



Independent Pricing and Regulatory Tribunal

Performance of NSW metropolitan water utilities, 2009/10

Water — Performance Report
May 2011



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1 Executive summary

In addition to setting the prices NSW metropolitan water utilities can charge their customers, the Independent Pricing and Regulatory Tribunal of NSW (IPART) has a role in monitoring and reporting on the performance of these utilities. For this 2009/10 performance report, we have compared:

- ▼ the performance of the 2 major metropolitan retail utilities – Sydney Water Corporation (Sydney Water) and Hunter Water Corporation (Hunter Water) – against the water quality, service standards and other requirements set out in their operating licences
- ▼ the performance of these utilities plus the 2 other metropolitan retail water utilities – Gosford City Council (Gosford Council) and Wyong Shire Council (Wyong Council) – against the National Water Initiative¹ (NWI) indicators and the associated benchmarks for comparable water utilities in Australia²
- ▼ the actual expenditure, revenue and sales performance of these 4 utilities plus the Sydney Catchment Authority against the forecasts we used in making our price determinations for each utility, and their progress in implementing the major capital projects we allowed for in making these determinations.

Where possible we have also compared the utilities' performance in 2009/10 to their performance in previous years.

¹ The National Water Initiative (NWI) is Australia's blueprint for water reforms. Through it, governments across Australia have agreed on actions to achieve a more cohesive national approach to the way Australia manages, measures, plans for, prices, and trades water. The Intergovernmental Agreement on a NWI was signed at the 25 June 2004 Council of Australian Governments meeting. The Tasmanian Government joined the Agreement in June 2005 and the Western Australia Government joined in April 2006.

² The NWI Indicators are a set of data annually reported by public water utilities in Australia with the aim of benchmarking utility performance under the National Performance Framework. Utilities are categorised based on customer numbers to aid comparison (see section 2.1 of this report for further details. These indicators are jointly developed by the Water Services Association of Australia, the National Water Commission and the parties to the NWI, being the Commonwealth and State Governments.

The purpose of this report is make our findings available to all stakeholders, to improve the utilities' accountability and strengthen their incentives to maintain and improve their performance over time. But while we consider the findings provide useful insights into the utilities' operations, service standards and reliability, we also emphasise that they need to be interpreted with care. There are several reasons for this:

- ▼ First, when comparing the utilities' performance, we have not adjusted the findings to take account of differences in their operating environments. We have only noted, where possible, when these differences are likely to account for some or all of the difference in performance.
- ▼ Second, while considerable progress has been made in standardising the definitions of the performance measures, there are still some differences in measurement systems and interpretations used across jurisdictions.
- ▼ Finally, in looking at an individual utility's performance, it is more important to focus on the trends over time than its performance in any year, as these trends provide the best indicator of whether or not the utility needs to take remedial action.

1.1 Summary of key findings

Overall, the 4 metropolitan retail utilities performed well in 2009/10. All utilities maintained high levels of drinking water quality and compliance with their environmental licensing obligations and continued to provide good quality services to their customers.

We found that the expenditure, revenue and sales of the 4 metropolitan retail water authorities and Sydney Catchment Authority are generally on track when compared to the values that were forecast at the time that prices were determined. The utilities have provided explanations for all major variations. In many instances the utilities plan to address annual variations between actual and forecast values by the end of their pricing determination period.

In particular we note that:

- ▼ Sydney Water continues to maintain high levels of service performance in all its areas of activities and made significant improvements in relation to the number of customers experiencing water pressure below standard in 2009/10
- ▼ Hunter Water has significantly improved its service performance in recent years, particularly in reducing the number and the duration of unplanned service interruptions.

The report highlights differences between the performance of the water utilities of Gosford and Wyong Councils which are being consolidated to form the Central Coast Water Corporation by mid 2013. Currently, we do not regulate the operational performance of these Councils (see section 2.4 of this report for details). However,

the information in this report will assist us in the development of a new operating licence to regulate the combined activities of the new Corporation.

In recent price determinations, IPART has made the difficult decisions to increase prices above inflation in recognition of increases in the level of efficient costs of the water utilities. The report highlights the implicit trade off between the communities' and Government's desires to improve operational performance and their concern about increasing price levels. Further improvements in performance levels will eventually require further increase in expenditure resulting in higher prices to customers. Our role in this process is to make that trade off transparent and to ensure that decisions about performance improvement are subject to review. In our pricing determinations and license reviews IPART therefore tries to balance arguments for further improvements against an assessment of customers' willingness to pay for these higher standards and an assessment of the costs and benefits of government standards and policy.

The sections below summarise our key findings on each of the performance areas we reviewed for the 2009/10 reporting period.

1.1.1 Drinking water quality

All 4 of the metropolitan retail water utilities continued to provide a high standard of drinking water quality to end customers over the reporting period. Each of these utilities fully complied with the *Australian Drinking Water Guidelines 2004*. In addition, the level of complaints they received from customers about the quality of water supplied remained low, ranging from 0.7 complaints per 1,000 properties (for Sydney Water) to 39 complaints per 1,000 properties (for Gosford Council).

1.1.2 Water and sewerage service continuity and reliability

Both Sydney Water and Hunter Water continued to meet their licence conditions for water continuity, water pressure and sewerage overflows. However, their performance against the NWI indicators related to the infrastructure used to provide water supply and sewerage services was mixed, as was that of Gosford Council and Wyong Council.

Continuous water supply

Sydney Water and Hunter Water both improved their performance in maintaining continuous water supply in 2009/10:

- ▼ Sydney Water's number of unplanned water interruptions per 1,000 properties fell by 6% compared over the reporting period, down to 189 per 1,000 properties. This was slightly above the average frequency of unplanned interruptions for utilities in its category nationwide.

- ▼ Hunter Water's number of unplanned water interruptions per 1,000 properties also fell by 6%, to 255 unplanned interruptions per 1,000 properties. But despite this improvement, this was the highest frequency recorded by utilities in its category.

Wyong Council maintained the same level of performance in this area as the previous year – with 61 unplanned water interruptions per 1,000 properties. This was the lowest frequency recorded by utilities in its category. However, Gosford Council's performance deteriorated. Its number of unplanned interruptions was 239 per 1,000 properties, which was the highest frequency in its category nationwide. This performance is worse than it was in the previous 2 years, but better than it was in 2005/06 and 2006/07.

Water pressure

Sydney Water's performance against its water pressure standard improved significantly. The number of properties in its supply area that experienced an incidence of water pressure failure in 2009/10 was 36, compared to 1,093 in the previous year, and its operating licence standard of 15,000. Sydney Water reports that these pressure incidents were caused by capacity issues, not abnormal operations. Hunter Water's performance in this area was the same as in 2008/09, and was also well below its operating licence standard.

Water losses due to leakage

Sydney Water's real water losses due to leakage fell by 10% compared to last year, and were well below its operating licence target of 105ML/day for 2009/10. Hunter Water's real water losses also fell by 6.4%. Nevertheless, both utilities' performance in this area was lower than the average for utilities in their category nationwide.

Both Gosford Council's and Wyong Council's water losses from leakage increased compared to last year, but were still lower than the national average for utilities in their category.

Sewerage service continuity and reliability

Both Sydney Water and Hunter Water met the standard for sewage overflows on private property in their licences. However, Sydney Water's performance against the NWI performance indicator for sewerage service availability – an average duration of sewerage service interruptions of 238 minutes – was lower than the average for its category. In comparison:

- ▼ Hunter Water reported no interruption to normal sewerage services, which not surprisingly made it one of the best performers in this area in its category.
- ▼ Gosford and Wyong Councils reported interruptions with an average duration of 161 and 150 minutes respectively, both of which were higher than the national average of 128 minutes for utilities in their category.

1.1.3 Environmental impact

The 4 metropolitan retail water utilities are licensed by the Office of Environment and Heritage (OEH)³ to discharge limited amounts of pollutants to land or waters. As a condition of these licences, they are required to treat the sewage they discharge to specified levels. To monitor their other environmental impacts, they must report on indicators related to their consumption of electricity, emissions of greenhouse gases, and reuse of biosolids (among other things).

Treated sewage (effluent) discharged

Sydney Water and Hunter Water achieved 97% and 95% compliance respectively with their licence requirements for treatment of effluent discharged. Non-compliances with these requirements are assessed on a case-by-case basis and may incur different levels of penalties depending on the severity of the offence. In 2009/10:

- ▼ Sydney Water reported some minor non-compliances – which were mainly due to overflows, missed samples and concentration limits being exceeded – but received no penalty notices
- ▼ Hunter Water also reported some minor non-compliances due to missed samples and concentration limits exceeded, and also received no penalty notices.

Gosford Council and Wyong Council achieved 100% compliance with their licence requirements.

Electricity consumed

Compared to last year, Sydney Water used 2.8% more electricity per megalitre (ML) of water supplied (283.7 kilowatt hour (kWh)), and the same amount per ML of sewerage treated (484.8 kWh).

Hunter Water's used 3.3% more electricity per ML of water supplied (503 kWh) and 12.6% more per ML of sewerage treated (677 kWh). Its performance in this area is considerably lower than Sydney Water's, but this is largely attributable to differences between the utilities' services and operating environment.

Net greenhouse gas emissions

Sydney Water reported the lowest net greenhouse gas emissions per 1,000 properties among the 4 utilities. It produced 164 net tonnes of carbon dioxide (CO₂) per 1,000 properties in 2009/10, down 18% compared to the previous year. In comparison, Hunter Water produced 448 net tonnes per 1,000 properties (up 9%), and Gosford Council produced 482 net tonnes (up 10%). Wyong Council did not report on its

³ The Office of Environment and Heritage (OEH) was formally known as The Department of Environment, Climate Change and Water (DECCW)

emissions. The difference in the utilities' emissions may be partly explained by differences in the treatment technologies they use and/or the pumping requirements of their networks.

Reuse of biosolids

Sydney Water, Gosford Council and Wyong Council continued to reuse 100% of the biosolid waste from their sewage treatment processes. Hunter Water reused 104% of its biosolid waste. This included biosolids stockpiled from the previous year, in addition to all the dewatered solids produced in 2009/10 which was suitable for land application.

1.1.4 Water recycling

Sydney Water, Hunter Water and Gosford Council increased the amount of recycled water they supplied, measured both as ML per annum and as a percentage of the total volume of treated sewage they discharged. In contrast, Wyong Council decreased the percentage and the volume of treated sewage it recycled compared to last year. Wyong Council suggests that this may be due to the lessening of drought conditions in its area of operations, which reduced its customers' demand for recycled water.

1.1.5 Complaints handling

Overall, the number of customer complaints the 4 retail water utilities received per 1,000 properties continued to be low in 2009/10, and we consider their complaints handling performance is reasonable:

- ▼ Sydney Water received 4 water and sewerage complaints per 1,000 properties, which is 32% lower than the previous year.
- ▼ Hunter Water received 8.2 water and sewerage complaints per 1,000 properties, which is 14% more than in the previous year.
- ▼ Gosford Council only reported on the number of water quality complaints, which as noted above, was 39 per 1,000 properties, and was considerably higher than received by any of the other 3 utilities.
- ▼ Wyong Council received 21 water and sewerage complaints per 1,000 properties, which is the same as last year.

1.1.6 Expenditures, revenue and sales

We compared the actual performance of each of the 4 metropolitan retail water utilities and the Sydney Catchment Authority in terms of expenditure, revenues and sales to the forecasts we used in determining their prices. In this context, variations in a utility's annual performance are less relevant than its performance over the length of its determination period (which range from 3 to 4 years).

A significant factor on the performance of the 5 utilities was the impact of the recent drought. Even in the Hunter, where drought restrictions were not introduced, major projects such as the Balickera pump station upgrade and the upgrade of connection between the Hunter and Central Coast water supply systems were undertaken.

Expenditures on operating and capital costs

Sydney Water's average operating expenditure was slightly lower than the forecast for this expenditure. However, on average, Hunter Water, Gosford Council, Wyong Council and the Sydney Catchment Authority have all expended more on operating costs than forecast when their prices were set. Wyong Council experienced the greatest variation, largely because the forecast operating costs used in making its price determination did not foresee the introduction of contingency schemes that were required as the drought progressed.

On average, Sydney Water, Hunter Water and Gosford Council have expended more on capital costs than forecast. In general, this is because they decided to bring forward investments to respond to drought after we had made their price determinations. However, the Sydney Catchment Authority's average actual capital expenditure is less than forecast, due to the NSW Government's decision to not proceed with a major capital works program allowed for in its determination.

Water sales

Sydney Water's average actual water sales were lower than the forecast sales used in making their price determinations. This was largely because water restrictions remained in place longer than assumed in making the forecast. The actual sales of the other retail utilities were also lower than forecast, but were within 10% of the forecast. The Sydney Catchment Authority's sales were 10.9% lower than forecast on average.

1.1.7 Progress in major projects

Sydney Water completed 3 large capital projects during 2009/10: the construction of Sydney Desalination Plant, the upgrade of the North Head Sewage Treatment Plant to cater for projected growth, and the large program of works to decrease sewage overflows.

Hunter Water is on track to meet most of its capital works targets. However, one of the major projects it planned – the construction of Tillegra Dam – will not go ahead due to the NSW Government’s decision not to proceed with the dam.

Gosford Council and Wyong Council are undertaking a number of projects to help increase the security of their water supplies, and report that construction of one of these projects – the Mardi to Mangrove link – is due for completion in mid 2011.

1.2 Structure of this report

The next section of this report outlines the context for this performance review, and the approach we used to conduct the review. The subsequent sections discuss our findings on the utilities’ performance over the 2009/10 reporting period in detail:

- ▼ Section 3 focuses on drinking water quality
- ▼ Section 4 discusses the continuity and reliability of their water supply and sewerage services, and the performance of the infrastructure they use in providing these services
- ▼ Sections 5 and 6 discuss their environmental outcomes and water recycling
- ▼ Section 7 looks at complaints handling
- ▼ Section 8 compares the 4 retail utilities’ and The Sydney Catchment Authority’s forecast and actual revenue and sales, and their progress in implementing projects.

2 Approach and context for this review

As Chapter 1 indicated, this review examines the performance of the 4 metropolitan retail water utilities in NSW – Sydney Water, Hunter Water, Gosford Council and Wyong Council – and (to a limited extent) the bulk water utility, the Sydney Catchment Authority. The sections below explain the approach we used to conduct this review, including the data we relied on, and provide some important contextual information on the utilities we reviewed.

2.1 Our approach and data sources

IPART is responsible for administering the operating licences of Sydney Water and Hunter Water. As part of this role, we conduct regular audits of their performance against the range of water quality, service standards, demand management and environmental performance requirements set out in their licences. We also collect data on their performance against the National Water Initiative (NWI) indicators, which are used to benchmark the performance of all Australian water utilities against others within their category.⁴ We have used the results of our audits and the NWI data to review their performance, and compare it to each other's and to the average performance for water utilities in their category (urban utilities with more than 100,000 customers).

We do not currently audit the operating performance of Gosford Council and Wyong Council.⁵ However, these councils are in the process of establishing the Central Coast Water Corporation, which will eventually hold a licence that will be regulated by IPART. In the interim, we have used data on their performance against the NWI indicators to compare their performance to that of each other, Sydney Water and Hunter Water, and to the average performance for water utilities in their category (urban utilities with between 50,000 and 100,000 customers).

⁴ See footnotes 1 and 2 on p 1 of this report for more information.

⁵ These water utilities are currently regulated by the NSW Office of Water (NOW).

We are also responsible for regulating the prices that these 4 retail water utilities and the Sydney Catchment Authority can charge their customers. To make our price determinations, we forecast their expenditures, revenues and sales over the determination period. We also establish the output measures they are expected to meet over the determination period, given the amount of capital expenditure we allowed for in setting prices. We have compared each utility's actual performance against these forecasts and output measures.

Note that while we also administer the Sydney Catchment Authority's operating licence, audit its performance against the conditions in this licence, and collect data on its performance against the NWI indicators, we have not used this data to compare its performance with that of the retail water utilities. This is because the nature of its business operations is too different from that of the retail utilities for such comparisons to be valid.

2.2 The utilities we reviewed

There are significant differences between all 5 of the water utilities we have reviewed, including differences in their operating environments, services and size. As noted above, the Sydney Catchment Authority's differences are so significant it is not possible to compare its performance to that of the retail water utilities. Although we are confident that we can compare the 4 retail utilities' performance to each other's, it is important to understand and take account of their differences in interpreting our findings.

In particular, it is important to note that we have not adjusted our findings to smooth out these differences. For example, when comparing the energy used by Sydney Water and Hunter Water, we have not excluded the energy used by Hunter Water's bulk water operations, even though Sydney Water does not use energy for this purpose (as it purchases most of its bulk water from the Sydney Catchment Authority). However, where possible, we have noted when such differences are likely to account for some or all of the difference in their performance.

Tables 2.1 & 2.2 highlight some of the key differences in the services the 5 utilities provide, and in the size of the 4 retail utilities' operations and customer bases. The following sections provide a brief overview of each utility and its operating environment.

Table 2.1 Services provided by each utility included in this review

Services	Sydney Catchment Authority	Sydney Water	Hunter Water	Gosford Council	Wyong Council
Bulk water storage	√	X	√	Via joint water supply arrangements with Wyong	Via joint water supply arrangements with Gosford
Water treatment	X	√	√	√	√
Water distribution	X	√	√	√	√
Water retail	X	√	√	√	√
Sewerage retail	X	√	√	√	√
Sewerage distribution	X	√	√	√	√
Sewerage Treatment and disposal	X	√	√	√	√
Recycling	X	√	√	√	√
Stormwater services	X	For defined areas only	For defined areas only	√	√

Table 2.2 Size of each retail utility's operations and customer base as at 30 June 2010

	Sydney Water	Hunter Water	Gosford Council	Wyong Council
Total connected properties – water supply	1,772,000	225,000	70,000	60,000
Length of water mains, km	21,015	4,857	1,014	1,145
Total urban water supplied ML ^a	515,903	73,449	14,054	18,391
Total connected properties – sewerage	1,724,000	213,000	69,000	59,000
Length of sewerage mains and channels, km	24,022	4,667	1,323	1,201
Total sewage collected, ML	464,237	55,481	12,835	13,980

^a Note Urban Water supplied includes both drinking and recycled water.

Source: Australian Government National Water Commission & Water Services Association of Australia, *National Performance Report 2009-10*.

2.2.1 Sydney Water

Sydney Water is a State Owned Corporation, wholly owned by the NSW Government. Its primary role is to provide drinking water supply and sewage treatment to protect public health and the environment for the benefit of residents in

Sydney and surrounding urban areas. These roles and responsibilities are derived from the *Sydney Water Act 1994* and the operating licence issued to Sydney Water pursuant to Part 5 of the Act.

Sydney Water is Australia's largest water utility with an area of operation covering 12,700 km², a customer base consisting of more than 4 million people and a large number of multiple occupancy properties. Its operations include:

- ▼ 10 water filtration plants
- ▼ 171 pumping stations
- ▼ 265 storage reservoirs
- ▼ 29 sewerage treatment plants (comprising of 6 primary plants, 2 secondary plants, and 8 tertiary plants)
- ▼ the Sydney Desalination Plant, which extracts fresh water from seawater up to a maximum capacity of 250 ML a day to 1.5 million people in Sydney
- ▼ recycled water plants at Rouse Hill and St Marys
- ▼ 21,015 km of water mains
- ▼ 24,022 km of sewer mains
- ▼ 443 km of stormwater channels.

Sydney Water purchases bulk water from the Sydney Catchment Authority and until recently did not operate its own bulk water sources.⁶ As a consequence, Sydney Water did not have the same operating costs, capital expenditure, energy use and environmental obligations related to bulk water supply sources as the other 3 retail utilities. This factor needs to be taken into consideration when comparing the operating costs, capital expenditures, energy consumptions and greenhouse gas emissions data presented in this report.

2.3 Hunter Water

Hunter Water is a State Owned Corporation, wholly owned by the NSW Government. Its roles and responsibilities include providing water and sewerage services to the Newcastle, Lake Macquarie, Maitland, Cessnock, Dungog and Port Stephens areas, and bulk water services to parts of the Singleton and Great Lakes areas and the Central Coast. These roles are derived from the *Hunter Water Act 1991* and the operating licence issued to Hunter Water pursuant to Section 12 of the Act.

⁶ Sydney Water's Desalination plant (which can supply up to 15% of Sydney Water's bulk water supplies) commenced operation in January 2010.

Hunter Water's area of operation covers 6669 km² including Dungog, with 224,845 properties connected to the water network and 213,023 properties connected to the sewerage network.⁷ Its operations include:

- ▼ 2 dams
- ▼ the Hunter-Central Coast Pipeline, which transfers up to 12,000 ML of water per year from the Hunter to the Central Coast
- ▼ 6 water filtration plants
- ▼ 123 water pumping stations
- ▼ 404 wastewater pumping stations
- ▼ 18 sewerage treatment plants
- ▼ 85 water service reservoirs
- ▼ 4857 km of water mains
- ▼ 4,667 km of sewer mains
- ▼ 94 km of stormwater channels.

Unlike Sydney Water, Hunter Water is a fully vertically integrated utility operating the entire system from catchment and source to sewage disposal and recycling. Hunter Water states that the bulk water supply activities it undertakes have a bearing on some of the comparative indicators presented in this report. For example, its energy use and greenhouse gas emissions are higher due to the amount of energy used to pump river water into off-river storage and to extract groundwater.

2.4 Gosford Council and Wyong Council

Currently, both Gosford Council and Wyong Council are designated as Water Supply Authorities under the *Water Management Act 2000*. However, together they are in the process of establishing the Central Coast Water Corporation. We will regulate this new utility via a new operating licence once the new Corporation becomes operational (anticipated on 1 July 2013).

The city of Gosford covers an area of 1,029 km², stretching east to the Tasman Sea, south to the Hawkesbury River, west to the George Dowling Range, and north to meet the Cessnock and Wyong Shires on a border through Kulnura, Lisarow and Forresters Beach. Wyong Shire covers an area of 820 km². The shire extends from near Gwandalan in the north, to Ourimbah in the south and from the Pacific Ocean to the hills beyond the Yarramalong Valley.

Throughout the period reviewed in this report, the customers of Gosford and Wyong Councils have been subject to drought restrictions. As at April 2011, restrictions were still in place.

⁷ Correspondence from Hunter Water to IPART 16 May 2011.

The councils have a long-standing agreement to construct, operate, maintain and share the cost of the head works system components serving each council's water distribution system. The joint water supply system serves an urban population of nearly 315,000 people. Their joint operations include:

- ▼ 2 water treatment plants
- ▼ 3 dams
- ▼ 3 weirs
- ▼ 4 major pumping stations
- ▼ 40 storage reservoirs
- ▼ 1,900 km of pipelines
- ▼ the Hunter and Gosford-Wyong regional water sharing project, which involves the construction of a pipeline between the Hunter and Gosford-Wyong water supply systems capable of transferring 20 ML per day.

In addition, Gosford Council's operations include:

- ▼ 1 water filtration plant
- ▼ 1 pumping station
- ▼ 2 sewerage treatment plants (both secondary plants).

Wyong Council's operations include:

- ▼ 1 water filtration plant
- ▼ 3 pumping stations
- ▼ 6 sewerage treatment plants.

2.5 Sydney Catchment Authority

The Sydney Catchment Authority is a Statutory Corporation, wholly owned by the NSW Government. Its primary role is to manage and protect the catchment areas and infrastructure and to supply bulk water services. These roles and responsibilities are services from the *Sydney Water Catchment Management Act 1998* and the operating licence issued to the Sydney Catchment Authority. Its operations include managing:

- ▼ its catchment area of 16,000 km²
- ▼ 21 storage dams (11 of which are major dams), with a total storage capacity of 2,581,850 ML
- ▼ the Upper Canal, which is a major water conduit that transfers water from the Sydney Catchment Authority's Upper Nepean storages to Prospect Reservoir. The Upper Canal comprises 64 km of tunnels, canals, and aqueducts that rely on gravity to transfer water.

