

2016 Price Submission

30 October 2015





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Executive Summary



Melbourne Water's overarching goal is to provide our customers with the best possible services at a fair price.

Over the last decade we have invested significantly to meet the needs of a growing city and a changing climate. This investment has delivered benefits but has also increased water bills and added to customers' cost of living concerns.

Our focus for the next five years is to operate as efficiently as possible while maintaining our commitment to quality. As a result, this *2016 Price Submission* (covering the regulatory period 2016/17 to 2020/21) spells out our proposal to reduce wholesale water and sewerage charges by 9.2% (before inflation), and then to broadly increase prices in line with inflation only. Residential and rural Waterways and Drainage Charges will also only increase with inflation.

The proposed decrease in wholesale water and sewerage charges will retain Melbourne Water's contribution to the \$100 Government Water Rebate already being paid to residential customers and deliver a further reduction of around \$20 per year (before inflation is added) to an average customer's bill. This decrease in customer bills will be achieved while ensuring:

- The quality of Melbourne's drinking water remains amongst the best in the world
- Water supplies are resilient to the effects of climate change, bushfires and other extreme events
- The sewage disposal needs of a growing city continue to be managed in a safe and sustainable way.

The following waterways and drainage services will be delivered while holding bills constant before inflation for residential and rural customers:

- Our man-made and natural assets are maintained and renewed so that we continue to meet the 'standards of service' expectations of our customers
- The health of the 8,400km of rivers and creeks in our region is protected and their contribution to the liveability of our city is improved
- Management and protection from flooding is improved
- Customers and the community have their say about the services we provide and contribute to their delivery through, for example, engagement, education and grants programs.

This *2016 Price Submission* responds to customer feedback on how we charge for wholesale water, sewerage and waterway and drainage services.

The submission responds to the detailed requirements set out in the Essential Services Commission's (ESC) guidance paper, *Melbourne Water 2016 Price Review* –

Guidance Paper. Appendix 1 provides reconciliation against the ESC's detailed requirements. Part A of this submission provides an overview of Melbourne Water's standards of service, expenditures and financial outcomes. Part B provides more detail in relation to individual services. As per the guidance, all dollars are provided in real dollars with a base year of 2015/16.

A separate, customer friendly *2016 Price Submission at a glance* document provides a summary of the information contained in this submission.

Consulting on our service outcomes and prices

Melbourne Water implemented a wide-ranging consultation program in preparing the *2016 Price Submission*. This program covered the service outcomes we provide, our forecast expenditure and the prices we charge and included:

- Independently run research forums and quantitative surveys involving more than 2,000 households and businesses
- Provision of a public *Consultation Paper*, facts sheets and a dedicated website which received 3,324 visitors
- Advertising in major daily newspapers and social media calling for feedback in writing, online or via telephone
- Meetings, workshops and written correspondence with customers, community groups, industry bodies, government and regulatory agencies
- Receipt of written submissions on the *Consultation Paper* and supporting strategies.

Melbourne Water used this consultation process to ensure that customer priorities and regulatory requirements were clear and reflected in the standards of service, performance metrics, expenditures and prices we plan to use to fund our planned expenditures.

Consultation confirmed that many of the standards of service currently provided to local water utilities and the broader community were well understood and accepted. Therefore much of our planned expenditure for the *2016 Price Submission* is to maintain existing standards of service for a growing community while continuing to meet existing regulatory requirements.

Changes have been made to the timing and scope of some planned wholesale water and sewerage expenditures following feedback from local water utilities to better manage total costs and service quality for households and businesses.

Detailed quantitative research has confirmed community support for the existing level of waterways and drainage services, while refinements have been made to the mix of services to better reflect community priorities. Community support has also been obtained for renewable energy.

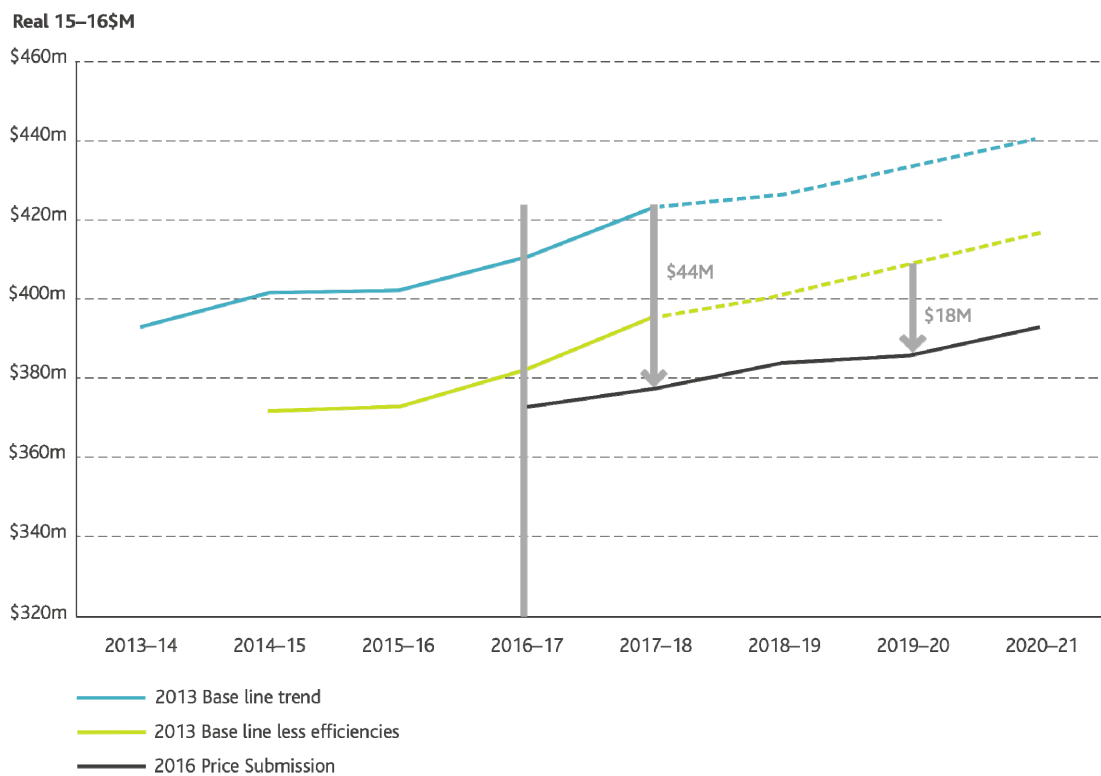
Reviewing our expenditure

In response to customer cost of living concerns, Melbourne Water has completed a number of significant reviews of its cost base since the ESC last set prices.

These reviews have seen Melbourne Water pass on savings of over \$200M on to customers over 2014/15 and 2015/16 via the Government Water Rebate. Achieving these savings has seen Melbourne Water challenge every dollar spent, review business processes and procurement arrangements and prioritise activity while still delivering on expected service outcomes.

Melbourne Water has continued to pursue cost-reduction opportunities resulting in further efficiencies being included in this *2016 Price Submission*. Taking into account uncontrollable costs (such as land tax), customer-supported initiatives (such as renewable energy) and new obligations associated with reducing pollution in waterways, Melbourne Water has significantly reduced operating costs compared to previous levels (Figure 1) and meets the 2% efficiency hurdle included in the ESC's guidance paper (see Table 1).

