

Water efficiency makes the most of the water we have

The total amount of water used by households and businesses in the lower Hunter is now less than it was 40 years ago. These savings have been achieved through a combination of:

- 'user pays' pricing, introduced in 1982, so that customers pay more if they use more water
- household water efficiency measures, achieving significant reductions in water use per person
- various changes in business use, including water efficiency measures, water recycling, and the closure of some major industries (including BHP Steelworks).

The lower Hunter region now uses about the same amount of water on average as it did in 1970, although the population supplied by Hunter Water has grown by around 200,000.

Water efficiency programs saved around 1.2 billion litres of water in 2012/13. Water efficiency initiatives include programs to:

- help customers save water in the home by using more water-efficient appliances
- assist businesses and schools to use water more efficiently
- minimise leakage from the water supply system.

During a drought, additional measures to reduce water use and help our water storages last longer include drought restrictions, and further water efficiency and loss minimisation programs.

We all have a part to play

Household water use accounts for about 56 per cent of total water used in the lower Hunter. As shown in the pie chart, this is made up of around 49 per cent used by customers living in houses, and seven per cent by those living in flats and units.

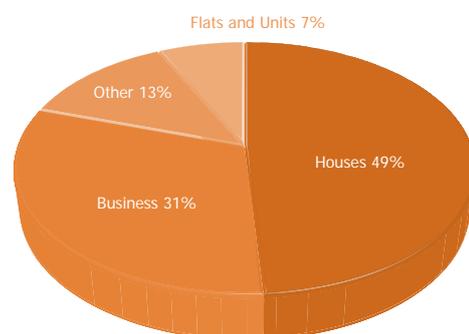
The remaining 'non-residential' customers include industries, businesses, office buildings, schools, hospitals, shopping centres, hotels, restaurants, councils and recreational facilities. For simplicity, we will call these collectively 'business customers'. Business customers currently account for about 31 per cent of the water used in the lower Hunter region.

The remaining 13 per cent (labelled 'other' in the pie chart) includes water used by Hunter Water and for firefighting, together with water leakage and metering errors.

There has been a gradual change in the share of water used by household and business customers over the last 25 years.

Before 1990, households used less water than businesses. With population growth and changes in the regional economy, households now account for a larger proportion of water use.

Breakdown of water supplied to customer groups by Hunter Water in 2012-13

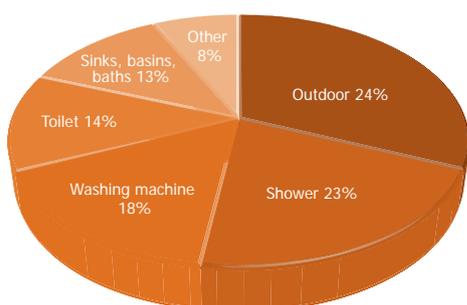


Household water efficiency

With households accounting for more than half of the water use in the lower Hunter, household water efficiency programs will continue to play a vital role in saving water both inside and outside the home.

Understanding where water is used in the home can help target programs to improve water efficiency. The pie chart shows the typical breakdown of water use for a household.

Where households typically use water



Increases in indoor water efficiency will continue to be achieved by householders installing water-efficient shower heads, tap aerators and dual flush toilets, together with more water-efficient washing machines and dishwashers. Initiatives to save water outdoors include using a trigger nozzle on garden hoses and choosing plants that need less water.

Water efficiency programs for households offered by Hunter Water currently include:

- **Showerhead exchange program** – this program is run in conjunction with local councils. Customers can take their old showerhead to an office of Hunter Water or their local council, and exchange it for a more water-efficient showerhead. There are two options, one is free and the other is available at a cost of \$50 (a saving on the recommended retail price of \$199). Water savings from using a more efficient shower head are estimated at over 25,000 litres each year, reducing both water and energy bills.
- **Hunter Region No Interest Loans Scheme** – Hunter Water provides financial support to help low income customers who meet certain conditions to buy a water-efficient washing machine.

More information on these programs can be found at:

www.hunterwater.com.au/Save-Water/

[Save-Water-Initiatives/](#)



Water efficiency measures have been implemented by many households in the lower Hunter, as indicated in a survey conducted by the Hunter Valley Research Foundation in 2011. The survey found that for the households that responded:

- 90 per cent had dual flush toilets
- 80 per cent had installed water-efficient showerheads.

