



HUNTER WATER CORPORATION

Integrated Water Resources (H₂50) Plan Report 2011-12



August 2012

About the Annual Operating Licence Reports

Hunter Water Corporation (Hunter Water) delivers services under an Operating Licence granted by the NSW Government. The licence protects consumers by prescribing minimum standards of service that Hunter Water must meet in relation to:

- Drinking water quality - supplying customers with safe drinking water
- Water continuity - providing customers with a reliable supply of water
- Water pressure - providing customers with water pressure as specified in the licence
- Wastewater transport - providing the reliable transport of sewage

The Operating Licence also sets out conditions relating to community consultation, customer and consumer rights, customer complaint and dispute handling, managing water demand and supply, environmental management, publication of environmental and Ecologically Sustainable Development (ESD) indicators and independent auditing of operational performance.

This report covers the final year of the previous Operating Licence, which was from 1 July 2007 to 30 June 2012. The content of the licence was determined after a full public review by the Independent Pricing and Regulatory Tribunal (IPART). Full copies of the 2007-2012 Operating Licence and the current licence (2012-2017) are available from the publications area of Hunter Water's website www.hunterwater.com.au.

Each year, an independent audit of Hunter Water's operations is conducted to assess the Corporation's compliance with the Operating Licence. The audit assesses Hunter Water's performance against service standards and associated conditions of the licence. This annual audit is overseen by IPART.

To assist in the audit process, the Operating Licence requires a number of reports to be provided annually to IPART. These reports are:

- Catchment Report
- Consultative Forum Report
- Customer Services Report
- Drinking Water Quality Management Report
- Environmental Performance Indicators Report
- Integrated Water Resource Plan Report
- Service Quality and System Performance Report

The reports must be submitted by 1 September each year with the exception of the Drinking Water Quality Management Report, which is submitted by 31 December. All reports, or key elements of them as set out in the Operating Licence, are available on Hunter Water's website or to the community free of charge at Hunter Water's offices.

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Executive Summary

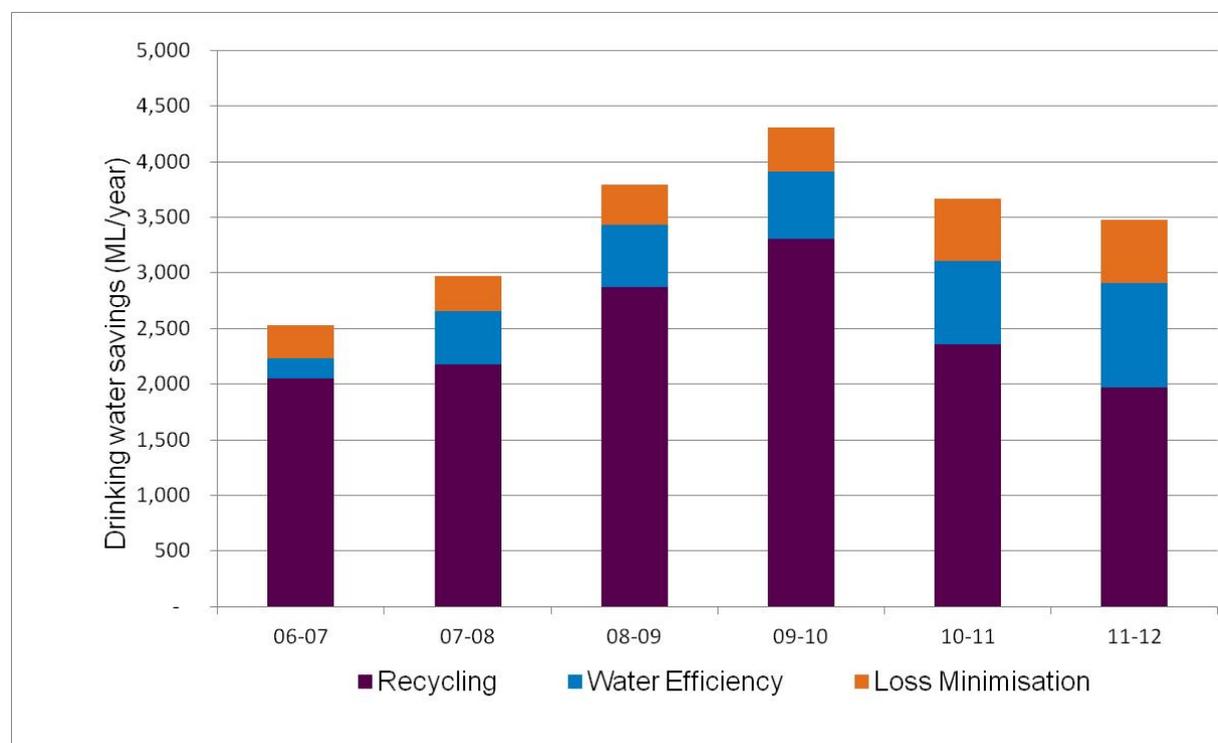
Hunter Water's previous 2007-2012 Operating Licence required it to review the Integrated Water Resources Plan (H₂50 Plan) at least once within the licence term, with annual progress reporting of the plan's implementation. The new 2012-17 Operating Licence came into effect on 1 July 2012 and has different reporting requirements. This report details progress against the H₂50 Plan for 2011-12, the last year of the 2009-12 licence and is therefore, the final Integrated Water Resources Plan report.

Water resource planning issues were addressed in Hunter Water's H₂50 Water Plan published in 2008. Hunter Water has continued to implement the water savings initiatives of the H₂50 Water Plan following the government's decision not to proceed with Tillegra Dam. Progress on how Hunter Water is tracking against the actions within the H₂50 Plan is summarised in Table E-1. Budgeted and actual expenditure versus implemented and identified water savings is summarised in Table 9-1.

The lower Hunter region has a strong record of water conservation. Since release of the H₂50 Plan, the region has continued to save about 3,500 ML¹ of water per year. Savings from water efficiency and loss minimisation programs have continued to increase. Recycling for potable substitution has varied with the weather (see Figure E-1). It is important for Hunter Water and the community to continue this focus on water conservation as the region is not immune to drought. The region's major storages are small, or shallow, and can fall quickly due to natural losses like evaporation.

The Metropolitan Water Directorate is leading development of a Lower Hunter Water Plan (LHWP) to identify measures to ensure adequate water for the region's needs - both in drought and for the longer term - in collaboration with Hunter Water, government agencies and the community. The LHWP process supersedes Hunter Water's H₂50 Plan.

Table E-1 Increasing Level of Recycling and Water Efficiency



¹ 1 ML = one megalitre = one thousand litres

Table E-1 Summary of Hunter Water’s Water Supply and Demand Performance

Action	Status				
	Completed	On-track	Ongoing	Reprioritised by HWC	Reprioritised by IPART
New Supply (see section 2 on page 2)					
Development of proposed Tillegra Dam ¹				▲	
Balickera Pump Station upgrade	✓				
Potable Water Substitution (see section 3 on page 3)					
Maintain existing recycled water supply for potable water substitution			●		
Implement the Kooragang Industrial Water Scheme		■			
Develop dual reticulation schemes				▲	
Refine recycled water policy			●		
Review opportunities to expand recycling of wastewater			●		
Stormwater harvesting			●		
Greywater recycling			●		
Alternative water supply solutions			●		
Leakage reduction programs (see section 4 on page 9)					
Active leakage detection program			●		
Maintain water service replacement program			●		
Watermain replacement program			●		
Response times to known leaks			●		
Pressure reduction program			●		
Residential water efficiency programs (see section 5 on page 12)					
Community education and awareness programs			●		
Water metering			●		
Collaborative promotion of water efficiency programs			●		

¹ In November 2010 the former NSW Premier announced that the Tillegra Dam proposal would not proceed

Action	Status				
	Completed	On-track	Ongoing	Reprioritised by HWC	Reprioritised by IPART
Residential water efficiency appliance replacement program			●		
Promote water saving products			●		
DIY water saving kits			●		
Online plant selector on Hunter Water's website				▲	
Shower timer giveaways			●		
Weblinks to water efficiency websites			●		
Community water saving ideas					▶
Smart' water bill				▲	
Non-residential water efficiency Program (see section 6 on page 21)					
Leakage in schools program			●		
Hunter business water savers program			●		
Irrigation and landscape efficiency program			●		
Large customer smart metering program			●		
Large customer water efficiency audits			●		
Wastewater pump station review			●		
Karuah water usage review		■			
Water supply balance (see section 7 on page 25)					
Water supply balance			●		