Figure 1: Changes in operating costs¹



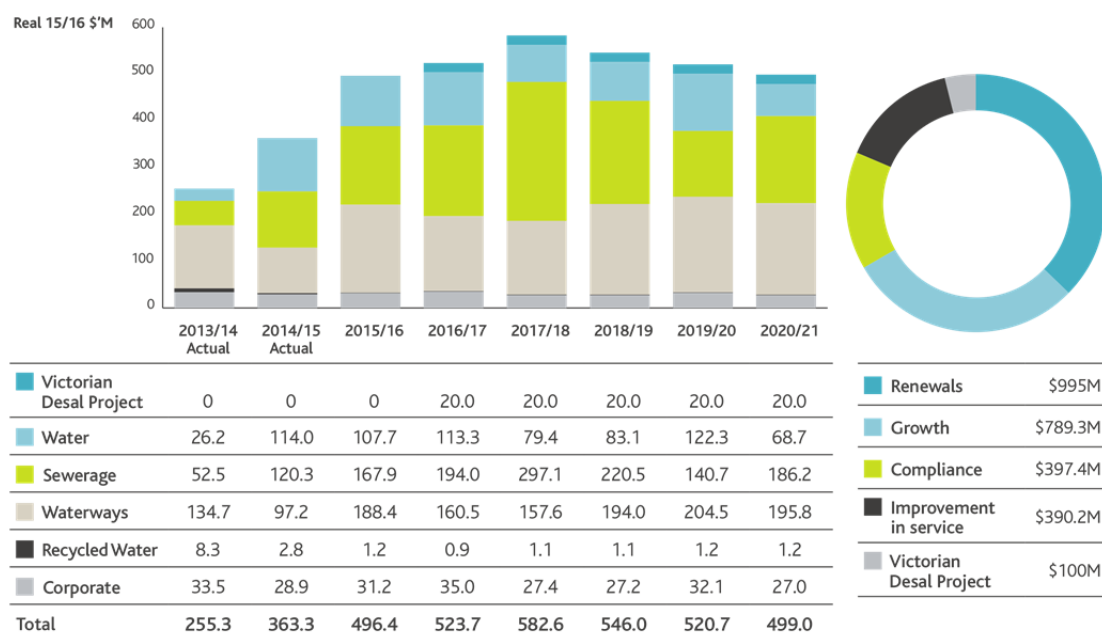
¹ Excluding Victorian Desalination Project payments

Table 1: Operating expenditure summary (2015/16 Real Dollars)

\$M	2016/17	2017/18	2018/19	2019/20	2020/21
Operating Expenditure	945.3	941.3	944.0	934.8	925.3
<i>Less uncontrollable costs</i>	<i>596.6</i>	<i>588.3</i>	<i>584.6</i>	<i>573.2</i>	<i>557.4</i>
Sub-total	348.6	352.9	359.4	361.6	367.9
<i>Less new obligations</i>	<i>12.9</i>	<i>13.6</i>	<i>14.4</i>	<i>14.8</i>	<i>15.2</i>
Total Base Expenditure	335.7	339.4	345.0	346.8	352.7
Hurdle Requirement (2%)	345.1	344.4	343.7	343.0	342.3
<i>Difference</i>	<i>9.4</i>	<i>5.0</i>	<i>-1.3</i>	<i>-3.7</i>	<i>-10.4</i>

Over the 2013 regulatory period, the focus of Melbourne Water’s capital expenditure (particularly for water and sewerage) shifted away from significant investment in growth assets towards renewal of ageing assets to ensure service continuity (see Figure 2).

Figure 2: Capital expenditure drivers (5-year total)



Total expenditure, while higher than in recent years, is significantly below previous peaks of over \$1B per annum during the Millennium Drought. Overall expenditure levels for each service remains relatively consistent with the 2013 regulatory period benchmarks, with the exception of sewerage services which have increased primarily due to growth and renewals-related projects at the Western Treatment Plant (WTP).

Revenue needed to fund efficient service delivery

The revenue needed to fund Melbourne Water’s service delivery takes into account proposed expenditures as well as an allowance for tax and financing of the investment program. The allowance for financing is calculated through the application of a Weighted Average Cost of Capital (WACC).

Funding the cost of the Victorian Desalination Project (VDP) is the largest single component of Melbourne Water’s required revenue. Following consultation with community groups, wholesale water customers and research undertaken with

households and businesses, Melbourne Water proposes to spread out a proportion of the contracted payments, totalling \$100M, over the 2016 regulatory period. This approach:

- Provides further bill relief (in addition to savings identified elsewhere in the *2016 Price Submission*) for customers at a time where affordability is a significant issue for customers
- Acknowledges the views of consumer groups and local water utilities in relation to the principle of aligning the cost of the VDP with the benefits. This also provides a more efficient price signal for providing this service
- Does not impose significant interest costs for future customers which was a concern raised by many community research participants
- Will ensure the issue is considered in the next regulatory period.

Melbourne Water is proposing a change to the methodology for calculating the WACC which will provide more stable prices for customers over the long term and promote efficient financing of Melbourne Water’s debt.

Table 2 shows Melbourne Water’s revenue requirement for the 2016 regulatory period.

Table 2: Revenue Requirement (2015/16 Real Dollars)

\$M	2016/17	2017/18	2019/20	2020/21	2021/22
Revenue Requirement	1,562.2	1,578.6	1,590.4	1,573.4	1,564.6

How we set our prices

The Water Industry Regulatory Order (WIRO) sets out matters that must be taken into account when setting prices. Melbourne Water considers the proposed prices set out below comply with the WIRO principles while managing customer price impacts and promoting cost reflectivity over the 2016 regulatory period.

A summary of the impacts the proposed price changes will have on customers is provided below. Prices for each of Melbourne Water’s core services are provided in Part B while a complete list of proposed tariffs is included in Appendix 2.

Prices

Wholesale water and sewerage services

Overall Melbourne Water’s wholesale water and sewerage prices are expected to fall by 9.2% (before inflation is added) on average in 2016/17 and then remain close to inflation over the remainder of the 2016 regulatory period. A significant proportion of this price reduction will go towards meeting Melbourne Water’s commitments to the Government Water Rebate. Melbourne Water has committed to providing savings to local water utilities of \$73.6M in 2016/17 and \$68.9M in 2017/18 which help fund the \$100 rebate currently paid to residential customers. The proposed prices extend these savings for the full five years of the 2016 regulatory period. In addition to this

the proposed price reduction is also expected to allow for a small additional reduction on water and sewerage bills which for an average residential customer would be around \$20 per year (before inflation is added).

Melbourne Water is proposing to change its current pricing structure for water headworks during the 2016 regulatory period to reflect recent wholesale customer feedback and bulk water entitlement reforms, and to apply a single, fully variable water transfer price.

Based on customer consultation, Melbourne Water is also proposing to change its current pricing structure for wholesale sewerage services during the 2016 regulatory period. We are proposing to separate the current charges into sewage treatment and transfer volume prices that reflect long run marginal costs and short run marginal costs respectively. A fixed dollar per month service charge will be retained.

Waterways and Drainage Charge

Melbourne Water is proposing to reform its non-residential Waterways and Drainage Charge by transitioning the majority of non-residential customers to a flat charge over the next five years.

Under this proposal, all but the largest 50 non-residential customers will move to a flat charge consistent with the tariff structure for residential customers. The flat charge is proposed to be set at 1.5 times the residential charge, as non-residential customers create on average 1.5 times more run-off than residential customers. For these customers, the maximum price increase will be around \$7 or 5.5% plus inflation per year.

The top 50 revenue paying customers will transition towards a 'polluter pays' impervious surface area-- based charge, which will be governed by pricing principles, under a revenue cap arrangement. This approach will provide flexibility when implementing the planned reforms and, if cost effective, could be extended to other customers in the future. Some customers will experience price decreases, others price increases which will be capped at +/- 5% plus inflation per year.

It is proposed that the Waterways and Drainage Charge for residential and rural customers will increase only with inflation over the same period (Table 3).

