

# Water Plan **3**



Price Review 2013-2018

October 2012

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# Water Plan 3

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## Our water plan

### ▶ Key points

- From the late 1990s until 2009 Melbourne experienced its longest drought on record. Very large investments in new water supplies have been made to improve water security for Melbourne's customers, including the Victorian Desalination Plant at Wonthaggi
- All water customers in Melbourne, including City West Water's customers, will share these bulk water costs over the forthcoming Water Plan period
- These costs will cause a significant step up in water prices in 2013-14 (the first year of the regulatory period), but price increases will be limited to CPI in the following four years of the regulatory period
- City West Water's priorities in the next five year regulatory period will be to:
  - maintain its very reliable water and sewerage services
  - provide these services to a growing customer base
  - find better ways to run our business to reduce our costs
  - continue to invest in alternative water, consistent with the government's vision to secure Melbourne's long term water security and enhance liveability

This Water Plan presents the information needed by our economic regulator, the Essential Services Commission (ESC), to understand the resources City West Water requires to deliver safe, reliable and sustainable water and sewerage services to our customers over the five year regulatory period from 2013-14 to 2017-18, and the proposed prices for those services.

### Customer and stakeholder input to Water Plan

City West Water has consulted widely with customers in preparing this Water Plan. We have also consulted with our regulators (the Essential Services Commission, Environment Protection Authority (EPA) and the Department of Health) and the Victorian Government, who is our owner and sets out water policy. We have used a variety of engagement methods to ensure that as many views as possible have been heard, including on-line forums and more traditional consultation meetings.

Our customers and stakeholders will have the opportunity to provide feedback on this Water Plan via the ESC's consultation processes in coming months. The ESC will make a determination on this Water Plan by May 2013.

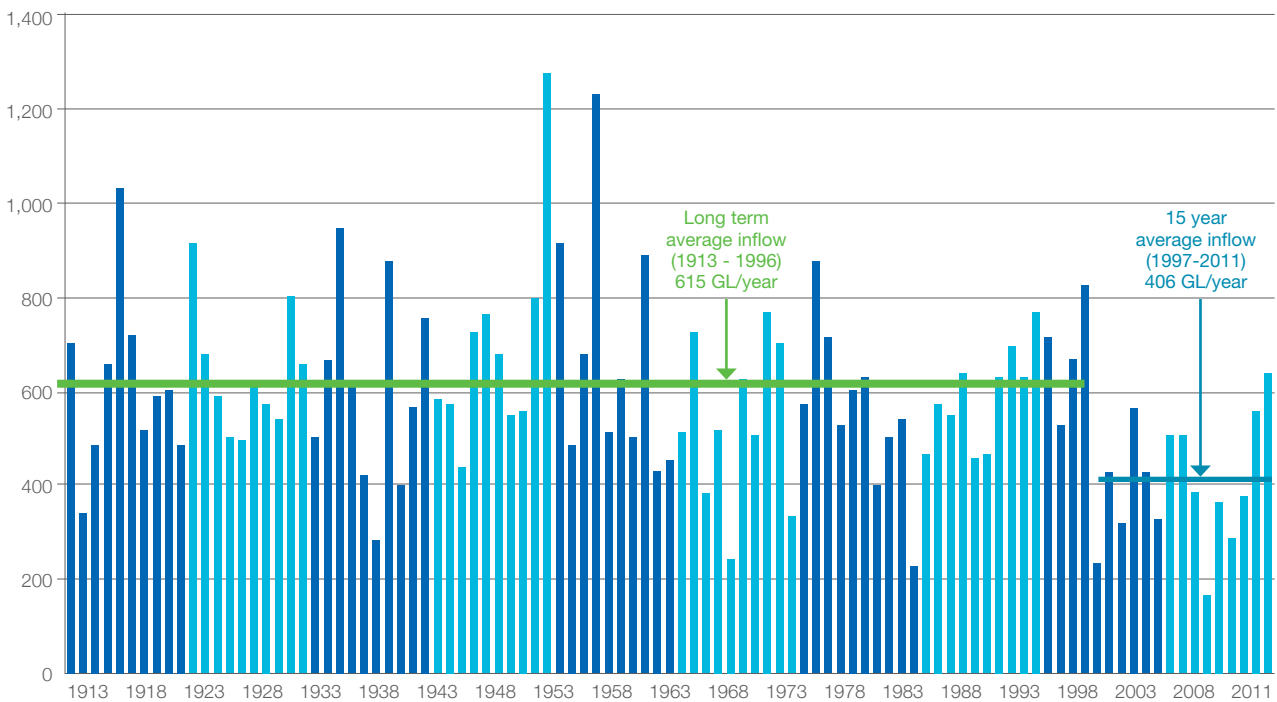
### Meeting the cost of new water supplies

Melbourne experienced its longest drought on record from the late 1990s and over most of the following decade. As shown in the figure below, inflows into storages during this period were well below those experienced in the past century and the 15 year average inflows are still one third below the long term average. This prolonged drought presented an unprecedented challenge for the water industry and customers.



Figure 1:

Inflows to Melbourne’s main water supply reservoirs – annual totals (GL/year)



Source: Melbourne Water

Following accepted practice, water restrictions were used to manage demand. As the drought continued and became more severe, increasingly tight restrictions were needed to maintain water supplies for essential use and it became apparent that action beyond restrictions would be required. The Victorian Government and the water businesses agreed to invest more in recycled water and education programs for efficient water use. Customers, including households, commercial and large industrials responded strongly, reducing their water usage.

The significant investment required as a consequence of the drought has already resulted in substantial increases in our prices over recent years. The average household bill has increased by around 70 per cent in real terms since 2007. The Victorian Desalination Plant (VDP) will further increase water prices in 2013-14 (the first year of the regulatory period) with subsequent adjustments expected to reflect the rate of increase in the CPI each year of the five year plan.

However in 2007, after a decade of drought and the lowest inflows on record the previous year, the Government decided to construct a 150 billion litre desalination plant as a more permanent solution to providing water security for Melbourne. All water customers in Melbourne, including City West Water’s customers, will share the cost of Melbourne’s new bulk water supplies.

### City West Water’s priorities

City West Water has been mindful of these external events affecting the costs faced by our customers when developing this Water Plan. This has led to a focus on core priorities including maintaining our high standards of service in a sustainable way and meeting the needs of a fast growing customer base.

City West Water’s priorities in the five year regulatory period will be to:

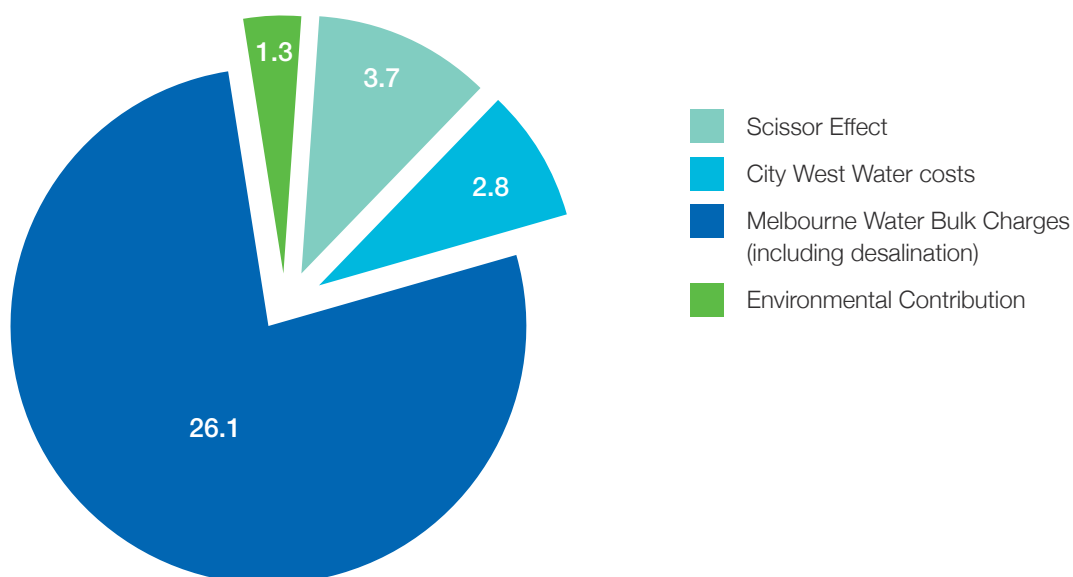
- Maintain its high quality, reliable water and sewerage services
- Provide these services to a growing customer base
- Find better ways to run our business so as to reduce our costs and best meet customer needs
- Continue to invest in alternative water, consistent with the government’s vision to secure Melbourne’s long term water security and enhance liveability.

### Impact on prices

As noted above, new water supply costs are being recovered from all customers in Melbourne. As a result of the desalination plant and other cost drivers (shown in Figure 2 below), we will need to recover costs of \$605 million in 2013-14, resulting in an average household bill increase of 33.9 per cent in addition to CPI. For the remainder of the Water Plan period to 2017-18, prices will increase by CPI.

Figure 2:

Drivers of bill increase, 2013-14 to 2017-18



The key cost drivers are explained below. The majority of the price increase is due to externally imposed costs rather than to increases in City West Water’s own costs. Price increases associated with maintaining sound services to our existing and growing customer base account for only 2.8 per cent of the overall price increase.

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**External drivers of bill increases**

Victorian Desalination Plant and Melbourne Water Bulk Charges	Government commissioned desalination plant to secure a rainfall independent water supply for Melbourne.
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**Responsible for around 26 per cent.**

Revenue deficit during the period 2009 to 2013 (“scissor effect”)	When the ESC set our prices for the current period it did so by increasing our prices by a greater amount in the first two years of the period and by a lower amount in the final two years. At the same time our costs were increasing by a smaller amount in the first two years and by a greater amount in the last two years. This has resulted in a revenue under-recovery and the need for this adjustment in first year of this Water Plan period.
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**Responsible for around 3.7 per cent.**

Environmental Contribution to DSE	All Melbourne retailers contribute five per cent of revenue towards a government fund for initiatives to improve the sustainable management of water. The amount that we will contribute for this Water Plan has been recalculated based on our current revenue, resulting in an increased environmental contribution.
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**Responsible for around 1.3 per cent.**

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**City West Water drivers of bill increases**

Alternative water projects	Altona Recycled Water Project Stage 2 will supply 4.7 GL per year of recycled water to industry and will involve the construction of a salt reduction plant and pipeline from the Western Treatment Plant to the Altona area.
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We will also be exploring innovative ways of capturing and storing water in underground aquifers to supplement our water supply needs.

Growth related projects	The West Werribee Recycled Water Project involves the construction of a salt reduction plant designed to produce Class A recycled water. Construction began in 2012 and completion is expected in late 2014. It will supply recycled water to some 25,000 customers in the Werribee area by 2035.
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We will also be investing in water, alternative water and sewerage infrastructure to meet our growing customer base in the western suburbs of Melbourne.

Head office relocation	We will be moving into a new head office in Footscray in mid 2014. Our current head office was built around 40 years ago and is no longer suitable for our needs.
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**All City West Water cost increases together are responsible for around 2.8 per cent.**

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## Continued investment in the future

We service an area with some of the highest rates of population growth in Australia. This means that we need to continue to invest in new infrastructure to provide services to these new customers. One of the ways we are addressing this greater demand is by investing in alternative water solutions<sup>1</sup>, which will enable us to use our water resources in a smarter way. This will also deliver environmental benefits as we reduce the amount of wastewater we discharge into Port Phillip Bay.

This approach is strongly aligned with the policy approach of the Victorian Government to implement integrated water cycle solutions. The Government has established an Office of Living Victoria (OLV) to drive and implement integrated water solutions. The OLV is working to implement integrated water cycle planning for Melbourne's four growth areas and inner Melbourne. These plans will underpin City West Water's approach to servicing new growth areas with the most appropriate water source.

We also face other challenges within our operating environment. Our assets are ageing (some over 100 years) and require ongoing replacement. They are located in soil types which shrink in dry conditions, causing water main bursts and leaks. We therefore need to manage our assets well so we can maintain our water and sewerage services with as few interruptions to our customers as possible.

All of these pressures on our costs have reinforced the need for us to operate efficiently so we can keep our price as low as possible, which is why we are investing in further efficiencies such as a business transformation program as well as continuously striving for opportunities to do more with less.

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<sup>1</sup> Alternative water projects are alternatives to traditional drinking water supplies from dams and could include recycling wastewater for non potable use, stormwater harvesting and re-use and aquifer storage and recovery (where excess water is captured and stored in an aquifer and extracted for use in dry periods).

# 1 Business overview

## Key points

- City West Water is one of three retail water and sewerage businesses in metropolitan Melbourne and is fully owned by the Victorian Government
- We manage a significant asset base including 4561 km of water mains, which supply more than 80 GL of water each year, 4043 km of sewer pipes and an increasing dual supply (purple pipe) network
- We deliver water and sewerage services to around 380,000 residential and non residential customers. In all, the population we serve is over 900,000 people
- City West Water has the largest commercial and industrial customer base of the Melbourne retailers, accounting for close to 45 per cent of our water supplied
- Many of our assets are aging (some over 100 years) and hence require on-going maintenance and renewal. An additional challenge is that they are located in soil types which shrink in dry conditions, and hence careful management is needed to control water main bursts and leaks and prevent service interruptions.

City West Water is one of three retail water businesses in metropolitan Melbourne and is fully owned by the Victorian Government. Our business is to provide potable and non potable water, sewerage and trade waste services to residential and non residential customers in Melbourne's central business district, and inner and western suburbs.

City West Water also has a growing alternative supply network supplying recycled water to new urban development areas. The West Werribee Dual Water Supply Project will deliver high quality, Class A recycled water and drinking water to housing estates in the Werribee area, as well as a number of open spaces managed by Wyndham City Council.

## 1.1 Our assets

Our water network consists of 4561 kilometres (km) of water mains, which supply more than 80 GL of water each year.

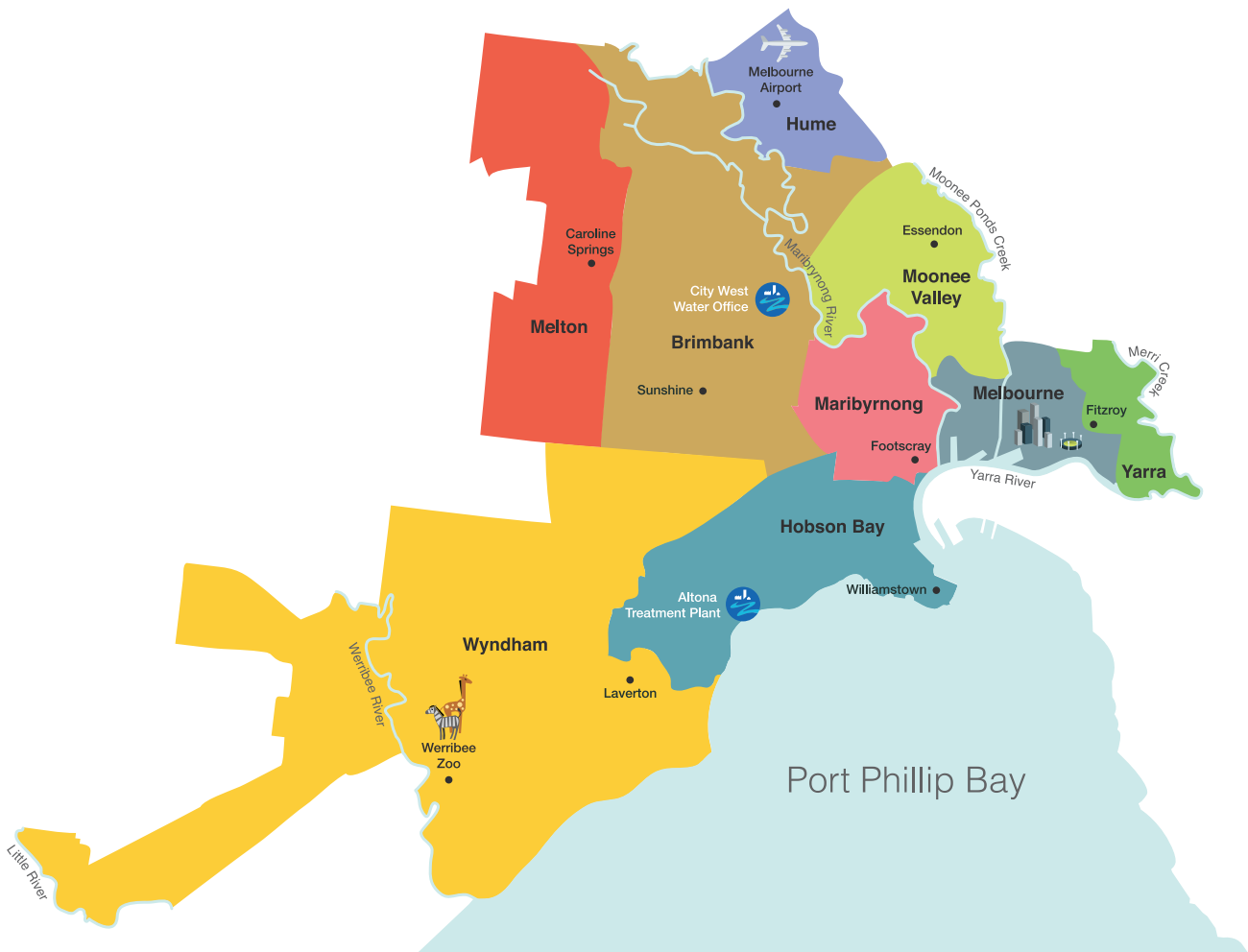
Our sewerage system consists of a network of gravity and vacuum sewers, rising mains, pump stations and emergency relief structures. We have 4043 km of sewer pipes across our service area. This infrastructure is designed to transfer sewage from our customers' properties to either Melbourne Water's Western Treatment Plant (where most of the sewage goes) or to our Altona Treatment Plant. At the Altona Treatment Plant, sewage is treated using tertiary and advanced post tertiary treatment systems, and most of the treated wastewater is recycled and distributed to local customers.

## 1.2 Our service area and customer base

As shown in the figure overleaf, City West Water services the local government areas of Brimbank, Hobsons Bay, Maribyrnong, Melbourne (north of the Yarra River), Moonee Valley, Wyndham, and parts of Yarra, Melton and Hume.



Figure 1-1:  
City West Water service area



The west is home to an increasingly multicultural population. We deliver these services to around 380,000 residential and non residential customers. In all, the population we serve is over 900,000 people.

A feature of our customer base is the large volume of water we supply to non residential customers. While they represent less than 10 per cent of our customer numbers, at just over 36,500 customers, they consume close to 45 per cent of the total water we supply each year.

Table 1-1:

Current customer base (at 30 June 2012)

Indicators	Number
Total customers	379,086
Residential customers	342,477
Non residential customers (including trade waste)	36,609
Trade waste customers	6,552
Population estimate	902,683
People who speak languages other than English at home	25%

Strong growth continues to be one of the greatest challenges facing City West Water and is a key feature of our service area. Over the last 10 years, growth in our customer base has averaged 3.3 per cent per annum compared to 1.9 per cent in the rest of Melbourne. During the third regulatory period, we expect to maintain an average growth rate of 2.8 per cent per year.