Figures for the uptake of water efficiency programs suggest some may be reaching their full potential. However, water efficiency savings in households will continue through further technology improvements in water-efficient appliances, together with two main initiatives at national and state level - the national Water Efficiency Labelling and Standards (WELS) scheme and the Building and Sustainability Index (BASIX) – see box at right.

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Water Efficiency Labelling and Standards (WELS) scheme

The WELS scheme, which began in 2005, enforces mandatory ratings and labelling for a range of appliances and fittings, and develops minimum performance standards for products.

As new water-efficient appliances and fittings are released to retailers, customers are encouraged to purchase these new products when their existing, less efficient ones need replacing.

By 2021, it is estimated that using water-efficient products will help reduce domestic water use across Australia by more than 100 billion litres each year. The main savings are being achieved from more efficient showers, washing machines and toilets.

More information can be found at www.waterrating.gov.au/. The WELS website has a wide range of information for industry and consumers, including advice on how to compare the water efficiency ratings of appliances.



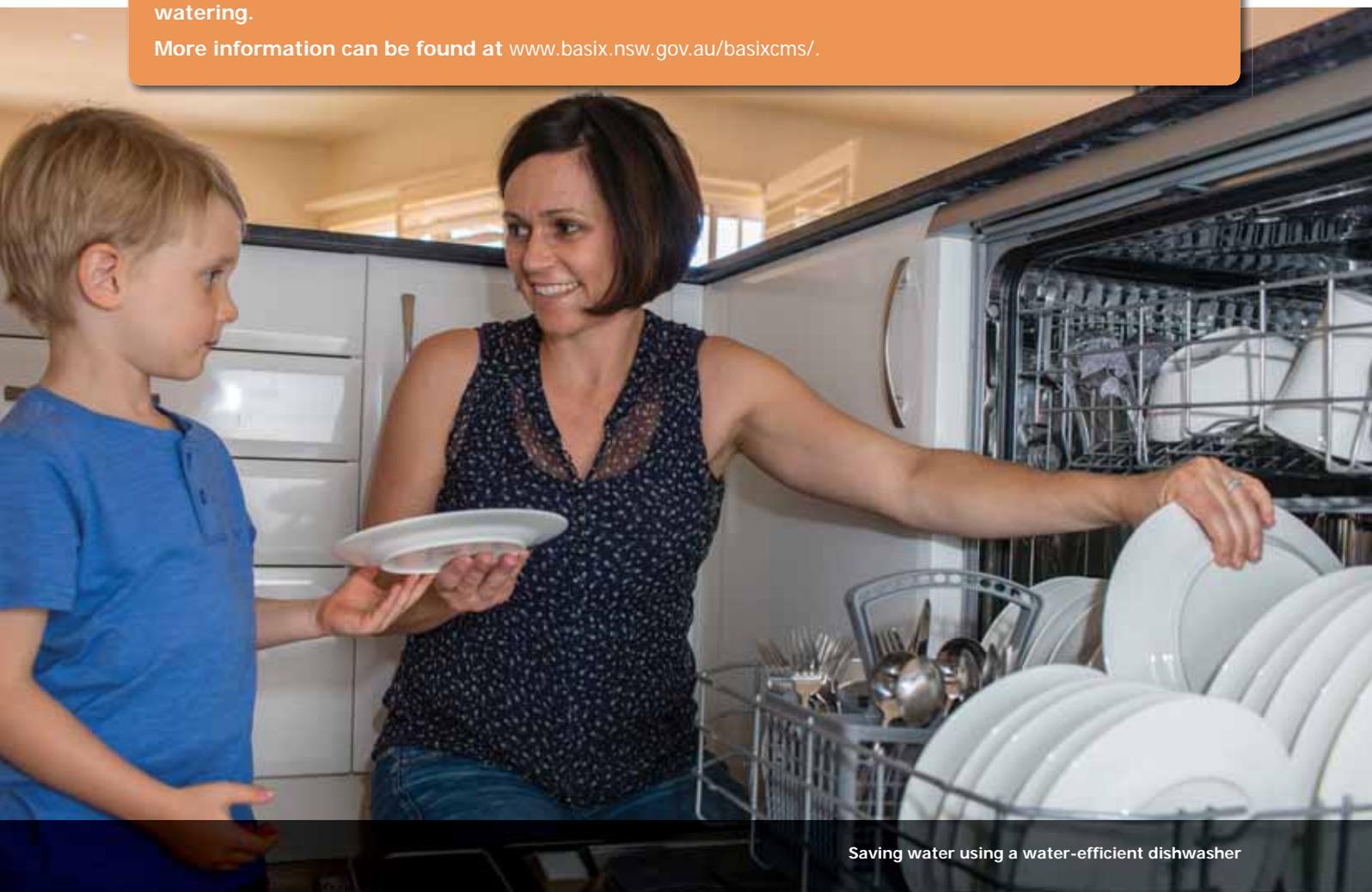
Building and Sustainability Index (BASIX)