Table 3: Proposed changes to the Waterways and Drainage Charge for residential and non-residential customers (2015/16 Real Dollars)

	2016/17	2017/18	2019/20	2020/21	2021/22
Residential price	\$95.58	\$95.58	\$95.58	\$95.58	\$95.58
Rural price	\$52.52	\$52.52	\$52.52	\$52.52	\$52.52
Non-residential minimum	\$115.90	\$122.23	\$128.91	\$135.95	\$143.37
Non-residential (rate in \$NAV)	0.8533¢	0.6227¢	0.4544¢	0.3316¢	0¢
Property impact charge	Price established through pricing principles				

PART A – OVERVIEW



Introduction

Melbourne Water's overarching goal is to provide our customers with the best possible services at a fair price.

Melbourne Water is the wholesaler of water, sewage treatment and recycled water for greater Melbourne. Our charges for these services are paid by local water utilities who provide water and sewerage services to homes and businesses. Melbourne Water's wholesale water and sewerage charges contribute to over half of the average household water and sewerage costs.

Melbourne Water also has responsibilities for waterway health, flood protection, stormwater management and land development in the Port Phillip and Westernport region, an area of some 12,800km² which stretches across greater Melbourne. These services are paid for by households and businesses through the Waterways and Drainage Charge, which is itemised on water bills.

This *2016 Price Submission* outlines our proposed standards of service, expenditure and prices over the next five years. It has been developed in line with the requirements of the Essential Services Commission's (ESC) guidance – *Melbourne Water 2016 Price Review – Guidance Paper*. Appendix 1 provides reconciliation against the ESC's detailed requirements. The ultimate outcome of the price submission process will be the prices Melbourne Water applies over the next five years. Appendix 2 provides an overview of the prices Melbourne Water proposes to charge.

Regulated services

Melbourne Water's services, which are regulated by the ESC, are outlined below. These are consistent with Clause 7(b) of the Water Industry Regulatory Order, and include²:

- Storage operator and bulk water services
- Bulk sewerage services
- Bulk recycled water services
- Metropolitan waterways and drainage services
- Services to which developer charges apply
- Diversion services.

Appendix 3 includes a summary of the proposed service outcomes for each of the regulated services and whether this reflects a government obligation or customer need. Key obligations are also listed in Appendix 3. A detailed list of obligations and how they relate to each of Melbourne Water's services can be provided separately to the ESC. Following wholesale water and sewerage customer consultation, service outcomes for wholesale water, sewerage and recycled water services remain as per

² Storage operator and bulk water services are referred to in this document as 'wholesale water services', bulk sewerage services are referred to as 'wholesale sewerage services' and bulk recycled water services are referred to as 'wholesale recycled water services', consistent with the language used by our customers. 'Waterways and drainage services' in this document include metropolitan waterways and drainage services, services to which developer charges apply, and diversion services

the status quo. For these services, consistent with ESC guidance, a detailed outline of the service outcomes is not provided. Key Performance Indicators listed in Appendix 4 are provided to measure performance against service outcomes. These are largely consistent with those adopted in the 2013 regulatory period.

Detailed quantitative research has confirmed broad community support for the existing level of waterways and drainage services, while refinements have been made to the mix of services to better reflect community priorities. The service has been split into six 'program areas' which together form our overall service outcomes. More detail on service outcomes and customer willingness to pay for waterways and drainage services is provided in Part B of this submission, along with the standards of service expected. It should be noted that services relating to developer charges and diversion services form part of the Waterways and Drainage section (see page 67).

Melbourne Water continues to see merit in using a 'building block' approach when establishing its projected revenue requirement and is seeking a five-year determination from the ESC on its *2016 Price Submission*.

This *2016 Price Submission* is divided into two parts:

- Part A - Overview: covers how we have delivered on our *2013 Water Plan* commitments, our consultation program for the *2016 Price Submission* and our whole of business focus in terms of operating and capital expenditure, and revenue requirements.
- Part B - Services and Prices: outlines standards of service, forecast demand for each of our core services as well as our proposed operating and capital expenditure (including key projects) and any proposed changes to our price structures and pricing principles for each core service. It also outlines our approach to meeting the cost of the VDP.

Delivering on our 2013 Water Plan commitments

Melbourne Water has delivered on a wide range of commitments outlined in its *2013 Water Plan*. While doing so, we have undertaken a significant efficiency program which has lowered our costs and contributed to savings at household levels.

Service outcomes

Since the release of the *2013 Water Plan*, Melbourne Water has met or exceeded the vast majority of its key performance indicators for bulk water, sewerage and recycled water services. However, for some targets, performance has been below target levels.

For example, at the WTP in 2014/15 the EPA Victoria licence requirement for median ammonia levels was not met (12 milligrams of ammonia was recorded as opposed to the EPA Victoria licence requirement of 10 milligrams). Projects are currently being delivered to ensure future compliance.

Our customers and stakeholders consistently report that Melbourne Water's work to maintain and improve waterways and drainage assets, including reducing sediment and nutrient pollution and improving in-stream habitat and channel stability, has been instrumental in protecting water quality in Port Phillip and Western Port bays.

Key stakeholders, such as the Port Phillip and Westernport Catchment Management Authority (PPWCMA), have praised Melbourne Water's waterways and drainage services and *Healthy Waterways Strategy* which they say are vital for the overall health and resilience of metropolitan Melbourne's regional environment.

Our waterways and drainage services are also performing well against target. Key customers and stakeholders report they are:

- Achieving high levels of implementation against their goals
- Achieving efficiencies through leveraging and collaboration
- Delivering significant and lasting improvements in the environmental, social and economic values of the region's waterways
- Providing leadership to help the region's environmental managers.

Melbourne Water is continually looking for new ways to ensure we are meeting regulatory and customer requirements for the services we provide. The significant proposed expenditure at WTP over the 2016 regulatory period, for example, is designed to ensure all regulatory and licence requirements are met (see page 60 for more detail on this).

Achieving efficiency savings

Operating expenditure

During 2013/14, Melbourne Water undertook an enterprise-wide review of business operations and processes and established a new business and operating model to drive efficiency, the outcomes of which enabled Melbourne Water to commit to operating expenditure efficiencies totalling \$114.2M over the four years from 2014/15

to 2017/18 as part of the 2014 efficiency review. In 2014/15, this represented \$29.4M from the determination expenditure benchmark of \$401.4M (excluding VDP costs). Further efficiencies of \$5.8M resulted in total actual operating expenditure in 2014/15 of \$366.2M. This figure, adjusted for other uncontrollable costs, is used in the calculation of the ESC's productivity hurdle (see page 24) as there have been no significant one-off expenditures in this total. Table 4 shows the actual/forecast expenditure over the three year regulatory period compared with the *2013 Water Plan*.

The majority of the savings (approximately \$32M net of escalations) come from business improvement activities in external service costs, such as new approaches to maintenance. For example, Melbourne Water has optimised the way we maintain assets through the provision of better data from investment in asset management systems. There has been more in-sourcing with less reliance on external advisors or contract labour by focusing on the capability of internal employees. Procurement activities have generated approximately \$3M of efficiencies, including the creation of technical services and temporary labour panels, 'quick win' projects to reduce prices from suppliers and the renegotiation of existing contracts.

Table 4: Projected versus actual direct operating expenditure over 2013 regulatory period excluding VDP costs (2015/16 Real Dollars)

\$M	2013/14	2014/15	2015/16	Total
2013 Water Plan	393.4	401.4	402.4	1,197.2
Actual	385.3	366.2		
Forecast			369.3	1,120.8
<i>Difference</i>	<i>-8.1</i>	<i>-35.2</i>	<i>-33.1</i>	<i>-76.4</i>

The allocation of savings to the major services are as per Table 5.