This means that City West Water will be expanding and augmenting our network to serve new customers in urban development areas. These areas will include both greenfield developments such as West Werribee, as well as significant infill developments.

### 1.3 Our operating environment

City West Water must operate in accordance with the policy and regulatory environment that applies to the provision of water and sewerage services, which is briefly described below. More detail on the obligations this imposes on our business is discussed in Section 3.

#### Government policy

The Victorian Government created the Office of Living Victoria (the OLV) on 22 May 2012 to drive reform by coordinating urban and water planning.

The immediate focus of the OLV is on integrated water cycle planning. The work of the OLV will contribute to achieving the Government’s aim to ensure water is planned for and used in ways that support and enhance Melbourne’s liveability.

In addition to the creation of the OLV, the Government is also committed to a number of other specific actions to support achievement of its vision and objectives for urban water, including:

- developing investment guidelines and decision-making tools that better reflect the value that the community places on urban amenity and the environment
- facilitating investment in reusing wastewater, by providing guidelines for the mining of sewage
- delivering improved regulatory arrangements to facilitate the use of alternative water sources
- making changes to the regulatory framework to facilitate greater tariff choice for water customers

#### Regulatory framework

City West Water operates within a regulatory framework that comprises an economic regulator and a number of technical regulators. The key regulators are:

- the Essential Services Commission who regulates the prices we can charge our customers as well as the standards of services we deliver to our customers
- the Environment Protection Authority Victoria who regulates environmental matters, including sewer spills, sewage treatment plant licensing and compliance
- the Department of Health who regulates the quality of drinking water and recycled water.

In addition, we comply with other regulatory bodies for our day to day operations in areas such as workplace health and safety, conditions of employment, and meter accuracy. Any disputes with customers that we are unable to resolve internally can be referred by the customer to the Energy and Water Ombudsman of Victoria.

## 2 Our customer focus

### Key points

- The needs of customers are central to our business. We aim to deliver safe and reliable water and sewerage services to customers in an efficient manner, keeping water bills to a minimum
- We propose to maintain our current high standard of service and focus on improving efficiency to keep our costs and prices as low as possible
- We will continue to invest in the efficient maintenance and renewal of our assets, to maintain their short and long term performance
- We will continue to implement innovative and sustainable alternative water projects within existing regulatory frameworks
- City West Water is investing in a business transformation program, the Arrow Program, which is critical to more efficiently deliver our services while maintaining high standards of service

The needs of customers are central to our business. Our primary function is to deliver safe and reliable water and sewerage services to customers. Our aim is to do so efficiently, keeping water bills to a minimum. To deliver this, we must manage our assets well, and focus continually on the efficiency of our capital investments and operating costs. This is particularly true at a time when Melbourne Water's bulk water charges are rising.

Our customers have indicated that they are satisfied with the level of network service we provide, so we aim to maintain that level of service. However, our recent call centre performance has declined. We will work to improve this performance so that customers who contact us receive prompt and efficient responses.

### 2.1 Meeting our customers' needs

To meet the needs of our customer we have defined specific outcomes (refer to the figure below) that we want to achieve over the next five years to provide a focus for our staff and a framework against which to prioritise our available resources over the next regulatory period. We will deliver these outcomes while maintaining focus on the affordability of our services.

Figure 2-1:

Our strategic outcomes

Our services	Our planned outcomes
<b>Water Supply</b>	Maintain the same level of service to our customers at lower cost, and maintain the long-performance of our assets
<b>Sewage and trade waste services</b>	
<b>Alternative water solution development</b>	Optimise sources of alternate water to drive environmental and economic benefit
<b>Household water efficiency</b>	Customers value and practise water efficiency
<b>Business water and resource efficiency</b>	Businesses value and practise water and resource efficiency
<b>Water for the urban habitat</b>	Integrate the urban habitat as a recognised customer with its own servicing strategy

**Underpinning outcome:**

Service an increasing customer base with the same level of resources enabled through transformation of our processes and information

Each of the outcomes is briefly discussed below.

**Maintain the same level of service to our customer**

Delivering water and sewerage services is core to our business and much care is taken to ensure we continue to deliver these services to a consistently high standard while containing costs. Well in excess of 90 per cent of our customers are either satisfied or very satisfied with the water, sewerage and trade waste services we provide. We continuously measure how well we are delivering these services.

Increasing our high standards of service would incur additional costs which would need to be passed on to our customers in increased prices. Rather than do this, our objective is to maintain our current, high level of service and focus on improving efficiency to keep our costs and prices as low as possible.

**Maintain the long term performance of our assets**

We aim to make sure that our assets (described in Section 1) perform well and permit us to deliver our services now and in the future without having to undertake large and expensive emergency programs to address backlogs of asset maintenance and renewals.

Our strategy is therefore to continue to invest in the efficient maintenance and renewal of our assets, to maintain their short and long term performance. This permits us to continue to deliver our services in the most efficient way now and in the future. We will continue to pursue operational efficiencies in everything we do.

**Optimise sources of alternative water to drive environmental and economic benefit**

We look for opportunities to provide fit-for-purpose alternative water supplies. As noted previously, alternative water projects are alternatives to traditional drinking water supplies from dams and could include recycling wastewater for non potable use, stormwater harvesting and reuse and aquifer storage and recovery (where excess water is captured and stored in an aquifer and extracted for use in dry periods).

Any source of water which is currently discharged to the environment for little or no net benefit will be considered a potential resource. It is treated to an appropriate quality, allowing it to be reused for a range of beneficial applications for which it is suitable. Water recycling and utilisation of stormwater are now integral elements of an integrated water management system.

In addition, we are working with councils, developers, and industrial, commercial and institutional customers to identify and implement a number of smaller alternative water supply projects. We provide water mapping services for our customers to understand potential applications for alternative water, as well as expert implementation support. We work with developers to create water sensitive designs for new urban development. We work with councils to plan precincts along integrated water management guidelines.

Our strategy is to continue implementation of innovative and sustainable alternative water projects within existing regulatory frameworks. We aim to deliver the most sustainable water supply solution to our customers, and in doing so, contribute to Melbourne becoming a more resilient and liveable city.

#### **Customers value and practise water efficiency**

There is a strong sentiment in our community that saving water is the right thing to do. In this context, City West Water is working to transition from a drought management focus to customers valuing and practising sustained water efficiency. The transition means moving away from restrictions and water conservation messages to programs and messages that focus on maintaining and improving household water efficiency for the long term and becoming part of an efficient Victoria with efficient appliances and gardens, and practise water efficiency behaviours that are normalised to be part of everyday life.

The benefits of efficient water use include deferring the need for new water sources, reduced energy use and greenhouse gas emissions, and an increase in water for the environment.

Our strategy will be to educate, support and assist customers to sustain water efficiency by offering tailored, cost effective water efficiency programs and incentives that include showerhead and toilet replacement programs and water efficient gardening assistance and education programs.

#### **Businesses value and practise water and resource efficiency**

City West Water has the largest industrial and commercial customer base of the metropolitan water retailers. During the recent drought, with the delivery of water efficiency programs our nonresidential customers reduced their water usage by an even greater percentage than residential customers. Over the last five years, our non residential customers' annual usage reduced from 47 GL in 2005-06 to 38.5 GL in 2011-12.

Our Business Resource Efficiency program offers a wide range of advice and assistance to customers to reduce water use and pollution loads in trade waste. Our strategy is to continue to invest in water use efficiency programs, including the Business Resource Efficiency Program as a cost effective means of balancing supply and demand.

#### **Integrate the urban habitat as a recognised customer with its own servicing strategy**

The Government has a clear vision of the role water plays in determining the liveability of cities. The ultimate vision for a sustainable city is for it to have attributes that make it liveable, productive, healthy and sustainable.

In meeting the Government's vision our strategy is to provide a secure supply of fit for purpose water in the western suburbs of Melbourne to enable the planting and maintenance of suitable trees and vegetation and the maintenance of appropriate moisture levels in the soils. Known as 'Greening the West' we anticipate achieving this strategy will deliver:

- an improvement in urban microclimate (i.e. Urban Heat Island effect)
- a reduction in airborne particulate matter and contaminants
- an increase in the number and size of passive recreation sites and access to them to enhance the physical and mental health of residents
- increased habitat corridors in new and established areas to promote wildlife diversity
- an increase in the amenity value of new and established suburban streetscapes.

A key part of the approach to a healthy urban habitat is effective engagement to increase confidence in our stakeholders that City West Water is a reliable partner to help meet their needs.

In order to minimise its impact on costs to our customers, City West Water will be seeking funding from various external sources to implement the strategy.

#### **Business transformation to drive service quality and efficiency**

Our ability to more efficiently deliver these outcomes while meeting our regulatory obligations is to a large degree dependent on the delivery of the business transformation program we have been working on since January 2010.

Our strategy has been to initiate a business wide transformation program known as the Arrow Program to migrate most of our business systems to an integrated platform.

The Arrow Program is a business led initiative that involves the review of business processes across the most critical sectors of our business. It will support the achievement of the following key business objectives:

- enable customer-facing services and collaboration to improve the quality of our customers' services
- simplify operations and reduce costs
- enable better business decisions based on the quality of data
- enable a single view of all enterprise assets
- establish an enterprise wide process for the management and reporting of capital projects
- improve the quality and cost of our IT services.

## 3 Service outcomes

### Key points

- The majority of the service we currently provide to our customers meets their expectations
- We plan to continue to deliver the same level of service to customers while reducing operating costs

The service outcomes that City West Water intends to deliver over the third regulatory period, underpin our expenditure proposals. They reflect the needs and expectations of our business and our customers. They also have been developed having regard to the obligations we have to the government and our regulators.

### 3.1 Service standards

Our current service standards provide high quality outcomes for our customers. For the third regulatory period, our approach is to maintain this high level of service.

We are required to define service targets for the third regulatory period. They include core service standards required by the ESC, our additional service standards and Guaranteed Service Levels (GSLs).

#### 3.1.1 Core service standards

Core service standards are established for all of the Victorian water businesses. Twenty two core service standards are specified relating to the management of water bursts and leaks, water supply interruptions, sewer blockages and spills, customer service and water flow rates. The annual target that applied in the current regulatory period and our performance against the targets are shown in Table 3-1 to Table 3-3.

#### Performance

Performance against the core service targets for the second regulatory period shows that we met the majority of the targets.

Table 3-1:

## Core service standards: Water (historical performance and targets)

Water	2nd regulatory period				3rd regulatory period	
	ESC Target	2009-10 actual	2010-11 actual	2011-12 actual	ESC Target (Last 5yr Mean)	Alternative City West Water Target
1. Unplanned water supply interruptions per 100km (number)	60.3	35.0	36.5	27.1	42.8	-
2. Average time taken to attend bursts and leaks (Priority 1) (minutes)	24.3	23.9	24.4	20.8	23.2	-
3. Average time taken to attend bursts and leaks ( Priority 2) (minutes)	34.2	32.6	33.0	29.4	32.3	-
4. Average time taken to attend bursts and leaks (Priority 3) (minutes)	233.8	207.0	196.1	115.0	187.4	209
5. Unplanned water supply interruptions restored within five hours (per cent)	86.1	95.1	94.4	97.2	95.1	-
6. Planned water supply interruptions restored within five hours (per cent)	93.3	94.6	96.0	97.9	95.4	-
7. Average unplanned customer minutes off water supply (minutes)	47.6	22.3	23.7	15.4	28	-
8. Average planned customer minutes off water supply (minutes)	7.8	7.7	8.3	8.8	8.4	-
9. Average frequency of unplanned water supply interruptions (number per customer per year)	0.31	0.16	0.16	0.12	0.198	-
10. Average frequency of planned water supply interruptions (number per customer per year)	0.058	0.054	0.057	0.065	0.061	-
11. Average duration of unplanned water supply interruptions (minutes)	175.5	137.6	147.3	131.4	140.1	-
12. Average duration of planned water supply interruptions (minutes)	137.2	142.4	146.3	134.4	137.4	-
13. Number of customers experiencing more than five unplanned water supply interruptions in a year (number)	64	0	0	0	21	0
14. Unaccounted for water (per cent)	9.2	7.4	9.1	9.3	8.6	-

Notes: Service standard 6,8,10 and 12: non weather affected KPIs.



Table 3-2:

## Core service standards: Sewerage (historical performance and targets)

Sewer	2nd regulatory period				3rd regulatory period	
	ESC Target	2009-10 actual	2010-11 actual	2011-12 actual	ESC Target (Last 5yr Mean)	Alternative City West Water Target
1. Sewerage blockages per 100 km (number)	27.6	26.0	20.8	15.7	23.8	-
2. Average time to attend sewer spills and blockages (minutes)	23.4	28.3	30.6	24.2	27.5	-
3. Average time to rectify a sewer blockage (minutes)	115.9	128.0	128.6	122.2	126.1	-
4. Spills contained within five hours (per cent)	100	100	100	100	100	-
5. Number of customers experiencing more than 3 sewer blockages in a year (number)	0	0	0	0	0	-

Notes: Service Standard 2: Average time to attend sewer spills and blockages (minutes). This ESC target is inclusive of City West Water and industry representative (Licensed Plumbers) response, City West Water service standard is inclusive of City West Water response only (industry representative (Licensed Plumbers) response excluded).

Table 3-3:

## Core service standards: Customer service (historical performance and targets)

Water	2nd regulatory period				3rd regulatory period	
	ESC Target	2009-10 actual	2010-11 actual	2011-12 actual	ESC Target (Last 5yr Mean)	Alternative City West Water Target
1. Complaints to EWOV (number per 1000 customers)	0.55	0.41	0.54	0.47	0.56	-
2. Telephone calls answered within 30 seconds (per cent)	80.0	86.3	83.0	63.4	80.6	-

**Targets for third regulatory period**

The ESC has indicated that the starting point for setting core service targets for the third regulatory period should be the average performance over the last five years. The target may vary from the five year average if appropriate e.g. due to differences or variations in operating environment conditions.

As shown in Table 3-1 to Table 3-3, in the majority of cases City West Water is proposing to use the five year average as our core service target <sup>2</sup>. Alternative targets are proposed in relation to two of the core service standards for water services.

*Average time taken to attend bursts and leaks (Priority 3) (minutes)*

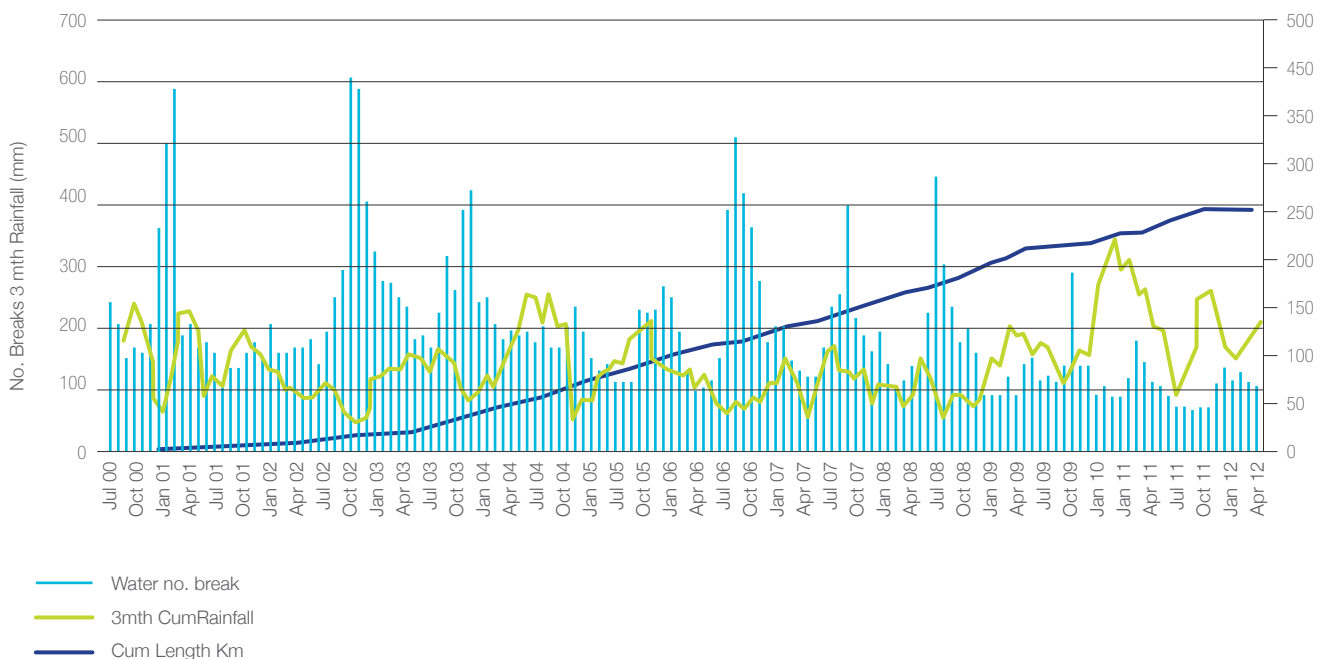
City West Water proposes a target of 209 minutes which is the five year average over the period from 2006-07 to 2010-11. This would ensure that the 2011-12 year is excluded from the estimation of the five year average target. The 2011-12 year was very wet and hence had an unusually low number of bursts and hence unplanned interruptions.

The relationship between rainfall and breaks is clearly demonstrated in the figure below. The figure shows that water main breaks rise as cumulative rainfall reduces (in large part due to the reactive, clay soils in City West Water’s service area) and generally fall in periods of higher rainfall. The figure also shows that the low level of breaks in 2011-12 could be the combined result of the rainfall conditions and the benefits of network renewal, though these effects are difficult to separate.

<sup>2</sup> Calculated as the five year average from 2007-08 to 2011-12.

**Figure 3-1:**

**2000-2012 water main breaks vs. 3mth cumulative rainfall and cumulative length renewal**



*Number of customers experiencing more than five unplanned water supply interruptions in a year (number)*

A target of zero customers is proposed. This maintains the level of service that we have been able to achieve for the last four years.

### 3.1.2 Additional service standards

We are proposing the additional service standards shown in the table below for the third regulatory period. Service standards will be maintained at the level applying in the second regulatory period.

Table 3-4:

#### Proposed additional service standards

Standard	Driver	Annual target
Compliance with environment discharge licence requirement (per cent)	EPA regulation	100
Compliance with drinking water quality regulations (per cent)	Dept. of Health regulation	100
Water quality complaints (per 1000 customers)	Business/customer	1.1
Average time to rectify water faults (days)	Business/customer	1.0
Water main breaks (per 100km)	Business/customer	71.5
Systems faults calls answered within 30 seconds (per cent)	Business/customer	93.3
Account enquiries answered within 30 seconds (per cent)	Business/customer	74.5
Interruptions to sewerage services restored within five hours (per cent)	Business/customer	97.6
Sewer spills within a house contained within one hour of notification (per cent)	Business/customer	100
Priority 1 burst responded to within one hour (per cent)	Business/customer	99.8
Customer correspondence responded to within 10 working days (per cent)	Business/customer	100
Sewer spills per 1000 properties	Business/customer	1.8
Biosolids reused/recycled (per cent)	EPA	100

### 3.1.3 Guaranteed service levels (GSLs)

We will retain our approved guaranteed service level payments (GSLs) scheme without amendment. The GSL arrangements are shown in the table below.

