/Weighted Average</b>			<b>105</b>		<b>0</b>	<b>105</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>75</b>	<b>0</b>	<b>0</b>	<b>75</b>	<b>0</b>	<b>75</b>	<b>105</b>	<b>71</b>	<b>0</b>	<b>0</b>	<b>105</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>-</b>	<b>-</b>	
Cooma-Monaro Council	Cooma (The Glen)	IEA		753		0	753		0	0	0	5		0	5		753	1	0	534	0	22	26	26	34	13	149	-	
	Nimmitabel	IEA		29		0	29		0	0	0	0		0	0		29	0	0	29	0	0.1	-	0.5	0.1	0.6	-	-	
	<b>Total/Weighted Average</b>			<b>782</b>		<b>0</b>	<b>782</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>782</b>	<b>1</b>	<b>0</b>	<b>563</b>	<b>0</b>	<b>22</b>	<b>26</b>	<b>26</b>	<b>34</b>	<b>13</b>	<b>149</b>	<b>-</b>	
Coonamble Shire Council	Coonamble	TF		254		0	254		0	59	-	-	-	-	59	-	240	25	0	0	0	48	48	48	48	1	48		
	Gulgambone	IEA		27		0	27		0	0	0	0		0	0		24	0	0	20	-	7	7	7	7	0	7		
	<b>Total/Weighted Average</b>			<b>281</b>		<b>0</b>	<b>281</b>	<b>0</b>	<b>0</b>	<b>59</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>59</b>	<b>0</b>	<b>264</b>	<b>22</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>55</b>	<b>55</b>	<b>55</b>	<b>55</b>	<b>1</b>	<b>55</b>		
Cootamundra Shire Council	Cootamundra	AL		496		0	496		136	0	348	0	2	0	486	0	486	496	98	0	0	0	15	20	20	1	5	120	
Corowa Shire Council	Corowa	TF		482		0	482		0	0	160	0	0	0	160	0	160	482	33	0	0	322	14	15	20	20	3	-	
	Mulwala	IEA		271		0	271		0	0	0	24	0	0	24	0	271	9	0	247	0	8	9	15	15	1	-		
	Howlong	A		130		0	130		0	0	0	0	0	0	0	0	130	0	0	0	58	4	4	9	9	1	-		
	<b>Total/Weighted Average</b>			<b>883</b>		<b>0</b>	<b>883</b>	<b>0</b>	<b>0</b>	<b>160</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>184</b>	<b>0</b>	<b>184</b>	<b>883</b>	<b>21</b>	<b>0</b>	<b>247</b>	<b>380</b>	<b>26</b>	<b>28</b>	<b>44</b>	<b>44</b>	<b>5</b>	<b>-</b>	
Essential Energy	Broken Hill (Wills St)	TF		1,079		0	1,079		524	-	-	-	-	-	524	-	524	1,079	49	0	0	447	34	-	56	-	7	81	
	Broken Hill South	TF		279		-	279		252	-	-	-	-	-	252	-	252	279	90	-	-	0	9	-	14	-	1	15	
	<b>Total/Weighted Average</b>			<b>1,358</b>		<b>0</b>	<b>1,358</b>	<b>0</b>	<b>776</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>776</b>	<b>0</b>	<b>776</b>	<b>1,358</b>	<b>57</b>	<b>0</b>	<b>0</b>	<b>447</b>	<b>43</b>	<b>-</b>	<b>69</b>	<b>-</b>	<b>8</b>	<b>96</b>	
Cowra Shire Council	Cowra	IEA		552		0	552		0	0	0	0	0	0	0	0	552	0	0	552	0	-	-	-	-	-	-		
Deniliquin Council	Deniliquin	TF		565		0	565		0	54	0	0	0	0	54	0	482	11	0	0	428	17	19	147	156	4	-		
Dubbo City Council	Wongarbon	A		33		33	33		-	-	-	-	-	-	-	-	0	0											



## APPENDIX D4: 2014-15 RECYCLING PERFORMANCE

Water Utility	Sewage Treatment Works <sup>1,6</sup>	Type of Treatment Works <sup>4</sup>	Sewage taken from sewer mining W18.3 ML	Total Sewage Collected W18 ML	Sewage supplied to other utilities W18.1 ML	Sewage with no treatment ML	Sewage at inlet to STW W18.4 = W18 - W18.1 W18.4 ML	Recycled Sewage Effluent										Treated Sewage Effluent W18.5 ML	Percent treated sewage effluent recycled (W26 + W15 - W6) / W18.5 W27 ML	Volume Effluent Disposed W29			Flows					
								Residential W20 ML	Commercial, Industrial, Municipal W21 ML	Agricultural W22 ML	Environmental W23 ML	On-Site W24 ML	Other Includes aquifer recharge W25 ML	Managed Aquifer Recharge Included in W25 W25.1 ML	Total Recycled Effluent Supplied W26 = W20, W21, W22, W23, W24, W25 W26 ML	Bulk Recycled Water Exports W15 ML	Recycled Sewage Effluent W26 + W15 - W6 ML			Ocean ML	River - Creek ML	Land ML	Av. Dry weather - Perm Pop L/s	Av. Dry weather - Peak Pop L/s	Peak Dry weather - Perm Pop L/s	Peak Dry weather - Peak Pop L/s	Flow max 24hr L/s	Flow max 1hr L/s
Eurobodalla Shire Council	Batemans Bay	CEA		1,794	-		1,794	0	96	0	0	9	0	0	105	0	105	1,794	6	1,689	0	0	48	64	85	76	24	-
	Narooma	CEA		610		0	610	0	0	-	-	4	-	-	4	-	4	610	1	606	0	0	15	22	32	34	17	-
	Moruya	CEA		358		0	358	0	42	0	0	7	0	0	49	0	49	358	14	0	310	0	10	12	21	21	5	-
	Tomakin	CEA		537		-	537	0	70	-	-	0	-	-	70	-	70	537	13	467	-	-	15	24	23	22	4	-
	Tuross Heads	IEA		177		-	177	0	15	0	0	1	0	0	16	0	16	177	9	-	161	0	5	8	9	10	3	-
	<b>Total/Weighted Average</b>			<b>3,477</b>		<b>0</b>	<b>3,477</b>	<b>0</b>	<b>223</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>243</b>	<b>0</b>	<b>243</b>	<b>3,477</b>	<b>7</b>	<b>2,763</b>	<b>310</b>	<b>161</b>	<b>93</b>	<b>130</b>	<b>170</b>	<b>162</b>	<b>53</b>	-
Forbes Shire Council	Forbes	IEA		663		0	663	0	0	0	0	9	0	0	9	0	9	602	1	0	54	467	20	21	27	29	10	190
Gilgandra Shire Council	Gilgandra	TF		238		0	238	0	0	238	0	0	0	0	238	0	238	238	100	0	0	0	-	-	-	-	2	23
Glen Innes Severn Shire Council	Deepwater	AN		20		0	20	0	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		506		0	506	0	0	0	0	0	0	0	0	0	0	506	0	0	506	0	13	15	26	30	14	150
	<b>Total/Weighted Average</b>			<b>526</b>		<b>0</b>	<b>526</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>526</b>	<b>0</b>	<b>0</b>	<b>526</b>	<b>0</b>	<b>14</b>	<b>16</b>	<b>27</b>	<b>31</b>	<b>14</b>	<b>151</b>
Gosford City Council	Kincumber	C		13,644		0	13,644	0	13	0	0	0	0	0	13	0	13	13,632	0	13,619	-	0	388	439	717	833	155	1,795
	Woy Woy	CEA		5,792		0	5,792	0	0	0	0	6	0	0	6	0	6	5,792	0	5,786	-	0	179	185	260	268	28	323
	<b>Total/Weighted Average</b>			<b>19,436</b>		<b>0</b>	<b>19,436</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>19</b>	<b>0</b>	<b>19</b>	<b>19,424</b>	<b>0</b>	<b>19,405</b>	<b>0</b>	<b>0</b>	<b>567</b>	<b>623</b>	<b>978</b>	<b>1,101</b>	<b>183</b>	<b>2,118</b>
Goulburn Mulwaree Council	Goulburn	TF		1,933		0	1,933	0	194	1,612	0	0	0	0	1,806	0	1,806	1,933	93	0	44	0	45	45	81	81	32	600
	Marulan	A		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-
	<b>Total/Weighted Average</b>			<b>1,933</b>		<b>0</b>	<b>1,933</b>	<b>0</b>	<b>194</b>	<b>1,612</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,806</b>	<b>0</b>	<b>1,806</b>	<b>1,933</b>	<b>93</b>	<b>0</b>	<b>44</b>	<b>0</b>	<b>45</b>	<b>45</b>	<b>81</b>	<b>81</b>	<b>32</b>	<b>600</b>
Greater Hume Shire Council	Holbrook	TF		128		0	128	0	13	0	0	0	0	0	13	0	13	128	10	0	116	0	4	6	5	5	0.8	19
	Jindera	A		88		0	88	-	-	-	-	-	-	-	-	-	-	88	0	-	-	-	-	-	-	-	-	-
	Henty	IEA		62		0	62	0	26	0	0	0	0	0	26	0	26	62	41	0	0	36	2	2	4	4	0.5	30
	Culcairn	IEA		85		0	85	0	14	0	0	0	0	0	14	0	14	85	16	0	0	71	3	4	4	4	0.5	20
	Walla Walla	IEA		41		0	41	0	9	0	0	0	0	0	9	0	9	41	21	0	32	0	1.3	1.4	1.9	2.0	0.3	24
	Burrumbuttock	CED		2		0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0.1	0.1	0.4	0.4	0.1	1
	<b>Total/Weighted Average</b>			<b>406</b>		<b>0</b>	<b>406</b>	<b>0</b>	<b>61</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>61</b>	<b>0</b>	<b>61</b>	<b>406</b>	<b>15</b>	<b>0</b>	<b>148</b>	<b>110</b>	<b>10</b>	<b>13</b>	<b>15</b>	<b>16</b>	<b>2</b>	<b>94</b>
Griffith City Council	Griffith	MBR		2,040		0	2,040	0	0	0	0	158	0	0	158	0	158	2,007	8	0	1,670	384	63	63	102	102	259	369
	Yenda	AL		74		0	74	0	0	0	0	0	0	0	0	0	0	74	0	0	47	0	2	2	5	5	0.3	12
	Bilbul	A		9		-	9	0	0	0	0	0	0	0	0	0	0	9	0	0	0	9	0.3	0.3	0.6	0.6	33	0.4
<b>Total/Weighted Average</b>			<b>2,123</b>		<b>0</b>	<b>2,123</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>158</b>	<b>0</b>	<b>0</b>	<b>158</b>	<b>0</b>	<b>158</b>	<b>2,090</b>	<b>8</b>	<b>0</b>	<b>1,717</b>	<b>393</b>	<b>66</b>	<b>66</b>	<b>107</b>	<b>107</b>	<b>292</b>	<b>382</b>	
Gundagai Shire Council	Gundagai	TF		-		-	0	-	-	-	-	-	-	-	-	-	-	234	0	-	-	-	-	-	-	-	-	-
Gunnedah Shire Council	Gunnedah	TF		724		0	724	0	0	603	0	0	0	0	603	0	603	603	100	0	0	603	15	19	39	44	7	50
	Curlewis	A		29		0	29	0	0	-	0	0	0	0	0	0	0	28	0	0	0	0	-	-	-	-	-	-
	<b>Total/Weighted Average</b>			<b>753</b>		<b>0</b>	<b>753</b>	<b>0</b>	<b>0</b>	<b>603</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>603</b>	<b>0</b>	<b>603</b>	<b>631</b>	<b>96</b>	<b>0</b>	<b>0</b>	<b>603</b>	<b>15</b>	<b>19</b>	<b>39</b>	<b>44</b>	<b>7</b>	<b>50</b>
Guyra Shire Council	Guyra	CEA		186		0	186	0	0	0	0	0	0	0	0	0	0	186	0	0	186	0	4	4	6	6	5	38
	Tingha	CED		28		0	28	0	0	0	0	0	0	0	0	0	0	28	0	0	28	0	1.0	1.0	1.0	1.0	0.4	1.0
	<b>Total/Weighted Average</b>			<b>214</b>		<b>0</b>	<b>214</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>214</b>	<b>0</b>	<b>0</b>	<b>214</b>	<b>0</b>	<b>5</b>	<b>5</b>	<b>7</b>	<b>7</b>	<b>5</b>	<b>39</b>
Gwydir Shire Council	Bingara	TF		108		0	108	-	-	-	-	-	-	-	-	-	0	108	0	0	108	3	4	8	10	0.6	20	
	Warialda	TF		142		0	142	-	-	-	-	-	-	-	-	-	-	20	142	14	-	11	111	6	10	15	15	0.7
<b>Total/Weighted Average</b>			<b>250</b>		<b>0</b>	<b>250</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>250</b>	<b>8</b>	<b>0</b>	<b>11</b>	<b>219</b>	<b>9</b>	<b>14</b>	<b>23</b>	<b>25</b>	<b>1.3</b>	<b>45</b>
Harden Shire Council	Harden Murrumburrah	TF		89		0	89	0	34	0	0	0	0	0	34	0	34	255	13	0	45	0	0.5	0.5	1.0	1.0	0.1	1.0
Port Macquarie-Hastings Council	Port Macquarie	IEA		5,551		0	5,551	0	184	0	0	0	0	0	184	0	184	5,551	3	0	5,367	0	160	-	-	-	-	43
	Camden Haven (Dunboggan)	MBR		893		0	893	0	0	0	0	3	0	0	3	0	3	893	0	890	0	0	23	-	-	-	-	14
	Wauchope	IEA		795		0	795	0	80	0	0	2	0	0	82	0	82	795	10	0	713	0	22	-	-	-	-	21
	Lake Cathiel/Bonny Hills	CEA		496		0	496	0	0	0	0	2	0	0	2	0	2	496	0	0	0	494	11	-	-	-	-	5
	Kew/Kendall	IEA		115		0	115	0	35	80	0	0	0	0	115	0	115	115	100	0	0	0	4	-	-	-	-	3
	<b>Total/Weighted Average</b>			<b>7,850</b>		<b>0</b>	<b>7,850</b>	<b>0</b>	<b>299</b>	<b>80</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>386</b>	<b>0</b>	<b>386</b>	<b>7,850</b>	<b>5</b>	<b>890</b>	<b>6,080</b>	<b>494</b>	<b>220</b>	-	-	-	-	<b>85</b>
Hawkesbury City Council	Mcgraths Hill	TF		818		0	818	-	-	153	0	0	0	0	-	0	0	764	0	0	425	0	21	21	51	51	16	189
	South Windsor	CEA		1,553		0	1,553	0	18	0	0	0	0	0	18	0	18	1,158	2	0	1,140							



## APPENDIX D4: 2014-15 RECYCLING PERFORMANCE

Water Utility	Sewage Treatment Works <sup>1,6</sup>	Type of Treatment Works <sup>4</sup>	Sewage taken from sewer mining W18.3 ML	Total Sewage Collected W18 ML	Sewage supplied to other utilities W18.1 ML	Sewage with no treatment ML	Sewage at inlet to STW W18.4 = W18 - W18.1 W18.4 ML	Recycled Sewage Effluent										Treated Sewage Effluent W18.5 ML	Percent treated sewage effluent recycled (W26 + W15 - W6) / W18.5 W27 ML	Volume Effluent Disposed W29			Flows					
								Residential W20 ML	Commercial, Industrial, Municipal W21 ML	Agricultural W22 ML	Environmental W23 ML	On-Site W24 ML	Other Includes aquifer recharge W25 ML	Managed Aquifer Recharge Included in W25 W25.1 ML	Total Recycled Effluent Supplied W26 = W20, W21, W22, W23, W24, W25 W26 ML	Bulk Recycled Water Exports W15 ML	Recycled Sewage Effluent W26 + W15 - W6 ML			Ocean ML	River - Creek ML	Land ML	Av. Dry weather - Perm Pop L/s	Av. Dry weather - Peak Pop L/s	Peak Dry weather - Perm Pop L/s	Peak Dry weather - Peak Pop L/s	Flow max 24hr L/s	Flow max 1hr L/s
Inverell Shire Council	Inverell	IEA		840		0	840	0	0	0	0	0	0	0	0	0	0	680	0	0	680	0	150	150	150	150	17	200
	Ashford	IEA		35		0	35	0	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	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	0	30	0	0	30	0	1.0	1.0	1.0	1.0	0.1	2.0
	<b>Total/Weighted Average</b>			<b>925</b>		<b>0</b>	<b>925</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>765</b>	<b>0</b>	<b>0</b>	<b>765</b>	<b>0</b>	<b>153</b>	<b>153</b>	<b>153</b>	<b>153</b>	<b>18</b>	<b>205</b>
Jerilderie Shire Council	Jerilderie	A		77		0	77	0	50	0	0	0	0	0	0	0	50	77	65	0	0	0	2.4	3	6	6	1.2	5
Junee Shire Council	Junee	TF		379		-	379	-	147	-	-	-	-	-	-	-	147	367	40	-	92	-	-	-	-	-	-	-
Kempsey Shire Council	Kempsey West	TF		913		0	913	0	7	7	0	0	0	0	0	0	14	1,169	1	0	1,169	0	37	39	140	114	15	174
	South West Rocks	IEA		496		0	496	0	3	0	0	0	0	0	0	3	496	1	0	0	497	14	16	21	29	4	48	
	Kempsey South	TF		475		0	475	0	39	0	0	0	0	0	0	39	474	8	0	232	0	8	7	11	9	11	129	
	Crescent Head	IEA		143		0	143	0	0	0	0	5	0	0	0	5	143	3	143	0	0	4	5	6	8	1.8	21	
	Smithtown/Gladstone	IEA		159		0	159	0	0	0	0	0	0	0	0	0	159	0	0	160	0	4	5	10	9	2.0	23	
	Frederickton	IEA		61		0	61	0	11	5	0	0	0	0	0	15	76	20	0	61	0	2.0	2.3	11	7	1.3	15	
	Hat Head	IEA		36		0	36	0	0	0	0	0	0	0	0	0	40	0	0	0	40	1.1	2.1	3	4	0.3	4	
	<b>Total/Weighted Average</b>			<b>2,283</b>		<b>0</b>	<b>2,283</b>	<b>0</b>	<b>60</b>	<b>12</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>77</b>	<b>2,558</b>	<b>3</b>	<b>143</b>	<b>1,621</b>	<b>537</b>	<b>70</b>	<b>77</b>	<b>202</b>	<b>179</b>	<b>36</b>	<b>415</b>	
Kyogle Council	Kyogle	TF		341		0	341	-	25	-	-	-	-	-	-	25	341	7	-	316	-	6	6	7	7	11	108	
	Bonalbo	IEA		36		-	36	-	33	-	-	-	-	-	-	33	36	92	-	3	0	0.6	0.6	0.9	0.9	1.2	12	
	Woodenbong	IEA		47		0	47	0	22	0	0	0	0	0	0	22	47	47	-	25	-	0.6	0.6	0.7	0.7	1.5	18	
	<b>Total/Weighted Average</b>			<b>424</b>		<b>0</b>	<b>424</b>	<b>0</b>	<b>80</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>80</b>	<b>424</b>	<b>19</b>	<b>0</b>	<b>344</b>	<b>0</b>	<b>7</b>	<b>7</b>	<b>9</b>	<b>9</b>	<b>14</b>	<b>138</b>	
Lachlan Shire Council	Condobolin	TF		-		-	0	-	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	
	Tottenham	0		-		-	0	-	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	
	Lake Cargelligo	0		-		-	0	-	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	
	<b>Total/Weighted Average</b>			<b>0</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>116</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
Leeton Shire Council	Leeton	TF		742		0	742	-	-	-	-	-	-	-	-	0	742	0	0	0	339	30	36	45	54	5	160	
	Yanco	IEA		69		0	69	-	-	-	-	-	-	-	-	0	69	0	0	25	20	2.0	3	3	3	1.0	15	
	Whitton	A		20		0	20	-	-	-	-	-	-	-	-	0	20	0	0	0	0	1.0	1.0	2.0	2.0	0.2	5	
	<b>Total/Weighted Average</b>			<b>831</b>		<b>0</b>	<b>831</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>831</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>359</b>	<b>33</b>	<b>40</b>	<b>50</b>	<b>59</b>	<b>6</b>	<b>180</b>	
Lismore City Council	Lismore East	IEA		2,472		0	2,472	0	0	0	0	5	0	0	0	5	2,284	0	0	2,124	0	60	60	218	218	28	-	
	Lismore South	TF		1,449		0	1,449	0	0	0	0	0	0	0	0	0	1,549	0	0	1,240	0	31	31	161	161	28	238	
	Nimbin	IEA		87		0	87	0	0	0	0	0	0	0	0	87	0	0	87	0	1.3	1.3	4	4	0.3	75		
	<b>Total/Weighted Average</b>			<b>4,008</b>		<b>0</b>	<b>4,008</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>3,920</b>	<b>0</b>	<b>0</b>	<b>3,451</b>	<b>0</b>	<b>92</b>	<b>92</b>	<b>383</b>	<b>383</b>	<b>56</b>	<b>313</b>	
Lithgow City Council	Lithgow	IEA		1,780		0	1,780	0	0	0	0	0	0	0	0	0	1,780	0	0	1,780	0	-	-	-	-	-	-	
	Portland	TF		218		0	218	0	0	0	0	0	0	0	0	0	218	0	0	218	0	-	-	-	-	-	-	
	Wallerawang	IEA		144		0	144	0	0	0	0	0	0	0	0	0	144	0	0	144	0	-	-	-	-	0.9	-	
	<b>Total/Weighted Average</b>			<b>2,142</b>		<b>0</b>	<b>2,142</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,142</b>	<b>0</b>	<b>0</b>	<b>2,142</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0.9</b>	<b>-</b>	
Liverpool Plains Shire Council	Quirindi	TF		145		0	145	0	0	0	0	0	0	0	0	0	145	0	0	145	0	10	11	10	18	2	22	
	Werris Creek	TF		122		0	122	0	0	0	0	0	0	0	0	0	122	0	0	122	0	3	6	7	8	1.2	39	
	<b>Total/Weighted Average</b>			<b>267</b>		<b>0</b>	<b>267</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>267</b>	<b>0</b>	<b>0</b>	<b>267</b>	<b>0</b>	<b>13</b>	<b>17</b>	<b>17</b>	<b>26</b>	<b>3</b>	<b>61</b>	
	Lockhart	TF		74		-	74	-	2	-	-	-	-	-	-	2	74	3	-	71	-	2.3	2.3	4	4	0.6	7	
Lockhart Shire Council	The Rock	C		46		-	46	-	-	-	-	-	-	-	-	0	46	0	-	46	-	1.5	1.5	4	4	0	4	
	Yerong Creek	A		5		5	5	-	-	-	-	-	-	-	-	0	0	-	-	5	-	0.2	0.2	0.2	0.2	-	0	
	<b>Total/Weighted Average</b>			<b>124</b>		<b>5</b>	<b>124</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>120</b>	<b>2</b>	<b>0</b>	<b>122</b>	<b>4</b>	<b>4</b>	<b>8</b>	<b>8</b>	<b>1</b>	<b>11</b>		





## APPENDIX D4: 2014-15 RECYCLING PERFORMANCE

Water Utility	Sewage Treatment Works <sup>1,6</sup>	Type of Treatment Works <sup>4</sup>	Sewage taken from sewer mining W18.3 ML	Total Sewage Collected W18 ML	Sewage supplied to other utilities W18.1 ML	Sewage with no treatment ML	Sewage at inlet to STW W18.4 = W18 - W18.1 W18.4 ML	Recycled Sewage Effluent										Treated Sewage Effluent W18.5 ML	Percent treated sewage effluent recycled (W26 + W15 - W6) / W18.5 W27 ML	Volume Effluent Disposed W29			Flows					
								Residential W20 ML	Commercial, Industrial, Municipal W21 ML	Agricultural W22 ML	Environmental W23 ML	On-Site W24 ML	Other Includes aquifer recharge W25 ML	Managed Aquifer Recharge Included in W25 W25.1 ML	Total Recycled Effluent Supplied W26 = W20, W21, W22, W23, W24, W25 W26 ML	Bulk Recycled Water Exports W15 ML	Recycled Sewage Effluent W26 + W15 - W6 ML			Ocean ML	River - Creek ML	Land ML	Av. Dry weather - Perm Pop L/s	Av. Dry weather - Peak Pop L/s	Peak Dry weather - Perm Pop L/s	Peak Dry weather - Peak Pop L/s	Flow max 24hr L/s	Flow max 1hr L/s
Palerang Council	Braidwood	IEA		113		0	113	0	0	0	0	15	0	0	15	0	15	113	13	0	98	0	4	4	10	10	1.8	35
	Bungendore	IEA		214		0	214	0	30	0	0	12	28	0	70	0	70	214	33	0	144	0	10	10	22	22	2.1	100
	Captains Flat	IEA		46		0	46	0	0	0	0	0	0	0	0	0	46	0	0	46	0	1.3	1	4	4	1.2	15	
	<b>Total/Weighted Average</b>			<b>373</b>		<b>0</b>	<b>373</b>	<b>0</b>	<b>30</b>	<b>0</b>	<b>0</b>	<b>27</b>	<b>28</b>	<b>0</b>	<b>85</b>	<b>0</b>	<b>85</b>	<b>373</b>	<b>23</b>	<b>0</b>	<b>288</b>	<b>0</b>	<b>15</b>	<b>15</b>	<b>36</b>	<b>36</b>	<b>5</b>	<b>150</b>
Parkes Shire Council	Parkes	TF		716		0	716	0	170	0	0	0	0	0	170	0	170	716	24	0	300	0	23	25	46	50	3	140
	Tullamore	A		12		0	12	0	2	0	0	0	0	0	2	0	2	0	0	0	12	0	0.5	-	-	-	-	-
	Trundle	A		0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0	-	-	-	-	-
	<b>Total/Weighted Average</b>			<b>839</b>		<b>0</b>	<b>839</b>	<b>0</b>	<b>172</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>172</b>	<b>0</b>	<b>172</b>	<b>826</b>	<b>21</b>	<b>0</b>	<b>300</b>	<b>102</b>	<b>29</b>	<b>29</b>	<b>51</b>	<b>55</b>	<b>4</b>	<b>149</b>
Queanbeyan City Council	Queanbeyan	TF		3,675		0	3,675	0	0	0	0	0	0	0	0	0	3,675	0	0	3,293	123	211	211	284	284	29	851	
Richmond Valley Council	Casino	TF		1,110		-	1,110	-	3	407	-	-	-	-	410	-	410	1,110	37	-	700	-	29	29	53	53	27	308
	Evans Head	IEA		579		-	579	-	-	-	-	-	-	-	-	-	579	0	-	579	-	15	16	24	20	5	61	
	Coraki	TF		125		-	125	-	10	-	-	-	-	-	10	-	10	125	8	-	115	-	3	3	7	7	3	34
	Rileys Hill	CEA		7		-	7	-	-	-	-	-	-	-	-	-	7	0	-	7	-	0.2	0.2	0.3	0.3	0.5	0.5	
	<b>Total/Weighted Average</b>			<b>1,821</b>		<b>0</b>	<b>1,821</b>	<b>0</b>	<b>13</b>	<b>407</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>420</b>	<b>0</b>	<b>420</b>	<b>1,821</b>	<b>23</b>	<b>0</b>	<b>1,401</b>	<b>0</b>	<b>48</b>	<b>48</b>	<b>84</b>	<b>80</b>	<b>35</b>	<b>403</b>
Shoalhaven City Council	Bendalong	IEA		133		0	133	0	0	0	0	0	0	0	0	0	86	0	0	0	86	0	2.1	7	69	69	1.6	65
	Nowra	TF		2,407		0	2,407	0	28	4	0	0	0	0	32	0	32	2,199	1	0	2,167	0	56	59	164	193	18	283
	St Georges Basin	IEA		1,397		0	1,397	0	50	658	0	0	0	0	708	0	708	1,305	54	597	0	0	34	42	180	212	18	301
	Vincentia	IEA		705		0	705	0	22	287	0	0	0	0	309	0	309	561	55	252	0	0	18	29	242	264	9	311
	Bomaderry	TF		947		0	947	0	0	0	0	0	0	0	0	0	849	0	0	849	0	22	24	110	163	11	291	
	Milton Ulladulla	IEA		1,411		0	1,411	0	0	0	0	0	0	0	0	0	1,312	0	1,312	0	0	35	58	178	228	14	244	
	Culburra	IEA		768		0	768	0	23	305	0	0	0	0	328	0	328	597	55	269	0	0	18	25	115	144	7	194
	Sussex Inlet	IEA		539		0	539	0	6	0	0	0	0	0	6	0	6	511	1	0	0	505	14	23	112	143	7	193
	Callala	IEA		325		0	325	0	11	149	0	0	0	0	160	0	160	291	55	131	0	0	8	16	134	164	5	210
	Conjola	IEA		104		0	104	0	0	0	0	0	0	0	0	0	84	0	0	0	84	3	6	27	29	1.0	47	
	Shoalhaven Heads	IEA		266		0	266	0	38	68	0	0	0	0	106	0	106	233	45	0	0	127	7	12	76	101	1.5	98
	Berry	IEA		320		0	320	0	0	20	0	0	0	0	20	0	20	230	9	0	210	0	6	7	56	57	5	97
	Kangaroo Valley	MBR		67		0	67	0	0	36	0	0	0	0	36	0	36	40	92	0	0	0	1.3	2.3	1.9	3	0.6	10
	<b>Total/Weighted Average</b>			<b>9,387</b>		<b>0</b>	<b>9,387</b>	<b>0</b>	<b>178</b>	<b>1,527</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,705</b>	<b>0</b>	<b>1,705</b>	<b>8,298</b>	<b>21</b>	<b>2,561</b>	<b>3,226</b>	<b>802</b>	<b>224</b>	<b>310</b>	<b>1,465</b>	<b>1,770</b>	<b>98</b>	<b>2,344</b>
Singleton Council	Singleton	IEA		1,126		0	1,126	0	0	0	0	0	0	0	0	0	1,126	0	0	1,126	0	31	31	245	245	28	536	
Snowy River Shire Council	Jindabyne	IEA		336		0	336	-	-	-	-	-	-	-	-	-	336	0	0	455	0	-	-	-	-	-	-	
	Berridale	IEA		142		0	142	-	39	-	-	-	-	-	39	-	39	142	27	-	79	39	-	-	-	-	-	
	Adaminaby	TF		28		0	28	-	-	-	-	-	-	-	-	-	28	0	0	-	-	-	-	-	-	-	-	
	<b>Total/Weighted Average</b>			<b>516</b>		<b>0</b>	<b>516</b>	<b>0</b>	<b>39</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>39</b>	<b>0</b>	<b>39</b>	<b>516</b>	<b>8</b>	<b>0</b>	<b>534</b>	<b>39</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	
Tamworth Regional Council	Tamworth (Westdale)	TF		4,844		0	4,844	0	0	3,913	0	0	0	0	3,913	0	3,913	4,844	81	0	0	0	159	162	630	630	56	1,000
	Manilla	TF		173		0	173	0	0	173	0	0	0	0	173	0	173	173	100	0	0	0	5	5	7	7	1.3	16
	Kootingal	A		75		0	75	0	0	75	0	0	0	0	75	0	75	75	100	0	0	0	2.3	2.3	6	6	0.5	6
	<b>Total/Weighted Average</b>			<b>5,209</b>		<b>0</b>	<b>5,209</b>	<b>0</b>	<b>0</b>	<b>4,278</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,278</b>	<b>0</b>	<b>4,278</b>	<b>5,209</b>	<b>82</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>169</b>	<b>172</b>	<b>650</b>	<b>650</b>	<b>59</b>	<b>1,037</b>
Temora Shire Council	Temora	AL		326		0	326	0	99	0	0	0	0	99	0	99	326	30	0	66	161	10	10	10	12	2.3	27	
Tenterfield Shire Council	Tenterfield	IEA		272		0	272	0	44	0	0	0	0	44	0	44	272	16	0	147	0	8	8	13	13	3	29	
	Urbenville	IEA		16		0	16	-	-	-	-	-	-	-	-	-	16	0	0	16	0	0.2	0.2	0.2	3	-	-	
<b>Total/Weighted Average</b>			<b>288</b>		<b>0</b>	<b>288</b>	<b>0</b>	<b>44</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>44</b>	<b>0</b>	<b>44</b>	<b>288</b>	<b>15</b>	<b>0</b>	<b>163</b>	<b>0</b>	<b>8</b>	<b>8</b>	<b>13</b>	<b>16</b>	<b>3</b>	<b>29</b>	
Tumbarumba Shire Council	Khancoban	TF		54		-	54	0	0	0	0	0	0	0	0	0	54	0	-	-	54	2.0	3	5	7	0.7	13	
	Tumbarumba	TF		78		0	78	0	0	0	0	0	0	0	0	0	78	0	0	78	0	4	6	10	12	0.6	15	
<b>Total/Weighted Average</b>			<b>132</b>		<b>0</b>	<b>132</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>132</b>	<b>0</b>	<b>0</b>	<b>78</b>	<b>54</b>	<b>6</b>	<b>9</b>	<b>15</b>	<b>19</b>	<b>1.3</b>	<b>28</b>		
Tumut Council	Tumut	IEA		665		-	665	-	82	-	-	2	-	-	84	-	84	665	13	-	509	97	18	18	19	19	5	53
	Brungle	IEA		5		-	5	-	-	-	-	-	-	-	-	-	5	0	-	5	-	0.1	0.1	0.2	0.2	0.0	0.2	
	Batlow	BNR		99		-	99	-	5	-	-	5	-	-	10	-	10	99	10	-	83	11	3	3	4	3	0.9	10
	Talbingo	CEA		42		-	42	-	7	-	-	-	-	-	7	-	7	42	17	-	35	-	0.7	1.3	1.0	1.8	0.8	25
	<b>Total/Weighted Average</b>			<b>881</b>		<b>0</b>	<b>881</b>	<b>0</b>	<b>94</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>101</b>													