Sydney Water purchases 99% of the water that the Sydney Catchment Authority supplies. The Sydney Catchment Authority also supplies 2 local councils and a small number of retail customers.

3 Drinking water quality

All 4 metropolitan water utilities are required to ensure that the drinking water they supply meets the quality standards set out in the *Australian Drinking Water Guidelines 2004*, including specific chemical and microbial requirements (see (Box 3.1). We assessed their performance in this area by examining their compliance with these Guidelines (as a percentage of properties supplied) and the number of customer complaints they received in relation to water quality. The sections below summarise our findings, and then discuss them in more detail.

3.1 Summary of findings on drinking water quality

In 2009/10, all 4 utilities continued to supply high quality drinking water quality, and received a low level of customer complaints about water quality- ranging from 0.7⁸ to 39 complaints per 1,000 properties supplied.

Box 3.1 Australian Drinking Water Guidelines 2004

The Australian Drinking Water Guidelines are intended to provide a framework for good management of drinking water supplies that, if implemented, will assure safety at point of use. They include 2 different types of guideline value:

- ▼ a health-related guideline value, which is the concentration of a water quality characteristic that, based on present knowledge, does not result in any significant risk to the health of the consumer over a lifetime of consumption
- ▼ an aesthetic guideline value, which is the concentration of a water quality characteristic that is associated with acceptability of water to the consumer, e.g. appearance, taste and odour.

The microbial and chemical requirements referred to in this chapter are health-related guideline values.

⁸ Correspondence from Sydney Water to IPART received 1 April 2011.

3.2 Level of compliance with Australian Drinking Water Guidelines

In 2009/10, all 4 utilities achieved full compliance with the microbial and chemical requirements in the Australian Drinking Water Guidelines in 2009/10, as they did in the last 3 years.

The drinking water they supplied to customers met the health-related guideline values prescribed in the Guidelines with respect to microbial concentrations (eg, of *E. coli*) and physical and chemical characteristics (eg, turbidity, colour, alkalinity, disinfectant residuals and concentrations of a number of metal ions and chemicals).

3.3 Number of customer complaints about water quality

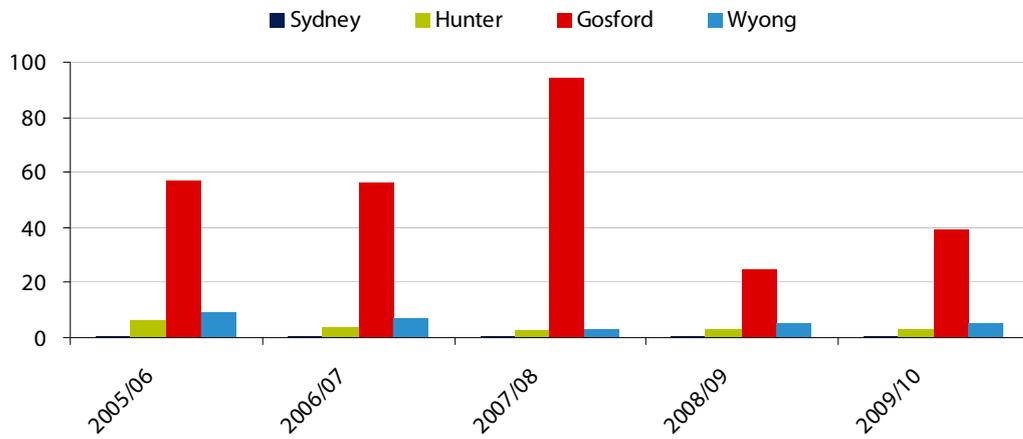
All 4 utilities received a fairly low number of customer complaints about water quality in 2009/10 (Figure 3.1):

- ▼ Sydney Water received 0.7 water quality complaints per 1,000 properties supplied.⁹ This was the lowest recorded for utilities in its category nationwide.
- ▼ Hunter Water and Wyong Council received 3 and 5 complaints per 1,000 properties respectively, which is the same as last year. Hunter Water and Wyong Council both reported that most complaints related to dirty water. Wyong Council further advised that these complaints arose from main breaks and flushing programs that had led to short-term sediment disturbance.
- ▼ Gosford Council received the highest number of complaints among the 4 metropolitan utilities – 39 per 1,000 properties in 2009/2010. This is an increase of 56% or 14 complaints per 1,000 properties compared to last year. Gosford Council reported that this is largely due to a higher level of discoloured water complaints, stemming from several specific discoloured water events.¹⁰ It also reported that it has now developed and implemented a water quality program designed to systematically enhance water supply infrastructure, system operation, maintenance and management procedures and customer service. It indicated that since 2009/10 there has been a significant reduction in water quality complaints, with the 2010/11 result forecast to be in the order of 10 complaints per 1000 properties.

⁹ Water Services Association of Australia, National Water Commission and the NWI Parties, *National Performance Report 2009*, April 2011.

¹⁰ The causes of the discoloured water include extended drought, source water chemistry, treatment process limitations (no manganese removal), unlined infrastructure, pipe and valve failures and demand fluctuations.

Figure 3.1 Water quality complaints per 1,000



4 Water and sewerage service continuity and reliability

Sydney Water and Hunter Water are required by their operating licences to meet standards related to the continuity and reliability of water and sewerage services. These include standards on water supply continuity, water pressure and sewerage overflows on private property. In addition, all 4 utilities are required to report against a range of NWI indicators related to the performance of the infrastructure they use to provide these services – including:

- ▼ the frequency and duration of unplanned water supply interruptions
- ▼ the number of water main breaks per 100km of water main
- ▼ real water losses due to leakages from the water supply system
- ▼ the number of sewer main breaks and chokes per 100km of sewer mains, and
- ▼ the duration of sewerage service interruptions.

We compared the performance of Sydney Water and Hunter Water against the standards in their licence and each other.¹¹ We reviewed the performance of all 4 utilities against the NWI indicators, and compared them to national benchmarks for water utilities in their category. The sections below summarise our findings, and then discuss the performance of Sydney Water and Hunter Water against the service standards in their licences, and of all 4 utilities against the NWI indicators in detail.

¹¹ It should be noted that in July 2010 both Sydney Water and Hunter Water's system performance standards were amended.

4.1 Summary of findings water and sewerage service continuity and reliability

Both Sydney Water and Hunter Water met their licence standards for water continuity, water pressure and sewerage overflows. However, their performance against the NWI indicators was mixed, as was the performance of the 2 councils:

- ▼ Sydney Water's number of unplanned water interruptions decreased from 200 per 1,000 properties in 2008/09 to 189¹² in 2009/10, which was slightly higher than the average for urban utilities in its category nationwide. Its number of water main breaks per 100 km of main also decreased, and was comparable to the average for urban utilities in its category. However, its water loss rates due to leakage were slightly higher than the national average. Its number of sewer main breaks and chokes per 100 km of main increased from 51 in 2008/09 to 56 in 2009/10, but the duration of its sewerage service interruptions was similar to last year.
- ▼ Hunter Water's number of unplanned water interruptions decreased (from 271 per 1,000 properties in 2008/09 to 255 in 2009/10), but remained the highest of all utilities in its category nationwide. Its number of water main breaks was similar to last year, and was higher than the average of utilities in its category, as was its water loss rates due to leakage. Its number of sewer main breaks and chokes decreased significantly (from 88 sewer main breaks and chokes per 100 km of main in 2008/09 to 58 in 2009/10) but was still above the national average (45). Due to the design of its sewerage system, these incidents did not result in sewerage service interruptions.
- ▼ Gosford Council reported 239 unplanned water interruptions per 1,000 properties with the average duration of 230 minutes, which was the highest number among utilities in its category. Its number of sewer main breaks and chokes decreased compared to last year, but was still higher than the national average for utilities in its category. The duration of its sewerage service interruptions increased (from 116 minutes in 2008/09 to 161 in 2009/10) and was slightly higher than the national average for utilities in its category (128 minutes). Gosford Council believes that recording a high number of chokes is not necessarily a reflection of poor performance (as increasing proactive maintenance is likely to increase the number of chokes identified).
- ▼ Wyong Council's 61 unplanned water interruptions per 1,000 properties was the lowest number among utilities in its category.¹³ Its number of sewer main breaks and chokes per 100km of mains decreased, as did the duration of sewerage service interruptions. However, its performance against these 2 sewerage indicators was still worse than the average for utilities in its category.

¹² Correspondence from Sydney Water to IPART received 1 April 2011.

¹³ Water Services Association of Australia, National Water Commission and the NWI Parties, *National Performance Report 2009*, April 2011.

4.2 Licence requirements for water continuity

Both Sydney Water and Hunter Water continued to meet their licence requirements in relation to water supply continuity in 2009/10. Both also improved their performance in this area compared to last year (Figure 4.1).

Sydney Water's operating licence requires it to respond to and stop the loss of water from any faults within prescribed time. This requirement has the potential to put pressure on its water continuity performance and costs. In this regard, Sydney Water's operating licence requires that it ensure:

- ▼ no more than 32,000¹⁴ properties experience a planned water interruption exceeding 5 hours in a financial year, and
- ▼ no more than 35,000¹⁵ properties experience an unplanned water interruption exceeding 5 hours in a financial year.

In 2009/10, it reported that 12,666¹⁶ properties had experienced planned water interruptions greater than 5 hours, and 21,050¹⁷ properties had experienced unplanned water interruptions greater than 5 hours. The total number of properties that experienced an interruption greater than 5 hours is equivalent to 19 per 1,000 properties in its area of operation, which is around 9% less than in 2008/09.

Hunter Water's operating licence requires that it ensure no more than 14,000 properties in a financial year experience one or more planned or unplanned water interruptions which taken together have a total duration exceeding 5 hours. In 2009/10, it reported that 7,163¹⁸ properties had experienced such interruptions. This is equivalent to 32 per 1,000 properties in its area of operation, which is 22% lower than in 2008/09. Hunter Water attributed its improved performance to the effectiveness of its water main replacement program, its commitment to minimising the number of properties affected by planned works, and favourable weather patterns over the period, which resulted in lower water demands and less ground movement, and thus less water main breaks.

¹⁴ Sydney Water Corporation, *Operating Licence Compliance Report: Annual Report 2009-10*, September 2009, p 8.

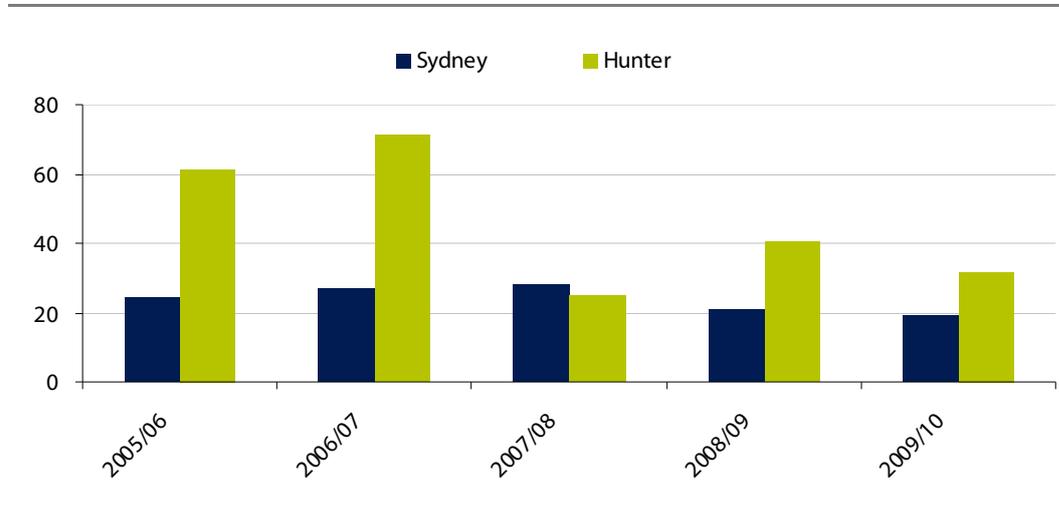
¹⁵ Sydney Water Corporation, *Operating Licence Compliance Report: Annual Report 2009-10*, September 2009, p 9.

¹⁶ Sydney Water Corporation, *Operating Licence Compliance Report: Annual Report 2009-10*, September 2009, p 8.

¹⁷ Sydney Water Corporation, *Operating Licence Compliance Report: Annual Report 2009-10*, September 2009, p 9.

¹⁸ Hunter Water *Service Quality and System Performance Report 2009-10*, p 29.

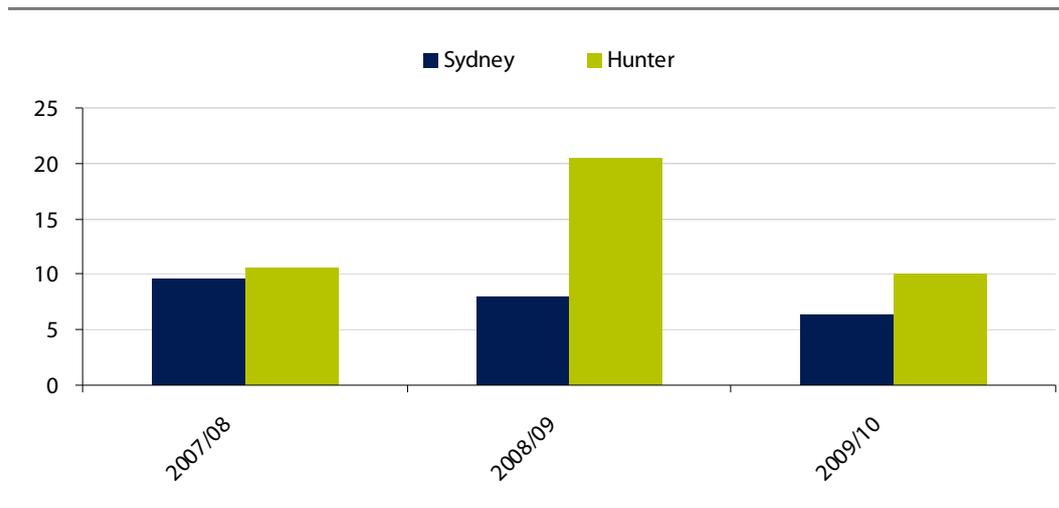
Figure 4.1 Number of customers per 1,000 properties that experienced 1 or more planned or unplanned water interruptions in a financial year that exceed 5 hours in total



Sydney Water’s and Hunter Water’s licences also require them to report on the number of customers affected by multiple unplanned interruptions (Figure 4.2). Sydney Water reported that in 2009/10, 11,278 properties in its area of operation experienced 3 or more unplanned water interruptions. This represents 6.4 properties per 1,000 connected properties, which is 21% lower than in 2008/09.

Hunter Water reported that 2,282 properties experienced 3 or more unplanned interruptions. This represents 10 properties per 1,000 connected properties in its area of operation, a decrease of 50% from 2008/09.

Figure 4.2 Number of properties which experienced 3 or more unplanned water interruptions in a financial year, per 1,000 water supply connections



4.3 Licence requirements for water pressure

Both Sydney Water and Hunter Water met their licence requirements for water pressure in 2009/10.

Sydney Water's operating licence requires that it ensure that no more than 15,000 properties experience a water pressure failure in a financial year. A property in Sydney Water's area of operations is deemed to have experience a water pressure failure if it experiences pressure of less than 15 metres head (measured at the point of connection or "main tap") for a continuous period of 15 minutes or more.

Sydney Water reported that 14 properties experienced an occasional or recurrent water pressure failure, and 22 properties experienced permanent low pressure in 2009/10. A total of 36 properties were affected, compared to 1,093 properties in the previous year. This total represents less than 0.01% of all connected properties, and is well below the licence limit of 15,000 properties. According to Sydney Water, all low pressure incidents in 2009/10 were due to capacity issues, not abnormal operations.

Consistent with the significant fall in the total number of properties that experienced water pressure failures, the number of customer complaints related to low water pressure Sydney Water received also fell. This number decreased by 16%, from 55 in 2008/09 to 46 in 2009/10.

Hunter Water's operating licence requires that it ensure that no more than 4,800 properties experience water pressure below 20 metres head (measured at the point of connection to Hunter Water's main) for a continuous period of 30 minutes or more. In 2009/10, it reported that 1,657 properties¹⁹ had experienced water pressure below this level. This is equivalent to around 0.8% of all connected properties, which is same as the proportion of affected properties in 2008/09 and very similar to the proportion in previous years.

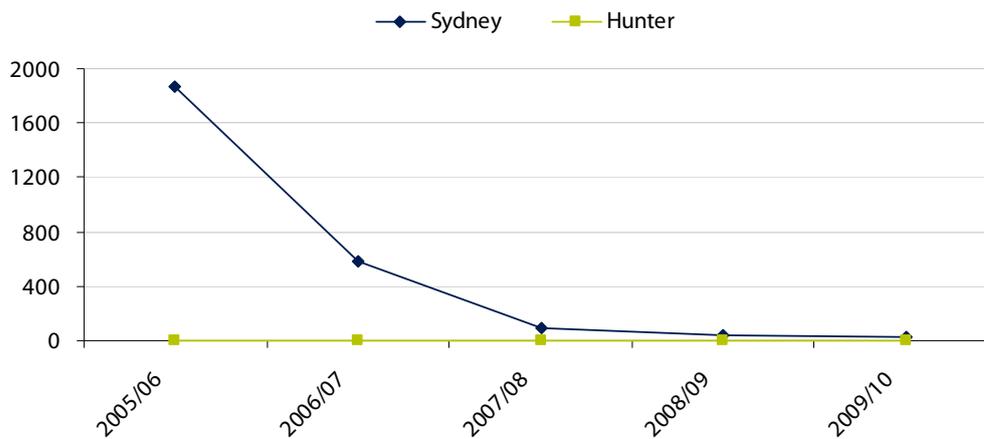
Both Sydney Water and Hunter Water are also required to report on the number of properties not located in a known low pressure area that experienced multiple low pressure incidents in a financial year (Figure 4.3). Sydney Water's data indicate that in its area of operation, this number has been trending downward for several years – from 1,865 properties in 2005/06 to 22 properties in 2009/10. Hunter Water's data indicate that in its area of operation, no properties outside a known low pressure area have experienced more than one low pressure incident since 2006/07.

¹⁹ This data excludes Dungog assets, which were transferred to Hunter Water from 1 July 2008. This exclusion allows Hunter Water to bring the transferred assets and operations to the standards consistent with the remainder of its business. Hunter Water will include Dungog in its report from 2010/11.

Known low pressure areas include:

- ▼ areas designated as permanently below 20 metres (due to historical design standards), and
- ▼ areas that may have fallen below 20 metres (based on computer modelling) under prevailing water demands during the licence period.

Figure 4.3 Number of properties not located in a low pressure area that experienced more than 1 pressure incidents in a financial year



4.4 Frequency of unplanned interruptions to water supply services

All of the utilities except Gosford Council maintained or improved their performance in terms of the frequency of unplanned interruptions to their water supply services (Figure 4.4).

Sydney Water recorded 189 unplanned water interruptions per 1,000 properties in 2009/10, which was 6% lower than in the previous year (200 per 1000 properties). However, this frequency is still higher than the average of 160 per 1,000 properties for water utilities in its category nationwide.²⁰

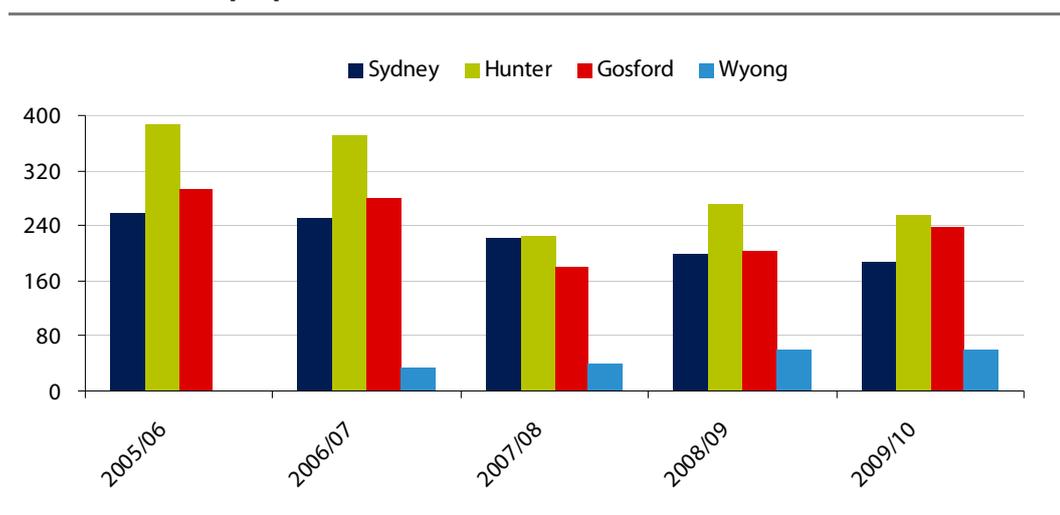
Hunter Water recorded 255 unplanned interruptions per 1,000 properties, which was 6% lower than in 2008/09, and considerably lower than in 2005/06 (387) and 2006/07 (372). However, this frequency of unplanned interruptions is the highest recorded for utilities in the same category nationally. Hunter Water reports that problems with long trunk mains in some areas of its network may negatively impact many customers at the end of these mains.

²⁰ Water Services Association of Australia, National Water Commission and the NWI Parties, *National Performance Report 2009-10*, April 2011.

Wyang Council reported 61 unplanned water interruptions per 1,000 properties, which was the same as last year and was the lowest among all utilities in its category.²¹

In contrast, Gosford Council reported 239 unplanned water interruptions per 1,000 properties. This was 18% higher than in the previous year but lower than in 2005/06 and 2006/07. It was also the highest frequency of unplanned water interruptions among all utilities in its category nationally, which ranged from 61 to 239, with an average of 110 per 1,000 properties. Gosford Council reports that its performance is significantly influenced by the elevated number of water main breaks caused by high pressures within its water distribution system (necessary due to the topography of its area of operation). It is currently considering opportunities to identify and prioritise additional pressure reduction activities, and has expanded its water main replacement program in an effort to reduce unplanned interruptions.

Figure 4.4 Frequency of unplanned water interruptions (expressed in number per 1,000 properties)



4.5 Average duration of unplanned interruptions to water supply services

In terms of the average duration of unplanned interruptions to water supply services, all 4 utilities slightly improved their performance in 2009/10 compared to the previous year (Figure 4.5).

Sydney Water reported that the average duration of unplanned water interruptions in its area of operation was 140 minutes, which was just lower than in 2008/09. This duration is higher than the average for all utilities in its category – which ranged

²¹ Water Services Association of Australia, National Water Commission and the NWI Parties, *National Performance Report 2009-10*, April 2011.

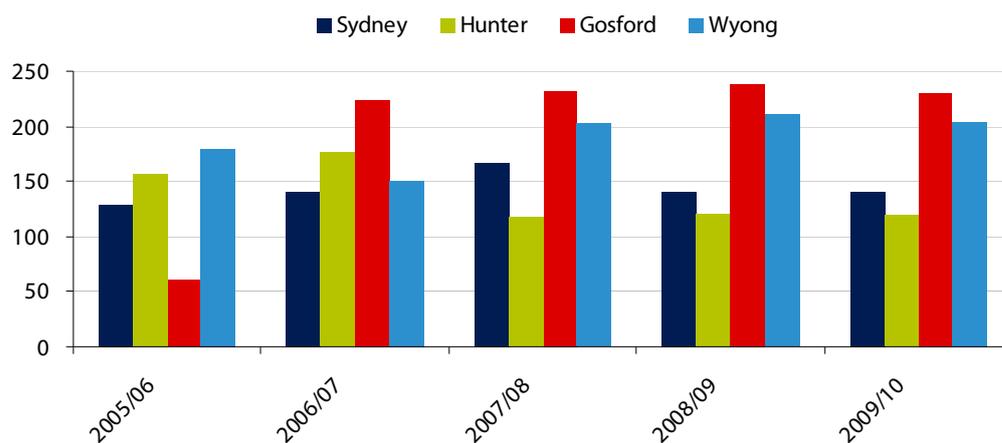
from 82 minutes to 181 minutes, with an average of 123 minutes.²² Sydney Water’s performance for this measure is adversely impacted by its competing Operating Licence requirement to respond to breaks in the water main by shutting off water within specified timeframes. Sydney Water achieved the largest reduction in the average duration of unplanned interruptions to customers (a 16% reduction since 2007/08).