Table 3-5:

#### Proposed guaranteed service level (GSL) and payments

GSL	GSL payment if service levels are not achieved
No more than five unplanned water supply interruptions in a twelve month period	\$50 for each interruption longer than five hours
Unplanned water supply interruptions to be restored within five hours	\$50 for each interruption longer than five hours
Interruptions to sewerage services to be restored within five hours	\$50 for each interruption longer than five hours
Sewer spills to be contained within five hours of notification	\$50 for each interruption longer than five hours
Sewer spills within a house, that are a result of a failure in our pipes, to be contained within one hour of notification	\$1000 for each sewer spill that is not contained within one hour of notification
Restricting the water supply of, or taking legal action against, a residential customer prior to taking reasonable endeavours to contact the customer and provide information about help that is available if the customer is experiencing difficulties paying	\$300 for each restriction of supply, or legal action taken without taking reasonable endeavours to contact the customer and provide information about help that is available if the customer is experiencing difficulties paying
No more than three sewerage service interruptions in a twelve month period	\$50 for each interruption in excess of three interruptions

## 3.2 Other government and regulatory obligations

In addition to the defined service targets, we must ensure that we meet the obligations and objectives placed on us by our regulators and by the government. These obligations and their implications for the Water Plan are outlined below.

### 3.2.1 The Essential Services Commission

The Essential Services Commission (ESC) is the independent economic regulator of water prices in Victoria. The ESC also regulates standards of services delivered to customers.

Business as usual obligations are outlined in the following regulatory instruments overseen by the ESC:

- Customer Service Code
- Regulatory Audit Framework
- Performance Reporting Framework
- Water Industry Regulatory Accounting Code.

Obligations for service standards and guaranteed service level payments required by the ESC are shown in Section 3.1 above.

### 3.2.2 Department of Health

The business-as-usual activities include water quality monitoring, certification, operations, reporting, incident management, policy and customer service. We will also produce Recycled Water Quality Management Plans to ensure that recycled water produced meets the prescribed standards.

### 3.2.3 Environment Protection Authority

The EPA Victoria's Information Bulletin 1406.1, EPA Water Plan 3 Guidance, December 2011 provides the guidance on the EPA's environmental requirements.

The environmental obligations on the Victorian water businesses including City West Water that will apply in the forthcoming regulatory period and our proposed compliance with the obligations is shown in the table below.

Table 3-6:

## Environmental obligations

Obligation	Water Plan compliance and implications
<b>General</b>	
<ul style="list-style-type: none"> <li>Compliance with key legislation and Regulations (e.g. Environmental Protection Act, State Environmental Planning Policies (WoV), Environment Protection (Scheduled Premises and Exemptions) Regulations and licence conditions)</li> <li>Implement the waste hierarchy for all relevant business activities</li> <li>Ensure efficient use of resources in business activities</li> <li>Class A recycled water customers to have an approved Environment Improvement Plan</li> </ul>	<ul style="list-style-type: none"> <li>City West Water will maintain ISO 14001 Certification and comply with all EPA discharge License (EX174) requirements</li> <li>Compliance is reflected in operating costs</li> </ul>
<b>Sewerage treatment and disposal</b>	
<ul style="list-style-type: none"> <li>Continue monitoring, reporting and reducing discharge impacts and mixing zones</li> <li>Continue upgrade program for treatment plants</li> </ul>	<ul style="list-style-type: none"> <li>City West Water will comply including with 100% of EPA licence requirements for Altona Treatment Plant and supply Class A recycled water from the plant to local customers</li> <li>Compliance is reflected in operating costs</li> <li>Additional water recycling projects included in capex program</li> </ul>
<b>Sludge and biosolids management</b>	
<ul style="list-style-type: none"> <li>Implement plans to reuse 100% of biosolids and reduce existing stockpiles over time</li> </ul>	<ul style="list-style-type: none"> <li>Implementing EPA approved biosolids management at the Altona Treatment Plant</li> <li>Compliance is reflected in operating costs</li> </ul>
<b>Management of the sewerage system</b>	
<ul style="list-style-type: none"> <li>Implement a risk based improvement program for the sewerage system</li> <li>Implement sewerage backlog programs, including provision of sewerage in unsewered industrial areas</li> </ul>	<ul style="list-style-type: none"> <li>City West Water will deliver sewer hydraulic improvement projects, preventative maintenance and condition monitoring programs and sewer renewals that are reflected in capex and operating costs programs</li> </ul>
<b>Water efficiency</b>	
<ul style="list-style-type: none"> <li>Work with communities and businesses to implement efficient water use practices</li> <li>Comply with Environment and Resource Efficiency Plan obligations</li> </ul>	<ul style="list-style-type: none"> <li>City West Water will continue an efficient level of investment in water efficiency programs</li> <li>These are reflected in capex and operating costs programs including stormwater harvesting projects</li> </ul>
<b>Catchment, waterway and groundwater management</b>	
<ul style="list-style-type: none"> <li>Implement environmental flows audit recommendations</li> <li>Implement irrigation drainage audit recommendations</li> <li>Managed aquifer recharge (MAR) schemes assessed and managed in accordance with EPA guidelines</li> </ul>	<ul style="list-style-type: none"> <li>City West Water will comply with Commonwealth Government co-funding, undertaking aquifer storage and recovery trials at the Western Treatment Plant</li> </ul>

### 3.2.4 Department of Sustainability and Environment (DSE)

DSE requires City West Water to meet the obligations as outlined in the Statement of Obligations (SOO). Our current SOO has been in place since 16 September 2012 and applies until it is revoked. Our current SOO contains the following guiding principles for the supply of our services:

- (a) the need to undertake continuous review and improvement; and
- (b) the need to find innovative ways to:
  - (i) optimise the operation of water and wastewater systems; and
  - (ii) deliver water services that enhance environmental outcomes and amenity in urban landscapes; and
  - (iii) be an efficient and cooperative provider of fit for purpose water products;
- (c) the need to:
  - (i) engage with public authorities and government agencies to develop and implement integrated water cycle management;
  - (ii) engage with other Corporations to drive business efficiencies, develop shared services and sustain and improve industry knowledge through targeted research programs;
  - (iii) take a strategic approach to improving the productivity of City West Water with regard to emerging technology; and
  - (iv) engage with our customers and the community to ensure that the services we provide reflects their needs; and
- (d) the need to reduce, where the benefits to the community exceed costs, the detrimental impacts of our activities on the environment, having regard to best industry standards in this respect.

In following the principles outlined above, City West Water needs to manage its business operations to ensure that it continues to:

- a) Provide for and maintain financial viability;
- b) Minimise the overall whole of life costs of assets; and
- c) Provide services in an efficient and affordable manner.

### 3.2.5 Victorian government policy

Developing government policies associated with the Living Melbourne, Living Victoria Implementation Plan will impact the objectives and direction of the Victorian water businesses in this and future regulatory periods.

In its response to the Plan, the Victorian Government has indicated that it supports the vision, objectives and directions of the Plan. The Government has established an Office of Living Victoria (OLV) to drive and implement key elements of this reform program by coordinating urban and water planning.

The OLV is working to implement integrated water cycle planning, including by facilitating the development of Integrated Water Cycle Plans for Melbourne's four growth areas and inner Melbourne in the short term. This will drive and underpin City West Water's approach to servicing new growth areas based on an integrated water management approach.

## 4 Operating expenditure

### Key points

- Our operating costs are made up of bulk charges from Melbourne Water, our own operating costs, an environmental contribution and licence fees
- Our 2011-12 actual operating expenditure forms the basis for future forecasts of business as usual (BAU) operating expenditure
- 2011-12 actual operating expenditure is close to the benchmark the ESC used in the 2009 price review
- We will apply a 1 per cent growth adjusted productivity improvement each year to this base
- There are some new costs that are not included in the 2011-12 base that need to be added in future years. Each of these costs is justified on a case by case basis.

This chapter sets out the proposed operating costs we will incur during the third regulatory period to deliver our obligations and service outcomes. Our operating cost is made up of bulk charges from Melbourne Water, our own operating expenditure as well as an environmental contribution and licence fees to our regulators.

There will be significantly higher bulk water charges in the third regulatory period that incorporate payments for the Victorian Desalination Plant (VDP). Increased bulk charges, which include costs for the VDP, will be responsible for around 26 of the 33.9 per cent of the bill increase over the third regulatory period.

Our own operating costs will be underpinned by a growth adjusted productivity factor of one per cent each year of the regulatory period. There are some costs that we do not currently incur that will need to be added to our operating costs in the forthcoming regulatory period.

### 4.1 Bulk charges from Melbourne Water

Bulk charges represent the amount payable to Melbourne Water for the provision of potable water and treatment of sewage at their Western Treatment Plant (WTP). City West Water purchases all potable water from Melbourne Water and Melbourne Water treats 95 per cent of all City West Water customers' sewage at the WTP. We also purchase Class A recycled water from Melbourne Water, sourced from the WTP.

Bulk charges from Melbourne Water are the most significant component of our operating costs. For the current regulatory period they represent around 65 per cent of our total operating costs. This will increase to around 75 per cent in the next regulatory period.

Bulk water charges are increasing significantly in the third regulatory period as the full costs of the VDP are incorporated into Melbourne Water's cost base. These charges will increase from \$121 million in 2012-13 to around \$221 million in 2013-14; an increase of over 75 per cent.

The costs associated with the VDP are separated into an annual security payment and a payment based on how much water is ordered from the plant in any year. These costs are shown in the table below.

Table 4-1:

## Desalination bulk water costs 2013-14 to 2017-18 (\$m 2012-13 real terms)

	2013-14	2014-15	2015-16	2016-17	2017-18
<b>Security Payment</b>	152.31	149.47	146.72	136.64	134.22
<b>Costs associated with the annual desalinated water order</b>					
50GL	6.00	6.08	6.15	6.21	6.27
75GL	9.46	9.45	9.66	9.64	9.82
100GL	14.07	14.18	14.27	14.35	14.63
125GL	19.84	19.80	19.98	20.13	20.27
150GL	25.83	25.88	26.13	26.13	26.33

The bulk water charges we have used in this Water Plan assume a zero order from the desalination plant.

Bulk sewerage charges are also increasing substantially in the third regulatory period as the cost of treating our sewage increases. These increases are attributable to a \$200m augmentation at the Western treatment plant, rising electricity prices and carbon tax obligations on Melbourne Water. These charges will increase from \$91 million in 2012-13 to almost \$138 million in 2013-14, an increase of 51 per cent.

## 4.2 Our own operating costs

In its guidance to water businesses, the ESC recommended that we use the 2011-12 actual operating costs as a basis for forecasting future costs for the third regulatory period. It also advised that this figure should only include costs that would be included as business as usual going forward, and not include costs that are no longer required, such as those associated with the drought including the removal of drought related advertising.

The ESC also expects that we achieve at least an annual one per cent growth adjusted productivity improvement for the next regulatory period. This means that our costs in each year of the Water Plan will increase at a rate one per cent less than our growth in our customer base.

### Our 2011-12 operating costs

The operating costs we incurred in 2011-12 were \$90.7 million (excluding licence fees). This is higher than the benchmark used by the ESC in setting our prices in the current regulatory period of \$88.8 million. However, we have experienced significantly more customer growth than forecast in the ESC's 2009 Determination, adding approximately 30,000 customers by July 2011 rather than the 19,600 forecast in the determination. Given this, our 2011-12 expenditure is comparable with the ESC's benchmark.

We did not incur any costs associated with the drought during 2011-12. At the beginning of the second regulatory period we did incur additional costs to address the serious issues associated with the drought. However, we have seen a significant improvement in the amount of water available to our customers through high amounts of inflows into our storages.

We have therefore transitioned from a drought management program to a program of water efficiency measures. Operating costs associated with water efficiency programs have declined from \$5.5 million per year (2008-09) to \$2.4 million per year (2011-12).

Water efficiency programs provide a cost effective approach to balancing supply and demand by maintaining demand at levels which may delay the need for expensive supply augmentations. They also ensure that our customers get the best value out of the water they use. Hence, water efficiency programs will remain as a prudent business as usual activity for us during the next regulatory period.



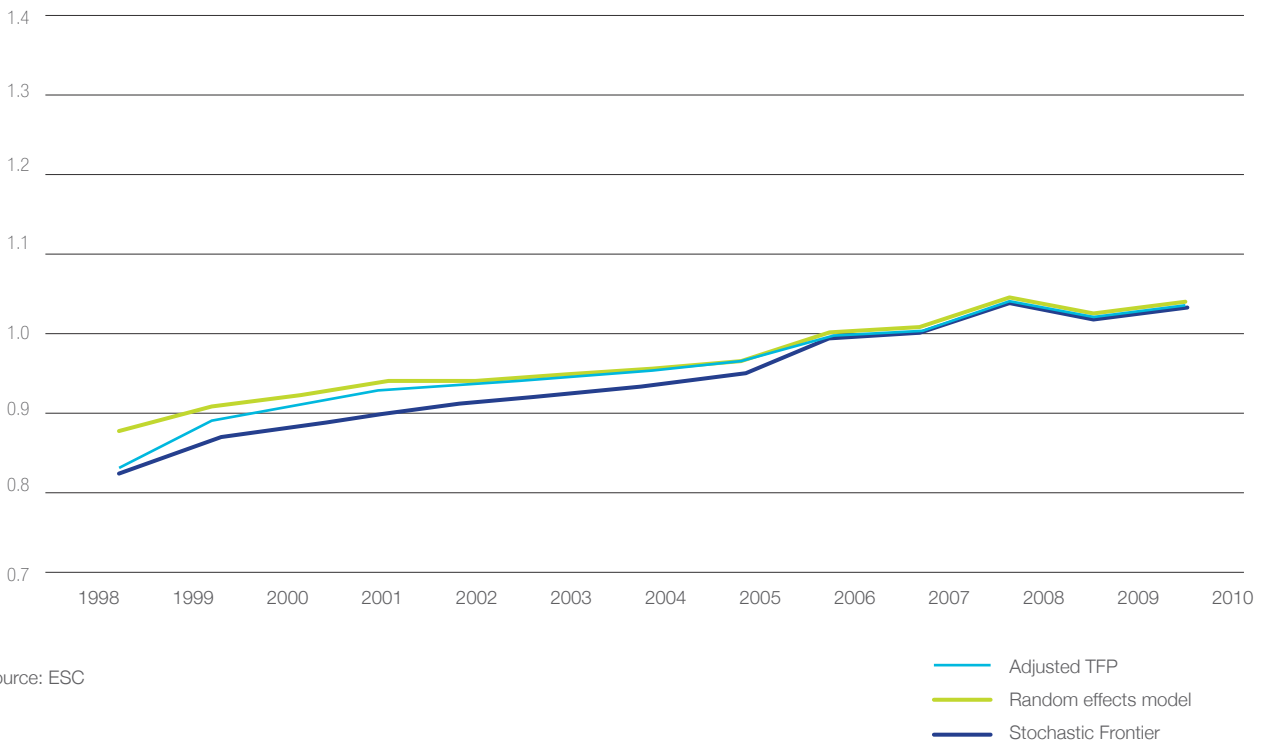
Our strategy will be to educate, support and assist customers to sustain water efficiency by offering tailored, cost effective water efficiency programs and incentives that include showerhead and toilet replacement programs and water efficient gardening assistance and education programs.

**Productivity improvement**

Based on the ESC’s own estimates<sup>3</sup>, we have achieved strong positive productivity growth over a long period. The ESC’s analysis covering the twelve year period from 1998 to 2010 (see figure below) showed productivity growth of over 20 per cent. The productivity rise was largely associated non capital inputs (including operating and maintenance costs).

<sup>3</sup> ESC (2012), An analysis of the productivity of the Victorian water industry, Staff Research Paper No. 12/1, Summary Report, March.

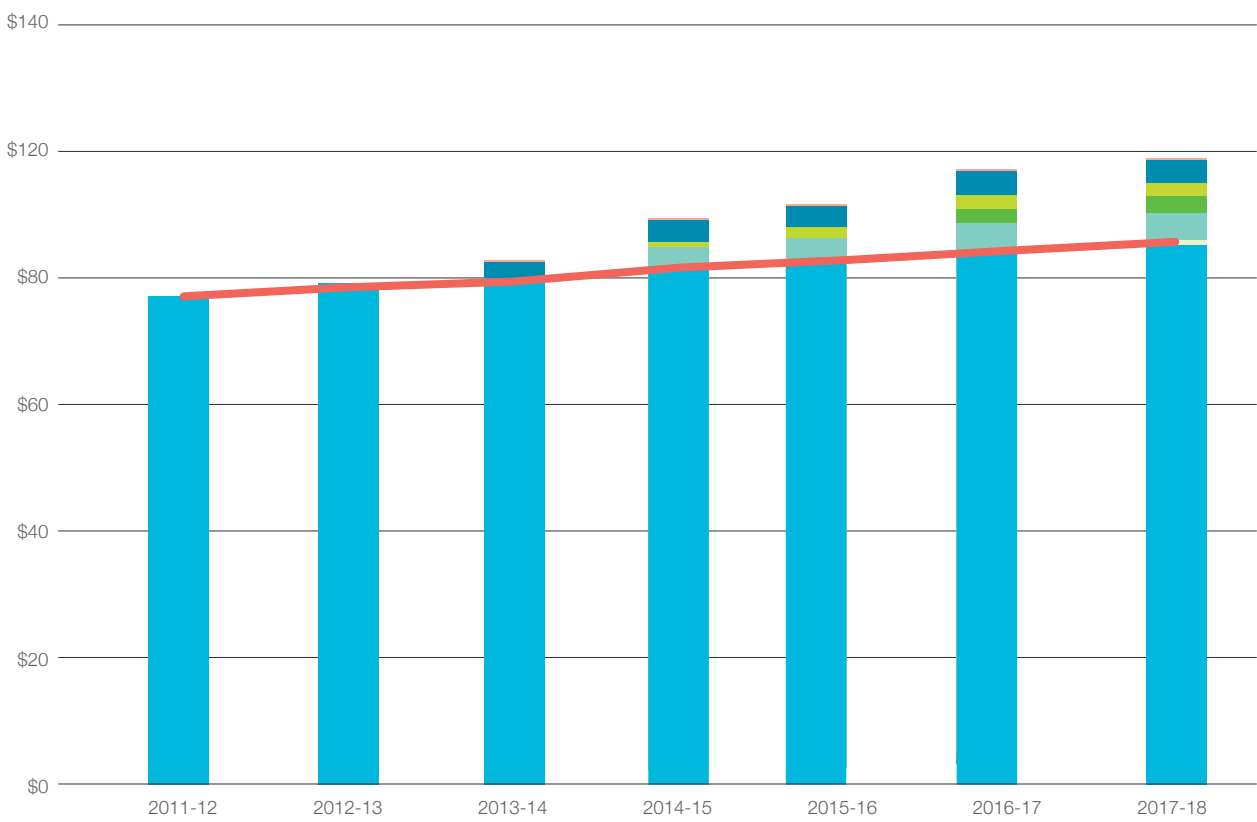
**Figure 4-1:**  
City West Water productivity growth 1998 to 2010 (2006=1.0)



Source: ESC

Figure 4-2:

BAU and additional operating expenditure 2013-14 to 2017-18 (\$m 2012-13 real terms)



- Superannuation - Guarantee Levy
- City West Water Office Relocation
- Alternative Water - Other
- Alternative Water - Altona Stage 2
- Alternative Water - West Werribee
- Carbon tax
- BAU operating expenditure
- BAU Trend

As shown in Figure 4-2 have applied a productivity adjusted growth rate in business as usual operating expenditure of 1.8 per cent in real terms over the third regulatory period. This is comprised of 2.8 per cent customer growth rate minus 1 per cent in productivity growth.