Since 2005, BASIX has applied to all new homes in NSW, aiming to reduce water and energy use across the state. BASIX is a planning policy that ensures new residential properties are designed to use less drinking water. BASIX also applies to housing alterations and additions worth over \$50,000. New or altered homes must achieve a 40 per cent reduction in drinking water use, compared with a pre-BASIX statewide benchmark of 90,340 litres of water per person each year (or 247 litres a day for each person).

Homes can meet BASIX requirements by using water efficient appliances and installing a rainwater tank. Where available, BASIX can be met by connecting to a supply of recycled water.

A review of BASIX certificates for the lower Hunter found that 97 per cent of certificates indicated connection to a rainwater tank, with connection to a recycled water scheme accounting for the remaining three per cent. Most tanks had a volume in the range 3000 - 5000 litres, and more than 90 per cent of homes connected their rainwater tanks for toilet and laundry end uses as well as garden watering.

More information can be found at www.basix.nsw.gov.au/basixcms/.



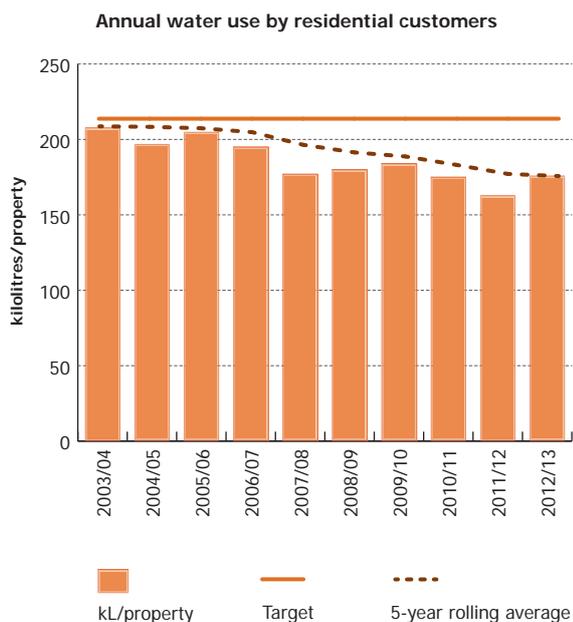
Saving water using a water-efficient dishwasher

Water conservation target

Hunter Water's Operating Licence includes a water conservation target for annual residential water consumption to be equal to or less than 215 kilolitres (1 kilolitre = 1000 litres) a year for each residential property, based on a five-year rolling average. As shown in the graph below, the average has been trending downward since 2005/06, although some fluctuations occur due to climate variability (ie, some years are wetter and some are drier).

The five-year rolling average is now 175 kilolitres per property, which easily meets the target. For comparison, Sydney's annual residential water use is around 190 kilolitres per property².

The downward trend reflects the benefits of water savings from household customers using water more efficiently and replacing older appliances with more efficient models as they wear out.