Table 5: Service areas savings from the 2014 efficiency review

Service	Allocation
Water	43.0%
Sewerage	11.1%
Waterways and Drainage	38.7%
Recycled Water	7.2%

Capital expenditure

Melbourne Water is forecast to spend less on its capital expenditure program over the 2013 regulatory period than it originally anticipated. The capital works program for this period was planned for a 5-year implementation. Table 6 provides the actual and forecast capital expenditure of this 5-year period.

Table 6: Projected versus actual capital expenditure over 2013 regulatory period (2015/16 Real Dollars)³

\$M	2013/14	2014/15	2015/16	2016/17	2017/18	Total
2013 Water Plan	548.1	575.9	534.0	517.0	408.7	2,583.7
Actual	255.3	363.3				
Forecast			496.4	503.7	562.6	2,181.3
<i>Difference</i>	-292.8	-212.6	-37.6	-13.3	153.9	-402.4

The variance of capital expenditure (\$402.4M) over the 5-year 2013 regulatory period is due to a number of key factors:

Savings identified in capital projects (\$231.4M) driven by:

- A sharp downturn in construction market conditions leading to very competitive tendered prices
- Whole of business focus on achieving an internal 10% savings target formalised through the 2014 efficiency review
- Careful examination of value engineering and scope optimisation at a project by project level.

Managed re-profiling of investments (\$160M) including:

- IT expenditure due to the *Digital Transformation Strategy* undertaking a significant review of original investment program
- Re-phasing of WTP Sludge Drying pans renewals – due to a review of the effect of completion on growth works over 2015
- Agreed customer re-phasing of Kenny Street Main pending review of demands following completion of Water for a Growing West
- Flood and Drainage projects - change following the customer’s request to cease construction of the identified option for the Hawthorn Main Drain following a change of Council
- Agreed customer re-phasing of Cranbourne 2nd Tank - until late in the 2016 regulatory period.

The remainder largely related to the delayed commencement of the delivery mechanism for major capital projects.

Melbourne Water considers the expenditures for the period 2012/13 to 2014/15 are prudent and efficient as the appropriate drivers, option assessments, risk, financial analysis and approvals were considered prior to commencing construction. Melbourne Water’s performance against major projects and a summary of expenditure by major service and driver for the 2013 regulatory period is provided in Appendix 5.

³ Expenditures exclude capital component of the VDP costs



Consulting with our customers

As part of developing this *2016 Price Submission*, Melbourne Water engaged early and meaningfully with local water utilities as well as a range of other consumers and stakeholders. This process was guided by Melbourne Water's Customer Engagement Plan.

Consultation with local water utilities

Since late 2014, Melbourne Water provided regular opportunities for local water utilities to meaningfully contribute to the development of our proposed prices, service outcomes and potential reforms. Meetings were held separately with Yarra Valley Water, South East Water, City West Water and Western Water to understand individual priorities and expectations. Regular joint workshops and meetings were then used to progress key issues and potential options for reforms. Examples of changes made in response to this feedback include re-profiling and changing expenditure priorities are shown on page 38.

Consultation with consumers

Consultation with consumer advocacy groups and industry groups started in February 2015 to identify key issues and priorities for consumers. Briefings were held with the Consumer Utilities Advocacy Centre (CUAC), Victorian Council of Social Services (VCOSS), Consumer Action Law Centre (CALC), Council on the Ageing, Brotherhood of St Laurence, Good Shepherd and the Australian Industry Group. Information was also shared with VicWater and Victorian Employers' Chamber of Commerce and Industry.

Melbourne Water used the feedback provided to design and test our public consultation approach and ensure the materials presented were easy to understand, reflected a range of priorities and impacts and were free from any perceived bias. Careful consideration was given to the ESC's *Melbourne Water 2016 Price Review – Guidance Paper* and feedback from CUAC and its report *Meaningful and Genuine Engagement: Perspectives from consumer advocates* (November 2013). Key consultation activities are outlined below.

Consultation Paper

A *Consultation Paper* covering key aspects of our proposed prices, services and potential reforms was released for public consultation for six weeks in June and July 2015. The consultation period was promoted through the media, advertisements in metropolitan newspapers and via social media. People were encouraged to provide written feedback or complete an online survey.

A total of 71 people completed the full online survey while 109 people completed shorter surveys on potential reforms. Submissions were received from CALC, CUAC, VCOSS (joint submission) and the Yarra Riverkeepers Association.

Deliberative research program

Melbourne Water also sought independent input through a comprehensive, deliberative research program. The key objectives of this research were to explore and determine customer preferences for two key and complex issues:

- How to collect the costs of the VDP (see page 51 for more information), and
- Reform options for the Waterways and Drainage Charge with a key focus on non-residential customers (see page 78 for more information).

Given, the complex nature of the issues, a detailed research program was undertaken. This included:

- A series of three deliberative-style forums with 122 consumers in mid-August 2015, each of which ran for four hours. One session was conducted in each of the three local water utility areas, each comprising roughly half residential consumers (segmented by financial vulnerability) and half non-residential consumers (segmented by levels of their Waterways and Drainage Charge). Participants were also invited to complete a short follow-up survey as part of evaluating the consultation
- A quantitative survey was subsequently conducted between 21 August and 9 September, with consumers from across Melbourne. This included 801 residential consumers who completed an online survey via an email invitation, and 180 non-residential consumers who were surveyed via telephone.

All participants were sourced via databases from the local water utilities comprising a random sample of their customers, with profile information included to help ensure a broad mix of consumers was included and that research findings accurately reflected the preferences of end-customers⁴.

The forums were independently facilitated and observed by local water utilities staff, ESC, CUAC, CALC and the Department of Environment, Land, Water and Planning (DELWP).

Waterways and drainage services

Melbourne Water has a strong history of targeted and authentic customer engagement to inform our waterways and drainage services. Central to this engagement program for the *2016 Price Submission* was a survey of over 1,000 customers testing community preferences for waterway outcomes and activities. Using a trade-off modelling exercise, Melbourne Water was able to investigate customer preferences more deeply in terms of the overall extent of investment in delivering waterway and flood protection outcomes, as well as the types of activities customers wanted Melbourne Water to invest in to achieve those outcomes.

The customer survey asked a statistically representative sample of Melburnians to make choices in relation to 18 current and/or potential activities, primarily in the category of community-driven services such as:

⁴ See Newgate Research: *2016 Price Review Deliberative Consultation Report*



FLOODING

- Providing information about flood risk
- Giving flood warnings
- Reducing the risk and impacts of floods
- Maintaining drains



WATERWAY CONDITION

- Reducing pollutant runoff
- Building and maintaining wetlands
- Cleaning up around waterways
- Maintaining biodiversity around waterways
- Improving aquatic habitat
- Renewing urban drain environments



LIVEABILITY

- Providing cycle and walking paths
- Providing sports and play grounds
- Providing green spaces for shade and cooling



OTHER

- Reducing erosion of waterway banks
- Working with landholders, farmers & the community
- Harvesting stormwater and rainwater
- Providing community education

An example of a choice put to participants was wetlands construction and maintenance, in Figure 3.

Figure 3: Sample customer survey question

Providing cycle and walking paths (2/18)

Melbourne currently has 186km of shared bicycle pathways on Melbourne Water's land and along waterways that have been built by councils and other agencies.