### Additional costs

During the third regulatory period, we will incur additional operational expenditure as a result of the following new obligations:

- carbon tax (paid indirectly, largely in energy costs)
- increased superannuation guarantee levy.

New operational expenditure also includes:

- head office relocation in mid-2014 to a new office facility in the Footscray Central Activity District redevelopment
- the operating costs associated with the operation of our dual water supply scheme at West Werribee
- proposed supply of recycled water to additional customers in the Altona precinct and our stormwater harvesting and sewer mining projects.

### Carbon tax

The carbon pricing mechanism commenced on 1 July 2012. The carbon price is fixed at \$23 per tonne of CO<sub>2</sub>e in 2012-13 and will increase by 2.5 per cent (plus inflation) for the first two years. After three years, it will transition to a market based (floating price) scheme.

We will indirectly pay the carbon tax through our supply chain, principally water charges from Melbourne Water, and in energy bills. The additional costs are estimated to be \$2 million over the third regulatory period.

### Superannuation

The majority of our employees are members of an approved employee nominated accumulation fund.

Accumulation fund employees receive regular superannuation guarantee levy contribution to the third-party fund of their choice. In May 2010, the Australian Government announced a tax reform package that included a phased increase to the superannuation guarantee (SG) levy. The levy will increase over the course of the third and fourth regulatory periods with two initial increments of 0.25 percentage points applying on

1 July 2013 and on 1 July 2014 and five subsequent annual increments of 0.5 percentage points, bringing the SG rate to 12 per cent by 1 July 2019.

### Head office relocation to Footscray

Our current head office was built around 50 years ago and is no longer suitable for our needs. The head office move improves City West Water's space, amenity and sustainability requirements to government accommodation standards, as partners in a government urban revitalisation project in our service community, at a modest cost compared to major refurbishment or rebuilding options.

The office relocation project is described further in the capital expenditure chapter. In the third regulatory period, the project will have associated operating costs of \$17.5 million which includes the costs of moving our operations to the new facility.

### Altona Recycled Water Project Stage 2 (ARWP2)

The Altona Recycled Water Project Stage 2 is also described in the capital expenditure chapter. The operating costs associated with the Altona Recycled Water Project Stage 2 project is estimated to be \$3.6 million annually (from 2016-17). These costs include a range of relevant operating costs including labour, electricity, chemicals and other materials.

### West Werribee Dual Water Supply Scheme

We will complete the West Werribee Dual Water Supply Scheme in 2014-15, and this will add around \$4 million per annum to our operating costs. This project was included in our 2009 Water Plan and is part of our previous obligation associated with the 20 per cent recycled water target and Central Region Sustainable Water Strategy target for Melbourne.

### Alternative water projects – Other

Alternative water projects – Other includes a range of stormwater harvesting projects supplying multiple public open space and redevelopment locations throughout our service district and the Docklands Recycled Water Project.

Operating costs are expected to be \$7.5 million over the regulatory period. The majority of these costs will be recovered through a specific charge to councils and recycled water customers.

### Environmental contribution

As part of the Victorian Government action plan for securing Victoria's water supply, we contribute five per cent of our revenue towards initiatives to improve the sustainable management of water in Victoria. The amount that we will contribute for this Water Plan has been re-calculated based on our current revenue, resulting in an increased environmental contribution of around \$7 million per annum.

Table 4-2:

#### Operating expenditure 2013-14 to 2017-18 (\$m 2012-13 real terms)

Expenditure item	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
<b>BUA and additional costs</b>							
Growth adjusted BAU	90.69	93.23	95.84	98.53	101.28	104.12	107.04
Productivity		-0.84	-1.98	-2.76	-3.78	-4.85	-5.97
BAU operating expenditure	90.69	92.39	93.86	95.77	97.50	99.27	101.06
Carbon tax	-	0.21	0.21	0.39	0.39	0.53	0.53
Alternative Water - West Werribee	-	-	-	3.85	4.07	4.23	4.43
City West Water office relocation	-	-	1.56	3.92	3.96	3.99	4.03
Alternative water - Altona Stage 2	-	-	-	-	-	3.48	3.50
Alternative water - other	-	0.54	0.87	0.92	1.61	2.04	2.04
Superannuation - Guarantee Levy	-	-	0.06	0.12	0.24	0.37	0.50
<b>Pass through costs</b>							
Environmental Contribution	10.96	10.79	18.07	17.58	17.11	16.65	16.21
Licence fees	0.603	0.544	0.754	0.548	0.548	0.542	0.548
Bulk water charges	135.06	120.86	221.56	223.67	224.57	221.31	217.38
Bulk sewer charges	93.92	90.65	137.63	137.56	137.33	137.09	136.83
Bulk recycled water charges	0.14	0.20	0.14	0.28	1.07	2.10	2.16
<b>Total prescribed operating costs</b>	<b>331.37</b>	<b>316.19</b>	<b>474.71</b>	<b>484.61</b>	<b>488.39</b>	<b>491.60</b>	<b>489.22</b>

## 5 Capital expenditure

### Key points

- Our top 10 capital expenditure projects/programs account over 85 per cent of our proposed capital expenditure
- As a result of gaining a better understanding of the risks associated with some of our critical assets during the current water plan period, we spent more on renewals over the current period than was forecast
- We plan to spend a similar amount on renewals for the next regulatory period
- We will continue to invest to connect new customers as our boundary extends with the expansion of the Urban Growth Boundary
- We are continuing to meet the challenge of balancing supply and demand by using a mix of traditional and alternative water solutions

Servicing the growth in lots in our area (in both our existing growth corridors and in expanded urban growth boundary areas) will require increasing capital expenditure in the third regulatory period. In line with Victorian Government policy (as being implemented by the Office of Living Victoria), we will service new development areas using an integrated water cycle management approach taking into account the costs and benefits of integrated versus centralised supply augmentations.

Renewals and compliance programs are also an important element of our proposed capital program. We are investing in facilities and network assets to ensure compliance with required technical standards and regulatory obligations and to comply with acceptable risk tolerances.

### 5.1 Historical capital expenditure

The table and figure below compare benchmark and actual capital expenditure over the second regulatory period (2009-10 to 2012-13).

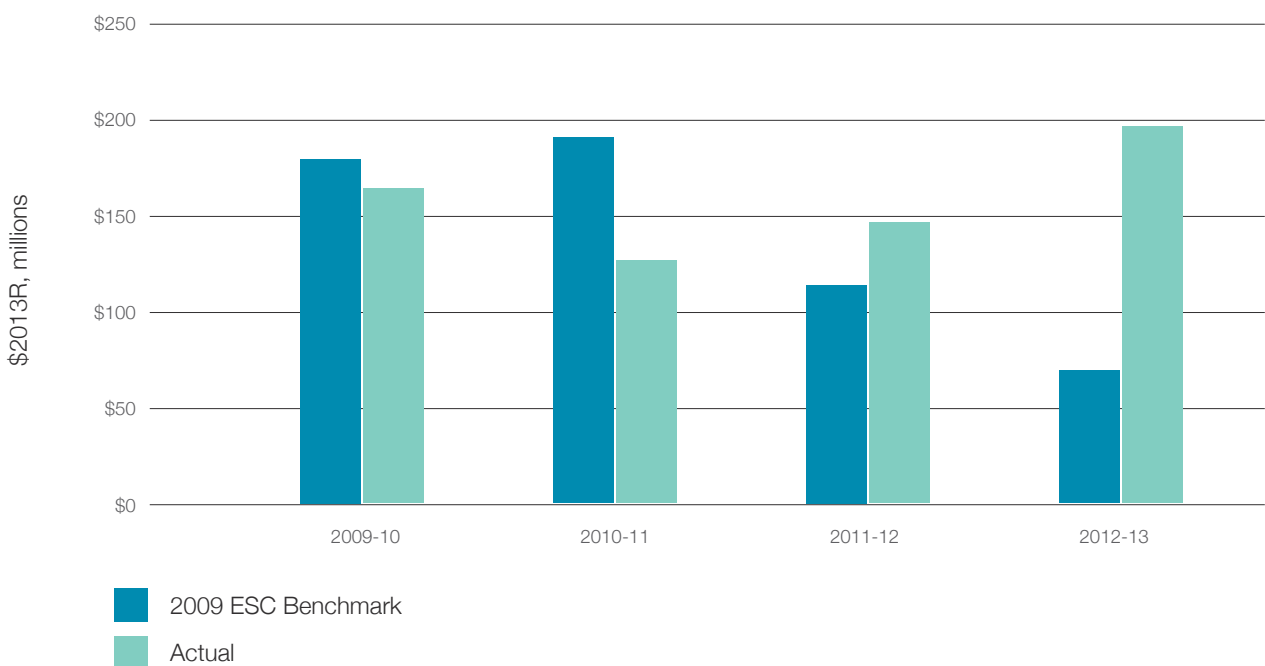
Table 5-1:

#### Second regulatory period capital expenditure (\$m 2012-13 real terms)

	2009-10	2010-11	2011-12	2012-13	Total
2009 ESC benchmark	\$178	\$194	\$116	\$70	\$558
Actual	\$167	\$129	\$147	\$198	\$640
Difference	-\$11	-\$65	\$31	\$128	\$82

Figure 5 1:

Second regulatory period capital expenditure (\$m 2012-13 real terms)



The additional investment made in the second regulatory period was associated with:

- capital expenditure to implement the Arrow Program, City West Water's business transformation and productivity improvement initiative
- higher than forecast costs for the West Werribee Dual Supply Project (WWDSP)
- increases in risk based water and sewerage renewals and higher than expected renewal costs (due to higher than allowed for cost escalation and reinstatement costs for main replacements).
- a change to the payment schedule for the Northern Victorian Irrigation Renewal Project (NVIRP), namely a delay that resulted in a payment being made in 2009-10 rather than 2008-09 as originally planned.

**5.1.1 Major projects**

The following table shows our top 10 capital projects from the second water plan (WP2) and reports on the status of each.

Table 5-2:

## Status of the top 10 projects from the Second Water Plan (\$m 2012-13 real terms)

WP2 Rank	Project/Program	Plan	Actual	Deviation	Status
1, 8, 10	West Werribee Dual Water Supply Scheme, low level reservoir and 750mm inlet/outlet main	100.0	117.3	17.2	Ongoing
2	Altona Recycled Water Project	64.6	40.0	-24.7	Complete
3	Water mains renewals – social risk – reticulation	34.4	39.2	4.8	Ongoing
4	Water mains renewals – social risk – distribution	29.8	28.8	-1.0	Ongoing
5	Derrimut Interceptor Sewer	22.7	23.2	0.5	Ongoing
6	Renew Water Mains – KPI attainment – reticulation	18.1	37.3	19.1	Ongoing
7	1150mm main – Sayers Road to Dohertys Road	13.7	7.9	-5.8	Ongoing
9	New meter program	9.3	13.6	4.3	Ongoing

Note: Projects ranked 1, 8 and 10 from the top 10 projects in Water Plan 2 relate to the West Werribee Dual Supply Project and have been combined here for reconciliation of plan and actual expenditure.

In addition to the top 10 capital projects identified above, we incurred \$106 million in capital expenditure for our contribution to the NVIRP to secure long term annual irrigation water savings in return for bulk entitlements in the Goulburn and Murray Systems.

## 5.2 Third regulatory period capital expenditure

Capital expenditure is forecast to average approximately \$159 million per year over the third regulatory period, compared to \$160 million per year over the second regulatory period. Total planned capital expenditure for the top ten capital projects are shown in the table below.

Table 5-3:

Top 10 projects/programs for the third regulatory period (\$m 2012-13 real terms)

Rank	Project/Program	2013-14	2014-15	2015-16	2016-17	2017-18	Total
1	Network renewals	43.5	41.5	39.4	42.0	39.1	205.4
2	Growth areas - integrated supply	58.3	6.0	19.5	60.7	58.5	203.0
3	Altona Recycled Water Project Stage 2	17.8	29.6	32.5	-	-	80.0
4	Growth areas - sewerage	12.5	7.9	15.2	8.0	8.0	51.5
5	Program Arrow	26.7	22.7	0.3	0.7	0.7	51.0
6	Docklands Recycled Water Project	-	2.8	9.7	15.3	-	27.8
7	Stormwater projects	7.3	4.2	9.1	4.7	-	25.3
8	Networks compliance	5.1	4.3	3.3	3.3	3.3	19.3
9	Aquifer storage and recovery	2.7	5.3	0.5	0.5	8.6	17.7
10	Office relocation	11.6	-	-	-	-	11.6
	<b>Total Top 10</b>	<b>188.5</b>	<b>127.3</b>	<b>132.8</b>	<b>138.5</b>	<b>121.6</b>	<b>697.2</b>
	<b>Total Capex</b>	<b>203.5</b>	<b>151.5</b>	<b>152.8</b>	<b>153.9</b>	<b>133.2</b>	<b>794.8</b>
	<b>Top 10 as a Proportion of Total Capex</b>	<b>93%</b>	<b>84%</b>	<b>87%</b>	<b>90%</b>	<b>91%</b>	<b>88%</b>

The capital expenditure over the third regulatory period is attributable to our requirements to:

- service growth
- maintain our service outcomes
- prudently manage the risk profiles of our water and sewer networks
- invest now in business efficiency and water security for the longer term.

Further information on our top 10 capital projects for the third regulatory period is provided on the table above.



### 5.2.1 Network renewals

Renewals expenditure includes capital expenditure associated with replacing or extending the life of network and facility assets. Our renewals program is divided among the following categories: risk-based renewals; key performance indicator attainment renewals; facility renewals and efficiency renewals.

Total renewal expenditure is forecast to average approximately \$41 million per annum over the forthcoming period, compared to actual expenditure in the current period of approximately \$38 million per annum. Detail on our forecast renewals expenditure is shown in the tables below.

Table 5-4:

Forecast renewals expenditure by driver (\$m 2012-13 real terms)

Driver	2013-14	2014-15	2015-16	2016-17	2017-18	RP3 Total
Risk	23.1	22.4	21.4	20.5	20.5	107.9
KPI attainment	11.7	11.5	11.7	11.6	12.1	58.6
Facility	4.1	3.2	1.9	5.6	2.2	17.0
Efficiency	4.6	4.3	4.3	4.3	4.3	21.9
<b>Total</b>	<b>43.5</b>	<b>41.5</b>	<b>39.4</b>	<b>42.0</b>	<b>39.1</b>	<b>205.4</b>

Table 5-5:

Forecast renewals expenditure by network (\$m 2012-13 real terms)

Network	2013-14	2014-15	2015-16	2016-17	2017-18	RP3 Total
Water	25.0	24.4	24.0	22.9	23.5	119.7
Sewer	18.5	17.1	15.3	15.0	15.6	81.5
Alternative	-	0.0	-	4.1	0.1	4.1
<b>Total</b>	<b>43.5</b>	<b>41.5</b>	<b>39.4</b>	<b>42.0</b>	<b>39.1</b>	<b>205.4</b>

**Risk based renewals**

We use an Asset Risk Management Model (ARMM) to determine appropriate risk-based renewals expenditure for water supply and sewerage assets. Through the ARMM, the business systematically assesses asset risk profiles and adopts work programs as appropriate to mitigate risk to appropriate levels.

Forecast risk-based renewals during the third regulatory period are required to mitigate risks posed by assets that have, or are projected to have, extreme risk or high risk of failure during the regulatory period.

The methodology underpinning the ARMM is based on the Australian/New Zealand Standards for Risk Management AS/NZS4360:2004. It involves the following three elements:

1. Assessing asset condition and likelihood of failure.
 

The condition of each section of water and sewer pipeline and ancillary assets is assessed and a condition grade assigned.

2. Estimating consequences of asset failure.
 

The consequence of failure of an asset is assessed in accordance with the process outlined in AS/NZS4360 encompassing social, economic and environmental consequences.

3. Estimating risk posed by asset failure
 

The ARMM maps quantitative likelihood and consequence of failure to a risk assessment matrix is shown in the figure below. The group of assets that form City West Water's risk based renewals are shown in the bolded envelope at the upper right of the matrix. The envelope includes assets that have been assessed by the ARMM as having an 'Extreme' risk ranking and a sub-category of 'High' risk ranked assets, namely, those with five to ten years remaining life but catastrophic consequences of failure.

Figure 5-2:

ARMM likelihood and consequence combination and assignment of risk

Likelihood of failure	Economic or social or environmental consequence of failure				
	1	2	3	4	5
	Insignificant	Minor	Moderate	Major	Catastrophic
5	Low	Moderate	High	Extreme	Extreme
4	Low	Low	Moderate	High	Extreme
3	Negligible	Negligible	Low	Moderate	High
2	Negligible	Negligible	Negligible	Low	Moderate
1	Negligible	Negligible	Negligible	Negligible	Low

**KPI attainment renewals**

We undertake key performance indicator (KPI) attainment renewals for water and sewer assets to achieve our unplanned interruption targets and to meet our long term sustainable asset performance objectives.

Key performance indicator renewals will continue at an equivalent level to the second regulatory period in order to maintain current failure rates and to prevent increases in responsive maintenance expenditure.

**Facility renewals**

We undertake facility renewals in order to ensure that our installations continue to meet system and operational requirements. These facilities are typically non pipeline assets and include mechanical, electrical, telemetry and field equipment installations.

**Efficiency renewals**

Our efficiency renewals are comprised of two components: other authorities’ works and non revenue water renewals.

Other authorities’ renewals refer to those that we bring forward in order to take advantage of other authorities’ works. For example, we coordinate with local government to access and renew high risk or poor performing assets when streets are being reconstructed.

Non revenue water renewals refer, in most part, to meter replacement. Over the current regulatory period, it is estimated that approximately 9.2 per cent of received bulk water will be lost as non revenue water. Action to achieve a lower non revenue water rate is financially prudent and responsible from a resource management perspective.

A major component of non revenue water is inaccurate property service metering (eg. no meter present, meters not registering or meters under registering flow). The company uses a meter replacement model to determine optimal investment in new water meters by taking into account the cost of new meters, the estimated accuracy of new and existing meters and the cost of the unregistered water.

**5.2.2 Growth areas - integrated supply**

Servicing our growing customer base with integrated water supplies (potable and alternative) will be a large element of this capital program.