Hunter Water’s average duration of unplanned water interruptions was 119 minutes, which was just below last year (121 minutes). This duration was the shortest among the 4 retail utilities we reviewed, and slightly lower than the average for all utilities in its category nationally.

Gosford Council and Wyong Council reported average durations of unplanned water interruptions of 230 minutes and 204 minutes respectively, both of which are considerably longer than average duration of utilities in its category nationally, which ranged from 71 minutes to 230 minutes with an average of 127 minutes.²³ These results were also much higher than those reported by Sydney Water or Hunter Water. In addition:

- ▼ Gosford Council’s average duration was the longest for all. The council reports that the use of mobile computing in the future will provide better tools for it to measure response and restoration timeframes, and the number of properties affected.
- ▼ Wyong Council’s duration was also longer than the average in its category nationally. It reports that differences in size of utility services areas and hydraulic characteristics of the network impact its “out of service” times.

Figure 4.5 Average duration of an unplanned water interruption (minutes)



²² Water Services Association of Australia, National Water Commission and the NWI Parties, *National Performance Report 2009-10*, April 2011.

²³ Water Services Association of Australia, National Water Commission and the NWI Parties, *National Performance Report 2009-10*, April 2011.

4.6 Number of water main breaks per 100 km of water main

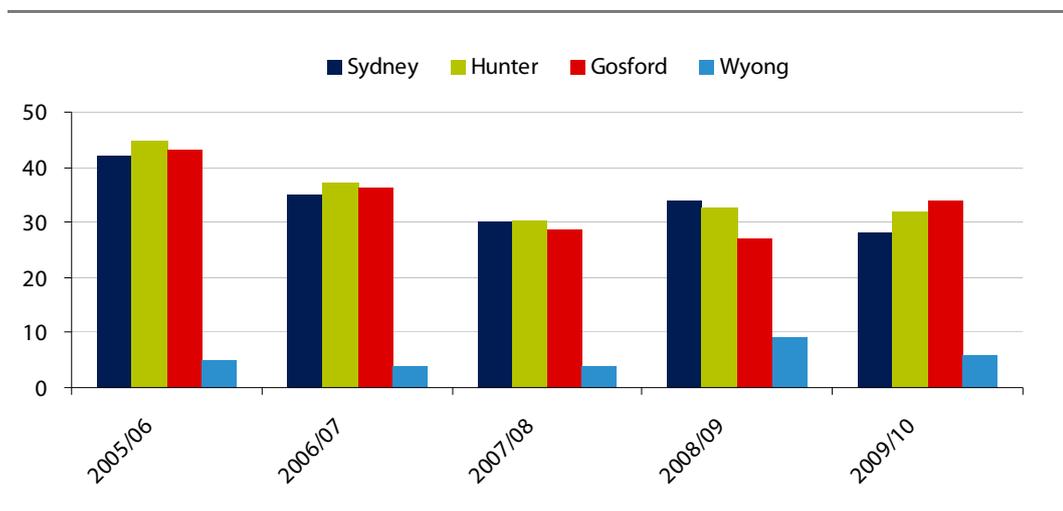
All of the utilities except Gosford Council improved their performance in reducing the number of water main breaks per 100 km of water main in 2009/10 (Figure 4.6). In addition, Wyong Council's performance in this area continued to be considerably better than the other 3 NSW utilities and was the best among all utilities in its category nationally.

Sydney Water reported 28 water main breaks per 100 km of water main, which is an 18% improvement compared to 2008/09 and also the lowest number it has reported in the last 5 years. Hunter Water reported 32 water main breaks per 100 km of water main, which is a 2% improvement compared to last year. However, both these utilities' performance in this area was a little worse than the average for utilities in their category nationwide – which ranged from 13 to 52 breaks per 100 km of water main with an average of 27 breaks. This could reflect the age and configuration of assets owned by these 2 utilities, as well as the volume of water supplied and the number of customers served by these assets.

Wyong Council recorded only 6 water main breaks per 100 km of water main. This is a 33% improvement compared to its performance in the previous year, but in line with its average performance over the past 5 years. It was also the lowest number reported by all utilities in its category nationwide.

Gosford Council's reported 34 breaks per 100 km of water main, which represents a 26% deterioration compared to last year. It is also the highest number reported by utilities in its category nationally, which ranged from 6 to 34 with an average of 20 breaks per 100 km of water main. Gosford Council states that high pressures within its water distribution system increase the likelihood of water main breaks. Gosford Council is considering opportunities to prioritise pressure reduction activities which may reduce main breaks.

Figure 4.6 Number of water main breaks per 100km of water main



4.7 Real water losses due to leakages from the water supply system

Real water losses, expressed in litres of water per service connection per day, refer to losses due to leakage and overflows from water mains, service reservoir and service connections before the customer meter. A utility's performance against this indicator can be influenced by the age and configuration of its water mains, water pressure and water consumption. For example, Sydney Water has stated that it owns a substantial amount of old network assets which require substantial rehabilitation, and as a result has higher leakage rates than other urban utilities. In addition, utilities with a higher average volume of water supplied tend to have higher real losses.²⁴

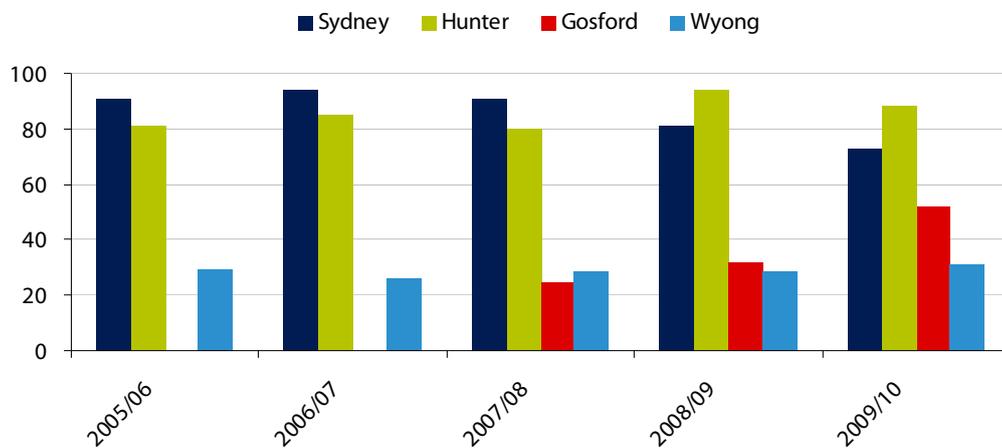
In 2009/10, the real water losses reported by Sydney Water and Hunter continued to be much higher than those of Gosford Council and Wyong Council (Figure 4.7), and higher than the average for utilities in their category nationwide.

Sydney Water's real water losses were 73 litres per service connection per day, which is 10% lower than in the previous year. Hunter Water's real losses were 88 litres per service connection per day, which is 6.4% lower than in the previous year. Despite this, both utilities' performance in this area was less than the average for all utilities in their category nationally, which ranged from 46 and 113 litres per service connection per day, with an average of 70 litres.

Gosford Council's real water losses from leakage were 52 litres per service connection per day in 2009/10, which is a 62.5% increase compared to 2008/09. Wyong Council real water losses were 31 litres per service connection per day, which is a 8% increase compared to 2008/09. Despite these increases, both councils' performance in this area was better than the average for utilities in their category nationally, which ranged from 21 to 162 litres per service connection per day, with an average of 60 litres.

In relation to its large increase in reported real water losses compared to last year, Gosford Council states that these losses are difficult for it to ascertain as it does not have extensive area metering within its distribution system. Therefore, reported annual variations in its performance may not reflect a significant actual variation in performance. To address this issue, it is implementing a program to install additional area meters.

²⁴ National Water Commission, *National Performance Report 2009-10: Urban Water Utilities – Part A Comparative Analysis*, April 2011, p 53.

Figure 4.7 Real water losses due to leakage (litres/service connection/day)

4.8 Licence requirements for sewage overflows on private properties

Both Sydney Water and Hunter Water met their licence requirements related to sewage overflows on private property in 2009/10.

Sydney Water's operating licence requires it to ensure that no more than 25,000 properties (other than public properties) experience an uncontrolled sewage overflow²⁵ in dry weather in a financial year. This number is linked to the number of sewer chokes and is influenced by multiple occupancy properties.

In 2009/10, Sydney Water reported that 17,263 private properties were affected by dry weather uncontrolled sewage overflows. Although this is an increase of nearly 8% compared to 2008/09, it represents only 1% of all connected properties in its area of operation. It is also well below the maximum number specified in the licence. In addition, Sydney Water reported that 61 private properties experienced repeat occurrences of 3 or more uncontrolled sewage overflows. This number represents an 81% improvement compared to 2008/09, and represents less than 0.01% of all connected properties.

Hunter Water's operating licence requires it to ensure that no more than 6,500 uncontrolled sewage overflow events per annum impact on private properties. In 2009/10, it reported 1,585 such events, which is an increase of 38% compared to 2008/09. It also reported that 429 private properties were affected by repeat occurrences of dry weather sewage overflows in 2009/10, which is an increase of 49% compared to the previous year and represents 0.2% of all connected properties. Hunter Water attributes the increase in dry weather sewage overflows to 50% less rainfall for the region compared to that recorded in 2008/09. This resulted in the

²⁵ Uncontrolled sewage overflow means a spill-over of sewage flow from any part of the reticulation system.

drop in soil moisture and caused tree roots to seek water in the sewerage pipe network, thereby creating pipe blockages.

4.9 Number of sewer main breaks and chokes per 100km of sewer mains

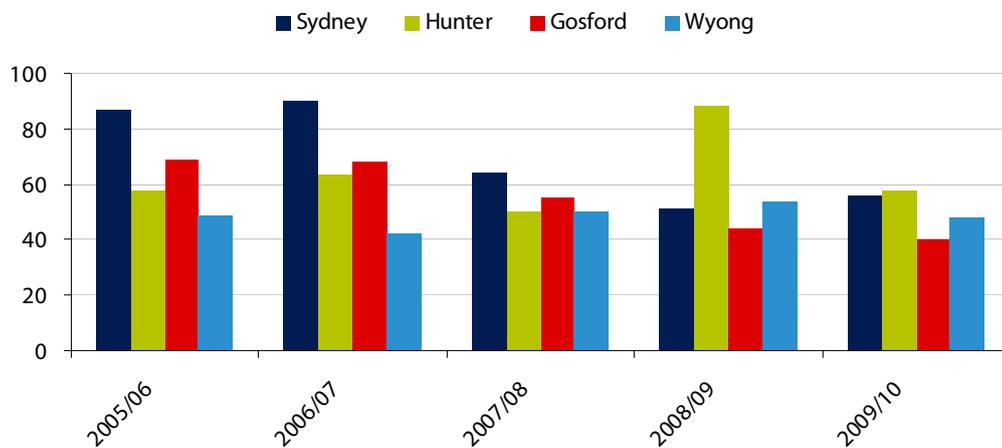
Sydney Water's reported number of sewer main breaks and chokes per 100km of sewer mains increased in 2009/10 compared to the previous year, while the numbers reported by Hunter Water, Gosford Council and Wyong Council decreased (Figure 4.8). However, only Sydney Water's performance in this area was better than the national average for utilities in its category.

Sydney Water reported 56 sewer main breaks and chokes per 100 km in 2009/10, which is 10% more than in 2008/09 but 12.5% less than in 2007/08. In comparison, the number of sewer breaks and chokes reported in 2009/10 by other utilities in its category nationwide ranged from 20 to 105 per 100 km of sewer mains, with an average of 45.²⁶ Sydney Water attributes its improving performance in this area over the last few years to cooler and wetter climatic conditions and its proactive work programs.

Hunter Water reported 58 sewer main breaks and chokes per 100 km in 2009/10, which is a 34% reduction compared with 2008/09, but is still the highest of all 4 NSW metropolitan retail utilities and higher than the national average for utilities in its category. Hunter Water reports that the design of its sewer system means that such breaks and chokes reduce the negative impact on customers (see next section for details).

Gosford Council reported 40 breaks and chokes per 100km of sewer mains in 2009/10 (a 9% decrease compared with 2008/09), while Wyong Council reported 48 breaks and chokes (an 11% decrease from 2008/09). Both councils' performance in this area was worse than the average for utilities in their category, which ranged from 16 to 52 breaks and chokes per 100km of sewer mains, with an average of 29. Gosford Council states that its reported number includes chokes found both reactively (from sewer main discharges) and proactively (during main and manhole inspections), with the latter number being a measure of good system maintenance. Wyong Council states that poorer than average result is due to the increasing age of its sewerage system and the predominate use of vitreous clay pipes, which are susceptible to tree root damage. It also states that it has a program to progressively renew older and tree root affected sewerage mains.

²⁶ Data derived from the *National Performance Report 2009-10*.

Figure 4.8 Number of sewer main breaks and chokes per 100km of sewer mains

4.10 Average duration of sewerage service interruptions

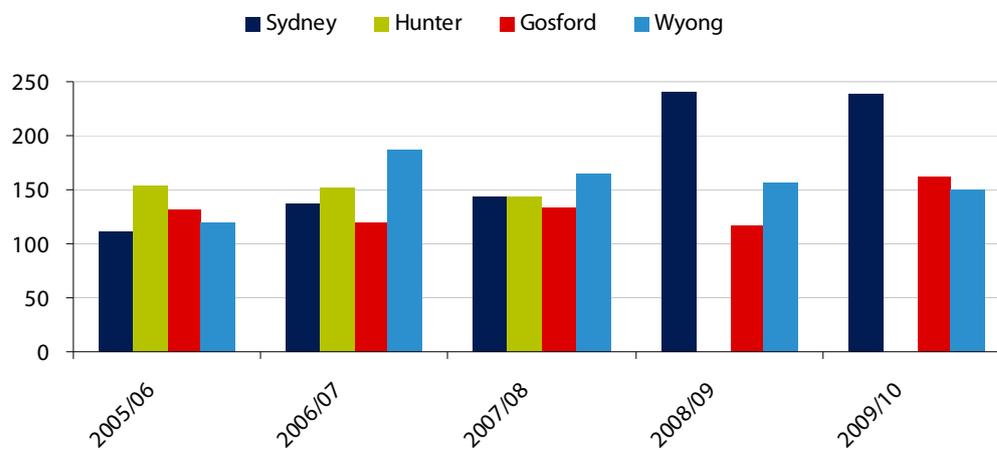
In 2009/10, Sydney Water's average duration of sewerage service interruptions was similar to the previous year's, while Hunter Water continued to report no sewerage service interruptions. In contrast, Gosford Council's performance deteriorated by 39%, while Wyong Council's performance improved slightly (Figure 4.9).

Sydney Water's average duration of sewerage service interruptions was 238 minutes. While this is similar to this average duration in 2008/09, it is much higher than it was in the previous 3 years. This apparent deterioration in its performance is partly attributable to the change in the definition of this indicator which occurred in 2008/09 (from average break/choke repair time prior to 2008/09 to average sewerage interruption time in 2008/09). However, Sydney Water's average duration in 2009/10 is the longest among the 4 NSW retail utilities, and longer than the average duration for utilities in its category nationwide (144 minutes).

As noted above, Hunter Water reported no interruption to normal sewerage services in 2009/10, as it did in the previous year. Hunter Water states that due to the nature and design of its sewerage system, minor events such as sewer main breaks and chokes do not result in a significant reduction of sewerage service. If a major or extended event occurs, Hunter Water arranges a bypass or tankers to ensure minimal service interruptions. Not surprisingly, Hunter Water's 2009/10 performance in this area is the best among all utilities in its category nationwide.

Gosford Council’s average duration of sewerage service interruptions (161 minutes) was 39% higher than in 2008/09, Wyong Council’s (150 minutes) is 4% lower. However, both councils’ performances were worse than the average duration of sewerage service interruptions among all utilities in their category nationwide, which ranged from 67 minutes and 172 minutes in 2009/10, with an average of 128 minutes. Gosford Council reports that the use of mobile computing in the future will provide better tools for it to measure response and restoration timeframes, as well as the number of properties affected.

Figure 4.9 Average duration of sewerage service interruptions (2008/09 onwards) and average sewerage break/choke repair time (prior to 2008/09)



5 Environmental impact

The 4 major metropolitan water utilities are required to report annually on a range of NWI indicators related to the environmental impact of their operations. These include:

- ▼ the total quantity of water they supplied from all sources
- ▼ the percentage of the treated sewage they discharged that met the requirements of their environmental licence
- ▼ percentage of biosolids they reused, and
- ▼ their total net greenhouse gas emissions.

Sydney Water and Hunter Water are also required to report on some additional indicators as a condition of their operating licences. These include the number of sewage odour complaints they received; the kilowatt hours (kWh) of electricity consumed by their water and sewerage assets per megalitre (ML) of water supplied or sewage treated; and the percentage of electricity consumed that was from renewable sources.

We compared each utility's performance against these indicators in 2009/10 with its performance in previous years, and with the performance of the other utilities. For some indicators, we also compare the utility's performance with the national benchmarks for utilities in its category. The sections below summarise our findings, then discuss the findings for each indicator in more detail.

5.1 Summary of findings on environmental impacts

Sydney Water, Hunter Water and Gosford Council supplied a higher total quantity of water than they did in 2009/10, with Gosford Council reporting the highest increase (9.3%). Wyong Council supplied a slightly lower quantity of water.

For Sydney Water and Hunter Water, the percentage of treated sewage discharged that complied with their licence requirements was 97% and 95% respectively. For both Gosford Council and Wyong Council, this percentage was 100%.

Sydney Water, Gosford Council and Wyong Council reused 100% of their biosolids, while Hunter Water reused 104% (including those produced in 2009/10 and those stockpiled from the previous year).

Sydney Water's greenhouse gas emissions were 164 net tonnes of CO₂-equivalents per 1,000 properties, which was an 18% reduction from 2008/09. It was also the lowest among the 3 utilities, and lower than the national average for utilities in its category. In comparison, Hunter Water's emissions were 448 net tonnes per 1,000 properties, and Gosford Council's were 482 tonnes. (Wyong Council did not report on this indicator.)

Both Sydney Water's and Hunter Water's electricity consumption per ML of water supplied increased slightly compared to last year. Sydney Water maintained similar level of electricity consumption per ML of sewage treated while Hunter Water's energy consumption for sewerage assets per equivalent population (kWh/EP) decreased by 13.8%.

5.2 Total quantity of water supplied

All of the utilities except Wyong Council supplied a greater total quantity of water in 2009/10 than in 2008/09. This water came from a variety of sources, including surface water²⁷, groundwater²⁸, recycled water, and water sourced from bulk supplier. The proportions of water from each source varied, due to differences in their water systems and operations. In 2009/10:

- ▼ Sydney Water supplied a total of 515,903 ML, which is a slight increase compared to 2008/09. As this utility does not own any catchments or storage dams, it sourced most of this from its bulk water supplier, the Sydney Catchment Authority (Figure 5.1).
- ▼ Hunter Water supplied a total of 73,449 ML of water, which is 4.6% more than in the previous year. Most of this was surface water sourced from Hunter Water dams, and the remainder was groundwater and recycled water (Figure 5.2).
- ▼ Gosford Council supplied a total of 14,054 ML of water, which is 9.3% more than in the previous year. Most of this was surface water extracted from the council's dams or sourced from its bulk water supplier, Hunter Water (Figure 5.3).
- ▼ Wyong Council supplied a total of 18,391 ML of water, which is a slight decrease compared to 2008/09. Most of this water was surface water extracted from the council's dams. Most of the remainder was sourced from its bulk water supplier, Hunter Water (Figure 5.4).

²⁷ Surface water is fresh water that is visible above ground in waterholes, rivers and dams.

²⁸ Groundwater is water that is found underground in the cracks and spaces in soil, sand and rock. Groundwater is stored in – and moves slowly through – layers of soil, sand and rocks called aquifers.

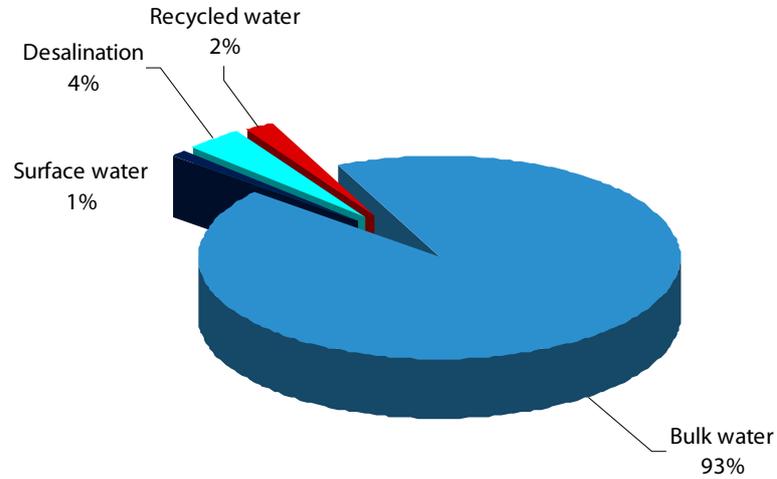
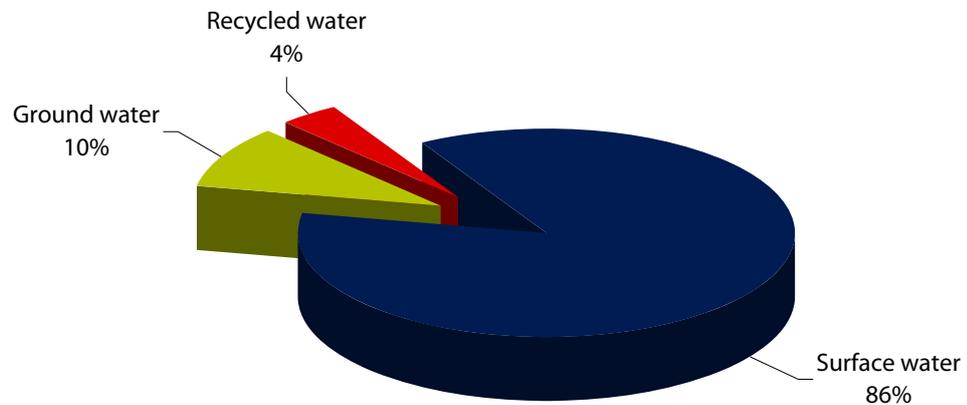
Figure 5.1 Sydney Water – water supplied in 2009/10 by source**Figure 5.2 Hunter Water – water supplied in 2009/10 by source**

Figure 5.3 Gosford Council – water supplied in 2009/10 by source

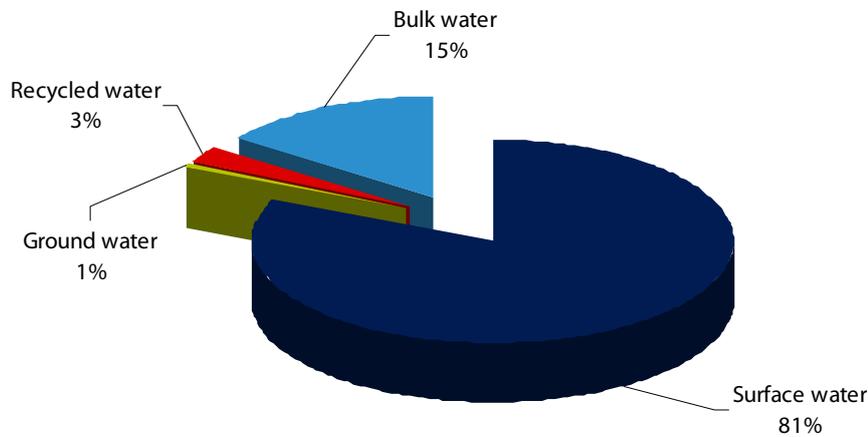
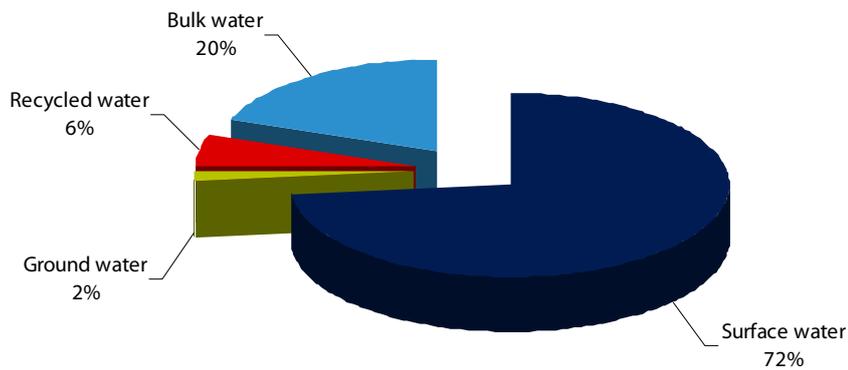


Figure 5.4 Wyong Council– water supplied in 2009/10 by source



5.3 Percentage of sewage volume treated that complied with licence requirements

All 4 of the retail utilities hold environment protection licences from the Office of Environment and Heritage (OEH). These licences entitle them to release a prescribed quantity of pollutants to the environment. In the case of a breach, the licence holder may be given a penalty notice and/or liable for further penalties, depending on the nature and severity of the infringement.