Community education programs

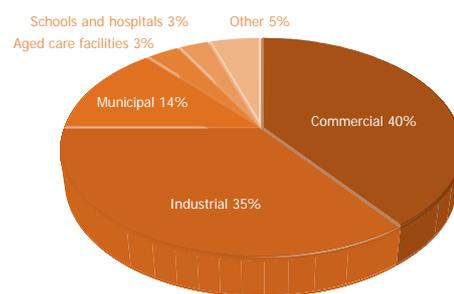
Since water saving starts with education and awareness, it is important for Hunter Water to play an ongoing role in helping educate the community about the many aspects of water supply, treatment and conservation. Current initiatives include:

- advertising campaigns which promote water efficient behaviour
- Hunter Water's website includes a dedicated 'Save Water' section that provides information on how to be water efficient in the home and garden
- contributing funding for the educational Bubbles and Supa Squirt Water Saving Show, catering for students from kindergarten through to year six
- contributing to the Australian Water Association's collaborative project to enhance water education resources linked to the school curriculum
- promoting water-saving products and gardening tips at relevant community events
- a community grants scheme that provides funding to community organisations for water conservation and educational projects
- promoting the national WELS scheme to encourage customers to choose household appliances that save both water and energy
- a new water education centre being constructed as part of the advanced water treatment plant for the Kooragang Industrial Water Scheme, to raise community awareness about sustainable urban water management and water recycling.

Business water efficiency

The breakdown of water use for key categories of business customers is shown in the pie chart below.

Breakdown of water use by business customers



2. Source: National Performance Report 2011-12: Urban Water Utilities, National Water Commission, March 2013

There are more than 20,000 businesses in the lower Hunter. Some small businesses use less water than a typical household, while others use a very large amount of water. The top 30 customers - who each use more than 50 million litres a year - together use more water than other business customers combined.

As part of its everyday operations, Hunter Water offers programs to help business customers reduce their water consumption by understanding and changing the way they use water, using equipment that is more water-efficient, investigating options for recycling, and reducing loss and waste.

The programs currently offered by Hunter Water to help businesses improve their water efficiency are:

- *Voluntary water audits* - subsidised audits are offered for major customers whose water use is over 30 million litres a year, leading to development of a Water Efficiency Management Plan

- *Hunter Water Business Savers Program* - provides a free water audit of amenities and commercial kitchens to 20 customers each year. The customer with the best water saving project is recognised with a prize at the Hunter Business Awards.

A wide range of businesses have already participated in the voluntary water audit and business saver programs. These include hospitals, aged care facilities, restaurants and clubs, food processing industries, educational facilities, sporting centres and holiday parks.

The existing programs will be expanded in a drought to try to achieve even more water savings. This is discussed later in this chapter, under the heading 'What would happen in a drought?'

Case Study 1: Hunter Water Business Savers

In 2012, the East Maitland Bowling Club was the winner of the Hunter Water Business Savers Award for their innovative ideas on water saving in the kitchen.

The Hunter Water Business Savers program aims to improve water efficiency in amenities and commercial kitchens for Hunter Water's business customers.

The East Maitland Bowling Club has replaced two existing water-cooled woks in their kitchen with air-cooled woks. They also installed two 10,000 litre rainwater tanks to use for irrigating the bowling greens.

The water savings from the project are estimated to be over three million litres per year.

As part of the Business Savers program, Hunter Water offers a prize of \$10,000 towards water-efficient equipment upgrades, rainwater tank installation, recycling and grey water reuse projects. The projects are judged on water savings, cost effectiveness, innovation and appeal of the project for widespread adoption in the region.



Chef Ming Liang at East Maitland Bowling Club

The program has been running since 2009 and has so far worked with 94 customers to identify 155 million litres of water saving opportunities, which would fill 62 Olympic sized pools.

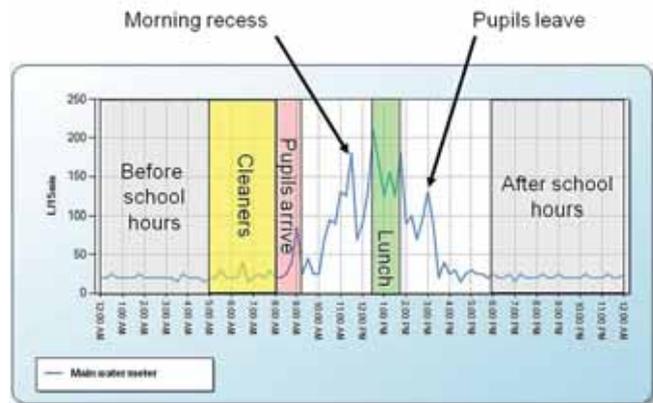
Case study 2: Saving water in schools



A student monitors school water usage

To help local schools save money on their water bill, in 2013 Hunter Water provided 65 local schools with data loggers to connect to the school's water meter to track water usage in real time. The data loggers relay the information to an electronic portal that can be viewed by teachers, students, administrators, and Hunter Water staff in the water efficiency team.