Growth will continue to be a significant driver of our activities. By the end of the decade 2003-04 to 2012-13, we will have added approximately 97,000 residential lots to our customer base, representing annual lot growth of approximately 3.3 per cent. Continued strong growth in City West Water’s customer base of approximately 2.8 per cent is expected in the third regulatory period.

As shown in the table below, our residential greenfield lots are forecast to grow by 23,500 over the third regulatory period. We will install distribution infrastructure in a logical sequence through these developments to supply new lots developed in the third regulatory period and beyond. The delivery of integrated supply infrastructure to greenfield areas in third period will allow City West Water distribution works to be installed prior to other development related works such as transport infrastructure. This will reduce installation costs by obviating the need for retrofitting and traffic management.

Table 5-6:

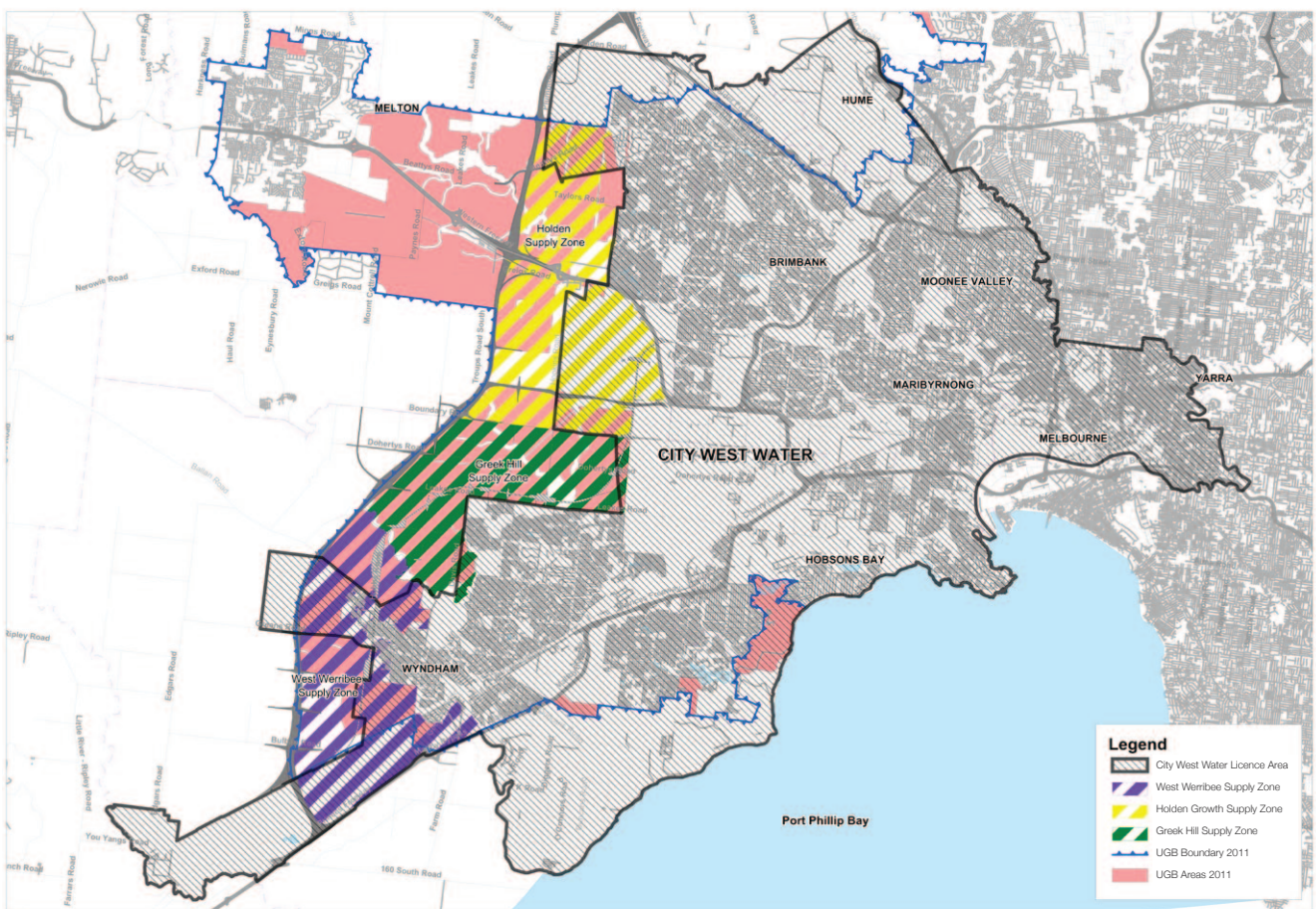
**Greenfield lot forecast**

Year	2011-12 Actual	2012-13 Forecast	2013-14 Forecast	2014-15 Forecast	2015-16 Forecast	2016-17 Forecast	2017-18 Forecast
<b>Greenfield lots</b>	4,307	5,000	4,900	4,800	4,700	4,600	4,500

The figure below shows the location of our urban growth zones.

Figure 5-3:

City West Water’s urban growth zones



**Growth expenditure forecast**

We will focus on three growth zones (shaded zones in the figure above) for the purposes of integrated supply related infrastructure in the Water Plan period. These are:

- Holden Supply Zone: 1,400 lots by 2017-18 and 6,300 lots by 2022-23
- Greek Hill Supply Zone: 4,600 lots by 2017-18 and 9,600 by 2022-23
- West Werribee Zone: 7,400 lots by 2017-18 and 14,300 by 2022-23

In line with integrated water cycle management principles, our growth servicing model will provide all new greenfield developments in these zones with potable water and third pipe non potable water supplies.

City West Water’s growth related expenditure is determined with regard to:

- the number of new lots in growth areas based on Victoria in Future 2011 (VIP), the 2005 Urban Development Program (UDP) and historical growth trends
- the split between recycled water and potable water demands

- hydraulic modelling of demands placed on new and existing systems
- an optimal integrated servicing solution to meet demand
- estimates of the value of developer delivered infrastructure.

The table below shows growth capital expenditure by water service over the regulatory period.

Table 5-7:

Growth capex (\$m 2012-13 real terms)

	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Alternative Water Supply	27.8	0.8	9.1	29.6	35.7	103.0
Water Supply	26.2	1.0	6.3	26.8	18.6	78.9
Alternative Water Developer Reimbursements	0.7	0.7	0.6	0.8	0.9	3.7
Water Developer Reimbursements	3.6	3.6	3.5	3.4	3.3	17.4
<b>Total</b>	58.3	6.1	19.5	60.6	58.5	203.0

### 5.2.3 Altona Recycled Water Project Stage 2 (ARWP2)

The ARWP2 was developed based on large industrial customer interest following the successful launch of the Altona Recycled Water Project Stage 1 (2,500ML/year of recycled water for industrial and irrigation purposes).

A servicing strategy study identified the ARWP2 as the optimal solution for supplying alternative water to additional Altona Industrial Precinct customers. The project has the effect of reducing prices to all customers as potable water is replaced by recycled water. This is achievable because of the significant future costs of desalination that will be avoided as a result of undertaking this project.

The ARWP2 will have a capital cost of \$80 million and consist of the following infrastructure:

- a salt reduction plant at MW's WTP
- a transfer main (approx. 16 km) between the WTP and the Altona Industrial Precinct
- a distribution network (approx. 21 km) to supply end users within the Altona Industrial Precinct
- 2.6 ML balancing storage tank at the corner of Leakes Road and Federation Trail.

Customers will begin receiving water in 2016-17 and full production will commence the following year as shown in the table below.

Table 5-8:

Altona Stage 2 output

	2013-14	2014-15	2015-16	2016-17	2017-18
Volume (ML/yr.)	0	0	0	2,000	4,700

### 5.2.4 The Arrow Program

The Arrow Program is City West Water’s business efficiency initiative designed to improve business processes and core systems so that City West Water can sustain and support its growth into the future.

The Program will:

- Increase work efficiency
  - o Improve the entering, processing and sharing of information across the business.
  - o Deliver a more integrated suite of business systems to reduce duplication of tasks.
  - o Provide one source of information for asset, customer and project data.
- Support business growth
  - o Allow the best use of resources through the integration of processes and systems.
  - o Facilitate sound business decisions based on timely access to the right information and reports.
- Improve customer service
  - o Strengthen customer relationships by better understanding current and emerging needs.
  - o Provide better service to our customers through better access to information and reports.

To help deliver these objectives, the Arrow Program will:

- See the development and introduction of a set of revised business processes across the business.
- Introduce a range of business systems from the Oracle suite to replace many of City West Water’s existing systems.

### Oversight

The Arrow Program Business Case has been approved by the Treasurer following endorsement by the Minister for Water.

The Program is the subject of close monitoring by City West Water and the Government. The Program Steering Committee (which includes all members of the business’ executive team) meets fortnightly; the Board, the Department of Treasury and Finance and the Department of Sustainability and Environment receive monthly updates on progress; and there is a Board appointed advisor providing independent quality assurance advice on the Program.

### Timing

The Arrow Program will be delivered in three release phases. Release 1 covers the implementation of new processes and systems for core finance, project budgeting, procurement and corporate planning, and runs from July 2012 to April 2013.

Release 2 covers the business’ asset management and design processes and preparatory work for Release 2 has already commenced. Release 3 covers customer care and billing processes.

The Arrow Program is expected to conclude in mid-2015.

### 5.2.5 Growth areas – sewerage

As with our growth-related integrated water supply investment, we will also be constructing sewerage infrastructure in the urban growth zone. Sewerage growth capital expenditure is shown in the table below.

The majority of future sewerage infrastructure to service the new growth areas will be constructed by developers as part of their works in sub-divisions. However, we will construct certain downstream outlet works to provide capacity through existing areas.

Table 5-9:

Growth capex – sewerage (\$m 2012-13 real terms)

	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Sewer Services	6.2	1.2	8.4	1.3	1.3	18.3
Sewer Developer Reimbursements	6.3	6.7	6.8	6.7	6.7	33.2
<b>Total</b>	<b>12.5</b>	<b>7.9</b>	<b>15.2</b>	<b>8.0</b>	<b>8.0</b>	<b>51.5</b>

### 5.2.6 Docklands Recycled Water Project

The Docklands Recycled Water Project (DRWP) will supply recycled water to 50 per cent of the Docklands site that is as yet undeveloped. When complete, the DRWP will supply approximately 700ML of Class A alternative water per year for residential and non residential customers. Uses will include toilet flushing, laundry, open space irrigation, cooling tower supply and fire service testing demands.

The \$27.8 million project is a partnership between Places Victoria and City West Water. Its capital cost will be co funded by City West Water, Places Victoria and developers.

### 5.2.7 Stormwater projects

In response to the drought and water restrictions on public open space, we have been working with the local councils in our service area to develop integrated water supply plans (IWSPs). Integrated water supply plans identify opportunities to service public open space and redevelopment sites with alternative water supplies, including stormwater harvesting opportunities.

We will invest \$25.3 million over the next regulatory period into stormwater harvesting projects identified in local governments' IWSPs. These projects are forecast to supply approximately 990 ML per annum by the end of the regulatory period and will replace an equivalent volume of potable water.

The majority of the stormwater projects will be self-funded, with project beneficiaries paying a project specific service charge over a period of 25 years.

### 5.2.8 Networks compliance

Compliance expenditure includes infrastructure augmentation or reconfiguration and information technology associated with meeting regulatory obligations, including technical standards and obligations from regulatory bodies such as the EPA, DSE, DHS and ESC. Compliance programs in the third regulatory period include:

#### Recycled water obligations

The Werribee West Recycled Water Supply Project (WWRWSP) will supply approximately 25,000 house lots and public open spaces with around 3 GL of recycled water by 2035. This project was approved in Water Plan 2 under the Victorian Government's 20 per cent and Central Region Sustainable Water Strategy recycled water targets.

Project delays mean that some approved WWRWSP expenditure will be incurred in the third rather than the second regulatory period. The WWRWSP capital expenditure has been accounted for in Growth areas – integrated supply.

#### Technical standards - cathodic protection of pipeline assets

Cathodic protection is a technique used to control the corrosion of metallic water and sewer pipelines. We have identified deficiencies in the cathodic protection of certain pipes in our network which may expose pipelines to accelerated rates of corrosion and higher failure rates. A work program is proposed to bring the water and sewer networks into compliance with the Australian Standard AS 2832.1.

#### Environmental obligations - ongoing 1:5 sewer hydraulic compliance

The EPA requires that our sewerage system be designed and managed to eliminate dry weather spills and chronic leaks and to contain flows resulting from rainfall less than or equal to the EPA agreed standard of a 1 in 5 year average recurrence interval (ARI) storm event.

During the first and second regulatory periods, we observed a reduced incidence of sewer spills owing to a combination of extended dry conditions (resulting in lower groundwater levels) and fewer rainfall events of 1-in-5 ARI or higher. However, with a return towards historical average rainfall levels, we have recently observed more frequent occurrences of 1-in-5 ARI events and higher infiltration rates.

Wet weather spills from our sewer network have increased in recent years. Hydraulic modelling has revealed a number of hot spots in the network that are unable to contain a 1-in-5 ARI event. These network deficiencies have been added to a sewer hydraulic compliance register and the business is proposing to implement a program of works over the third and fourth regulatory periods to successively remove these and others that are identified as a result of ongoing flow monitoring and hydraulic modelling.

**Customer Charter obligations - Water flow rate guarantee**

Through our Customer Charter, we guarantee customers a minimum flow rate according to their meter size. These flow rates are shown in the table below.

Table 5-10:

**Guaranteed minimum flow rates by service connection size**

Diameter of property service pipe	20mm	25mm	32mm	40mm	50mm
Minimum flow rate	20L/min	35L/min	60L/min	90L/min	160L/min

We maintain calibrated hydraulic network models to identify current and future network hydraulic capacity deficiencies that will impact on guaranteed flow rates. Deficiencies may include under sized pipes, corroded pipes or other obstructions. Deficiencies are exacerbated by new customer demand from greenfield and infill developments.

Assets that are identified as causing hydraulic deficiencies are added to a hydraulic compliance register. We conduct works to successively augment or replace assets on the register in order to maintain guaranteed flow rates.

**5.2.9 Aquifer storage and recovery**

Aquifer storage and recovery (ASR) will provide the ability to optimise alternative water production by acting as a reservoir to balance seasonal supply and demand discrepancies. Through ASR, alternative water can be stored during excess production periods, like the winter months when customer demand is lower, and extracted over the summer months when demand is at its peak.

The ASR projects proposed for the third regulatory period will store in the order of 2GL of alternative water in aquifers, allowing us to minimise expenditure on plant to treat alternative water by avoiding the need for peak production.

We have undertaken desktop studies of the Werribee aquifer formation which indicate that the formation is suitable for ASR. Several sites have been identified as ASR injection and extraction points. Those proposed for development in the third regulatory period are located at the WTP and in the West Werribee growth zone.

We are currently undertaking trials at the WTP to determine that the formation is suitable for ASR.

The ASR capex is inclusive of a \$3.97 million Federal Government grant in 2013-14.

**5.2.10 Office relocation**

In mid-2014, we will be moving our head office administration functions to a new office facility in the Footscray Central Activity District redevelopment.

The decision to move from our current St Albans Road complex in Sunshine was taken following a comprehensive assessment of our current and future needs and the growth our business has experienced over recent years. In 2013-14 we will incur \$9 million capital expenditure on the fit-out and fixtures for the new office space.

We will also relocate our maintenance facility from the St Albans Road complex in Sunshine to a new central maintenance depot in Brooklyn with a satellite depot in West Melbourne. Forecast expenditure on the fit-out and fixtures for these facilities is \$2.6 million in 2013-14.

We expect to agree on terms with Melbourne Water regarding the renewal of Stony Creek which borders the St Albans Road complex in Sunshine, thus concluding the planning phase and enabling the sale of our present site consistent with Government Land Monitor requirements.



## 6 Revenue requirement

### Key points

#### Roll forward of the asset base

- Our capital expenditure was higher than forecast in the current regulatory period due to the need to invest more in renewals
- The business is undertaking a business transformation program that will mean we can achieve significant efficiency savings that will begin to emerge during the next regulatory period

#### Financing

- We are proposing a WACC consistent with ESC guidance of a 5.1 per cent real post tax
- We are proposing regulatory depreciation on the same basis as our current Water Plan

We have used the Commission's building block approach to determine the revenue we require during the third regulatory period to service our customers, meet our regulatory obligations and earn a return on investment for our shareholder. The four building blocks of our revenue requirement are:

1. operating expenditure
2. a return on our regulatory asset base
3. regulatory depreciation
4. an allowance for taxation.

Table 6-1:

Third regulatory period revenue requirement (\$m 2012-13 real terms)

	2013-14	2014-15	2015-16	2016-17	2017-18
Operating costs	474.7	484.6	488.4	491.6	489.2
Return on investment	82.8	88.3	92.3	96.4	99.7
Depreciation	39.7	44.6	48.2	49.5	51.3
Tax	8.4	7.6	6.3	5.3	8.3
<b>Total</b>	<b>605.6</b>	<b>625.1</b>	<b>635.2</b>	<b>642.8</b>	<b>648.5</b>

### 6.1 Regulatory depreciation

The regulatory depreciation component of our revenue requirement returns the value of the capital that we have invested in our projects and programs.

We propose to apply straight line depreciation on an inflation indexed asset base, with the effective life proposals as

contained in the information templates. To offset the impacts of depreciation short life technical assets including IT and membrane replacements for our salt reduction plants we have deferred a proportion of regulatory depreciation. The deferral also accounts for assets including land and NVIRP contributions.

Table 6-2:

## Regulatory depreciation (\$m 2012-13 real terms)

	2013-14	2014-15	2015-16	2016-17	2017-18
Calculated regulatory depreciation	39.7	48.4	54.0	57.3	59.5
Depreciation deferred	0.0	3.8	6.0	8.0	8.4
<b>Total regulatory depreciation</b>	<b>39.7</b>	<b>44.6</b>	<b>48.0</b>	<b>49.3</b>	<b>51.0</b>

## 6.2 Return on assets

Part of our revenue requirement is the return on our assets whereby we apply the weighted average cost of capital (WACC) to our regulated asset base (RAB) for each year of the upcoming regulatory period.

### 6.2.1 Rolled forward regulatory asset base

Consistent with the Commission's guidance paper, we have used the following calculation to determine the opening RAB for the third regulatory period:

RAB 1 July 2013	=	RAB at 1 July 2009
	+	Capital expenditure (gross) 2008-09 to 2011-12
	+	Assumed capital expenditure (gross) 2012-13
	-	Customer and government contributions 2008-09 to 2011-12
	-	Assumed customer and government contributions 2012-13
	-	Regulatory depreciation 2008-09 to 2012-13
	-	Proceeds from disposal of assets 2008-09 to 2011-12

Our rolled-forward RAB for the period 1 July 2009 to 30 June 2013 is detailed below.