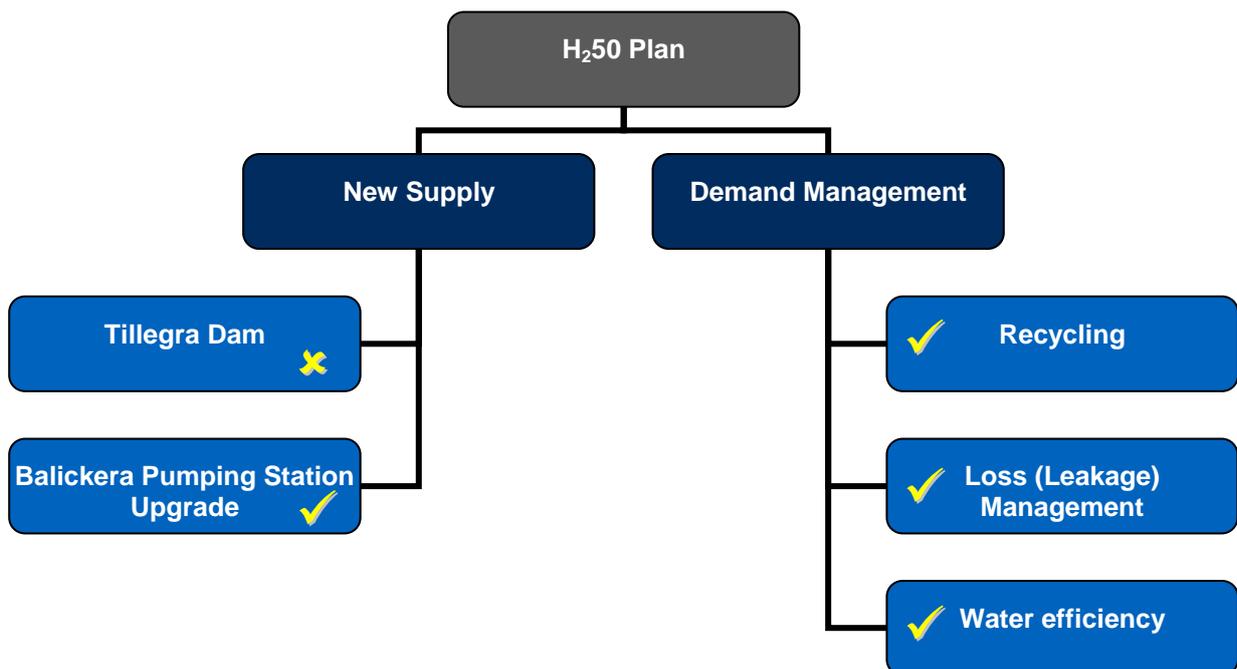
1 Context

The 2007-12 Operating Licence issued by the NSW government requires Hunter Water to have in place an Integrated Water Resources Plan (IWRP) that responds to the water needs of its area of operations. Water resource planning issues were addressed and presented in Hunter Water's H₂50 Water Plan published in 2008. The construction of Tillegra Dam was the key supply strategy in the plan.

The NSW Government has confirmed that the previously proposed Tillegra Dam will not proceed. However, independent experts have commented that there are water security issues, both in drought and for the long term, that still need to be analysed and addressed. Other measures in the preferred strategy identified in the H₂50 water plan have been implemented and will contribute to securing the water supply for the region. However, the decision to not proceed with Tillegra Dam has created the need to develop a new Lower Hunter Water Plan (LHWP).

Once complete, the LHWP will replace Hunter Water's H₂50 Plan. In 2011-12 Hunter Water continued to focus on demand management programs outlined in the existing H₂50 Plan (see Figure 1-1), including recycling, loss management and water efficiency. These programs have been delivered in accordance with IPART agreed expenditure targets

Figure 1-1 Status of H₂50 Integrated Water Resource Plan



2 New Supply

2.1 Balickera Pump Station Upgrade

As previously reported at the close of 2011-12, the project to increase the pumping capacity of Balickera Water Pumping Station from 1300ML/day to 1800ML/day was expected to reach practical completion in August 2011. This was achieved on 2 August 2011.

3 Potable Water Substitution

3.1 Maintain Existing Recycled Water Supply for Potable Water Substitution

As at 30 June 2012 Hunter Water had 16 direct recycled water schemes, as well as onsite wastewater treatment works usage.

During 2011-12, approximately 1,872 ML of recycled water was supplied to directly substitute the use of potable water. This total amount equates to 40 per cent of total recycled water supplied.

Table 3-1 provides a breakdown of the usage of these schemes for 2010-11 and 2011-12.

Table 3-1 Recycling for Potable Substitution – Type of Usage

Use	ML 10-11	ML 11-12	Trend
Process water at wastewater treatment plants	180	180	→
Irrigation at Golf courses, Trotting Track & TAFE	470	303	↓
Industrial reuse	1,608	1,395	↓
Total Potable Water Savings from Recycling	2,258	1,878	↓

→ steady, ↓ decrease, ↑ increase

Recycling for potable water substitution was 382 kL¹ lower than last year. Notable differences in reuse between the 2010-11 year and the 2011-12 year include:

- Eraring Energy, a major industrial recycled water customer, experienced breakdowns resulting in extended periods of reduced production due to procurement of long lead time spare parts.
- Oceanic Coal Washery's recycled water supply agreement expired and use was limited for two months while a new agreement was executed.
- All irrigation at golf courses, and trotting track and TAFE usage was affected by wet weather.
- Table 3.2 provides a summary of the total volumes of water recycled for potable substitution and any other uses.

¹ 1ML equals 1000kL, 1kL equals 1000L

Table 3-2 Summary of Total Volumes Recycled for Potable Substitution and Other Uses as per Operating Licence Section 9.3.7 Applications

Use	ML 10-11	Percentage Total (%)	ML 11-12	Percentage Total (%)	Trend
Golf course irrigation and industrial reuse	2006	43	1643	35	↓
Agricultural and TAFE irrigation, tree plantations, recycled water enterprises	439	9	241	5	↓
Indirect farm irrigation and WWTW process water	2229	48	2780	60	↑
Total Recycling	4674		4664		→

→ steady, ↓ decrease, ↑ increase

3.1.1 Recycled Water Usage Monitoring

Hunter Water is improving the accuracy of how it monitors and calculates recycled water volumes. The accuracy of the various sites' data is summarised in Table 3-3.

In the forthcoming year, Hunter Water also plans to update risk assessments for all current recycled water schemes to ensure that all risks are appropriately addressed.

Table 3-3 Recycled Water Usage – Data Accuracy

Data Source	Data Accuracy	Sites
Flow meter	High	Branxton farmer, golf course and woodlots; Eraring Power Station, Kurri TAFE, Paxton woodlot, Cessnock Golf Course,
Pump hours run	Medium	Farley farmer (also based on number and size of pipes), Kurri Golf Course, Maitland Golf Club, Morpeth farmers, Oceanic Coal Teralba Colliery.
Calculated from theoretical models	Low	Morpeth Trotting, indirect use.

3.2 Implement Kooragang Industrial Water Scheme

The Kooragang Industrial Water Scheme (KIWS) will provide high quality recycled water to industrial users in the Kooragang Island area. Upon completion, the scheme will produce 9 ML of high quality recycled water each day, to substitute the use of drinking water, making it the largest recycled water project in the lower Hunter.

The project will involve diversion of treated effluent from the existing effluent pipeline for Shortland Wastewater Treatment Works to a new Advanced Water Treatment Plant (AWTP) at Steel River. The

AWTP will use membrane micro-filtration and reverse osmosis to produce high quality recycled water before the recycled water is transported to industrial customers on Kooragang Island via a new eight kilometre pipeline.

Milestones for the KIWS achieved in 2011-12 included:

- Executing a commercial agreement for supply of recycled water with scheme partners
- Formally engaging the Hunter Treatment Alliance to undertake a detailed cost estimate of the treatment plant component of the project, and
- Finalising detailed design for the remaining components, including product supply pipelines, river crossing, diversion pipeline and pump station augmentation.

The scheme is expected to save up to 3,300 ML per year of potable water and is on track for commissioning by December 2014.

3.3 Develop Dual Reticulation Schemes

Larger-scale residential dual reticulation schemes will provide recycled water to residents in new developments at Gillieston Heights and Chisholm (Thornton North).

At Gillieston Heights, both potable water and recycled water will be provided to approximately 1,200 residents in a new development around the existing village of Gillieston. The development is being managed by Mirvac (400 lots), Stockland (200 lots) and a number of minor developers. At Chisholm, potable and recycled water will be provided to approximately 5,000 new homes.

During 2011-12 an additional 131 houses connected to the two recycled water development areas of Gillieston Heights and Thornton North. At the end of the financial year approximately 230 houses had pipe work connected in the recycled water development area of Gillieston Heights and 130 at Thornton North for a total of 360 properties to date. Another 226 vacant lots in these areas now have recycled water services in place. No major infrastructure works were undertaken by Hunter Water in 2011-12 due to the slower than expected rates of growth in these development areas.

3.4 Refine Recycled Water Policy

Hunter Water launched its Recycled Water Policy in 2009, which outlines the management approach to consistently meet the National Guidelines on Water Recycling, as well as recycled water user and regulatory requirements. A key initiative now being executed under the Recycled Water Policy is the Lower Hunter Recycled Water Initiative (LHRWI).

3.5 Opportunities to Expand Recycling of Wastewater

Hunter Water aims to pursue sustainable water recycling opportunities as a substitute for potable water and as a way of managing effluent discharges from wastewater treatment plants. A number of studies are currently underway to identify opportunities to recycle water in the lower Hunter (see Figure 3-1). The outcomes of these studies will be assessed as part of the Lower Hunter Water Plan.

3.5.1 Lower Hunter Recycled Water Initiative

In 2010 Hunter Water was awarded \$8.85 million from the Australian Government's National Urban Water and Desalination Plan for funding up to the value of 10 per cent of the capital costs (excluding land) associated with the \$89 million Lower Hunter Recycled Water Initiative (LHRWI).