## APPENDIX D4: 2014-15 RECYCLING PERFORMANCE

Water Utility	Sewage Treatment Works <sup>1,6</sup>	Type of Treatment Works <sup>4</sup>	Sewage taken from sewer mining W18.3 ML	Total Sewage Collected W18 ML	Sewage supplied to other utilities W18.1 ML	Sewage with no treatment ML	Sewage at inlet to STW W18.4 = W18 - W18.1 W18.4 ML	Recycled Sewage Effluent										Treated Sewage Effluent W18.5 ML	Percent treated sewage effluent recycled (W26 + W15 - W6) / W18.5 W27 ML	Volume Effluent Disposed W29			Flows					
								Residential W20 ML	Commercial, Industrial, Municipal W21 ML	Agricultural W22 ML	Environmental W23 ML	On-Site W24 ML	Other Includes aquifer recharge W25 ML	Managed Aquifer Recharge Included in W25 W25.1 ML	Total Recycled Effluent Supplied W26 = W20, W21, W22, W23, W24, W25 W26 ML	Bulk Recycled Water Exports W15 ML	Recycled Sewage Effluent W26 + W15 - W6 ML			Ocean ML	River - Creek ML	Land ML	Av. Dry weather - Perm Pop L/s	Av. Dry weather - Peak Pop L/s	Peak Dry weather - Perm Pop L/s	Peak Dry weather - Peak Pop L/s	Flow max 24hr L/s	Flow max 1hr L/s
Tweed Shire Council	Banora Point	BNR		4,378		0	4,378	0	159	0	0	0	0	160	0	160	4,378	4	0	4,218	0	115	99	1,237	641	56	1,237	
	Murwillumbah	TF		1,493		0	1,493	0	301	0	0	0	0	301	0	301	1,395	22	0	1,093	0	37	29	178	136	22	178	
	Kingscliff	BNR		1,104		0	1,104	0	40	0	0	0	0	40	0	40	1,100	4	0	1,059	0	33	35	188	177	7	188	
	Hastings Point	IEA		1,017		0	1,017	0	0	0	0	0	0	0	0	0	1,018	0	0	0	1,018	27	28	218	177	7	218	
	Tumbulgum	IEA		45		0	45	0	0	0	0	0	0	0	0	0	45	0	0	44	0	1.2	1.6	9	6	0.6	9	
	Tyalgum	IEA		20		0	20	0	27	0	0	0	0	27	0	27	27	100	0	0	0	0.7	0.5	1.2	0.6	0.4	1.2	
	Uki	CEA		21		0	21	0	23	0	0	0	0	23	0	23	23	100	0	0	0	0.6	0.7	0.8	0.8	0.5	0.8	
	Burringbar/Mooball	IEA		26		0	26	0	0	0	0	0	0	0	0	0	26	0	0	26	0	0.7	0.8	1.0	0.8	0.9	1.0	
<b>Total/Weighted Average</b>				<b>8,105</b>		<b>0</b>	<b>8,105</b>	<b>0</b>	<b>500</b>	<b>49</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>551</b>	<b>0</b>	<b>551</b>	<b>8,011</b>	<b>7</b>	<b>0</b>	<b>6,441</b>	<b>1,018</b>	<b>215</b>	<b>195</b>	<b>1,833</b>	<b>1,139</b>	<b>94</b>	<b>1,833</b>	
Upper Hunter Shire Council	Scone	TF		587		0	587	0	125	0	0	1	0	126	0	126	587	21	0	195	0	20	23	33	35	7	-	
	Aberdeen	IEA		178		0	178	0	0	0	0	0	0	0	0	0	178	0	0	155	0	6	7	11	13	1.5	-	
	Merriwa	TF		65		0	65	0	0	0	0	0	0	0	0	0	65	0	0	52	0	3	3	8	9	0.8	-	
	Murrurundi	IEA		70		0	70	0	0	0	0	0	0	0	0	0	70	0	0	60	0	2.3	5	8	10	1.1	38	
	<b>Total/Weighted Average</b>				<b>900</b>		<b>0</b>	<b>900</b>	<b>0</b>	<b>125</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>126</b>	<b>0</b>	<b>126</b>	<b>900</b>	<b>14</b>	<b>0</b>	<b>462</b>	<b>0</b>	<b>31</b>	<b>37</b>	<b>60</b>	<b>66</b>	<b>10</b>	<b>38</b>
Upper Lachlan Council	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	50	0	0	0	0	50	0	50	50	100	0	0	50	2.0	2.0	3	3	0.3	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	
	<b>Total/Weighted Average</b>				<b>543</b>		<b>0</b>	<b>543</b>	<b>0</b>	<b>0</b>	<b>50</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>50</b>	<b>0</b>	<b>50</b>	<b>543</b>	<b>9</b>	<b>0</b>	<b>493</b>	<b>50</b>	<b>10</b>	<b>10</b>	<b>14</b>	<b>14</b>	<b>4</b>	<b>90</b>
Uralla Shire Council	Uralla	CEA		131		0	131	0	0	0	0	0	0	0	0	0	131	0	0	131	0	4	4	5	5	0.8	44	
Urana Shire Council	Urana	A		55		0	55	0	0	0	0	0	0	0	0	0	55	0	0	0	0	25	25	25	25	0.0	25	
	Oaklands	A		35		0	35	0	0	0	0	0	0	0	0	0	35	0	0	0	0	25	25	25	25	0.0	25	
	<b>Total/Weighted Average</b>				<b>90</b>		<b>0</b>	<b>90</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>90</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>0.1</b>	<b>50</b>	
Wagga Wagga City Council	Wagga (Narrung St)	IEA		4,015		0	4,015	0	147	0	3,860	8	0	4,015	0	4,015	4,015	100	0	0	0	127	125	154	133	17	361	
	Wagga (Koorngal)	IEA		1,358		0	1,358	0	102	0	1,256	0	0	1,358	0	1,358	1,358	100	0	0	0	43	43	65	45	7	247	
	Collingullie	A		9		0	9	0	0	0	0	0	0	0	0	0	9	0	0	0	9	-	-	-	-	-	-	
	Forest Hill	IEA		247		0	247	0	247	0	0	0	0	247	0	247	247	100	0	0	0	8	8	10	9	1.4	16	
	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	
	<b>Total/Weighted Average</b>				<b>5,822</b>		<b>0</b>	<b>5,822</b>	<b>0</b>	<b>249</b>	<b>247</b>	<b>5,116</b>	<b>8</b>	<b>0</b>	<b>5,620</b>	<b>0</b>	<b>5,620</b>	<b>5,822</b>	<b>97</b>	<b>0</b>	<b>0</b>	<b>202</b>	<b>183</b>	<b>182</b>	<b>241</b>	<b>195</b>	<b>27</b>	<b>668</b>
Wakool Shire Council	Barham	TF		95		0	95	-	-	-	-	-	-	-	-	0	95	0	0	0	95	-	-	-	-	-	-	
	Moulamein	IEA		20		0	20	-	-	-	-	-	-	-	-	0	20	0	0	0	20	-	-	-	-	-	-	
	Wakool	A		0		-	0	-	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	
	Murray Downs	BNR		81		-	81	-	-	-	-	-	-	-	-	0	81	0	0	0	80	-	-	-	-	-	-	
	Tooleybuc	A		147		-	147	-	-	-	-	-	-	-	-	0	146	0	-	146	-	-	-	-	-	-	-	
<b>Total/Weighted Average</b>				<b>343</b>		<b>0</b>	<b>343</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>342</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>341</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	
Walcha Council	Walcha	TF		0		-	0	-	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	
Walgett Shire Council	Walgett	TF		290		-	290	-	-	-	-	-	-	-	-	0	290	0	-	290	-	-	-	-	-	-	-	
	Lightning Ridge	CED		0		-	0	-	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	
	Collarenebri	CED		0		-	0	-	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	
	<b>Total/Weighted Average</b>				<b>290</b>		<b>0</b>	<b>290</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>290</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>290</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Warren Shire Council	Warren	TF		165		0	165	0	0	0	0	0	0	0	0	0	169	0	0	0	169	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	
	<b>Total/Weighted Average</b>				<b>176</b>		<b>0</b>	<b>176</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>180</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>169</b>	<b>15</b>	<b>15</b>	<b>18</b>	<b>18</b>	<b>1.0</b>	<b>65</b>	
Warrumbungle Shire Council	Coonabarabran	TF		180		0	180	0	0	0	0	0	0	0	0	0	180	0	0	76	0	5	5	20	20	1.1	13	
	Coolah	C		59		0	59	0	59	0	0	0	0	59	0	59	59	100	-	-	-	1.7	1.7	3	3	0.9	4	
	Baradine	A		50		0	50	0	0	0	0	0	0	0	0	0	50	0	0	0	13	-	-	-	-	-	-	
	Dunedoo	IEA		66		0	66	0	0	0	0	0	0	0	0	0	66	0	0	66	0	-	-	-	-	-	-	
	<b>Total/Weighted Average</b>				<b>355</b>		<b>0</b>	<b>355</b>	<b>0</b>	<b>59</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>59</b>	<b>355</b>	<b>17</b>	<b>0</b>	<b>142</b>	<b>13</b>	<b>7</b>	<b>7</b>	<b>22</b>	<b>22</b>	<b>2.0</b>	<b>17</b>	
Weddin Shire Council	Grenfell	TF		165		0	165	0	12	0	0	0	0	0	0	12	170	7	0	143	12	5	6	6	7	2.0	17	
Wellington Council	Wellington	IEA		531		-	531	0	0	0	0	0	0	0	0	0	531	0	0	383	0	15	-	19	-	2.2	26	

## APPENDIX D4: 2014-15 RECYCLING PERFORMANCE

Water Utility	Sewage Treatment Works <sup>1,6</sup>	Type of Treatment Works <sup>4</sup>	Sewage taken from sewer mining W18.3 ML 3	Total Sewage Collected W18 ML 4	Sewage supplied to other utilities W18.1 ML 5	Sewage with no treatment ML 6	Sewage at inlet to STW W18.4 = W18 - W18.1 W18.4 ML 7	Recycled Sewage Effluent										Treated Sewage Effluent W18.4 - Evaporation W18.5 ML 19	Percent treated sewage effluent recycled (W26 + W15 - W6) / W18.5 W27 ML 20	Volume Effluent Disposed W29			Flows							
								Residential W20 ML 8	Commercial, Industrial, Municipal W21 ML 9	Agricultural W22 ML 10	Environmental W23 ML 11	On-Site W24 ML 12	Other Includes aquifer recharge W25 ML 13	Managed Aquifer Recharge Included in W25 W25.1 ML 14	Total Recycled Effluent Supplied W26 = W20, W21, W22, W23, W24, W25 W26 ML 15	Bulk Recycled Water Exports W15 ML 16	Recycled Sewage Effluent W26 + W15 - W6 ML 18			Ocean ML 21	River - Creek ML 22	Land ML 23	Av. Dry weather - Perm Pop L/s	Av. Dry weather - Peak Pop L/s	Peak Dry weather - Perm Pop L/s	Peak Dry weather - Peak Pop L/s	Flow max 24hr L/s	Flow max 1hr L/s		
Wentworth Shire Council	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	-	-	-	-	-	-	-	-
	<b>Total/Weighted Average</b>			<b>328</b>		<b>0</b>	<b>328</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>328</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>328</b>								
Wingecarribee Shire Council	Mittagong	CEA		1,276		0	1,276	0	0	40	0	1	0	0	0	42	0	42	1,273	3	0	1,231	42	28	32	39	41	18	207	
	Bowral	IEA		1,803		0	1,803	0	0	17	0	1	0	0	0	18	0	18	1,803	1	0	1,786		34	46	46	89	15	170	
	Moss Vale	IEA		1,371		0	1,371	0	0	0	0	0	0	0	0	0	0	1,371	0	0	1,371	0	27	35	64	84	25	1,018		
	Bundanoon	CEA		397		0	397	0	0	11	0	1	0	0	0	12	0	12	397	3	0	385	11	8	9	11	12	10	114	
	Berrima	IEA		145		0	145	0	0	0	0	0	0	0	0	0	0	142	0	0	142	0	2.3	3	5	14	3	39		
	Robertson	MBR		208		0	208	0	0	91	0	0	0	0	0	91	0	91	208	44	0	0	0	1.7	2.4	3	3	1.2	14	
		<b>Total/Weighted Average</b>			<b>5,202</b>		<b>0</b>	<b>5,202</b>	<b>0</b>	<b>0</b>	<b>160</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>163</b>	<b>0</b>	<b>163</b>	<b>5,194</b>	<b>3</b>	<b>0</b>	<b>4,914</b>	<b>53</b>	<b>102</b>	<b>126</b>	<b>168</b>	<b>244</b>	<b>72</b>	<b>1,562</b>	
Wyong Water	Bateau Bay	TF		3,278		0	3,278	0	205	-	-	163	-	-	368	-	368	3,278	11	2,910	-	-	104	-	-	-	-	40	-	
	Wyong South	IEA		5,568		0	5,568	-	-	-	-	18	-	-	-	-	0	5,568	0	5,569	-	-	176	-	-	-	-	59	-	
	Charmhaven	IEA		3,146		0	3,146	-	-	-	-	21	-	-	-	-	0	3,146	0	3,146	-	-	99	-	-	-	-	34	-	
	Toukley	TF		2,778		0	2,778	0	316	0	0	31	0	0	0	347	0	347	2,778	12	2,778	-	-	88	-	-	-	30	-	
	Gwandalan	IEA		370		0	370	0	0	0	0	0	0	0	0	0	0	370	0	370	-	-	1.0	-	-	-	-	12	-	
	Mannering Park	IEA		911		0	911	-	-	-	-	5	-	-	-	-	0	911	0	911	-	-	29	-	-	-	-	9	-	
		<b>Total/Weighted Average</b>			<b>16,051</b>		<b>0</b>	<b>16,051</b>	<b>0</b>	<b>521</b>	<b>0</b>	<b>0</b>	<b>238</b>	<b>0</b>	<b>0</b>	<b>715</b>	<b>0</b>	<b>759</b>	<b>16,051</b>	<b>5</b>	<b>15,684</b>	<b>0</b>	<b>0</b>	<b>497</b>					<b>184</b>	
Yass Valley Council	Yass	IEA		474		3	474	0	0	0	0	0	0	0	0	0	0	474	0	0	474	0	16	18	50	60	4	95		
Young Shire Council	Young (New)	IEA		549		-	549	0	176	0	0	4	0	0	0	180	0	180	552	33	0	376	0	16	20	77	82	3	103	
		<b>Total/Weighted Average</b>		<b>549</b>		<b>-</b>	<b>549</b>	<b>0</b>	<b>176</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>180</b>	<b>0</b>	<b>180</b>	<b>552</b>	<b>33</b>	<b>0</b>	<b>376</b>	<b>0</b>	<b>16</b>	<b>20</b>	<b>77</b>	<b>82</b>	<b>3</b>	<b>103</b>		

## 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<sup>1</sup> 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](http://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.

<sup>1</sup> Attachment 1 is a copy of page 10 of the 2014-15 NSW Water Supply and Sewerage Benchmarking Report which provides examples of recent failures of integrity of water supply distribution systems.



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](mailto:bill.ho@dpi.nsw.gov.au).

Yours sincerely



**Michael Bullen**

**A/Deputy Director General, Water**

Encl. Attachments:

- (1) Copy of page 10 of 2014-15 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**.

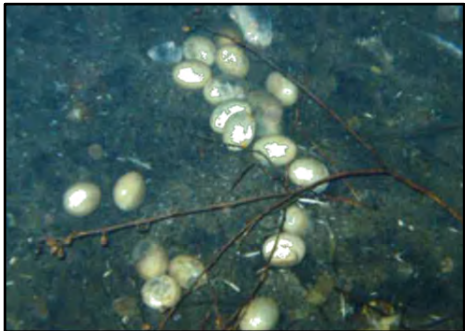


Photo 2 - Bird eggs in reservoir

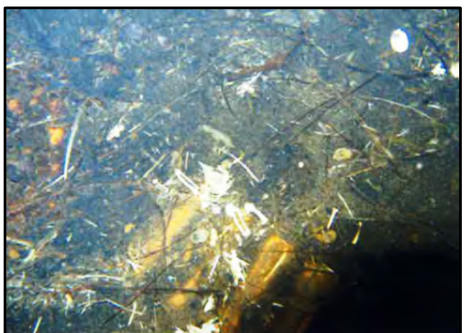


Photo 3 - Dead birds in reservoir

**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 on page 305 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 page 10, 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<sup>22</sup> 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<sup>1</sup>) 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** on page 314 shows how the above 3 barriers work together to provide a safe water supply.

In addition, as indicated in the *2014-15 NSW Water Supply and Sewerage Benchmarking Report* (page 9) 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**<sup>23</sup> throughout the distribution

<sup>22</sup> 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.

<sup>23</sup> 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<sup>24</sup> is needed to assure that these three barriers<sup>25</sup> 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 on page 313 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<sup>26</sup> for the available<sup>27</sup> contact time to provide a C.t. value greater than 15 mg/L/minute.
- Keep turbidity as low as practicable (aim for <1 NTU<sup>28</sup>). 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<sup>29</sup>.
- Keep pH <8.5<sup>30</sup>
- Thoroughly clean and super-chlorinate<sup>31</sup> before use, all new and repaired distribution system infrastructure that is in contact with potable water such as mains and reservoirs.

<sup>24</sup> 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.

<sup>25</sup> 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.

<sup>26</sup> Part IV Information Sheet 1.3, Disinfection with Chlorine, ADWG.

<sup>27</sup> If the source water does not contain pathogens (e.g., a good quality groundwater from a confined aquifer), no chlorine contact time is required.

<sup>28</sup> Table 10.5, ADWG.

<sup>29</sup> Monitoring test results which consistently find no E.coli in a water supply would validate the safety of the water supply.

<sup>30</sup> 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<sup>32</sup>.
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<sup>33</sup> 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**<sup>34</sup> 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**<sup>35</sup> 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);

<sup>31</sup> Chlorine Fact Sheet under Drinking Water Treatment Chemicals, ADWG.

<sup>32</sup> 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.

<sup>33</sup> Refer to Part IV Information Sheets 1.4 to 1.8 of ADWG.

<sup>34</sup> 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).

<sup>35</sup> 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 on page 12 of the *2014-15 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<sup>36</sup> 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<sup>35,37</sup>.
  - 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<sup>37</sup>.
  - 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<sup>38</sup> 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.

<sup>36</sup> 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 be 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.

<sup>37</sup> As noted in section E2 on page 309, 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.

<sup>38</sup> 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 page 312, 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  $\geq 0.2\text{mg/L}$  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<sup>39</sup> 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  $0.2\text{mg/L}$  but greater than  $0.05\text{mg/L}$  with E.coli test results showing 100% compliance<sup>24</sup>, then the LWU should undertake the actions outlined in section E3 on page 310 on an **annual**<sup>40</sup> basis.

If however, the free chlorine residual level is consistently below  $0.05\text{mg/L}$  with E.coli test results showing 100% compliance<sup>24,41</sup> and the LWU can demonstrate the continuous integrity of the water supply distribution system<sup>42</sup>, the LWU should then undertake the actions outlined in section E3 on page 310 on a **four monthly**<sup>41</sup> 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)<sup>43</sup>.
- Sampling frequency.
- Sampling locations including system extremities<sup>44</sup>.
- 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<sup>45</sup> of staff including induction of contractors.

<sup>39</sup> 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).

<sup>40</sup> The first action in section E3 on page 310 may be undertaken from ground level using a telescope, binoculars, etc.

<sup>41</sup> 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  $0.2\text{mg/L}$  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.

<sup>42</sup> 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.

<sup>43</sup> 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.

<sup>44</sup> 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**

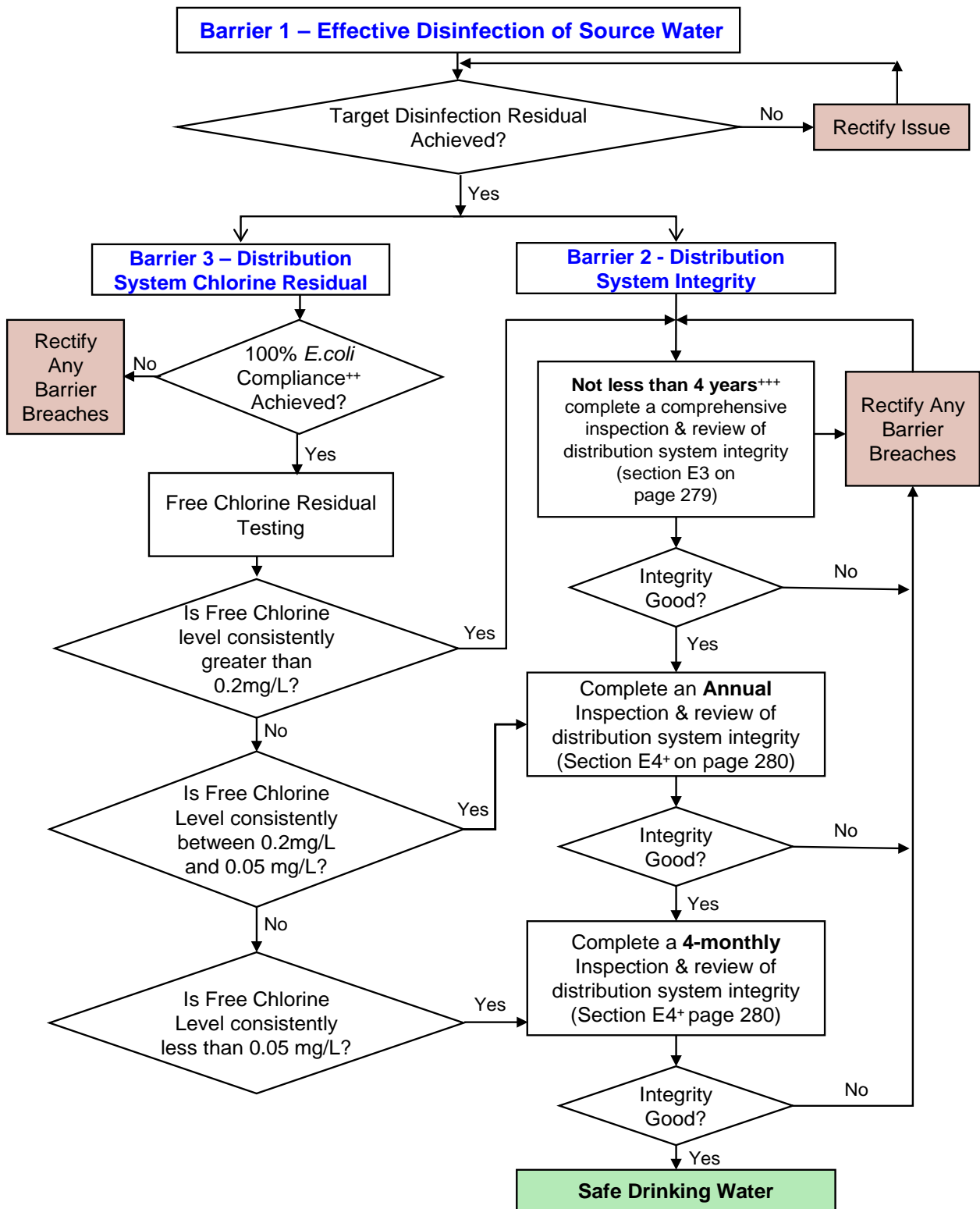
- Test kits for measuring chlorine residual, pH and turbidity are available.
- Chlorine residual, pH and turbidity measurements need to be done in the field.
- Ensure the operators have a thorough understanding of the field test kits especially the range they can measure, detection limits, error and 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](mailto:bill.ho@dpi.nsw.gov.au).

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<sup>45</sup> 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 page 36 of the *2014-15 NSW Water Supply and Sewerage Benchmarking Report* ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)) in regard to National Certification of Water Treatment Operators.

Figure 1 – Effective disinfection<sup>1</sup> 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 on page 312 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.



**SUMMARY REPORT<sup>1</sup> ON ASSURING INTEGRITY & SAFETY OF  
WATER SUPPLY DISTRIBUTION SYSTEMS**

LWU -

Date -

Contact Officer -

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 -

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<sup>1</sup> 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](mailto:Bill.Ho@dpi.nsw.gov.au).

# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

WATER UTILITY	WATER RESOURCES																																			
	SOURCES OF WATER																																			
	Volume of water sourced from surface water				Volume of water sourced from groundwater				Volume of water sourced from marine desalination				Volume of water sourced from recycling (ie where potable water would normally be supplied)				Volume from bulk supplier				Volume of potable water received from bulk supplier Excludes W6 & W28.2				Volume of non-potable water received from bulk supplier Excludes W6 & W28.2				Volume bulk recycled purchased				Total sourced water			
	W1 Includes W3.3 (ML)				W2 Includes W3.2 Excludes W25.1 (ML)				W3.1 (ML)				W4 Excludes W28.4 Includes W23. Excludes W25.1 (ML)				W5 W5=W5.1+W5.2+W6+W28.2 (ML)				W5.1 (ML)				W5.2 (ML)				W6 Excludes W28.2 (ML)				W7 W7=W1+W2+W3.1+W4+W5+W28.4 (ML)			
2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15								
Sydney Water Corporation	5,141	6,395	6,862	6,468	0	0	0	0	61,290	0	0	0	13,191	41,776	41,543	38,280	415,498	510,299	523,725	509,573	0	0	0	0	415,498	510,299	523,725	509,573	0	0	0	0	495,120	558,470	572,129	554,321
Hunter Water Corporation	61,035	66,060	67,253	64,281	2,159	2,561	4,230	2,734	0	0	0	0	1,873	1,874	2,505	3,045	0	0	267	257	0	0	267	257	0	0	0	0	0	0	0	0	65,067	70,495	74,255	70,317
Water NSW	880,572	847,623	824,365	888,144	0	0	0	0	0	0	0	0	0	0	0	0	25	1,014	2,524	2,043	0	0	0	0	25	1,014	2,524	2,043	0	0	0	0	880,597	848,637	826,889	890,187
1 Gosford City Council	10,672	14,562	14,512	13,103	52	109	123	71	0	0	0	0	271	28	32	13	2,490	660	1,598	2,429	2,490	660	1,598	2,429	0	0	0	0	0	0	0	0	13,485	15,359	16,265	15,616
2 Wyong Shire Council	14,109	13,808	15,449	15,419	115	126	6	2	0	0	0	0	465	780	962	911	540	1,169	465	551	540	1,169	465	551	0	0	0	0	0	0	0	0	15,229	15,883	16,882	16,883
3 Shoalhaven City Council	12,277	14,393	13,963	13,740	0	0	0	0	0	0	0	0	73	194	194	173	72	95	86	77	0	0	0	0	72	95	86	77	0	0	0	0	12,422	14,682	14,243	13,990
4 Rous Water	11,132	11,077	11,521	11,183	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	11,132	11,077	11,521	11,183
5 MidCoast Water	7,775	8,010	8,124	7,845	540	556	542	526	0	0	0	0	0	133	372	373	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,315	8,699	9,038	8,744
6 Tweed Shire Council	8,851	9,317	9,802	9,284	0	0	0	0	0	0	0	0	338	431	563	385	0	0	6	5	0	0	6	5	0	0	0	0	0	0	0	0	9,235	9,748	10,371	9,674
7 Port Macquarie Hastings Council	5,739	5,792	6,090	5,990	0	0	0	0	0	0	0	0	94	110	142	189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,833	5,902	6,232	6,179
8 Riverina Water	2,549	2,590	2,625	2,212	9,193	12,329	11,819	12,564	0	0	0	0	0	0	0	0	28	34	56	32	28	34	56	32	0	0	0	0	0	0	0	0	11,770	14,953	14,500	14,808
10 Coffs Harbour City Council	5,582	5,864	5,957	5,688	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	5,582	5,864	5,957	5,688
11 Albury City Council	6,272	7,376	7,599	6,238	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	6,272	7,376	7,599	6,238
12 Fish River Water	6,273	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	0	0	0	0	0	0	0	6,273	8,107	10,713	5,961
13 Tamworth Regional Council	8,426	9,376	9,358	6,890	447	613	579	1,045	0	0	0	0	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,873	9,989	9,937	7,935
14 Clarence Valley Council	6,572	5,765	6,199	5,894	0	0	0	0	0	0	0	0	109	128	176	195	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,681	5,893	6,375	6,089
15 Eurobodalla Shire Council	3,366	2,914	3,055	3,132	0	483	363	161	0	0	0	0	86	189	216	243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,452	3,586	3,634	3,536
16 Wingecarribee Shire Council	868	1,119	1,352	515	0	0	0	0	0	0	0	0	35	98	124	163	3,490	3,796	4,319	4,447	0	0	0	0	3,490	3,796	4,319	4,447	0	0	0	0	4,393	5,013	5,795	5,125
17 Queanbeyan City Council	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,641	3,836	3,995	3,937	3,641	3,836	3,995	3,937	0	0	0	0	0	0	0	0	3,641	3,836	3,995	3,937
18 Dubbo City Council	4,488	6,510	6,406	6,148	1,652	2,199	1,934	1,999	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,140	8,709	8,340	8,147
19 Orange City Council	4,035	4,528	4,557	4,748	79	120	59	53	0	0	0	0	2,218	1,573	2,903	2,826	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,332	6,221	7,519	7,627
21 Bathurst Regional Council	0	6,598	6,354	6,642	0	5	9	31	0	0	0	0	0	579	638	653	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,182	7,001	7,326	0
22 Lismore City Council	171	210	168	195	0	0	0	0	0	0	0	0	0	0	0	0	3,084	3,117	3,258	3,238	3,084	3,117	3,258	3,238	0	0	0	0	0	0	0	0	3,255	3,327	3,426	3,433
23 Bega Valley Shire Council	1,803	2,398	1,756	1,635	1,465	1,550	1,489	1,402	0	0	0	0	408	484	623	436	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,268	4,432	3,868	3,473
24 Ballina Shire Council	119	134	156	132	0	0	0	0	0	0	0	0	104	266	257	575	3,272	3,607	3,684	3,604	3,272	3,607	3,684	3,604	0	0	0	0	0	0	0	0	3,495	4,007	4,097	4,311
25 Kempsey Shire Council	0	0	0	0	3,333	3,479	3,627	3,530	0	0	0	0	0	75	97	77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,333	3,554	3,724	3,607
26 Essential Energy	3,746	4,660	760	907	0	0	0	0	0	0	0	0	416	782	515	525	1,061	1,140	4,940	4,185	0	0	0	0	1,061	1,140	4,940	4,185	0	0	0	0	5,223	6,582	6,215	5,617
27 Byron Shire Council	334	402	408	370	0	0	0	0	0	0	0	0	374	547	390	285	2,356	2,365	2,429	2,371	2,356	2,365	2,429	2,371	0	0	0	0	0	0	0	0	2,690	3,314	3,227	3,026
28A Goldenfields Water (Reticulation)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,475	5,551	5,794	5,759	4,475	5,551	5,794	5,759	0	0	0	0	0	0	0	0	4,475	5,551	5,794	5,759
28B Goldenfields Water (Bulk Water Su)	3,394	3,722	3,781	4,136	3,601	4,556	4,644	4,435	0	0	0	0	0	0	0	0	306	389	450	417	195	250	309	277	111	139	141	140	0	0	0	0	7,301	8,667	8,875	8,988
20 Goulburn Mulwaree Council	0	2,768	2,707	2,558	0	0	0	0	0	0	0	0	0	0	0	0	0	71	52	46	0	0	0	0	18	71	52	46	0	0	0	0	2,839	2,759	2,604	0
9 Wagga Wagga Council	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	0	0	0
LWU Range Max	14,109	14,562	15,449	15,419	9,193	12,329	11,819	12,564	0	0	0	0	2,218	1,573	2,903	2,826	4,475	5,551	5,794	5,759	4,475	5,551	5,794	5,759	3,490	3,796	4,940	4,447	0	0	0	0	15,229	15,883	16,882	16,883
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	2,690	2,839	2,759	2,604
Median of NMU Indicators shown in Table	4,488	5,765	5,257	5,218	0	0	0	0	0	0	0	0	35	98	124	163	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	6,206	6,402	6,688	6,134

Notes \* Indicators shown are those published in the 2014-15 National Performance Report.

# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

WATER UTILITY	WATER RESOURCES																												
	USES OF WATER SUPPLIED																												
	Volume of water supplied - Residential (incl nonpotable)				Volume of potable water supplied – Residential Excludes recycled water				Volume of non-potable water supplied – Residential excludes recycled water				Volume of water supplied - commercial, municipal, industrial (incl nonpotable)				Volume of potable water supplied - Commercial, municipal and industrial				Volume of non-potable water supplied - Commercial, municipal and industrial				Volume of water supplied - other (incl nonpotable)				
	W8 Includes recycled water W8=W8.1+W8.2+W20  (ML)				W8.1  (ML)				W8.2  (ML)				W9 Includes recycled water W9=W9.1+W9.2+W21  (ML)				W9.1  (ML)				W9.2  (ML)				W10 W10=W10.1+W10.2+W25 excludes W10.3  (ML)				
2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15		
Sydney Water Corporation	321,656	335,976	354,877	352,843	319,783	333,912	352,740	350,705	0	0	0	0	122,671	123,804	126,539	123,680	110,479	112,149	114,695	112,827	1,484	1,111	1,639	1,171	50,793	63,729	60,076	52,302	
Hunter Water Corporation	34,911	38,370	40,150	37,723	34,911	38,370	40,150	37,723	0	0	0	0	20,923	22,670	23,580	21,430	19,225	21,026	21,306	18,572	0	0	0	0	9,226	9,198	9,995	10,596	
Water NSW																													
1 Gosford City Council	9,744	10,545	10,967	10,955	9,744	10,545	10,967	10,955	0	0	0	0	2,125	2,501	2,512	2,528	2,111	2,473	2,494	2,507	0	0	0	8	1,369	1,365	3,053	1,877	
2 Wyong Shire Council	8,735	9,696	9,353	9,133	8,735	9,039	9,302	9,132			1		3,239	3,023	3,984	3,813	2,912	3,022	3,300	3,292					1,135	1,497	1,421	1,498	
3 Shoalhaven City Council	5,602	6,432	6,463	6,276	5,602	6,425	6,455	6,273	6	7	8	3	6,148	6,710	6,952	6,015	3,741	4,108	3,903	3,914	2,369	2,310	2,405	1,923	1,038	1,162	1,280	1,878	
4 Rous Water	0	0	0	0	0	0	0	0	0	0	0	0	671	764	824	806	671	764	824	806					1,168	605	652	508	
5 MidCoast Water	4,685	5,107	5,365	5,102	4,685	5,107	5,365	5,102	0	0	0	0	2,036	2,329	2,891	2,881	2,036	2,196	2,372	2,296					1,594	1,263	1,301	1,346	
6 Tweed Shire Council	4,966	5,379	5,685	5,545	4,966	5,379	5,685	5,545	0	0	0	0	2,442	2,542	2,899	2,597	2,106	2,160	2,336	2,097					1,202	1,167	1,183	1,024	
7 Port Macquarie Hastings Council	3,865	4,213	4,296	4,188	3,865	4,213	4,296	4,188	0	0	0	0	1,431	1,643	1,752	1,813	1,243	1,343	1,322	1,319	94	111	141	195	713	617	625	611	
8 Riverina Water	6,540	8,856	8,741	8,513	6,540	8,856	8,741	8,513	0	0	0	0	4,617	5,447	5,471	5,548	4,617	5,447	5,471	5,548					1,240	1,590	1,579	1,562	
10 Coffs Harbour City Council	3,599	3,721	3,929	3,912	3,599	3,721	3,929	3,912					1,442	1,635	1,998	1,618	1,371	1,370	1,422	1,300	0	6	9	9	575	797	607	572	
11 Albury City Council	4,242	5,320	5,003	4,836	4,242	5,320	5,002	4,835	0	0	1	1	1,586	1,854	2,118	2,050	1,585	1,850	1,925	1,833	1	4	193	217	647	761	759	741	
12 Fish River Water		0	0	0		0	0	0	50	0	0	0	4,141	5,970	5,072	1,144	0	65	72	120	4,141	5,905	5,000	1,024	546	1,411	1,753	1,555	
13 Tamworth Regional Council	3,852	4,925	5,532	3,691	3,852	4,925	5,532	3,691	0	0	0	0	3,556	4,096	3,734	3,493	3,522	3,901	3,594	3,353	0	195	140	140	809	965	1,014	783	
14 Clarence Valley Council	2,766	2,951	3,051	2,793	2,722	2,951	3,051	2,793	44	0	0	0	1,867	1,989	2,105	1,938	1,758	1,797	1,866	1,696	0	64	63	47	1,550	982	1,509	1,553	
15 Eurobodalla Shire Council	1,927	2,146	2,204	2,112	1,927	2,146	2,204	2,112		0	0	0	710	817	865	854	633	647	675	631					806	604	539	550	
16 Wingecarribee Shire Council	2,658	3,149	3,437	3,092	2,658	3,149	3,437	3,092	0	0	0	0	889	1,044	1,044	948	854	946	1,044	948					558	882	967	495	
17 Queanbeyan City Council	2,786	2,645	2,757	2,837	2,786	2,645	2,757	2,837	0	0	0	0	539	515	649	607	539	515	649	607					568	670	589	493	
18 Dubbo City Council	3,690	5,455	5,292	5,088	3,690	5,455	5,292	5,088	0	0	0	0	1,819	3,209	2,767	2,661	1,705	2,949	2,498	2,453	114	260	269	208	589	934	865	838	
19 Orange City Council		2,725	2,695	2,717	2,426	2,725	2,695	2,717	0	0	0	0	2,975	2,660	3,987	3,941	757	1,087	1,084	1,115					487	470	462	649	
21 Bathurst Regional Council	2,472	3,574	3,236	3,238	2,472	3,569	3,227	3,206	2	5	9	32	3,221	2,832	3,253	3,198	2,256	1,831	2,213	2,156	965	1,001	1,040	1,042	499	586	538	583	
22 Lismore City Council	1,836	1,859	1,975	1,959	1,836	1,859	1,975	1,959	0	0	0	0	912	851	894	904	912	851	894	904					436	301	319	315	
23 Bega Valley Shire Council	1,703	1,814	1,765	1,811	1,703	1,814	1,765	1,811	0	0	0	0	1,349	1,549	1,472	1,171	941	1,038	945	747	0	27	66	57	647	1,098	534	479	
24 Ballina Shire Council	2,180	2,326	2,483	2,345	2,180	2,326	2,483	2,345	0	0	0	0	709	628	844	1,064	605	628	571	547					620	787	805	810	
25 Kempsey Shire Council	1,545	1,682	1,686	1,705	1,545	1,682	1,686	1,705	0	0	0	0	1,032	1,215	1,223	1,315	1,005	1,142	1,133	1,255					767	622	837	756	
26 Essential Energy	2,271	2,731	2,697	2,471	2,271	2,690	2,697	2,471	33	41	0	0	2,737	3,704	3,633	3,407	1,743	2,022	1,967	1,759	578	1,053	957	872	455	521	513	465	
27 Byron Shire Council	1,614	1,687	1,754	1,758	1,614	1,687	1,754	1,758	0	0	0	0	1,197	1,331	1,211	1,350	823	784	821	777	0	0	0	285	269	296	276	276	
28A Goldenfields Water (Reticulation)	1,365	1,819	2,009	1,940	1,365	1,797	1,986	1,918	17	22	23	22	2,637	3,157	3,600	3,637	2,563	3,074	3,493	3,526	74	83	107	111	456	543	611	606	
28B Goldenfields Water (Bulk Water Su			0	0			0	0			0	0			0	0										719	490	440	440
20 Goulburn Mulwaree Council	1,325	1,447	1,516	1,403	1,325	1,447	1,516	1,403	0	0	0	0	859	1,070	1,162	1,026	740	843	921	822	1	34	37	10	235	311	349	319	
9 Wagga Wagga Council																													
LWU Range Max	9,744	10,545	10,967	10,955	9,744	10,545	10,967	10,955	50	41	23	32	6,148	6,710	6,952	6,015		5,447	5,471	5,548	4,141	5,905	5,000	1,923	1,594	1,590	3,053	1,878	
LWU Range Min	0	0	0	0	0	0	0	0	0	0	0	0	539	515	0	0		65	72	120	0	0	0	8	235	296	276	276	
Median of NMU Indicators shown in Table	2,766	2,951	2,904	2,815	2,658	2,951	3,051	2,815	0	0	0	0	1,819	1,989	2,112	1,876		1,370	1,422	1,319	1	83	140	195	647	774	706	630	



# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

WATER UTILITY	WATER RESOURCES																											
	USES OF WATER SUPPLIED																											
	Volume of potable water supplied – Non-Revenue Water				Volume of non-potable water supplied – Other				Volume of water supplied - managed aquifer recharge				Volume of water supplied - agricultural irrigation				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				Total urban potable water supplied W11.1=W8.1+W9.1+W10.1 excludes bulk exports				Total urban non-potable water supplied W11.2=W8.2+W9.2+W10.2 excludes recycled & stormwater			
	W10.1				W10.2				W10.3				W10.4				W11.1				W11.2							
(ML)				(ML)				(ML)				(ML)				(ML)				(ML)								
2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15								
Sydney Water Corporation																	495,120	523,509	541,492	528,825	430,262	446,061	467,435	463,532	1,484	1,111	1,639	1,171
Hunter Water Corporation	9,046	9,198	9,995	10,596	0	0	0	0	0	0	0	0	0	0	0	0	65,060	70,238	73,725	69,749	63,182	68,594	71,451	66,891	0	0	0	0
Water NSW																	432,443	536,949	551,686	538,472					432,443	536,949	551,686	538,472
1 Gosford City Council	1,317	1,270	2,922	1,784	52	95	117	63	0	0	0	0	0	0	0	0	13,238	14,411	16,532	15,335	13,172	14,288	16,383	15,246	52	95	117	70
2 Wyong Shire Council	1,135	1,497	1,421	1,498													13,229	14,216	14,758	14,444	12,782	13,558	14,023	13,922	1	1	1	1
3 Shoalhaven City Council	1,038	1,162	1,280	1,878	0	0	0	0	0	0	0	0	0	0	0	0	12,794	14,304	14,695	14,169	10,381	11,695	11,638	12,065	2,375	2,317	2,413	1,926
4 Rous Water	1,168	605	652	508	0	0	0	0	0	0	0	0	0	0	0	0	1,839	1,369	1,476	1,314	1,839	1,369	1,476	1,314	0	0	0	0
5 MidCoast Water	1,594	1,263	1,301	1,346	0	0	0	0	0	0	0	0	0	0	0	0	8,315	8,699	9,557	9,329	8,315	8,566	9,038	8,744	0	0	0	0
6 Tweed Shire Council	1,202	1,167	1,183	1,024	0	0	0	0	0	0	0	0	0	0	0	3	8,610	9,088	9,767	9,166	8,274	8,706	9,204	8,666	0	0	0	0
7 Port Macquarie Hastings Council	713	617	625	611	0	0	0	0	0	0	0	0	0	0	0	0	6,009	6,473	6,673	6,612	5,821	6,173	6,243	6,118	94	111	141	195
8 Riverina Water	1,240	1,590	1,579	1,562	0	0	0	0	0	0	0	0	0	0	0	0	12,397	15,893	15,791	15,623	12,397	15,893	15,791	15,623	0	0	0	0
10 Coffs Harbour City Council	575	797	607	572													5,616	6,153	6,534	6,102	5,545	5,888	5,958	5,784	0	6	9	9
11 Albury City Council	647	761	759	741	0	0	0	0	0	0	0	0	0	0	0	0	6,475	7,935	7,880	7,627	6,474	7,931	7,686	7,409	1	4	194	218
12 Fish River Water	546	1,411	1,753	1,555	0		0	0			0	0			0	0	4,867	7,381	6,825	2,699	676	1,476	1,825	1,675	4,191	5,905	5,000	1,024
13 Tamworth Regional Council	809	965	1,014	783	0	0	0	0		0	0	0	34	0	0	0	8,217	9,986	10,280	7,967	8,183	9,791	10,140	7,827	0	195	140	140
14 Clarence Valley Council	1,550	982	1,509	1,553	0	0	0	0		0	0	0		0	0	0	6,183	5,922	6,665	6,284	6,030	5,730	6,426	6,042				
15 Eurobodalla Shire Council	806	604	539	550	0	0	0	0		0	0	0		0	0	0	3,443	3,567	3,608	3,516	3,366	3,397	3,418	3,293	0	0	0	0
16 Wingecarribee Shire Council	558	882	967	495	0	0	0	0	0	0	0	0	0	0	0	0	4,105	5,075	5,448	4,535	4,070	4,977	5,448	4,535	0	0	0	0
17 Queanbeyan City Council	568	670	589	493	0	0	0	0	0	0	0	0	0	0	0	0	3,893	3,830	3,995	3,937	3,893	3,830	3,995	3,937	0	0	0	0
18 Dubbo City Council	589	934	865	838	0	0	0	0	0	0	0	0	0	0	0	0	6,098	9,598	8,924	8,587	5,984	9,338	8,655	8,379	114	260	269	208
19 Orange City Council	487	470	462	649	0	0	0	0	0	0	0	0	0	0	0	0		5,855	7,144	7,307	3,670	4,282	4,241	4,481	0	0	0	0
21 Bathurst Regional Council	499	586	538	583	0			0	0	0	0	0	0	0	0	0	6,194	6,992	7,027	7,019	5,227	5,986	5,978	5,945	967	1,006	1,049	1,074
22 Lismore City Council	436	301	319	315	0	0	0	0	0	0	0	0	0	0	0	0	3,184	3,011	3,188	3,178	3,184	3,011	3,188	3,178	0	0	0	0
23 Bega Valley Shire Council	647	1,098	534	479	0	0	0	0	0	0	0	0	0	0	0	0	3,699	4,461	3,770	3,461	3,291	3,950	3,429	3,037	0	27	66	57
24 Ballina Shire Council	620	787	805	810	0	0	0	0	0	0	0	0	0	0	0	0	3,509	3,741	4,132	4,219	3,405	3,741	3,859	3,702	0	0	0	0
25 Kempsey Shire Council	767	622	837	756	0	0	0	0	0	0	0	0	0	0	0	0	3,344	3,519	3,746	3,776	3,317	3,446	3,656	3,716	27	73	0	0
26 Essential Energy	455	521	513	465													5,496	6,956	6,843	6,343	4,469	5,233	5,177	4,695	611	1,094	957	872
27 Byron Shire Council	269	296	276	276	0	0	0	0	0	0	0	0	0	0	0	0	3,080	3,314	3,241	3,384	2,706	2,767	2,851	2,811	0	0	0	285
28A Goldenfields Water (Reticulation)	436	541	609	605	20	2	2	1	0	0	0	0	0	0	0	0	4,475	5,519	6,220	6,183	4,364	5,412	6,088	6,049	111	107	132	134
28B Goldenfields Water (Bulk Water Su	719	490	440	440	0		0	0			0	0			0	0	719	490	440	440	719	490	440	440	0	0	0	0
20 Goulburn Mulwaree Council	235	311	349	319	0	0	0	0	0	0	0	0	0	0	0	0	2,419	2,828	3,027	2,748	2,300	2,601	2,786	2,544	1	34	37	10
9 Wagga Wagga Council																												
LWU Range Max	1,594	1,590	2,922	1,878	52	95	117	63	0	0	0	0	34	0	0	3	13238	15893	16532	15,623	13172	15,893	16,383	15,623	4191	5,905	5,000	1,926
LWU Range Min	235	296	276	276	0	0	0	0	0	0	0	0	0	0	0	0	719	490	440	440	676	490	440	440	0	0	0	0
Median of NMU Indicators shown in Table	647	774	706	630	0	0	0	0	0	0	0	0	0	0	0	0	5496	6038	6669	6,234	4417	5,323	5,703	5,240	0	4	1	9

# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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  (ML)				W12  (kL/prop)				W13 Generally upstream of master meter Excludes recycled & aquifer recharge & stormwater  (ML)				W14 W14=W14.1+W14.2+W15+W28.1 Includes recycled & stormwater  (ML)				W14.1  (ML)				W14.2  (ML)				W15 component of W14  (ML)						
2011/12		2012/13		2013/14		2014/15		2011/12		2012/13		2013/14		2014/15		2011/12		2012/13		2013/14		2014/15		2011/12		2012/13		2013/14		2014/15	
Sydney Water Corporation	480,733	509,790	527,511	515,834	193	198	206	201	0	0	0	0	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0			
Hunter Water Corporation	63,182	68,623	71,483	67,014	163	176	181	168	5,110	5,110	5,110	5,110	12	29	299	380	12	29	299	380	0	0	0	0	0	0	0	0			
Water NSW									440,325	310,309	272,314	349,307	418,175	521,945	536,435	520,830					418,175	521,945	536,435	520,830							
1 Gosford City Council	13,705	15,444	16,532	13,103	145	157	161	160	0	0	0	0	533	1,156	149	286	533	1,156	149	286	0	0	0	0	0	0	0	0			
2 Wyong Shire Council	15,218	15,018	15,913	13,680	151	166	158	150	4,198	4,198	4,198	4,198	2,436	585	1,890	309	2,436	585	1,890	309											
3 Shoalhaven City Council	10,381	11,695	11,638	12,065	130	149	148	143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4 Rous Water	11,132	11,077	11,521	11,183					0	0	0	0	9,293	9,708	10,045	9,869	9,293	9,708	10,045	9,869	0	0	0	0	0	0	0	0			
5 MidCoast Water	8,315	8,566	9,038	8,744	131	143	150	142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
6 Tweed Shire Council	8,274	8,706	9,204	8,661	163	177	184	178	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	5,821	6,173	6,243	6,118	144	157	157	151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8 Riverina Water	12,397	15,893	15,791	15,591	256	347	324	311	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
10 Coffs Harbour City Council		5,888	5,958	5,784	156	161	169	167					401	63	0					0	954	401	63	0				0			
11 Albury City Council	6,743	8,310	8,078	7,788	203	255	232	205	0	0	0	0	269	379	392	379	269	379	392	379	0	0	0	0	0	0	0	0			
12 Fish River Water	1,366	2,309	2,615	871					75	809	1,025	1,025	1,407	2,432	3,912	2,793	690	833	790	751	717	1,599	3,122	2,042							
13 Tamworth Regional Council	8,183	9,791	10,140	7,827	204	261	287	188	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
14 Clarence Valley Council	6,030	5,730	6,426	6,042	139	148	161	147	0	1,696	2,445		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
15 Eurobodalla Shire Council	3,366	3,397	3,418	3,293	104	116	119	114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
16 Wingecarribee Shire Council	4,070	4,977	5,448	4,535	157	186	200	178	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
17 Queanbeyan City Council	3,893	3,830	3,995	0	185	175	178	173	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
18 Dubbo City Council	5,984	9,338	8,655	8,379	249	368	350	327	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
19 Orange City Council	3,672	4,282	4,241	4,481		180	174	170	379	378	228	206	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0			
21 Bathurst Regional Council	5,230	5,988	5,984	5,951	180	260	227	225	1,497	1,497	1,497	1,497	3	2	6	6	3	2	6	6				0	0	0	0	0			
22 Lismore City Council	3,184	3,011	3,188	0	143	145	155	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
23 Bega Valley Shire Council	3,291	3,950	3,429	3,037	130	139	134	137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
24 Ballina Shire Council	3,405	3,741	3,859	98	166	177	194	181	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
25 Kempsey Shire Council	3,333	3,479	3,687	3,743	143	156	157	155	0	0	0	0	16	33	31	27	16	33	31	27	0	0	0	0	0	0	0	0			
26 Essential Energy	4,469	5,233	5,177	4,695	237	285	281	257					0	0	0	0				0					0	0	0	0			
27 Byron Shire Council	2,706	2,767	2,851	440	168	176	181	180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
28A Goldenfields Water (Reticulation)	4,364	5,412	6,088	290	199	265	287	275					0	0	0	0	0	0	0	0	84	96	0	0							
28B Goldenfields Water (Bulk Water Su)	8,020	9,157	9,315	9,151									7,301	8,667	8,875	8,988	7,301	8,667	8,875	8,988	0		0	0							
20 Goulburn Mulwaree Council	2,301	2,603	2,788	2,546	138	150	165	139	0	0	0	0	1	2	2	2	1	2	2	2	0	0	0	0	0	0	0	0			
9 Wagga Wagga Council																															
LWU Range Max	15218	15,893	16,532	15,591	256	368	350	327	4198	4198	4198	4,198	9293	9708	10045	9,869	9293	9,708	10,045	9,869	954	1,599	3,122	2,042	0	0	0	0			
LWU Range Min	1366	2,309	2,615	0	104	116	119	114	4	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	5230	5,809	6,036	5,868	157	175	174	170	379	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 2014-15

WATER UTILITY	WATER RESOURCES																															
	USES OF RECYCLED WATER AND STORMWATER																															
	Volume of Recycled water supplied (Residential)				Volume of Recycled water supplied (Commercial, Industrial, Municipal)				Volume of Recycled water supplied (Agricultural)				Volume of Recycled water supplied (Environmental)				Volume of Recycled water supplied (On-site)				Volume of Recycled water supplied (Other)				Volume of recycled water supplied - Managed Aquifer Recharge				Total Recycled water supplied			
	W20 Includes potable & non-potable. Excludes sewer mining  (ML)				W21 Includes to golf courses. Excludes stormwater. Includes sewer mining  (ML)				W22 Includes crops, forestry & livestock. Excludes Stormwater. Includes sewer mining  (ML)				W23 Exclude disposal if not beneficial use. Exclude stormwater. Include sewer mining.  (ML)				W24 Exclude stormwater. Include sewer mining.  (ML)				W25 Include managed aquifer recharge W25.1, non revenue water, losses and sewer mining.  (ML)				W25.1   (ML)				W26 W26=W20+W21+W22+W23+W24+W25 Includes sewer mining. Excludes stormwater  (ML)			
2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	
Sydney Water Corporation	1,873	2,064	2,137	2,138	9,683	10,544	10,205	9,682	5,187	5,175	5,400	4,795	13,362	15,142	14,990	11,779	15,823	14,026	14,211	14,680	0	0	0	0	NA	0	NA	NA	45,929	46,951	46,943	43,075
Hunter Water Corporation	0	0	0	0	1,643	1,644	2,274	2,858	2,824	2,445	2,441	1,562	0	0	0	0	198	180	180	180	0	0	0	0	0	0	0	0	4,664	4,269	4,895	4,600
Water NSW																																
1 Gosford City Council	0	0	0	0	14	28	18	13	0	0	0	0	0	0	0	0	257	0	0	0	0	0	14	6	0	0	0	0	271	28	32	19
2 Wyong Shire Council	120	657	51	0	326		683	521			0	0			0	0	19	220	228	238			0	0			0	0	465	877	962	759
3 Shoalhaven City Council	0	0	0	0	38	292	644	178	671	1,670	1,708	1,527	0	0	0	0	35	30	0	0	0	0	0	0	0	0	0	744	1,992	2,352	1,705	
4 Rous Water																																
5 MidCoast Water	0	0	0	0	0	133	519	585	282	664	821	650	0	0	0	0	0	51	99	93	0	0	0	0		0	0	282	848	1,439	1,327	
6 Tweed Shire Council	0	0	0	0	336	382	563	500	48	47	38	49	0	0	0	0	2	2	3	2	0	0	0	0	0	0	0	0	386	431	604	551
7 Port Macquarie Hastings Council	0	0	0	0	94	189	289	299	200	53	67	80	0	0	0	0	0	0	7	7	0	0	0	0	0	0	0	294	242	363	386	
8 Riverina Water																																
10 Coffs Harbour City Council			0	0	71	259	567	309	300	542	614	497			0	0	118	0	255	207	0	0	0	0			0	0	489	801	1,436	1,013
11 Albury City Council	0	0	0	0	0	0	0	0	2,723	1,208	803	880	2,564	1,525	1,664	1,518	0	0	0	0	0	0	0	0	0	0	0	0	5,287	2,733	2,468	2,398
12 Fish River Water																																
13 Tamworth Regional Council			0	0			0	0	3,622	3,595	4,068	4,278			0	0	0		60	0	0	0	0	0	0	0	0	3,656	3,595	4,128	4,278	
14 Clarence Valley Council		0	0	0	109	128	176	195		0	0	0			0	0	0	0	0	0		0	0	0			0	0	109	128	176	195
15 Eurobodalla Shire Council		0	0	0	77	170	190	223		0	0	0			0	0	9	19	26	20	0	0	0	0			0	0	86	189	216	243
16 Wingecarribee Shire Council	0	0	0	0	35	98	0	0	0	0	124	160	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	35	98	124	163	
17 Queanbeyan City Council	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	37
18 Dubbo City Council	0	0	0	0	0	0	0	0	1,305	2,108	1,884	2,108	0	0	0	0	91	70	74	75	0	0	0	0	0	0	0	1,396	2,178	1,958	2,183	
19 Orange City Council	0	0	0	0	2,218	1,573	2,903	2,826	0	0	0	0	0	0	0	0	0	108	44	0	0	0	0	0	0	0	0	2,218	1,681	2,947	2,826	
21 Bathurst Regional Council	0	0	0	0	0	0	0	0	0	0	0	0	4,198	4,062	3,197	3,059	126	726	745	653	0	0	0	0	0	0	0		4,788	3,942	3,712	
22 Lismore City Council	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	5	0	0	0	0	0	0	0	0	0	34	5	
23 Bega Valley Shire Council	0	0	0	0	408	484	461	367	77	196	165	79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	485	680	626	446	
24 Ballina Shire Council		0	0	0	104	0	273	517		128	0	0			0	0		4	0	0		0	0	0			0	0	164	132	273	517
25 Kempsey Shire Council	0	0	0	0	0	0	90	60	0	0	13	12	0	0	0	0	0	10	7	5	0	0	0	0	0	0	0	0	10	110	77	
26 Essential Energy			0	0	416	629	709	776			0	0			0	0			0	0		0	0			0	0	416	629	709	776	
27 Byron Shire Council	0	0	0	0	374	547	390	288	137	49	88	156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	511	596	478	444	
28A Goldenfields Water (Reticulation)																																
28B Goldenfields Water (Bulk Water Su																																
20 Goulburn Mulwaree Council	0	0	0	0	118	193	204	194	1,422	1,374	1,389	1,612	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,540	1,567	1,593	1,806	
9 Wagga Wagga Council	0	0	0	0	184	331	251	249	253	224	225	247	5,532	4,988	5,047	5,116	2	0	0	8	0	0	0	0			5,971	5,543	5,523	5,620		
LWU Range Max	120	657	51	0	2,218	1,573	2,903	2,826	3,622	3,595	4,068	4,278	5,532	4,988	5,047	5,116	257	726	745	653	0	0	14	6	0	0	0	5,971	5,543	5,523	5,620	
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	5	
Median of NMU Indicators shown in Table	0	0	0	0	77	152	228	209	137	53	53	64	0	0	0	0	0	0	2	1	0	0	0	0	0	0	416	655	668	655		

## APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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  (ML)				W28.4  (ML)				W29  (ML)			
	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15
Sydney Water Corporation	8	10	10	8	NA	NA	NA	NA	NA	NA	NA	NA	548,619	468,005	451,791	520,859
Hunter Water Corporation	6	6	8	6	0	0	0	0	0	0	0	0	75,915	63,828	59,983	67,238
Water NSW																
1 Gosford City Council	2	0	0	0					0	0	24		16,335	15,630	15,543	19,405
2 Wyong Shire Council	3	6	7	5					0	0	0		14,723	14,280	13,884	15,684
3 Shoalhaven City Council	9	27	28	21					0	0	0		8,200	5,322	6,191	6,589
4 Rous Water									0	0	0					
5 MidCoast Water	4	13	26	19					0	0	0		7,352	5,760	4,200	5,494
6 Tweed Shire Council	5	6	9	7					0	0	0		8,209	7,473	6,017	7,459
7 Port Macquarie Hastings Council	3	3	4	5					0	0	0		9,410	8,284	8,113	7,464
8 Riverina Water									0	0	0					
10 Coffs Harbour City Council	8	11	26	14					0	0	0		7,266	6,513	4,190	6,340
11 Albury City Council	99	59	54	54					0	0	0		69	22	2,082	3,106
12 Fish River Water									0	0	0					
13 Tamworth Regional Council	67	79	100	82					0	0	0		5,162	936	0	0
14 Clarence Valley Council	3	4	7	7					0	0	0		3,365	3,326	2,352	2,536
15 Eurobodalla Shire Council	3	6	7	7					0	0	0		3,200	2,972	2,924	3,233
16 Wingecarribee Shire Council	1	3	4	3					0	0	0		4,876	3,883	3,413	4,967
17 Queanbeyan City Council	0	0	1	1					0	0	0		3,175	2,692	3,240	3,416
18 Dubbo City Council	48	83	100	79					0	0	0		895	432	0	376
19 Orange City Council	49	41	78	78					0	0	0		2,233	2,378	849	1,106
21 Bathurst Regional Council		103	100	100					0	0	0		4,198	0	0	0
22 Lismore City Council	0	0	1	0					0	0	0		3,408	4,030	3,321	3,451
23 Bega Valley Shire Council	21	38	31	20					0	0	0		1,730	1,115	1,390	1,681
24 Ballina Shire Council	4	3	10	10					0	0	0		4,590	4,209	2,596	5,123
25 Kempsey Shire Council	0	0	6	3					0	0	0		2,839	2,426	1,811	2,301
26 Essential Energy	26	46	51	57					0	0	0		1,157	737	671	447
27 Byron Shire Council	16	13	15	14					0	0	0		2,747	3,954	2,648	2,689
28A Goldenfields Water (Reticulation)									0	0	0					
28B Goldenfields Water (Bulk Water Su									0	0	0					
20 Goulburn Mulwaree Council	90	95	98	93					0	0	0		296	92	34	44
9 Wagga Wagga Council	97	97	97	97									190	191	200	202
LWU Range Max	99	103	100	100					0	0	0	24	16,335	15,630	15,543	19,405
LWU Range Min	0	0	0	0					0	0	0	0	69	0	0	0
Median of NMU Indicators shown in Table	5	12	20	14					0	0	0	0	3,387	3,149	2,622	3,170



# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

WATER UTILITY	ASSETS																							
	WATER ASSETS												SGE ASSETS											
	No. of WTWs providing <u>full</u> 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.)				
	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15
Sydney Water Corporation	10	9	9	9	21,680	21,930	22,105	22,293	84	84	84	84	25	24	24	26	24,768	24,540	24,786	25,085	71	73	73	73
Hunter Water Corporation	6	6	6	6	4,930	4,820	4,893	4,945	47	48	48	48	19	19	19	19	4,792	4,852	4,903	4,945	46	46	46	46
Water NSW																								
1 Gosford City Council	2	2	2	2	980	982	986	987	72	72	72	73	2	2	2	2	1,313	1,314	1,320	1,325	52	52	53	53
2 Wyong Shire Council	1	1	1	1	1,208	1,309	1,182	1,218	50	46	52	52	6	6	6	6	1,252	1,202	1,212	1,212	48	50	50	51
3 Shoalhaven City Council	4	4	4	4	1,487	1,489	1,492	1,510	31	31	31	31	12	13	13	13	1,162	1,168	1,169	1,217	35	35	36	34
4 Rous Water	2	2	2	2	402	402	405	441																
5 MidCoast Water	4	4	5	5	1,355	1,390	1,393	1,395	28	27	28	28	13	13	13	13	1,072	1,098	1,123	1,125	32	30	31	31
6 Tweed Shire Council	3	3	3	3	701	702	713	716	45	45	45	45	7	8	8	8	678	691	700	706	46	44	43	44
7 Port Macquarie Hastings Council	4	4	4	4	789	793	802	810	38	37	38	38	5	5	5	5	655	661	684	689	41	41	40	40
8 Riverina Water	17	17	17	2	1,648	1,648	1,652	1,660	18	18	18	18												
10 Coffs Harbour City Council	2	2	2	2	652	652	676	621	38	38	37	40	5	5	5	5	668	689	693	701	35	34	34	34
11 Albury City Council	1	1	1	1	571	583	594	599	40	40	40	43	4	4	4	4	499	511	519	548	43	42	42	44
12 Fish River Water	1	1	1	1	241	241	241	241																
13 Tamworth Regional Council	5	5	5	5	667	676	707	640	31	31	30	34	4	4	4	4	524	542	555	554	36	35	35	36
14 Clarence Valley Council	0	0		0	1,104	1,104	1,118	1,123	20	19	19	19	5	5	6	6	367	369	409	417	40	40	36	35
15 Eurobodalla Shire Council	1	2	2	2	920	868	886	884	21	22	22	22	5	5	5	5	525	526	527	527	34	34	34	34
16 Wingecarribee Shire Council	3	3	3	2	660	656	660	661	28	29	29	29	5	5	6	6	535	515	555	558	27	29	28	28
17 Queanbeyan City Council	0	0	0	0	286	283	283	300	56	58	58	58	1	1	1	1	329	327	327	336	49	50	51	51
18 Dubbo City Council	1	1	1	1	491	497	501	508	34	34	34	35	2	2	2	2	390	393	399	410	40	40	40	40
19 Orange City Council	1	1	1	1	571	610	621	634	29	28	28	28	2	2	2	2	416	430	437	450	38	38	38	37
21 Bathurst Regional Council	1	1	1	1	381	385	392	395	40	40	40	40	1	1	1	1	389	391	394	400	38	39	39	40
22 Lismore City Council	0	0	0	0	343	343	343	343	41	42	42	42	3	3	3	3	348	359	359	359	36	35	36	36
23 Bega Valley Shire Council	0	0	0	0	527	611	613	615	27	23	23	23	10	10	10	10	409	401	401	401	30	30	30	30
24 Ballina Shire Council	1	1	1	1	325	330	332	333	45	42	43	43	4	4	4	4	319	322	324	327	42	43	43	43
25 Kempsey Shire Council	3	3	4	4	493	491	491	491	26	26	25	25	7	8	8	7	270	272	273	273	34	34	36	36
26 Essential Energy	3	3	3	3		382	382	382	28	28	28	28	2	2	2	2	248	246	246	246	39	40	40	40
27 Byron Shire Council	1	1	1	1	237	237	237	239	46	47	47	47	4	4	4	4	239	248	248	251	44	42	42	42
28A Goldenfields Water (Reticulation)	1	1	1	1	1,834	1,834	1,834	1,834	5	6	6	6												
28B Goldenfields Water (Bulk Water Su	3	3	3	3	315	315	315	315																
20 Goulburn Mulwaree Council	2	2	2	2	274	279	281	282	39	36	37	40	2	2	2	2	277	283	283	285	37	34	37	38
9 Wagga Wagga Council													5	6	6	6	596	599	623	626	42	43	42	43
LWU Range Max	17	17	17	5	1,834	1,834	1,834	1,834	72	72	72	73	13	13	13	13	1,313	1,314	1,320	1,325	52	52	53	53
LWU Range Min	0	0	0	0	237	237	237	239	5	6	6	6	1	1	1	1	239	246	246	246	27	29	28	28
Median of NMU Indicators shown in Table	2	2	2	2	571	611	617	618	34	34	34	35	5	5	5	5	458	471	478	489	39	40	39	39



## APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

WATER UTILITY	ASSETS																							
	WATER ASSETS												SGE ASSETS											
	Water main breaks per 100km of main				Infrastructure Leakage Index (ILI)				Real losses (L/connection/day)				Real losses (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 (no./100km)				A9				A10 (L/connection/day)				A11 (kL/km main/day)				A14 (per 100km of main)				A15 (per 1000 properties)			
	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15
Sydney Water Corporation	22	29	30	26	1.5	1.5	1.4	1.3	85	87	81	74	6	6	5	5	48	46	61	69	0	0	0	0
Hunter Water Corporation	25	32	30	29	1.1	1.1	1.2	1.3	75	75	82	91	3	3	4	4	47	42	54	54	9	9	10	10
Water NSW																								
1 Gosford City Council	27	23	22	17	1.0	1.0	1.4	1.0	36	32	116	64	2	2	7	4	36	38	37	39	4	4	5	5
2 Wyong Shire Council	8	10	17	17	1.0	1.0	1.0	1.0	30	33	34	33	1	2	2	2	55	46	54	49	1	1	1	2
3 Shoalhaven City Council	10	10	10	8	1.0	1.0	1.0	1.1	37	43	57	92	1	1	2	3	13	14	8	11	0	1	0	0
4 Rous Water	9	36	12	10									6	3	3	1								
5 MidCoast Water	5	8	8	9	1.1	1.0	1.0	1.0	84	57	57	61	2	1	2	2	6	6	6	6				
6 Tweed Shire Council	5	4	8	4	1.0	1.0	1.0	1.0	56	58	61	56	2	2	2	2	8	2	1	0	1	0	0	0
7 Port Macquarie Hastings Council	2	3	2	3	1.2	1.0	1.0	1.0	62	37	37	45	2	1	1	2								
8 Riverina Water	14	14	19	7	1.0	1.0	1.0	1.0	64	81	81	86	1	2	2	2								
10 Coffs Harbour City Council	9	10	3	3	1.0	1.0	1.0	1.0	60	75	63	50	2	3	2	2	43	65	76	89	10	13	3	4
11 Albury City Council	6	8	10	5	1.3	1.0	1.0	1.0	50	56	57	55	2	2	2	2		67	75	65		12	10	13
12 Fish River Water	4	5	8	6									6	16	19	18								
13 Tamworth Regional Council	13	8	7	14	2.7	3.0	3.2	2.6	74	83	91	69	2	3	3	2	79	77	74	50	1	3	9	2
14 Clarence Valley Council	10	12	13	11		1.0	1.2	1.1		104	127	111		2	2	2	29	43	45	52	16	11	10	4
15 Eurobodalla Shire Council		11	13	13	1.0	1.0	1.0	1.0	59	50	50	48	1	1	1	1		29	30	32		6	5	6
16 Wingecarribee Shire Council	6	6	12	5	1.0	1.4	1.5	1.0	74	122	133	61	2	3	4	2	25	44	46	22	8	9	7	9
17 Queanbeyan City Council	23	5	2	6	1.7	1.4	1.3	1.0	87	123	102	81	4	5	5	3	57	52	55	61	0	0	0	0
18 Dubbo City Council	3	4	4	5	1.3	2.1	2.5	2.4	65	101	124	118	2	3	4	4	36	43	42	46	11	15	13	8
19 Orange City Council		9	9	7		1.0	1.0	1.0		64	60	61		2	2	2	19	15	24	33	7	1	5	10
21 Bathurst Regional Council	8	5	8	7													64	58	84	99	3	3	3	2
22 Lismore City Council	10	25	37	20	1.0	1.0	1.0	1.0	46	37	39	40	2	1	2	2	101	55	49	50	12	6	9	10
23 Bega Valley Shire Council	4	8	9	6	1.0	2.1	1.0	1.0	54	143	50	50	1	3	1	1	10	9	22	9		3	3	1
24 Ballina Shire Council	2	12	6	5	2.1	2.7	2.5	2.7	121	156	145	156	5	6	6	6	10	8	20	3	1	2	2	0
25 Kempsey Shire Council	9	7	10	7	1.0	1.0	1.6	1.6	48	50	96	97	1	1	2	2	11	24	16	33		10	14	10
26 Essential Energy		24	17	14	1.6	1.7	1.5	1.4	98	102	90	82		3	3	2	102	128	115	129	40	36	37	41
27 Byron Shire Council	7	7	9	9	1.7	1.6	1.4	1.2	63	78	68	53	3	3	3	2	20	32	11	11	9	10	8	8
28A Goldenfields Water (Reticulation)	21	21	10	13	1.0	1.0	1.0	1.0	74	91	92	91	0	1	1	1								
28B Goldenfields Water (Bulk Water Su	0	0	0	0									6	4	4	4								
20 Goulburn Mulwaree Council		11	11	10		1.0	1.0	1.0		68	82	70		2	3	3						13	5	7
9 Wagga Wagga Council																	75	88	80	80	18	17	21	15
LWU Range Max	27	36	37	20	2.7	3.0	3.2	2.7	121	156	145	156	6	16	19	18	102	128	115	129	40	36	37	41
LWU Range Min	0	0	0	0	1.0	1.0	1.0	1.0	30	32	34	33	0	1	1	1	6	2	1	0	0	0	0	0
Median of NMU Indicators shown in Table	8	9	9	7	1.0	1.0	1.0	1.0	62	72	75	63	2	2	2	2	33	43	44	43	7	6	5	5

# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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			
	(%)				(%)				(%)				(%)			
	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15
Sydney Water Corporation	74	74	74	73	5	4	3	4	23	22	23	23	100	100	100	100
Hunter Water Corporation	0	0	0	0	56	56	57	53	44	44	43	47	86	92	85	89
Water NSW																
1 Gosford City Council	2	1	0	1	97	97	98	97	2	2	2	1	100	100	100	100
2 Wyong Shire Council	0	0	0	0	96	95	94	98	4	5	7	5	85	100	100	100
3 Shoalhaven City Council	0	0	0	0	38	0	0	0	62	100	89	88	100	100	100	100
4 Rous Water																
5 MidCoast Water	0	0	0	0	16	19	17	18	84	81	83	82	100	100	100	100
6 Tweed Shire Council	0	0	0	0	1	1	1	1	99	99	98	98	100	100	87	100
7 Port Macquarie Hastings Council	0	0	0	0	0	1	0	0	100	99	100	100	100	100	100	100
8 Riverina Water																
10 Coffs Harbour City Council	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
11 Albury City Council	0	0	0	0	0	0	0	0	100	100	100	100	0	0	0	0
12 Fish River Water																
13 Tamworth Regional Council	0	0	0	0	100	100	100	100	0	0	0	0	100	99	100	100
14 Clarence Valley Council	0	0	0	0	1	0	0	0	99	100	100	100	100	40	58	97
15 Eurobodalla Shire Council	0	0	1	1	6	6	5	5	94	94	95	95	47	0	33	69
16 Wingecarribee Shire Council	0	0	0	0	0	0	1	1	100	100	98	99	0	0	0	0
17 Queanbeyan City Council	0	0	0	0	0	0	0	0	100	100	100	100	0	0	0	0
18 Dubbo City Council	0	0	0	0	0	0	0	0	100	100	99	99	64	100	100	100
19 Orange City Council	7	1	0	0	1	1	2	1	92	98	99	91	100	100	100	0
21 Bathurst Regional Council	0	0	0	0	0	0	0	0	100	100	86	91	100	100	100	100
22 Lismore City Council	5	5	2	5	0	0	0	0	95	95	98	93	0	0	0	0
23 Bega Valley Shire Council	0	0	0	0	60	60	61	61	40	40	39	39	0	0	0	0
24 Ballina Shire Council	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
25 Kempsey Shire Council	0	0	0	0	21	22	28	0	79	78	63	100	99	96	100	100
26 Essential Energy	0	0	0	0	0	0	0	0	100	100	100	100	0	0	0	0
27 Byron Shire Council	0	0	0	0	0	0	1	0	100	100	96	100	100	100	100	100
28A Goldenfields Water (Reticulation)																
28B Goldenfields Water (Bulk Water Su																
20 Goulburn Mulwaree Council	0	0	0	0	2	0	0	0	98	100	100	100	0	0	0	0
9 Wagga Wagga Council	0	0	0	0	6	3	4	4	95	97	97	97	100	100	100	100
LWU Range Max	7	5	2	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	1	0	1	0	99	100	98	99	100	100	100	100

# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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)				
2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15								
Sydney Water Corporation	65	66	69	63	163	113	118	126	-151	-91	-99	-102	72	85	85	84																	1	0	0	0
Hunter Water Corporation	115	114	116	103	310	254	285	105	29	25	24	17	438	381	412	220																	0	0	0	0
Water NSW																	0	0	0	0					0	0	0	0	0	0	0	0				
1 Gosford City Council	129	165	153	161	396	253	229	284	24	25	24	24	539	438	401	462																	3	3	2	2
2 Wyong Shire Council		211	166	174		257	264	290		23	16	2		486	441	459																	1	1	2	6
3 Shoalhaven City Council	205	171	147	180	314	280	253	282	7	5	5	6	489	423	377	437																	0	1	1	1
4 Rous Water																	0	0	0	0					0	0	0	0	1	1	1	0				
5 MidCoast Water	111	149	219	226	177	169	263	263	43	38	26	25	315	340	483	490																	1	1	1	1
6 Tweed Shire Council	159	172	175	155	292	268	271	264	6	7	7	6	454	434	441	413																	0	1	2	0
7 Port Macquarie Hastings Council	144	166	146	178	87	274	263	260		0	0	0	222	417	386	416																	1	1	1	1
8 Riverina Water	608	351	353	364					16	15	19	8	624	365	372	372																				
10 Coffs Harbour City Council	130	98	103	109	339	382	267	363	11	55	6	35	460	515	362	487																	0	13	1	3
11 Albury City Council	284	307	262	236	263	253	203	168		0	0	1	528	541	451	393																	0	2	2	1
12 Fish River Water																									0	0	0	0	0	0	0	0				
13 Tamworth Regional Council	169	177	214	186	227	223	227	228		0	0	0	374	378	419	393																	0	0	0	0
14 Clarence Valley Council	26	19	19	69	170	139	139	74					137	114	114	119																	0	0	0	1
15 Eurobodalla Shire Council	154	162	159	136	198	191	204	205	16	14	16	35	351	352	363	359																	6	7	8	8
16 Wingecarribee Shire Council	146	183	230	162	274	257	260	337	15	13	23	30	377	398	467	469																	10	9	1	5
17 Queanbeyan City Council	14	20	15	13	84	152	146	164	46	18	7	7	143	190	170	184																	0	1	1	1
18 Dubbo City Council	239	308	306	296	200	232	204	207	3	3	2	2	429	527	499	491																	1	1	1	2
19 Orange City Council	209	235	221	204	191	182	199	207		6	5	5	390	414	416	405																	0	0	1	0
21 Bathurst Regional Council	230	192	172	158	285	193	191	177					512	384	362	337																	0	0	0	0
22 Lismore City Council	15	22	20	27	61	196	242	220		13	12	10	69	210	248	233																	1	0	1	1
23 Bega Valley Shire Council		122	118	107	126	212	219	239	40	29	39	32	193	331	343	342																	0	0	0	0
24 Ballina Shire Council	14	15	13	13	363	357	415	384					347	366	425	390																	6	1	0	1
25 Kempsey Shire Council	158	180	198	162	243	231	172	151	31	26	16	44	368	376	349	324																	1	6	1	2
26 Essential Energy	509	536	886	732	50	84	48	50					572	647	930	779																	0	0	0	0
27 Byron Shire Council	12	6	6	6	368	169	172	169					363	164	167	166																	4	1	2	2
28A Goldenfields Water (Reticulation)		445	390	378						18	18	16		461	407	394																				
28B Goldenfields Water (Bulk Water Su)																	1	1	1	1					0	0	0	0	1	1	1	1				
20 Goulburn Mulwaree Council					463	493	472	346	22	22	20	18		615	618	449																	3	1	0	0
9 Wagga Wagga Council																																	0	0	1	0
LWU Range Max	608	536	886	732	463	493	472	384	46	55	39	44	624	647	930	779	1	1	1	1					0	0	0	0	1	1	1	1	10	13	8	8
LWU Range Min	12	6	6	6	50	84	48	50	3	0	0	0	69	114	114	119	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0	0
Median of NMU Indicators shown in Table	154	172	169	162	235	231	227	228	16	15	14	9	376	398	401	394	1	1	1	1					0	0	0	0	1	1	0	0	0	1	1	1



# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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)								
	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15
Sydney Water Corporation	4,626	4,657	4,755	4,833	1,667	1,698	1,724	1,752	145	145	124	124	1,812	1,844	1,848	1,876	4,491	4,530	4,644	4,721	1,631	1,663	1,687	1,716	132	132	111	111	1,763	1,795	1,799	1,827
Hunter Water Corporation	540	545	550	558	214	218	222	225	16	15	14	14	230	233	236	239	517	523	528	535	207	209	213	216	12	12	11	11	219	221	224	228
Water NSW																																
1 Gosford City Council	163	163	165	166	67	68	68	68	3	3	3	4	71	71	72	72	159	159	161	162	66	66	67	67	3	3	3	3	69	69	70	70
2 Wyong Shire Council	145	150	154	156	58	58	59	61	3	2	2	3	61	61	61	64	143	148	152	154	57	57	58	59	3	3	3	3	60	60	60	62
3 Shoalhaven City Council	93	90	89	89	43	44	44	44	3	3	3	3	46	47	47	47	83	79	79	81	39	39	40	40	2	2	2	2	41	41	42	42
4 Rous Water																																
5 MidCoast Water	82	82	83	83	36	36	36	36	3	3	3	3	38	39	39	39	81	81	81	81	32	32	32	32	3	3	3	3	35	35	35	35
6 Tweed Shire Council	79	79	78	79	31	31	31	31	1	1	1	1	31	32	32	32	73	75	76	76	30	29	29	30	1	1	1	1	31	30	30	31
7 Port Macquarie Hastings Council	80	80	81	81	27	27	27	28	3	3	3	3	30	30	30	30	73	74	75	78	25	25	26	26	2	2	2	2	27	27	28	28
8 Riverina Water	60	70	71	72	26	27	27	27	4	3	3	3	29	29	30	30																
10 Coffs Harbour City Council	68	69	70	71	23	23	23	24	2	2	2	2	25	25	25	25	67	68	69	70	22	22	22	22	2	2	2	2	23	23	24	24
11 Albury City Council	53	49	50	51	21	21	22	24	2	2	2	2	23	23	24	26	53	48	48	49	20	20	20	22	2	2	2	2	21	22	22	24
12 Fish River Water																																
13 Tamworth Regional Council	44	44	45	45	19	19	19	20	2	2	2	2	21	21	21	22	44	44	45	45	17	18	18	18	2	2	2	2	19	19	19	20
14 Clarence Valley Council	46	46	46	46	20	19	19	19	2	2	3	3	22	21	21	22	30	30	30	32	14	14	14	14	1	1	1	1	15	15	15	15
15 Eurobodalla Shire Council	39	31	31	31	19	19	19	19	1	1	1	1	20	20	20	20	38	27	29	30	17	17	17	17	1	1	1	1	18	18	18	18
16 Wingecarribee Shire Council	39	40	40	41	17	17	17	17	2	2	2	2	19	19	19	19	34	35	38	39	14	14	15	15	1	1	1	1	15	15	16	16
17 Queanbeyan City Council	35	38	39	39	15	15	16	16	1	1	1	1	16	16	16	17	35	38	38	39	15	15	16	16	1	1	1	1	16	16	17	17
18 Dubbo City Council	34	35	35	35	15	15	15	16	2	2	2	2	17	17	17	18	33	33	35	35	14	14	15	15	1	1	1	1	16	16	16	16
19 Orange City Council	40	40	41	41	15	15	16	16	2	2	2	2	17	17	17	18	40	40	41	41	15	15	15	15	1	1	1	1	16	16	17	17
21 Bathurst Regional Council	33	34	34	34	14	14	14	14	1	1	1	1	15	15	16	16	33	33	33	34	13	14	14	14	2	2	2	2	15	15	16	16
22 Lismore City Council	30	31	31	32	13	12	13	13	1	2	2	2	14	14	14	14	28	28	28	29	12	12	12	12	1	1	1	1	13	13	13	13
23 Bega Valley Shire Council	29	24	24	25	13	13	13	13	1	1	1	1	14	14	14	14	23	21	21	21	11	11	11	11	1	1	1	1	12	12	12	12
24 Ballina Shire Council	37	37	38	38	13	13	13	13	1	1	1	1	15	14	14	14	35	36	36	37	12	12	13	13	1	1	2	1	13	14	14	14
25 Kempsey Shire Council	25	25	25	27	11	11	11	11	2	2	2	2	13	13	13	13	20	20	21	20	9	9	9	9	1	1	1	1	9	9	10	10
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
27 Byron Shire Council	29	21	21	21	10	10	10	10	1	1	2	2	11	11	11	11	29	21	21	21	9	9	9	9	1	1	1	1	11	10	11	11
28A Goldenfields Water (Reticulation)	21	23	23	23	7	7	7	7	3	3	3	3	10	10	10	10																
28B Goldenfields Water (Bulk Water Su)																																
20 Goulburn Mulwaree Council	23	23	23	23	10	9	9	10	1	1	1	1	11	10	10	11	22	22	22	22	9	9	10	10	1	1	1	1	10	10	11	11
9 Wagga Wagga Council																	62	61	62	63	24	24	25	25	2	2	2	2	25	26	26	27
LWU Range Max	163	163	165	166	67	68	68	68	4	3	3	4	71	71	72	72.0	159	159	161	162	66	66	67	67	3	3	3	3	69	69	70	70.0
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	9	1	1	1	1	9	9	10	10.0
Median of NMU Indicators shown in Table	39	40	40	41	17	17	17	17	2	2	2	2	19	19	19	19.0	37	37	38	39	15	15	16	16	1	1	1	1	16	16	17	17.0

# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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)				
2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15								
Sydney Water Corporation	1	1	0	0	0	0	0	0	1	0	1	1	2	3	2	1	4	4	3	3	86	86	83	79	155	153	151	147	261	277	277	281	147	160	183	179	3	4	6	4	0	1	1	1
Hunter Water Corporation	3	3	3	3	0	0	0	0	2	2	1	1	2	2	2	2	8	7	6	6	71	79	71	70	122	142	128	136	156	154	148	148	206	236	304	267	2	5	8	7	0	3	1	2
Water NSW																																												
1 Gosford City Council	14	25	15	12					3	2	2	2													196	199	311	382	247	224	209	306	153	171	187	126	0	0	0	0	16	14	12	6
2 Wyong Shire Council	8	18	5	10	4	5	6	6	12	10	12	12					24	33	23	29	49	32	33	34	180	204	200	133	138	143	152	158	64	86	70	57	0	0	0	0	0	0	2	2
3 Shoalhaven City Council	1	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	1	1	1	2	100	100	96	96	177	194	220	135	91	92	90	60	36	82	65	78	1	1	1	1	3	0	1	2
4 Rous Water																									180	195	237																	
5 MidCoast Water	4	3	3	3	1	2	2	4	1	2	2	3	1	1	1	1	6	7	7	11													2	2	6	0	0	1	0	4	1	3	2	
6 Tweed Shire Council	5	4	5	6	21	24	28	17	6	6	7	6	0	0	1	1	31	33	40	29	51	56	48		160	149	134	228	182	130	95	9	27	50	19	0	0	0	0	3	3	7	12	
7 Port Macquarie Hastings Council	3	9	7	6	14	17	14	20	5	8	10	6	0	0	0	0	24	33	31	32	72	77	75	84	205	163	174	210	60	60	60	60	6	11	10	14	0	1	1	0	0	0	0	1
8 Riverina Water	3	4	3	3	2	2	3	2					4	3	4	2	8	9	10	7					281	308	173	185					53	55	63	57	1	1	1	7	1	0	0	0
10 Coffs Harbour City Council	1	0	0	0	53	0	0	0	22	0	0	0	0	0	0	0	80	1	0	1	99	99	99	99					94	91	99	95	73	35	9	11	5	5	6	2	0	0	0	0
11 Albury City Council	1	4	3	3	5	2	1	1	33	1	1	2	0	0	0	0	6	5	6		104	124	137		87	87	84	94					0	0	0	1	21	4	27	23				
12 Fish River Water																					98	100	100	100	1,640	600	600																	
13 Tamworth Regional Council		1	0	0	55	47	56	43	22	22	21	16	0	0	0	0	82	67	78	59																	0	0	0	0	0	0	0	0
14 Clarence Valley Council	7	8	23	14	27	28	57	68	24	23	19	26	1	1	2	2	76	53	101	109																	0	0	0	0	3	6	6	5
15 Eurobodalla Shire Council	0	0	1	1	0	0	0	0	1	1	2	0	0	0	0	0	1	3	1		84	100			240	190	220					57	93	120	0	0	0	0	0	0	25	6		
16 Wingecarribee Shire Council	10	13	12	8	66	75	72	55	24	21	20	11	1	0	0	0	120	105	103	74	66	79	53		91	108	122	120	120	120	40	53	73	14	6	1	1	0	4	4	6	7		
17 Queanbeyan City Council		0	0	0	27	31	23	19	18	10	11	12	4	4	2	2	49	45	37	33					180	180	180	180	120	120	120	120	5	0	0	1	0	0	0	0	9	7	0	0
18 Dubbo City Council	0	1	0	1	2	4	3	3	9	11	11	12	0	0	0	0	15	15	15		90	89	89	87	168	152	75	131	96	99	109	88	11	27	58	20	0	0	0	0	0	0	0	0
19 Orange City Council	2	2	1	1	56	59	53	62	48	26	30	41					85	92	104		240	238	255		100	41	52					66	73	51	0	0	0	1	0	0	0	0		
21 Bathurst Regional Council	29	38	35	34	50	45	24	28	20	18	24	29	0	0	0	0	100	100	82	91													2	1	2	2	0	0	0	0	0	0	0	0
22 Lismore City Council	1	0	0	0	4	0	1	2	22	3	16	2	1	1	2	0	28	4	19	4	80	80	80		288	120	140	112	69	118	39	123	32	49	0	0	0	0	1	1	1	4		
23 Bega Valley Shire Council	5	9	13	13	16	5	1	2	9	2	2	1	1	1	0	1	16	17	16		65	72	79	87									3	1	3	0	0	0	0	1	5	2	4	
24 Ballina Shire Council	0	0	4	0	0	0	4	0	3	1	4	3	0	0	0	0	3	1	12	3																	0	0	0	0	0	0	1	2
25 Kempsey Shire Council	0	0	1	0	0	0	0	0	1	2	2	1	0	0	0	0	1	2	3	2	49	48	45		132	165	127	215	191	170	119	99	35	68	72	124	1	2	2	1	0	0	0	0
26 Essential Energy	0	8	0	0	0	1	0	0	0	1	1	0	0	0	0	0	1	10	1	1	78	76	78	78													73	28	27	31	0	0	0	0
27 Byron Shire Council	0	0	1	2	0	0	0	0	1	2	4	1	30	2	2	2	32	5	7	5																	1	2	1	3	0	0	0	0
28A Goldenfields Water (Reticulation)	7	9	7	5	58	39	1	0					0	0	0	0	49	8	5		235	192	205										77	96	2	1	1	0	0	0	0			
28B Goldenfields Water (Bulk Water Su																																												
20 Goulburn Mulwaree Council	1	3	8	5	28	28	28	36	28	21	30	29	0	0	0	0																	276	17	3	3	2	5	4	0	1	0	0	
9 Wagga Wagga Council									50	54	53	41	0	0	0	0	50	54	53	41	100	100	100						51	50	49	51												
LWU Range Max	29	38	35	34	66	75	72	68	49.8	53.7	53.4	41	30	4	4	2	120	105	103	109	100	100	100	100	281	1,640	600	600	247	224	209	306	153	276	187	126	73	28	27	31	21	14	27	23
LWU Range Min	0	0	0	0	0	0	0	0	0.4	0.3	0.0	0	0	0	0	0	1	1	0	1	49	32	33	34	132	91	75	122	51	50	41	51	2	0	0	1	0	0	0	0	0	0	0	0
Median of NMU Indicators shown in Table	2	3	3	3	10	4	3	3	10.7	4.3	8.3	4	0.2	0.3	0.1	0.1	30	16	16	13	84	79	79	86	180	194	180	185	96	106	104	95	36	54	58	20	0	0	0	0	0	0	0	1



# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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			
	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15
Sydney Water Corporation	ADWG 2004	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	12 of 13	12 of 13	13 of 13	13/13	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	No
Water NSW	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011												
1 Gosford City Council	ADWG 2004	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
2 Wyong Shire Council	ADWG 2004	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
3 Shoalhaven City Council	ADWG 2004	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 2004	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	2 of 2	3 of 3	3 of 3	3 of 3	No	No	No	No
5 MidCoast Water	ADWG 2004	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	5 of 5	4 of 5	4 of 5	5 of 5	Yes	Yes	Yes	Yes
6 Tweed Shire Council	ADWG 2004	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 2004	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 2004	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	14 of 14	14 of 14	14 of 14	14 of 14	Yes	Yes	Yes	Yes
10 Coffs Harbour City Council	ADWG 2004	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
11 Albury City Council	ADWG 2004	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
12 Fish River Water	ADWG 2004	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
13 Tamworth Regional Council	ADWG 2004	ADWG 2011	ADWG 2011	ADWG 2011	100	99	100	100	6 of 7	7 of 7	7 of 7	7 of 7	No	No	No	No
14 Clarence Valley Council	ADWG 2004	ADWG 2011	ADWG 2011	ADWG 2011	99	73	100	100	5 of 5	6 of 6	6 of 6	5 of 5	No	No	No	No
15 Eurobodalla Shire Council	ADWG 2004	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	1 of 1	2 of 2	2 of 2	2 of 2	No	No	No	No
16 Wingecarribee Shire Council	ADWG 2004	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	3 of 3	3 of 3	3 of 3	2 of 2	No	No	No	No
17 Queanbeyan City Council	ADWG 2004	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
18 Dubbo City Council	ADWG 2004	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
19 Orange City Council	ADWG 2004	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 2004	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
22 Lismore City Council	ADWG 2004	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	1 of 1	2 of 2	2 of 2	2 of 2	No	No	No	No
23 Bega Valley Shire Council	ADWG 2004	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	6 of 6	8 of 8	8 of 8	8 of 8	No	No	No	No
24 Ballina Shire Council	ADWG 2004	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	1 of 1	3 of 3	3 of 3	3 of 3	No	No	No	No
25 Kempsey Shire Council	ADWG 2004	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
26 Essential Energy	ADWG 2004	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
27 Byron Shire Council	ADWG 2004	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	1 of 1	2 of 2	2 of 2	2 of 2	No	No	No	No
28A Goldenfields Water (Reticulation)	ADWG 2004	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
28B Goldenfields Water (Bulk Water Su	ADWG 2004	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	3 of 3	2 of 3	3 of 3	3 of 3	No	No	No	No
20 Goulburn Mulwaree Council	ADWG 2004	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
9 Wagga Wagga Council																
LWU Range Max					100	100	100	100								
LWU Range Min					99	73	100	100								
Median of NMU Indicators shown in Table					100	100	100	100								



# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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 limit		\$/kL		kL limit		\$/kL		kL limit		\$/kL			
		2013/14	2014/15	2013/14	2014/15	2013/14	2014/15	2013/14	2014/15	2013/14	2014/15	2013/14	2014/15	2013/14	2014/15	2013/14	2014/15		
Sydney Water Corporation		n/a	NA			128	114	All	All	2.20	2.20								
Hunter Water Corporation				0	0	17	18	All	All	2.20	2.20								
Water NSW																			
1	Gosford City Council	Two Part	Two Part	0	0	128	150	All	All	2.20	2.20								
2	Wyong Shire Council	Two Part	Two Part	0	0	172	172	All	All	2.20	2.20								
3	Shoalhaven City Council	Two Part	Two Part	0	0	82	81	All	All	1.60	1.60								
4	Rous Water																		
5	MidCoast Water	Inclining Block	Inclining Block	0	0	183	205	<200	<200	2.60	2.70	>200	>200	2.90	3.00				
6	Tweed Shire Council	Inclining Block	Inclining Block	0	0	140	148	<300	<300	2.30	2.50	>300	>300	3.50	3.70				
7	Port Macquarie Hastings Council	Inclining Block	Inclining Block	0	0	176	183	<270	<270	2.50	2.60	>270	>270	4.90	5.10				
8	Riverina Water	Inclining Block	Inclining Block	0	0	142	160	<500	<500	1.20	1.30	>500	>500	1.90	2.00				
10	Coffs Harbour City Council	Inclining Block	Inclining Block	0	0	141	143	<365	<365	2.60	2.60	>365	>365	3.90	4.00				
11	Albury City Council	Inclining Block	Inclining Block	0	0	96	113	<225	<225	1.10	1.20	>225	>225	2.10	2.20				
12	Fish River Water																		
13	Tamworth Regional Council	Inclining Block	Inclining Block	0	0	246	248	<400	<400	1.40	1.40	400-800	400-800	2.10	2.10	>800	>800	3.20	3.20
14	Clarence Valley Council	Inclining Block	Inclining Block	0	0	159	149	<450	<450	1.70	1.80	>450	>450	2.60	2.70				
15	Eurobodalla Shire Council	Two Part	Two Part	0	0	232	282	All	All	3.50	3.40								
16	Wingecarribee Shire Council	Inclining Block	Inclining Block	0	0	151	154	<225	<225	1.70	1.70	>225	>225	2.50	2.60				
17	Queanbeyan City Council	Inclining Block	Inclining Block	0	0	354	381	<160	<160	2.50	2.70	>160	>160	3.70	4.00				
18	Dubbo City Council	Two Part	Two Part	0	0	232	242	All	All	1.80	1.90								
19	Orange City Council	Inclining Block	Inclining Block	0	0	205	222	<450	<450	1.90	2.00	>450	>450	2.80	3.00				
21	Bathurst Regional Council	Inclining Block	Inclining Block	0	0	118	121	<250	<250	1.70	1.80	>250	>250	2.60	2.70				
22	Lismore City Council	Two Part	Two Part	0	0	189	204	All	All	2.80	3.00								
23	Bega Valley Shire Council	Two Part	Two Part	0	0	196	198	All	All	2.50	2.50								
24	Ballina Shire Council	Inclining Block	Inclining Block	0	0	181	189	<350	<350	1.90	2.00	>350	>350	2.90	3.00				
25	Kempsey Shire Council	Inclining Block	Inclining Block	0	0	252	255	<250	<250	2.10	2.10	>250	>250	3.00	3.00				
26	Essential Energy	Inclining Block	Two Part	0	0	258	313	<400	All	1.70	1.70	>400							
27	Byron Shire Council	Inclining Block	Inclining Block	0	0	153	155	<450	<450	2.20	2.30	>450	>450	3.40	3.50				
28A	Goldenfields Water (Reticulation)	Two Part	Two Part	0	0	168	174	All	All	2.10	2.10								
28B	Goldenfields Water (Bulk Water Su																		
20	Goulburn Mulwaree Council	Inclining Block	Inclining Block	0	0	160	165	<292	<292	2.80	2.80	>292	>292	3.70	3.80				
9	Wagga Wagga Council																		
LWU Range Max				0	0	354	381			3.50	3.40			4.90	5.10			3.20	3.20
LWU Range Min				0	0	82	81			1.10	1.20			1.90	2.00			3.20	3.20
Median of NMU Indicators shown in Table				0	0	172	174			2.10	2.10			2.90	3.00			3.20	3.20

## APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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)				
2013/14 2014/15		2013/14 2014/15		2011/12 2012/13		2013/14 2014/15		2011/12 2012/13		2013/14 2014/15		2011/12 2012/13		2013/14 2014/15		
Sydney Water Corporation			No	No	604	586	568	560	193	198	206	201	589	582	581	563
Hunter Water Corporation	0	0	No	no	426	454	451	456	163	176	181	168	351	402	409	385
Water NSW																
1 Gosford City Council	0	0	No	No	543	563	570	596	145	157	161	160	426	467	483	507
2 Wyong Shire Council	0	0	No	No	592	633	614	618	151	155	157	150	489	535	527	508
3 Shoalhaven City Council	0	0	No	No	404	409	408	401	130	149	147	142	292	326	322	309
4 Rous Water																
5 MidCoast Water	0	0	No	No	688	704	706	745	131	143	150	142	514	556	575	587
6 Tweed Shire Council	0	0	No	No	522	562	598	638	163	177	184	178	449	512	562	584
7 Port Macquarie Hastings Council	0	0	No	No	622	645	666	693	144	157	157	151	495	543	559	568
8 Riverina Water	0	0	No	No	310	355	388	426	256	347	324	311	367	524	541	574
10 Coffs Harbour City Council	0	0	No	No	645	659	660	669	156	161	169	167	533	559	579	582
11 Albury City Council	0	0	No	No	261	286	313	349	203	255	232	205	264	369	355	354
12 Fish River Water																
13 Tamworth Regional Council	0	0	No	No	507	526	527	532	204	261	287	188	513	611	649	515
14 Clarence Valley Council	0	0	No	No	445	481	500	507	139	148	161	147	345	396	434	413
15 Eurobodalla Shire Council	0	0	No	No	799	799	923	962	104	116	119	114	501	536	642	668
16 Wingecarribee Shire Council	0	0	No	No	451	485	482	502	157	186	200	178	381	461	482	463
17 Queanbeyan City Council	0	0	No	No	790	854	910	980	185	175	178	173	740	767	829	871
18 Dubbo City Council	0	0	No	No	531	539	586	612	249	368	350	327	613	827	850	848
19 Orange City Council	0	0	No	No	561	566	579	626	160	180	174	170	488	529	530	564
21 Bathurst Regional Council	0	0	No	No	421	435	466	481	180	259	227	223	392	536	512	522
22 Lismore City Council	0	0	No	No	675	693	741	802	143	145	155	155	530	550	616	666
23 Bega Valley Shire Council	0	0	No	No	678	687	691	698	130	139	134	137	509	536	529	541
24 Ballina Shire Council	0	0	No	No	524	542	570	593	166	177	194	181	463	501	558	555
25 Kempsey Shire Council	0	0	No	No	608	631	665	673	143	156	157	156	506	544	577	580
26 Essential Energy	0	0	No	No	575	614	598	657	237	281	281	257	633	754	735	755
27 Byron Shire Council	0	0	No	No	576	590	602	619	168	176	181	180	507	537	559	574
28A Goldenfields Water (Reticulation)	0	0	No	No	552	566	579	598	199	261	284	272	549	689	751	750
28B Goldenfields Water (Bulk Water Su																
20 Goulburn Mulwaree Council	71	40	No	No	710	732	787	795	138	150	165	139	598	626	690	624
9 Wagga Wagga Council																
LWU Range Max					799	854	923	980	256	368	350	327	740	827	850	871
LWU Range Min					261	286	313	349	104	116	119	114	264	326	322	309
Median of NMU Indicators shown in Table					561	566	598	619	157	175	174	170	501	536	559	574



## APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

WATER UTILITY		RESIDENTIAL CHARGES AND BILLS																		
		SEWERAGE																		
		Tariff Structure				Fixed charge min				Usage charge				Special Levies				Income from Special Levies Retained by Utility		
		P4				P4.1				P4.2				P4.3				P4.4		
(Charge Type)				(\$)				(\$/kL)				Description				(Yes/No)				
		2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2014/15	2011/12	2012/13	2013/14	2014/15	2013/14	2014/15
Sydney Water Corporation		n/a	N/A	N/A	NA	577	580	580	592										No	No
Hunter Water Corporation		0	Service charge only	Service charge only	Service charge only	557	580	579	586	0.0	0.0	0.0	0.0		37	38	37	38	Yes	Yes
Water NSW																				
1	Gosford City Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	543	559	586	612						0	0	0	0	No	No
2	Wyong Shire Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	481	484	525	471						0	0	0	0	No	No
3	Shoalhaven City Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	690	709	726	750						0	0	0	0	No	No
4	Rous Water																			
5	MidCoast Water	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	945	961	936	948						0	0	0	0	No	No
6	Tweed Shire Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	651	679	703	732						0	0	0	0	No	No
7	Port Macquarie Hastings Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	690	704	716	736						0	0	0	0	No	No
8	Riverina Water																			
10	Coffs Harbour City Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	770	794	796	806						0	0	0	0	No	No
11	Albury City Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	477	511	571	639						0	0	0	0	No	No
12	Fish River Water																			
13	Tamworth Regional Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	765	748	751	758						0	0	0	0	No	No
14	Clarence Valley Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	809	866	922	988						0	0	0	0	No	No
15	Eurobodalla Shire Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	832	853	858	865						0	0	0	0	No	No
16	Wingecarribee Shire Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	657	692	723	739						0	0	0	0	No	No
17	Queanbeyan City Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	376	381	421	470						0	0	0	0	No	No
18	Dubbo City Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	614	643	663	690						0	0	0	0	No	No
19	Orange City Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	361	365	391	423						0	0	0	0	No	No
21	Bathurst Regional Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	448	453	464	479						0	0	0	0	No	No
22	Lismore City Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	713	733	751	772						0	0	0	0	No	No
23	Bega Valley Shire Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	1056	1092	1,099	1,109						0	0	0	0	No	No
24	Ballina Shire Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	674	704	747	807						0	0	0	0	No	No
25	Kempsey Shire Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	709	711	749	791						0	0	0	0	No	No
26	Essential Energy	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	497	519	505	511						0	0	0	0	No	No
27	Byron Shire Council	Fixed + Usage Charge	Fixed + Usage Charge	Fixed + Usage Charge	Fixed + Usage Charge	727	768	771	780	2	2	2	2		0	0	0	0	No	No
28A	Goldenfields Water (Reticulation)																			
28B	Goldenfields Water (Bulk Water Su																			
20	Goulburn Mulwaree Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	697	705	711	724						0	0	0	0	No	No
9	Wagga Wagga Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	464	454	441	434						0	0	0	0	No	No
LWU Range Max						1,056	1,092	1,099	1,109	2	2	2	2		0	0	0	0		
LWU Range Min						361	365	391	423	2	2	2	2		0	0	0	0		
Median of NMU Indicators shown in Table						682	704	720	738	2	2	2	2		0	0	0	0		



## APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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)				
	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15
Sydney Water Corporation	577	580	580	592	577	580	580	592	1,181	1,166	1,149	1,153	1,165	1,162	1,162	1,156
Hunter Water Corporation	594	618	616	623	594	618	616	623	1,021	1,072	1,067	1,079	945	1,020	1,025	1,008
Water NSW																
1 Gosford City Council	543	559	586	612	543	559	586	612	1,086	1,122	1,155	1,208	970	1,026	1,069	1,119
2 Wyong Shire Council	481	484	466	471	481	484	466	471	1073	1118	1,080	1,089	970	1019	993	979
3 Shoalhaven City Council	690	709	726	750	690	709	726	750	1094	1117	1,134	1,151	982	1035	1,049	1,059
4 Rous Water																
5 MidCoast Water	945	961	936	948	945	961	936	948	1633	1666	1,641	1,693	1459	1517	1,510	1,535
6 Tweed Shire Council	651	679	703	732	651	679	703	732	1173	1241	1,301	1,370	1100	1191	1,265	1,316
7 Port Macquarie Hastings Council	690	704	716	736	690	704	716	736	1312	1349	1,382	1,429	1184	1248	1,275	1,304
8 Riverina Water									310	355	388	426	367	524	541	574
10 Coffs Harbour City Council	770	794	796	806	770	794	796	806	1414	1454	1,456	1,475	1303	1353	1,375	1,388
11 Albury City Council	477	511	571	639	477	511	571	639	738	797	884	988	740	880	925	993
12 Fish River Water																
13 Tamworth Regional Council	765	748	751	758	765	748	751	758	1272	1274	1,277	1,290	1278	1360	1,399	1,273
14 Clarence Valley Council	809	866	922	988	809	866	922	988	1254	1347	1,423	1,495	1155	1262	1,357	1,401
15 Eurobodalla Shire Council	832	853	858	865	832	853	858	865	1630	1652	1,782	1,827	1333	1389	1,500	1,533
16 Wingecarribee Shire Council	657	692	723	739	657	692	723	739	1109	1177	1,205	1,241	1038	1153	1,205	1,202
17 Queanbeyan City Council	376	381	421	470	376	381	421	470	1166	1235	1,331	1,450	1116	1148	1,250	1,341
18 Dubbo City Council	615	643	663	690	614	643	663	690	1146	1182	1,249	1,302	1228	1469	1,513	1,538
19 Orange City Council	360	365	391	423	360	365	391	423	921	931	969	1,049	849	893	920	987
21 Bathurst Regional Council	448	452	464	479	448	452	464	479	869	887	930	960	840	989	975	1,001
22 Lismore City Council	713	733	751	772	713	733	751	772	1388	1425	1,492	1,574	1243	1282	1,367	1,438
23 Bega Valley Shire Council	1056	1092	1,099	1,109	1056	1092	1,099	1,109	1734	1779	1,790	1,807	1565	1628	1,628	1,650
24 Ballina Shire Council	673	704	746	807	673	704	746	807	1197	1247	1,316	1,400	1137	1205	1,305	1,362
25 Kempsey Shire Council	709	711	749	791	709	711	749	791	1317	1342	1,414	1,464	1215	1255	1,325	1,371
26 Essential Energy	497	519	505	511	497	519	505	511	1072	1133	1,103	1,168	1130	1274	1,241	1,266
27 Byron Shire Council	1052	1113	1,121	1,126	1000	1059	1,078	1,093	1628	1703	1,723	1,745	1507	1596	1,637	1,667
28A Goldenfields Water (Reticulation)									552	566	579	598	549	689	751	750
28B Goldenfields Water (Bulk Water Su																
20 Goulburn Mulwaree Council	697	705	711	724	697	705	711	724	1407	1437	1498	1,519	1295	1331	1400	1,348
9 Wagga Wagga Council	464	454	441	434	464	454	441	434	464	454	441	434	464	454	441	434
LWU Range Max	1,056	1,113	1,121	1,126	1,056	1,092	1,099	1,109	1,734	1,779	1,790	1,827	1,565	1,628	1,637	1,667
LWU Range Min	360	365	391	423	360	365	391	423	310	355	388	426	367	454	441	434
Median of NMU Indicators shown in Table	682	704	720	738	682	704	720	738	1,170	1,238	1,289	1,336	1,134	1,227	1,270	1,310

# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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)				(%)			
	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15
Sydney Water Corporation	1,270,000	1,290,000	1,300,000	1,320,000	1,230,000	1,270,000	1,270,000	1,320,000	2,790,000	2,580,000	2,610,000	2,680,000	78	78	79	80	702	698	704	705	696	711	708	721	1,542	1,400	1,410	1,427	6	6	6	6
Hunter Water Corporation	120,755	140,333	146,949	140,316	158,733	164,759	160,650	172,061	279,020	305,091	307,600	312,376	66	95	96	95	524	602	623	588	725	744	716	756	1,211	1,310	1,304	1,308	5	5	5	5
Water NSW	219,262	207,235	208,729	205,080					222,666	210,759	212,788	206,271																				
1 Gosford City Council	36,628	45,162	45,173	45,594	39,940	43,488	45,005	49,729	75,965	89,601	91,355	95,673	77	76	76	73	520	638	632	635	580	630	645	710	1,076	1,267	1,278	1,332	1	1	1	1
2 Wyong Shire Council	42,796	47,731	49,234	52,403	32,017	32,863	32,279	35,389	73,186	78,501	81,217	86,998	60	62	67	67	706	787	801	825	537	552	535	572	1,207	1,295	1,322	1,370	2	2	2	2
3 Shoalhaven City Council	22,093	24,499	23,561	26,802	39,259	40,035	41,153	46,747	61,285	65,452	64,766	70,579	71	76	74	75	478	526	501	568	963	974	982	1,116	1,327	1,404	1,379	1,495	2	2	2	2
4 Rous Water	21,656	20,740	22,899	23,017					21,593	20,442	22,576	22,840																				
5 MidCoast Water	26,409	31,965	31,155	31,135	37,882	41,056	39,183	39,758	104,402	69,010	64,602	68,537	72	75	75	72	688	831	807	805	1,088	1,176	1,119	1,133	2,722	1,793	1,675	1,771	1	2	1	1
6 Tweed Shire Council	22,557	23,842	32,955	28,750	29,331	28,135	36,343	33,466	48,043	50,384	67,855	60,033	75	75	77	75	719	756	1,035	892	946	935	1,197	1,088	1,532	1,597	2,132	1,862	2	2	1	1
7 Port Macquarie Hastings Council	22,804	20,925	30,689	26,705	21,779	24,707	32,488	24,621	44,181	45,151	61,244	51,191	68	74	69	68	760	703	1,020	878	809	907	1,182	885	1,472	1,518	2,035	1,683	2	2	1	1
8 Riverina Water	18,588	26,093	27,721	30,463					18,564	26,219	27,688	30,429	72	77	76	75	635	889	938	1,020					634	893	937	1,019	1	1	1	1
10 Coffs Harbour City Council	18,933	22,359	20,583	22,123	27,122	27,122	27,960	28,637	46,055	47,814	47,956	49,963	73	74	76	76	768	903	827	883	1,165	1,159	1,188	1,208	1,866	1,932	1,926	1,994	1	1	1	1
11 Albury City Council	10,734	15,037	16,648	16,794	15,548	18,369	20,814	20,857	26,014	33,393	37,470	35,810	69	79	79	75	468	646	706	653	730	850	949	869	1,135	1,436	1,589	1,393	1	1	1	1
12 Fish River Water	7,439	9,156	10,216						7,439	9,156	10,216						316								316							
13 Tamworth Regional Council	19,978	18,811	23,011	20,051	20,147	19,270	20,833	21,526	39,706	38,077	43,814	40,779	58	60	64	55	952	886	1,074	924	1,066	1,005	1,077	1,093	1,893	1,793	2,045	1,879	1	1	1	1
14 Clarence Valley Council	13,155	13,512	14,652	14,902	15,053	15,297	16,218	18,035	28,016	29,415	31,437	32,509	65	67	67	66	592	633	684	694	1,032	1,045	1,108	1,226	1,260	1,377	1,469	1,515	2	2	1	1
15 Eurobodalla Shire Council	13,116	13,185	15,796	16,997	18,690	18,532	19,117	19,300	31,032	29,071	34,443	34,828	66	68	64	58	672	677	807	867	1,045	1,035	1,061	1,066	1,590	1,494	1,760	1,777	1	1	1	1
16 Wingecarribee Shire Council	10,813	12,763	13,683	13,242	13,454	13,782	15,141	16,755	24,254	26,504	28,809	28,959	65	68	69	68	582	681	722	690	916	938	970	1,065	1,304	1,415	1,519	1,512	1	1	1	1
17 Queanbeyan City Council	13,853	15,642	19,232	19,105	6,735	7,181	12,819	11,702	20,588	22,823	32,051	30,807	62	63	64	61	864	960	1,172	1,098	420	441	769	676	1,284	1,400	1,953	1,771	1	1	1	1
18 Dubbo City Council	13,316	17,158	18,078	20,554	11,829	13,496	14,463	17,236	22,973	30,359	30,604	37,622	71	78	75	74	791	1,013	1,055	1,169	753	852	903	1,050	1,365	1,792	1,785	2,139	1	1	1	1
19 Orange City Council	13,657	16,152	15,841	17,582	10,141	10,755	11,893	14,039	23,772	26,963	27,914	31,729	61	64	71	70	814	954	921	1,004	639	664	722	848	1,416	1,593	1,624	1,811	1	1	1	1
21 Bathurst Regional Council	10,523	13,138	15,065	15,235	8,773	10,004	10,967	12,345	19,297	22,978	26,032	27,412	71	83	83	82	696	863	967	969	586	661	710	778	1,276	1,509	1,672	1,744	1	1	1	1
22 Lismore City Council	9,685	10,259	10,998	11,801	11,476	11,480	10,951	11,319	21,047	19,991	21,247	21,716	69	70	70	70	683	720	769	824	910	906	858	885	1,484	1,403	1,486	1,516	1	1	1	1
23 Bega Valley Shire Council	11,295	9,274	10,471	9,990	15,582	15,432	16,747	16,631	26,873	24,670	27,200	26,650	66	60	63	65	789	647	727	694	1,279	1,271	1,375	1,363	1,876	1,721	1,891	1,851	1	1	1	1
24 Ballina Shire Council	9,702	10,421	11,475	11,575	14,081	14,169	15,744	16,795	23,408	22,767	27,112	16,151	66	67	68	68	669	746	810	806	1,055	1,031	1,120	1,190	1,613	1,629	1,912	1,125	1	1	1	2
25 Kempsey Shire Council	8,680	10,264	10,068	12,544	7,869	8,016	8,304	9,280	16,525	17,813	17,462	20,557	53	59	59	59	690	814	807	1,004	846	859	852	947	1,312	1,412	1,400	1,645	2	2	2	1
26 Essential Energy	14,892	17,667	15,236	14,591	6,163	6,525	6,430	6,409	21,055	24,192	21,666	21,000	60	66	66	59	1,416	1,681	1,448	1,386	634	671	662	659	2,002	2,303	2,059	1,994	1	1	2	2
27 Byron Shire Council	7,963	7,733	8,928	8,884	14,014	14,134	15,921	16,287	21,274	21,867	24,357	25,100	73	73	74	73	725	700	800	793	1,338	1,363	1,517	1,522	1,937	1,980	2,185	2,241	1	1	1	1
28A Goldenfields Water (Reticulation)	10,270	12,200	13,747	14,749					10,267	12,297	13,794	14,769	73	77	79	78	1,027	1,202	1,348	1,432					1,027	1,211	1,353	1,434	1	1	1	1
28B Goldenfields Water (Bulk Water Su)	4,066	4,968	5,017	5,506					4,063	4,985	5,025	5,509																				
20 Goulburn Mulwaree Council	8,940	9,941	10,283	10,102	10,494	11,219	10,957	11,031	19,665	21,121	21,448	21,135	42	52	66	65	831	1,001	991	902	1,016	1,166	1,036	1,031	1,826	2,127	2,067	1,887	1	1	1	0
9 Wagga Wagga Council					18,054	17,475	16,899	19,583	18,054	17,475	16,895	19,586									715	671	643	720		671	643	721	1	1	1	1
LWU Range Max	42,796	47,731	49,234	52,403	39,940	43,488	45,005	49,729	104,402	89,601	91,355	95,673	77	83	83	82	1,416	1,681	1,448	1,432	1,338	1,363	1,517	1,522	2,722	2,303	2,185	2,241	2.0	1.8	1.7	2.2
LWU Range Min	4,066	4,968	5,017	5,506	6,163	6,525	6,430	6,409	4,063	4,985	5,025	5,509	42	52	59	55	316	526	501	568	420	441	535	572	316	671	643	721	0.0	0.0	0.0	0.0
Median of NMU Indicators shown in Table	13,236	15,340	15,819	16,997	15,301	15,365	16,483	17,636	23,408	26,219	27,914	30,618	68	70	70	70																



# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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)							
	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15
Sydney Water Corporation	11,731,991	12,018,131	12,176,110	12,448,466	22,994,649	30,252,665	30,973,603	31,661,423	365	408	408	386	293	279	268	278	659	687	676	664	297,712	258,598	199,021	150,110	473,184	436,668	397,461	477,599				
Hunter Water Corporation	1,930,105	2,260,902	2,332,222	2,415,117	3,195,059	3,224,788	4,519,324	4,473,873	240	244	233	270	308	374	346	353	548	618	579	623	37,027	30,180	77,573	36,668	85,322	61,490	33,183	40,729				
Water NSW																					21,331	18,496	32,822	13,976								
1 Gosford City Council	518,620	535,766	550,751	550,676	1,400,948	1,454,998	1,504,642	1,537,152	368	390	373	331	347	451	411	379	715	841	784	710	13,921	12,954	13,102	6,777	32,002	34,758	28,130	29,284				
2 Wyong Shire Council	554,368	835,780	852,534	955,677	649,311	691,681	703,801	712,134	341	333	324	319	350	361	360	336	690	695	684	655	84,250	14,209	20,164	15,846	10,765	12,623	6,643	11,511				
3 Shoalhaven City Council	317,927	309,411	347,993	357,012	485,526	467,845	453,016	465,354	299	294	279	275	482	486	486	500	781	780	765	775	6,032	4,456	10,810	10,275	22,032	17,444	13,268	12,354				
4 Rous Water	305,103	309,522	316,410	325,694																	3,081	2,613	5,631	12,120								
5 MidCoast Water	434,466	460,780	457,488	436,300	436,498	448,971	466,861	453,068	517	448	418	478	515	515	499	544	1,032	963	917	1,021	47,500	11,036	7,635	3,088	37,579	11,267	3,841	3,701				
6 Tweed Shire Council	425,985	474,016	491,889	494,987	514,835	585,248	599,624	603,979	420	448	430	419	456	481	514	524	877	928	945	943	6,633	5,465	8,775	1,955	32,553	8,416	4,528	5,042				
7 Port Macquarie Hastings Council	448,512	447,416	452,627	347,827	284,515	289,349	298,624	261,026	359	381	393	398	394	484	502	480	754	865	895	878	7,765	6,348	2,467	9,875	5,953	7,784	6,590	5,988				
8 Riverina Water	183,954	191,362	195,664	203,441					341	404	348	277					341	404	348	277	6,389	5,774	6,285	11,870								
10 Coffs Harbour City Council	263,399	279,777	282,974	285,637	423,783	450,136	461,702	458,031	360	405	403	395	552	610	620	619	913	1,016	1,023	1,014	1,708	3,546	1,696	1,327	5,346	5,318	8,785	12,647				
11 Albury City Council	197,936	202,526	206,790	207,020	161,677	166,194	176,710	183,299	313	343	311	277	475	457	436	393	788	799	747	670	2,613	3,559	2,472	2,271	0	2,486	3,370	1,859				
12 Fish River Water	153,805	32,261	34,773						175								175				5,986	429	1,011									
13 Tamworth Regional Council	170,091	185,104	205,537	209,984	206,649	225,723	233,737	233,215	539	540	545	517	437	448	479	424	976	989	1,024	941	6,585	10,850	11,135	6,609	4,209	2,381	9,847	2,425				
14 Clarence Valley Council	396,514	386,815	386,222	400,037	248,321	259,790	247,953	281,500	378	397	386	388	497	548	503	462	876	945	891	850	2,063	2,523	2,196	1,921	29,807	9,746	8,835	23,583				
15 Eurobodalla Shire Council	273,940	275,881	279,102	278,273	232,856	234,645	238,740	231,572	459	409	430	404	573	547	575	500	1,031	955	1,004	904	3,774	2,770	2,340	2,567	13,950	4,154	4,517	3,942				
16 Wingecarribee Shire Council	168,488	170,821	165,872	168,869	215,054	223,090	274,694	207,497	344	364	381	371	440	443	540	439	785	808	921	810	2,665	2,529	759	2,805	16,081	11,869	2,209	3,129				
17 Queanbeyan City Council	91,871	92,695	94,881	94,781	110,878	112,351	116,546	116,262	820	876	975	945	446	389	378	377	1,266	1,265	1,354	1,322	615	574	2,105	906	1,740	344	5,107	1,851				
18 Dubbo City Council	163,697	161,960	164,362	169,800	158,075	156,927	157,374	179,743	405	478	513	482	392	375	355	350	797	854	869	832	1,886	4,549	1,697	2,162	3,906	3,128	2,853	18,923				
19 Orange City Council	167,439	177,872	207,330	219,512	146,019	149,962	153,278	159,197	338	361	390	339	350	362	380	409	687	722	769	748	3,399	7,200	27,678	18,487	1,171	555	917	3,370				
21 Bathurst Regional Council	150,994	153,955	158,217	163,421	83,872	86,745	88,989	90,813	455	533	541	545	434	442	423	435	890	975	964	980	4,378	2,784	3,690	7,430	1,757	4,169	3,044	5,585				
22 Lismore City Council	70,255	72,529	75,388	75,248	176,358	185,219	188,544	190,131	619	634	626	612	483	479	474	454	1,102	1,113	1,100	1,066	1,698	2,065	2,328	1,246	10,735	7,126	2,702	4,693				
23 Bega Valley Shire Council	182,196	184,180	187,762	190,957	177,877	178,101	181,975	182,250	588	543	515	542	746	740	746	739	1,334	1,283	1,261	1,281	5,280	2,079	2,652	4,082	1,829	2,426	5,652	4,073				
24 Ballina Shire Council	103,554	105,664	111,296	68,848	222,336	248,546	264,360	196,454	604	664	653	645	642	695	654	647	1,246	1,359	1,307	1,292	1,839	1,667	2,136	3,081	30,873	27,224	8,944	5,139				
25 Kempsey Shire Council	178,912	186,040	189,371	192,013	152,905	156,084	157,562	157,887	439	452	489	478	551	626	552	562	990	1,078	1,041	1,040	1,884	4,700	5,130	5,356	2,013	2,371	1,488	1,627				
26 Essential Energy									1,333	1,190	1,303	1,025	459	344	324	332	1,791	1,534	1,627	1,357	2,925	3,543	3,155	3,687	1,466	2,038	1,020	2,615				
27 Byron Shire Council	51,784	54,768	55,364	55,735	160,854	145,192	147,030	146,929	590	611	612	606	599	657	663	677	1,189	1,269	1,275	1,283	139	1,021	433	346	1,336	1,541	1,551	851				
28A Goldenfields Water (Reticulation)	168,568	161,583	148,566	144,593					569	677	653	664					569	677	653	664				1,668								
28B Goldenfields Water (Bulk Water Su)	63,768	69,912	63,975	62,894																				724								
20 Goulburn Mulwaree Council	197,145	201,218	203,326	211,230	78,706	80,882	84,426	82,582	410	425	425	426	421	417	374	331	832	842	799	757	12,337	2,774	2,589	6,170	1,580	1,720	1,319	2,273				
9 Wagga Wagga Council					282,003	244,885	251,992	255,145					392	432	424	418	392	432	424	418					6,590	3,761	4,800	4,382				
LWU Range Max	554,368	835,780	852,534	955,677	1,400,948	1,454,998	1,504,642	1,537,152	1,333	1,190	1,303	1,025	746	740	746	739	1,791	1,534	1,627	1,357	84,250	14,209	27,678	18,487	37,579	34,758	28,130	29,284				
LWU Range Min	51,784	32,261	34,773	55,735	78,706	80,882	84,426	82,582	175	294	279	275	347	344	324	331	175	404	348	277	139	429	433	346	0	344	917	851				
Median of NMU Indicators shown in Table	182,196	186,040	203,326	208,502	215,054	225,723	238,740	207,497	415	448	430	426	458	468	483	447	876	937	919	891	3,587	3,545	2,621	3,088	5,650	4,162	4,523	4,228				



# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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)				(%)				(%)			
	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15
Sydney Water Corporation	770,897	695,266	596,483	627,709	2	2	2	2	2	1	1	1	2	2	2	2	258,698	303,703	256,284	664,024	66	70	54	129	94	100	96	98
Hunter Water Corporation	122,350	91,670	110,755	77,397	2	3	4	3	2	2	2	2	2	3	2	2	22,257	16,302	36,917	21,330	63	62	72	54	59	75	78	81
Water NSW	21,331	18,496	32,822	13,976																								
1 Gosford City Council	45,922	47,712	41,232	36,061	-1	1	1	1.3	0	0	0	0.30	0	0	0	0.6									4	5	6	6
2 Wyong Shire Council	95,015	26,831	26,807	27,357	1	1	1	2	0	0	0	0.20	0	1	1	1.0									10	10	10	9
3 Shoalhaven City Council	28,065	21,900	24,078	22,629	1	1	1	2	2	2	2	4	2	2	2	3	2,770	2,716	2,718	2,709	24	20	21	13	2	1	0	-1
4 Rous Water	3,081	2,613	5,631	12,120	1	1	2	2									0	0	0	0	0	0	0	0	8	6	4	5
5 MidCoast Water	85,079	22,303	11,476	6,789	-2	0	1	0.7	2	3	3	3	0	1	2	2	0	0	0	0	0	0	0	0	25	25	23	22
6 Tweed Shire Council	39,186	13,882	13,302	6,997	0	1	2	1.6	1	1	2	1.10	1	1	2	1.4	0	0	0	0	0	0	0	0	4	3	2	0
7 Port Macquarie Hastings Council	13,719	14,133	9,057	15,863	1	-1	2	1.2	1	1	3	1.50	1	0	2	1.3	1,711	0	956	860	43	0	11	17	-2	-4	-5	-8
8 Riverina Water	6,389	5,774	6,285	11,870	2	4	5	8									0	0	0	0	0	0	0	0	-2	-4	-7	-9
10 Coffs Harbour City Council	7,054	8,864	10,481	13,974	1	2	1	2	2	0	1	0.10	2	1	1	0.8	0	0	0	0	0	0	0	0	17	15	14	13
11 Albury City Council	2,613	6,045	5,843	4,130	-1	1	2	1.9	1	3	4	4	0	2	3	3	0	0	0	0	0	0	0	0	3	1	-2	-6
12 Fish River Water	5,986	429	1,011		2	11	16										0	0			0	0			0	0		
13 Tamworth Regional Council	10,794	13,231	20,982	9,034	2	2	3	2	2	2	3	3													0	-2	-2	-4
14 Clarence Valley Council	31,870	12,268	11,030	25,504	0	0	1	0.4	1	1	2	3	0	0	1	1.2	0	0	0	0	0	0	0	0	9	10	10	11
15 Eurobodalla Shire Council	17,724	6,924	6,857	6,509	0	0	0	1.1	2	1	1	2	1	0	1	1.3	802	553	135	530	49	-23	8	12	3	2	1	-1
16 Wingecarribee Shire Council	18,746	14,398	2,968	5,934	0	1	2	1.5	1	1	1	3	1	1	1	2	0	0	0	0	0	0	0	0	0	0	-1	-4
17 Queanbeyan City Council	2,355	918	7,213	2,757	-2	-1	1	0.4	-4	-2	3	1	-3	-2	2	1									-18	-17	-19	-20
18 Dubbo City Council	5,792	7,677	4,550	21,085	2	3	3	5	2	2	3	4	2	2	3	4	0	0	0	0	0	0	0	0	2	0	-4	-3
19 Orange City Council	4,570	7,755	28,595	21,857	2	4	3	4	1	1	2	3	1	3	2	4	0	0	0	0	0	0	0	0	-12	-13	-14	-12
21 Bathurst Regional Council	6,135	6,952	6,734	13,015	1	1	2	1.6	0	1	2	2.70	0	1	2	2.0	0	0	0	0	0	0	0	0	-11	-11	-12	-12
22 Lismore City Council	12,433	9,191	5,030	5,939	-3	-1	0	1.6	-1	1	0	0.50	-1	0	0	0.8	0	0	0	0	0	0	0	0	-2	-1	-1	-2
23 Bega Valley Shire Council	7,109	4,505	8,305	8,155	0	-1	-1	-1	1	0	0	0.70	1	-1	0	-0.1									-1	-2	-3	-3
24 Ballina Shire Council	32,711	28,891	11,079	8,220	-1	-1	0	1.2	0	1	1	2.70	0	0	1	2.3	0	0	0	0	0	0	0	0	2	8	11	17
25 Kempsey Shire Council	3,897	7,072	6,618	6,983	-1	0	0	1.3	0	-1	0	0.40	-1	0	0	0.9									7	8	8	8
26 Essential Energy	4,390	5,580	4,175	6,302													0	0			0	0						
27 Byron Shire Council	1,476	2,562	1,984	1,197	1	-1	2	1.6	2	1	4	4	2	1	3	3.3									21	21	17	14
28A Goldenfields Water (Reticulation)				1,668	0	1	2	4									0	0	0	0	0	0	0	0	-5	-9	-9	-13
28B Goldenfields Water (Bulk Water Su)				724	-2	1	1	0.0									0	0	0	0	0	0	0	0	-11	-10	-11	-15
20 Goulburn Mulwaree Council	13,917	4,495	3,908	8,443	1	1	1	1	4	6	6	6	2	2	2	2									1	-2	-5	-6
9 Wagga Wagga Council	6,590	3,761	4,800	4,382					1	1	0	1.30					0	0	0	0	0	0	0	0		6	6	5
LWU Range Max	95,015	47,712	41,232	36,061	2	11	16	8	4.3	5.8	5.6	6	2.0	2.6	3.3	4	2,770	2,716	2,718	2,709	49	20	21	17	25	25	23	22
LWU Range Min	1,476	429	1,011	724	-3	-1	-1	-1	-3.5	-2.2	-0.4	0	-2.7	-1.6	-0.2	0	0	0	0	0	0	-23	0	0	-18	-17	-19	-20
Median of NMU Indicators shown in Table	7,109	7,677	6,857	8,188	0	1	1	1.6	1.1	0.7	1.7	2.50	0.5	0.6	1.6	1.4	0	0	0	0	0	0	0	0	2	0	-1	-2

# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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)								
				2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	2011/12	2012/13	2013/14	2014/15	
Sydney Water Corporation	1	2	2	2	392,403	433,862	472,389	513,497	159,876	162,463	160,559	163,091	0	0	0	0	2,196	6,989	15,938	4,830	165	140	108	80	268	243	221	261	14	17	18	19
Hunter Water Corporation	2	1	2	2	35,441	26,501	51,183	39,880	13,489	14,250	14,043	14,285	-116	112	281	219			0	0	161	130	329	154	390	278	148	179	13	9	17	13
Water NSW																																
1 Gosford City Council	0	0	1	2	-10,683	-7,918	-2,067	4,865	641	1,263	1,251	1,242	1,829	2,168	1,068	101					198	183	183	94	465	504	403	418	-14	-9	-2	5
2 Wyong Shire Council	0	1	1	1	-16,199	-8,439	-5,308	1,174	1,429	1,447	1,398	1,374	265	637	966	61					1,390	234	328	250	181	212	110	186	-22	-11	-7	1
3 Shoalhaven City Council	65	>100	59	>100	11,631	13,346	12,865	20,773	1,072	1,068	1,053	1,053	0	0	0	0	7,932	3,872	0	8,502	130	95	230	218	540	424	316	295	19	20	20	29
4 Rous Water	2	4	3	4	-790	584	1,922	2,523	11	10	10	10	0	0	0	0													-4	3	9	11
5 MidCoast Water	0	1	1	1	28,332	-6,934	-5,442	-2,447	980	1,011	922	931	0	0	0	0	4,980	1,592	0	0	1,238	286	198	80	1,080	323	110	105	27	-10	-8	-4
6 Tweed Shire Council	2	2	5	3	-486	-1,762	14,437	6,521	789	766	752	745	0	0	933	4	2,203	1,129	325	0	212	173	276	61	1,050	280	149	164	-1	-4	21	11
7 Port Macquarie Hastings Council	>100	0	23	>100	3,980	-2,533	8,736	5,070	756	745	731	729	1,018	3,832	1,356	0	352	0	0	0	259	213	82	325	221	285	240	215	9	-6	14	10
8 Riverina Water	>100	>100	>100	>100	382	3,929	7,049	11,244	216	222	229	194	136	256	0	0					218	196	213	397					2	15	26	37
10 Coffs Harbour City Council	1	1	1	1	1,540	-2,253	-3,251	-3,274	518	517	507	505	0	0	0	0	420	542	1,019	294	69	143	68	53	230	228	373	533	3	-5	-7	-7
11 Albury City Council	0	13	54	>100	-1,695	5,320	10,866	9,875	321	332	321	323	0	0	0	0	0	0	0	0	114	153	105	88	0	115	154	78	-7	16	29	28
12 Fish River Water	0	0	0	0		3,672	4,568			0	0		0	0	0						255								40	45		
13 Tamworth Regional Council	6	5	8	10	7,275	6,191	11,835	6,561	414	403	391	403	695	4,843	5,262	602					314	511	520	305	222	124	509	123	18	16	27	16
14 Clarence Valley Council	1	0	1	1	-2,870	-3,942	1,735	900	467	465	456	446	-57	-89	0	0	5,917	2,516	2,779	878	93	118	103	90	2,043	666	603	1,603	-10	-13	6	3
15 Eurobodalla Shire Council	2	1	3	8	1,636	-2,382	1,702	4,352	416	403	398	390	107	0	0	49	593	-1,635	0	110	193	142	120	131	780	232	250	218	5	-8	5	13
16 Wingecarribee Shire Council	3	5	8	15	-3,093	205	4,705	6,966	338	346	345	357	0	0	0	0	9,819	4,800	305	450	143	135	40	146	1,095	808	141	199	-13	1	16	24
17 Queanbeyan City Council	0	0	>100	>100	-4,301	-4,163	4,798	2,294	174	157	162	162	0	0	0	0					38	35	128	52	109	21	306	107	-21	-18	15	7
18 Dubbo City Council	10	13	>100	>100	2,640	6,373	7,465	14,665	203	196	193	188	0	16	0	0	0	0	0	0	112	269	99	123	249	198	178	1,152	12	21	24	39
19 Orange City Council	>100	>100	>100	>100	5,200	9,494	9,465	13,597	266	264	261	259	0	0	26,742	9,130	0	0	0	0	202	425	1,610	1,055	74	34	56	204	22	35	34	43
21 Bathurst Regional Council	>100	>100	>100	>100	832	2,031	4,798	4,858	214	211	210	216	836	21	0	0	0	0	0	0	290	183	237	473	118	276	197	352	4	9	18	18
22 Lismore City Council	0	>100	>100	14	-3,092	-544	-154	617	266	286	259	210	0	0	363	0	0	0	0	0	120	145	163	87	851	562	212	367	-15	-3	-1	3
23 Bega Valley Shire Council					2,066	-3,297	-714	-487	276	278	275	272									369	145	184	283	150	200	464	334	8	-13	-3	-2
24 Ballina Shire Council	0	1	1	2	-1,915	-2,808	-55	-10,138	319	319	308	305	25	47	0	0	0	0	0	0	127	119	151	215	2,313	1,981	636	364	-8	-12	0	-63
25 Kempsey Shire Council	0	0	0	1	-4,348	-3,391	-4,674	-694	270	266	257	258									150	373	411	428	216	254	153	166	-26	-19	-27	-3
26 Essential Energy						3,041	427	676	276	261	363	455	0	0	0	0	0	0	0	0	278	338	300	350	151	210	105	269		13	2	3
27 Byron Shire Council	1	0	2	2	-543	-3,320	2,071	2,755	167	163	157	156									13	92	39	31	127	148	147	80	-3	-15	9	11
28A Goldenfields Water (Reticulation)	0	>100	>100	>100	0	2,338	4,138	5,909	107	106	100	97	4,101	0	0	0								162					0	19	30	40
28B Goldenfields Water (Bulk Water Su)	0	>100	>100	>100	0	796	877	322	0	0	0	0	3,356	0	0	0													0	16	17	6
20 Goulburn Mulwaree Council	4	8	10	10	3,320	5,673	6,074	5,794	195	194	185	47	12,168	1,172	320	1,150	43	116	305	450	1,146	279	249	551	153	179	125	212	17	27	28	27
9 Wagga Wagga Council	1	1	0	2	-164	-862	-1,366	1,052	169	165	163	159					0	0	0	0					261	144	183	161	-1	-5	-8	5
LWU Range Max	65	>100	>100	>100	28,332	13,346	14,437	20,773	1,429	1,447	1,398	1,374	12,168	4,843	26,742	9,130	9,819	4,800	2,779	8,502	1,390	511	1,610	1,055	2,313	1,981	636	1,603	27	40	45	43
LWU Range Min	0	0	0	0	-16,199	-8,439	-5,442	-10,138	0	0	0	0	-57	-89	0	0	0	-1,635	0	0	13	35	39	31	0	21	56	78	-26	-19	-27	-63
Median of NMU Indicators shown in Table	1	>100	>100	2	0	-544	2,071	3,554	276	278	275	289	0	0	0	0	43	0	0	0	198	178	184	162	226	230	190	214	0	-3	14	10



# APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2014-15

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)				
2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				2011/12 2012/13 2013/14 2014/15				
Sydney Water Corporation																																
Hunter Water Corporation																																
Water NSW	507	386	378	394					515	393	386	396	240	163	189	194					240	163	189	194	49	34	59	27				
1 Gosford City Council																																
2 Wyong Shire Council																																
3 Shoalhaven City Council																																
4 Rous Water	1,946	1,873	1,987	2,058					1,939	1,845	1,960	2,042	881	1,004	981	988					881	1,004	981	988	277	1,908	489	1,084				
5 MidCoast Water																																
6 Tweed Shire Council																																
7 Port Macquarie Hastings Council																																
8 Riverina Water																																
10 Coffs Harbour City Council																																
11 Albury City Council																																
12 Fish River Water	1,068	933	952						1,068	933	952		723	481	502						592	481	319		859	59	95					
13 Tamworth Regional Council																																
14 Clarence Valley Council																																
15 Eurobodalla Shire Council																																
16 Wingecarribee Shire Council																																
17 Queanbeyan City Council																																
18 Dubbo City Council																																
19 Orange City Council																																
21 Bathurst Regional Council																																
22 Lismore City Council																																
23 Bega Valley Shire Council																																
24 Ballina Shire Council																																
25 Kempsey Shire Council																																
26 Essential Energy																																
27 Byron Shire Council																																
28A Goldenfields Water (Reticulation)																																
28B Goldenfields Water (Bulk Water Su	507	542	539	584					507	544	539	584	320	313	311						320	313	311		0	0						
20 Goulburn Mulwaree Council																																
9 Wagga Wagga Council																																
LWU Range Max	1,946	1,873	1,987	2,058					1,939	1,845	1,960	2,042	881	1,004	981	988					881	1,004	981	988	859	1,908	489	1,084				
LWU Range Min	507	542	539	584					507	544	539	584	723	320	313	311					592	320	313	311	277	59	0	0				
Median of NMU Indicators shown in Table	1,068	933	952	1,321					1,068	933	952	1,313	802	481	502	650					737	481	319	650	568	984	95	542				



## APPENDIX G: NSW GREENHOUSE GAS CALCULATOR

### 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**.

### Instructions

Calculate the emissions from your water and sewerage operations and also from your sewage treatment works by following steps A to D below<sup>46</sup>. 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).