The graph shows a typical trend in water use at a school during a normal day. Alerts can be set up through the online portal to be sent to mobile phones and/or email to advise if there is a spike in water usage overnight or on weekends, indicating a possible leak or vandalism.



Leaks are often in underground pipes and can waste many thousands of litres per day. Being able to respond quickly to such leaks can save schools thousands of dollars in water usage charges.

Minimising water lost through leaks

Hunter Water maintains the systems that deliver water to the people of the lower Hunter. Like all water supply systems around the world, the lower Hunter's water distribution system can lose water due to leaks and breaks. Leaks are caused by deterioration of joints and fittings, and by cracks in the pipes caused by ground movement or pressure changes.

Hunter Water's leak reduction programs use the latest methods and technologies to detect and repair hidden leaks and reduce the amount of water lost. The active leak detection program currently surveys around 1200 kilometres of water mains each year, so that the whole water supply system can be checked over a five-year cycle.

The main focus of activities to minimise losses from the water supply system involve:

- actively detecting and repairing leaks, using listening devices to survey the water supply network and identify hidden leaks before they would normally be seen and reported
- reducing pressure in the pipes in selected zones with higher pressure to reduce the frequency and volume of leaks.

Water utilities compare their water loss performance using an international system called the 'Infrastructure Leakage Index', which shows how water losses compare with the theoretical lowest possible level of leakage that could be achieved by a water supply system. Hunter Water's performance is ranked in the 'excellent' category, along with all major Australian water utilities.

Leaks in pipelines on private property are the responsibility of the owner, and initiatives discussed in the water efficiency section can help customers find and reduce these leaks.

How much water is being saved?

Savings from water efficiency and loss minimisation programs have increased steadily in recent years, as shown in the graph at right. Over the next four years, the total water savings from these programs are estimated to total over 2000 million litres a year.

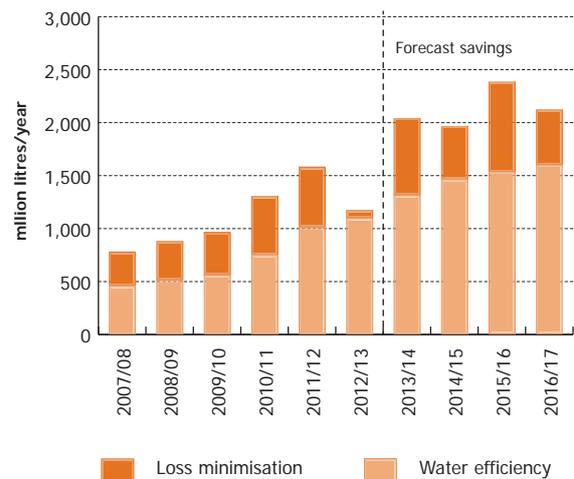
What would happen in a drought?

Everyone has a part to play in improving water efficiency – household and business customers as well as Hunter Water. The water efficiency initiatives discussed above aim to reduce overall water use and help our water storages to go further. In a drought, these programs would be expanded under the *Lower Hunter Water Plan* to provide even more savings when we need them most.

Household water efficiency – expanded drought program

In a drought, water efficiency programs to help households voluntarily save water would be staged as water storage levels drop, ramping up in parallel with drought restrictions (discussed in Chapter 5). Each stage

Estimated savings from Hunter Water's efficiency and loss minimisation programs



Note: The savings from the water loss minimisation programs in 2012/13 appear lower due to the timing of the contract for that year, resulting in most of the savings being recorded within the 2013/14 year.

would continue the programs from the previous stage, and expand on them as shown in the table below.