The funding will specifically:

- Support the expansion of the Kooragang Industrial Water Scheme (KIWS) from 6 ML/day to 9 ML/day
- Provide an education facility to showcase recycled water and water efficiency to the community, and
- Allow greenhouse gas emissions from the operation of the recycled water projects to be fully offset.

At present Hunter Water has two Lower Hunter Recycled Water Initiative projects underway. Namely, the Kooragang Industrial Water Scheme (refer to section 3.2) and the Branxton Recycled Water Scheme at Rothbury.

3.5.2 Branxton Irrigation Water Scheme

The Branxton Recycled Water scheme involves the provision of recycled water for irrigation for the Vintage golf course. The scheme will provide a more secure water supply for customers currently using river water (that were seeking to move to potable water supply) and reduce the volume of treated effluent discharged to local waterways by up to 250 ML/yr. The scheme is expected to be operational in 2012.

3.5.3 Clarence Town Effluent Reuse Scheme

In 2012 Hunter Water completed construction of a new sewerage scheme to service Clarence Town. The sewerage scheme includes the Clarence Town Effluent Reuse Scheme, which was completed in March 2012 at a cost of approximately \$120,000. The reuse scheme will use treated effluent from the Clarence Town wastewater treatment work to irrigate a pasture producing farm fodder. It is estimated that approximately 75ML of effluent will be recycled per year.

3.5.4 Hunter River Effluent Management Master Plan

Hunter Water is currently developing the Hunter River Effluent Management Master Plan, a long term effluent management strategy for Hunter Water's five wastewater treatment plants located within the Hunter River catchment. One of the key objectives is to identify feasible water recycling initiatives in the study area, with the outcomes of the investigation also providing input into the Lower Hunter Water Plan.

Potential options were identified in consultation with key stakeholders and were aggregated into scenarios. This included various additional treatment processes, as well as recycling and alternate disposal measures.

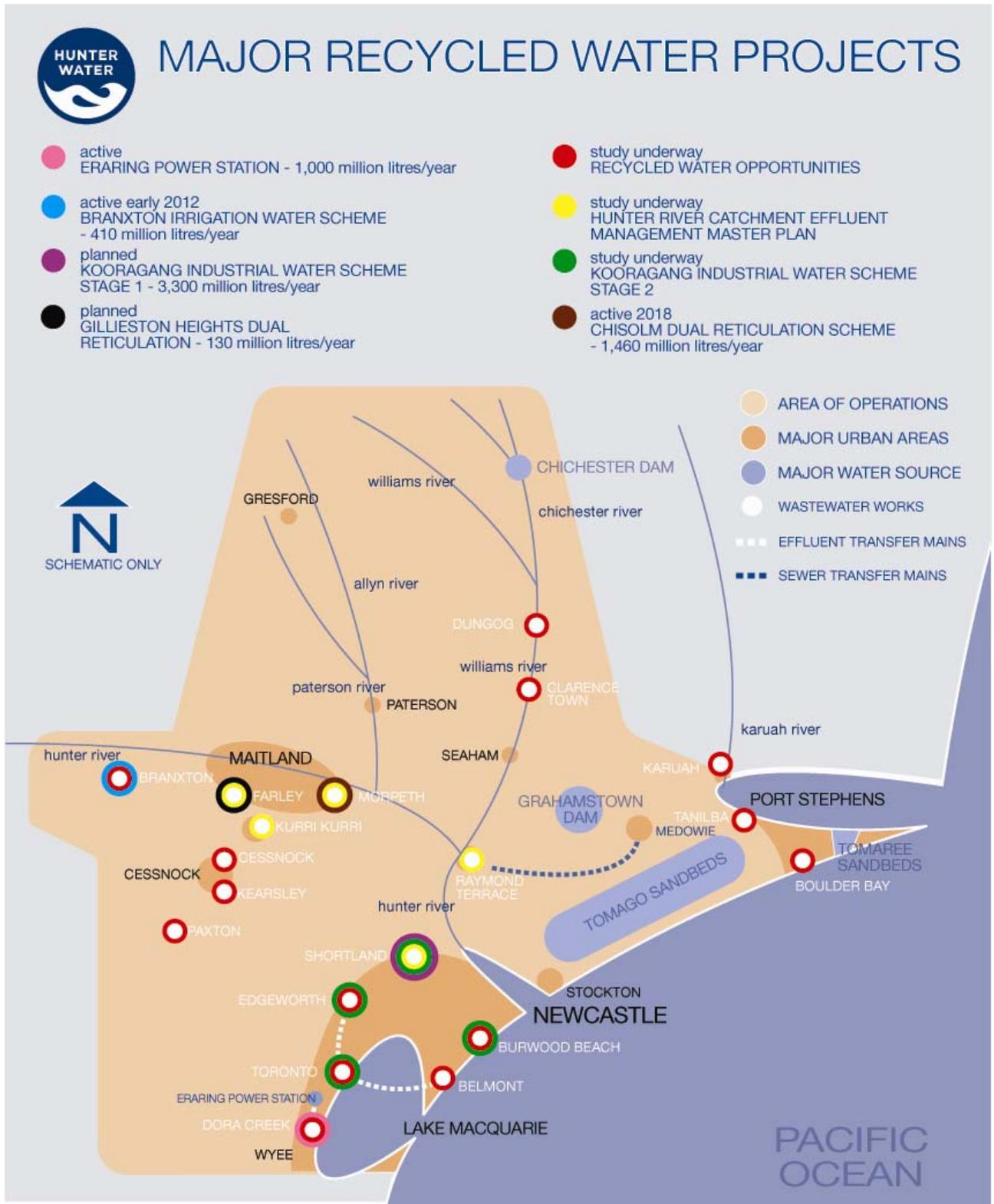
A multi-criteria analysis, which gave due consideration to economic, environmental, social and technical criteria, was used to evaluate scenarios in conjunction with key stakeholders (including regulatory authorities, local government and consultants).

The Plan's recommendations will be finalised in 2012-13.

3.5.5 Recycled Water Opportunities Study

Hunter Water has initiated a recycled water opportunities study to identify additional recycling opportunities across all wastewater treatment plants not covered by the Hunter River Effluent Management Master Plan. It also includes decentralised wastewater, grey water and stormwater recycling. The study is expected to be completed in 2012-13.

Figure 3-1 Map of Major Recycled Water Projects and Investigations



3.6 Stormwater Harvesting

As noted in section 3.5, Hunter Water has initiated a recycled water opportunities study that includes identification of stormwater harvesting opportunities within its area of operations.

During 2011-12, Hunter Water collaborated with Newcastle City Council and Lake Macquarie City Council to submit a grant application for the National Urban Water and Desalination Plan: Stormwater harvesting and reuse grants. The Lower Hunter Stormwater Reuse Initiative submission proposed stormwater harvesting and reuse for irrigation at four public open space sites. The initiative would have delivered a 56 per cent reduction in potable water demand (50 ML/year) and a net reduction in greenhouse gases of 47,400 kg CO₂-e/year, which is equivalent to the annual energy use of six average NSW homes.

The application was unsuccessful, but Hunter Water is well positioned to apply for other grants or consider business cases for stormwater harvesting initiatives in the future.

3.7 Greywater Recycling

Residential greywater recycling is one of many options currently under investigation as part of the Lower Hunter Water Plan (see also section 3.5). Further information will be provided in next year's report.

3.8 Alternative Water Supply Solutions

Hunter Water has continued to provide assistance on a commercial basis to proponents of alternative water supply solutions, as part of the large customer audit program. The Water Efficiency Audit Report for Port Waratah Coal Services, Carrington Terminal was completed in May 2012. This provided several opportunities for water savings through water efficiency totalling around 20 ML per year, identified alternative water supplies that could save 100 ML per year, and recommended an expansion to the use of process water that could save 42 ML per year.

Hunter Water will continue to provide assistance on a commercial basis to proponents of alternative water supply solutions, as opportunities are identified.

4 Leakage Reduction Programs

4.1 Active Leakage Detection Program

Active leakage control initiatives assess the level of leakage through flow monitoring allowing the development of a targeted approach for a leak detection survey. Leaks will occur in any system as pipes age and begin to fail. Without an active leakage strategy the majority of these leaks gradually worsen to a point where they are typically reported by the public. Active leakage control may be considered as an 'early intervention' in this process in that it aims to identify leaks before they would normally be reported. Some leaks may not be visible, and might never be reported, such as leaks that drain to the stormwater system or waterways.

Leak detection technology has developed significantly in recent years with the application of acoustic loggers. This has allowed a significant reduction in the time and cost of leak detection by focusing skilled operators (using acoustic listening devices) into areas of known leakage.

Hunter Water has been steadily increasing its investment in leak detection surveys since the program's recommencement in 2002-03. The current rolling program involves surveying approximately 20 per cent of the water distribution system each year.

The 2011-12 active leak detection program covered 1160 kilometres of water mains across West Lake Macquarie and Coalfields districts. The survey cost \$91,561 and found 163 leaks corresponding to an estimated water loss savings of 214 ML.