<sup>46</sup> 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
<b>ELECTRICITY PURCHASED FROM GRID</b>		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								
<b>SUBTOTAL</b>	t CO2-e					0.0	0.0	0.0	0.0
<b>LIQUID FUELS (Transport)</b>									
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								
<b>SUBTOTAL</b>	t CO2-e					0.0	0.0	0.0	0.0
<b>LIQUID FUELS (Non Transport)</b>									
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								
<b>SUBTOTAL</b>	t CO2-e					0.0	0.0	0.0	0.0
<b>SOLID FUELS (Non Transport)</b>									
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								
<b>SUBTOTAL</b>	t CO2-e					0.0	0.0	0.0	0.0
<b>NATURAL GAS (Non Transport) (Adapted from Table 2 of NGA)</b>									
Coal seam methane	m <sup>3</sup>								
Coal mine waste gas	m <sup>3</sup>								
Town gas	m <sup>3</sup>								
Liquefied natural gas	kL								
Landfill or sludge biogas (methane only)	m <sup>3</sup>								
<b>SUBTOTAL</b>	t CO2-e					0.0	0.0	0.0	0.0
<b>SEWAGE TREATMENT (emissions from STW spreadsheets, OR override with estimated emissions from STW Graphs worksheet)</b>									
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		
<b>SUBTOTAL</b>	t CO2-e						0.0		0.0
<b>SEQUESTRATION</b>									
Carbon Offset	t								
<b>SUBTOTAL</b>	t CO2-e							0.0	0.0
<b>TOTAL EMISSIONS</b>									
<b>TOTAL EMISSIONS</b>	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) - 2015			
STW 1	<div style="border: 1px solid black; background-color: #e1eef6; padding: 2px;">NAME OF STW</div> <div style="border: 1px solid black; background-color: #e1eef6; padding: 2px;">Description of STW (eg. Trickling filter and oxidation pond)</div>		
INSTRUCTIONS			
<div style="border: 1px solid black; background-color: #e1eef6; padding: 2px; width: 20px; display: inline-block;"></div> 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.			
<div style="border: 1px solid black; background-color: #e1eef6; padding: 2px; width: 20px; display: inline-block;"></div> 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 <b>STW 2 to STW 10</b> (orange tabs).			
<b>SEWAGE TREATMENT WORKS</b>			
		<b>Input</b>	<b>Result</b>
1 Inflow to STW	Insert volume of sewage entering STW per year (if known)	Volume influent = <input style="width: 50px;" type="text"/>	<input style="width: 50px; text-align: center;" type="text" value="0"/> ML
	<b>OR</b>		
2 Population served	Insert actual population served by STW (if inflow is known, this may be left blank) (If population is unknown, it is approximated by assuming ADFW for residential sewage is 200L/cap/d)	Pop served = <input style="width: 50px;" type="text"/>	<input style="width: 50px; text-align: center;" type="text" value="0"/> No.
<b>EMISSIONS FROM TREATMENT OF WASTEWATER</b>			
3 Type of Treatment	For wastewater treatment - select methane correction factor from Table G below	MCF <sub>ww</sub> = <input style="width: 50px;" type="text"/>	
4 COD in influent	Insert quantity of COD in influent wastewater (if unknown leave blank) (If BOD in influent is known, COD in influent can be calculated from BOD x 2.6)	COD <sub>w</sub> = <input style="width: 50px;" type="text"/>	tonnes
	<b>OR</b> If COD in influent is unknown, it is approximated by using a default of 0.0585 tonnes/capita	COD <sub>w</sub> = <input style="width: 50px; text-align: center;" type="text" value="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) If COD in effluent is unknown, a default will be used as follows COD <sub>eff</sub> = 0.08 x COD <sub>w</sub>	COD <sub>eff</sub> = <input style="width: 50px;" type="text"/>	tonnes
		COD <sub>eff</sub> = <input style="width: 50px; text-align: center;" type="text" value="0"/>	tonnes
<b>6 METHANE EMISSIONS FROM WASTEWATER</b>			
Emissions resulting from primary and secondary <u>wastewater treatment</u> (ie. from the "liquid train") are calculated as follows:			
		$CH4_{genww} = (COD_w - COD_{sl} - COD_{eff}) \times MCF_{ww} \times EF_w$ tonnes CO <sub>2</sub> -e	CH <sub>4</sub> <sub>genww</sub> = <input style="width: 50px; text-align: center;" type="text" value="0"/> t CO <sub>2</sub> -e
where EF <sub>w</sub> = 5.3 tonnes CO <sub>2</sub> -e per tonne COD and MCF <sub>ww</sub> is shown at step 3 and the quantity of COD removed as sludge (COD <sub>sl</sub> ) from wastewater is obtained from step 8 below			
<b>EMISSIONS FROM TREATMENT OF SLUDGE</b>			
7 Sludge Treatment	For type of sludge treatment - select the methane correction factor from Table G	MCF <sub>sl</sub> = <input style="width: 50px;" type="text"/>	
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 (VS <sub>p</sub> ). See Note d Volatile solids in the waste activated sludge VS <sub>wasl</sub> . See Note e	VS <sub>p</sub> = <input style="width: 50px;" type="text"/> VS <sub>wasl</sub> = <input style="width: 50px;" type="text"/>	tonnes
	<b>OR</b> 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)	COD <sub>sl</sub> = <input style="width: 50px;" type="text"/>	tonnes
	<b>OR</b> If COD <sub>sl</sub> is unknown, insert fraction of COD <sub>w</sub> removed as sludge from wastewater (if unknown leave blank) Fraction COD removed as sludge (as a decimal eg. 1/3 is 0.33) F <sub>codsl</sub>	F <sub>codsl</sub> = <input style="width: 50px;" type="text"/>	
	The fraction of COD removed as sludge from wastewater (F <sub>codsl</sub> ) is calculated from the above. However, in the absence of other data, a default of 0.6 will be used for F <sub>codsl</sub>	F <sub>codsl</sub> = <input style="width: 50px; text-align: center;" type="text" value="0.60"/>	
	Quantity of COD in sludge COD <sub>sl</sub> = (VS <sub>p</sub> x 1.99 + VS <sub>wasl</sub> x 1.48) <b>OR</b> F <sub>codsl</sub> x COD <sub>w</sub>	COD <sub>sl</sub> = <input style="width: 50px; text-align: center;" type="text" value="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 Volatile solids in sludge transferred to other than landfill	V <sub>strl</sub> = <input style="width: 50px;" type="text"/> V <sub>stro</sub> = <input style="width: 50px;" type="text"/>	tonnes
	<b>OR</b> If the volatile solids are unknown, insert the quantity of COD in sludge transferred (if unknown leave blank) COD in sludge transferred to landfill COD in sludge transferred to other than landfill	COD <sub>trl</sub> = <input style="width: 50px;" type="text"/> COD <sub>tro</sub> = <input style="width: 50px;" type="text"/>	tonnes
	Quantity of COD in sludge transferred out (COD <sub>tr</sub> = [V <sub>strl</sub> + V <sub>stro</sub> ] x 1.48 <b>OR</b> [COD <sub>trl</sub> + COD <sub>tro</sub> ])	COD <sub>tr</sub> = <input style="width: 50px; text-align: center;" type="text" value="0"/>	tonnes
<b>NOTE:</b> The default COD <sub>tr</sub> 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 COD <sub>trl</sub> to obtain a more accurate emission value.			
<b>10 METHANE EMISSIONS from SLUDGE TREATMENT</b>			
Emissions resulting from <u>sludge treatment</u> (eg anaerobic digestors, lagoons, dewatering etc) are calculated as follows:			
		$CH4_{gensl} = (COD_{sl} - COD_{tr}) \times MCF_{sl} \times EF_{sl}$ in tonnes CO <sub>2</sub> -e	CH <sub>4</sub> <sub>gensl</sub> = <input style="width: 50px; text-align: center;" type="text" value="0"/> t CO <sub>2</sub> -e
where EF <sub>sl</sub> = 5.3 tonnes CO <sub>2</sub> -e per tonne COD and MCF <sub>sl</sub> is shown at step 7			

**TOTAL METHANE EMISSIONS**

11 Methane generated Total methane generated from wastewater and from sludge  $CH_4gen = CH_4gen_{ww} + CH_4gen_{sl}$   $CH_4gen =$

12 Methane captured for combustion or flaring Insert volume of methane combusted or flared if applicable  $Q =$   m<sup>3</sup>  
 Insert methane recovered in digester if applicable (in tonnes CO<sub>2</sub>-e)  t CO<sub>2</sub>-e  
 Methane captured  $R = 0.0142464 \times Q$  OR tonnes recovered in digester  $R =$   t CO<sub>2</sub>-e  
 Methane flared or recovered in a digester is subtracted from total emissions

**13 TOTAL METHANE EMISSIONS** Total methane emissions =  $CH_4gen - R$  Total Methane Emissions  $CH_4gen - R =$   t CO<sub>2</sub>-e

**NITROUS OXIDE EMISSIONS**

14 Nitrogen in wastewater (N) Nitrogen entering STW (N<sub>in</sub>) assumed to be =  $0.036 \times 0.16 \times \text{Population}$  (tonnes N)  $N_{in} =$   t N

15 Nitrogen in sludge Dry mass of sludge transferred to landfill (M<sub>trl</sub>)  
 Insert M<sub>trl</sub> (if known). Else leave blank  $M_{trl} =$   tonnes  
 Nitrogen in sludge transferred to landfill (N<sub>trl</sub>) =  $0.05 \times M_{trl}$ , default =  $0.05 \times \text{COD}_{sl}$   $N_{trl} =$   t N  
 Nitrogen in sludge transferred to other than landfill (N<sub>tro</sub>) assumed to be zero  $N_{tro} =$   t N  
 Nitrogen in sludge  $N_{sl} = N_{trl} + N_{tro}$   $N_{sl} =$   t N

16 Nitrogen in effluent discharged to the environment ( $N_{out} = N_{encw} + N_{estw} + N_{ocw}$ )  
 % effluent discharged to enclosed waters %  $N_{encw} = \% \times (N_{in} - N_{sl})$   $N_{encw} =$   t N  
 (ie. all waters other than estuarine or open coastal waters. Default is 100%)  
 % effluent discharged to estuarine waters %  $N_{estw} =$   t N  
 % effluent discharged to open coastal waters %  $N_{ocw} =$   t N  
 Note that for most NSW utilities 100% of effluent will be discharged to enclosed wa  $N_{out} =$   t N

**17 TOTAL NITROUS OXIDE EMISSIONS**  $E_j = (N_{in} - N_{sl} - N_{out}) \times 4.9 + N_{encw} \times 4.9 + N_{estw} \times 1.2 + N_{ocw} \times 0$  tonnes CO<sub>2</sub>-e  $E_j =$   t CO<sub>2</sub>-e

**18 TOTAL GREENHOUSE GAS EMISSIONS FROM STW**  
 Total GHG Emissions = Methane emissions plus Nitrous oxide emissions  $CH_4gen - R + E_j =$   t CO<sub>2</sub>-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	<ul style="list-style-type: none"> <li>• Preliminary treatment (i.e. screens and grit removal)</li> <li>• Primary sedimentation tanks (PST)</li> <li>• Activated sludge processes, including anaerobic fermentation zones and anoxic zones for biological nutrient removal (BNR)</li> <li>• Secondary sedimentation tanks or clarifiers</li> <li>• Intermittently decanted extended aeration (IDEA), intermittently decanted aerated lagoons (IDAL) and sequencing batch reactors (SBR)</li> <li>• Oxidation ditches and carrousel</li> <li>• Membrane bioreactors (MBR)</li> <li>• Mechanically aerated lagoons</li> <li>• Trickling filters</li> <li>• Dissolved air flotation</li> <li>• Aerobic digesters</li> <li>• Tertiary filtration</li> <li>• Disinfection processes (e.g. chlorination inc. contact tanks, ultraviolet, ozonation)</li> <li>• Mechanical dewatering (e.g. centrifuges, belt filter presses)</li> </ul>	0
Unmanaged aerobic treatment	<ul style="list-style-type: none"> <li>• Gravity thickeners</li> <li>• Imhoff Tanks</li> </ul>	0.3
Anaerobic digester/reactor	<ul style="list-style-type: none"> <li>• Anaerobic digester</li> <li>• High rate anaerobic reactors</li> </ul>	0.8
Anaerobic shallow lagoon (<2m deep)	<ul style="list-style-type: none"> <li>• Facultative lagoons</li> <li>• Maturation/polishing lagoons</li> <li>• Sludge drying pans</li> </ul>	0.2
Anaerobic deep lagoon (>2m deep)	<ul style="list-style-type: none"> <li>• Sludge lagoons</li> <li>• Covered anaerobic lagoons</li> </ul>	0.8

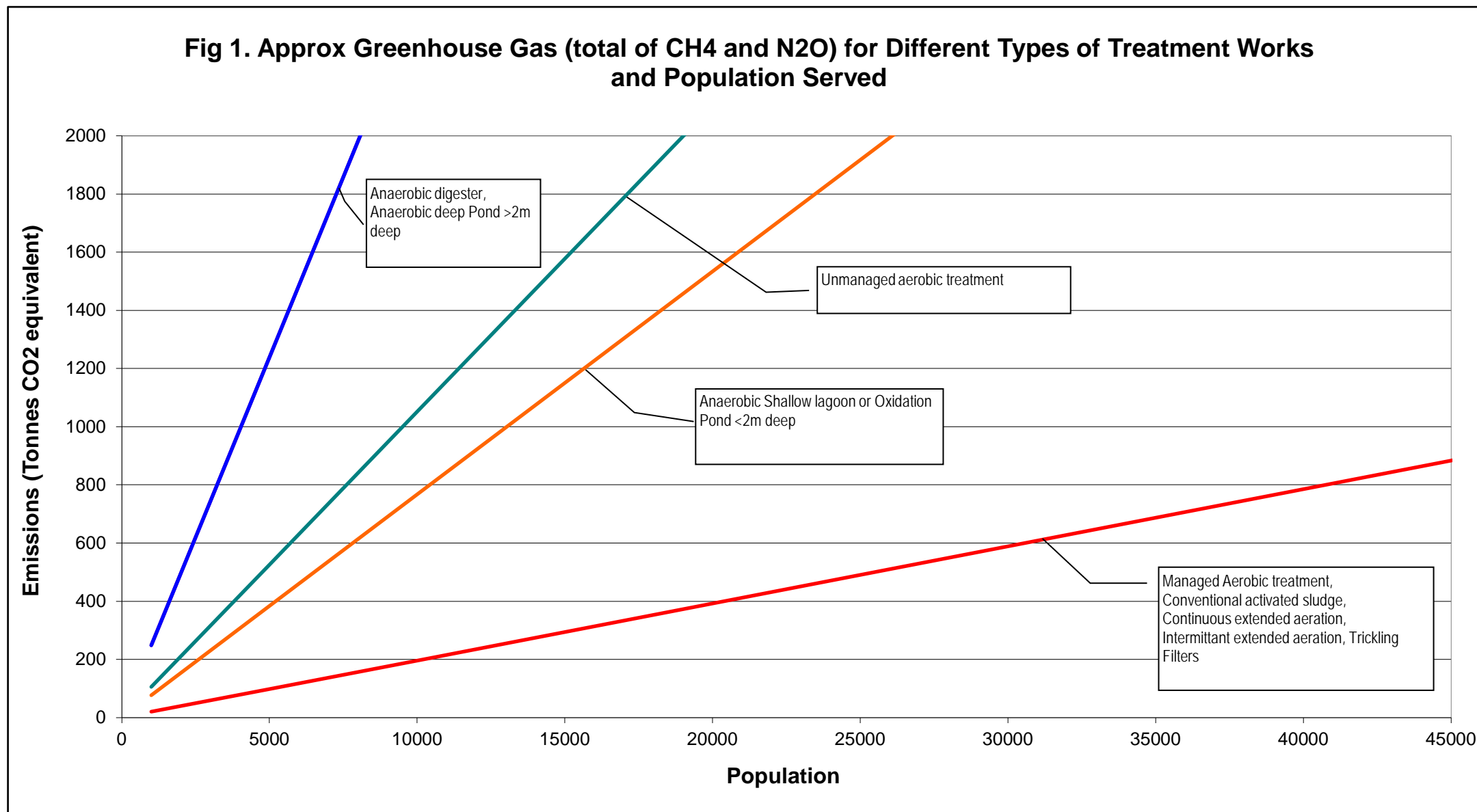
## Graphs of Emissions from different types of STW

Greenhouse gas emissions for typical types of treatment are graphed below against population and inflow.

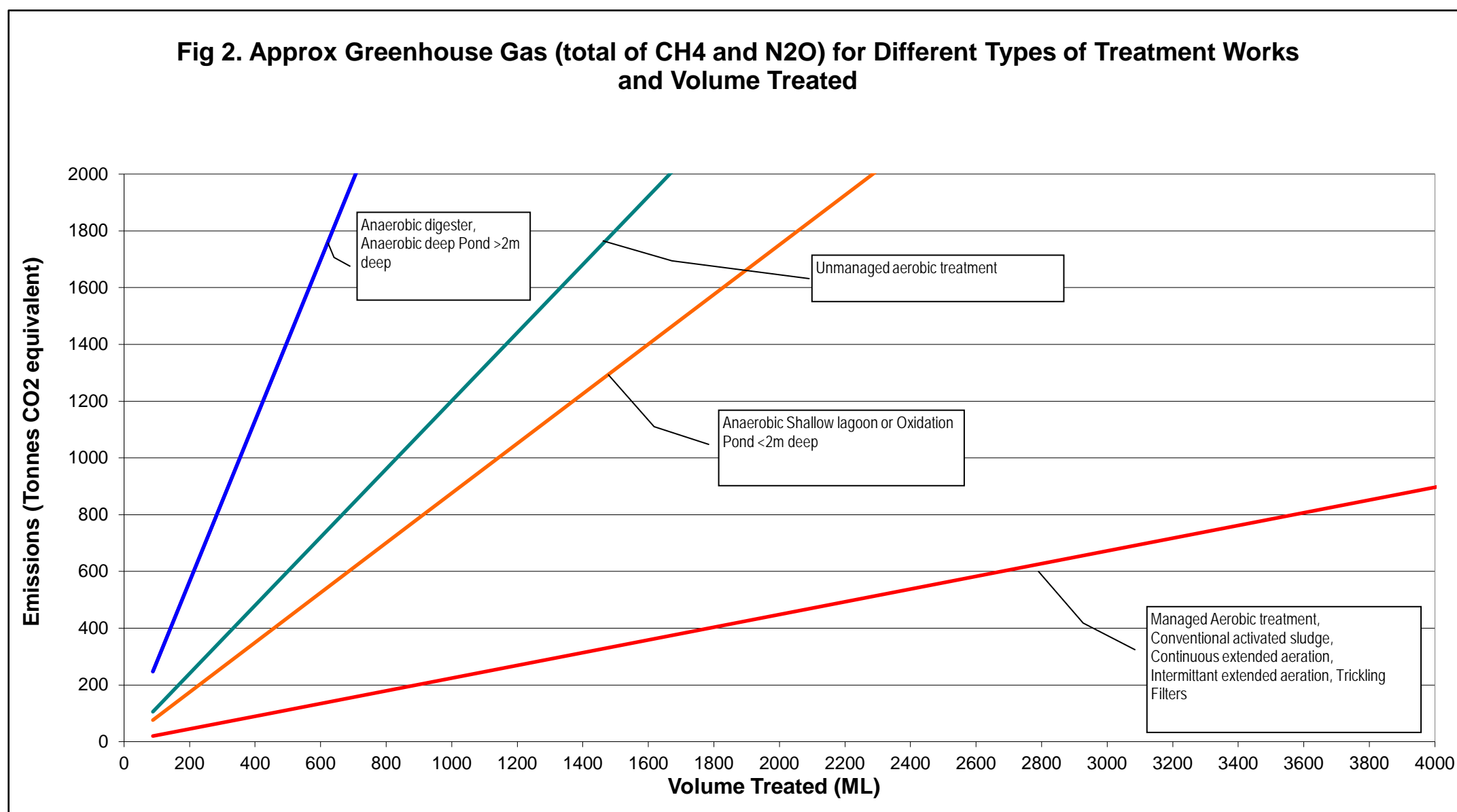
The graphs have been developed on the assumption that average dry weather flow from residential sewage is 200 L per capita per day and that the types of treatment correspond to the default fractions anaerobic shown in yellow tab **STW Assumptions**.

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 (COD<sub>w</sub>)**

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

$$\text{COD} = 2.6 \times 2.25 / 100 = 0.0585 \text{ tonnes per capita}$$

COD in influent to the STW (COD<sub>w</sub>) can therefore be calculated from

$$\text{COD}_w = 0.0585 \times \text{population}$$

(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 (COD<sub>sl</sub>)**

$$\text{COD}_{sl} = \text{COD}_{psl} + \text{COD}_{wasl}$$

where COD<sub>psl</sub> is the quantity of COD removed as primary sludge from wastewater and undergoing sludge treatment and COD<sub>wasl</sub> is the quantity COD removed as waste activated sludge

$$\text{COD}_{psl} = \text{VS}_{psl} \times 1.99$$

where VS<sub>psl</sub> is the estimated volatile solids in the primary sludge

$$\text{COD}_{wasl} = \text{VS}_{wasl} \times 1.48$$

where VS<sub>wasl</sub> 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 (COD<sub>sl</sub>) is about 60% of COD influent to the STW

$$\text{COD}_{sl} = 0.6 \times \text{COD}_w \quad \text{unless a better estimate is available from the estimated volatile solids.}$$

(d) **COD in effluent discharged from the STW (COD<sub>eff</sub>)**

COD in effluent discharged from the STW is assumed to be

$$\text{COD}_{eff} = 0.08 \times \text{COD}_w \quad \text{If COD}_{eff} \text{ is known, the actual value should be inserted to override this assumption}$$

(e) **Methane emission factor for wastewater (EF<sub>w</sub>) and for sludge (EF<sub>sl</sub>)**

Default emission factor for wastewater and for sludge is

$$\text{EF}_w = \text{EF}_{sl} = 5.3 \text{ tonnes CO}_2\text{-e / tonne COD}$$

(f) **Methane Correction Factor (Fraction of COD anaerobically treated in wastewater (MCF<sub>ww</sub>) and in sludge (MCF<sub>sl</sub>))**

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**

$$\text{Methane captured} = 0.0142464 \times Q \quad \text{in tonnes CO}_2\text{-e (where Q is the volume in m}^3\text{ of methane combusted, flared or transferred out)}$$

(h) **Methane emissions generated from wastewater treatment** are calculated using the formula shown in the NGER Guidelines

$$\text{CH}_4\text{gen}_{ww} = (\text{COD}_w - \text{COD}_{sl} - \text{COD}_{eff}) \times \text{MCF}_{ww} \times \text{EF}_w \quad \text{in tonnes CO}_2\text{-e}$$

Using default values, this results in:

$$\text{CH}_4\text{gen}_{ww} = (\text{COD}_w \times 0.63) \times \text{MCF}_{ww} \times 5.3 \quad \text{in tonnes CO}_2\text{-e}$$

(i) **Methane emissions generated from sludge treatment** are calculated using the formula shown in the NGER Guidelines

$$\text{CH}_4\text{gen}_{sl} = (\text{COD}_{sl} - \text{COD}_{trl} - \text{COD}_{tro}) \times \text{MCF}_{sl} \times \text{EF}_{sl} \quad \text{in tonnes CO}_2\text{-e}$$

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 COD<sub>tro</sub> and COD<sub>trl</sub> 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

$$\text{Total Methane Emissions} = \text{CH}_4\text{gen}_{ww} + \text{CH}_4\text{gen}_{sl} - \text{methane captured} \quad \text{in tonnes CO}_2\text{-e}$$

- (k) Nitrogen entering the plant is assumed to be  
 $N_{in} = \text{Protein} \times \text{Fracpr} \times \text{Population}$   
 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  
 $N_{trl} = 0.05 \times M_{trl}$   
 where  $M_{trl}$  is the dry mass of sludge transferred to landfill (default assumed to be CODs)
- Nitrogen in sludge transferred to other than landfill is assumed to be zero  
 $N_{tro} = 0$
- (m) Nitrogen in effluent is assumed to be that remaining in effluent after sludge has been removed  
 $N_{out} = N_{in} - N_{trl} - N_{tro}$
- (n) Nitrous oxide emissions ( $E_j$ ) are calculated using the formula shown in the NGER Guidelines  
 $E_j = (N_{in} - N_{trl} - N_{tro} - N_{out}) \times EF_{secij} + N_{out} \times E_{fdisij}$   
 where  $EF_{secij}$  is the emission factor for wastewater treatment with default value of 4.9 tonnes N<sub>2</sub>O measured in CO<sub>2</sub>-e per tonne nitrogen and  $E_{fdisij}$  is the emission factor for the discharge environments shown below in CO<sub>2</sub>-e per tonne nitrogen

	$E_{fdisij}$
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 carrousel 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 CO<sub>2</sub>-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 CO<sub>2</sub>-e (202t for water supply, 1050t for sewerage and 11t for Other).

FUEL or PROCESS UTILISED	UNITS	ANNUAL QUANTITY USED				GREENHOUSE GAS EMISSIONS (t CO <sub>2</sub> -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 CO <sub>2</sub> -e	t CO <sub>2</sub> -e	t CO <sub>2</sub> -e	t CO <sub>2</sub> -e
<b>ELECTRICITY PURCHASED FROM GRID (Table 5 of NGA)</b>		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								
<b>SUBTOTAL</b>	t CO <sub>2</sub> -e					172.0	258.0	86.0	516.0
<b>LIQUID FUELS (Transport) (Adapted from Table 4 of NGA)</b>									
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
<b>SUBTOTAL</b>	t CO <sub>2</sub> -e					29.2	43.8	71.7	144.7
<b>LIQUID FUELS (Non Transport) (Adapted from Table 3 of NGA)</b>									
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								
<b>SUBTOTAL</b>	t CO <sub>2</sub> -e					0.0	0.0	16.9	16.9
<b>SOLID FUELS (Non Transport) (Adapted from Table 1 of NGA)</b>									
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								
<b>SUBTOTAL</b>	t CO <sub>2</sub> -e					0.0	0.0	1.1	1.1
<b>NATURAL GAS (Non Transport) (Adapted from Table 2 of NGA)</b>									
Coal seam methane	m <sup>3</sup>								
Coal mine waste gas	m <sup>3</sup>								
Town gas	m <sup>3</sup>	125	335	540	1000	0.3	0.8	1.3	2.3
Liquefied natural gas	kL								
Landfill or sludge biogas (methane only)	m <sup>3</sup>								
<b>SUBTOTAL</b>	t CO <sub>2</sub> -e					0.3	0.8	1.3	2.3
<b>SEWAGE TREATMENT (from STW spreadsheet)</b>									
From emissions calculated in 'Example STW' spreadsheet	t						284.0		284.0
<b>SUBTOTAL</b>	t CO <sub>2</sub> -e						284.0		284.0
<b>SEQUESTRATION</b>									
Carbon Offset (enter as a negative value)	t			-45	-45			-165.2	-165.2
<b>SUBTOTAL</b>	t CO <sub>2</sub> -e							-165.2	-165.2
<b>TOTAL EMISSIONS</b>	t CO <sub>2</sub> -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) - 2015			
STW 1	Example STW (Anaerobic lagoon <2m deep) serving 5,000 people		
	Trickling filter and oxidation pond		
<b>INSTRUCTIONS</b>			
	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 <b>STW 2 to STW 10</b> (orange tabs).		
<b>SEWAGE TREATMENT WORKS</b>			
		<b>Input</b>	<b>Result</b>
1 Inflow to STW	Insert volume of sewage entering STW per year (if known) <b>OR</b>	Volume influent =	365 ML
2 Population served	Insert actual population served by STW (if inflow is known, this may be left blank) (If population is unknown, it is approximated by assuming ADWF for residential sewage is 200L/cap/d)	Pop served =	5,000 No.
<b>EMISSIONS FROM TREATMENT OF WASTEWATER</b>			
3 Type of Treatment	For wastewater treatment - select methane correction factor from Table G below	MCF <sub>ww</sub> =	0.0
4 COD in influent	Insert quantity of COD in influent wastewater (if unknown leave blank) (If BOD in influent is known, COD in influent can be calculated from BOD x 2.6)	COD <sub>w</sub> =	tonnes
5 COD in effluent	<b>OR</b> If COD in influent is unknown, it is approximated by using a default of 0.0585 tonnes/capita 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) If COD in effluent is unknown, a default will be used as follows COD <sub>eff</sub> = 0.08 x COD <sub>w</sub>	COD <sub>w</sub> = COD <sub>eff</sub> =	293 tonnes 23 tonnes
6 METHANE EMISSIONS FROM WASTEWATER	Emissions resulting from primary and secondary wastewater treatment (ie. from the "liquid train") are calculated as follows: CH <sub>4</sub> gen <sub>ww</sub> = (COD <sub>w</sub> - COD <sub>sl</sub> - COD <sub>eff</sub> ) x MCF <sub>ww</sub> x EF <sub>w</sub> tonnes CO <sub>2</sub> -e		CH <sub>4</sub> gen <sub>ww</sub> = 0 t CO <sub>2</sub> -e
where EF <sub>w</sub> = 5.3 tonnes CO <sub>2</sub> -e per tonne COD and MCF <sub>ww</sub> is shown at step 3 and the quantity of COD removed as sludge (COD <sub>sl</sub> ) from wastewater is obtained from step 8 below			
<b>EMISSIONS FROM TREATMENT OF SLUDGE</b>			
7 Sludge Treatment	For type of sludge treatment - select the methane correction factor from Table G	MCF <sub>sl</sub> =	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 (VS <sub>p</sub> sl). See Note d Volatile solids in the waste activated sludge VS <sub>wasl</sub> . See Note e <b>OR</b> 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) <b>OR</b> If COD <sub>sl</sub> is unknown, insert fraction of COD <sub>w</sub> removed as sludge from wastewater (if unknown leave blank) Fraction COD removed as sludge (as a decimal eg. 1/3 is 0.33) F <sub>codsl</sub>	VS <sub>p</sub> sl = VS <sub>wasl</sub> = COD <sub>sl</sub> = F <sub>codsl</sub> =	tonnes tonnes tonnes tonnes
The fraction of COD removed as sludge from wastewater (F <sub>codsl</sub> ) is calculated from the above. However, in the absence of other data, a default of 0.6 will be used for F <sub>codsl</sub>			
Quantity of COD in sludge COD <sub>sl</sub> = (VS <sub>p</sub> sl x 1.99 + VS <sub>wasl</sub> x 1.48) <b>OR</b> F <sub>codsl</sub> x COD <sub>w</sub>			
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 Volatile solids in sludge transferred to other than landfill <b>OR</b> If the volatile solids are unknown, insert the quantity of COD in sludge transferred (if unknown leave blank) COD in sludge transferred to landfill COD in sludge transferred to other than landfill Quantity of COD in sludge transferred out (COD <sub>tr</sub> = [VS <sub>trl</sub> + VS <sub>stro</sub> ] x 1.48 <b>OR</b> [COD <sub>trl</sub> + COD <sub>tro</sub> ])	VS <sub>trl</sub> = VS <sub>stro</sub> = COD <sub>trl</sub> = COD <sub>tro</sub> = COD <sub>tr</sub> =	tonnes tonnes tonnes tonnes 0 tonnes
<b>NOTE:</b> The default COD <sub>tr</sub> 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 COD <sub>trl</sub> 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: CH <sub>4</sub> gensl = (COD <sub>sl</sub> - COD <sub>tr</sub> ) x MCF <sub>sl</sub> x EF <sub>sl</sub> in tonnes CO <sub>2</sub> -e		CH <sub>4</sub> gensl = 186 t CO <sub>2</sub> -e
where EF <sub>sl</sub> = 5.3 tonnes CO <sub>2</sub> -e per tonne COD and MCF <sub>sl</sub> is shown at step 7			

<b>TOTAL METHANE EMISSIONS</b>			
11 Methane generated	Total methane generated from wastewater and from sludge $CH_4gen = CH_4gen_{ww} + CH_4gen_{sl}$	$CH_4gen =$	186
12 Methane captured for combustion or flaring	Insert volume of methane combusted or flared if applicable	$Q =$	m <sup>3</sup>
	Insert methane recovered in digester if applicable (in tonnes CO <sub>2</sub> -e)		t CO <sub>2</sub> -e
	Methane captured $R = 0.0142464 \times Q$ OR tonnes recovered in digester	$R =$	0
	Methane flared or recovered in a digester is subtracted from total emissions		t CO <sub>2</sub> -e

<b>13 TOTAL METHANE EMISSIONS</b>	Total methane emissions = $CH_4gen - R$	Total Methane Emissions $CH_4gen - R =$	186	t CO <sub>2</sub> -e
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<b>NITROUS OXIDE EMISSIONS</b>					
14 Nitrogen in wastewater (N)	Nitrogen entering STW ( $N_{in}$ ) assumed to be = $0.036 \times 0.16 \times \text{Population}$ (tonnes N)	$N_{in} =$	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 ( $N_{trl}$ ) = $0.05 \times M_{trl}$ , default = $0.05 \times COD_{sl}$	$N_{trl} =$	8.8	t N	
	Nitrogen in sludge transferred to other than landfill ( $N_{tro}$ ) assumed to be zero	$N_{tro} =$	0	t N	
	Nitrogen in sludge $N_{sl} = N_{trl} + N_{tro}$	$N_{sl} =$	8.8	t N	
16 Nitrogen in effluent discharged to the environment ( $N_{out} = N_{encw} + N_{estw} + N_{ocw}$ )	% effluent discharged to enclosed waters	% $N_{encw} = \% \times (N_{in} - N_{sl})$ (ie. all waters other than estuarine or open coastal waters. Default is 100%)	$N_{encw} =$	20.0	t N
	% effluent discharged to estuarine waters	%	$N_{estw} =$	0.0	t N
	% effluent discharged to open coastal waters	%	$N_{ocw} =$	0.0	t N
	Note that for most NSW utilities 100% of effluent will be discharged to enclosed wa	$N_{out} =$	20.0	t N	

<b>17 TOTAL NITROUS OXIDE EMISSIONS</b>	$E_j = (N_{in} - N_{sl} - N_{out}) \times 4.9 + N_{encw} \times 4.9 + N_{estw} \times 1.2 + N_{ocw} \times 0$ tonnes CO <sub>2</sub> -e	$E_j =$	98	t CO <sub>2</sub> -e
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<b>18 TOTAL GREENHOUSE GAS EMISSIONS FROM STW</b>	Total GHG Emissions = Methane emissions plus Nitrous oxide emissions	$CH_4gen - R + E_j =$	284	t CO <sub>2</sub> -e
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**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	<ul style="list-style-type: none"> <li>• Preliminary treatment (i.e. screens and grit removal)</li> <li>• Primary sedimentation tanks (PST)</li> <li>• Activated sludge processes, including anaerobic fermentation zones and anoxic zones for biological nutrient removal (BNR)</li> <li>• Secondary sedimentation tanks or clarifiers</li> <li>• Intermittently decanted extended aeration (IDEA), intermittently decanted aerated lagoons (IDAL) and sequencing batch reactors (SBR)</li> <li>• Oxidation ditches and carrousel</li> <li>• Membrane bioreactors (MBR)</li> <li>• Mechanically aerated lagoons</li> <li>• Trickling filters</li> <li>• Dissolved air flotation</li> <li>• Aerobic digesters</li> <li>• Tertiary filtration</li> <li>• Disinfection processes (e.g. chlorination inc. contact tanks, ultraviolet, ozonation)</li> <li>• Mechanical dewatering (e.g. centrifuges, belt filter presses)</li> </ul>	0
Unmanaged aerobic treatment	<ul style="list-style-type: none"> <li>• Gravity thickeners</li> <li>• Imhoff Tanks</li> </ul>	0.3
Anaerobic digester/reactor	<ul style="list-style-type: none"> <li>• Anaerobic digester</li> <li>• High rate anaerobic reactors</li> </ul>	0.8
Anaerobic shallow lagoon (<2m deep)	<ul style="list-style-type: none"> <li>• Facultative lagoons</li> <li>• Maturation/polishing lagoons</li> <li>• Sludge drying pans</li> </ul>	0.2
Anaerobic deep lagoon (>2m deep)	<ul style="list-style-type: none"> <li>• Sludge lagoons</li> <li>• Covered anaerobic lagoons</li> </ul>	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/coins 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	<u>Accredited</u> 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* (page 3) is a '**one stop shop**' which minimises red tape, avoids duplication in reporting and enables DPI Water to annually provide the required local water utility (LWU) data to the Australian Bureau of Meteorology (BOM - for the annual National Performance Report for Urban Water Utilities ([www.bom.gov.au](http://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<sup>47</sup>. 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 (section H3 on page 352).