DROUGHT LEVEL	WATER STORAGES	PROPOSED ADDITIONAL HOUSEHOLD WATER EFFICIENCY PROGRAMS
Level 1	60%	<ul style="list-style-type: none"> Increase marketing of showerhead exchange program Free shower timers for customers to collect Free do-it-yourself water saving kits Expand multi-media advertising, education and awareness programs to encourage water savings indoors with key messages reminding customers about taking shorter showers, using washing machines and dishwashers with full loads, repairing leaking taps, how much water different activities use and savings that can be achieved from water-efficient appliances Complemented by tips about saving water outdoors, linked to Water Wise Rules and restriction levels Expand school water audits and encourage students to take the water-saving messages home and apply them
Level 2	50%	<ul style="list-style-type: none"> Introduce a rebate for installing a new dual flush toilet (WELS 4 star) Further expand advertising, education and awareness programs, emphasising key messages about indoor and outdoor savings as above
Level 3	40%	<ul style="list-style-type: none"> Introduce a rebate for purchasing a water-efficient washing machine (WELS 4.5 stars) Further expand advertising, education and awareness programs, emphasising key messages about indoor and outdoor savings as above

Business water efficiency – expanded drought program

During a drought, water efficiency programs targeting business customers would be expanded as shown in the table below. Similar to programs for households, these voluntary programs would be staged as water storage levels drop, operating in parallel with drought restrictions. These voluntary programs would provide incentives to help businesses improve their water efficiency, and be prepared before mandatory drought restrictions are introduced and become progressively more stringent (discussed in Chapter 5).



Repairing a water main

DROUGHT LEVEL	WATER STORAGES	PROPOSED ADDITIONAL BUSINESS WATER EFFICIENCY PROGRAMS
Readiness	70%	<p>Expand the number of major customers (those using more than 50 million litres a year) that participate in water audits and develop a Water Efficiency Management Plan (WEMP).</p> <p>Develop water conservation toolkits to raise awareness of water-saving opportunities, targeting key industry sectors with high water use.</p> <p>Start recruiting participants for Level 1 water audits.</p> <p>Develop marketing and communications material encouraging water-efficient amenities and cleaning equipment.</p>
Level 1	60%	<p>Voluntary water audits and development of WEMP for customers using less than 50 million litres a year.</p> <p>Introduce subsidised audits to improve irrigation for open space, ovals, commercial nurseries, farms and market gardens.</p> <p>Promote best practice guidelines for commercial vehicle cleaning industry.</p> <p>Encourage a minimum water efficiency standard for showers and taps (WELS 3 star) for customers using more than 10 million litres a year.</p> <p>Encourage a minimum water efficiency standard for cleaning equipment (high pressure and trigger operated spray guns) for customers using more than 10 million litres a year.</p> <p>Roll out water conservation toolkits for specific industries.</p> <p>Prepare and distribute guidelines to restaurants on replacing water-cooled woks with air-cooled woks.</p>
Level 2	50%	<p>Maintain Level 1 programs for irrigation water audits and water-cooled woks.</p> <p>Expand education and awareness programs (including water conservation toolkits) and minimum water efficiency standard for taps, showers and cleaning equipment (WELS 3 star) for customers using more than 5 million litres a year.</p>
Level 3	40%	<p>Introduce a subsidy to assist with replacing water-cooled woks with air-cooled woks.</p> <p>Continue expanding education and awareness programs and minimum water efficiency standard for taps, showers and cleaning equipment.</p>
Level 4	30%	<p>Continue expanding education and awareness programs and minimum water efficiency standard for taps, showers and cleaning equipment.</p>

Business water efficiency programs encourage and support the early adoption of water efficiency measures that eventually become mandatory if drought restrictions become more severe. The early adoption of water efficiency measures ensures that water savings start earlier, and help slow the drop in water supplies.

Minimising water losses from leaks – expanded drought program

In normal climate conditions, the active leak detection program would deliver a survey of the entire water supply network over a five-year cycle. In a drought, this program would be accelerated to cover the network within three years.

Additional pressure management zones would also be implemented, to reduce water loss due to background leakage.

Existing water efficiency programs for households and businesses would be expanded in a drought to try to achieve even more water savings.

Looking to the future

- Water efficiency and leak reduction programs will continue to deliver savings in water use, operating at the local level as well as the state and national levels (for BASIX and WELS schemes respectively).
- These programs would be progressively expanded in a drought, with responsibilities shared among household and business customers and Hunter Water.
- By adopting water efficiency measures early, particularly when incentive programs are available, businesses have the opportunity to be better prepared before drought restrictions are in place and become increasingly stringent.

‘When all parties contribute to water savings, it diminishes the likelihood that storages will be drawn to critically low levels’

COMMUNITY COMMENT
CONSULTATION WORKSHOP 2013