The active leakage control strategy was reviewed in 2011-12. The review analysed the program performance to date and calculated the optimised economic frequency of intervention for the distribution network based on a minimal community lifecycle cost methodology.

Hunter Water's Active Leakage Control Strategy recommends that the active leak detection program be increased from 20 to 50 per cent of the network each year. Based on this recommendation, the 2012-13 program aims to cover the East Lake Macquarie, Dungog and Maitland Districts (2015km).

4.2 Maintain Water Service Replacement Program

For many years, small diameter galvanised iron pipe was used to connect the water main (in the street or footpath) to the customer's water meter. Many of these galvanised service pipes have now reached the end of their serviceable life and are deteriorating to the point where they are a source of leakage.

In the previous reporting year, 273 galvanised water services were replaced saving an estimated 38ML at a cost of \$306,875. In 2011-12, 197 water services were replaced saving an estimated 27ML at a cost of \$228,945. Whilst down on the previous year, the quantity saved is ahead of the annual 20ML target outlined in the H₂50 Plan. It is expected that the number of services replaced each year will continue to decrease as they are gradually replaced across the system.

4.3 Water Main Replacement Program

The water main replacement program targets small diameter water mains (200mm and less) known to leak or to have a history of failures. An economic evaluation is used to compare the cost of continuing maintenance versus replacement. The model also takes account of other relevant factors such as service disruption to customers and the cost of lost water.

Reported failures on water mains are estimated to contribute more than 575 ML to Hunter Water's total annual water losses. The water main replacement program has the potential to reduce water loss

by reducing the number of reported failures. By replacing mains that have reached the end of their serviceable life the program also reduces unreported and background leakage.

In 2011-12 approximately 10 kilometres of small diameter water mains were selected for replacement at a total cost of \$3.2 million. It is estimated that approximately 22ML of water has been saved from this program.

It is expected that the 2012-13 water main replacement program will be of a similar size.

It is estimated that the shut down and lining of two leaking trunk mains in 2011-12 has resulted in approximately 305ML of water being saved over the year. The total cost of these projects was \$2.5M.

4.4 Response Time to Known Leaks

Hunter Water has four classifications for unscheduled water maintenance work ranging from priority 1-emergency, through priority 2-urgent and priority 3-non urgent, down to priority 4-routine

The majority of water leaks are given a non urgent (priority 3) classification. Any improvement to response times results in water savings from breaks and leaks.

Each month on average 98 per cent of Priority 1 jobs were responded to in less than 1 hour, 78 per cent of Priority 2 jobs were rectified by the next day and 99 per cent of leaks were rectified in less than six days. Compared to the previous year, the response and rectification times were steady for Priority 1 jobs, with improved response for Priority 2 job rectifications (from 72 per cent) and leak rectification (from 97 per cent). Further work is required to accurately quantify the impact of response times on water loss volumes.

4.5 Pressure Reduction Program

Pressure management is recognised among water utilities as being one of the most effective ways of reducing water loss due to background leakage. These are leaks that are generally unreported and undetectable by current methods. Pressure management also potentially extends asset life by reducing the variations in operating pressure which can cause infrastructure fatigue and failure. Pressure management can also be effective in reducing customer consumption due to lower flow rates and internal leakage.

The effective establishment of pressure management is often challenging due to local topography, the configuration of the distribution network, customer responses to reduced service pressure, impacts on fire services, and there is limited data regarding the long term economic costs and benefits.

In total 63 areas have been identified as potential pressure management zones within Hunter Water's area of operations. For this program, high water pressure areas are defined as having pressure generally exceeding 60m head under normal operating conditions. Most of the customers in these areas experience maximum pressures greater than 70m and minimum pressures higher than 45m, compared with Hunter Water's standard minimum pressure (set by IPART) of 20m.

Preliminary analysis of the potential benefits compared to the capital and operating costs of pressure management has enabled fifteen areas to be prioritised. Over the last two years options reports for four of these areas have been completed. There have been delays with the design and construction of the projects to ensure sufficient community consultation was undertaken before implementation. It is expected that the pressure management zones at Redhead and Argenton will be commissioned in 2012-13 with estimated annual water savings of more than 50 ML.

The installation of variable speed drives at a number of water pumping stations over the last few years has also provided pressure management benefits by reducing extreme pressure variations in some areas.

5 Residential Water Efficiency Programs

5.1 Community Education and Awareness Programs

Hunter Water has developed a diverse community education and awareness program which continues to be delivered via a range of channels in partnership with community, industry partners and other agencies such as local government. The initiatives below have been delivered during 2011-12.

5.1.1 Annual Water Efficiency Campaign

Advertising campaigns promoted water efficient behaviour in print and radio media from January to March 2012. The aim was to remind lower Hunter residents of the need to conserve water during the hotter period of the year when water use is at its peak.

In addition to this summer campaign, Hunter Water ran a water efficiency garden program in conjunction with lower Hunter nurseries, involving the sale of water efficient plants and the provision of advice on planting and maintaining water efficient gardens.

5.1.2 Educational Material to Primary Schools

Hunter Water rolled out its new School's Water Audit Kit to over 100 schools in the Newcastle and Lake Macquarie local government areas. These kits contain hands-on materials including flow measuring cups, buckets and cistern dyes, as well as a worksheet and information on how to read water meters.

The Hunter Water branded kits were developed in conjunction with Lake Macquarie and Newcastle City Councils, and were rolled out via the councils' education programs.

Hunter Water's community education program in 2011-12 again included the Ship O'Fools Bubbles & Squirt water education show which was delivered to over 10,000 primary students, with excellent reviews and requests for more bookings.

5.1.3 Educational Material on Website

In addition to our range of water saving publications, the Hunter Water website www.hunterwater.com.au continued to be a key communication and education tool, with the newly formatted Save Water section achieving 32,336 unique visitors in the 2011-12 financial year.

5.1.4 Community Event Participation and Sponsorship

Hunter Water staff again provided practical water saving education and information via a series of events including the Housing Industry Association (HIA) Homeshow and Newcastle Home Show.

Hunter Water actively participated in Together Today engagement activities including Earth Hour and the Energy Town Meeting, held in Newcastle in July 2011.

Hunter Water, via its Community Funding Program, also provided community grants for water saving initiatives to the following community organisations:

- *Alison Court Aged Persons Units – ‘Minimise the Flush’ project* - The grant helped the residents to purchase¹ and install water efficient, dual flush toilets in the 20 self care residential units, with the potential to save over 800 kL² of water each year.
- *Anglican Care – Water Wise-Life Wise project* - Anglican Care provides retirement living, day therapy, residential care, community care, dementia specific and respite care. The grant was used to help install water efficient, dual flush toilets in one of the Booragul facilities to reduce water usage at the facility by one third.
- *Dungog Memorial Bowls, Sport & Recreation Club* - The grant helped the Dungog Memorial Bowls, Sport and Recreation Club to install waterless urinals in the men’s toilets.
- *YMCA of Sydney – Kurri Kurri Aquatic Centre – Waterwise* - The Centre sees 6000 people visiting the wheelchair accessible aquatic and fitness centre each week including a lawn area used by patrons while at the centre. The grant helped the Centre to purchase and install a water tank to irrigate the grounds, keeping them sustainably green.
- *Macquarie Preschools Cooperative – Carey Bay Preschool Water Saving* - The grant allowed the preschool to purchase and install water saving taps with automatic shut-off in the children’s bathrooms reducing the volume of water wasted when taps aren’t turned off.
- *Southlakes Carers – Sensory Garden Water Management* - The grant funded the purchase and installation of a water tank to care for a sensory garden as a healing space for frail and aged people in the south Lake Macquarie area.
- *Southlake Community Services – Header Tank for Yunung Community Garden* - The grant helped to establish a sustainable watering system for the Yunung Community Garden, within the Morisset Multipurpose Centre, which promotes sustainable gardening.

Further information on Hunter Water’s Community Grants and recipients is available at www.hunterwater.com.au/communitygrants

5.2 Water Metering

5.2.1 Outdoor/indoor Metering

In 2006 Hunter Water re-established a (previously suspended) metering program to determine the proportion of water consumed internally and externally in single dwelling domestic properties. Outdoor meters with remote reading technology were installed in 190 participating properties, including previous participants and a random selection of new customers. Surveys have also been used to profile water use habits and demographic information about the household.

The data supports analysis of where water is used in homes and evaluation of potential water efficiency programs.

Outdoor residential water consumption generally has a significant influence on the total system demand. Total water consumption consists mostly of indoor water usage, however during warmer drier months it is expected that outdoor consumption will represent a more significant portion of the total water used.

¹ All upgrades or modifications to the buildings are the responsibility of the residents at this facility.

² 1kL is equal to 1000 litres

The correlation between outdoor water use and climate in 2011-12 is shown in Figures 5-1 to 5-3. Consistently wet weather in each month of 2011-12 meant there were no significant periods of outdoor water consumption. This is in contrast to the increased outdoor water demands in the 2010-11 summer resulting from high temperatures and lower than average rainfall.