The utilities discharge most of their treated sewage into the environment, except for the portion used for water recycling (see section 6). The majority of the treated sewage is discharged from coastal sewage treatment plants into the ocean through deepwater outfalls, although some is discharged from inland sewage treatment plants to rivers and creeks.

The environment protection licences specify the discharge limits for each discharge site, taking into account the sensitivity of the receiving environment. The utilities must apply the level of sewage treatment required to comply with these discharge limits (see Box 5.1).

Box 5.1 Primary, secondary and tertiary level of sewage treatment

Primary treatment removes large items such as paper, plastic and cotton tips using screens, and allows sand and grit to sink to the bottom of the tank while oil and grease are skimmed off.

Secondary treatment includes biological and chemical processes to remove or break down smaller particles.

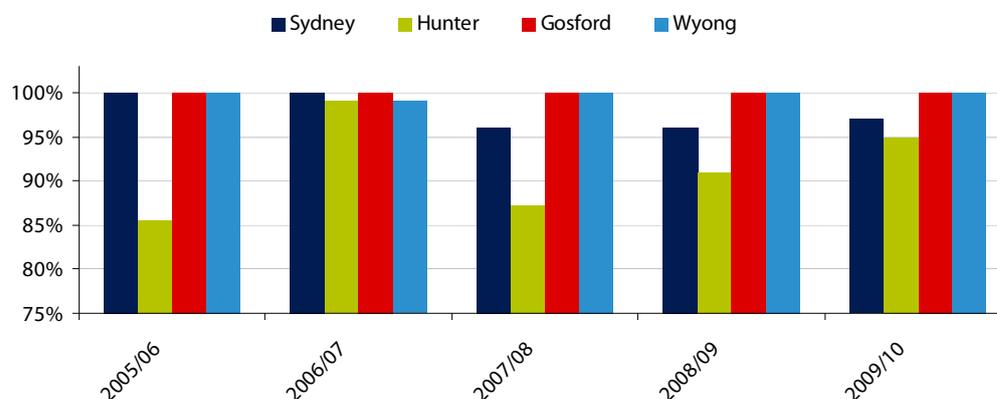
Tertiary treatment provides a final treatment state, which involves filtering and disinfecting to improve the quality of the treated sewage (known as effluent) before it is discharged into the environment.

The utilities are required to report on the percentage of the sewage volume they treated in the financial year that complied with their licence requirements. In 2009/10, all 4 utilities reported continuing high levels of compliance with these requirements. For Sydney Water and Hunter Water, 97% and 95% of this volume complied with the requirements, while for Gosford Council and Wyong Council 100% of the volume complied (Figure 5.5).

Sydney Water's performance in this area improved slightly compared to the previous 2 years. It reported some minor non-compliances, which mainly due to overflows, missed samples and concentration limits being exceeded. However, it received no penalty notices in 2009/10.

Hunter Water's performance also improved compared with 2008/09. It complied with 1,784 out of the 1,800 conditions contained in its environment protection licences (or 99.1%). It also reported non-compliances due to missed samples and concentration limits being exceeded.

Figure 5.5 Percentage of sewage volume treated that complied with environmental protection licence conditions

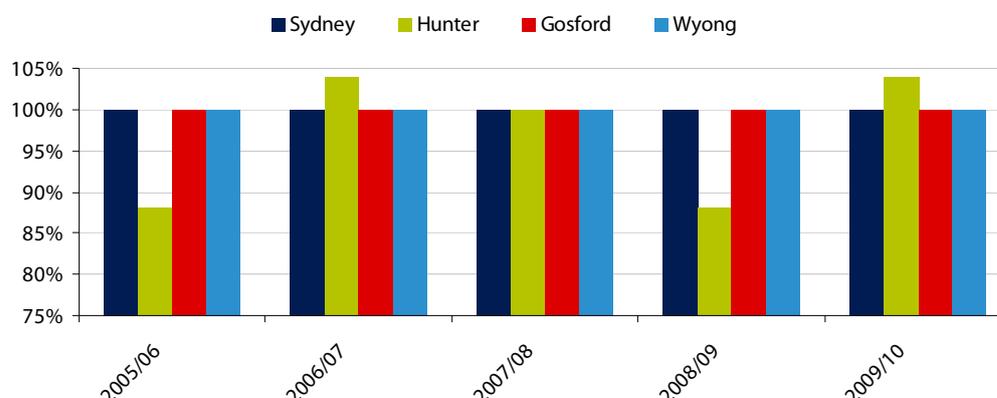


5.4 Percentage of biosolids reused

Biosolids are the stabilised organic solids derived from sewage treatment processes. If managed safely and sustainably, biosolids can be reused to take advantage of their nutrient, energy or other values. For example, they can be reused for agricultural purposes (e.g. as fertiliser), soil conditioning, and mine rehabilitation.

In 2009/10, Sydney Water, Gosford Council and Wyong Council reused 100% of the biosolids they produced (as they have done in previous years), while Hunter Water reused 104% (Figure 5.6). Hunter Water indicated that it has reused biosolids stockpiled from the previous year, in addition to all the dewatered solids produced in 2009/10 which was suitable for land application.

Figure 5.6 Percentage of biosolids reused



5.5 Net greenhouse gas emissions

Each of the 4 utilities is required to report on the total net greenhouse gas emissions produced by its activities in net tonnes of CO₂-equivalents per 1,000 properties. In 2009/10, these emissions varied from 164 to 482 net tonnes (Figure 5.7). Note that Wyong Council did not report on this indicator.

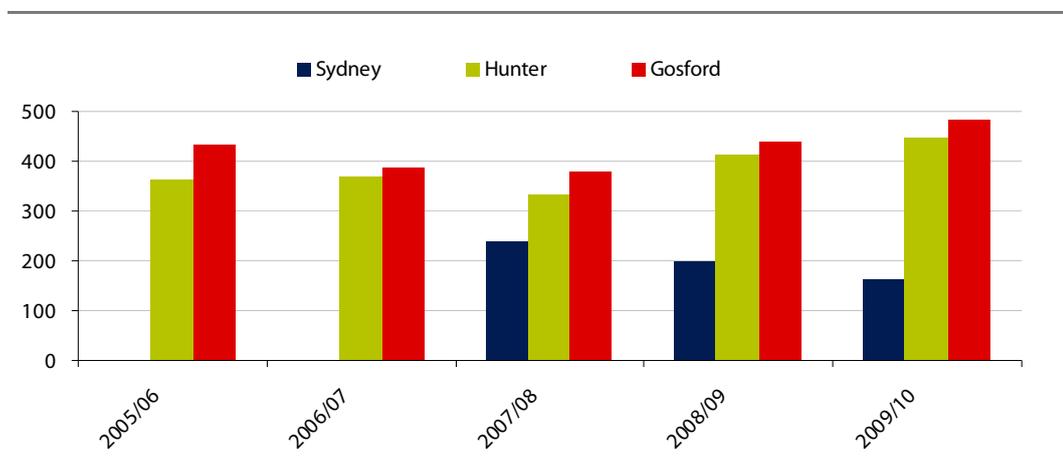
Sydney Water produced 164 net tonnes of CO₂-equivalents per 1,000 properties, which is an 18% reduction compared to 2008/9, and is the lowest among the 3 utilities that reported on this indicator. It was also lower than the national average for utilities in its category, which was 257 net tonnes.

Hunter Water produced 448 net tonnes CO₂-equivalents per 1,000 properties, which is a 9% increase compared to 2008/09, and higher than the national average for utilities in its category.

Gosford Council produced 482 net tonnes CO₂-equivalents per 1,000 properties, which is a 10% increase compared to 2008/09. However, this performance is better than the national average for utilities in its category, which was 708 net tonnes.

In comparing the performance of these utilities – particularly those of Sydney Water and Hunter Water – it is important that Hunter Water is a fully vertically integrated utility that operates the entire system from catchment and source to sewage disposal and recycling (see sections 2.1 and 2.2). In contrast, Sydney Water sources most of its bulk raw water from the Sydney Catchment Authority, and therefore does not operate its own sources. These differences largely explain Hunter Water's higher energy use and greenhouse gas emissions, due to the high levels of energy it requires to pump river water into off-river storage and to extract groundwater. Furthermore, Hunter Water states that it does not purchase greenhouse gas offsets to reduce reportable emissions, in order to adhere as closely as possible to the operating costs set by IPART.

Figure 5.7 Total net greenhouse gas emissions per 1,000 properties



5.6 Electricity consumed by water and sewerage assets

Sydney Water's and Hunter Water's operating licences require them to report on a number of additional indicators related to environmental performance, including the electricity consumed by their water and sewerage assets. In 2009/10:

- ▼ Sydney Water consumed 283.7 kWh per ML water supplied (which is an increase of 2.8% compared to the previous year), and 484.8 kWh per ML sewage treated (which is similar to the previous year)
- ▼ Hunter Water consumed 503 kWh per ML water supplied (a increase of 3.3% compared to the previous year) and the equivalent of 677 kWh per ML sewage treated (also a decrease compared to last year). (See Figure 5.8.)

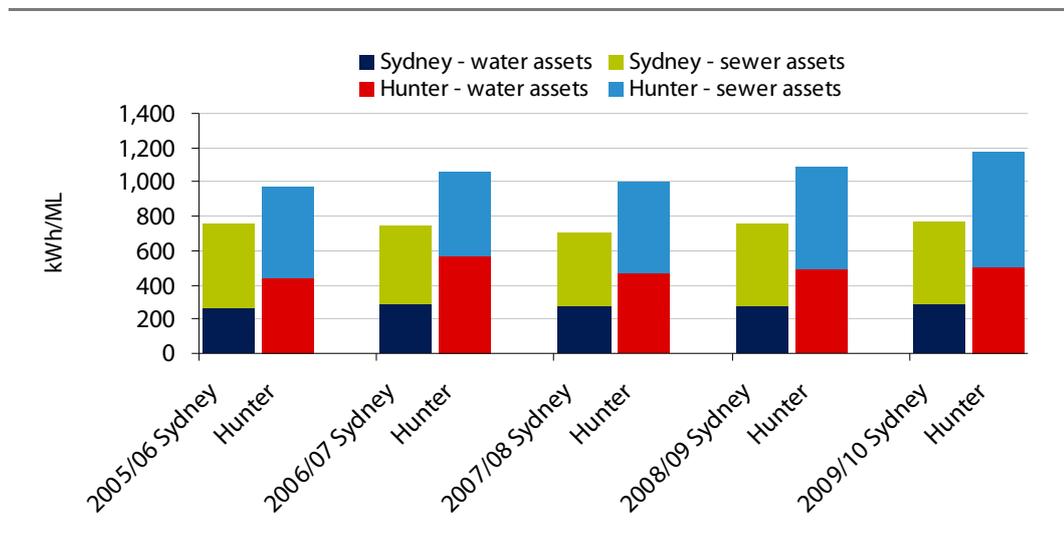
In relation to the increase in its energy consumption per ML water supplied, Sydney Water reports that this is partly due to the introduction of separate metering for water recycling at 3 of its largest recycling plants, which enable the energy used in recycling to be more accurately measured.

In relation to its higher electricity consumption relative to Sydney Water's, Hunter Water states that this stems largely from the differences in the 2 utilities' source configuration (discussed in section 5.4 above). It also states that its area of operation has a much lower population density than Sydney Water's, which means its water and sewerage network configurations are much more energy intensive. For example, it has 4 times Sydney Water's number of water and sewage pumping stations per 1,000 connections. These system configurations are driven by geography and historical settlement patterns and are not a reflection of agency performance.

In addition, Hunter Water states that its higher energy consumption per ML sewage treated stems from the differences between the 2 utilities' sewage treatment requirements. In 2009/10, it treated 58% of its sewage to a secondary level and 44% to a tertiary level, whereas Sydney Water treated most of its sewage to a primary level. Primary treatment involves simple screening and settling, with limited pumping and biosolids handling, and so consumes a relatively low level of energy. Secondary and tertiary treatment processes use significantly more energy, as they involve more advanced effluent treatment, disinfection and higher levels of biosolids recovery and drying.

Note that in 2009/10, Hunter Water changed the way it expresses its energy intensity indicator for sewerage delivery from kWh/ML to kWh/equivalent population (EP).²⁹ The reason for this change is that during wet weather, the electricity usage for operating its treatment plants does not necessarily increase in proportion to the electricity usage for pumping in the sewage transport system. Using this new measure, Hunter Water consumed 75 kWh per EP for sewerage assets in this reporting period, which is 13.8% less than in the previous year. This equates to 677 kWh/ML of sewage processed, as shown in Figure 5.8.

Figure 5.8 Total electricity consumption for water and sewer assets (kWh/ML water supplied and kWh/ML sewage treated)



5.7 Percentage of electricity consumed that was from renewable sources

Sydney Water's and Hunter Water's operating licences also require them to report on the percentage of the electricity they consume that comes from renewable sources, including any renewable energy they purchase, and the electricity they generate for internal use or sale using their water and sewerage assets. In 2009/10, Sydney Water's reported percentage was 10.3%, while Hunter Water used no renewable energy (Figure 5.9).

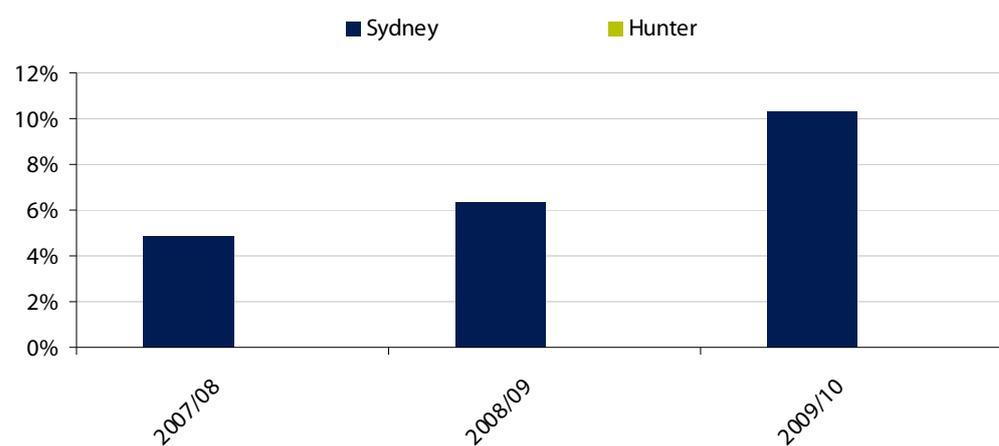
Sydney Water's percentage of renewable energy was 63.5% higher than in 2008/09, and more than double that in 2007/08. This is due to an increase in the amount of renewable energy it generated for its own internal use. Sydney Water commissioned 4 new biogas cogeneration plants at its Liverpool, Warriewood, Glenfield and Wollongong sewage treatment plants, and the completion of a new hydroelectric generator at North Head during this period.

²⁹ One person in a residential house is counted as being one equivalent population (EP) and the amount of waste or sewage generated by other sources are converted to the relevant number of EP in comparison to this benchmark.

Hunter Water did not purchase or generate any renewable energy for internal use during the reporting period, as was the case in previous years. Hunter Water states that it has the lowest allowed operating expenditure on a property basis among the 4 retail utilities included in this review. This constraint, coupled with the uncertainty of the community's willingness to pay for renewable energy directly through water bills, makes it difficult for it to purchase renewable energy. In addition, it has only one small treatment plant with an anaerobic treatment process, which is suitable for co-generation.³⁰

However, Hunter Water's water supply assets are used to generate power. Delta Electricity owns and operates hydro-electric power generators located at Chichester Dam and within the Chichester Trunk Gravity Main.

Figure 5.9 Percentage of electricity consumed that was from renewable energy sources



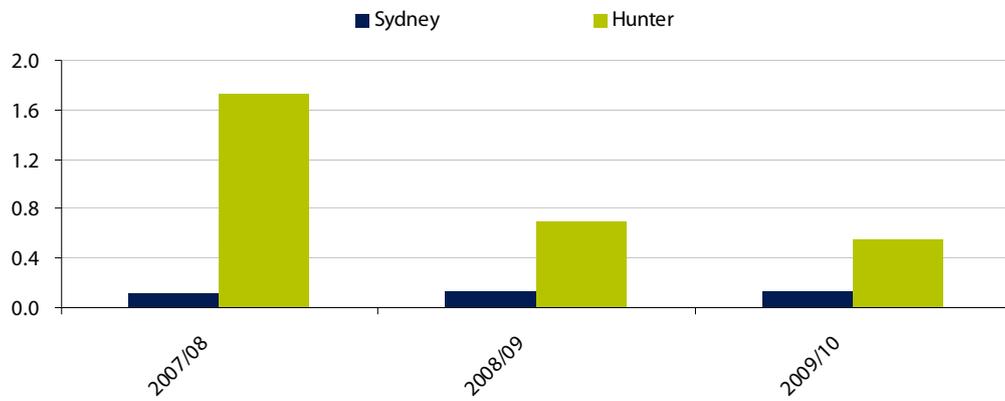
5.8 Number of complaints about sewage odour

Sydney Water's and Hunter Water's operating licences also require them to report the number of complaints they receive about sewage odour. For both utilities, this number continued to be very low in 2009/10 (Figure 5.10).

Sydney Water received 224 complaints. This is a decrease of 8% compared to the previous year, and is equivalent to 0.13 complaints per 1,000 properties.

Hunter Water received 117 complaints, which is a 20% decrease compared to 2008/09 and is equivalent to 0.55 complaints per 1,000 properties.

³⁰ In contrast, Sydney Water has a number of sewage treatment plants that involve anaerobic treatment processes that can be utilised to generate renewable energy.

Figure 5.10 Sewage odour complaints per 1,000 properties

6 Water recycling

Under the National Water Initiative, the 4 NSW metropolitan retail utilities are required to report on how much water they recycled or reused during the financial year, expressed as a percentage of the total volume of treated sewage they discharged. We compared the percentages reported by the utilities, and also looked at the purposes for which the recycled water was used. The section below summarises our findings, and the subsequent sections discuss the findings in detail.

6.1 Summary of findings on water recycling

In 2009/10, Sydney Water, Hunter Water and Gosford Council increased the amount of water they recycled compared to the previous year, while Wyong Council decreased the amount of water it recycled.

Across all the utilities, the main uses of recycled water were onsite uses, commercial, industrial or municipal purposes and agricultural uses. Sydney Water supplied some recycled water for environmental uses and residential uses, but the amounts were relatively small.

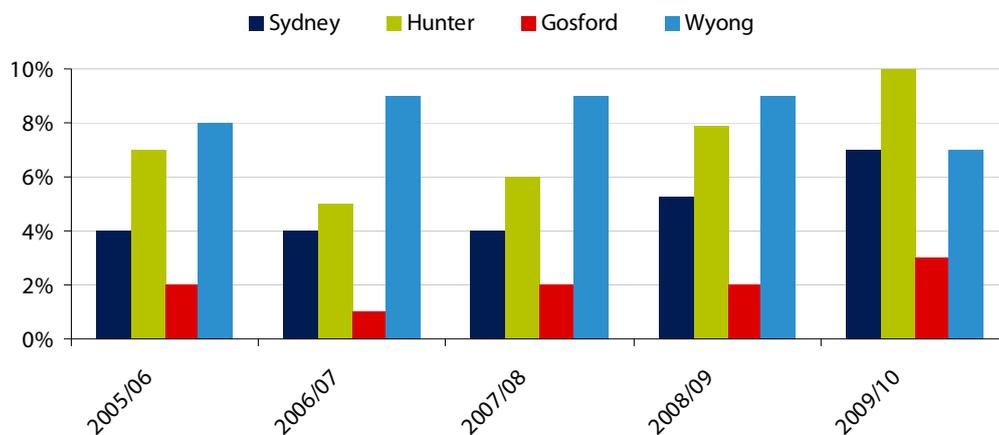
6.2 Recycled water as a percentage of treated sewage discharged

In 2009/10, recycled water as a percentage of treated sewage discharged ranged from 10% (Hunter Water) to 3% (Gosford Council) (Figure 6.1):

- ▼ Sydney Water recycled 33,683 million litres (ML), or 7% of the total volume of treated sewage it discharged. This was an increase of 8,241 ML or 32% compared to the previous year.
- ▼ Hunter Water recycled 5,348 ML per annum, or 10% of the volume of treated sewage it discharged. This was 256 ML or 5% more than in 2008/09.
- ▼ Gosford Council and Wyong Council recycled 3% (362 ML) and 7% (1,024 ML) of the total volume of treated sewage they discharged respectively. This was an increase of 27% on 2008/09 for Gosford Council compared to the previous year. However, for Wyong Council, it was a 40% decrease compared to the previous year. Wyong Council reports that given the uses for recycled water in its area of operations, the demand can be highly variable (ie, the demand for recycle water for irrigation reduces in wet years).

We note that NSW Government is committed under the 2010 Metropolitan Water Plan³¹ to boost recycled water volumes to 70 billion litres of water a year by 2015, to meet 12% of Sydney's water needs. Sydney Water is expected to supply a major component of this water. The amount it recycled in 2009/10 is equivalent to 48% of the annual target for 2015. In addition, Hunter Water has set a target of providing 8,000ML of recycled water by 2013/2014 in its Environmental Management Plan. Hunter Water reports that it is on track to meet this target.

Figure 6.1 Recycled water as a percentage of treated sewage



6.3 Purposes for which recycled water was used

The purposes for which the 4 utilities' recycled water was used in 2009/10 fell into 5 main categories: residential; commercial, municipal and industrial; agricultural; environmental and onsite uses. The proportion used for each of these purposes varied markedly between the utilities (see Figure 6.1Error! Reference source not found.).