Please select one answer for each row

Please select one answer

<input checked="" type="radio"/> No funding for any further bicycle and walking paths 0 point(s)	<input type="radio"/> Support councils and other agencies by offering our land for a 5% increase in bicycle and walking paths along waterways and on Melbourne Water land 4 point(s)	<input type="radio"/> Expand the current bicycle and walking paths along waterways by 30% (56km) 9 point(s)	<input type="radio"/> Expand the current bicycle and walking paths along waterways by 100% (186km) 16 point(s)
<input checked="" type="radio"/> No investment in urban green spaces at all 0 point(s)	<input type="radio"/> Support councils and other agencies by offering 5 ha of our land for creation of green spaces across Melbourne for shade and cooling (equal to the size of 5 MCGs) 1 point(s)	<input type="radio"/> Invest directly in improving 30ha (equal to the size of 30 MCGs) of green spaces for shade and cooling across Melbourne 4 point(s)	<input type="radio"/> Invest directly in improving 100ha (or 3 times the Botanic Gardens) of green spaces for shade and cooling across Melbourne 11 point(s)

This work was supplemented by:

- Extensive consultation in development of the *Healthy Waterways Strategy* and the *Stormwater Strategy* in 2011 and 2012, and the *Draft Flood Management Strategy* in 2015. This included workshops with almost 700 people. More than 60 submissions were received for the waterways and stormwater draft strategies, and 32 submissions were received about flooding from community members, local government, state and federal government
- Consultation with key stakeholders via a Project Advisory Group, and

- A willingness-to-pay study conducted by La Trobe University investigating customer preferences for waterway outcomes.

This engagement indicated broad satisfaction with Melbourne Water's current level of investment, with a high proportion of respondents indicating a willingness to pay aligned with the existing Waterways and Drainage Charge.

Consultation with Direct Service Customers and stakeholders

Melbourne Water engaged directly with river water diverters and with residents in Patterson Lakes and the Koo Wee Rup-Longwarry Flood Protection District, who receive a higher level of waterways and drainage services. Meetings were held with advisory groups appointed to make recommendations in relation to standards of service and associated pricing models. This largely confirmed satisfaction with current standards of service.

Government departments and regulators were also consulted including the ESC, DELWP, the Department of Treasury and Finance, EPA Victoria and the Department of Health and Human Services (DHHS). This consultation has clarified expectations such as requirements for pollution response.

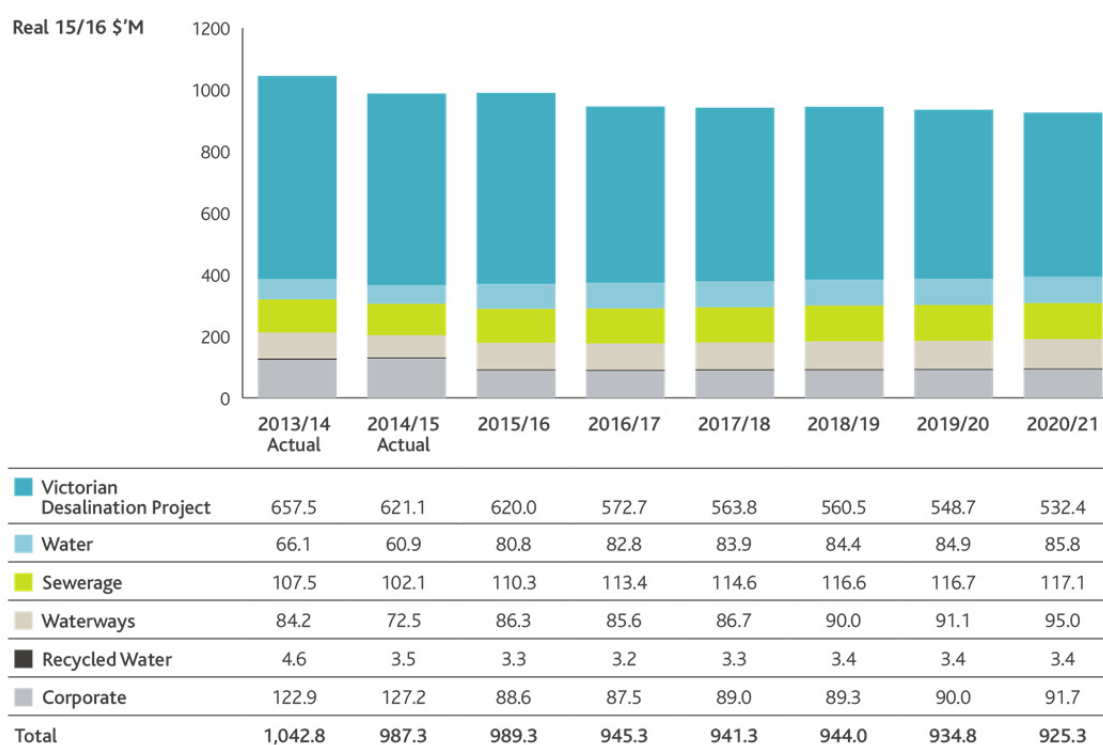
Planning our 2016 Price Submission expenditure

Operating expenditure

Operating expenditure summary

Melbourne Water's operating expenditure totals \$4,690.9M over the *2016 Price Submission* period, or \$938.2M per annum on average. Excluding VDP costs, average annual operating expenditure totals \$382.6M (see Figure 4).

Figure 4: Melbourne Water's operating expenditure (2015/16 Real Dollars)⁵



Approach and assumptions to forecasting operating expenditure

Total operating expenditure, in real terms, is forecast to continue to decrease over the 2016 regulatory period. As part of the preparation for this *2016 Price Submission*, Melbourne Water undertook a full review of all cost allocations, an outcome of which was that costs previously identified as being 'corporate' in nature were able to be more directly attributable to our services to accurately reflect their costs. This accounts for the variances seen in Figure 4 between 2014/15 and 2015/16.

Operating expenditure forecasts have been set based on business efficiencies identified as part of our efficiency review process in 2014. These efficiencies have been built into the forecasts with no operating expenditure growth allowed (in real terms), with the exception of escalations already built into contracts – mainly labour but also energy, accommodation and maintenance costs (which have varying

⁵ Actual Victorian Desalination Project expenditure incurred for the 2013-14 financial year was \$630.4M and for 2014-15 was \$613M in nominal terms

escalation clauses above CPI). Consideration has also been given to forecast growth, the impact of capital projects and the substitution possibilities between operating and capital expenditure (notably in the Information Technology space).

Melbourne Water's effort during 2014/15 to meet the financial obligations of the 2014 efficiency review saw a review of expenditure at every level of the organisation. This provided an opportunity to challenge the business to seek innovative alternatives and prioritise activity while still delivering expected standards of service. Efficiencies identified as sustainable were factored into the ongoing cost base of direct operating expenditure.

Since then we have built on this strong foundation to explore further cost-reduction opportunities, resulting in additional efficiencies post the initial 2014/15 savings. It is from this base that the operating expenditure forecasts for the *2016 Price Submission* have been derived.

Melbourne Water believes the operating expenditure presented in this *2016 Price Submission* demonstrates clear value for money as the concept of maximising the available benefits of every dollar spent was fundamental to its development:

- To ensure efficiency, all expenditures are carefully considered and prioritised
- The most cost effective options are selected to achieve objectives
- Explicit evaluation is made as to which potential providers are best placed to provide services
- All activities, both from an operating and capital perspective, are subjected to rigorous analysis
- Implementation is closely monitored to ensure adherence to plan, and programs, activities and projects are continuously reviewed and evaluated to ensure service outcomes are met.

Benchmarking

Melbourne Water regularly seeks to benchmark its activities against other water companies to promote continuous improvement and demonstrate efficiency and effectiveness in the delivery of customer standards of service.

Through collaboration with Seqwater, a Queensland-based wholesale water business, an opportunity for specific benchmarking of wholesale water supply assets was identified and developed. Overall this exercise has highlighted that Melbourne Water benchmarks favourably with similar wholesale water businesses. Melbourne Water is able to provide the ESC with a copy of this report on a confidential basis.