Figure 5-1 2011-12 Monthly Household Consumption for the Indoor / Outdoor Metering Program

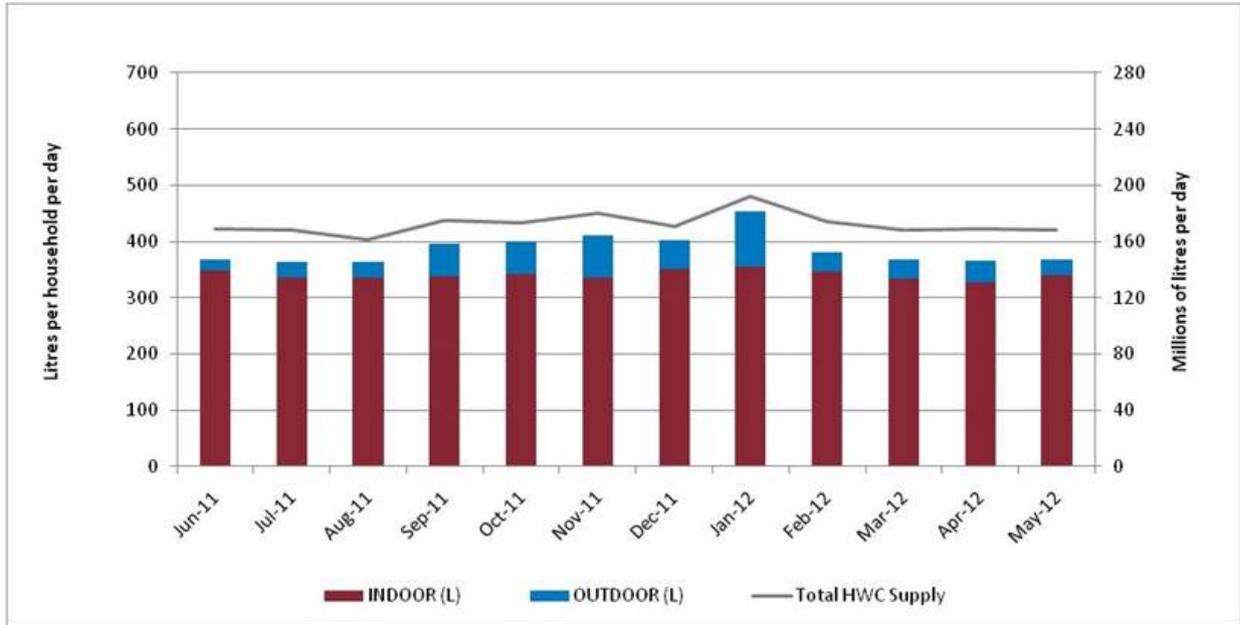


Figure 5-2 2010-11 and 2011-12 Weather Conditions at Williamtown Weather Station

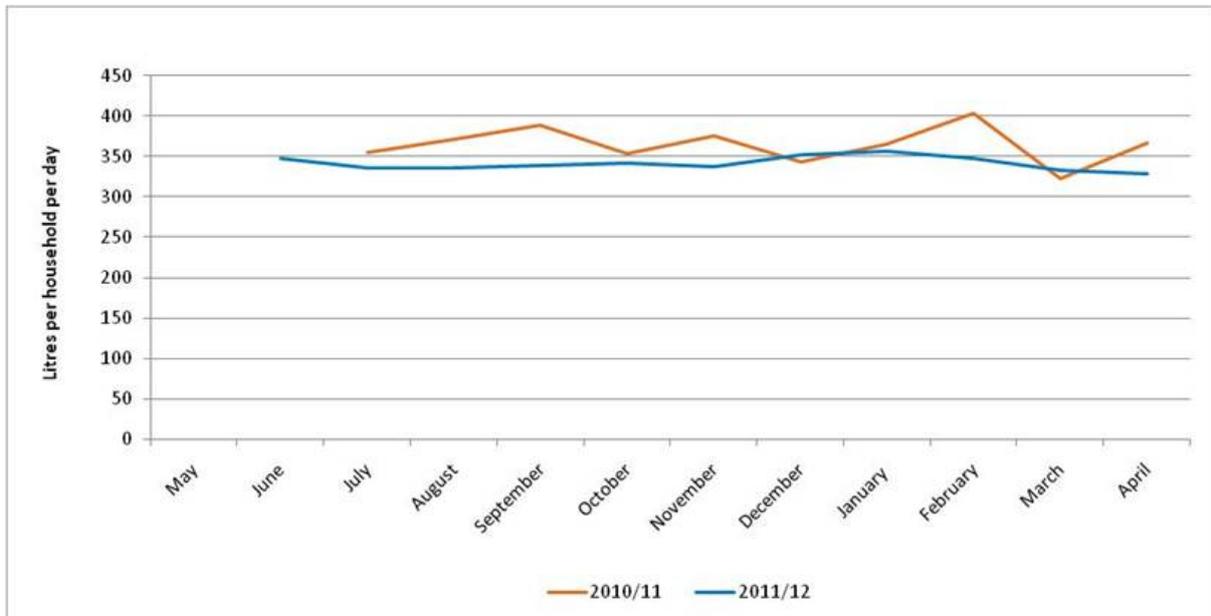
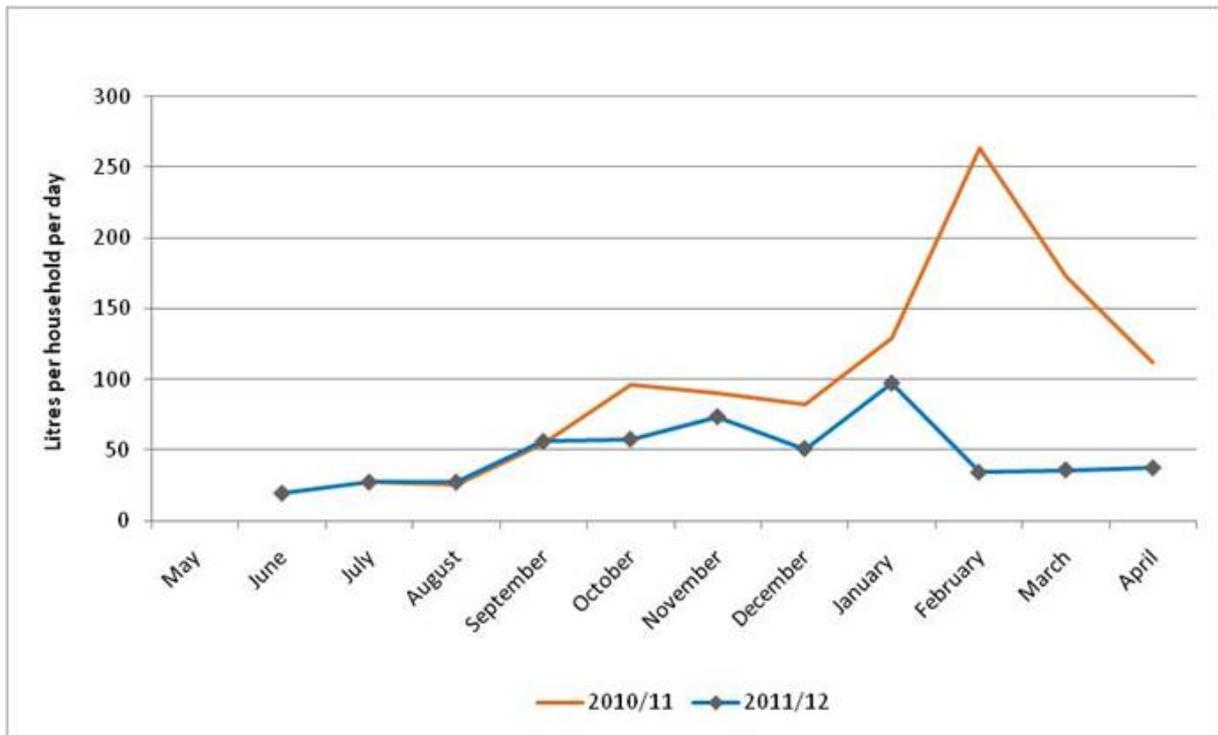


Figure 5-3 2010-11 and 2011-12 Outdoor Water Consumption

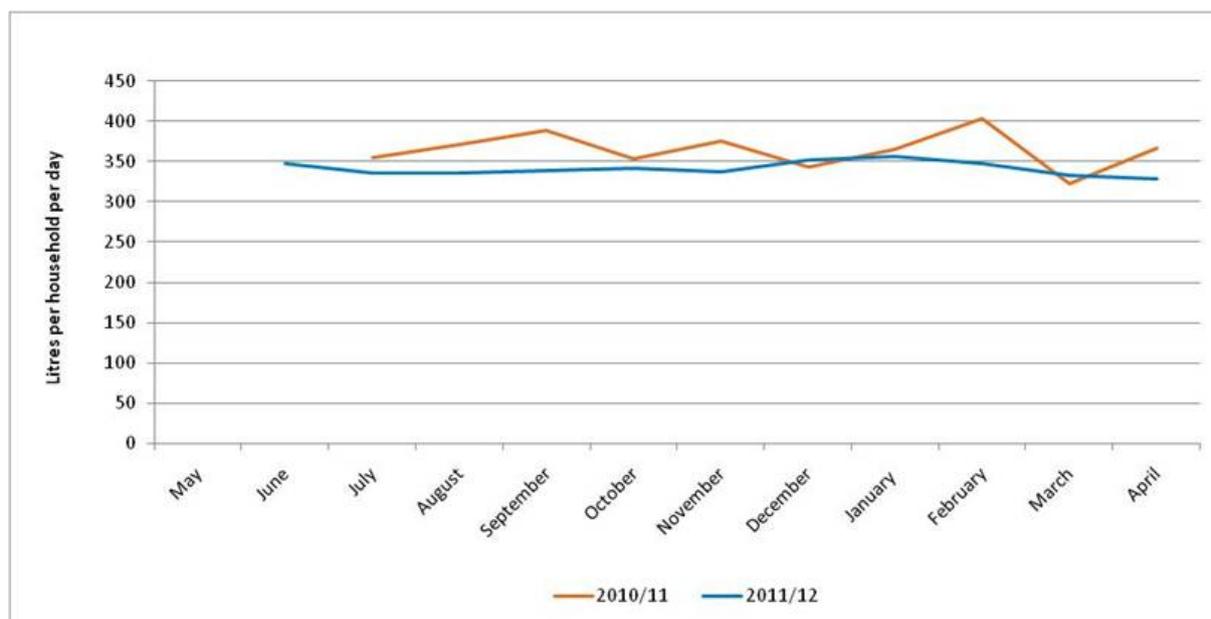


In 2011-12 outdoor water consumption represented 12 per cent of total consumption which is significantly lower than the expected outdoor water use of 24 per cent during an average climatic year.