In addition to the extensive independent auditing of the reported NSW data (page 3 and footnote 48 on page 353), 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](http://www.water.nsw.gov.au)), which is a major reform program and the Regional Water and Waste Water Backlog (RWWWB) program. DPI Water oversees and monitors utility performance, provides leadership, guidance, software and training (page 9) to the utilities and is the primary regulator for the 105 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, due to errors in data handling (input or misreading), due to inconsistencies in the data stream or due to 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 (e.g. 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 (e.g. leakage less than 6% of the total water supplied or a reported number of assessments which differs significantly from historical trends or from that reported in the utility's Annual Financial Statements).

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<sup>47</sup> Refer to page 17 of the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report*, section 5.3 on page 19, Table 4 on page 111 and Appendix A on page 204. Such performance comparisons may provide valuable insights on opportunities for continuing to improve performance and to provide better value for money to residents.

- **Data that conflicts with data from other sources** - reported data that differs significantly from data available elsewhere (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 and follows this up with intensive manual and computerised validation procedures. The criteria used in the validation process for the more critical indicators are shown in section H4 on page 353. Following screening and validation, DPI Water reviews all anomalous reported values and anomalies are either:

- referred to the LWU for confirmation, or
- adjusted where relevant data from other sources is available, or
- 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 105 NSW LWUs each report more than 180 water supply indicators and a similar number of sewerage indicators together with their financial indicators (from the LWUs' Annual Financial Statements). Of these indicators, approximately 50 for each of water supply and sewerage are key indicators which are shown on each LWU's annual TBL Performance Report (pages 274 to 277). 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 on page 353.

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 obtained 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 (e.g. 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<sup>48</sup> 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** – the financial data is reviewed by DPI Water 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 (refer to pages 253 to 254).

LWUs are required to annually report the fair value<sup>49</sup> 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 on pages 353 to 357.

### 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 535 LWU water and sewerage treatment works is published in Appendices D1 and D2 on pages 280 to 295. Refer also to Section H4.6 on page 355.

### 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 from 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 on pages 169 and 189). DPI Water has worked with LWUs to establish these ratios which do not change significantly from year to year.

<sup>48</sup> Independent audits of the auditable indicators in the *National Performance Framework 2013-14* for the 29 LWUs required to report nationally were undertaken in 2006-07, 2009-10 and 2012-13. Indicators which met the rigorous national auditing requirements have been published in the *National Performance Report 2014-15*. These LWUs serve 74% of the connected properties in regional NSW. In addition the reported values for the 30 NWI financial performance indicators have been independently audited annually since 2006-07 for all of the LWUs.

<sup>49</sup> 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](http://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 on pages 134 and 146 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 (i.e. those with different charges for separate water supply or sewerage systems) are shown in Tables 6A and 7A on pages 137 and 149. The charges shown in Tables 6 and 7 include the charges for the current reporting year (2014-15) and also for the forthcoming year (2015-16) and are obtained by DPI Water from each LWU's website.

**Typical residential bill (TRB)** – the TRB is calculated for each LWU's principal water supply system. The TRB is calculated from the utility's average annual volume of residential water supplied per connected property multiplied by the usage charge and added to the access charge. If the LWU has a dual supply system, the above calculation is repeated to obtain the non-potable water component which is added to the potable component to obtain the total TRB. Refer also to note 5 on page 33.

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 on page 155).

**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 on page 155. Refer also to page 15, note 10 on page 34 and Figure 28 on page 66.

**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 on page 155. Refer also to note 10 on page 34 and Figure 29 on page 67. NRW for the last 3 years in L/c/d is shown in column 41f of Table 10 on page 172.

### 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 on page 316.

However in Tables 5 and 11 on pages 116 and 180 and Figures 33 to 35 on pages 70 to 72, 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 on page 116) if the required number of samples has been tested and at least 98%<sup>50</sup> 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<sup>51</sup>) is satisfactory (shown as 'Yes' in column (11) of Table 5 on page 116) 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 pages 8 and 9.

As noted on page 20, 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 (page 305).

The physical characteristics tested (aesthetic) are true colour, turbidity, total hardness as CaCO<sub>3</sub>, 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 on page 183 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 2014-15 financial year.

Columns 42h, 42j and 42l of Appendix D1 on page 280 show the percentage of the samples tested which complied with the 2015 ADWG for each water treatment works in 2014-15 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

<sup>50</sup> 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 on page 116 for microbiological and chemical compliance respectively.

<sup>51</sup> 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.

recycling project require DPI Water approval under section 60 of the Local Government Act, 1993 ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)). Similarly, acceptance of a high or medium risk trade waste discharge to a LWU sewerage system requires a DPI Water Section 90(1) concurrence (page 358).

The section 60 approval involves an independent and objective review which allows DPI Water to share its insights and expertise in overseeing the 535 LWU water and sewage treatment works and 119 LWU dams. The section 60 review provides assurance to the community that the proposed infrastructure is fit for purpose and provides a robust, safe, cost-effective and soundly based solution, without wasteful 'gold plating'. Refer also to pages 106 and 112 of the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report* ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)).

In addition, under section 61 of the *Local Government Act, 1993*, DPI Water carries out regular inspections of the 535 LWU water and sewage treatment works and provides feedback and mentoring to the LWU operators. 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 on pages 280 to 295.

Each operator in charge of a water or sewage treatment works in regional NSW is required to have appropriate qualifications and experience ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)). DPI Water conducts comprehensive operator training courses for LWU water and sewage treatment works operators ([www.water.nsw.gov.au](http://www.water.nsw.gov.au) and [urbanwater.ctw@dpi.nsw.gov.au](mailto:urbanwater.ctw@dpi.nsw.gov.au) (pages 36 and 360)). The detailed performance of each of these treatment works is publicly disclosed annually in Appendices D1 and D2 on pages 280 to 295.

Similarly, under the Aboriginal Communities Water and Sewerage Program ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)), DPI Water carries out regular inspections of the water and sewerage infrastructure for 60 discrete Aboriginal Communities in NSW. The 2014-15 drinking water quality results for these communities are disclosed in Appendix D3 on page 296.

#### 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 (i.e. compliance is 100%) if it achieves  $\geq 90\%$  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 (i.e. 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 on page 5, the NSW *Best-Practice Management (BPM) Framework* (page 6) 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 is also a pre-requisite for financial assistance towards the capital cost of backlog infrastructure (as at 1996) under the CTWSS Program and the Regional Water and Waste Water Backlog (RWWWB) Program (page 5).



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 (pages 253 to 254). 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 pages 6 and 7). 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 (e.g. 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 on page 108.

Further information on implementation of integrated water cycle management (IWCM), strategic business planning, water conservation, drought management and trade waste regulation is available on pages 21 to 24, 105 and 110 of the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report* ([www.water.nsw.gov.au](http://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** (page 8).

**Strategic Business Plan and Financial Plan** – The strategic business plan needs to be prepared in accordance with the July 2014 Strategic Business Plan Check List ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)). Guidance for LWUs is available in the *NSW Water and Sewerage Strategic Business Planning Guidelines*, NSW Office of Water, July 2011 ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)). Refer also to pages 22, 23, 108 and 113 of the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report* ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)).

DPI Water reviews LWU strategic business plans and financial plans in order to ensure they are soundly based. A LWU has met the required outcome if it has prepared a sound 30-year water and/or sewerage strategic business plan and financial plan in accordance with the above Check List. Such a plan must include a sound 30-year total asset management plan (TAMP) (page 7) 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 on page 108 (columns 1) and Table 5 on page 116 (column 34). As noted on pages 110 and 119, 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](http://www.water.nsw.gov.au)).

As noted on page 20 each LWU needs to annually 'roll forward', review and update its 30-year total asset management plan for projects completed, modified or deferred and to prepare an updated 30-year financial plan. A brief report to Council should be provided on the updated financial plan, including any necessary corrective action (an example Report to Council is provided on page 131 of the *NSW Strategic Business Planning Guidelines*). Refer also to pages 104 and 108 of the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report* ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)).

**Pricing** – The **11 pricing outcomes required** by the NSW best-practice management framework (page 6) are outlined below. These incorporate implementation of the NSW Framework for Regulation of Sewerage and Trade Waste<sup>52</sup>, which includes implementation of appropriate sewerage and trade waste charges and developer charges, as well as a sound trade waste regulation policy and an approval for each trade waste discharger. As noted below, the required outcomes for pricing 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 (page 6).

**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  $\geq 0$  (shown as 'Y' in column 14d of Table 6 on page 134 and

<sup>52</sup> The NSW Framework for Regulation of Sewerage and Trade Waste is a preventative risk management approach for achieving effective and efficient use of the sewerage system, which is a common pool resource (page 6).

column 11a of Table 7 on page 146). As noted on page 353, 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 on page 134 and column 11a of Table 7 on page 146). Refer also to page 22 of this report and to Appendix G on page 84 of the *2010-11 NSW Water Supply and Sewerage Performance Monitoring Report* ([www.water.nsw.gov.au](http://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 on page 108. Refer also to columns 1, 5b and 5d of Table 6 on page 134. 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 on page 13, Figure 13 on page 51, column 2c of Table 3 on page 108, column 13 of Table 6 on page 134 and pages 5 and 22 of the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report* ([www.water.nsw.gov.au](http://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 on page 108.

**Residential sewerage charges** – Residential tariff is independent of land value. Refer to column 2b of Table 3 on page 108 and to column 3 of Table 7 on page 146.

**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 on page 108, Figure 44 on page 81, and to column 3a of Table 7 on page 146.

**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 (page 6). Refer to column 2d of Table 3 on page 108 and to column 4 of Table 7 on page 146. Refer also to Figure 45 on page 82 and Table 7C on page 153.

A sound liquid **trade waste regulation policy** (endorsed by DPI Water) and an appropriate approval for each trade waste discharger is a further required outcome. Refer to column 2f of Table 3 on page 108 and Table 7C on page 153.

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](http://www.water.nsw.gov.au)).

**Developer charges** – The required outcome is met if an appropriate Development Servicing Plan (DSP) with commercial developer charges is implemented. Utilities which 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<sup>e</sup>. Refer to columns 2e of Table 3 on page 108. Refer also to column 7 of Table 6 on page 134 (water supply), column 7 of Table 7 on page 146 (sewerage). Until the release of any new developer charges guidelines, the NSW utilities are authorised to continue to annually index their existing water supply and sewerage developer charges.

**Complete Performance Report by due date** – A LWU meets the required outcome if it completes its performance reporting for water 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 on page 108 (water supply) and column 3 on page 108 (sewerage).

**Water conservation** – The required outcome is met if the LWU has a water conservation and demand management plan. Refer to column 3 of Table 3 on page 108 and Table 8C on page 164.

**Drought management** – The required outcome is met if the LWU has a drought management plan. Refer to column 4 of Table 3 on page 108 and Table 8C on page 164.

**Integrated water cycle management** – A utility's IWCM Strategy needs to 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 Evaluation and IWCM Strategy to ensure they are soundly based. The IWCM Strategy needs to identify the best mix of capital works, non-build solutions, policies and operation and maintenance activities. Note that the 19 Best-Practice Management required outcomes 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 on page 108 (water supply) and to column 4 on page 108 (sewerage). As indicated in note 5 on page 110, a utility which has completed its IWCM Strategy is shown as 'YesC' on page 108 and a utility which has only completed its IWCM Evaluation (Part 1 of the IWCM study) is shown as 'YesE' on page 108.

As indicated in Note 8 on page 110, LWUs whose IWCM Strategy is over 6 years old need to prepare a new 30-year IWCM Strategy, financial plan and report in accordance with the July 2014 IWCM Check List ([www.water.nsw.gov.au](http://www.water.nsw.gov.au)). Refer also to Appendix H on page 103 of the *2014-15 NSW Water Supply and Sewerage Performance Monitoring Report*.



## 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 <sup>†</sup> (2)	Number of WTW Operators in Training (3)	Meet National Certification Framework? <sup>a</sup> (4)	Number of Sewage Treatment Operators (5)	Number of STW Operators in Training (6)	Meet NSW Certification Requirements? <sup>2</sup> (7)
11	Albury	2	1		Yes	4	Yes
29	Armidale Dumaresq	1	3		Yes	4	Yes
24	Ballina	2			Yes	13	Yes
100	Balranald	4	1		Yes	1	Yes
21	Bathurst Regional	4			Yes	4	Yes
23	Bega Valley	16			Yes	5	Yes
47	Bellingen	1		2	Yes	4	Yes
53	Berrigan	4			Yes	4	Yes
72	Bland (NO WS)					2	Yes
78	Blayney (NO WS)					2	Yes
89	Bogan	1	1	2	Yes	3	Yes
97	Bombala		2	1	Yes	4	Yes
104	Boorowa	1		1	Yes	3	Yes
87	Bourke	1		2	Yes		5
105	Brewarrina	5			Yes	6	Yes
27	Byron	4			Yes	4	Yes
91	Cabonne		2	4	Yes	6	Yes
92	Carrathool	3	2	1	Yes	1	Yes
103	Central Darling	1		5	Yes	1	Yes
14	Clarence Valley	2			Yes	9	Yes
67	Cobar	1		1	Yes		2
10	Coffs Harbour	3			Yes	5	Yes
99	Coolamon (NO WS)					2	Yes
50	Cooma-Monaro	2		2	Yes	3	Yes
75	Coonamble	1		3	Yes	6	Yes
42	Corowa	5		2	Yes	7	Yes
39	Cowra	6		2	Yes	4	Yes
40	Central Tablelands	2		1	Yes		
58	Cootamundra (Reticulator)					2	Yes
54	Deniliquin	2			Yes	2	Yes
18	Dubbo	3		1	Yes	4	Yes
26	Essential Energy	6		2	Yes	6	Yes
15	Eurobodalla	3	2	1	Yes	7	Yes
12	Fish River (NO SGE)	1		1	Yes		
51	Forbes	2	1		Yes	1	Yes
84	Gilgandra	2	2		Yes	4	Yes
60	Glen Innes Severn	3		1	Yes	3	Yes
1	Gosford	4			Yes	6	Yes
20	Goulburn Mulwaree	4			Yes	5	Yes
80	Greater Hume	2			Yes	5	Yes
30	Griffith	2		1	Yes	3	Yes
94	Gundagai	2			Yes	4	Yes
44	Gunnedah	2			Yes	2	Yes
90	Guyra	4		1	Yes	2	Yes
28	Goldenfields (NO SGE)	2	1		Yes		
81	Gwydir	4	1		Yes	5	Yes
76	Harden (Reticulator)	1			Yes	2	Yes
30A	Hawkesbury (NO WS)					3	Yes
86	Hay	3		1	Yes	4	Yes
37	Inverell	2			Yes	4	Yes
106	Jerilderie	1	1		Yes	2	Yes
77	Junee (NO WS)					2	Yes
25	Kempsey	7			Yes	8	Yes
70	Kyogle	7			Yes	7	Yes
59	Lachlan	4		2	Yes	1	Yes
48	Leeton	4			Yes	3	Yes
22	Lismore	3			Yes	4	Yes
31	Lithgow	1			Yes	6	Yes
61	Liverpool Plains	4			Yes	3	Yes
102	Lockhart (NO WS)					3	Yes
5	MidCoast	13	2		Yes	16	Yes
32	Mid Western Regional	8		2	Yes	8	Yes
38	Moree Plains	3			Yes	4	Yes
65	Murray	2		3	Yes	6	Yes
101	Murrumbidgee	3			Yes	2	Yes
41	Muswellbrook	6		1	Yes	3	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 <sup>+</sup> (2)	Number of WTW Operators in Training (3)	Meet National Certification Framework? <sup>α</sup> (4)	Number of Sewage Treatment Operators (5)	Number of STW Operators in Training (6)	Meet NSW Certification Requirements? <sup>2</sup> (7)	
34	Nambucca	3			Yes	5		Yes
46	Narrabri	4		3	Yes	4	1	Yes
63	Narrandera	2		1	Yes	4		Yes
62	Narromine	3		1	Yes	4		Yes
83	Oberon	3			Yes	1	2	Yes
19	Orange	3		1	Yes	4		Yes
71	Palerang		6		Yes	6		Yes
36	Parkes	2		1	Yes	3		Yes
7	Port Macquarie-Hastings	6			Yes	11		Yes
17	Queanbeyan (Reticulator)					3		Yes
33	Richmond Valley	1		1	Yes	4	1	Yes
4	Rous (NO SGE)	4			Yes			
8	Riverina (NO SGE)	4			Yes			
3	Shoalhaven	8			Yes	7	25	Yes
35	Singleton	4			Yes	3	1	Yes
52	Snowy River	6	1		Yes	6		Yes
13	Tamworth Regional	12			Yes	11		Yes
69	Temora (NO WS)					1	1	Yes
68	Tenterfield	4			Yes	4		Yes
93	Tumbarumba	2			Yes	4		Yes
43	Tumut	5	1		Yes	8		Yes
6	Tweed	5			Yes	10	2	Yes
45	Upper Hunter	3	2		Yes	3		Yes
73	Upper Lachlan	1	3	1	Yes	4	1	Yes
85	Uralla	3	1		Yes	2		Yes
107	Urana (NO WS)					2		Yes
88	Wakool	4			Yes	4		Yes
9	Wagga Wagga (NO WS)					8		Yes
98	Walcha	4			Yes		4	
79	Walgett	1		4	Yes		5	
96	Warren	3			Yes	1	1	Yes
55	Warrumbungle	9	2		Yes	2	5	Yes
95	Weddin (NO WS)					2		Yes
57	Wellington	2			Yes	2		Yes
74	Wentworth	2		2	Yes	2		Yes
16	Wingecarribee	3		1	Yes	9		Yes
2	Wyang	3			Yes	14		Yes
56	Yass Valley	2	1	1	Yes	2	1	Yes
49	Young (Reticulator)					3		Yes
<b>TOTAL</b>		<b>309</b>	<b>39</b>	<b>68</b>	<b>92</b>	<b>419</b>	<b>65</b>	<b>96</b>

**Notes:**

- Columns 1 and 2 above show that each of the 91<sup>#</sup> 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 348 operators meet the National Certification Framework, including 309 operators qualified to operate a water treatment works or a chlorinator/aerator (column 1) and 39 operators qualified to operate a chlorinator/aerator (column 2). A further 68 operators are currently undertaking training in water treatment operation (column 3).
  - Column 5 above shows that the LWUs have 419 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 65 operators are currently undergoing training, including 16 operators at Bourke, Cobar, Walcha and Walgett (column 6).
- # Excludes the 9 LWUs responsible for sewerage only, reticulators Cootamundra, Harden, Queanbeyan, and Young, 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](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)
				2013-14	2014-15		
11	Albury	181	6.5		332	Yes	0
29	Armidale Dumaresq	1,342	4.7	0	0	No	5.5
24	Ballina			132	142	Yes	
100	Balranald			0	0	No	0
21	Bathurst Regional			0	124	No	3.3
23	Bega Valley	1,800	5	126	167	Yes	0
47	Bellingen			4	0	Yes	0
53	Berrigan	100	5	0	0	No	0
89	Bogan						
97	Bombala			0	0	No	0
104	Boorowa	452	15	0	0	No	1
87	Bourke	150	10	0	0	No	0
105	Brewarrina			0			
27	Byron	671	3			Yes	
91	Cabonne			0	0	No	
92	Carrathool						
103	Central Darling			0	0	No	0
14	Clarence Valley	289	14	0		Yes	0
67	Cobar						
10	Coffs Harbour	1,886	4.8			Yes	
50	Cooma-Monaro			0	0	No	0
75	Coonamble				0		0
58	Cootamundra						
42	Corowa			0	0	No	0
39	Cowra			0	0	No	0
40	Central Tablelands						
54	Deniliquin	0	0		0	No	0
18	Dubbo	220	5	235	0	Yes	
26	Essential Energy						
15	Eurobodalla						
12	Fish River			0			
51	Forbes	979	1				
84	Gilgandra	339	1	0	0	No	0
60	Glen Innes Severn			0	0	No	0
1	Gosford	9,032	2			Yes	28.4
20	Goulburn Mulwaree		10	273	137	Yes	8
80	Greater Hume			0	0	No	0
30	Griffith						
94	Gundagai						
90	Guyra	540	5	0	0	No	0
28	Goldenfields						
44	Gunnedah		20		0		0
81	Gwydir	1,500	4	0	0	No	0
76	Harden	0	0	0	0	No	0
86	Hay			0	0	No	0
37	Inverell				0	No	0
106	Jerilderie	360	1	0	0		0
25	Kempsey	0	0	0	0	Yes	5
70	Kyogle	1	4.5			Yes	5
59	Lachlan						
48	Leeton				0	No	0
22	Lismore			2	3	Yes	89
31	Lithgow						
61	Liverpool Plains		22		0	No	0
5	MidCoast						
32	Mid Western Regional	1,588	3	27	38	Yes	0.56
38	Moree Plains						
65	Murray						
101	Murrumbidgee						
41	Muswellbrook						
34	Nambucca		5	0	0	No	0
46	Narrabri			0	0	No	0
63	Narrandera			0		Yes	
62	Narromine				0	No	0
83	Oberon			0	0	No	0
19	Orange			0	56	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)
			2013-14	2014-15		
71 Palerang	550	22	0	0	No	0
36 Parkes				0	Yes	0
7 Port Macquarie-Hastings						
17 Queanbeyan	152		337	233	No	0
33 Richmond Valley						
4 Rous						
8 Riverina	0	0	0	0		0
3 Shoalhaven					No	
35 Singleton	2,149	10	44	4	Yes	0
52 Snowy River				7		1
13 Tamworth Regional						
68 Tenterfield				0		0
93 Tumbarumba						
43 Tumut						
6 Tweed	1,873	5	369	272	No	1.4
45 Upper Hunter			0	0	No	0
73 Upper Lachlan						
85 Uralla	245	5	0	0	No	0
9 Wagga Wagga					No	52
88 Wakool						
98 Walcha			0			
79 Walgett			0	0	No	0
96 Warren	200	5	0	0	No	0
55 Warrumbungle			0	0	No	0.2
57 Wellington	287	5				
74 Wentworth						
16 Wingecarribee	395	5	68	257	Yes	14.6
2 Wyong	10,000		100	450	Yes	1
56 Yass Valley	600	4.5	0	0	No	0
49 Young	1,000	5	0	0	No	0
<b>TOTAL</b>	<b>39,000 (for 33 LWUs)</b>	<b>3 to 5 kL (typical for 35 LWUs)</b>	<b>1700</b>	<b>2200</b>	<b>20 LWUs have a Development Control Plan</b>	<b>216 km (for 15 LWUs)</b>

**Notes:**

- The results shown above have been reported by a total of 69 LWUs in the 2014-15 data collection for the above performance indicators. More utilities are expected to be able to report in future data collections.
- In 2014-15, 14 LWUs released a total of 2,200 water sensitive urban design (WSUD) residential lots, compared to a total of 1,700 in 2013-14.

## APPENDIX K: CHARACTERISTICS OF THE AUSTRALIAN URBAN WATER SECTOR - 2014-15

NWI ID	Indicator Name	Regional NSW <sup>3</sup>	Regional Victoria	Regional QLD <sup>4</sup>	Sydney <sup>2</sup>	Hunter	NSW Total	Victoria Total <sup>9</sup>	QLD Total <sup>5</sup>	South Australia	Western Australia <sup>7</sup>	Tasmania	ACT	Northern Territory <sup>10</sup>	Australian Total <sup>1</sup>	Regional NSW (% of NSW Total)	NSW Total (% of Australia Total)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
C1	Population receiving WS services (millions)	1.83	1.43	2.79	4.83	0.56	7.22	5.87	4.18	1.66	2.26	0.45	0.43	0.15	22.2	25%	32%
C5	Population receiving SGE services (millions)	1.74	1.28	2.51	4.72	0.54	7.00	5.55	3.84	1.31	2.10	0.38	0.39	0.15	20.7	25%	34%
<b>C4</b>	<b>Total connected properties - WS (millions)</b>	<b>0.83</b>	<b>0.68</b>	<b>1.18</b>	<b>1.88</b>	<b>0.24</b>	<b>2.94</b>	<b>2.56</b>	<b>1.74</b>	<b>0.76</b>	<b>0.94</b>	<b>0.20</b>	<b>0.17</b>	<b>0.07</b>	<b>9.39</b>	<b>28%</b>	<b>31%</b>
C8	Total connected properties - SGE (millions)	0.75	0.60	1.04	1.83	0.23	2.81	2.40	1.58	0.59	0.85	0.18	0.17	0.07	8.63	27%	33%
<b>W11</b>	<b>Total urban water supplied (GL)</b>	<b>291</b>	<b>238</b>	<b>384</b>	<b>529</b>	<b>70</b>	<b>890</b>	<b>639</b>	<b>527</b>	<b>229</b>	<b>308</b>	<b>74<sup>8</sup></b>	<b>45</b>	<b>47</b>	<b>2,760</b>	<b>33%</b>	<b>32%</b>
W11.1	Total urban potable water supplied (GL)	260	192	337	464	67	790	593	475	219	269 <sup>7</sup>	49	43		2,440	33%	32%
W11.3	Total volume of potable water produced (GL)	255	186	202	516	67	838	587	494	219	270 <sup>7</sup>		47		2,450	30%	34%
W8.1+W9.1	Volume of potable water supplied - residential and non-residential (GL)	227	174	309	464	56	747	531	432	187	238 <sup>7</sup>	49	39		2,220	30%	34%
W10.1	Non revenue water (NRW) (GL)	33.0	18.3	28.2	52 <sup>6</sup>	10.6	96	61.8	42.9	32.3	30.3 <sup>7</sup>		3.8		267	35%	36%
W26	Total recycled water supplied (GL)	39.0	43.8	35.5	43.1	4.6	87	80.2	44.8	31.7	15.1	4.8	4.4	1.4	269	45%	32%
W18	Total sewage collected (GL)	179	135	235	564	72	815	462	360	104	153	51 <sup>8</sup>	33	20	2,000	22%	41%
W18.5	Volume of sewage treated effluent (GL)	173	121	228	547	72	792	450	357	98	137 <sup>7</sup>		30		1,860	22%	43%
W17	Volume of sewage collected - trade waste (GL)	6.8	34.1	13.1	22.8	4.7	34	56.5	25.0	12.6	8.4			1.1	138	20%	25%
<b>F1+F2</b>	<b>Total revenue - WSS (\$M)</b>	<b>1,420</b>	<b>961</b>	<b>2,490</b>	<b>2,640</b>	<b>312</b>	<b>4,370</b>	<b>4,720</b>	<b>4,440</b>	<b>1,360</b>	<b>1,810</b>	<b>296</b>	<b>266</b>	<b>178<sup>10</sup></b>	<b>17,400</b>	<b>32%</b>	<b>25%</b>
IF11+IF12	Operating cost - WSS (\$M)	735	507	1,149	1,232	145	2,110	3,031	1,786	466	583	166	126	73 <sup>10</sup>	8,300	35%	25%
F20	Dividend (\$M)	4.7	0.0	173.7	664.0	21.3	690	102.8	247.8	184.0	538.9	22.1	22.8	0 <sup>10</sup>	1,810	1%	38%
F9+F10	Written-down value of fixed WSS assets (\$M)	18,300	8,980	14,600	44,100	6,890	69,300	31,100	19,400	13,000	14,300	2,690	3,740	856 <sup>10</sup>	154,000	26%	45%
F16	Total capital expenditure for WSS (\$M)	416	269	473	628	77	1,120	955	751	214	396	102	49	35 <sup>10</sup>	3,600	37%	31%
F25	Community Service Obligations (\$M)	15.5	46.0	25.0	163.1	14.3	193	163.7	48.6	128.0	136.7	8.1	10.6	9 <sup>10</sup>	698	8%	28%
F26+F27	Capital works grants - WSS (\$M)	39.8	2.9	6.6	4.8	0.2	45	10.3	6.6	8.7	0.0	0.0	0.0	0.0	70	89%	64%
A2	Length of water mains (1,000 km)	32.2	22.5	27.8	22.3	4.9	59	48.2	37.8	27.1	17.3	6.2 <sup>8</sup>	3.2	1.8	201	54%	30%
A5	Length of SGE mains and channels (1,000 km)	19.9	14.8	21.7	25.1	4.9	50	37.7	31.0	8.9	14.6	4.7 <sup>8</sup>	3.3	1.0	151	40%	33%
A1	Number of water treatment plants providing full treatment (no.)	163	170	67	9	6	178	176	98	42	22	38 <sup>8</sup>	2	2 <sup>10</sup>	558	92%	32%
A4	Number of sewage treatment plants (no.)	299	189	118	26	19	344	210	145	24	22	112 <sup>8</sup>	5	7	869	87%	40%

## Notes

1 Based on data reported in the Part B National Performance Report 2014-15 for utilities with over 10,000 connected properties and the urban data for all of regional NSW ([www.bom.gov.au](http://www.bom.gov.au)). In order to provide the best estimate for the Australian totals in column 14, where practicable, performance indicators which were not reported in the Part B Report have been estimated from similar reported indicators, as shown in notes 6 to 10 below. As there remain a small number of missing values for Tasmania, ACT and the Northern Territory, the Australian totals in column 14 for those performance indicators (W11.1, W11.3, W8.1+W9.1, W10.1, W18.5, W17) slightly understate the correct values. Refer also to Notes 6 and 7 on page 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 occurred - eg. for W11 and W11.3.

6 Sydney's NRW is estimated as W11.3 - (W8.1 + W9.1).

7 As Perth did not report W10.1, W11.1 or W18.5, the reported values for W10, W11 and W18 have been used in the above tabulation. W11 was also used for W11.3, with W8 + W9 used for W8.1 + W9.1.

8 Results for Tasmania for indicators W11, W18, A2, A5, A1 and A4 are taken from the TasWater Annual Report 2014-15 ([www.taswater.com.au](http://www.taswater.com.au)).

9 As Melbourne Water did not report W11.3, the reported value for W11.1 has been used in the above tabulation.

10 Financial results for Northern Territory are from the 2013-14 National Performance Report. The number of water treatment works was obtained from the Power and Water website ([www.powerwater.com.au](http://www.powerwater.com.au)).

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 7.22 million and 7.0 million respectively. The volume of urban water supplied in regional NSW is 33% of the NSW total of 890 GL and the recycled water supplied is 45% of the NSW total of 87 GL.

The water and sewerage revenue for regional NSW is 32% of the NSW total of \$4.37 billion, the operating cost is 35% of the NSW total of \$2.11 billion and capital expenditure is 37% of the NSW total of \$1.12 billion.

Regional NSW has 54% of the 59,000 km of NSW water mains, 40% of the 50,000 km of NSW sewerage mains and channels, 92% of the 178 NSW water treatment works and 87% of the 344 NSW sewerage treatment works.