Melbourne Water is also participating in a Water Services Association of Australia (WSAA) benchmarking exercise with the results expected later in the year.

Labour

Melbourne Water is forecasting an average full-time equivalent (FTE) workforce of 901 over the 2016 regulatory period. Wage escalation is forecast at an average of 3.3% per annum (in nominal terms, or an average 0.7% per annum in real terms) consistent with Melbourne Water's enterprise agreement. Offsetting savings also formed part of the enterprise agreement including the implementation of a nine-day fortnight.

FTE projections for 2015/16 onwards are based on the current FTE position of Melbourne Water as at September 2015. The growth in FTE from 2013/14 is due to the in-housing of previously outsourced maintenance activity during mid-2015. This change was driven by an objective to improve safety outcomes and was also a better commercial outcome for Melbourne Water as FTE costs were less than the contracted expenses. The in-housing of maintenance staff took place in May 2014/15; the first full year of labour costs under this approach is reflected in 2015/16 as seen in Table 7.

During 2014 a thorough activity review across all business units led to a rationalisation of staffing requirements. An organisational effectiveness program in 2014 and 2015 saw the implementation of an early voluntary retirement scheme and a review of recruitment and labour capitalisation. This process ensured that staffing levels were optimised prior to the start of the 2016 regulatory period.

Table 7: Labour costs over the 2013 and 2016 regulatory periods (2015/16 Real Dollars)

	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21
FTE	812	899	901	901	901	901	901	901
Labour Costs (\$M)	104.9	107.4	113.0	112.2	113.3	114.2	115.2	116.3

Electricity costs

Melbourne Water generates renewable electricity (e.g. hydro-electric generation at a number of dams) and purchases additional electricity for use in its operations. To reduce its impact on climate change and help make its services more environmentally responsible, Melbourne Water has entered into an agreement to purchase a growing amount of energy from renewable sources. In 2016/17, Melbourne Water plans to obtain 75% of its additional electricity needs from renewable sources, stepping up to 85% in 2017/18, and 100% from 2018/19.

While acknowledging the difference between Melbourne Water's contracted energy rate and the current equivalent non-renewable energy market rate, this difference in energy costs has been subjected to customer testing. Melbourne Water notes its early leadership role with regard to the uptake of renewable energy to support the renewable energy industry and reduce its impact on climate change, in line with current Victorian Government objectives, such as those outlined in *Victoria's Renewable Energy Roadmap: Delivering jobs and a clean energy future*, released in August 2015. See Table 8.

Table 8: Electricity usage and costs (2015/16 Real Dollars)

\$M	2016/17	2017/18	2018/19	2019/20	2020/21
USAGE CHARGES					
Purchase Grid Electricity (MWh)	219,990	214,724	216,099	209,479	206,639
Total Cost (\$M)	30.8	31.2	33.2	32.2	31.8
Electricity Exported to Grid (MWh)	(18,084)	(17,378)	(16,421)	(16,417)	(16,413)
Total Income (\$M)	(2.5)	(2.5)	(2.5)	(2.5)	(2.5)
Net Purchased from Grid (MWh)	201,906	197,346	199,678	193,062	190,225
Net Cost (\$M)	28.3	28.7	30.7	29.7	29.3
Equivalent Non-Renewable Energy Market Rate (\$M)	13.5	13.7	14.3	14.5	14.5
<i>Difference (\$M)</i>	<i>14.8</i>	<i>15.0</i>	<i>16.4</i>	<i>15.2</i>	<i>14.7</i>
NETWORK CHARGES, SMALL SITES & OTHER (\$M)	13.1	14.3	14.9	16.0	16.5
TOTAL ELECTRICITY COSTS	41.3	43.1	45.7	45.7	45.7

Carbon tax repeal

Following the repeal of the carbon tax effective 1 July 2014, Melbourne Water returned the ESC approved carbon tax costs accrued over Quarter 1 of 2014/15 through a direct payment, and subsequently from Quarter 2, through price reduction. Overall water, sewerage and drainage prices decreased on average by 0.1%, 2.0% and 0.03% respectively.

Information technology costs

Melbourne Water has set a financial objective to maintain its total IT expenditure at 2014/15 levels for the 2016 regulatory period, and for this expenditure to be consistent with utility industry benchmarks. This is based on a total operating cost assumption although the mix of operational and capital expenditure may change. In particular, a move to cloud-computing – which assumes that IT is procured as a service rather than as a fixed asset – will drive an increase in the percentage of operational expenditure. Because of the short asset life of IT assets, this is not anticipated to have a significant price impact.

Planned expenditure is below determined levels for the 2013 regulatory period. This reflects the impact of tightened investment criteria in response to work undertaken to identify cost savings and Melbourne Water's *Digital Transformation Strategy*. Transformation of the IT space is helping the business to drive the sustainable cost savings identified in the expense forecasts of this *2016 Price Submission*.

Proposed IT capital expenditure for the period is 4% of total capital expenditure, compared to an ICT utility benchmark average of 5%. Total ICT expenditure for the period is 4.8% of total operating expenditure, which again is below the ICT Utility benchmark average.

The *Digital Transformation Strategy* will be refreshed annually and used as a basis for project identification. Each iteration of the implementation plan will articulate an 18 month investment pipeline. Given rapid advances in digital technology, and the need

for business to respond in an agile manner, it is not practical to identify upfront all digital projects over a 5-year period. Total expenditure is provided in Table 9.

Table 9: IT costs (2015/16 Real Dollars)

	2016/17	2017/18	2018/19	2019/20	2020/21
Operating Expenditure (\$M)	22.4	22.9	22.8	23.0	24.0
Capital Expenditure (\$M)	21.5	21.5	21.5	21.5	21.5
TOTEX	43.9	44.5	44.3	44.6	45.5

Allocating indirect costs

Melbourne Water’s indirect costs are allocated to its major services directly where appropriate. For example, all billing and collection costs for the Waterways and Drainage Charge are allocated to the waterways and drainage service. Remaining costs are allocated relative to FTE count. Indirect costs allocated to the major services are provided in Table 10.

During 2014/15, as part of the efficiency process, the majority of discretionary expenditures in the business were centralised in order to evaluate expenditures and processes. From 2015/16, these reviewed expenses have been reallocated where appropriate to the relevant product centres to more accurately reflect the cost of the products and ensure direct accountability for all expenditure.

Table 10: Indirect costs

Service	Allocation
Water	29.3%
Sewerage	24.7%
Waterways and Drainage	44.7%
Recycled Water	1.3%