As can be seen in Figure 5-4, there was also a decrease in indoor water consumption in 2011-12 compared to 2010-11. Overall water consumption of 170kL per property in the metering program compared well against the 175kL per single dwelling for all Hunter Water customers during 2011-12¹.

¹ 1ML equals 1000kL

Figure 5-4 2010-11 and 2011-12 Indoor Water Consumption



Expenditure on the program in 2011-12 was lower than budgeted due to delays in meter reading due to equipment failure. Equipment issues have subsequently been resolved.

5.3 Collaborative Promotion of Water Efficiency Programs

Together Today no longer exists as a formal entity, but remains active as an informal gathering of like-minded businesses providing information to the community on how to live sustainably. Hunter Water supported the Together Today program until its dissolution, including participation in Earth Hour and the Energy Town Meeting. Hunter Water has also provided ongoing support for the programs described below.

5.3.1 WELS Scheme

Hunter Water continued to support the water efficiency labelling scheme (WELS) by including information on WELS under the 'Save Water' section of the Hunter Water website.

5.3.2 savewater! Alliance

The savewater! Alliance is a Victorian not-for-profit organisation that assists a number of Australian water utilities in the delivery of water efficiency programs. Hunter Water became a savewater! Alliance member in December 2009 for a two year trial period. Following this trial period funding was reprioritised and it was considered more efficient to pursue other initiatives.

5.3.3 Smart Approved WaterMark

Smart Approved WaterMark provides water conservation labels to identify and promote water efficient products. It is a not-for-profit program and sister scheme to WELS. In December 2008 Hunter Water and the Smart Approved WaterMark signed a Memorandum of Understanding that commits both parties to work together to promote water efficiency. Hunter Water has handed out brochures on the Smart Approved WaterMark program at various community events and provided \$5000 sponsorship in 2011-12. This sponsorship goes toward the day to day running of the organisation.

5.3.4 Alliance for Water Efficiency

Hunter Water joined the Alliance for Water Efficiency in 2010. This group is the peak not-for-profit water efficiency industry body in the United States. Hunter Water is using the group's extensive reference materials in the investigation of water efficiency options, including for the Lower Hunter Water Plan.

5.3.5 NSW Home Power Savers Program

The NSW Home Power Savers program offered free home energy saving retrofits which included showerheads and tap aerators. The low flow showers (9L/min) installed in 2011-12 as part of this program are estimated to have saved 6 ML.

5.4 Residential Appliance Replacement Program

Hunter Water offered a range of programs to replace home appliances with more water efficient models. These programs complemented the home retrofits undertaken as part of the NSW Home Power Savers program.

5.4.1 Showerhead Exchanges

Hunter Water and lower Hunter councils (Newcastle, Lake Macquarie, Port Stephens, Cessnock and Maitland) jointly offered showerhead exchange programs in 2011-12. Residential customers were able to exchange less efficient showerhead for a free budget low flow showerhead or a premium showerhead subsidised to cost customers \$40. Hunter Water extended the offer to staff at participating councils, Together Today partner staff and the Australian Tax Office.

In 2011-12, 3137 showerheads were exchanged (1554 premium and 1583 standard) providing an estimated annualised 29ML of water savings and a reduction of 222 tonnes of CO₂-e emissions.

The sale of scrap metal from the old showerheads will be donated to the charity WaterAid¹. Hunter Water is planning to continue the program in 2012-13.

5.4.2 Toilet Replacement

The toilet replacement program did not run as a stand-alone program in 2011-12 due to the cessation of the NSW government rebate and installation cost increases. There are no plans to relaunch the program.

5.4.3 Home Retrofit Service

From July 2011 to 31 March 2012 Hunter Water offered showerhead, tap and tap aerator installation and fixing of minor leaks in taps and toilets on a fixed priced basis. A total of 181 Home Retrofit jobs were undertaken. An estimated 21ML of annualised water savings were achieved.

5.4.4 Review of Program Effectiveness

Hunter Water is reviewing the effectiveness of several of its current programs, including showerhead exchanges and toilet replacement. The studies aim to verify water savings achieved, longevity of device use, costs, benefits, motivation for participation, non-financial benefits, customer satisfaction

¹ WaterAid is an international charity. Its mission is to overcome poverty by enabling the world's poorest people to gain access to safe water, sanitation and hygiene education.

and improvement opportunities. Preliminary analysis shows Hunter Water is saving about 35 ± 10 L/household/day (30 – 53 ML/year) through the showerhead exchange program and saving 83 ± 14 L/household/day (29 – 41 ML/year) through the toilet replacement program.

5.5 Promote Water Saving Products

Hunter Water's H₂50 Plan included a commitment to develop programs to promote and encourage householder uptake of water efficiency products such as:

- Garden preparation products such as mulch and soil wetting or moisture agents
- Watering devices such as flow control devices, garden tap timers, drip watering systems, weep hoses and trigger nozzles
- Compost and mulch bins
- Soil moisture and rain sensors
- Temporary greywater diverters and rainwater diverters
- Waterless car cleaning products
- Shower timers, and
- Toilet flush interrupter devices.

In previous years, Hunter Water has distributed shower timers, trigger nozzles and provided credit on customers' bills for purchase of water efficient products.

Hunter Water continued to run an efficient gardening campaign during spring 2011, holding stalls in nurseries and promotion in our customer newsletter and on our website. Hunter Water also conducted a native plant giveaway in October, utilising our relationship with Trees in Newcastle to distribute the plants at the Activate Expo at Newcastle Entertainment Centre.

In 2012-13, Hunter Water will continue to promote efficient gardening during spring, as well as distribute information at the Living Smart Festival in September.

5.5.1 Smart Grid, Smart City

In 2010, the Australian Government's Smart Grid, Smart City program funded an Ausgrid project within the lower Hunter. The demonstration project included the opening in September 2011 of a shop front providing information to the community on water and energy efficiency, for which Hunter Water provided a display on water saving equipment.

5.6 DIY Water Saving Kits

Hunter Water's H₂50 Plan included a commitment to provide, to the community, a free Do-It-Yourself (DIY) water saving kit which includes tap aerators, installation tool and instructions for installation. Some kits included a shower flow restrictor. The kits were made available at selected events.

In 2011-12 Hunter Water handed out 845 DIY water saving kits at:

- Newcastle Home Show
- Bunnings Maitland
- Bunnings Kotara
- Australian Retired Persons Dinner

- Early Childhood Sustainability Talk
- Transitions Streets Newcastle launch

The estimated water savings were 7kL¹ per kit. This matches the savings estimated from DIY water saving kits given away by Sydney Water.

Expenditure in 2011-12 was nil as stock purchased in 2009-10 was used. Hunter Water plans to exhaust its stocks of DIY Water Saving Kits in 2012-13.

5.7 Online Plant Selector on Hunter Water's Website

During 2011-12 Hunter Water had planned to develop and implement a water efficient plant selector which could be accessed online via Hunter Water's website. It was decided that it would be more efficient to use an established selector and opted to instead provide a link to that hosted by the [savewater! Alliance](#).

5.8 Shower Timer Giveaways

In 2011-12 approximately 800 electronic programmable shower timers were given away at community events to encourage people to take shorter showers. Assuming a one minute time saving per shower, the program is expected to have saved approximately 3ML/year.

Hunter Water plans to continue this program in 2012-13.

5.9 Weblinks to Water Efficiency Websites

An action of the H₂50 Plan was to provide links on Hunter Water's website to additional water efficiency educational material.

Hunter Water's website was updated in 2010-11 to include links to the various programs discussed in Section 5.3, as well as others including the Hunter Region No Interest Loans scheme. Website links are progressively updated as new water saving initiatives are launched or completed.

5.10 Community Water Saving Ideas

The aim of this program in the H₂50 Plan was to encourage the community to share water saving ideas on Hunter Water's website. The reduction in funding from the 2009 IPART price determination has resulted in the decision to not proceed with this program.