Table 6-3:

## Rolled Forward Asset Base (\$m 2012-13 real terms)

	1 July 2009	1 July 2010	1 July 2011	1 July 2012
Opening asset base	1,125.0	1,240.4	1,316.1	1,413.9
Gross capital expenditure	166.5	128.7	147.2	197.8
Government contributions	5.5	3.8	3.2	7.7
Customer contributions	17.1	18.2	17.0	16.6
Proceeds from disposals	0.0	0.5	0.1	0.0
Regulatory depreciation	28.4	30.4	29.1	32.0
Closing asset base	1,240.4	1,316.1	1,413.9	<b>1,555.4</b>

### 6.2.2 Rolled forward RAB

Our rolled forward RAB, accounting for new investments during the forthcoming regulatory period (1 July 2013 to 30 June 2018) is shown in the table below.

Table 6-4:

Rolled forward RAB 1 July 2008 to 30 June 2012 (\$m 2012-13 real terms)

	1 July 2013	1 July 2014	1 July 2015	1 July 2016	1 July 2017
Opening asset base	1,555.4	1,691.5	1,770.6	1,850.6	1919.7
Gross capital expenditure	203.5	151.5	152.8	153.9	133.2
Government contributions	4.0	-	-	-	-
Customer contributions	16.2	20.6	24.6	35.7	29.9
Proceeds from disposals	7.5	7.1	0.0	0.0	0.0
Regulatory depreciation	39.7	44.6	48.0	49.3	51.0
Closing asset base	1,691.5	1,770.6	1,850.6	1919.7	<b>1972.0</b>

### 6.3 Weighted average cost of capital

We have adopted the ESC's formulation for a WACC of 5.1 per cent. This reflects an estimate of the opportunity cost of our capital weighting our cost of finance, namely debt and equity.

### 6.4 Taxation

The WACC estimate proposed is expressed in post-tax terms rather than taxation being included in the WACC formula. As a result, it is necessary to include an estimate of tax liabilities in the revenue requirement.

Estimating a business tax liability relies on a number of assumptions. Many of the inputs required to calculate a taxation liability are taken directly from the inputs required to calculate regulated prices. We have used benchmark assumptions in relation to interest deductions and applied NTER principles in determining the tax depreciation schedule.

## 7 Forecast demand

### Key points

- Average household consumption experienced a slight bounce back in 2011-12 as restrictions were eased
- We expect this bounce back to continue for 2012-13 as Stage 1 restrictions are replaced by Permanent Water Saving Rules
- Over the next five years average household consumption will fall as we connect more apartments and dwellings with fewer occupants, as well as our current customers continuing to invest in water efficient appliances
- Non residential demand will continue to grow at a lesser rate than residential

This chapter provides forecast demands for water and sewerage services over the third regulatory period, including for: residential water and sewerage; non residential water and sewerage; trade waste; recycled water; new customer contributions and lot growth and customer numbers.

Demand forecasts are critical to our operations, through their direct impact on:

- *Infrastructure investment*: the estimated number of customers we will serve and the predicted demand for water and sewerage services are key determinants of future infrastructure investment decisions
- *Operating expenditure*: predicted demand for services determines on-going business requirements to serve this demand and the associated costs
- *Prices*: estimated demands determine the unit price of water and sewerage services, as revenue requirements are divided by predicted demands to derive prices.

Information is provided on how we have derived our forecasts. Our approach meets the ESC's criteria which require that forecasts:

- are based on appropriate forecasting methodologies
- reflect reasonable assumptions about the key drivers of demand including:
  - supply (including climate conditions, inflows, and the effect of recent and upcoming supply augmentations)
  - population and demographic changes
  - general and local economic conditions and future prospects for market development

- average consumption/rebound assumptions (including demonstrating the effect of the past (and any proposed) spending on demand management initiatives)

- use the best available information, including historical demand trends and relevant Water Supply and Demand Strategies
- are statistically unbiased
- account for different or changed tariff structures and elasticity
- businesses linked to the Melbourne bulk supply pool should reflect the impacts of desalination on their water supply and demand forecasts in Water Plans.<sup>4</sup>

An important assumption for the 2013 Price Review will be the expected bounce back in water demand following the easing of water restrictions.

The remainder of the chapter provides:

- a comparison of demand outcomes in the second regulatory period compared to our forecasts for that period
- all key forecasts for the third regulatory period
- a comprehensive description of the forecasting methodology and key assumptions that have been used in preparing the forecasts for the third regulatory period.

<sup>4</sup> Essential Services Commission 2011, 2013 Water Price Review-Guidance on Water Plans, October p. 69-70

## 7.1 Historical demand

The forecasts that we made of billable demand for water services at the beginning of the current (second) regulatory period and actual billable demand (for the years available i.e. 2009-10 to 2011-12) are shown in Table 7-1.

Over the period from 2009-10 to 2011-12, the forecasts and actual billable demand diverged by around 5 per cent overall. Residential demand was on average 10 per cent less than forecast and non residential demand was 3 per cent higher on average.

Residential water usage was lower than predicted due to a longer than anticipated application of water restrictions (Stage 3a), higher than expected rainfall in some years and the effectiveness of the high profile water efficiency programs in place during the period.

Non residential water use was higher as a result of stronger than expected manufacturing activity.

Table 7-1:

Second regulatory period: comparison of forecast and actual billable water demand

<b>Forecast water demand WP2 (ML)</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>
Residential	49,139	52,251	54,307
Non residential	37,765	37,624	36,580
Total billable	86,905	89,875	90,887
<b>Actual water demand WP2 (ML)</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>
Residential	45,955	46,012	49,159
Non residential	38,930	37,667	37,455
Total billable	84,855	83,679	86,614
<b>Difference (percentage)</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>
Residential	-6%	-12%	-9%
Non residential	3%	0.1%	2%
Total billable	-2%	-7%	-5%

## 7.2 Water forecasts

Forecasts of demand for water by residential and non residential customers are shown in Table 7-2 to Table 7-6 below including total forecast ML water demand, forecast number of lots, the forecast split between demand met by alternative and potable water supplies and the water demand that will be supplied by Melbourne Water.

Table 7-2:

Water demand forecast (ML)

	Second regulatory period				Third regulatory period (forecast)	
	2009-10 (actual)	2010-11 (actual)	2011-12 (actual)	2012-13	2013-14	2014-15
Residential	45,955	46,012	49,159	50,800	51,113	52,852
Non residential	39,245	37,084	38,563	38,808	38,939	39,590

Table 7-3:

Lot number forecast (No.)

	Second regulatory period				Third regulatory period (forecast)	
	2009-10 (actual)	2010-11 (actual)	2011-12 (actual)	2012-13	2013-14	2014-15
Residential	321,192	332,263	342,477	352,977	363,127	372,927
Non residential	35,653	35,998	36,609	37,746	38,845	39,907
<b>Total</b>	356,845	368,261	379,086	390,723	401,972	412,834

Table 7-4:

Alternative water demand forecast (ML)

	Second regulatory period				Third regulatory period (forecast)	
	2009-10 (actual)	2010-11 (actual)	2011-12 (actual)	2012-13	2013-14	2014-15
Residential	-	-	-	-	-	255
Non residential	315	136	1108	2780	3410	3848
<b>Total</b>					3410	4102

Table 7-5:

Potable water demand forecast (ML)

	Second regulatory period				Third regula	
	2009-10 (actual)	2010-11 (actual)	2011-12 (actual)	2012-13	2013-14	2014-15
Residential	45,955	46,012	49,159	50,800	51,113	52,598
Non residential	38,930	37,667	37,455	36,028	35,529	35,742
<b>Total</b>	84,885	83,679	86,614	86,828	86,642	88,340

			Fourth regulatory period (forecast)				
2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
53,998	55,074	56,142	56,835	57,788	58,500	59,320	61,208
39,918	40,247	40,588	40,936	41,289	41,645	41,991	42,344

			Fourth regulatory period (forecast)				
2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
382,377	391,477	400,477	409,377	418,177	426,877	435,277	443,677
40,930	41,916	42,890	43,854	44,807	45,750	46,659	47,569
423,307	433,393	443,367	453,231	462,984	472,627	481,936	491,246

			Fourth regulatory period (forecast)				
2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
330	399	474	551	624	699	769	832
4205	6696	9528	9673	10,399	10,689	11,608	11,971
4535	7095	10,002	10,223	11,023	11,387	12,376	12,803

Fourth regulatory period (forecast)			Fourth regulatory period (forecast)				
2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
53,668	54,675	55,668	56,284	57,164	57,801	58,551	59,288
35,713	33,551	31,059	30,734	30,836	29,946	29,841	29,808
89,381	88,226	86,727	87,019	88,000	87,747	88,393	89,096

Table 7-6:

## Bulk water demands from Melbourne Water (ML)

	2013-14	2014-15	2015-16	2016-17	2017-18
Non residential potable	35,529	35,742	35,713	33,551	31,059
Residential potable	51,113	52,598	53,668	54,675	55,668
Non revenue potable	8,887	9,058	9,165	9,046	8,893
<b>Total potable water purchases</b>	<b>95,526</b>	<b>97,398</b>	<b>98,545</b>	<b>97,272</b>	<b>95,620</b>
<b>Bulk recycled water purchases</b>	<b>550</b>	<b>1,134</b>	<b>4,292</b>	<b>8,395</b>	<b>8,646</b>

### 7.2.1 Residential water

Residential water demand is forecast to increase by 10 per cent over the five year regulatory period from 2013-14 to 2017-18. Key drivers of this growth include:

- growth in the number of customers being served, with residential lots expected to increase by 10 per cent over the regulatory period
- expected bounce back in demand of 3 per cent due to the absence of restrictions on water use other than permanent water savings rules (step change increase assumed from the beginning of the regulatory period).

Offsetting demand growth, water efficiency measures are expected to reduce residential water consumption by approximately 1 per cent annually.

Average consumption per residential customer is expected to fall from 142kL per annum in 2013-14 to 140kL per annum in 2017-18. This reflects the expected increase in connection of apartments and dwellings with fewer occupants, as well as our current customers continuing to invest in water efficient appliances.

The residential water demand forecasts incorporate an assumed price elasticity of demand. Demand within the Tier 1 tariff block is assumed to be inelastic on the basis that this represents non discretionary demand. A price elasticity of 0.1 per cent and 0.14 per cent for each percentage point increase in the price of water is assumed for Tier 2 and Tier 3 demand, respectively. Further detail on the estimation of the price elasticity assumptions is provided below.

There are no major changes proposed for residential water tariff structures.

### 7.2.2 Non residential water

Non residential water demand is forecast to increase by 4 per cent over the five year regulatory period from 2013-14 to 2017-18.

Non residential lots are forecast to increase by 10 per cent. Much of this growth relates to small to medium commercial businesses.

Demand from large manufacturers is expected to remain at the current four year rolling average.

The non residential water demand forecasts also incorporate an assumed price elasticity of demand. With potable water price increases in the order of 47 per cent in 2013-14 it's reasonable to assume there will be an elasticity impact. Previous estimates of non residential elasticity, for example the -0.185 ACIL Tasman estimate used for Water Plan 2, are likely to be high given recent reductions in non residential use. We consider a figure around half to one third this value may be appropriate. We have therefore assumed -0.0925 for the purposes of non residential forecasting.

### 7.2.3 Alternative and potable water supply

Both residential and non residential customers will source water from alternative water sources over the third regulatory period. Consumption of alternative water is forecast to rise significantly over the period as new alternative water supplies are commissioned.

For residential customers, the West Werribee Dual Water Supply Project will supply potable and recycled water for 25,000 customers when the residential estates in West Werribee and Point Cook are fully developed. Recycled water demand is calculated based on toilet and garden watering



use of 70kL per year per household, multiplied by the forecast annual growth in houses built and occupied in West Werribee.

For non residential customers, the Altona Recycled Water Project Stage 2 will be capable of supplying an additional 4.7 GL per year of recycled water to industry. This adds to the 2 GL per year currently available from the Altona Recycled Water Project Stage 1. The project is scheduled to begin partial operations in the financial year 2016-17 and reach full capacity in 2017-18.

Non residential recycled water demand estimates are project-specific and they are based on:

- historical records of metered water consumption of existing users
- discussions with individual customers to understand volume of water that they will substitute recycled water
- customers' own estimates - for new users
- irrigation 'rules of thumb' on water use per hectare.

#### 7.2.4 Forecasting methodology

The following provides an overview of the methodologies and key assumptions used to develop our demand forecasts.

##### Residential water demand

###### Methodology

We utilise the Melbourne End Use Model (MEUM) to forecast demand for water. The MEUM was developed by the Institute for Sustainable Futures for the three metropolitan Melbourne retail water companies.

MEUM is based on demand end use components. The model builds on and significantly extends the Water Services Association of Australia End Use Model (WSAA EUM) distributed to members in 2004. End Use analysis principally seeks to maximise the useful disaggregation of water demand. There are two main reasons for the disaggregation: to enhance the demand projection; and to model the likely impact of deliberate, proposed actions to conserve water.

The overall residential water demand forecast is formulated using a population series and property growth. The MEUM disaggregates indoor residential demand into different components of water use, namely: washing machine; dishwasher; toilet; shower and indoor miscellaneous (bath, taps, insinkerator, toilet leakage, laundry trough and evaporative air conditioners).

In a simplified way, the MEUM can be summarised by the following equations:

##### Equation

---

End use = number of dwellings \* stock levels \* technology \* frequency

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Number of dwellings = dwellings detached or multi-unit

---

Stock levels = determined through ownership, penetration and sales forecasts

---

Technology = flow rates and duration

---

Frequency = number of uses per day/week/month/year

---

##### Data to populate the MEUM model

In addition to the main sources of data utilised to generate demand forecasts such as historical data and population growth estimates, we continuously undertake studies and surveys to enhance our knowledge of how residential customers use water and apply this information in the preparation of our forecasts.

Two appliance stock surveys and one end use study (2009 - 11) have been completed since 2007. Data collected from these studies has been used to update the demand forecasting model and to assist in the development of water efficiency programs.

The Appliance Stock Survey conducted in 2007 was a quantitative study of how City West Water's residents used water in their homes. The survey method involved a professional plumber visiting residential customers and auditing the dwelling for appliance types and behaviours associated with water usage. A second Appliance Stock Survey was again conducted in 2012, which examined water appliance penetration inside the home, consumption patterns, flow rates and associated behaviours.

For the end use study, data loggers were placed on residential customers' meters to measure different types of flows going through the meter and to link flow patterns to specific appliances and fixtures.

##### Base line

The forecast of our demand for residential water services for the third regulatory period took the FY 2010-11 as the baseline, given water restrictions were eased from Stage 2 to Stage 1. The base line year is adjusted to produce forecasts for future years.

*Assumptions underpinning demands forecasts*

We have adopted a number of assumptions that underpin our water forecasts.

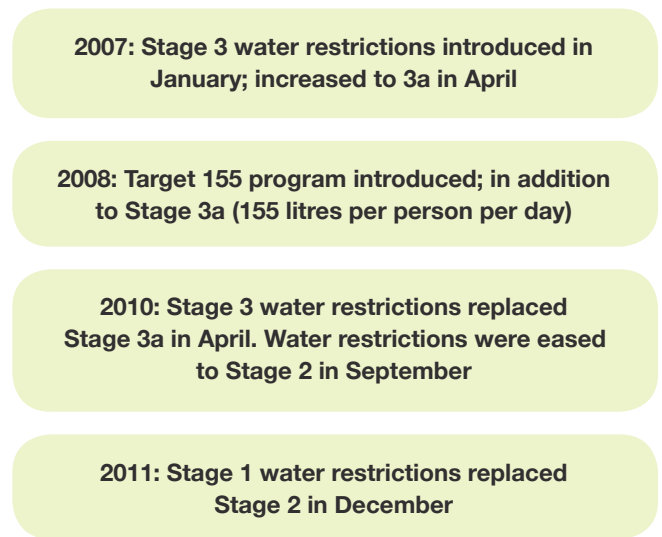
**Bounce back effect**

Melbourne’ water storages have improved significantly over the last three years, in particular since September 2010 when Stage 3a water restrictions were relaxed to Stage 2. During the second half of the current regulatory period (December 2011), water restrictions were eased to Stage 1. If water storage levels continue to remain high, Stage 1 restrictions are likely to be replaced by permanent water saving rules in late 2012.

For the purposes of our forecasts, we have assumed that Stage 1 water restrictions will be replaced by permanent water saving rules for the entire third regulatory period.

The bounce back effect for residential customers has been assumed to be 3 per cent. It has been applied over two years with a 2 per cent increase in 2010-11 followed by a 1.0 per cent increase in 2011-12.

**Figure 7-1:**  
**Melbourne water restrictions, 2007 to June 2012**



Our approach to estimating the bounce back effect has been informed by household level data analysis from our service area as well as the *Post Restrictions Bounce Back* report completed by Deloitte in December 2011. This report undertook a quantitative and qualitative assessment of post restrictions demand bounce back in other Australian jurisdictions and provided recommendations on how their key findings could be applied to Melbourne water demand forecasts for the 2013 water price review.

**Household and population growth**

Growth forecast, both lots and dwellings, is a key element in the determination of annual and peak flow forecasts, and future capital requirements for the extension and/ or augmentation of the water supply and sewer networks. Household and population growth estimates are consistent with Melbourne 2030, and the Government’s Land Release, Victoria in the Future 2012, and ABS report 3218.0 as a baseline.

**Climate**

Forecast water flows are based on a medium climate change scenario, with average rainfall and temperature conditions over the third regulatory period.

**Price elasticity**

Price elasticity measures the responsiveness of demand to price changes. The residential water demand forecast for

2013-14 to 2017-18 has considered the likely fall in residential water demand as a result of the increase in the price of water, as shown in the table below.

Table 7-7:

**Assumed residential price elasticity of demand**

Block tariff (litres/day)	Proportion of total customers paying each tier	Estimated fall in demand per each percentage point price increase	Estimated fall in demand with a 50% water price increase
Tier one: up to 440	69%	0%	0%
Tier two: >440 up to 880	26%	0.1%	3.3%
Tier three: 880	5%	0.14%	4.67%

In particular, the forecasts assumed:

- no price elasticity for tier one customers. This is based on the assumption that water demand from customers paying tier one only is largely non discretionary (water used for basic needs)
- price elasticity of 0.1 per cent and 0.14 per cent per each percentage point increase in the price of water for tier two and tier three customers respectively, as their higher water consumption would indicate discretionary water usage which is regarded as being more price responsive.

Estimating the price elasticity of water demand is a challenging exercise due to the different variables influencing demand and the limitation of existing data. Estimates of income elasticity in the literature are almost universally inelastic (less than one) and small in magnitude.

Variability of household incomes, adoption of water efficient home appliances, house characteristics and socio-demographic factors (i.e. household size and number of occupants) mean that households have different demand characteristics and they are likely to have different responses to changes in water prices, although evidence of water usage indicates that water demand tends to be inelastic.