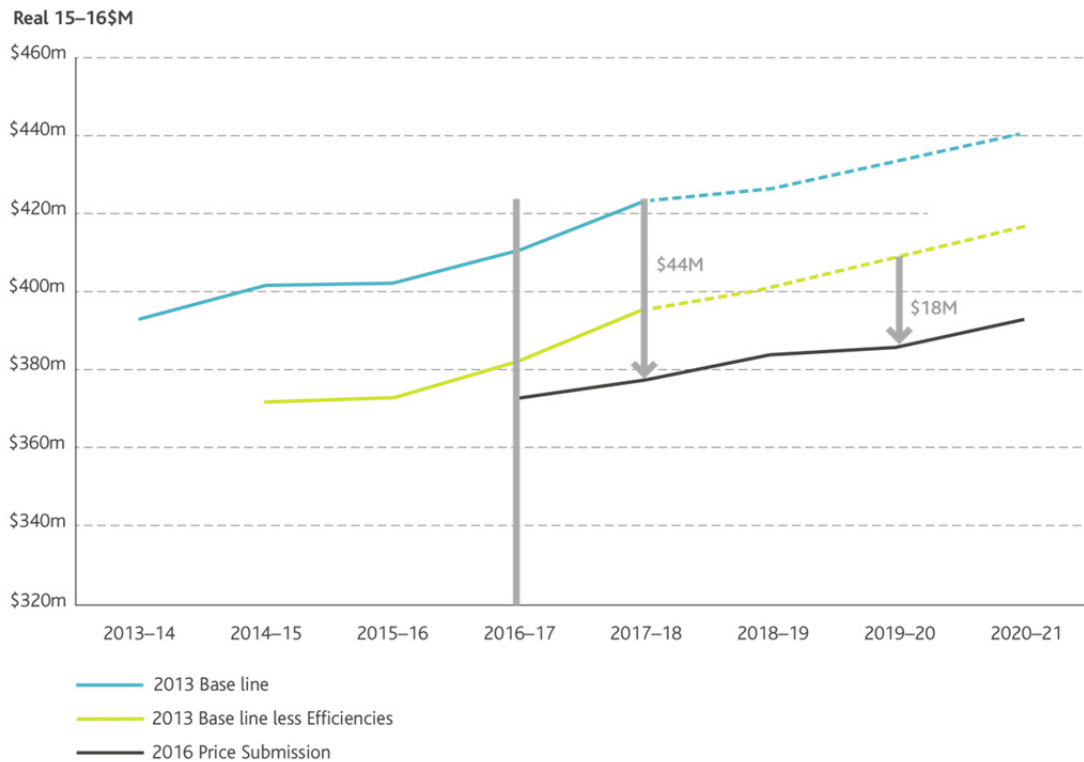
Driving efficiencies

During the 2013 regulatory period, Melbourne Water has undertaken a business-wide review to ensure it operates as efficiently as possible.

As shown in Figure 5, if operating expenditure trends had continued, based on benchmarks established in the 2013 Price Determination, Melbourne Water’s average operating expenditure would be around \$427M per annum (excluding VDP).

However, through our commitment to the 2014 efficiency review, Melbourne Water’s actual expenditure trend has reduced to around \$401M per year. A continued focus on efficiency will see this expenditure reduce further to an average of \$383M over the next five years, a saving of \$44M per annum over the previous regulatory period.

Figure 5: Operating expenditures



By setting a challenge to continuously improve across all areas of its operating expenditure, Melbourne Water has generated significant cost reductions as well as innovative approaches. These sustainable measures have been factored into the ongoing expense planning of the business and are now considered 'business as usual'.

Leveraging from this, during the development of the *2016 Price Submission*, Melbourne Water has been able to further reduce ongoing baseline expenditure. In total, over \$90M of additional, sustainable operating cost savings have been found over the 2016 regulatory period as shown in Table 11.

Melbourne Water is committed to continuous improvement through ongoing efforts in procurement initiatives such as fleet reduction and exploring shared service opportunities in the water industry. In addition, we are committed to improving business productivity through the implementation of LEAN principles, ensuring all of our processes are customer-centric and efficient. Due to their nature, these savings are allocated to individual services primarily on the basis of the FTE split as detailed earlier.

A rigorous internal process is in place to ensure that expenditures remain in line with expectations. This includes monthly rolling forecasts, a detailed review of business results undertaken monthly with the Leadership Team, Chief Financial Officer and Managing Director and monthly status reporting to the Board.

Table 11: Ongoing efficiencies (2015/16 Real Dollars)

\$M	2016/17	2017/18	2018/19	2019/20	2020/21
Base line expenditures (ex VDP costs)	382.4	395.5	400.7	408.7	416.6
<i>Total Efficiencies</i>	-\$9.8	-\$18.1	-\$17.1	-\$22.6	-\$23.7
Total Operating expenditure	372.6	377.4	383.6	386.1	392.9
<i>VDP Contract payments</i>	572.7	563.8	560.5	548.7	532.4
Total operating expenditure	945.3	941.3	944	934.8	925.3

Achieving the 2% productivity hurdle

The ESC's 2% productivity hurdle is achieved when new obligations are considered (see Table 13). A growth rate of 1.8% is assumed in the calculation based on Waterways and Drainage Charge customer growth rates. Melbourne Water considers that growth based on this assumption is an appropriate representation of the increased expenditures that will be incurred to service our customer base.

Baseline operating expenditure

Melbourne Water's 2014/15 baseline operating expenditures are provided in Table 12. The total of \$343M based on actual 2014/15 expenditure less uncontrollable costs associated with VDP payments, land tax and licence fees. No changes have been made to due to one-off or non-recurring expenditures.

Melbourne Water considers this level to be a low base due to unusual, stable weather events with no major flooding or bushfires which impact operating expenses (over a regulatory period, on average, one event occurs). The hurdle requirements have been calculated based on an efficiency adjustment factor of 2% per annum.

Table 12: Calculation of baseline operating expenditure (2015/16 Real Dollars)

\$M	14/15	15/16	16/17	17/18	18/19	19/20	20/21
Actual operating expenditure	987.3						
<i>Less Uncontrollable costs:</i>							
<i>VDP contract payments</i>	621.1						
<i>Land Tax</i>	20.7						
<i>Licence Fees</i>	2.4						
Total Baseline Operating Expenditure	343.0						
Hurdle Requirement (2%)		345.8	345.1	344.4	343.7	343.0	342.3

Table 13: Productivity hurdle (2015/16 Real Dollars)

\$M	2016/17	2017/18	2018/19	2019/20	2020/21
Operating Expenditure	945.3	941.3	944.0	934.8	925.3
<i>Less Uncontrollable costs:</i>					
<i>VDP contract payments</i>	572.7	563.8	560.5	548.7	532.4
<i>Land tax</i>	21.7	22.2	21.8	22.3	22.7
<i>Licence fees</i>	2.3	2.3	2.3	2.3	2.3
Sub-total	348.6	352.9	359.4	361.6	367.9
<i>Less new obligations:</i>					
<i>Renewable energy</i>	11.2	11.2	11.4	11.1	10.9
<i>Waterways maintenance</i>	0.6	1.3	1.9	2.6	3.3
<i>Pollution response</i>	1.1	1.1	1.1	1.0	1.0
Total Base Expenditure	335.7	339.4	345.0	346.8	352.7
Hurdle Requirement (2%)	345.1	344.4	343.7	343.0	342.3
<i>Difference</i>	9.4	5.0	-1.3	-3.7	-10.4

Uncontrollable costs

Victorian Desalination Project

Payments made for the VDP are considered an uncontrollable cost. More detail on VDP costs are provided on page 51.

Land tax

In the *2013 Water Plan*, the ESC's expenditure review and final decision allowed for an increase in land tax costs based on increases in land valuations as uncontrollable market-driven costs. Consistent with that decision, land tax has been excluded from the efficiency calculation as it is an unavoidable market driven cost.

Licence fees

Consistent with the ESC's financial model, licence fees have been removed.

New obligations

Melbourne Water is subject to new obligations that are imposed by the Victorian Government or to increased standards of service that are requested by customers. The associated expenditure needed to meet these obligations is above business as usual levels and therefore excluded from efficiency targets.

Customer driven expenditures

Renewable energy

To reduce its impact on climate change and help make its services more environmentally responsible, Melbourne Water has entered into an agreement to purchase renewable electricity, to reduce the greenhouse gases emitted through delivering its services.

Residential customers were surveyed about their willingness to pay for Melbourne Water to purchase renewable energy as part of its quantitative survey (see page 14). The survey asked residential customers how willing they were to pay for Melbourne Water to purchase renewable energy at an average customer cost of \$5.10.