5.11 'Smart' Water Bill

The National Guidelines for Residential Customers' Water Accounts 2006 were developed by water industry representatives to consider how design of the water bill could be used to promote water conservation to residential customers.

It was identified in the H₂50 Plan that Hunter Water would move from Level 1 toward an advanced or 'smart' water bill, which would be equivalent to at least Level 3 out of the four levels within the guidelines:

¹ 1ML equals 1000kL

5.11.1 BASIC - Level 1

Customers own water use compared to previous billing period; Customers own water use compared to same time last year.

5.11.2 INTERMEDIATE - Level 2

Customers own water use compared to metropolitan/urban average; Customers own water use compared to local area average.

5.11.3 ADVANCED - Level 3

Customers own water use compared to household (indoor) of same size; Customers own water use compared to water efficient household (indoor) of same size.

5.11.4 ADVANCED - Level 4

Customers own water use compared to household and garden of same size; Customers own water use compared to water efficient use by same household and garden size.

Hunter Water has moved to a Level 2 or intermediate bill. After review, there are currently no plans to implement level 3 or 4 bills as other water efficiency initiatives were given higher priority.

6 Non-residential Water Efficiency

6.1 Leakage in Schools Program

Hunter Water continued to run the leakage in schools program in conjunction with the Department of Education and Communities (DEC) and the Catholic Schools Office (CSO) Diocese of Maitland and Newcastle during 2011-12. Twelve more DEC schools joined the program resulting in a total participation of 57 schools; 36 DEC schools and 21 CSO schools.

Fifteen schools were notified of suspected leaks during 2011-12 with an estimated 33ML of water saved due to leakages identified and repaired.

Hunter Water, the DEC and CSO are discussing future roles and responsibilities within this program.

6.2 Hunter Business Water Savers Program

The 2012 Hunter Business Water Savers Program (HBWSP) was delivered in partnership with the Hunter Business Chamber and aimed to improve water efficiency in amenities and commercial kitchens for Hunter Water's medium and large business customers.

The program involved:

- A water audit subsidised by 50 per cent for each business in the program.
- 100 per cent subsidised water audit for businesses that implemented all recommendations in the water audit report with paybacks better than 2 years.
- A water efficiency grant of up to \$10,000, open to all participants of the program.

Water savings of 39 ML/annum were identified from the water audits.

The \$10,000 water efficiency grant for 2012 was awarded to East Maitland Bowling Club, which proposed the removal of two existing water cooled woks to be replaced with air cooled woks. In addition, they proposed connection of two 10kL¹ rainwater tanks to capture the total roof area above the green and re-use for irrigation. The potential water savings for the project were estimated to be 3 ML per annum.

Hunter Water is again aiming to recruit up to 20 medium and large businesses and undertake audits again in 2013.

6.2.1 Benchmarking Study

Hunter Water contributed \$10,000 towards the Water Services Association of Australia (WSAA) National Benchmark Water Efficiency Study in 2011-12. This Australia-wide study will assist both utilities and business customers benchmark water usage via a web portal. It will highlight opportunities to save water and reduce business input costs.

Hunter Water is considering a further financial contribution in 2012-13. This would go towards:

- Initial research into methodology, frameworks and high level web portal design.

¹ 1ML equals 1000kL

- IT assistance for the development of functional specifications.
- On-going management, hosting and enhancements of the web site including on-going data management.

The study is expected to be completed at the end of 2013.

6.3 Irrigation and Landscape Efficiency Program

The Irrigation and Landscape Efficiency Program trial in February 2011 was very successful so the program was continued in 2011-12. Hunter Water provided 50 per cent funding towards audits of three different sporting field locations: Macquarie Field, Lyall Peacock Oval and the Hunter Sports Stadium.

AgEnviro completed the irrigation studies in May 2012 and Hunter Water passed on the irrigation reports to the respective clients for implementation. The recommended initiatives have identified potential savings of 17 ML per year.

The recommended practical solutions to improve the condition of the sporting facilities were:

- Maximise the potential of the topsoil to hold water.
- Replace old/tired irrigation systems.
- Ensure the application of water used for irrigation meets industry best practice. This entails checking irrigation systems for distribution uniformity and correcting any issues (e.g. broken/bent sprinkler heads, pump pressure etc).
- Apply water at the correct frequency and duration to meet seasonal demand of the plantings, including 'rainfall deferral' schedules.
- Where cost effective, rely on alternative water supplies to meet the irrigation demand (e.g. rainwater/stormwater/ground water/sewer mining etc).
- Top dressing and soil removal/replacement.

The program will continue in 2012-13.

6.4 Large Customer Smart Metering Program

In December 2010, Hunter Water commenced its Large Customer Smart Metering Trial Program. The trial involved installing smart meters on the main billable meters for eight major customers with a view to expanding smart metering services across the region. The duration of the metering was for a period of 12 months.

The purpose of the 'smart' metering trial was to:

- Identify leakage
- Alert facilities managers of leakage
- Monitor peak usage times and irregular usage, and
- Determine online billing opportunities.

A preliminary report on the effectiveness of the smart metering was completed in May 2011. The report identified a number of large customers who have potential to make significant water savings.

Due to the popularity of the smart metering system, it has been continued by five of the eight customers for 2012-13.

As part of the program, Hunter Water has developed a landing page on its website for major customers providing monthly data and access to data from installed smart meters. Hunter Water will be providing information on smart metering solutions to all major customers for their implementation, and proposes to assist customers identified as larger users through the Large Customer Audits Program (see Section 6.5).

6.5 Large Customer Water Efficiency Audits

As part of the Large Customer Smart Metering Program, Hunter Water planned to undertake water audits for larger non-residential customers, defined as those using greater than 50ML/year. Hunter Water promoted the opportunity to undertake water audits where the customer is smart-meter enabled and large losses had been identified.

Port Waratah Coal Services at Carrington were the first site to sign a memorandum of understanding to undertake a detailed water audit. The audit identified savings of approximately 160ML/annum. Hunter Water provided \$20,000 funding towards the audit. This first major water audit conducted by Hunter Water will provide valuable lessons for future water audits.

Hunter Water plans to conduct at least three additional audits during 2012-13.

6.6 Wastewater Pump Station Review

During 2010-11, Hunter Water investigated potable water usage at wastewater pump stations, as usage over the preceding 12 months had exceeded 360 ML. Potable water was being used to control odour, clean the pump stations and cool pumps.

The program looked at opportunities to turn off supply used to control odour without impacting on odour service standards. Odour monitoring found that potable water dosing could be stopped at eight wastewater pump stations saving 146ML per year, which exceeded expectations.

There were delays in conducting the investigation due to operational efforts being directed towards more urgent operational issues.

In the 2012-13 year, the investigation will continue to look for opportunities at wastewater pump stations.

6.7 Karuah Water Usage Review

Karuah is a small township of 1500 people located on the northern limit of Hunter Water's area of operations. Water is supplied to the town via a 40 kilometre pipeline from Lemon Tree Passage water treatment plant and wastewater is treated at a local wastewater treatment plant. Wastewater is also used for irrigation on an adjoining farm.

In 2010-11, a review of water usage in Karuah was undertaken, as the cost of providing additional supply to the township is expensive.

In 2011-12 an investigation of the potential to use recycled water for inlet screen cleaning at the Karuah wastewater treatment plant showed that the project would be viable and save approximately 12ML per year. The concept design for the recycled water system was included as part of the concept

design for an upgrade of the UV treatment system at the plant. The concept design is expected to be completed in 2012-13.

7 Water Supply Balance Table

Clauses 9.3.5 and 9.3.6 of the previous Operating Licence require Hunter Water to report on each component of the water supply balance table and report differences from the previous year. Table 7-1 shows the water supply balance for 2011-12.

Table 7-1 Water Supply Balance for 2011-12¹

	2010-11 Volume (ML)	2011-12 Volume (ML)	Trend
Supply			
Chichester	25,000	22,100	↓
Grahamstown	40,400	38,900	↓
Tomago Sandbeds	800	700	↓
Anna Bay Sandbeds	1,600	1,400	↓
Total Supply	68,000	63,200	↓
Demand			
Residential	37,100	34,900	↓
Detached	32,700	30,600	↓
Units/Flats	4,400	4,300	↓
Non-residential	22,400	20,000	↓
Bulk Supply Exports	300	0	↓
Large Users	11,300	9,700	↓
Small Users	10,700	10,300	↓
Small Users (industrial & commercial only)	7,300	7,300	→
Unmetered ²	8,500	8,300	→
Total Demand	68,000	63,200	↓

→ steady, ↓ decrease, ↑ increase

Table 7-1 demonstrates that overall demand has decreased in the last twelve months. Water demand reduced across all customer sectors. Residential and non-residential customer demand has fallen, whilst unmetered demand has remained stable. A large proportion of the non-residential usage decrease resulted from reductions in usage from large users. Unplanned shutdowns were experienced by a few large users during the year, leading to lower water consumption. Bulk supplies

¹ Water Balance calculated over period ending 19 April 2011. Non residential demand included 2.300ML bulk supply to the Central Coast and Great Lakes.