Most of the recycled water Sydney Water produced (48% or 16,314 ML) was for onsite uses – that is, for use in the treatment process or general ablutions at Sydney Water premises. The next largest use was commercial, municipal and industrial, followed by agriculture. The smallest percentage (about 6%) was used for environmental purposes, closely followed by residential use. However, Sydney Water was the only one of the 4 NSW major metropolitan utilities to use recycled water for environmental purposes in 2009/10.

³¹ The 2010 Metropolitan Water Plan aims to ensure greater Sydney has enough water to meet its needs to at least 2025, and helps to protect river health through variable environmental flows. It builds on the achievements of the 2006 Metropolitan Water Plan and continues to concentrate efforts on updating dams, recycling water, harvesting stormwater, operating the desalination plant and improving water efficiency.

Around half of Hunter Water's recycled water (49.5% or 2,648 ML) was used for commercial, industrial and municipal, closely followed by agriculture, and a small amount was for onsite use.

Most Gosford Council's recycled water (96% or 348 ML) was used onsite, and the remainder was supplied to the commercial, industrial and municipal sectors.

Most of Wyong Council's recycled water (92% or 940 ML) was supplied for commercial, industrial and municipal uses, and the remainder supplied for residential use.

Table 6.1 Amount of recycled water by category of use (ML)

Utility	Category of use	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	Residential	1,678	1,652	1,402	1,704	2,209
Hunter Water		0	0	0	0	0
Gosford Council		0	0	0	0	0
Wyong Council			0	0	0	84 ^a
Sydney Water	Commercial,	879	5,995	7,212	5,155	7,537
Hunter Water	municipal and	1,686	1,875	1,984	2,289	2,648
Gosford Council	Industrial	0	0	0	68	14
Wyong Council			0	832	865	940
Sydney Water	Agricultural	916	130	632	3,034	5,643
Hunter Water		2,040	1,967	2,269	2,623	2,520
Gosford Council		0	0	0	0	0
Wyong Council			852	0	9	0
Sydney Water	Environmental	0	0	0	0	1,980
Hunter Water		0	0	0	0	0
Gosford Council		0	0	0	0	0
Wyong Council				0	0	0
Sydney Water	Onsite use	11,809	13,352	14,917	15,549	16,314
Hunter Water		216	218	218	180	180
Gosford Council		241	212	277	216	348
Wyong Council			381	391	422	0 ^a

^a Correspondence from Wyong Council to IPART received 4 May 2011.

7 | Complaints handling

The 4 metropolitan retail utilities report on the water and sewerage service complaints they receive over each financial year, including the total number of complaints they receive per 1,000 properties, the time they took to resolve these complaints, and their call centre performance. Sydney Water and Hunter Water are also required under their operating licences to report on the number of customer complaints referred to the Energy and Water Ombudsman in NSW (EWON).

We compared their reported data on each of these indicators. The sections below summarise our findings, and then discuss them in more detail.

7.1 Summary of findings on complaints handling

Sydney Water and Hunter Water continued to receive a low level of customer complaints, although Hunter Water had slightly more complaints compared to the previous year.

It was more difficult to assess the performance of Gosford Council and Wyong Council, as they did not report on all the indicators, and there was less historical data available on these utilities. We expect that the councils will be able to provide data on all indicators for future reporting periods.

7.2 Total number of water and sewerage service complaints

The total number of water and sewerage service complaints received by water utilities includes all complaints about bursts, leaks, service interruptions, the adequacy of services, water pressure, water quality or reliability, sewerage service, sewage odours, affordability, billings and behaviour of staff or agents. This indicator is expressed in number of complaints per 1,000 properties.

In 2009/10, Sydney Water and Hunter Water continued to receive a low number of complaints (less than 10 per 1,000 properties). Wyong Council received a slightly higher number, and Gosford Council did not report on this number (Figure 7.1).

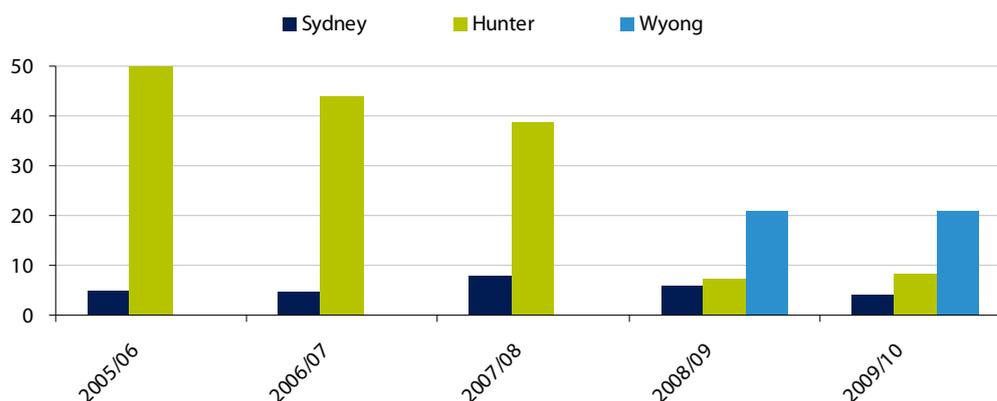
Sydney Water received 4 complaints per 1,000 properties, which was 33% less than in the previous year (6 per 1,000 properties)³². Most of these were billing complaints (55%), followed by water quality complaints (17%) and other complaints (11%). The remainder were sewerage service complaints (10%) and water service complaints (7%). Sydney Water attributes the decrease in the number of complaints it received to improvements in the performance and numbers of its meter reading staff,³³ the implementation of its choke management strategy, water mains renewal activities, active leak detection program and on-going maintenance programs.

Hunter Water received 8.2 complaints per 1,000 properties, which was more than in the previous year (7.4 complaints per 1,000 properties). Most of these complaints related to water quality (43%), while the remainder related to billing (28%), sewerage service (25%) and water service (3%). Hunter Water attributes that the increase in the number of complaints it received to an increase in billing complaints, particularly complaints related to disputed consumption.³⁴

Wyong Council received 21 complaints per 1,000 properties. Most of these related to sewerage service (57%), followed by water quality (24%) and water service (14%).

Gosford Council did not provide data on the total number of complaints it received. However, as section 3.2 discussed, it reported that it received 39 water quality complaints per 1,000 properties, which was higher than the total number of complaints received by any of the other 3 utilities. As Gosford Council does not currently have an operating licence administered by IPART, it is not obliged to provide explanation on any systemic issues associated with the data.

Figure 7.1 Total number of water and sewerage complaints per 1,000 properties



Note: Hunter Water's data prior to 2007/08 include the number of enquiries and complaints per 1,000 properties, while the data from 2007/08 are for the number of complaints only, in line with that of the other utilities and the NWI indicator.

³² Correspondence from Sydney Water to IPART received 1 April 2011.

³³ Sydney Water Corporation, *Operating Licence Compliance Report: Annual Report 2009-10*, September 2009, pp 42-45.

³⁴ Hunter Water Corporation, *Customer Services Report 2009-10*, September 2010, pp 4-5.

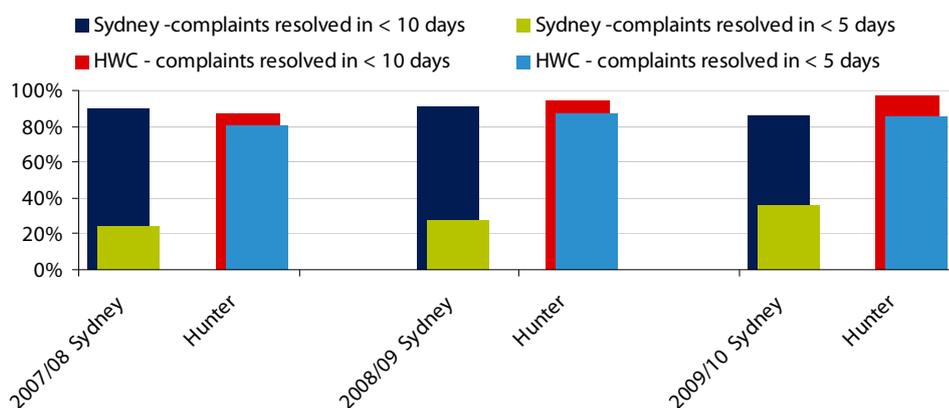
7.3 Time taken to resolve complaints

In 2009/10, both Sydney Water and Hunter Water slightly improved their performance in terms of the time taken to resolve complaints compared to the previous year (Figure 7.2). Gosford Council and Wyong Council did not report on this indicator.

Sydney Water resolved 37% of complaints in less than 5 days and 86% in less than 10 days (compared to 28% and 91% respectively in 2008/09).

Hunter Water resolved 85% of complaints in less than 5 days and 97% in less than 10 days (compared to 87% and 94% respectively in 2008/09).

Figure 7.2 Percentage of complaints resolved in less than 5 days and less than 10 days



7.4 Call centre performance

The utilities' performance in terms of the percentage of calls to their call centre answered within 30 seconds varied from 89% to 65% in 2009/10 (Figure 7.3). Gosford Council did not report on this indicator.

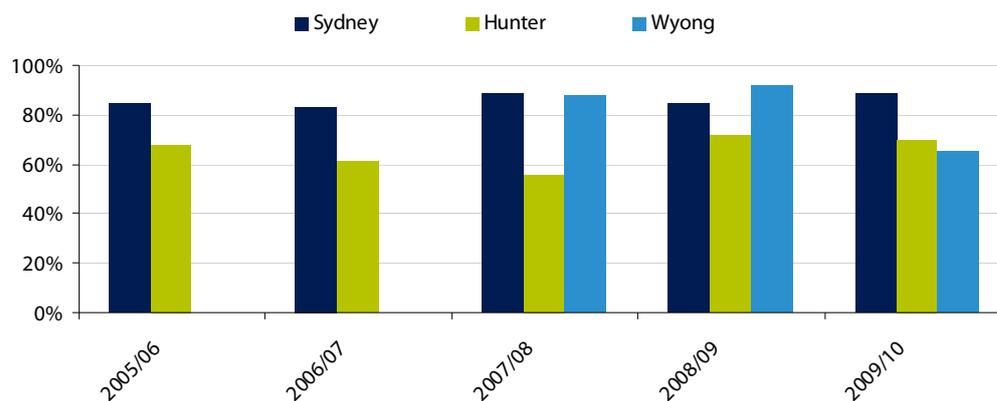
Sydney Water's call centre received a total of 852,862 calls, and 88.9% of these were answered within 30 seconds. The average time it took for a caller to be connected to a Sydney Water operator was 14.8 seconds. This is an improvement in performance compared to 2008/09, when 84.7% of calls were answered within 30 seconds, and the average connection time was 18.6 seconds. Sydney Water's percentage of calls answered within 30 seconds was better than the national average for utilities in its category, which was 84%.

Sydney Water attributes the improvement in its performance in this area to its new telephony system, which has provided more detailed reports to team leaders, thus facilitated productivity improvements. In addition, it undertook minimal recruitment in 2009/10, so its customer service representatives were generally more experienced.

Hunter Water's call centre answered 70% of calls within 30 seconds. This represents a slight drop in its performance compared to 2008/09 (when 72% of calls were answered within 30 seconds), and is below the national average for utilities in its category.

Wyang Council's call centre answered 65% of calls within 30 seconds in 2009/10, which was significantly less than in 2008/09, when it answered 92% of calls within 30 seconds. Wyong Council's performance in this area was worse than the national average performance for utilities in its category, which was 85.5%. Wyong Council advises that call centre resourcing is currently subject to internal review.

Figure 7.3 Percentage of telephone calls answered within 30 seconds



7.5 Number of complaints referred to the Energy and Water Ombudsman of NSW

Analysis of the complaints referred to EWON can provide utilities with useful information to identify systemic issues and policies that may need improvement. Sydney Water and Hunter Water are required under their operating licences to be members of EWON, and must report on the number and details of customer complaints that were referred to EWON each year.

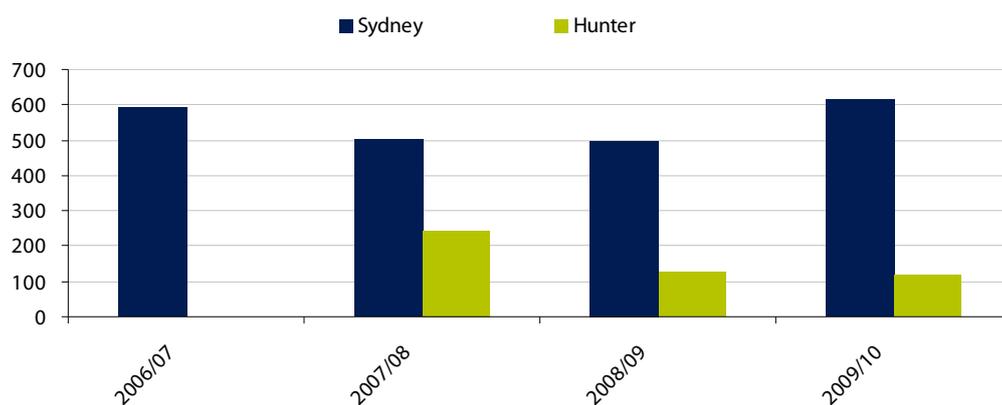
In 2009/10, the number of customer complaints about Sydney Water and Hunter Water referred to EWON was 614 and 119 respectively (Figure 7.4). These numbers are low, and account for less than 6% of the total number complaints to EWON. In comparison, complaints about electricity and gas utilities accounted for 72% and 20% of all complaints referred to EWON respectively.³⁵

For Sydney Water, the number of complaints referred to EWON in 2009/10 was 614 (or 0.35 per 1,000 properties), which is an increase of 23% compared to 2008/09. The issues raised in these complaints were consistent with the previous year, and included billing, customer service, provision and land matters. The predominant issue was billing. Sydney Water reports that it has introduced automated Centrelink Payment Deductions (Centrepay) to assist customers with budgeting, and has implemented new social policy initiatives to help special needs households mitigate the impact of 1 July price increases.

For Hunter Water, the number of complaints referred to EWON was 119 (or 0.53 per 1,000 properties), which was a reduction of 8% compared to the previous year. More of these complaints related to billing (44.5%) and land (15%) than in the previous year. However, more were resolved at a lower (enquiry) level compared to 2008/09. Hunter Water attributes this improvement to its better procedures: it now refers the management of complaints to EWON to members of its Case Investigation Team, which means that these matters were resolved early in the complaint handling process.

Wyong Council reports that it joined the EWON scheme in late 2009 and it is too early to comment on complaint numbers and trends.

Figure 7.4 Total number of complaints referred to EWON



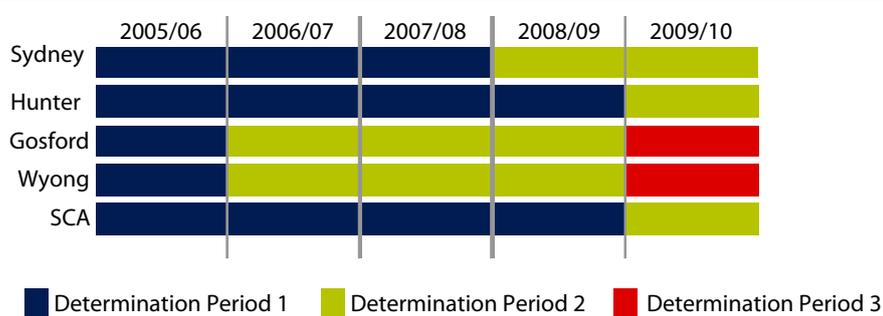
³⁵ Energy and Water Ombudsman NSW, Annual Report 09/10, p18

8 Inputs and outputs used in determining prices

The final element of the 2009/10 performance review was to compare the 4 metropolitan retail utilities' and the Sydney Catchment Authority's actual operating expenditure, capital expenditure, water sales and project delivery against the forecast inputs and outputs we used in setting their prices.³⁶ These forecast inputs and outputs are set out in our pricing determinations for each water utility.³⁷

Because of the differences in the length and the start and finishing dates of the utilities' current determination periods, we have chosen to review each utility's performance in this area over the 5 years to 30 June 2010. As Figure 8.1 shows, this period includes multiple pricing determinations for each utility.

Figure 8.1 Determination periods for regulated utilities



The section below summarises our findings. The subsequent sections explain what we mean by inputs and outputs, and then discuss our findings in more detail.

³⁶ IPART requires regulated water agencies to complete Annual Information Returns (AIRs) and Progress on Output Reports that provide the data necessary to determine prices. Many of the results reported in this chapter are based on that data.

³⁷ Determinations can be found on IPART's website: www.ipart.nsw.gov.au

Note that we have not compared the Sydney Catchment Authority's performance with the retail utilities' because of the different nature of its business. In addition, it is important to take care when comparing the performance of the 4 retail utilities. In particular, these utilities vary considerably in terms of their size and operating environments, both of which affect the level of operating and capital expenditure they require to provide their services. Also, while Hunter Water, Gosford Council and Wyong Council are responsible for their own bulk water supplies, Sydney Water purchases water in bulk from the Sydney Catchment Authority. This means that expenditure on headworks assets is recorded as capital expenditure in the books of Hunter Water and the 2 councils, but as operating expenditure in Sydney Water's books.

Also note that we have not reviewed the performance of the other 2 bulk water service providers we price regulate in NSW – the Water Administration Ministerial Corporation and the State Water Corporation -- in this report. However, we intend to do so in future reports. We are currently in the initial stages of gathering the necessary data from them.

8.1 Summary of findings on input and output measures

In relation to the input measures, we found that the utilities' average actual operating expenditure, capital expenditure and water sales over the review period varied from the forecast inputs we used in making our determinations. The size of the variances differed but we do not consider that the variances are necessarily of concern. In making our determinations, we base the forecast inputs on the best information available at the time. But as the price path progresses, the utilities' expenditure priorities may change and previously unforeseen issues may arise. Therefore, often there are justifiable reasons for variances between their actual and forecast expenditures, and our processes allow us to take account of these in determining prices for subsequent determination periods.

The most significant event that affected the utilities' expenditures in the 5-year period under review was the severe drought that affected eastern Australia during that time. The drought forced the utilities' to make expenditure decisions more quickly than would normally be the case. In turn, this made it much more difficult for both IPART and the utilities to forecast their expenditures. For example, in our most recent pricing reviews in 2008 and 2009 we concluded that most variances in past expenditures could be explained and justified by the need for utilities to take urgent action to reduce the impacts of the drought.

In relation to the output measures, the measures under review were set in each utility's current determination. We note that there are often sound reasons for variations from output measure targets because agencies continually review their programs and review their activities. Consequently, it is better to judge performance over the total period rather than on a year-to-year basis because project construction is often varied in the short term to achieve better efficiencies overall.

8.2 What do we mean by input and output measures?

When setting prices, we aim to ensure that these prices will generate sufficient revenue to recover the full, efficient costs the utilities incur in providing services, as required under the *Independent Pricing and Regulatory Tribunal Act 1992*. Our process for determining prices is to:

- ▼ determine how much revenue the utility requires to efficiently provide the regulated services and earn a return on its regulatory asset base, and then
- ▼ determine prices to recover that amount of revenue.

To determine the required revenue, we need to estimate the forecast levels of prudent and efficient operating expenditure and capital expenditure the utility will outlay over the period of the determination. To determine the prices, we need to estimate the forecast volume of water the utility will sell over this period (to calculate usage charges) and the number of customers it will have (to calculate fixed charges). These estimates are the 'inputs' to the determination.

Our estimates of forecast levels of expenditure that are prudent and efficient include sums of money for specific projects, such as constructing or upgrading certain infrastructure. To help us track whether these sums of money are used for their intended purpose, we specify what 'outputs' we expect the utility deliver over the determination period.

Note that in assessing a utility's performance against these input and output measures, it is more important to focus on its results over a whole determination period, rather than in individual years.

8.3 Findings on performance against input measures

As discussed above, the key inputs to IPART's pricing process are the utility's forecast operating expenditure, capital expenditure and water sales over the determination period. To assess each utility's performance against these inputs, we compared their actual operating expenditure, capital expenditure and water sales over the review period (2006 to 2010) to the forecasts we used in making its price determinations.

Note that these forecasts are referred to as the 'allowed' values in the following discussion. Also note that the allowed values are expressed in \$2009/10, which means that they have been adjusted to take account of the impact of inflation (ie, values in one year can be compared to values in other years as if there was no inflation in the years between).

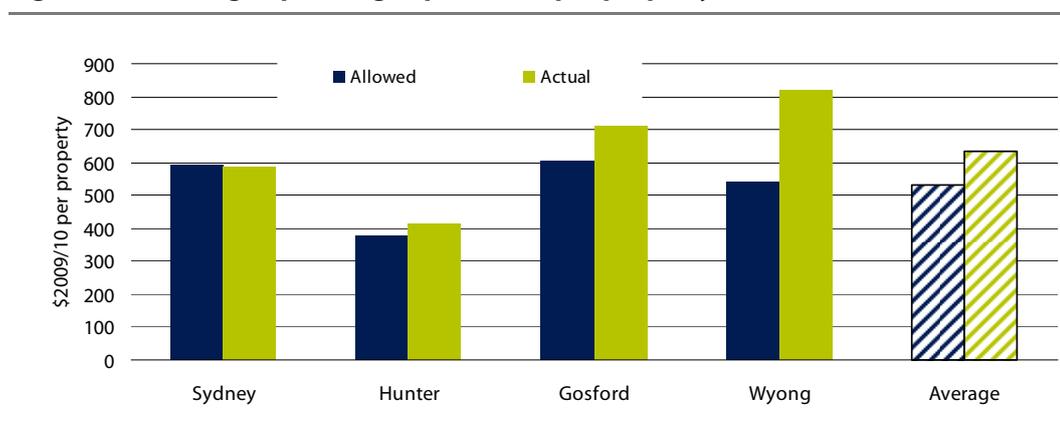
8.3.1 Sydney Water, Hunter Water, Gosford Council and Wyong Council

Operating expenditure

On average, over the 5-year review period, Sydney Water's actual operating expenditure was slightly lower than the allowed expenditure in its price determinations. For Hunter Water, Gosford Council and Wyong Council, actual expenditure was higher than allowed expenditure.

On a per property basis, Sydney Water's and Hunter Water's average actual operating expenditures was similar to their allowed expenditures, while the councils' (particularly Wyong Council's) average actual expenditures were significantly higher than their allowed expenditures (Figure 8.2).

Figure 8.2 Average operating expenditure per property, 2006 to 2010 (\$2009/10)



Looking at Sydney Water's performance, there was some variance between its actual and allowed operating expenditure on a yearly basis, but its average expenditure over the review period was very similar (with the actual being just 2.2% less than the allowed) (Figure 8.2). On a per property basis, its average actual and allowed operating expenditures were also very similar, with the actual being just 0.7% less than the allowed (Figure 8.3). On a yearly basis, its actual expenditure increased up to 2007/08, but decreased in the following years.