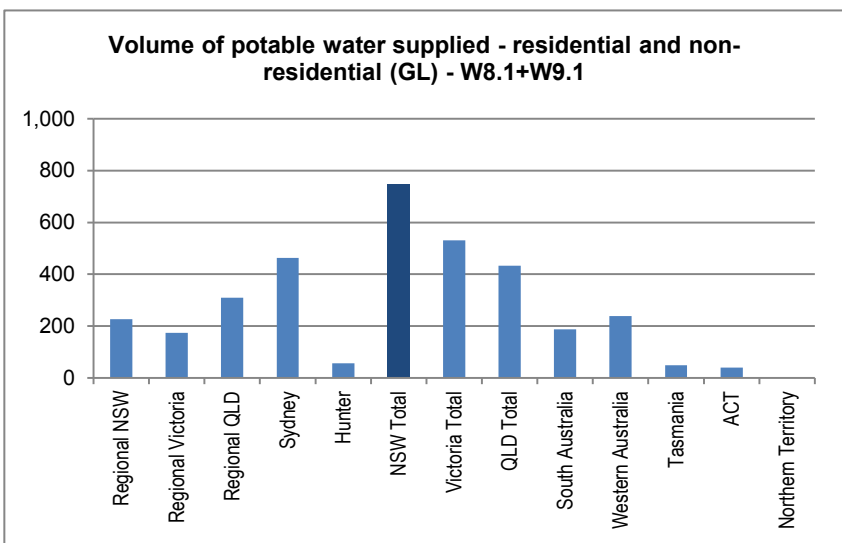
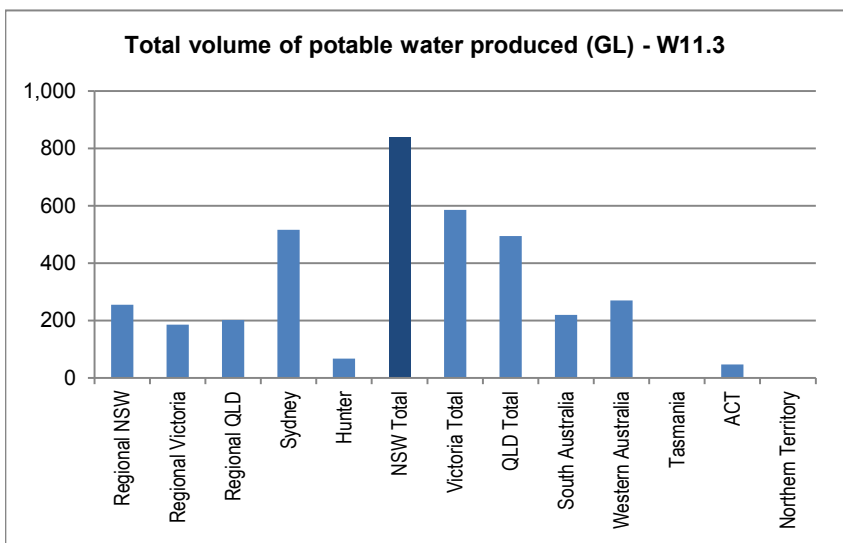
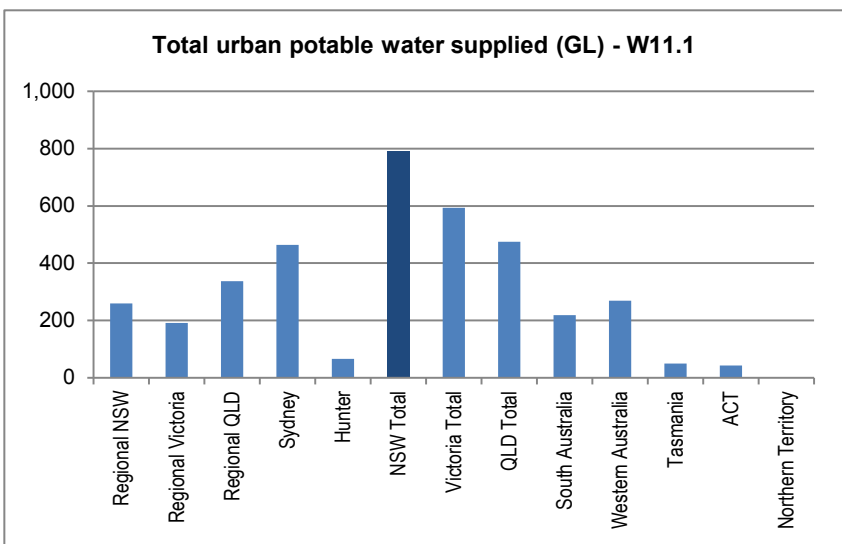
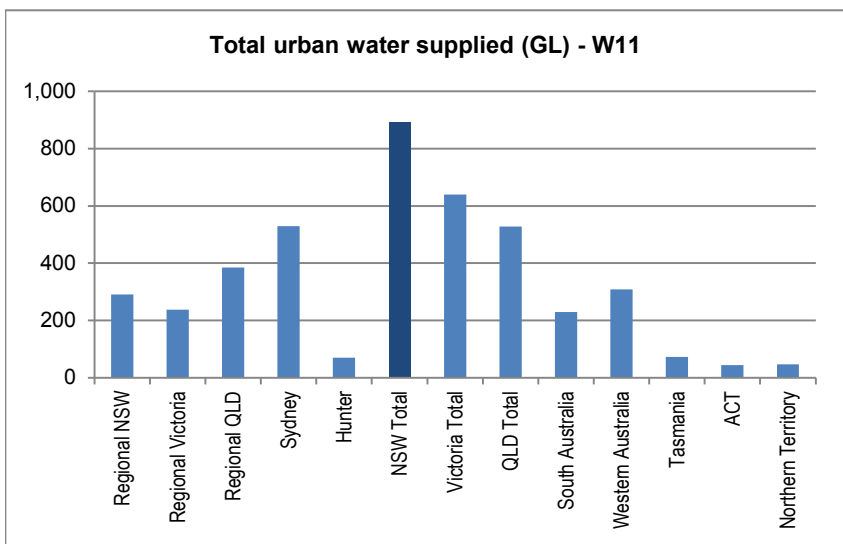
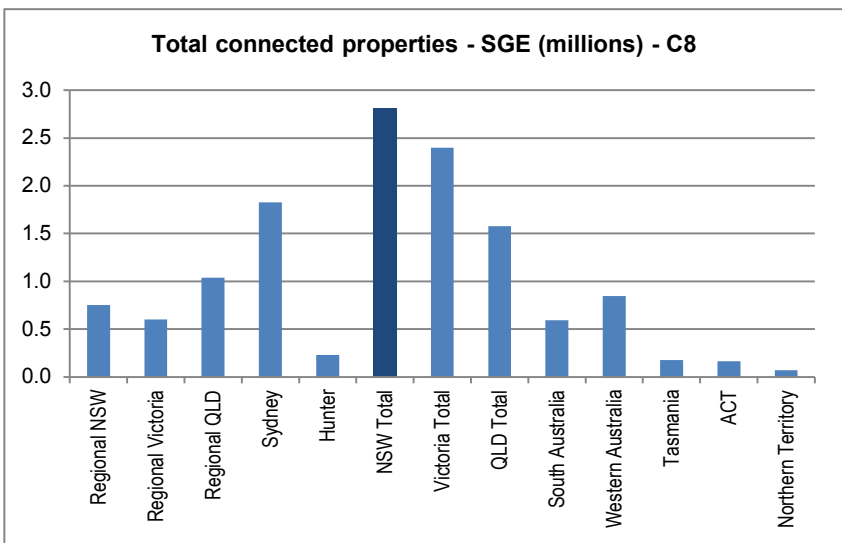
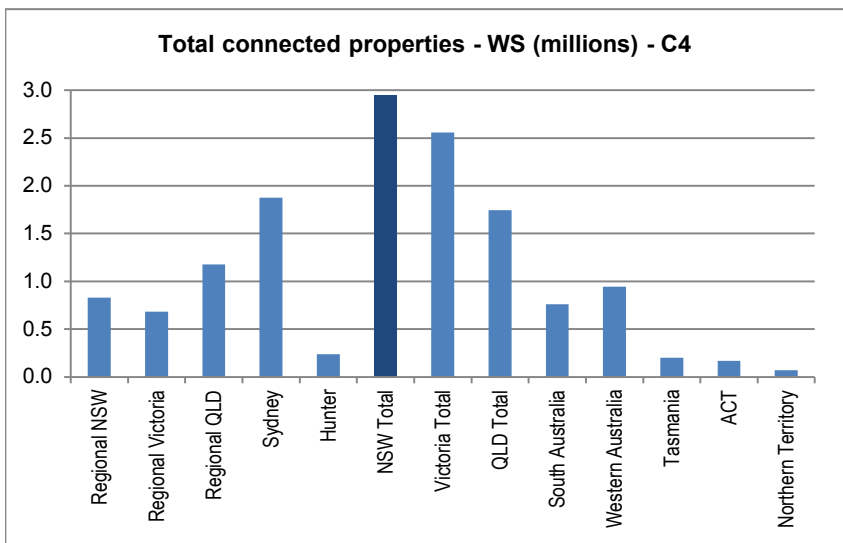
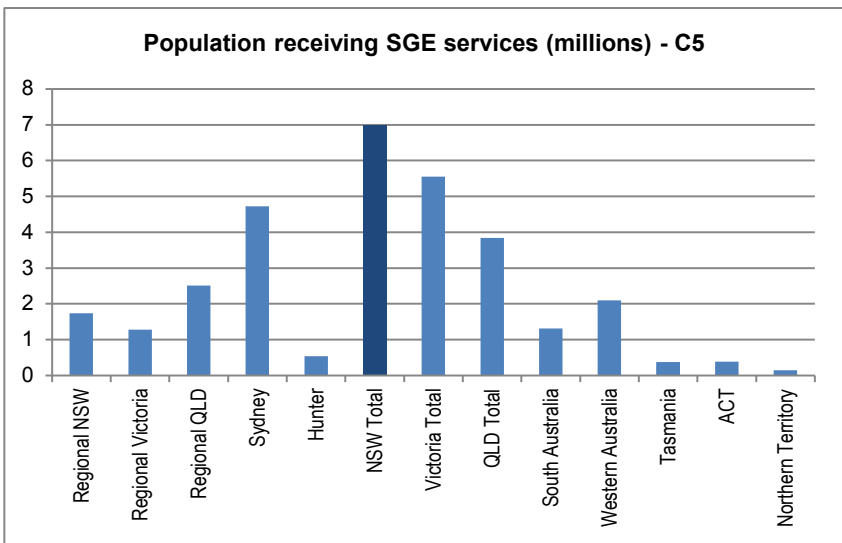
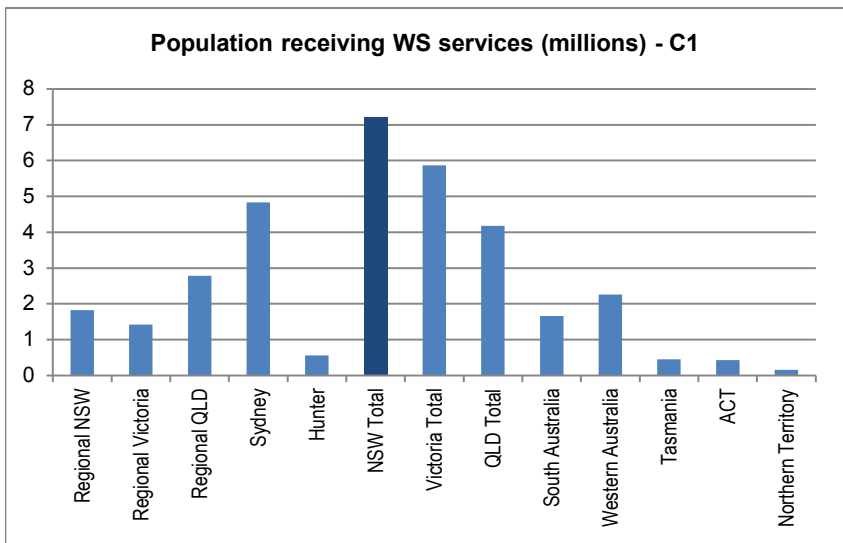
### NSW vs Australian Totals

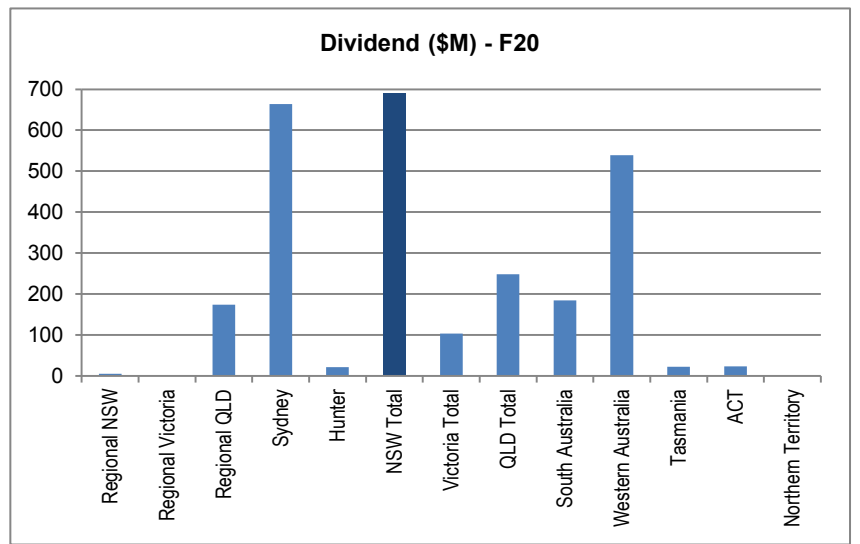
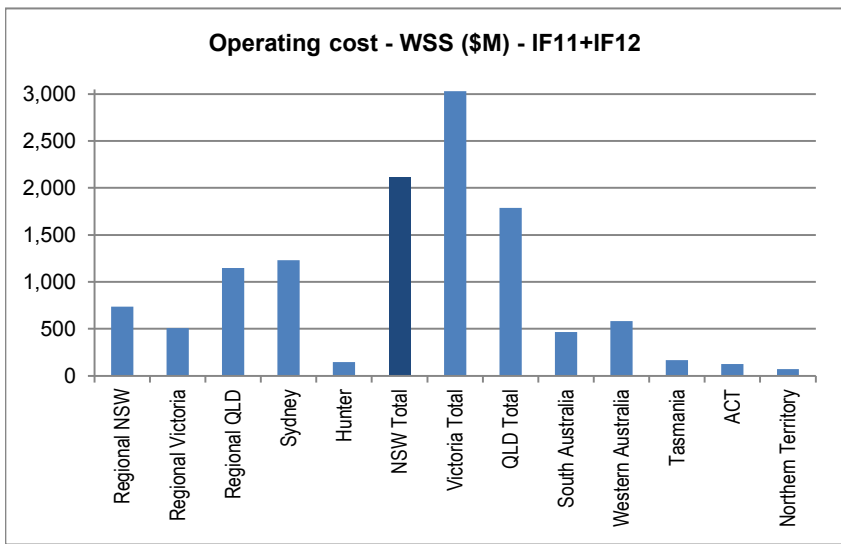
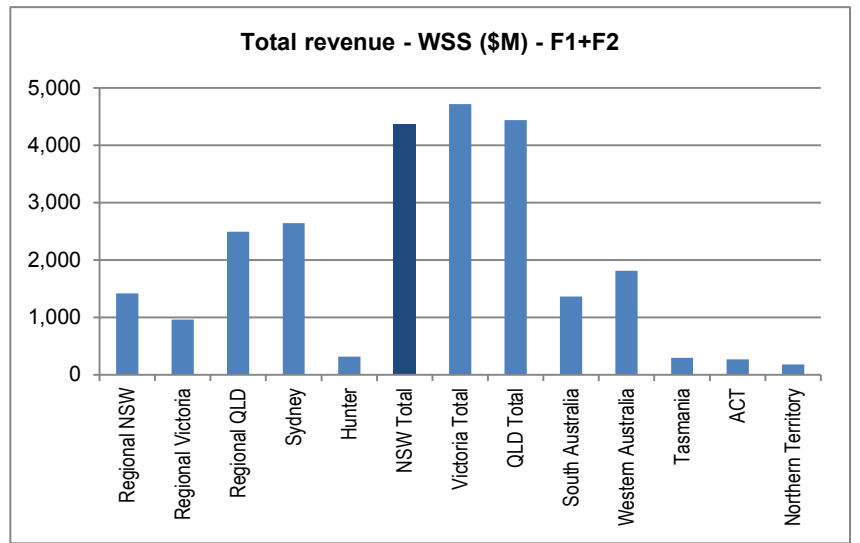
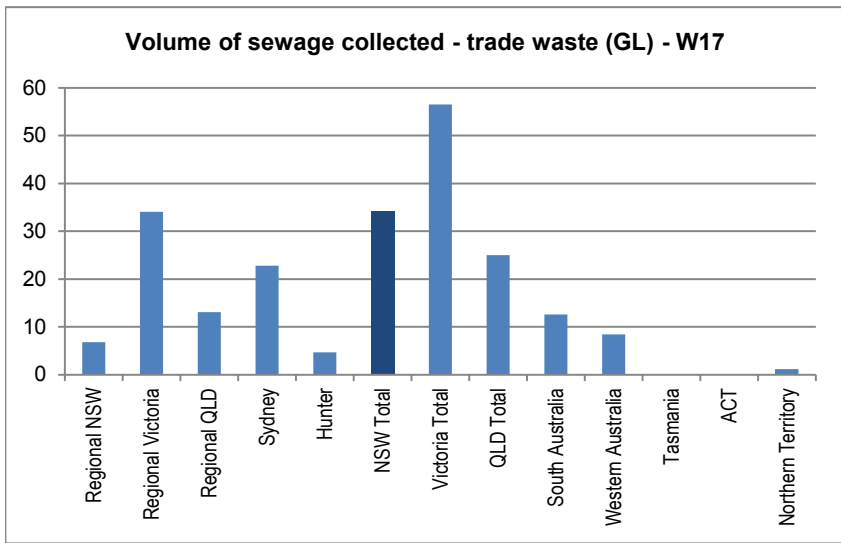
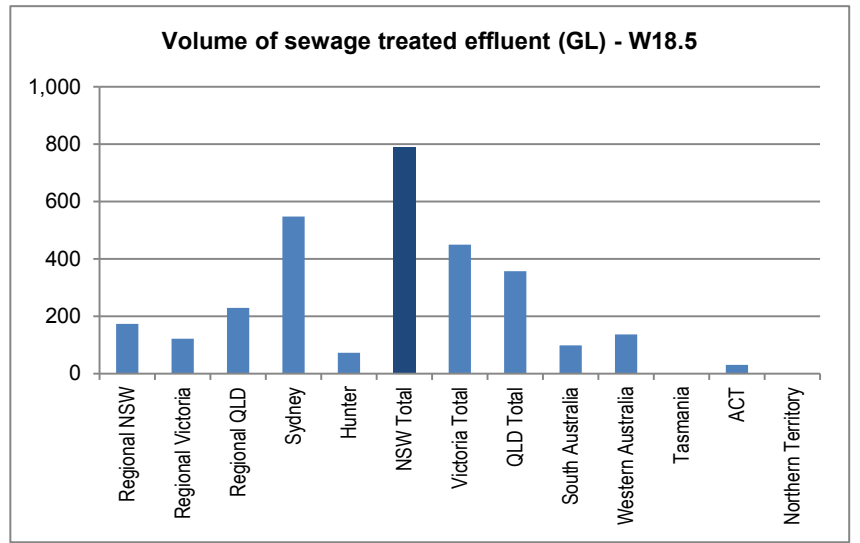
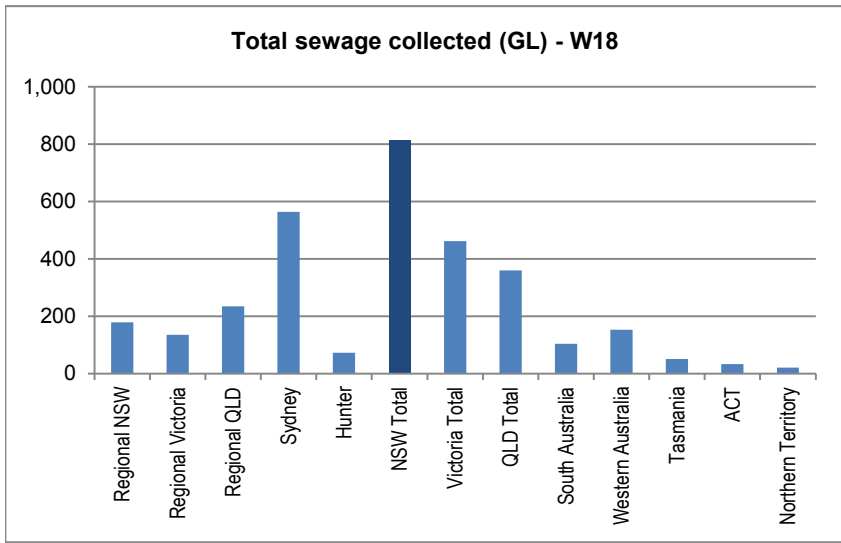
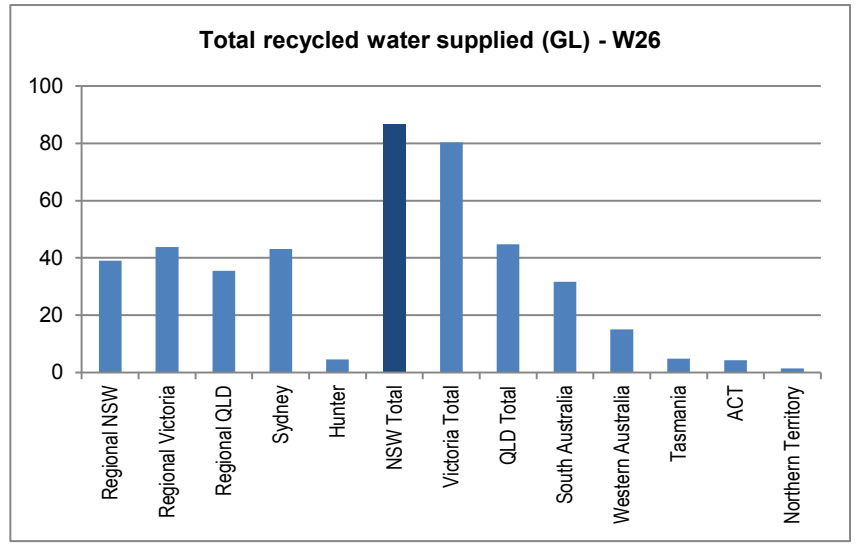
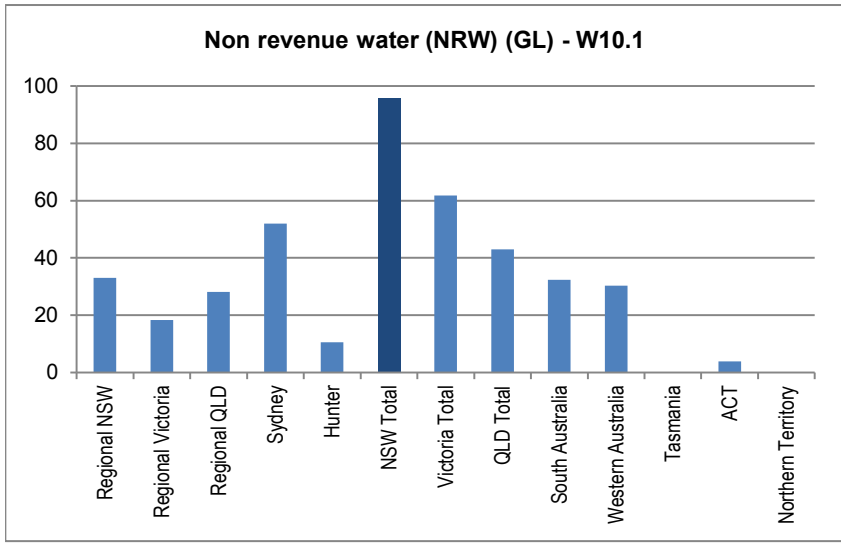
Appendix K shows that the total populations receiving water supply and sewerage services in NSW are 32% and 34% respectively of the Australian totals of 22.2 million and 20.7 million. The volume of urban water supplied in NSW is 32% of the Australian total of 2,760 GL, and the recycled water supplied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

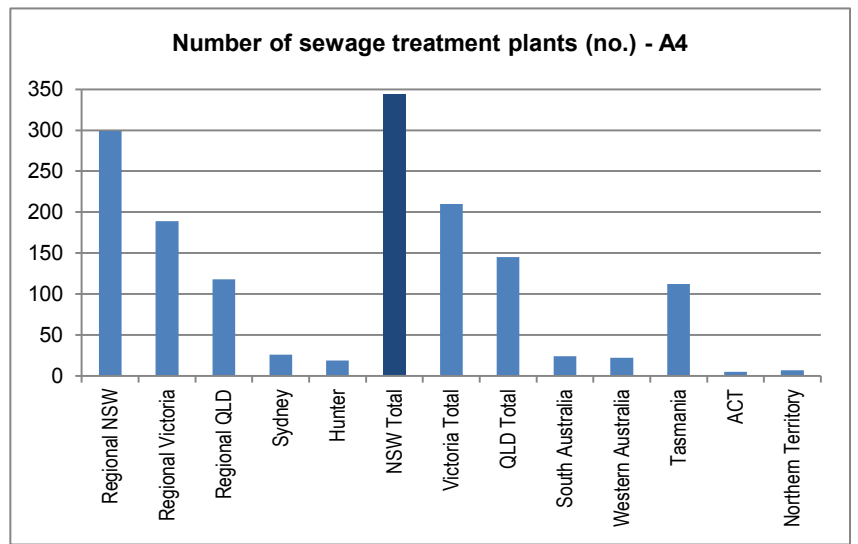
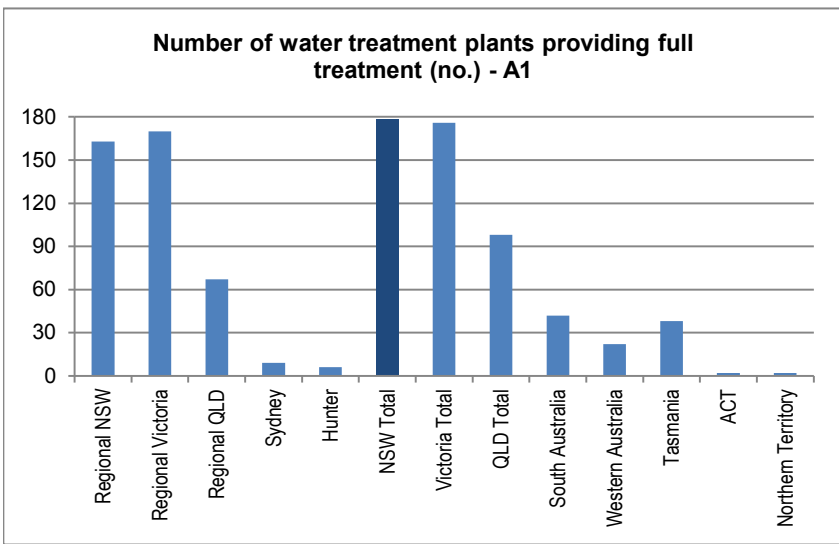
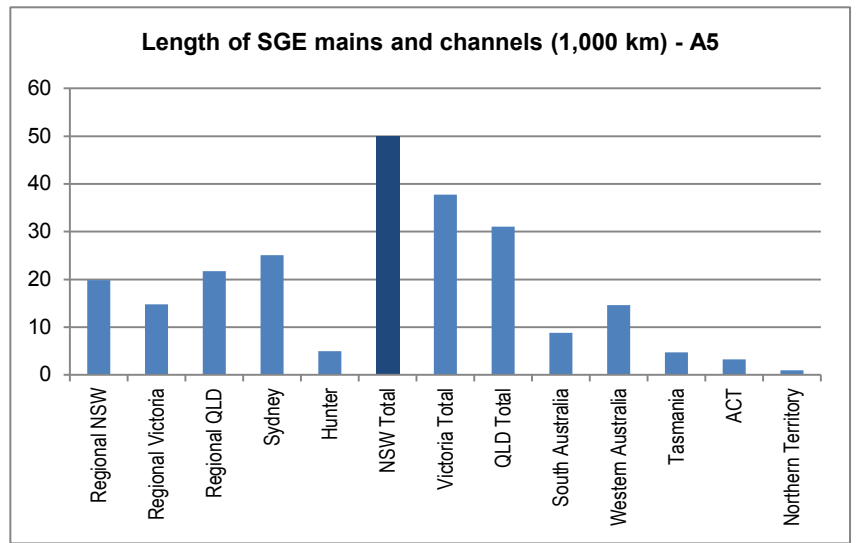
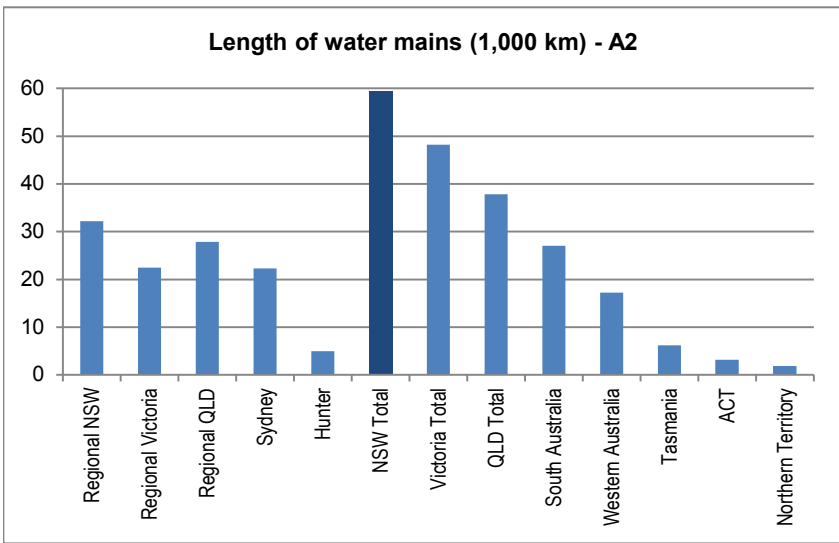
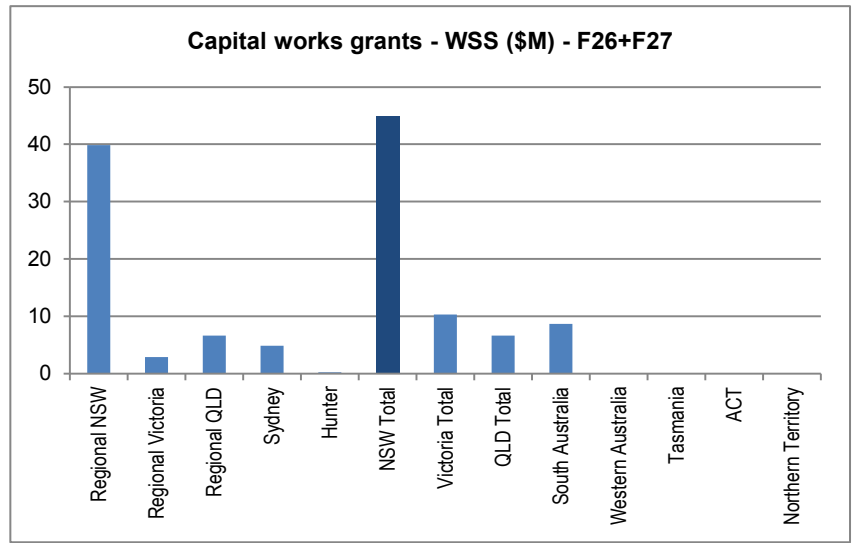
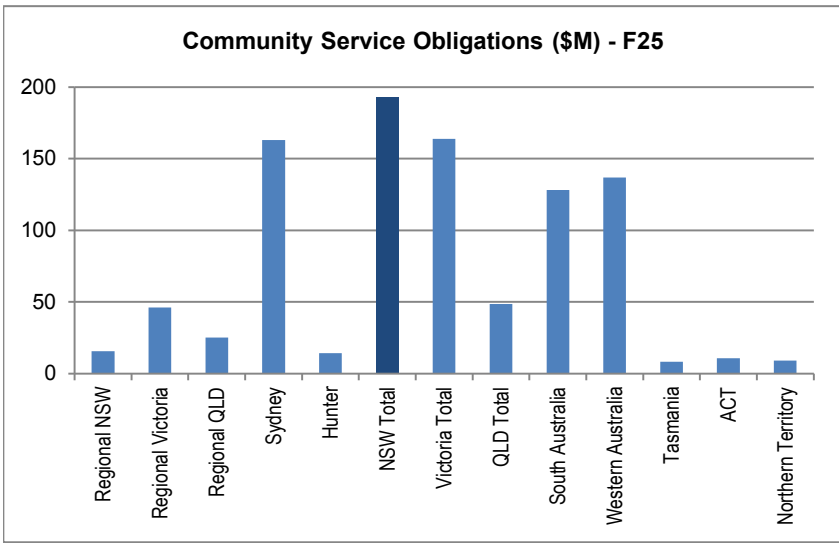
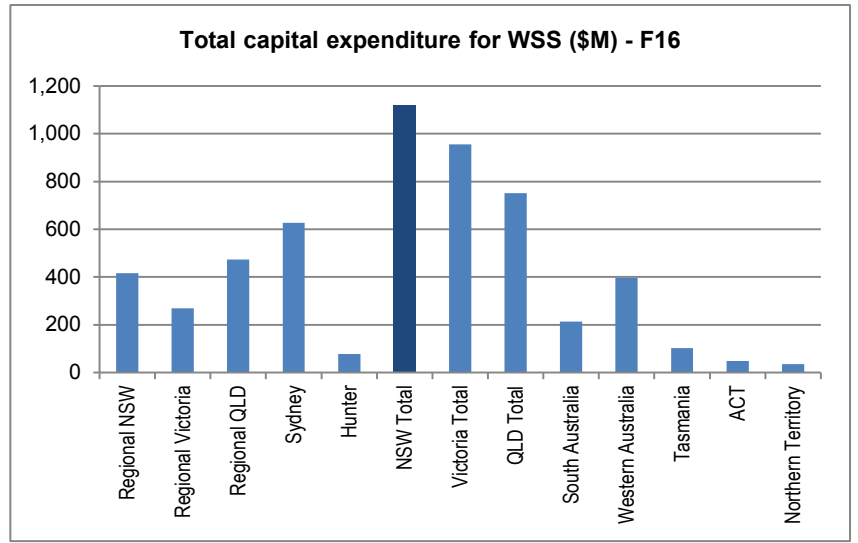
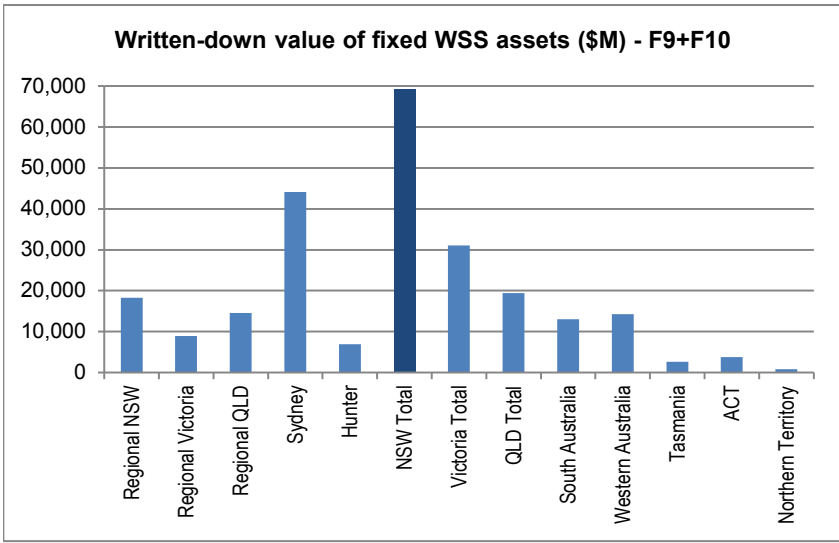
The water and sewerage revenue for NSW is 25% of the Australian total of \$17.4 billion, the operating cost is 25% of the Australian total of \$8.3 billion and capital expenditure is 31% of the Australian total of \$3.6 billion.

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











## INDEX

### Note:

Page numbers shown in:

**black bold** are the main reference to each topic;

**blue bold** refer to figures comparing the performance of the **NSW utilities**; and

**red bold** refer to graphs of **Interstate performance comparisons**.

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