² From 2010-11 unmetered includes process water used at Grahamstown Water Treatment Plant.

during the last 12 months were negligible. Bulk transfers to Gosford/Wyong are expected to remain low in future years as their water supply storages have continued to increase during the year.

Table 7-2 shows differences in key measures in the water balance table between the current and previous reporting years. The table also quotes the Infrastructure Leakage Index (ILI). The ILI is the most valid measure for comparing water loss management between different agencies because it accounts for differences in system configuration.

Table 7-2 Changes in Key Water balance Measures (ML)

Measure	Current year 2011-12	Previous year 2010-11	Difference
Own source supply (ML)	63194	67099	-3905
Water exported to the Central Coast(ML)	12	315	-303
Billed authorised consumption (ML)	54137	58155	-4018
Unbilled authorised consumption (ML)	2058	2226	-168
Unbilled metered consumption (ML)	1742	1888	-146
Unbilled unmetered consumption (ML)	316	388	-72
Unauthorised consumption (ML)	63	68	-5
Customer meter inaccuracies (ML)	1105	1255	-150
Real losses (ML)	5820	6058	-238
Infrastructure leakage index	1.06	1.21	-0.15

Water losses from the distribution system can be identified through conducting a periodical water balance. Hunter Water has completed water balance calculations in line with Australian Urban Water Industry guidelines since 2000. The Water Services Association of Australia (WSAA) released a revised Water Balance Software package in late 2009. This software, which is used industry wide, ensures a standardised approach to National Performance Reporting of annual water balance calculations and associated performance indicators. Hunter Water used this standard software and the recommended default values for the 2011-12 annual water balance.

7.1 Unbilled Authorised Consumption

Unbilled Authorised Consumption decreased in this period due to a range of water efficiency projects targeting Hunter Water's consumption and an overall decrease in total water supplied.

7.2 Unbilled Metered Authorised Consumption

This consumption is primarily associated with operating Hunter Water assets such as process losses at water treatment plants, wastewater treatment plants (e.g. for grit and screenings washing and sludge dewatering) and wastewater pump stations (used for cooling water in some dry wells and general cleaning of wet wells). The decrease in Unbilled Metered Consumption for 2011-12 is due to a variety of water efficiency projects targeting Hunter Water's consumption particularly at wastewater pump stations.

7.3 Unbilled Unmetered Authorised Consumption

This consumption, which is defined as any unmetered authorised consumption for which a bill is not issued to a customer, is primarily made up of hydrant usage for mains flushing and fire fighting, fire service usage and testing and general network operation. The National Performance Framework default of 0.5 per cent of Total Potable Water Supplied has been applied to the water balance.

7.4 Unauthorised Consumption

Hunter Water continues to use the National Performance Framework default of 0.1 per cent of Total Potable Water Supplied to calculate unauthorised consumption (generally illegal use). There has therefore been no significant increase in this figure.

7.5 Customer Metering Inaccuracies

Customer Metering Inaccuracies relate to the under-registration of residential and non-residential meters. For the 2011-12 water balance Hunter Water has applied the National Performance Framework defaults of 2 per cent of Metered Consumption. Different values, based on a 2004 Water Meter Accuracy Review, were used prior to the 2009-11 Water Balance (3.4 per cent of Residential Metered Consumption & 1.87 per cent of Non-Residential Metered Consumption), however Hunter Water will continue to use the default values until a more updated review of its customer meter fleet has been completed.

7.6 Real Losses

Real Losses are made up of leakage and overflows from mains, service reservoirs and service connections prior to customer meters. There has been a significant decrease in the volume of Real Losses in the last twelve months. This decrease in water lost from the distribution system may be attributed to the ongoing water loss management programs: galvanised water service replacement, active leak detection and water main replacement programs as well as major trunk main renewal programs in particular the lining of a 2km section of a badly leaking above ground trunk main.

7.7 Infrastructure Leakage Index (ILI)

The Infrastructure Leakage Index (ILI) is an indicator of how effectively Real Losses in the distribution system are being managed at the current operating pressures. It is the preferred indicator for State and National comparisons (metric benchmarking), and has been adopted by the International Water Association as the preferred indicator for international comparisons. The ILI is the ratio of the Current Annual Real Losses (CARL) to the Unavoidable Real Losses (UARL) which estimates the lowest practical annual volume of real losses for a well-maintained and well-managed water system.

The Corporation had an ILI of 1.06 for 2011-12, which is in the excellent range. This follows the ongoing trend of improving performance with ILI's of 1.8 reported in 2002-03, 1.70 in 2003-04, 1.67 in 2004-05, 1.23 in 2005-06, 1.31 in 2006-07, 1.23 in 2007-08, 1.34 in 2008-09, 1.26 in 2009-10 and 1.21 in 2010-11. The significant drop in ILI for this reporting year is in part due to a review of the parameters used to calculate the UARL once these had been adjusted it was found that the UARL had been under reported in previous years. However even without this adjustment the ILI for 2011-12 would have fallen to 1.14 due to the strong performance of the water loss management programs.

8 Operating Licence Checklist

8.1 Operating Licence Checklist: Section 9.2 – Demand Management Strategy

Table 8-1 Operating Licence Checklist

Section In Licence	Item description	Compliance (Location in Report)
Annual reporting on the Integrated Water Resources Plan		
9.2.8	Hunter Water must report to IPART by no later than 1 September each year on its performance against the Integrated Water Resources Plan.	This report fulfils that requirement.
9.3.5	Hunter Water must report against each of the components in the Water Balance Table.	Section 7
9.3.6	Hunter Water must report on the differences in outcomes in applying clause 9.3.5 between on financial year and an immediately preceding financial year.	Section 7

As noted in the body of the report, the indicators specified in Section 9.3 and reported in this report in previous years are now reported in the Environmental Performance Indicator report only.

9 Summary of Expenditure for Improved Yield or Water Savings

Table 9-1 Summary of Expenditure for Improved Yield or Water Savings for the Lower Hunter

Initiative	Report reference for detail	Expenditure		Yield improvement or water savings		
		2011-12 Budget	2011-12 Actual	2011-12 Implemented	2011-12 Identified for future implementation	2011-12 Budget
New Supply	2			500 ML/day¹	–	
Balickera Pump Station Upgrade	2.1	–	–	500 ML/day ¹	–	
Potable water substitution - recycling	3			1878 ML	3679 ML	
Maintain existing recycled water supply for potable water	3.1	\$1,870,605	–	1878 ML	–	
Implement Kooragang Industrial Water Scheme	3.2	\$25,400,000	\$3,050,000	–	3,300ML	
Develop dual reticulation schemes	3.3	\$50,000	–	–	–	
Refine recycled water policy	3.4	\$0	–	–	–	
Review opportunities to expand recycling of wastewater	3.5	–	–	–	325 ML	
Stormwater harvesting & greywater recycling	3.6 & 3.7	\$403,000	\$445,204	–	50 ML	
Alternative water supply solutions	3.8	–	–	–	–	
Leakage reduction programs	4			568 ML	50 ML	
Active leakage detection program	4.1	\$150,000	\$91,561	214 ML	–	
Maintain water service replacement program	4.2	\$250,000	\$228,945	27 ML	–	
Watermain replacement program	4.3	\$2,800,000	\$5,700,000	327 ML	–	
Response time to known leaks	4.4	–	–	–	–	
Pressure reduction program	4.5	\$455,000	\$113,500	–	50 ML	

Not Applicable

¹ This is the increase in approved pump capacity. The yield improvement is also affected by water licence and works approval conditions set by NSW Office of Water

Initiative	Report reference for detail	Expenditure		Yield improvement or water savings		
		2011-12 Budget	2011-12 Actual	2011-12 Implemented	2011-12 Identified for future implementation	2011-12 Budget
Residential water efficiency programs	5			67 ML		615 ML
Community education and awareness programs	5.1	\$138,000	\$119,392	2 ML	–	502 ML
Water metering	5.2	\$21,000	\$58,882	–	–	–
Collaborative promotion of water efficiency programs	5.3	\$8,000	\$8,000	6 ML	–	–
Residential appliance replacement program	5.4	\$82,250	\$66,033	50 ML	–	90 ML
Promote water saving products	5.5	–	–	–	–	2 ML
DIY water saving kits	5.6	–	–	6 ML	–	16 ML
Online plant selector on Hunter Water’s website	5.7	–	–	–	–	–
Shower timer giveaways	5.8	–	–	3 ML	–	6 ML
Weblinks to water efficiency websites	5.9	\$50,000	–	–	–	–
Community water saving ideas	5.1	–	–	–	–	–
’Smart’ water bill	5.11	–	–	–	–	–
Non-residential water efficiency programs	6			196 ML	214 ML	332 ML
Leakage in schools program	6.1	\$60,500	\$14,965	33 ML	–	61 ML
Hunter business water savers Program	6.2	\$121,000	\$40,421	–	42 ML	
Irrigation and Landscape Efficiency Program	6.3	\$20,000	\$6,702	17 ML	–	–
Large customer smart metering program	6.4	–	\$760	–	–	–
Large customer water efficiency audits	6.5	\$20,000	\$20,000	–	160 ML	34 ML
Wastewater pump station review	6.6	\$50,000	\$5,534	146 ML	–	232 ML
Karuah water usage review	6.7	–	\$1,453	–	12 ML	5 ML