Figure 8.3 Sydney Water – actual v allowed operating expenditure (\$million, 2009/10)

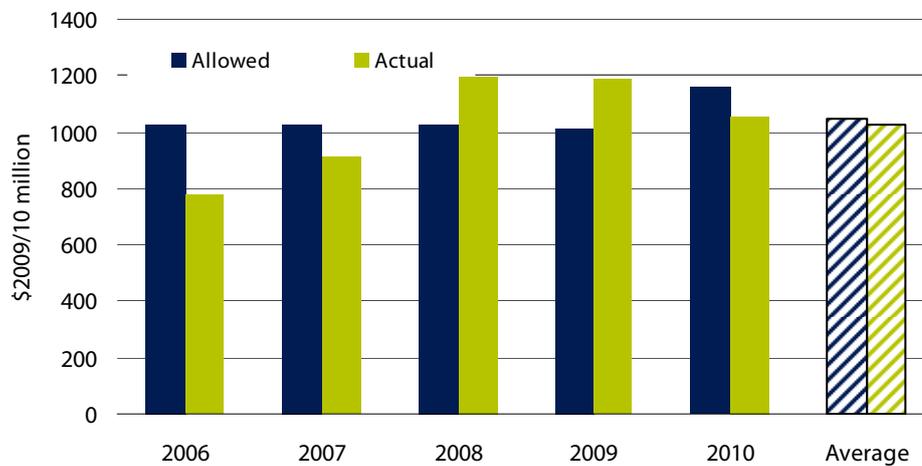
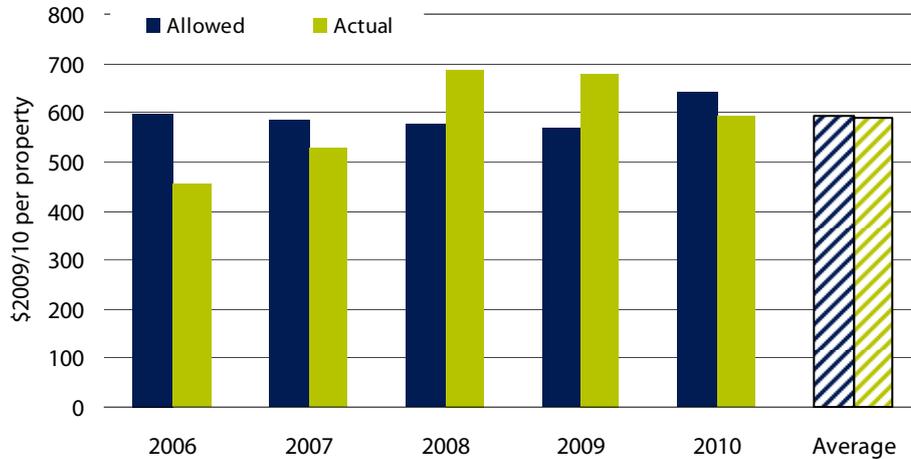


Figure 8.4 Sydney Water – Operating expenditure per property (\$2009/10)



Hunter Water’s actual operating expenditure was higher than its allowed expenditure in each year of the review period, and was around 9.0% higher on average (Figure 8.5). The same is true on a per property basis (Figure 8.6). However, its average actual operating expenditure per property is the lowest of the 4 retail utilities.

Figure 8.5 Hunter Water – actual v allowed operating expenditure (\$million, 2009/10)

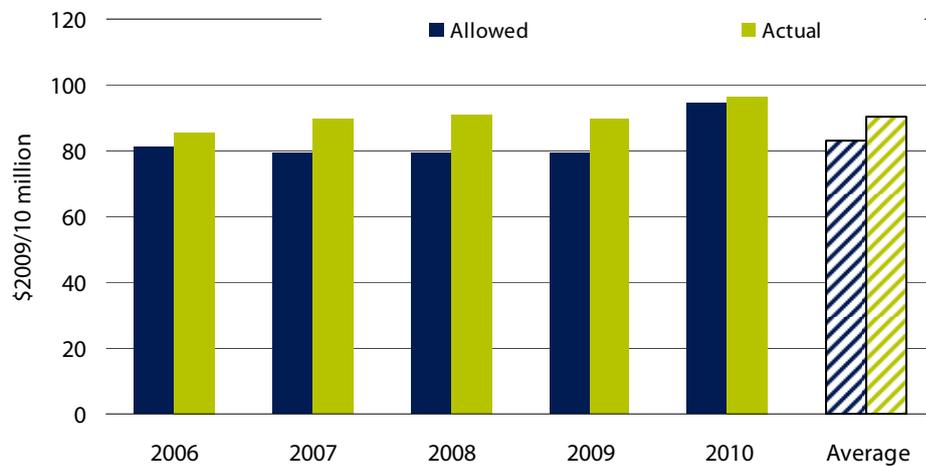
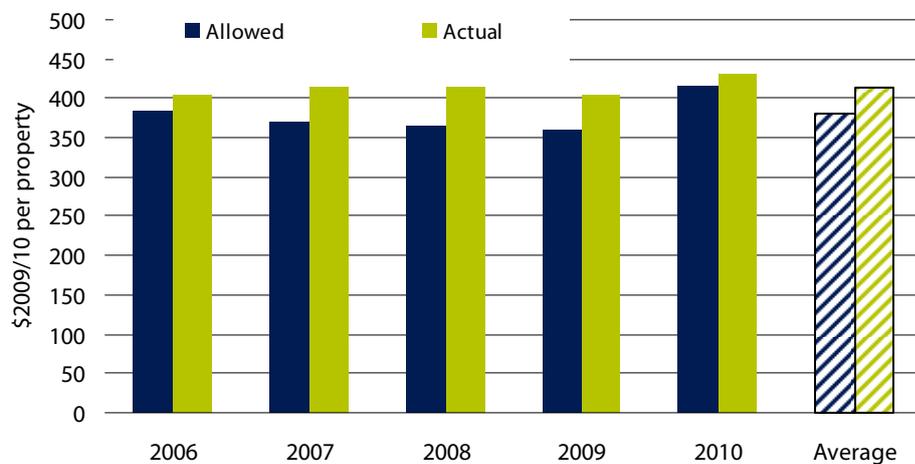


Figure 8.6 Hunter Water – Operating expenditure per property (\$2009/10)



Gosford Council's actual operating expenditure was also higher than its allowed expenditure in each year of the review period and on average, at both an aggregate basis (Figure 8.7) and a property basis (Figure 8.8).

Figure 8.7 Gosford Council – actual v allowed operating expenditure (\$million, 2009/10)

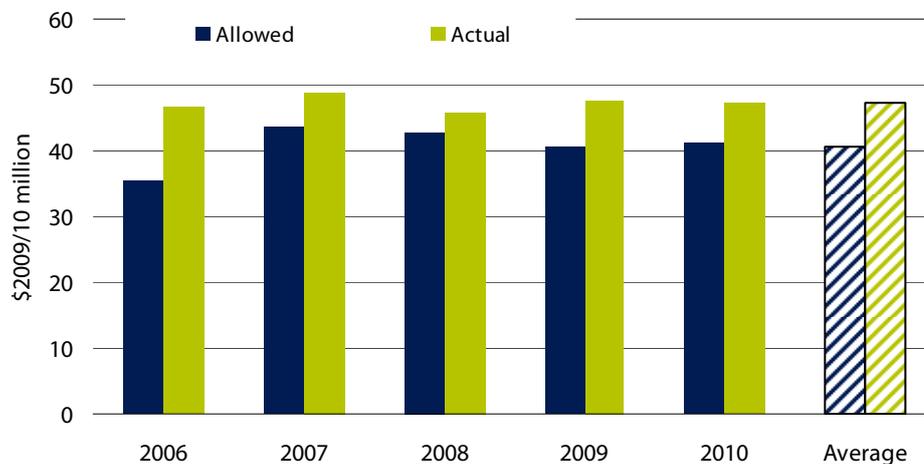
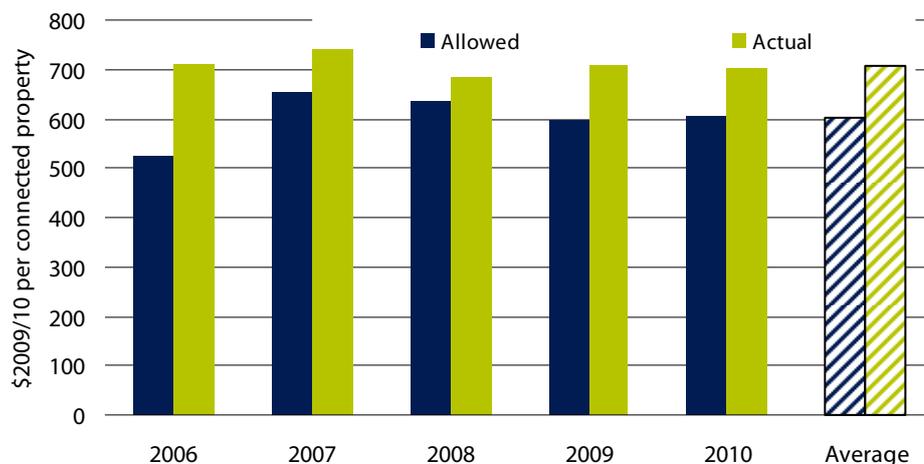


Figure 8.8 Gosford Council – Operating expenditure per property (\$2009/10)



Wyong Council’s performance in this area is similar to those of Hunter Water and Gosford Council, with its actual operating expenditure (Figure 8.9) and operating expenditure on a property basis (Figure 8.10) exceeding allowed expenditure. However, the scale of Wyong Council’s over-expenditure compared to its allowed expenditure is greater than the other utilities.

Wyong Council’s actual expenditure was particularly high in 2006/07 and 2008/09. The council reports that this partly reflects its historical method for allocating overheads to the water business (which is currently being reviewed by Wyong Council with the assistance of IPART). It also reflects the operation of drought contingency schemes, which resulted in unforeseen additional operating expenditures (such as the purchase of water from Hunter Water).

Figure 8.9 Wyong Council – actual v allowed operating expenditure (\$million, 2009/10)

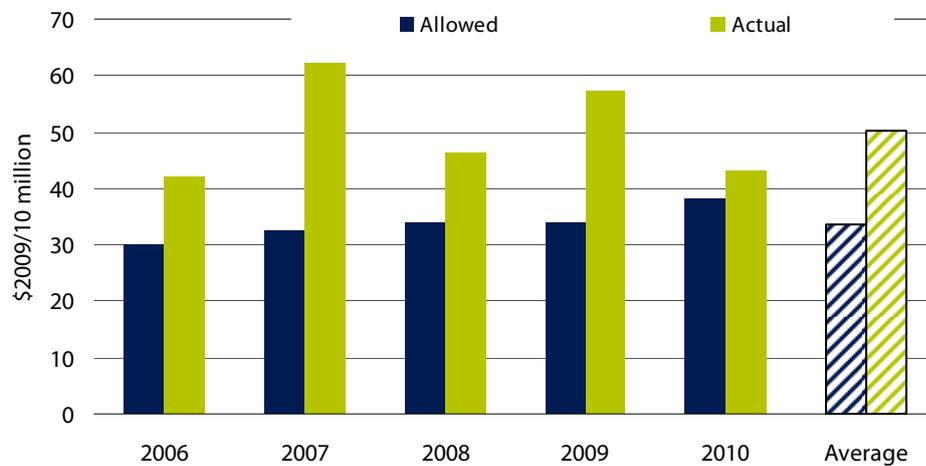
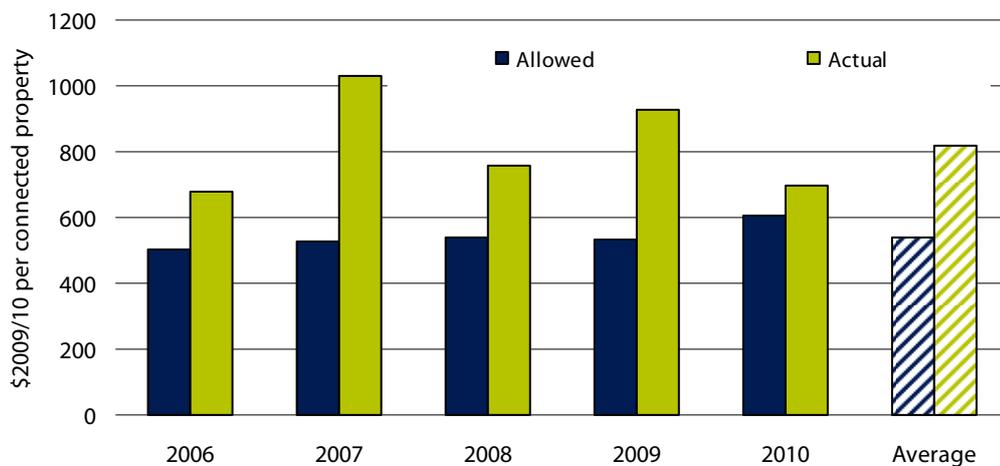


Figure 8.10 Wyong Council – Operating expenditure per property (\$2009/10)



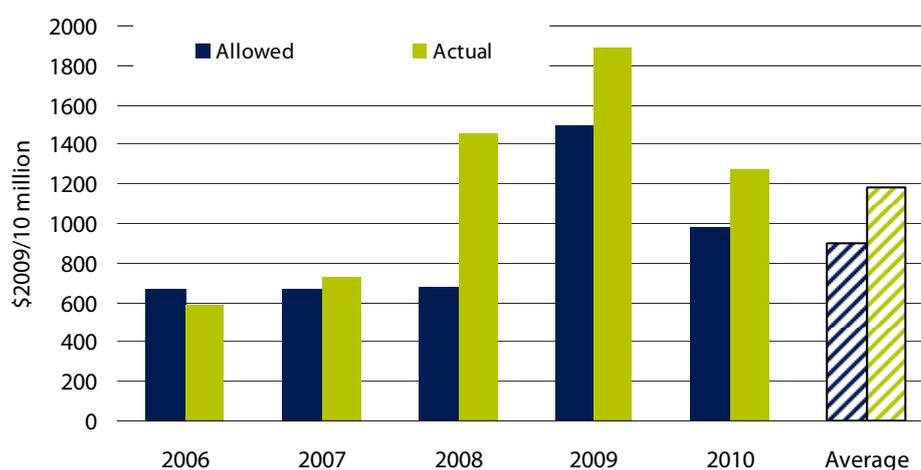
Capital expenditure

Levels of capital expenditure can vary considerably on a year to year basis. This reflects the fact that the construction of a large project can take place in certain years which will cause a once-off increase in capital expenditure in those years compared to the 'normal' level. Where such variation occurs within a determination period, it does not have a significant effect on the revenue and prices that otherwise would have been determined.

On average over the 5-year review period, Sydney Water's and Hunter Water's actual capital expenditure was more than we allowed for in their price determinations. Gosford Council's actual capital expenditure was similar to the amount allowed for, while Wyong Council's actual expenditure was less than we allowed for.

For Sydney Water, the variance between its actual and allowed capital expenditure (Figure 8.11) is largely due to the NSW Government's directive for it to build the Sydney Desalination Plant to increase the security of Sydney's water supply in times of drought. The construction of the Desalination Plant caused Sydney Water's capital expenditure to increase markedly in 2007/08 and 2008/09. IPART's allowed capital expenditure for 2007/08 was set in the 2005 determination, before the decision to construct a desalination plant had been made.

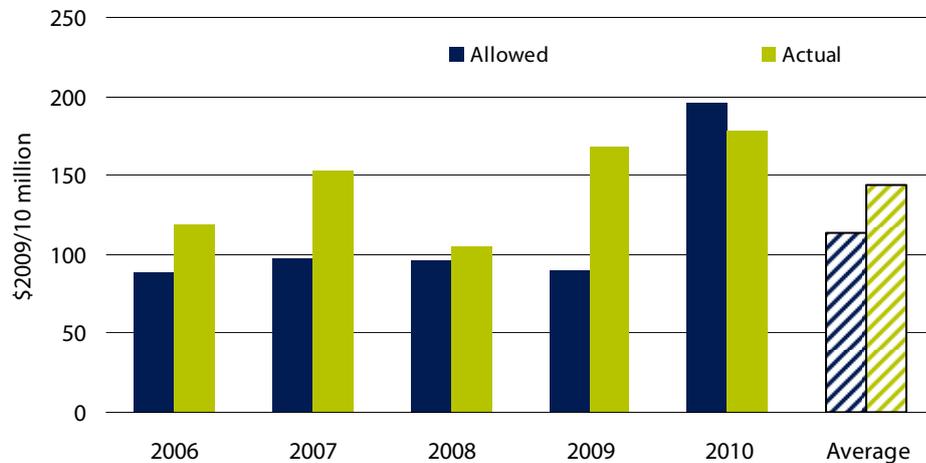
Figure 8.11 Sydney Water – actual v allowed capital expenditure (\$million, 2009/10)



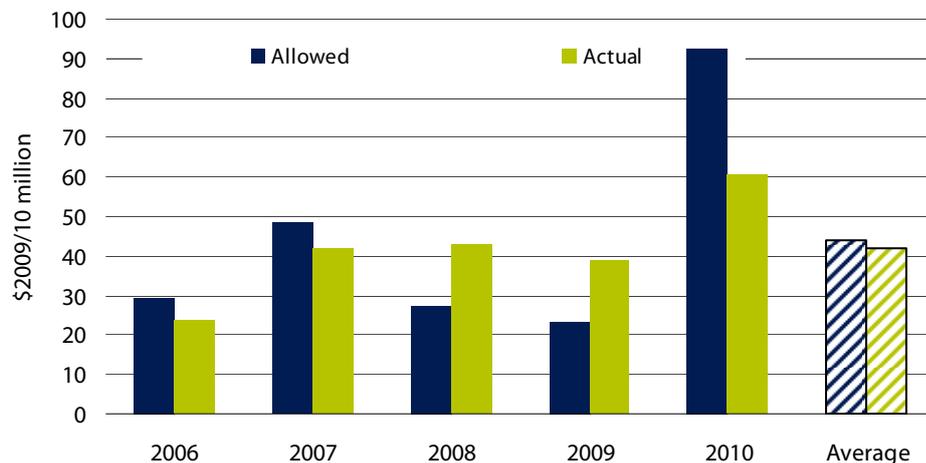
Hunter Water's actual capital expenditure exceeded its allowed expenditure in all years of the review period except for 2009/10, and by 27% on average (Figure 8.12.) As we noted in our report on our 2009 determination, the costs of a significant number of Hunter Water's capital projects during the preceding years exceeded their forecast costs; however, Hunter Water provided appropriate explanations for most of the variances.³⁸ In particular, Hunter Water was directed by Government to bring forward the construction of the Tillegra Dam³⁹ and other water supply infrastructure to provide drought relief to the Central Coast.

³⁸ IPART, *Review of prices for water, sewerage, stormwater and other services for Hunter Water Corporation*, July 2009, p 86.

³⁹ However, subsequently the NSW government decided not to proceed with the construction of the dam.

Figure 8.12 Hunter Water – actual v allowed capital expenditure (\$million, 2009/10)

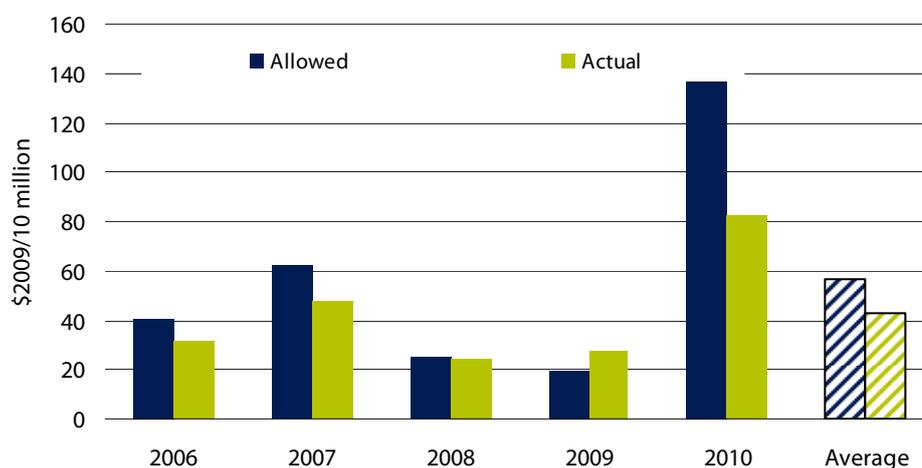
Gosford Council's actual capital expenditure varied from the allowed expenditure on a year-to-year basis, but was very similar to the allowed expenditure on average of the review period (Figure 8.13). Its average actual capital expenditure was just 5.6% less than the allowed expenditure.

Figure 8.13 Gosford Council – actual v allowed capital expenditure (\$million, 2009/10)

Wyong Council's actual and allowed capital expenditures are fairly similar in all years of the review period except for 2009/10, when its actual spending was significantly lower than allowed (Figure 8.14). As a result, Wyong Council's average actual capital spending was 24% less than allowed. The council reports that its under-spending in 2009/10 was largely due to:

- ▼ project delays - for example, some of the planned 2009/10 expenditure for the 2 major water projects (Mardi to Mangrove/Mardi Suite) will not take place until 2010/11, and
- ▼ some deferrals of major sewerage and drainage infrastructure due to changes to growth and development timetables.

Figure 8.14 Wyong Council – actual v allowed capital expenditure (\$million, 2009/10)

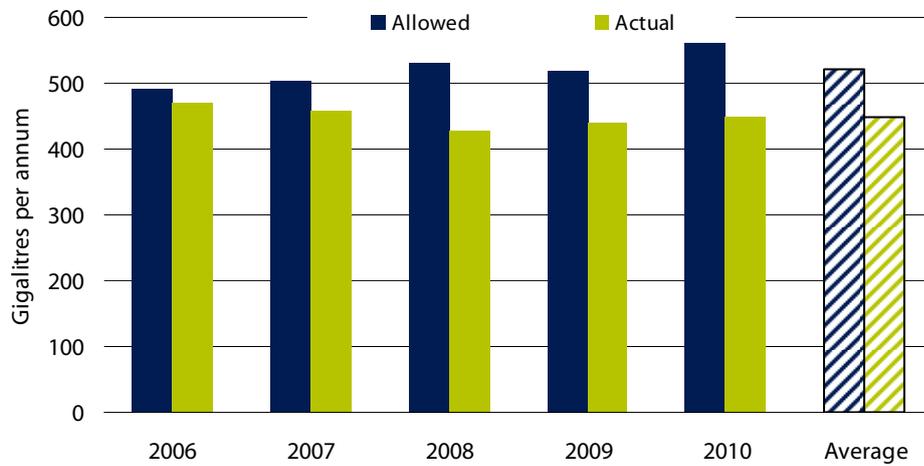


Water sales

The volume of water sold to customers is both an input to prices and a major determinant of the revenue the utility actually generates. That is, if water sales are more or less than forecast at the time we made the price determination, the utility will generally generate more or less than the required revenue we set prices to recover. However, some variance between forecast and actual sales is to be expected, as predicting the sales of water is difficult because they depend strongly on weather conditions and market conditions.

On average over the 5 years, all 4 utilities' actual water sales were less than allowed for in their pricing determinations.

Sydney Water's actual water sales were lower than allowed for in each year of the review period, and 14.0% lower on average (Figure 8.15). Part of this variance is due to water restrictions that remained in place for a longer period than we forecast when we determined prices for Sydney Water's customers in the 2008 determination.

Figure 8.15 Sydney Water - actual v allowed water sales (GLs)

Similarly, all 3 of the other utility's actual sales were less than allowed for in most years of the review period, but were within 10% of the allowed value on average. Hunter Water's average actual sales were 4.1% less than allowed for (Figure 8.16). Gosford Council's and Wyong Councils were 8.7% and 9.3% less than allowed for respectively (Figure 8.17 and Figure 8.18).