Despite the difficulty in establishing an average price elasticity value applicable to our service area (or different ones to each tier of the residential inclining block tariff), surveys and studies have found that:

- the more water efficient a household already is, the less elastic their water demand will be, as there are fewer opportunities to reduce water consumption

- indoor water demand is more inelastic than outdoor demand, which indicates that consumers are less likely to conserve water indoors
- owner occupied houses tend to have more elastic demand than tenanted houses, due to split incentives (owner makes investment while the tenant gets the benefit as is the case with dual flush toilets)
- high consumption consumers have more elastic demands than low consumption consumers
- the number and age of people in a household impacts water consumption, with a tendency among teenagers to use the most water indoors as a result of long showers
- water consumption is influenced by housing type and size, and size of garden
- water demand is more elastic in the long term, as durable goods such as washing machines are typically characterised by long periods between successive purchases

The table below provides information on two studies we have reviewed to complement our price elasticity analysis.

Table 7-8:

Studies on price elasticity of water demand

Study	Findings	Assumptions/notes															
<i>Residential Price Elasticity of Demand for Water</i> , by Sydney Water <sup>5</sup> (2011)	Based on weighted average results as shown in the table below, immediate fall of 0.5%, with a further 0.6% fall within the next 12 months. Including all household types, the immediate change in demand was in the range of 0.1% to 0.8% and in the long term between 1% and 1.4%.	The study was a panel data analysis involving 95,000 individuals. Based on weighted average results and considering a 10% price increase. Study found a 2.0% increase in water demand in the 18 months following the lifting of water restrictions in Sydney															
	<table border="1"> <thead> <tr> <th>Household type</th> <th>immediate</th> <th>Long-term</th> </tr> </thead> <tbody> <tr> <td>Owner occupied</td> <td>-0.08</td> <td>-0.14</td> </tr> <tr> <td>Tenanted</td> <td>-0.02</td> <td>-0.10</td> </tr> <tr> <td>Housing units</td> <td>-0.01</td> <td>-0.03</td> </tr> <tr> <td>Weighted average</td> <td>-0.05</td> <td>-0.11</td> </tr> </tbody> </table>		Household type	immediate	Long-term	Owner occupied	-0.08	-0.14	Tenanted	-0.02	-0.10	Housing units	-0.01	-0.03	Weighted average	-0.05	-0.11
	Household type		immediate	Long-term													
	Owner occupied		-0.08	-0.14													
	Tenanted		-0.02	-0.10													
Housing units	-0.01	-0.03															
Weighted average	-0.05	-0.11															
<i>Pricing for Demand Management</i> , by KPMG and on behalf of City West Water, Melbourne Water, South East Water, Melbourne (March 2004)	Elasticity to be non linear. Demand more elastic for increases between 0 - 20 per cent than for price increases greater than 20 per cent. Caveat was mentioned in study given the counterintuitive nature of some results.	Participants may not have not responded realistically to questions of large price increases due to non credibility															

5 Abrams, B., Kumaradevan, S., Sarafidis, V. and Spaninks, F. (2011) The Residential Price Elasticity of Demand for Water, Joint Research Study, Sydney, February

**Non revenue water demand**

Non revenue water has been assumed to be equivalent to 9.3 per cent of the total bulk water purchased from Melbourne Water.

**Outdoor end use**

Outdoor residential consumption accounts for approximately 10.5 per cent of total residential water usage. The outdoor estimate of demand consists of two components: miscellaneous outdoor demand (including car washing, hosing down hard surfaces and pool water use), and lawn and garden demand. The miscellaneous component is modelled by end use and the lawn and garden is calibrated to actual demand in the base year, adjusted for normal weather conditions.

**Non residential water forecast**

The table below provides our non residential customers classification and the assumptions supporting our water demand forecast for this segment.

Table 7-9:

## Assumptions underpinning non residential water demand forecasts

Category	Customer description	Forecast assumptions
Trade waste (CAT A)	Trade Waste customers who: <ul style="list-style-type: none"> <li>on average discharge more than 4kL/day (10kL for greasy waste type customers)</li> <li>use an alternative water supply</li> <li>have high strength waste streams.</li> </ul> (typically includes larger higher risk trade waste customers)	CAT A discharge factor (using CAT A trade waste volumes) used to back calculate Cat A water consumption than projected forward
Trade waste (CAT B)	All Trade Waste Customers who are not Category A (typically includes smaller lower risk trade waste customers)	Growth in lots, multiplied by historical CAT B consumption, with an ongoing 2% reduction for efficiency. These customers will have exposure to water efficiency programs
Non residential customers (non trade waste)	All properties not considered Trade waste affected or council owned.	Historical water usage projected forwards with efficiency trends and applied to commercial growth
Open space demand	Council owned open spaces subject to irrigation such as golf courses, football fields, parks etc.	Billed consumption moving out of restrictions indicates no further allocations are currently required. The planting of warm season grasses appears to be off setting any growth in this sector

No bounce back effect is reflected in the non residential water demand forecasts, as commercial businesses are not required to observe water restrictions except for outdoor use similar to residential.

While some non residential customers are affected by restrictions (e.g. councils and schools), during the recent drought a large majority of them adapted to a water constrained environment by becoming more water efficient through the use of alternative sources of water or reducing their water consumption permanently.

### 7.3 Sewage and trade waste forecasts

#### Forecasts

The ten year sewage volume and trade waste load forecasts are shown in Table 7-10 and Table 7-11 respectively.

The total sewage volume is forecast to increase by 8 per cent over the regulatory period, with the residential volume increasing by 10 per cent and non residential volume increasing by 5 per cent. As sewage volume is a function of water usage, these forecasts are consistent with the demand forecasts presented previously.

Trade waste tonnes are forecast to remain at average historic levels and hence remain steady over the regulatory period.

More detail on the forecasting methodologies used to develop the sewage and trade waste forecasts is provided in the following section.

Table 7-10:

Sewage volume (ML)

	Second regulatory period				Third regulatory period (forecast)	
	2009-10 (actual)	2010-11 (actual)	2011-12 (actual)	2012-13	2013-14	2014-15
Residential	28,870	29,907	31,953	33,020	38,334	39,639
Non residential	25,589	26,327	26,422	27,025	27,371	27,715
Category A TW	10,533	11,042	10,276	10,476	10,467	10,459
Category B TW	3446	3594	3783	3801	3886	3971
Commercial	11,610	11,691	12,363	12,748	13,018	13,285
<b>Total</b>	<b>54,587</b>	<b>56,559</b>	<b>57,834</b>	<b>59,719</b>	<b>65,748</b>	<b>67,355</b>

Note: Category A trade waste (TW) customer is trade waste customer defined to have maximum discharge volume >4kL/day, Category B all other trade waste customers

Table 7-11:

Trade waste load (Tonnes)

	Second regulatory period				Third regulatory period (forecast)	
	2009-10 (actual)	2010-11 (actual)	2011-12 (actual)	2012-13	2013-14	2014-15
BOD	13,579	15,181	14,502	14,421	14,701	14,541
SS	5925	5630	5568	5708	5635	5637
TKN	956	1000	1055	1004	1020	1026
iTDS	23,024	25,391	25,301	24,572	25,088	24,987

Note: BOD – Biochemical oxygen demand, SS – Suspended solids, TKN – Total kjeldahl nitrogen, iTDS – Inorganic total dissolved solids

			Fourth regulatory period (forecast)				
2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
40,498	41,306	42,106	42,626	43,340	43,874	44,490	45,090
28,055	28,387	28,721	29,055	29,389	29,721	30,043	30,368
10,451	10,444	10,438	10,432	10,426	10,420	10,415	10,410
4057	4142	4227	4313	4398	4484	4569	4655
13,547	13,801	14,056	14,310	14,565	14,817	15,059	15,304
<b>68,553</b>	<b>69,693</b>	<b>70,827</b>	<b>71,953</b>	<b>73,065</b>	<b>74,164</b>	<b>75,222</b>	<b>76,274</b>

			Fourth regulatory period (forecast)				
2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
14,554	14,599	14,565	14,573	14,579	14,572	14,575	14,575
5660	5644	5647	5650	5647	5648	5649	5648
1016	1021	1021	1019	1020	1020	1020	1020
24,882	24,986	24,952	24,940	24,959	24,950	24,950	24,953

Table 7-12:

## Sewage volume to Altona Treatment Plant (ML)

<b>Altona</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>
Category A	12	12	12	12	12
Category B	44	45	46	47	48
Commercial	388	396	404	411	419
Residential	2952	3049	3115	3178	3239
Ground Water Infiltration [ATP]	2072	2072	2072	2072	2072
Rain Water Inflow [ATP]	328	334	339	343	347
<b>Total Sewage</b>	<b>5797</b>	<b>5909</b>	<b>5989</b>	<b>6063</b>	<b>6137</b>

Table 7-13:

## Sewage volume to Melbourne Water (ML)

<b>WTP</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>
Category A	10,455	10,447	10,439	10,432	10,426
Category B	3842	3926	4010	4095	4179
Commercial	12,630	12,889	13,143	13,389	13,637
Residential	35,425	36,590	37,383	38,128	38,867
Ground water infiltration [ATP]	829	829	829	829	829
Rainwater inflow [ATP]	4270	4365	4440	4510	4580
Unaccounted	8115	8241	8354	8464	8576
<b>Total Sewage</b>	<b>75,564</b>	<b>77,286</b>	<b>78,598</b>	<b>79,847</b>	<b>81,093</b>



### 7.3.1 Forecasting methodology

#### *Sewage flows*

Total sewage flow is disaggregated into the following segments for the purpose of forecasting bulk charges from Melbourne Water:

- residential
- commercial (from customers who are not required to hold a trade waste agreement)
- trade waste (including greasy waste customers)
- rain dependent inflow (RDI)
- ground water infiltration (GWI)
- unallocated flow.

Load is disaggregated into the following contaminants:

- Biochemical Oxygen Demand (BOD)
- Suspended Solids (SS)
- Total Dissolved Solids (TDS) and Inorganic TDS (iTDS)
- Total Nitrogen (TN) and Total Kjeldahl Nitrogen (TKN).

All sewage processed at Altona Treatment Plant (ATP) originates from our customers. A mass balance methodology is undertaken annually to ensure the sum of all segments adds up to the volume and contaminant loads observed at ATP.

At the Western Treatment Plant (WTP), our customers' sewage volumes and contaminant loads are mixed with those from SEW and YVW. A system wide mass balance methodology which considers all three inputs is used to ensure that the sum of all segments from all three retailers adds up to the volume and contaminant loads observed by Melbourne Water at WTP.

The last time a system wide mass balance was performed was for the 2009-10 financial year (known as the base year).

In years when a system wide mass balance is not performed:

- the sum of City West Water's segment volumes are balanced against its billable metered volume.
- the sum of City West Water's segment loads are not balanced; instead the unallocated proportion determined from the last system wide mass balance is carried over.

Out of the total sewage collected, approximately 6 per cent is discharged to ATP from the Altona and Point Cook catchments. The remainder is discharged to WTP.

### 7.3.2 Residential sewage volumes

The residential sewage volume for 2011-12 was calculated from the total of billed sewage volumes to all residential customers.

Compared to the Melbourne End Use Model (MEUM), billed sewage volumes are an under estimate of actual volumes because the disposal charge factors have not changed in line with residential water usage trends (Note: the current discharge factor for billed residential sewage is approximately 65 per cent, the MEUM end use model suggests a figure >80 per cent would be more appropriate). Beginning with the next Water Plan period it is proposed that a new residential sewage disposal charge factor of 75 per cent be introduced; this proposal has been modelled in the sewage demand forecast.

Any differences between actual and billed volumes are captured in the 'unallocated' component when the final volume balance is performed.

The MEUM forecast is used to establish the growth in residential sewage flows. Using the MEUM in this way ensures water conservation initiatives are accounted for in sewage forecasts.

#### **Commercial sewage volumes**

Commercial sewage volumes for 2011-12 were calculated from billing data for non residential properties (which excludes all trade waste customers). The default discharge factor of 0.9 used in billable volumes most likely introduces some error. As with residential sewage flows the difference between actual and billed is captured in the 'unallocated' component when the final volume balance is performed.

The forecast for commercial sewage volume was generated by calculating the average of historical sewage volumes per lot which demonstrated an upward trend. This trend, in combination with forecast water usage was used to determine future commercial discharge volumes.

### 7.3.4 Trade waste volumes

Customers using water directly in, rather than incidental to, their business are deemed to be trade waste customers. Our trade waste customers are categorised as being either Category A or Category B for the purposes of billing.

For a customer to be classed Category A they must meet at least one of the following criteria:

- have a maximum trade waste discharge volume in excess of 4kL/day (10kL/day for greasy waste customers e.g. fast food shops and restaurants)
- discharge trade waste volumes which cannot be factored from potable water meters (e.g. customers who use alternative water supplies in their process)
- discharge effluent that is not adequately represented by the Category B pricing regime due to the concentrations of contaminants within the trade waste (i.e. customers with high strength trade waste)
- the customer has requested, in writing, to be priced as a Category A customer.

All other trade waste customers are Category B.

Individual forecasts were derived for both Category A and Category B customers.

For Category A an exponential curve was fitted to the historical data and the trend projected forward. Adopting a customer growth curve was not considered appropriate for this category due to the wide variability in customer trade waste volumes (i.e. relatively few customers make up a large portion of the total trade waste flow).

Over the past decade a number of larger Category A trade waste customers have ceased operating within our catchment. This, in combination with cleaner production programs, has resulted in volume reductions from Category A customers as a whole. While this trend is expected to continue to an extent over the coming years, the rate of decline is expected to plateau as the number of viable cleaner production opportunities decrease and the number of smaller Category A trade waste customers increase.

For Category B, the volume of trade waste discharged per Category B customer was determined using an agreed Bulk Sewage Agreement methodology which considers business types and discharge allowances. To determine the sewage forecast for Category B customers a standard discharge factor of 90 per cent was applied to forecast Category B water volumes.

### 7.3.5 Rain dependent inflow (RDI)

RDI was calculated for each year by:

- calculating the average weekly dry weather sewage volume at Melbourne Water billing meters during dry weeks. A dry week is defined as a week in which rainfall does not exceed 5mm and which was preceded by a week with not more than 10mm of rainfall
- weeks coinciding with school holiday periods and the Christmas to January period were excluded because the flows in these periods are a typical
- subtract the calculated average weekly dry weather sewage volume (factored up to 52 weeks) from the total annual sewage volume to determine the total annual volume attributable to RDI.

The average RDI for the past seventeen years (since assessments for RDI began using the above methodology) was 5.65 per cent of total sewage volumes. However the variation seen in RDI has been marked, ranging from 1.5 per cent in 2006-07 to 12.5 per cent in 1995-96.

RDI appears more closely related to rainfall distribution and intensity, which is random, rather than to total annual rainfall. Given the relative uncertainty with rainfall City West Water has adopted the long term average total contribution figure of 5.65 per cent within its forecasts.

### 7.3.6 Ground water infiltration (GWI)

GWI measurement is extremely difficult to determine due to the relatively low flow rates of GWI occurring in the network and the significant percentage of error associated with measurement of very low sewage flow rates.

GWI is currently assessed by observing flow rates in the sewer during early morning in catchments that are predominantly residential or in those which have minimal sewage discharge from customers from midnight to early morning. Such studies are subject to significant error if nearby water pipes or properties have leaks (e.g. cracked pipes, dripping taps or leaking cisterns).

Flow meter monitoring throughout different sections of the catchment have found base line flows (considered to be primarily GWI) to be highly variable and no recent work has been performed to accurately quantify GWI's contribution as a whole. Historically GWI had been combined with RDI with 50 per cent of flows being assigned to each segment. However given the relative robustness in the RDI assessment methodology these two segments are now forecast separately.

Early morning flows into ATP suggest the ATP catchment still has significant GWI volume contributions. This is not unexpected due to the catchment being low lying, close to the bay and having known leaks. The volume determined as being GWI in 2011-12, when the annual mass balance was performed over the ATP catchment, was applied to future years within the forecast as it was assumed any further deterioration would be off set by programmed CCTV and remediation works.

For WTP, an approximation for GWI of one per cent of total flow was applied for the 2011-12 financial year (a figure which has been used in a number of historical assessments). As per the ATP forecast GWI's contribution has been kept constant going forward as it is assumed further network expansion (new assets) will contribute low GWI with any further deterioration in existing assets being largely off-set by programmed CCTV and remediation works. The difference between the WTP's actual GWI volume and the estimate is captured in the 'unallocated' segment when the final volume balance is performed.

### 7.3.7 Unallocated volume

The unaccounted volume segment includes any underestimates in trade waste, commercial and residential flows as well as any other unaccounted input.

A system wide mass balance methodology is used to ensure that the sum of all sewage components from all retail water companies adds up to the volumes observed by Melbourne Water at WTP. The unallocated volume component therefore balances the overall system mass balance for the year in which it was performed.

When a system wide balance is not undertaken we determine our unaccounted volume using billable flow meters for the WTP to achieve a volume balance in the given year.

The unallocated volume forecast was based on the 2009-10 unallocated volume (the last time a system wide mass balance was completed). The percentage unallocated from this balance was used in the forecast going forward and its magnitude will vary as a portion based on the sum of other contributions.

The ATP has no unaccounted volume as this catchment is balanced with GWI.

### 7.3.8 Trade waste

Forecasts are produced for each of the current and proposed chargeable parameters, namely:

- Biological Oxygen Demand (BOD)
- Suspended Solids (SS)
- Total Dissolved Solids (TDS) and Inorganic TDS (iTDS)<sup>6</sup>
- Total Nitrogen (TN) and Total Kjeldahl Nitrogen (TKN)<sup>7</sup>.

### 7.3.9 Residential load

To determine the historical residential contaminant loads residential billed volumes were multiplied by established domestic contaminant concentrations. The trend of historical loads per lot was projected and, given no obvious trends were apparent, the averages of these figures were used to establish the ratio going forward for each contaminant. The ratios, in combination with the residential lot forecast, were used to establish the load forecasts for each contaminant.

### 7.3.10 Commercial load

To determine the historical commercial contaminant loads commercial billed volumes (which exclude trade waste) were multiplied by established domestic concentrations (which are assumed to be similar in nature to commercial). The trend of historical loads per lot was projected and, given no obvious trends were apparent, the averages of these figures were used to establish the ratio going forwards for each contaminant. The ratios, in combination with the commercial lot forecast, were used to establish the load forecasts for each contaminant.

### 7.3.11 Trade waste load

As per trade waste volume, trade waste loads were assessed for each trade waste category separately.

For Category B, historical loads were calculated by multiplying volumes (established for each industry type) by industry average concentrations (for each industry type from historical sampling data). For each contaminant the sum of the loads from all industries produced the total Category B load for each particular contaminant. To establish the forecast, the trend of historical loads was projected forward using a curve of best fit.

<sup>6</sup> Forecast loads for iTDS were prepared by using established ratios of iTDS/TDS for each segment.

<sup>7</sup> Forecast loads for TKN were prepared by using established ratios of TKN/TN for each segment.

For Category A, historical loads were calculated from the loads billed against customers (the billable loads are determined using the best available data source including customer composite sampling, our own sampling data and established industry average data). The forecast was prepared by projecting forward the trend of historical loads using a curve of best fit.

#### **7.3.12 RDI and GWI loads**

For both RDI and GWI the volume forecasts were multiplied by established contaminant concentrations for both RDI and GWI to determine loads.

#### **7.3.13 Unaccounted load**

As with sewage volume assessment, to establish unaccounted load it is necessary to perform a system wide mass balance over the entire WTP catchment (which includes inputs from all three Metro Melbourne water retailers). This last system wide mass balance was performed in 2009-10. In later years, including forecast years, the unallocated load is the proportion of the total load as determined in the 2009-10 system wide mass balance.

## 8 Prices and tariff structures

### Key points

- The majority of our tariff structures remain unchanged in this Water Plan
- Water prices will increase more than sewerage as a result of significant bulk water cost increases
- We are amending two of our trade waste parameters
- We will introduce a connection based charging regime for multi unit tenements. This will be phased in over the Water Plan and will not apply to public housing dwellings
- We will be adjusting our assumptions with regard to the sewage disposal charge
- While a new framework for developer charges is being finalised, this Water Plan calculates developer charges based on the proposed ESC framework. Updated charges based on the new framework will be provided to the ESC in December 2012
- Prices will be adjusted each year using the individual price cap approach

### 8.1 Prices

Tariffs have been set in accordance with the Water Industry Regulatory Order (WIRO) principles. Any new proposal for changes to the tariff structure has been accompanied with transition strategies to address customer impacts. In developing our tariffs we have consulted our Customer Liaison Committee and conducted market research to understand customers' preferences in relation to water and sewerage pricing options.

#### 8.1.1 Schedule of prices

Table 8-1 details prices across all services for 2012-13 and for the period 2013-14 to 2017-18. These prices are in 2012-13 dollars and do not include CPI.

Table 8-1:

Schedule of prices from 1 July 2013

Services	P <sub>0</sub>	2012-13	2013-14	2014-15 to 2017-18
<b>Residential water charges</b>				
Service charge	47.5%	\$170.40	\$251.42	
Variable charge (per kL)				
Tier 1	47.5%	\$1.79	\$2.63	
Tier 2	47.5%	\$2.10	\$3.09	
Tier 3	47.5%	\$3.10	\$4.57	
<b>Residential sewage charges</b>				
Service charge	10.0%	\$217.16	\$238.88	
Variable charge (per kL)	5.0%	\$1.74	\$1.82	
<b>Non-residential water charges</b>				
Service charge	47.5%	\$248.20	\$366.21	
Variable charge (per kL)	47.5%	\$1.98	\$2.92	
<b>Non-residential sewerage charges</b>				
Service charge	10%	\$383.52	\$421.87	
Variable charge (per kL)	5.0%	\$1.69	\$1.78	
<b>Trade Waste Charges</b>				
Volume (per kL)	5.0%	\$0.87	\$0.91	
BOD (per kg)	5.0%	\$0.87	\$0.91	
SS (per kg)	5.0%	\$0.47	\$0.49	
TKN (per kg)	5.0%	\$1.67	\$1.75	
iTDS (per kg)	5.0%	\$0.02	\$0.02	
<b>Common water charges</b>				
Service charge	NA	NA	\$251.42	
Variable charge (per kL)	NA	NA	\$2.84	
<b>Common sewerage charges</b>				
Service charge	NA	NA	\$238.88	
Variable charge (per kL)	NA	NA	\$1.82	
<b>Recycled Water Charges</b>				
Residential service charge	47.5%	\$21.76	\$32.11	
Residential variable charge (per kL)	47.5%	\$1.79	\$2.63	
Non-residential variable charge (per kL)	67.2%	\$1.49	\$2.49	

No price increases for the period 2014-15 to 2017-18, except CPI price adjustments

### 8.1.2 Customer impacts

The impacts from our proposed tariffs over the third water period on residential customers are found in the table below, classified by consumption. We have calculated the bill

impacts for low, average and high water users. Our proposed price increase in 2013-14 will see the average household bill increase by around \$270, taking it from \$798 to \$1,068 (assuming consumption of 145kL per annum).

Table 8-2:

#### Bill impact scenarios by usage

Customer	Low user	Average user	High user
Annual consumption (kL)	75	145	300
2012-13 annual bill (\$)	\$599.17	\$797.55	\$1285.72
2013-14 annual bill (\$)	\$788.42	\$1067.97	\$1759.12
Bill difference (\$)	\$189.25	\$270.42	\$473.40
Bill difference (%)	31.6%	33.9%	36.8%

### 8.1.3 Providing support to customers in financial difficulties

We recognise that water and sewerage services are an essential service for our customers. While we need to increase our prices, we also recognise that it is important to assist customers who may be experiencing financial hardship. The Victorian Government and City West Water provide a range of services aimed at assisting low income customers to pay their water bills. These include:

1. Water and sewerage concession: the Victorian Government provides assistance to residential water and sewerage customers who hold a:

- Centrelink Pensioner Concession Card
- Department of Veterans' Affairs Pensioner Concession Card
- Centrelink Health Care Card
- Department of Veterans' Affairs Gold Card

Concessions provide a 50 per cent discount off water and sewerage charges up to an annual maximum. For 2012-13 the maximum is \$277.04. Customers who are billed for a single service, such as, water, receive 50 per cent off water charges up to a maximum of \$138.52.

2. Utility Relief Grant Scheme (URGS): the Victorian Government provides assistance for domestic households who are unable to pay their utility bills due to a temporary financial crisis.

More information about services available for low income Victorians is available from the Department of Human Services at [www.dhs.vic.gov.au](http://www.dhs.vic.gov.au).

3. Our hardship assistance program: we provide hardship assistance including flexible payment options and tailored assistance programs to our customers who are experiencing difficulties paying their bills.

### 8.1.4 Adjusting prices if water is ordered from the desalination plant (D Factor)

The costs associated with the Wonthaggi desalination plant are separated into an annual security payment and a payment based on how much water is needed from the plant in any year. The bill increase of 33.9 per cent in 2013-14 and zero per cent thereafter includes the annual security payment only.

If water is ordered from the desalination plant, prices will be adjusted each year that water is ordered, depending on how much water is ordered. By 1 April of each year, the Government will place an order with the plant's operator Aquasure for the following financial year. The order can be for zero, 50, 75, 100, 125 or 150 GL. The prices for that year will include the payment associated with that order.

In terms of magnitude, the amount charged to customers for the water ordered from the desalination plant will be between an additional \$10 per household bill for an order of 50 GL, up to an additional \$45 for an order of 150 GL (annual basis). If no water is ordered from the plant, then prices will remain unchanged.

**8.1.5 Miscellaneous charges**

We have calculated charges for all miscellaneous services based on the ESC principles of direct costs plus a fair allocation of overheads. Direct costs are third party costs, labour (including on costs) for staff directly involved, materials and transport, plus an overhead applied to the labour component only.

The table below shows the core miscellaneous services which are expected to generate about 80 per cent of all miscellaneous revenue. However all other miscellaneous charges will be set according to this same principle, and they are all explained in the Pricing Handbook on our website.

Table 8-3:

Core miscellaneous fees and charges

Service	2013-14	2014-15 to 2017-18
Information statement - electronic	16.05	1.6 per cent price increases for the period 2014-15 to 2017-18 in addition to CPI price adjustments
Information statement - standard	25.23	
Offer Fees - Works Offers >10 lots	2,090.60	
Acceptance Fees - Works Offers >10 lots	3,986.14	
New Water Connection - 20 mm	169.76	
New Water Connection and Assembly - 20mm	433.53	
Plumbing Application	77.18	
Plumbing Application – complex assessment	345.05	
Non core miscellaneous services	Actual Cost	

For the purpose of forecasting the revenue that will be generated from miscellaneous charges, total revenue has been increased by 1.6 per cent per annum. This reflects the expected real increase in labour costs, which is a primary cost driver of miscellaneous services. In total, we expect to receive \$10.6 million in revenue from miscellaneous charges in 2013-14.

**8.2 Tariff structures**

The majority of tariff structures will continue in the next Water Plan. In reaching this position City West Water participated in a joint market research study with South East Water and Yarra Valley Water. The aim of the research was to understand customers’ preferences in relation to water and sewerage pricing options.

**8.2.1 Residential market research**

City West Water asked customers about their preferences for variable water and sewerage charges. Customers were asked to consider the following options:

- keep the current water tariff structure as it is (consisting of a three step inclining block tariff) or move to a two step inclining block or to a single variable charge only
- have a sewage disposal charge (SDC) that is simpler and easier to understand and that better reflects actual discharges to the sewerage service
- apply fixed charges to all tenements that have a water and sewerage service, regardless of whether they are separately titled (i.e. a connection based charge).

The research suggested a three step pricing structure was the preferred option for water tariffs; 42 per cent of all respondents selected this pricing approach over fewer steps. Others were fairly evenly divided between a two step (18 per cent) or a one-step option (22 per cent). The most common reasons for preferring a three step approach were that it encourages water saving, it is better for low users and rewards those who save water.



In relation to the SDC there was no strong preference for any of the options proposed however customers did demonstrate a preference for tariff options that are easier to understand. The options with the highest proportion of responses were to ‘apply a single average charge all year round’, or ‘keep the current approach’.

There was a fair level of support for connection based charges. Almost half of the respondents indicated that they strongly supported (25 per cent) or somewhat supported (24 per cent) the idea of introducing fixed service charges to dwellings not currently being charged the amount. Around one in five neither supported nor opposed the idea (20 per cent) and 22 per cent opposed the idea to some extent (8 per cent somewhat, 14 per cent strongly).

**8.2.2 Proposed changes to tariff structures**

For the third regulatory period, we are proposing changes to a number of tariff structures, in particular:

- Adjusting the assumptions with regard to residential SDC
- Amending two trade waste parameters relating to nitrogen and total TDS and removal of food waste charges
- Introducing a connection based charging regime for multi-unit dwellings which will be phased in over the Water Plan period and will not apply to public housing dwellings
- Increasing the non residential recycled variable price from 75 per cent to 85 per cent of the potable price.

**Residential sewage disposal charge**

For detached households, we are proposing to increase the estimated amount of sewage discharge from 65 to 75 per cent of all water consumed in the house.

Newer trends such as smaller backyards, people choosing plants that require less watering and consumers conserving more water have resulted in outdoor water use falling over the past 15 years. Current estimates indicate that only 25 per cent of water is used outside and therefore does not go to sewer, as opposed to the current 35 per cent assumption.

We are proposing to continue charging a two-part tariff for sewage disposal comprising a fixed and a volumetric charge. The volumetric charge will be based on the assumption that 75 per cent of water coming into a property is discharged into the sewerage system annually.

The annual 75 per cent discharge assumption is the product of two factors:

- A base discharge factor: Households using less than or equal to 125 kL per annum are assumed to have a fixed discharge factor of 0.9
- A seasonal factor: This factor varies in different months to reflect seasonal patterns of water use.

The following table shows the monthly discharge assumption (which reflects the volume of water coming into a property that is assumed to be discharged to sewer).

**Table 8-4:**

**Monthly sewage discharge profiles**

Month	% of water consumption discharged to sewer
January	69.0%
February	69.0%
March	76.9%
April	76.9%
May	83.3%
June	100.0%
July	100.0%
August	100.0%
September	90.9%
October	90.9%
November	71.4%
December	71.4%

**Trade waste**

We are proposing to modify quality load discharge parameters for Total Nitrogen (TN) and Total Dissolved Solids (TDS) and remove food waste disposal unit charges. This will simplify trade waste sampling requirements for both trade waste customers and City West Water.

At present we sample trade wastes for both Total Nitrogen and Total Kjeldahl Nitrogen parameters (TKN). TKN concentrations are used to determine compliance with standard TKN acceptance criteria, while TN concentrations are used for the purpose of pricing trade waste customers. Transitioning from TN to TKN will allow both compliance and pricing

assessments to be performed using a single analytical result which is faster, more reliable and cheaper to measure.

TKN and TN concentrations are similar in magnitude therefore customer bill impacts are immaterial.

The main driver for transitioning from TDS to inorganic TDS is to assist us to achieve our trade waste quality objectives. TDS is made up of both an inorganic and organic portion, the organic portion being treatable at existing waste water treatment plants. iTDS is not treatable at existing treatment plants and can therefore have an adverse impact on recycled water.

The transition from TDS to iTDS is consistent with ESC expectations that retailers review and amend their trade waste tariffs during the current regulatory period, including introducing charges for iTDS.

The key reason for removing food waste charges is simplicity. The application of the food charge is confusing to customers with the quantum of the tariff having been dependent upon the food waste unit/potato peeler size. In addition, very few customers have food waste disposal units installed with most food waste now disposed to compost and/or landfill.

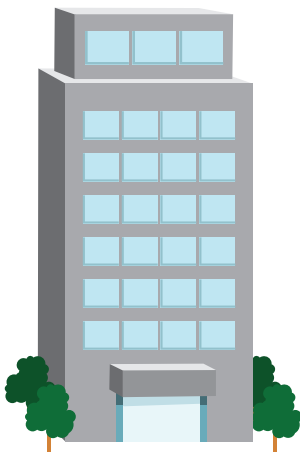
**Connection based charges**

Currently, two fixed charges apply to each title: one for the provision of water and one for sewerage services, regardless of the number of tenements (or residences/shops) on each title.

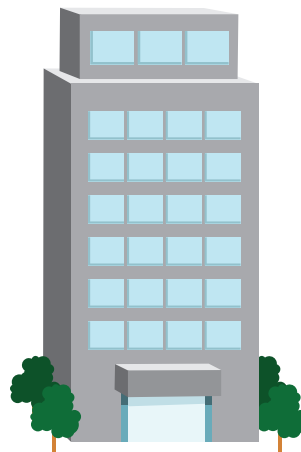
Service charges based only on ‘title’ result in multiple tenements on a single certificate of title (such as blocks of flats) only paying a single service charge, whereas tenements on separate titles each pay a service charge each.

We are proposing to calculate separate water and sewerage service charges for each tenement receiving a service rather than one service charge per title. To minimise the impact for those customers who currently do not incur the service charge we are planning to introduce the full charge over two years commencing 2014-15, at 50 per cent annual increments.

The proposed change will be fairer and will ensure that the charges are consistently applied to all our customers. These proposed changes will not apply to Department of Human Services dwellings (i.e. public housing).



**36 apartments all on one certificate of title  
One water and one sewerage service charge**



**36 apartments each on individual certificates of title  
36 water and 36 sewerage service charges**

### Common water tariff

City West Water has numerous situations where multiple customers are served by a single meter. This includes situations where both residential and commercial properties are served by the one meter. In other cases, residential apartments are separately metered but share a common hot water service linked to a single meter.

Where multiple customers are supplied by a single meter, City West Water applies the residential consumption tiers on a pro-rata basis. Whilst this approach is reasonable for most multi customer groupings, there are circumstances where this approach is unreasonable and it is difficult for City West Water to pro-rate consumption fairly or even determine which tariff the customer should be charged (e.g. residual water where both residential and commercial properties are served by the one meter.)

In these situations, City West Water proposes to charge a common water tariff, set at the weighted average price of the 3 residential tiers. The proposed common water tariff will be fairer and will align the pricing assumptions for multiple customers served by a single meter with those that apply to customer served by an individual meter.

### Recycled water

The non residential recycled water variable price will increase from 75 to 85 per cent of the non residential potable water price. The reason for this change is to recover more of the cost of providing recycled water. Setting the charge at 85 per cent of the potable price for water will continue to provide an incentive for non residential customers to seek to use recycled water rather than potable water where they can.

This proposal is consistent with ESC pricing principles that require recycled water tariffs to cover the full cost of providing the service.

## 8.3 Developer charges

Developer charges (or new customer contributions) are levied on developers for the provision of new connections to our water, sewerage and recycled water networks.

### 8.3.1 ESC review

The ESC has conducted a review of the current developer charges regime and has issued a guidance paper proposing significant changes to apply from 1 July 2013<sup>8</sup>. The major changes include a move away from the state-wide charging regime to a new pricing principles-based approach supported by a negotiation framework.

City West Water has participated in the review and has consulted with the development industry and the ESC through Vic Water-facilitated working groups. Included in this Water Plan is our preliminary developer charges proposal with an indicative standard charge and transition path. We will consult further with the development industry on this proposal and indicative charge and, consistent with the ESC's guidance, will confirm our proposed developer charges in December 2012.

### 8.3.2 City West Water Preliminary Proposal

Our proposal for the third regulatory period is comprised of three components:

- Standard developer charge. We propose a single standard developer charge that will apply to all lots connecting to City West Water's assets in the urban growth ("greenfield") zone. This charge will be determined using the ESC's NCC estimator<sup>9</sup> and according to the pricing principles outlined in the ESC guidance paper – namely having regard to both the incremental costs and benefits of connecting new customers. We are not proposing a standard developer charge for lots connecting in "brownfield" areas.

Our indicative standard charge has been determined at \$6,500 per lot but will be subject to a transition plan, discussed below.

- Non standard developer charges methodology. We will assess non standard development applications on a case-by-case basis using the ESC's NCC estimator and pricing principles to determine a development-specific contribution. "Non standard" developments may include out-of-sequence developments in the urban growth zone or developments in the brownfield zone that require significant City West Water funded infrastructure works (e.g. new or upgraded infrastructure).

<sup>8</sup> ESC 2012, Guidance Paper – New Customer Contributions, 21 August 2012

<sup>9</sup> ESC 2012, New Customer Contributions – Estimator, 21 August 2012

- Negotiating framework. Our negotiating framework will be based on the sample negotiating framework attached to the ESC Guidance Paper. We expect the framework to be applied to negotiations involving non standard development applications and to disputes arising from the application of our standard developer charge. The negotiating framework will explain connection applicants' rights and obligations, our service charging model, applicable pricing principles, the negotiating process and recourse to arbitration.

### 8.3.3 Transition plan

Our indicative charge for the third regulatory period, at \$6,500 is materially higher than the charges in place for the small lots (<450m<sup>2</sup>) in the second regulatory period. Accordingly, we propose to transition to the new regime using the 5 year glide path approach as shown in the table below.

Table 8-5:

Current developer charges and transition to new regime charges (\$2013R)

Year	12-13			13-14	14-15	15-16	16-17	17-18
	<450m <sup>2</sup>	450-1350m <sup>2</sup>	>1350m <sup>2</sup>	All	All	All	All	All
Standard service	\$1,216	\$2,434	\$4,868	\$3,300	\$4,300	\$5,300	\$5,900	\$6,500
Dual pipe service	\$1,520	\$3,042	\$6,085					

### 8.3.4 Next steps

We will confirm our developer charges proposal in December 2012, in line with the ESC's August Guidance Paper. This will allow us additional time to refine our proposal and to consult with the development industry. As suggested in the Guidance Paper, in December, we propose to confirm the following:

- revised developer charges revenue forecasts based on the new framework
- revised standard charge(s) and evidence of their compliance with regime pricing principles
- a final negotiating framework
- revised transition plan
- an update on our negotiations with the development industry.

### 8.4 Form of price control

City West Water proposes to retain the same form of price control as has applied in the current pricing period, i.e. individual price caps with the option to apply during the regulatory period to move to a tariff basket approach. As previously agreed with the ESC, this form of price control balances the needs of our business for revenue certainty and customers for price certainty.





City West Water

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