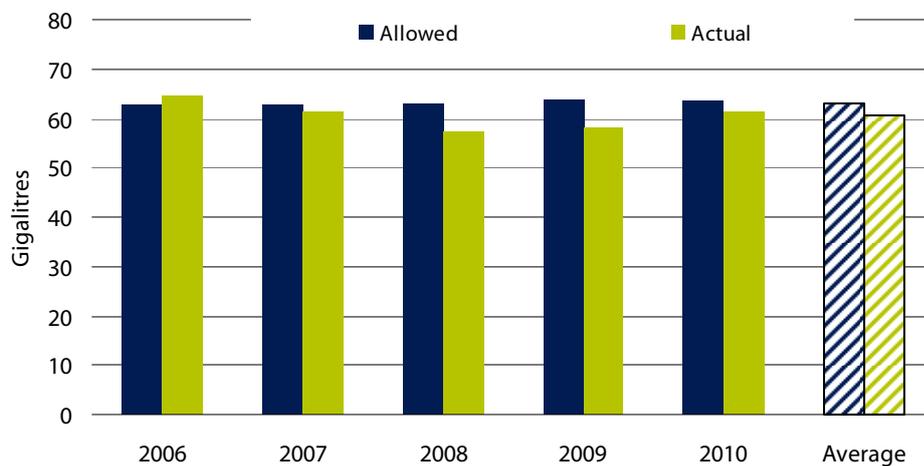
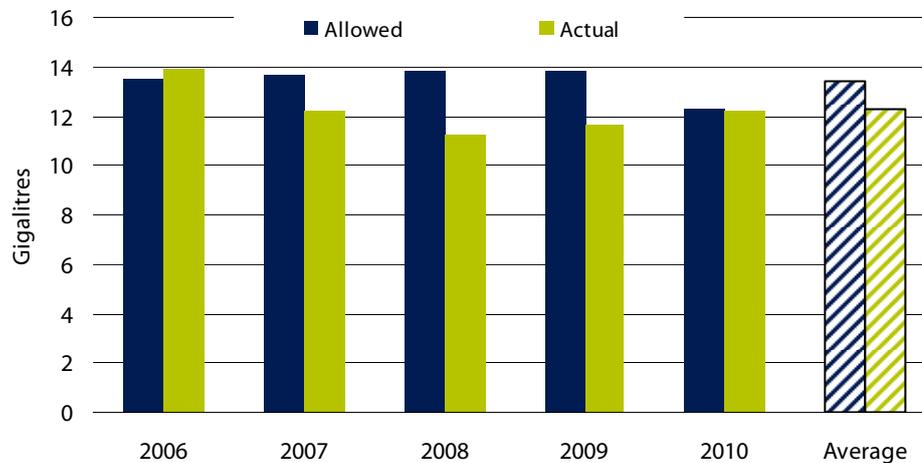
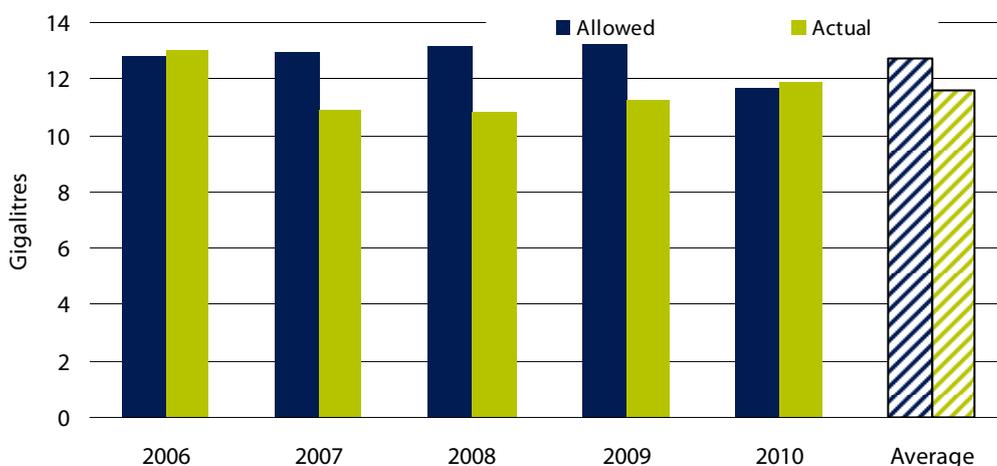
Figure 8.16 Hunter Water - actual v allowed water sales (GLs)

Figure 8.17 Gosford Council – actual v allowed water sales (GLs)**Figure 8.18 Wyong Council – actual v allowed water sales (GLs)**

Revenue generated

Despite the variances between actual and allowed water sales over the review period discussed above, the average revenues generated by all 4 retail utilities over this period were within 10% of the average levels of revenue allowed for in their determinations (Figures 8.19, 8.20, 8.21 and 8.22). All 4 utilities' revenues in real terms are increasing slowly over time.

Figure 8.19 Sydney Water – actual v allowed revenue (\$million, 2009/10)

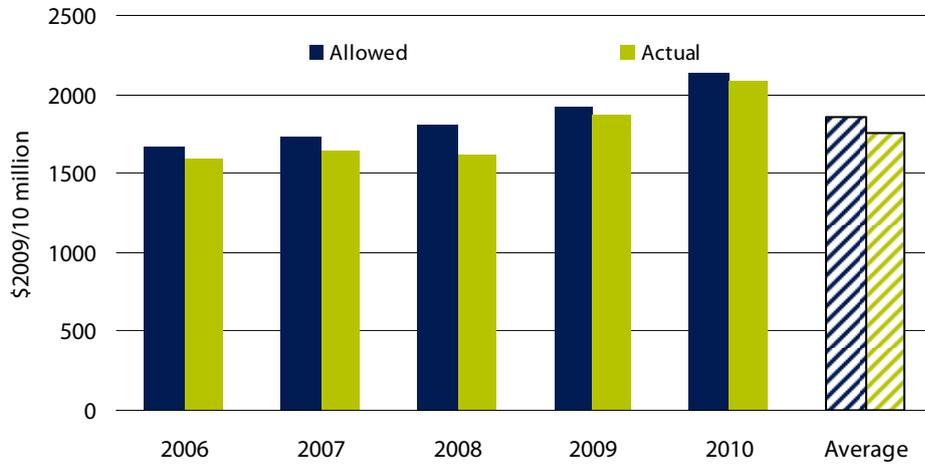


Figure 8.20 Hunter Water – actual v allowed revenue (\$million, 2009/10)

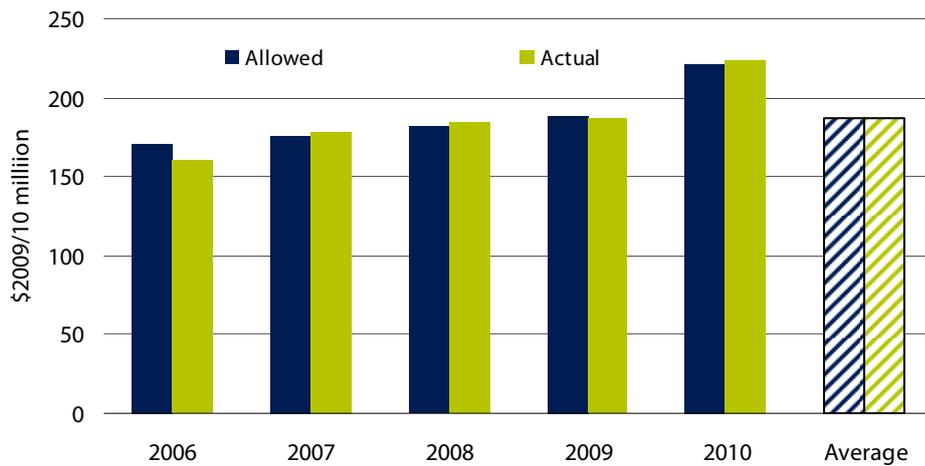
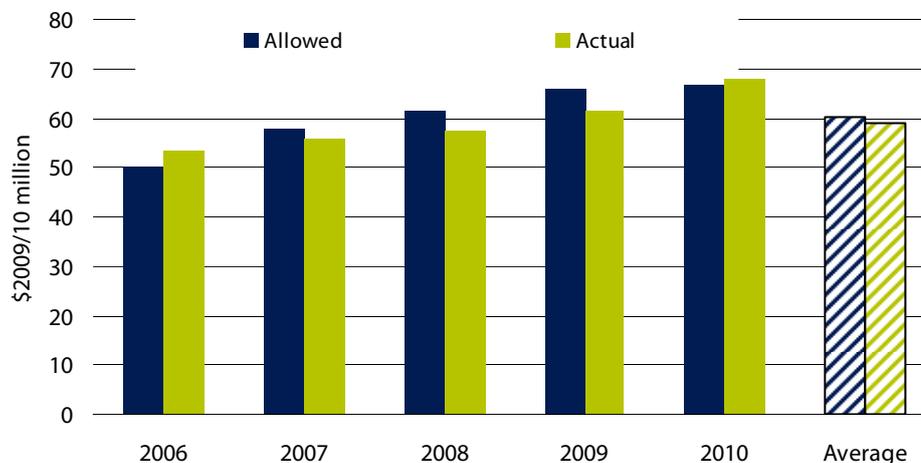
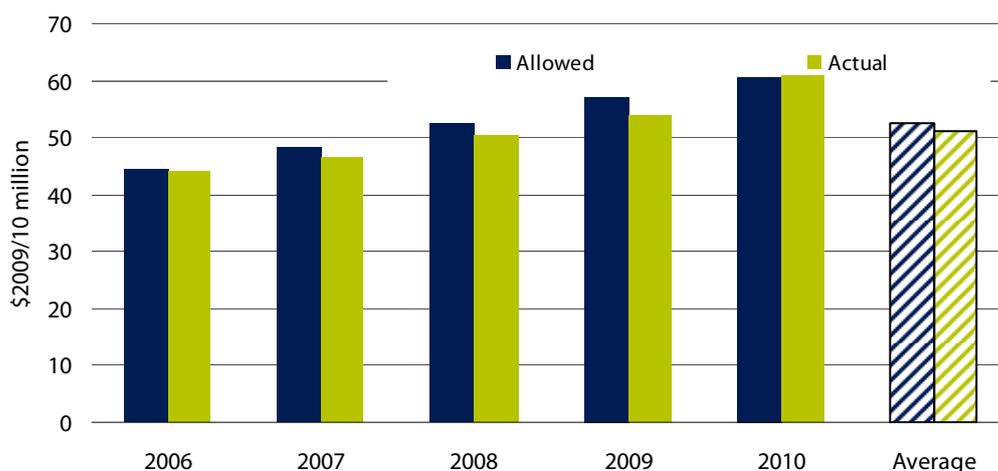


Figure 8.21 Gosford Council – actual v allowed revenue (\$million, 2009/10)**Figure 8.22 Wyong Council – actual v allowed revenue (\$million, 2009/10)**

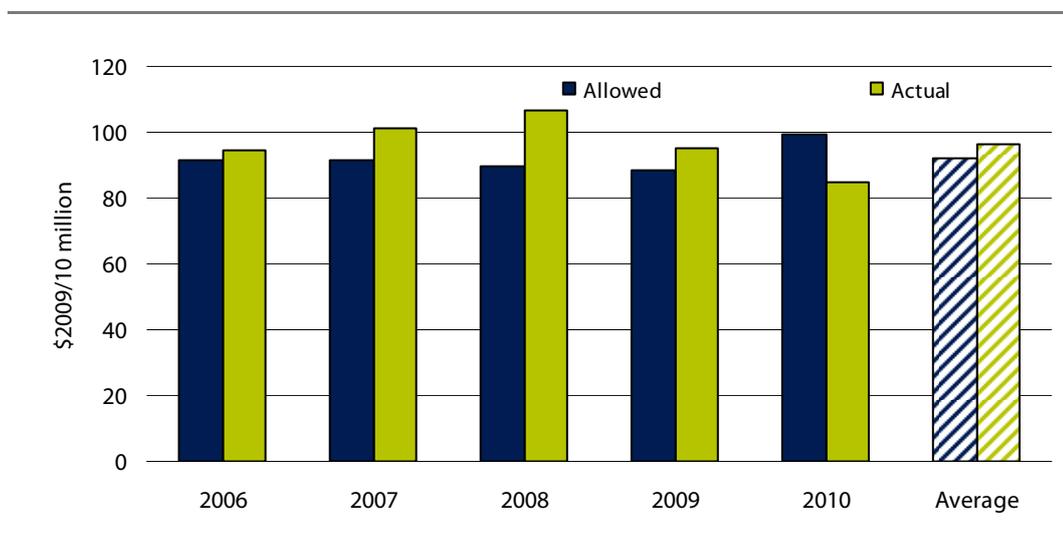
8.3.2 Sydney Catchment Authority

The Sydney Catchment Authority's revenue comes mainly from sales of bulk water to Sydney Water. Therefore its performance has a direct impact on the prices that Sydney Water charges its residential and non-residential customers. The Sydney Catchment Authority also supplies bulk water to a number of smaller customers but does not provide wastewater or stormwater services.

Operating expenditure

On average over the review period, Sydney Catchment Authority's actual operating expenditure was higher than we allowed for in making its price determinations. The Sydney Catchment Authority reports the major reason for this was that we did not allow for the costs of pumping water supplies from the Shoalhaven River in making its 2006 and 2009 determinations. In the past 5 years, up to 30% of Sydney's water supply has come from the Shoalhaven River.

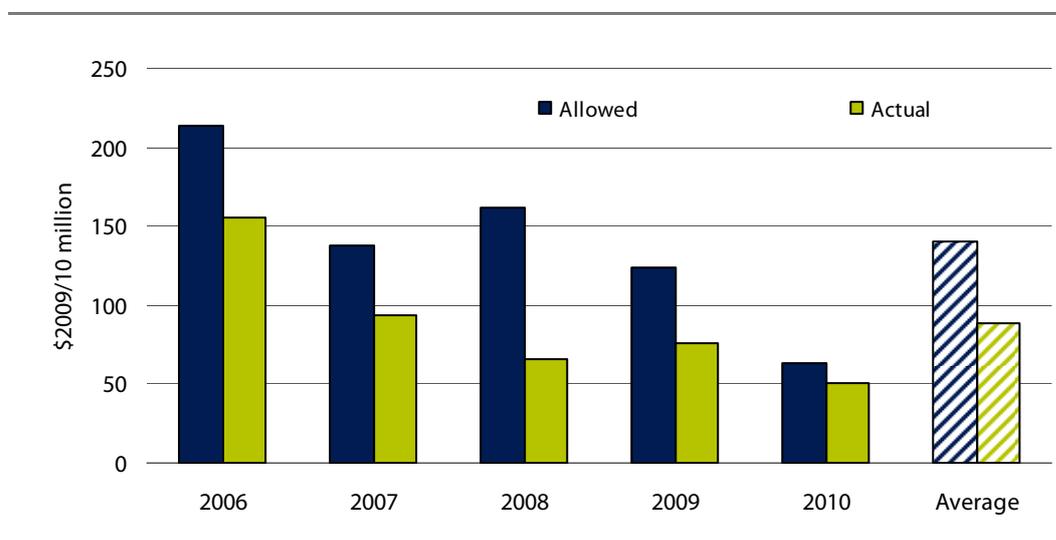
Figure 8.23 Sydney Catchment Authority – actual v allowed operating expenditure (\$million, 2009/10)



Capital expenditure

Sydney Catchment Authority's actual capital expenditure was significantly lower (36.9%) than its allowed expenditure on average over the review period. This was largely due to the Government's decision not to proceed with the upgrade of infrastructure for transferring water from the Shoalhaven River, which was made after the 2006 determination.

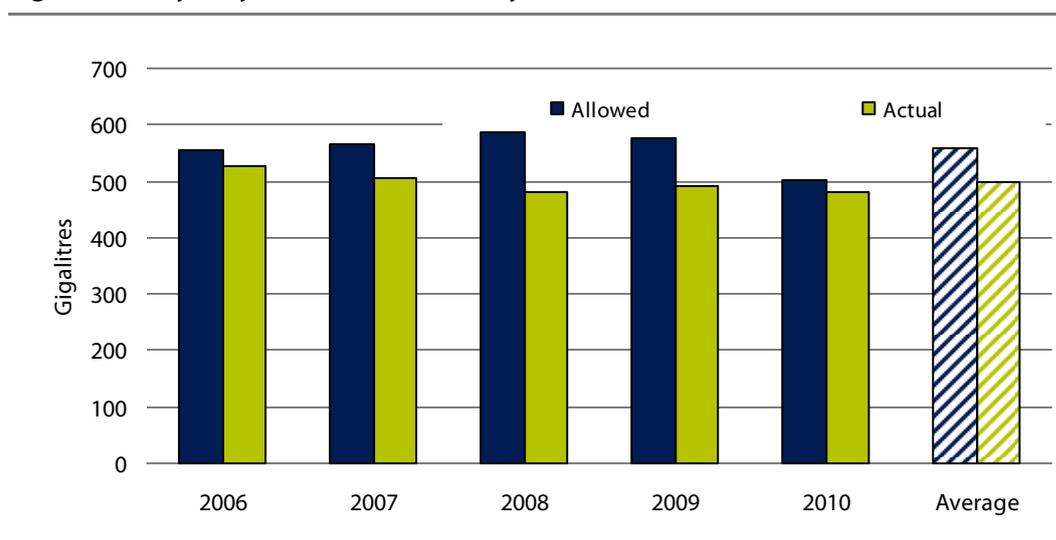
Figure 8.24 Sydney Catchment Authority – actual v allowed capital expenditure (\$million, 2009/10)



Water sales

Sydney Catchment Authority's actual water sales were less than allowed for in its price determinations in each year of the review period, and 10.9% less than allowed for on average over this period (Figure 8.25). This was largely due to the effect of water restrictions in the Sydney area.

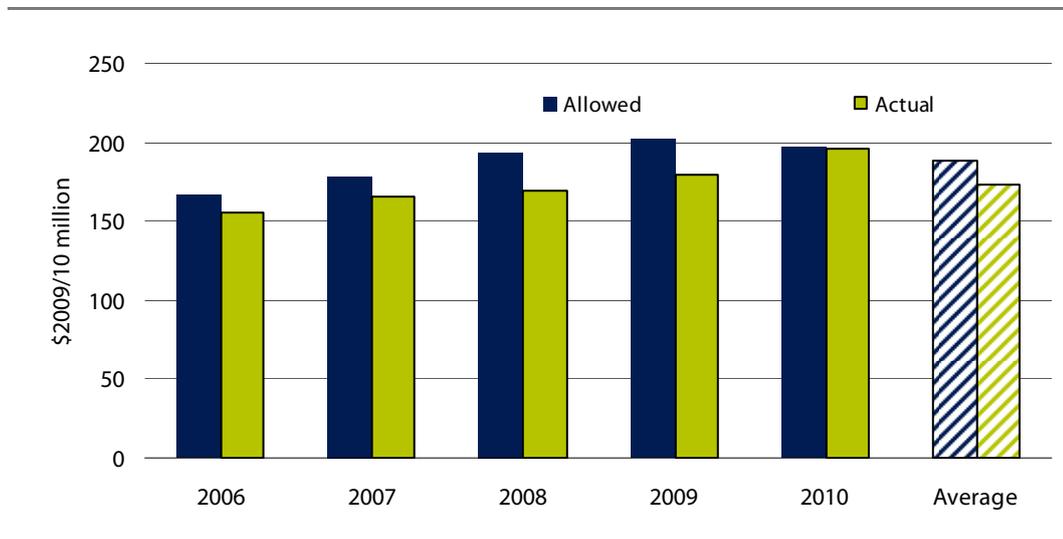
Figure 8.25 Sydney Catchment Authority – actual v allowed sales of water (ML)



Revenue

Consistent with its lower than allowed for sales, the revenue Sydney Catchment Authority generated was lower than allowed in every year of the review period. On average, its actual revenue was 7.6% less than allowed for.

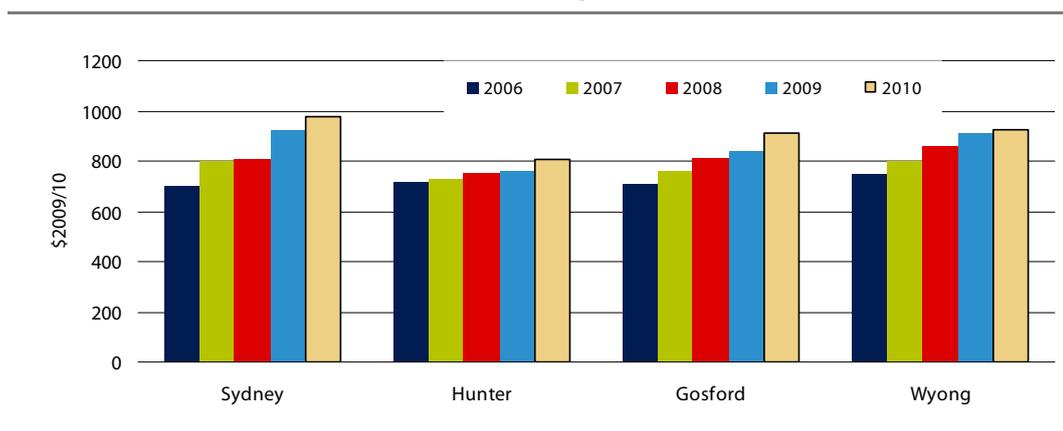
Figure 8.26 Sydney Catchment Authority – actual v allowed revenue (\$million, 2009/10)



8.4 Water and wastewater bills for residential customers

We also looked at how each utility's water and wastewater bills for residential customers and pensioners changed over the review period. Figure 8.27 compares the bill for water and wastewater services for a 'typical' residential customer who consumes 200 kLs⁴⁰ of water per year. This figure indicates that all 4 utilities' bills have increased in real terms over this 5-year period.

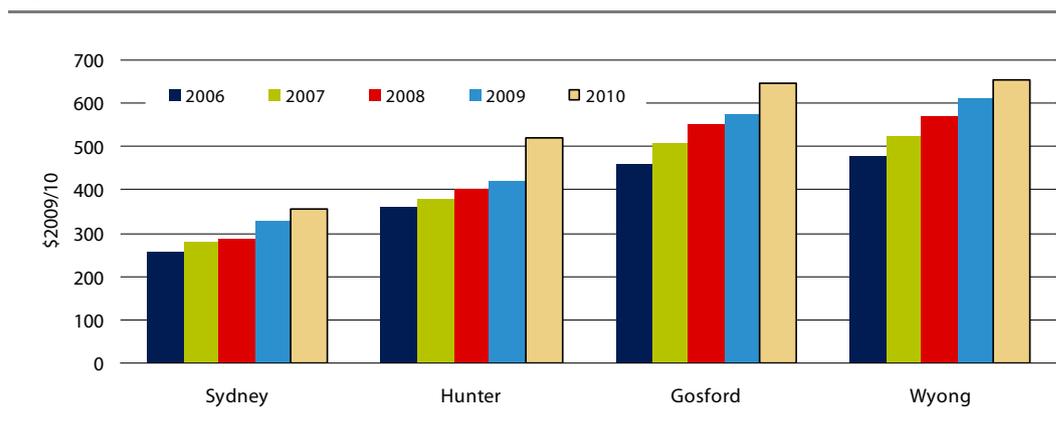
Figure 8.27 Water and wastewater annual residential bills (\$2009/10, 200kLs annual consumption)



⁴⁰ The average residential consumption for 2009/10 for all the utilities was 206 kLs per annum – source: IPART, *Residential energy and water use in Sydney, the Blue Mountains and Illawarra – results from the 2010 Household Survey*, p 126.

Figure 8.28 compares the water and wastewater bills for pensioner who use 150 kLs⁴¹ of water a year and receive the pensioner rebates available to them. This figure shows that while all the utilities' bills have increased over the period, pensioners who are Sydney Water customers pay much less than those who are customers of the other utilities, especially the 2 councils. This is because the schemes⁴² for rebates on pensioner bills vary among the utilities.

Figure 8.28 Pensioner Bills (\$2009/10, 150kLs annual consumption)



8.5 Findings on performance against output measures

In each of the 5 utility's price determinations, we set out the capital projects allowed for in making the determination and the output measure targets we expect them to meet over the determination period. For this review, we assessed their performance against the projects and targets included in current price determinations.

We note that the utilities continually review the activities contained in the output measures and refine their programs to ensure that expenditure is balanced against the needs of their systems. As a result, there are often sound reasons why they divert from output measure targets during the period of their price path. Further, variation within a period has little impact on subsequent period prices.

Generally, we set the targets to emphasise performance over the determination period in total rather than on a year-to-year basis. This allows water agencies to manage their project construction in the most effective and efficient manner.

⁴¹ The average consumption for a pensioner customer for 2009/10 for Sydney Water was 151 kLs, and 139 kLs on average for Hunter Water, Gosford Council and Wyong Council – source: IPART, *Residential energy and water use in Sydney, the Blue Mountains and Illawarra – results from the 2010 Household Survey*, p 126.

⁴² Pensioners in the Sydney Water area do not pay a fixed water charge and receive an approximate 85% rebate on the sewerage charge. Pensioners in the Hunter Water area received a maximum \$207 rebate in 2009/10 which will increase from 1 July 2011 to maintain the relativity between the rebate and the total bill. Pensioners living in the Gosford Council and Wyong Council areas receive a maximum rebate of \$175 on their combined bill capped as per the *Local Government Act 1993*.

8.5.1 Sydney Water

Sydney Water's current price determination period is from 1 July 2008 to 30 June 2012, and therefore it is 2 years (or halfway) through this period. It anticipates that it will meet most of the output targets included in the determination by the end of the period, although there will be some variances.

Water services

- ▼ Renewal/reliability of distribution mains - Sydney Water reports that the target is now overstated because its pressure reduction program and refinements to its decision-making processes have resulted in reduced lengths of main identified for renewal.
- ▼ Bulk water meters (new and refurbished) - Sydney Water expects to complete only 144 of the planned 200 meters by period end, the program has been modified to support efficient management of leakage.
- ▼ Water pumping station renewals - Sydney Water expects to renew 21 water pumping stations instead of 28 by period end due to longer than anticipated scoping and delivery of works and the need to defer works during periods of low water demand.
- ▼ Renewal of customer water meters - Sydney Water now expects to renew 66% of the target of 426,000 by 2012, as a result of changes in its water metering strategy and policy.

Sewerage services

- ▼ Rehabilitate sewers subject to dry weather overflows - Due to access difficulties and some sewers requiring shorter lengths, Sydney Water expects to rehabilitate 237 kms against the target of 290 kms by period end.
- ▼ Increase capacity of Sewage Treatment Plants (STPs) - Capacity increases were planned for 6 STPs, but Sydney Water expects delays for the Warriewood and Picton plants, and investigation has revealed that the North Richmond plant has sufficient capacity until 2031.
- ▼ Reduce wet weather overflows - 7 catchments were targeted but Sydney Water has determined that only 6 catchments require work.

Stormwater services

- ▼ Complete Alexandria Canal improvements to the satisfaction of the then Department of Infrastructure, Planning and Natural Resources by 2009 - Investigations found that the original strategy for the improvement of Alexandria Canal is not viable. Therefore Sydney Water has decided instead to participate in performance monitoring of the Sydney Park stormwater harvesting scheme.

- ▼ Pipe and channel renewal and rehabilitation - Sydney Water has found that the target of 15 kms of renewals is now overstated and forecasts a total of 8.1 kms renewals by period end.

Capital program

Sydney Water's capital expenditure for 2009/10 was \$1,072 million compared to the projected capital expenditure in Sydney Water's determination of \$1,090 million. However, it is important to note that capital projects will not necessarily proceed at a regular pace over the determination period, some will have more expenditure made during the early part of the period and vice-versa.

Sydney Water reports that the following projects were completed in 2009/10:

- ▼ The desalination project at Kurnell – completed including associated pipe work.
- ▼ North Head Sewage Treatment Plant – to cater for projected growth in the catchment.
- ▼ Wet Weather Overflow Abatement Program – to decrease sewage overflow instances effecting properties, swimming areas and other environmentally sensitive sites.

It also reports that the main variances between its projected and actual capital works program are as shown on Table 8.1.

Table 8.1 Sydney Water's capital program – main variances as at 2009/10

Activity	Variance
Land development at Potts Hill required for sale	+\$16 million
Purchase of trunk drainage land as part of Rouse Hill Stage 3 development	+\$8 million
Glenfield to Liverpool Effluent Diversion Scheme – accelerated construction in 2009/10 and successful early completion	+\$7 million
Customer Management System – a business case variation and purchase of hardware moved from 2008/09 to 2009/10	+\$7 million
Desalination Pipeline and Development Costs – project development contingencies not being realised and savings achieved from the water delivery alliance	-\$93 million
Developer Commercial Agreements – a lower than expected contribution for developer work	-\$11 million

8.5.2 Hunter Water

Hunter Water's current price determination period is from 1 July 2009 to 30 June 2013, and therefore it is currently only 1 year into this period. At this early stage, Hunter Water reports that it is on track to meet most of the output measure targets included in its determination by the end of the period, except Tillegra Dam, due to government decision.

Water services

- ▼ Water mains - Targets were set for the lengths of various water mains to be condition assessed or renewed/upgraded. The lengths completed indicate that this work is progressing.
- ▼ Pump stations construction/upgrading - Generally, this work is on track except for the Telarah pump station where construction timing is under review.
- ▼ New reservoirs constructed - Various new reservoirs are scheduled for completion before 30 June 2013. Generally this work is on track.
- ▼ Water Treatment Upgrades - 2 water treatment plants are scheduled for upgrading by 2013.
- ▼ Construction of the Tillegra Dam - the project was not granted planning approval by the NSW Government in November 2010 and will not proceed.

Wastewater services

- ▼ Wastewater mains - Targets were set for the lengths of various mains to be condition assessed or renewed/upgraded. Lengths completed show that work is progressing.
- ▼ Sewage Treatment Plant Upgrades - All upgrades are currently on track.
- ▼ Sewage Pumping Station Upgrades - Of the target of 30 pump stations to be upgraded, 22 stations are on track. The remainder are under review because of various factors.
- ▼ Reduce wet weather overflows in various catchments - Hunter Water is required to report on the number of overflow events in 8 catchments. To date, this number has ranged from 0 to 3 per year.
- ▼ Sewerage transport system upgrades - Generally upgrades are on track except for Raymond Terrace (Stages 1 & 2) where Stage 2 is now subject to prioritisation.
- ▼ Improve Biosolids Management - Hunter Water is to report the number of dry tonnes produced/dry tonnes disposed (4.920 tonnes produced/5.123 tonnes disposed in 2009/10).
- ▼ Design biological capacity of treatment works with a licence requiring biochemical oxygen demand and suspended solids removal only (EP), and Design biological capacity of treatment works with a licence requiring nutrient removal (nitrogen only or both nitrogen and phosphorous) - Hunter Water is required to record capacity and load annually by plant and results for each relevant plant have been reported to IPART.

Stormwater services

Targets have been set for the number of kms of drainage channel rehabilitations to be completed by 30 June 2013. At this stage work is on track.

Corporate services

Targets of 44,000 customer meters of 20mm size and 2,000 customer meters larger than 20mm have been set for replacement. Currently 13,429 and 486 meters respectively have been replaced.

8.5.3 Gosford Council

Gosford Council's current determination period is from 1 July 2009 to 30 June 2013. Therefore it is only 1 year into this period. Gosford Council's report shows that its results for the period of 2009/10 are mixed. The comments following provide some insight into Gosford Council's performance for 2009/10.

Output Measures for the Joint Water Supply Authority

Gosford and Wyong Councils share a joint water headworks supply, which is managed by the Gosford and Wyong Council's Joint Water Supply Authority (the JWS Authority⁴³). The major bulk water storages are Mooney Mooney and Mangrove Creek Dams in Gosford Council's area of operations, and Mardi Dam in Wyong Council's area of operations. The councils act together as members of the JWS Authority to manage the supply of bulk water. The JWS Authority manages a number of major water projects (termed Joint Water Supply (JWS) projects) with the costs shared between the councils. The councils are responsible for the supply of water and the provision of sewerage and stormwater drainage services within their own local government areas.

IPART set targets for the JWS Authority when we determined Gosford and Wyong Councils' prices in 2009. Each council is required to report on the common targets.

⁴³ The NSW Government intends that the water supply and associated functions of Gosford Council and Wyong Council be transferred to a new body called the Central Coast Water Corporation (the Corporation) which will provide services to the Central Coast. Once the Corporation has been established as a 'water supply authority' under the *Water Management Act 2000*, it is intended that the 2 councils will cease to supply water and associated services. On 17 February 2011, Gosford City Council and Wyong Shire Council approved the Central Coast Water Corporation's (Corporation) constitution and shareholders agreement. The Councils agreed that the Corporation will be operational from 1 July 2011. The new Corporation will manage the region's entire water cycle. The Councils are looking at a full transfer of staff, assets and functions to the Corporation by 2013.

Completion of the Mardi to Mangrove link

The basic principle of the project is to transfer water from Mardi Dam into Mangrove Creek Dam. This will enable more water to be harvested from Wyong River and Ourimbah Creek. Mardi Dam will, in future, operate as a balancing storage (it is a primary storage at present) with spare capacity ready to store water from the next high river flows. Construction is progressing with commissioning expected in mid 2011.

Completion of the Mardi suite of works

The main projects for completion by 2013 are the Dam Transfer System, the High Lift Pump Station and the Spillway and Bridge. Testing and commissioning was completed in November 2010.

Completion of the Mardi Dam pre-treatment project

The councils report that investigative studies are progressing.

Completion of the stormwater harvesting at Porters Creek

The councils report that investigative studies are progressing.

Output measures for Gosford City Council

Water

- ▼ There were 39⁴⁴ water quality complaints per 1,000 properties compared to the target of no more than 10 complaints per 1,000 properties.
- ▼ There were 34⁴⁵ water main breaks per 100 km of main in 2009/10 compared to the target of no more than 10 breaks per 100 km of main.
- ▼ Gosford Council is required to report on the average leakage which was 3.1 ML per day.
- ▼ Gosford Council is required to report the number of kms of water mains renewed which was 2.4 km for 2009/10.

Wastewater

- ▼ A target of no more than 2 odour complaints per 1,000 properties was set - 1.6 per 1,000 properties was recorded for 2009/10.
- ▼ A target of no more than 12 main breaks and chokes per 100 kms of main was set - 39.9⁴⁶ per 100 kms was recorded for 2009/10.
- ▼ A target of no more than 9.5 overflows per 100 kms of main was set - 35.5 overflows per 100 kms was recorded for 2009/10.

⁴⁴ See Table A.2 for common NWI indicator result.

⁴⁵ See Table A.8 for common NWI Indicator result.

⁴⁶ See Table A.10 for common NWI Indicator result.

- ▼ Completion of the Kincumber and Woy Woy STP upgrade and Coastal Carrier wastewater system upgrade by 2013 was set, Gosford Council reports that it expects completion by 2012.
- ▼ A target for all STPs to comply with DECC effluent standards⁴⁷ was set – Gosford Council reports that all licence conditions were complied with except the load based limit for total nitrogen. It notes that the planned STP upgrade will increase treatment efficiency and nutrient removal.

8.5.4 Wyong Council

Wyong Council's current determination period is from 1 July 2009 to 30 June 2013. Therefore, it is only 1 year into this target. The council reports that its results for the period of 2009/10 are positive. The comments following provide some insight into Wyong Council's performance for 2009/10.

Output Measures for the Joint Water Supply Authority

Please see comments in section 1.3.3, above.

Output measures for Wyong Council

Water

- ▼ Targets for water quality of 100% compliance with NHMRC monitoring and health guidelines were achieved.
- ▼ A target of less than 5⁴⁸ water quality complaints per 1,000 customers annually was achieved.
- ▼ A target of less than 5% customers suffering a service interruption of greater than 5 hours in a year was achieved.
- ▼ A target of water pressure of at least 15 metres for at least 98% of customers was achieved.
- ▼ A target to have no more than 15% of customers dissatisfied with service delivery was achieved.

Wastewater

- ▼ A target to meet the DECC licence condition for effluent discharges to the ocean 100%⁴⁹ of the time was met.
- ▼ A target for less than 1% of properties to experience odours was achieved.
- ▼ A target for less than 1% of properties to experience overflows was achieved.

⁴⁷ See Table A.13 for common NWI Indicator result.

⁴⁸ See Table A.2 for common NWI Indicator result.

⁴⁹ See Table A.13 for common NWI Indicator result.

- ▼ A target to have no more than 5% of customers dissatisfied with service delivery was achieved.

8.5.5 Sydney Catchment Authority

Unlike the 4 metropolitan retail water utilities, Sydney Catchment Authority's main business is as a wholesaler of water to Sydney Water, and it does not provide any wastewater or stormwater services. Therefore its output measures are broad measures directed at the completion of large projects.

Sydney Catchment Authority's current determination period is from 1 July 2009 to 30 June 2012, so it is 1 year into this period. It reports that it is largely on track to deliver the output measures included in its determination, except for the Metro Dams Electrical Upgrade project. This project has close links to SCADA, and it decided to align the timing of the 2 projects which has altered the upgrade project's delivery date.

Deliver a strategy for the future of the Upper Canal by June 2013

The Upper Canal was built over 100 years ago. Over the forthcoming determination period, the Sydney Catchment Authority was set the target of undertaking longer term water supply system planning, including developing options for the replacement of the Upper Canal.

Sydney Catchment Authority reports that an options report (completed) and the subsequent business cases will represent the finalisation of the strategy for the future of the Upper Canal. The project is tracking to schedule.

Complete the Prospect Reservoir upstream embankment stabilisation upgrade by April 2013

This project is to comply with dam safety mandatory standards, and will result in stabilisation of the embankment. Sydney Catchment Authority reports that the project is due for completion by April 2013.

Complete the Warragamba Dam crest gates construction project by June 2011.

This is a critical dam safety requirement. The capacity to raise the radial gate and strengthen the facility provides greater protection against dam failure. Sydney Catchment Authority reports that the project is scheduled for completion in March 2011 and within the total project budget.

Complete the Wingecarribee Dam safety upgrade project by June 2013

This project comprises mandatory upgrades to dam safety to meet existing safety legislation. Sydney Catchment Authority reports that the total project budget has increased following the review and final endorsement of the recommendations is included in the Dam Safety Risk Assessment Report. The detailed design and construction is now scheduled for completion by June 2012.

Complete the Upper Nepean environmental flows works project by April 2010

The project is designed to release 80/20 environmental flows from the Upper Nepean Dams and to maximise the environmental benefits for the Nepean and Hawkesbury Rivers. Sydney Catchment Authority reports that the project is on track to be completed on schedule and within the current budget.

Complete the Metropolitan Dams electrical systems upgrade project by April 2013

This program comprises upgrades to meet mandatory Occupational Health and Safety standards. Sydney Catchment Authority reports that the construction works are on track to commence in early 2013 and be completed in 2016.



Appendices

A Data underlying figures in report

Table A.1 Water quality complaints per 1,000 properties

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	0.8	0.8	0.9	0.6	0.7
Hunter Water	6.8	3.9	2.8	3.2	3
Gosford Council	57	56	94	25	39
Wyong Council	9	7.2	3.4	5	5

Note: data underlying Figure 3.1.

Source: National Performance Report 2009/10.

Table A.2 Number of customers per 1,000 properties that experienced 1 or more planned or unplanned water interruptions in a financial year that exceed 5 hours in total

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	25	27	28	21	19
Hunter Water	61	71	25	41	32
Gosford Council	NA	NA	NA	NA	NA
Wyong Council	NA	NA	NA	NA	NA

Note: data underlying Figure 4.1

Source: Sydney Water Operating Licence Compliance Report (SWC OLCR) 2009-10, Hunter Water Service Quality and System Performance Report (HWC SQSPR) 2009-10.

Table A.3 Number of properties that experienced 3 or more unplanned water interruptions in a financial year, per 1,000 water supply connections

	2006/07	2007/08	2008/09	2009/10
Sydney Water	NA	9.6	8	6.4
Hunter Water	NA	10.6	20.4	10.1
Gosford Council	NA	NA	NA	NA
Wyong Council	NA	NA	NA	NA

Note: data underlying Figure 4.2.

Source: SWC OLCR 2009-10, HWC Environmental Performance Indicators Report (EPIR) 2009-10.

Table A.4 Number of properties not located in a low pressure area that experienced more than 1 pressure incidents in a financial year

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	1,865	584	98	39	22
Hunter Water	1	0	0	0	0
Gosford Council	NA	NA	NA	NA	NA
Wyong Council	NA	NA	NA	NA	NA

Note: data underlying Figure 4.3.

Source: SWC OLCR 2009-10, HWC Environmental Performance Indicators Report (EPIR) 2009-10.

Table A.5 Frequency of unplanned water interruptions (expressed in number per 1,000 properties)

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	6	6	5	4.5	4
Hunter Water	387	372	225	271	255
Gosford Council	293	280	181	203	239
Wyong Council	0	33	39	61	61

Note: data underlying Figure 4.4.

Source: National Performance Report 2009/10.

Table A.6 Average duration of an unplanned water interruption (minutes)

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	130	141	167	141	140
Hunter Water	157	177	118	121	119
Gosford Council	61	224	232	238	230
Wyong Council	180	150	202	210	204

Note: data underlying Figure 4.5.

Source: National Performance Report 2009/10.

Table A.7 Number of water main breaks per 100km of water main

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	42	35	30	34	28
Hunter Water	45	37	30	33	32
Gosford Council	43	36	29	27	34
Wyong Council	5	4	4	9	6

Note: data underlying Figure 4.6.

Source: National Performance Report 2009/10.

Table A.8 Real water losses due to leakage (litres/service connection/day)

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	91	94	91	81	73
Hunter Water	81	85	80	94	88
Gosford Council			25	32	52
Wyong Council	29	26	28	29	31

Note: data underlying Figure 4.7.

Source: National Performance Report 2009/10.

Table A.9 Number of sewer main breaks and chokes per 100km of sewer mains

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	87	90	64	51	56
Hunter Water	58	63	50	88	58
Gosford Council	69	68	55	44	40
Wyong Council	49	42	50	54	48

Note: data underlying Figure 4.8.

Source: National Performance Report 2009/10.

Table A.10 Average duration of sewerage service interruptions (2008/09 onwards), and average sewerage break/choke repair time (prior to 2008/09)

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	112	137	143	240	238
Hunter Water	153	151	144	0	0
Gosford Council	132	120	134	116	161
Wyong Council	120	186	165	156	150

Note: data underlying Figure 4.9.

Source: National Performance Report 2009/10.

Table A.11 Water supply in 2009/10 by source (ML)

	W1 Surface water	W2 Groundwater	W3 Desalination	W4 Recycled water	W5 Bulk supplier
Sydney Water	6,065	0	19,952	10,253	479,633
Hunter Water	63,433	7,117	0	2,899	0
Gosford Council	11,476	96	0	362	2,120
Wyong Council	13,480	292	0	1,024	3,595

Note: data underlying Figures 5.1-5.4.

Source: National Performance Report 2009/10.

Table A.12 Percentage of sewage volume treated that complied with environmental protection licence conditions

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	100%	100%	96%	96%	97%
Hunter Water	85.6%	99.1%	87.3%	91.1%	95%
Gosford Council	100%	100%	100%	100%	100%
Wyong Council	100%	99%	100%	100%	100%

Note: data underlying Figure 5.5.

Source: National Performance Report 2009/10.

Table A.13 Percentage of biosolids reused

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	100%	100%	100%	100%	100%
Hunter Water	88%	104%	100%	88%	104%
Gosford Council	100%	100%	100%	100%	100%
Wyong Council	100%	100%	100%	100%	100%

Note: data underlying Figure 5.6.

Source: National Performance Report 2009/10.

Table A.14 Total net greenhouse gas emissions (net tonnes CO₂-equivalents) per 1,000 properties

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	NA	NA	240	200	164
Hunter Water	362	371	333	412	448
Gosford Council	432	386	380	439	482
Wyong Council	NA	NA	NA	NA	NA

Note: data underlying Figure 5.7.

Source: National Performance Report 2009/10.

Table A.15 Total electricity consumption for water and sewer assets (kWh/ML water supplied and kWh/ML sewage treated)

	2005/06	2006/07	2007/08	2008/09	2009/10
SWC – water assets	267.2	283.3	273.2	275.9	283.7
SWC – sewer assets	496.5	467.6	427.3	485.3	484.8
HWC – water assets	438	570	473	487	503
HWC – sewer assets	534	490	529	601	677
Gosford– water assets	NA	NA	NA	NA	NA
Gosford– sewer assets	NA	NA	NA	NA	NA
Wyong– water assets	NA	NA	NA	NA	NA
Wyong – sewer assets	NA	NA	NA	NA	NA

Note: data underlying Figure 5.8.

Source: SWC OLCR 2009-10, HWC Environmental Performance Indicators Report (EPIR) 2009-10.

Table A.16 Percentage of electricity consumed that was from renewable energy sources

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	6.8%	6.1%	4.9%	6.3%	10.3%
Hunter Water	NA	NA	0%	0%	0%
Gosford Council	NA	NA	NA	NA	NA
Wyong Council	NA	NA	NA	NA	NA

Note: data underlying Figure 5.9.

Source: SWC OLCR 2009-10, HWC Environmental Performance Indicators Report (EPIR) 2009-10.

Table A.17 Sewage odour complaints per 1,000 properties

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	0.20	0.07	0.12	0.14	0.13
Hunter Water	NA	NA	1.73	0.69	0.55
Gosford Council	NA	NA	NA	NA	NA
Wyong Council	NA	NA	NA	NA	NA

Note: data underlying Figure 5.10.

Source: SWC OLCR 2009-10, HWC Environmental Performance Indicators Report (EPIR) 2009-10.

Table A.18 Recycled water as a percentage of treated sewage

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	4%	4%	4%	5.3%	7%
Hunter Water	7%	5%	6%	7.9%	10%
Gosford Council	2%	1%	2%	2%	3%
Wyong Council	8%	9%	9%	9%	7%

Note: data underlying Figure 6.1.

Source: National Performance Report 2009/10.

Table A.19 Total number of water and sewerage complaints per 1,000 properties

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	4.9	4.7	8.1	6	4
Hunter Water	50.1	44	38.7	7.4	8
Gosford Council	NA	NA	NA	NA	NA
Wyong Council	NA	NA	NA	21	21

Note: data underlying Figure 7.1.

Source: National Performance Report 2009/10.

Table A.20 Percentage of complaints resolved in <5 days and <10 days

	2005/06	2006/07	2007/08	2008/09	2009/10
SWC – complaints resolved in less than 5 days	35%	33%	24%	28%	37%
SWC – complaints resolved in less than 10 days	90%	89%	90%	91%	86%
HWC – complaints resolved in less than 5 days	NA	NA	80%	87%	85%
HWC – complaints resolved in less than 10 days	NA	NA	87%	94%	97%
Gosford – complaints resolved in less than 5 days	NA	NA	NA	NA	NA
Gosford – complaints resolved in less than 10 days	NA	NA	NA	NA	NA
Wyong – complaints resolved in less than 5 days	NA	NA	NA	NA	NA
Wyong – complaints resolved in less than 10 days	NA	NA	NA	NA	NA

Note: data underlying Figure 7.2.

Source: SWC OLCR 2009-10, HWC Customer Service Report 2009-10.

Table A.21 Percentage of telephone calls answered within 30 seconds

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	84%	83%	88%	85%	89%
Hunter Water	68%	61%	56%	72%	70%
Gosford Council	NA	NA	NA	NA	NA
Wyong Council	NA	NA	88%	92%	65%

Note: data underlying Figure 7.3.

Source: National Performance Report 2009/10.

Table A.22 Total number of complaints referred to EWON

	2005/06	2006/07	2007/08	2008/09	2009/10
Sydney Water	536	590	504	498	614
Hunter Water	NA	NA	123	85	119
Gosford Council	NA	NA	NA	NA	NA
Wyong Council	NA	NA	NA	NA	NA

Note: data underlying Figure 7.4.

Source: SWC OLCR 2009-10, HWC Customer Service Report (CSR) 2009-10.