Overall willingness was quite high with an average customer rating of 7.6 out of 10, where 0 meant 'not at all willing' and 10 meant 'totally willing to pay'. A significant

29% gave a 10 while only 12% were not at all willing. On this basis, Melbourne Water has included renewable energy as a new obligation for the 2016 regulatory period.

This cost of \$5.10 was based on a total renewable energy cost of \$55.8M above a calculated benchmarked equivalent non-renewable energy market rate as per Table 14. However our current forecasts now indicate a total renewable energy cost of \$76.2M above this benchmark. This forecast was subsequent to our willingness-to-pay testing and therefore the higher total has not been included as a new obligation.

Table 14: Customer tested renewable energy costs (2015/16 Real Dollars)

\$M	2016/17	2017/18	2018/19	2019/20	2020/21
Willingness to pay Renewable Energy	11.2	11.2	11.4	11.1	10.9
Current Renewable Energy Forecast	14.8	15.0	16.4	15.2	14.7

Regulatory obligations

Waterways maintenance

The number of waterways and drainage assets Melbourne Water is required to maintain is predicted to increase significantly, primarily due to urban development. It is estimated to maintain these additional assets at current standards of service would require an additional \$17.7M over the 2016 regulatory period. Melbourne Water intends to spend an additional \$9.7M, and save \$8.0M, by adjusting the scope and volume of waterway and wetland condition maintenance.

Pollution response

In the past Melbourne Water's obligations regarding significant pollution events were unclear. However, recent advice from EPA Victoria provides clear direction to Melbourne Water that it must respond to pollution or environmental hazards and conduct appropriate clean-up to protect public health and the environment. This is consistent with the obligations outlined in the *Environment Protection Act 1970* (Vic). This totals \$5.3M over the period.

Melbourne Water's public perception survey also reflects that the general public would prefer Melbourne Water to "(take) the lead on pollution investigation and clean up pollution hot spots". Emergency response for significant pollution events has to date been an unfunded activity, sourced from maintenance budgets at the expense of other priority activities.

Capital expenditure

Capital expenditure summary

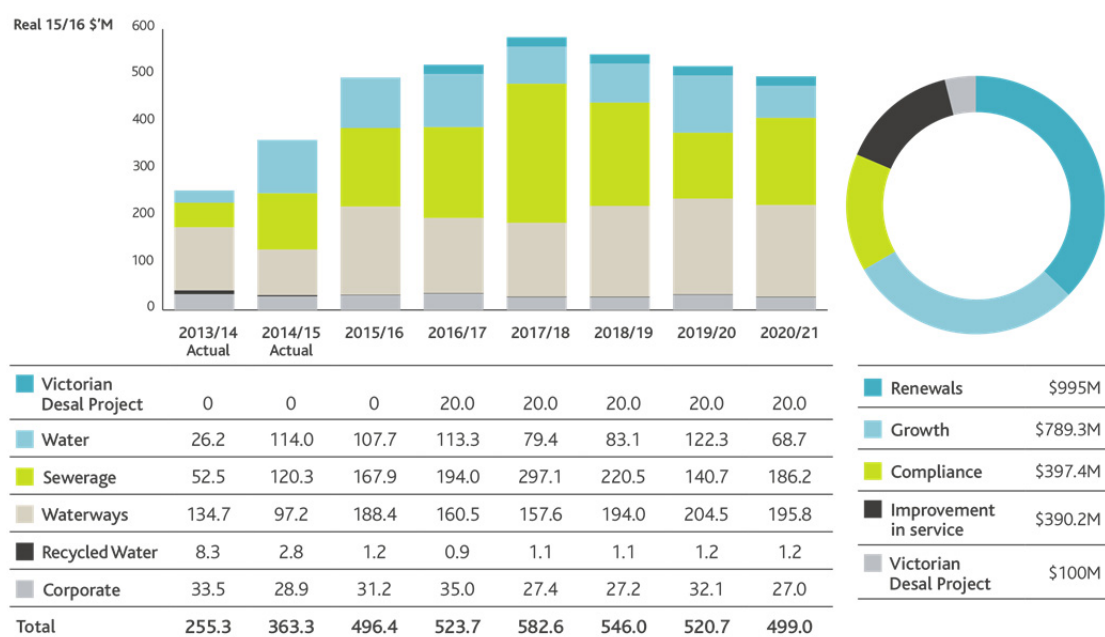
In preparing the *2016 Price Submission*, Melbourne Water has consulted extensively with customers, regulators and stakeholders in relation to its capital expenditure proposals.

In 2013 Melbourne Water entered into long term (up to 10 years) capital delivery contracts with Tier 1 designers and constructors to deliver a substantial part of its major capital delivery program (projects under \$50M). This panel is delivering improved efficiency by locking in highly competitive rates, key personnel and capability.

Planned expenditure over the 2016 regulatory period is \$2,672M, as shown in Figure 6 below. Overall annual capital expenditure levels remain consistent with the 2013 regulatory period benchmarks, with expenditure largely focused on the areas of renewals, growth, service improvement and compliance.

In line with the 2013 regulatory period, the focus of capital expenditure (particularly for water and sewerage) is more on renewals as Melbourne Water moves away from significant investment in growth and compliance assets which characterised the period from 2008/09 to 2012/13.

Figure 6: Total actual and forecast capital expenditure and 5-year total by driver (2015/16 Real Dollars)



Increased sewerage capital expenditure is predominantly due to growth-related projects at the WTP, linked to population growth in Melbourne's western suburbs.

Approach and assumptions to forecasting capital expenditure

Melbourne Water's capital projects are generally associated with delivering high-quality, safe and reliable drinking water, fit-for-purpose recycled water and safe sewage treatment and disposal. Once identified, and the business need approved, all capital projects are placed on the *Capital Plan*.

For the *2016 Price Submission, Capital Plan* expenditure forecasts were developed using the latest available market prices and Risk Adjusted Nominal Estimates (RANE). In many cases the latest market rates were fed into the project estimates while several larger projects were independently reviewed by quantity surveyors. For projects greater than \$1M a RANE was completed, including an appropriate risk analysis which was factored into the Monte Carlo analysis. This analysis adopted the P50 results.

All projects cost escalation (in nominal terms) were prepared using a base CPI cost increase and do not include construction indexes. For example, any purchasing of overseas equipment is considered in the estimate and individual risks. As individual projects need to consider the relevant risks, there is no over inflation of the project estimates.

Selecting and prioritising capital projects

Melbourne Water's capital investment is governed by its *Strategic Direction, Asset Management Strategy, Capital Investment and Management Framework*, and relevant policies and procedures including the *State of Assets Report* that formalise the organisation's commitment to service delivery, integrated water management and financial sustainability.

The *Asset Management Strategy* captures the customer value approach to our services. The *State of the Assets Report* is a 'snapshot' at a point in time, identifying the risks over the following 12 months for current assets. It does not consider the risks of increased requirements from the assets either from service growth or increased service compliance.

As part of the annual development of the 20-year *Capital Plan*, projects are assessed for their risk to standard of service with a five to six year view rather than a one year outlook. This allows for risks over the longer period, with respect to growth and compliance requirements, to be accommodated.

To assist in the selection of capital projects, Melbourne Water uses prioritisation models that look at the likelihood and consequence of failure combined with the overall strategic and customer benefits that each potential project provides.

In a number of cases, particularly in the area of water supply, some of the projects initially identified as lower priority have been kept in 20-year *Capital Plan* based on feedback from the local water utilities. These lower priority projects and allocations address services such as water quality management, water reservoir/tank refurbishment, safety works or asset renewal works, all of which are necessary to maintain the current standards of service.

Delivering capital projects

In preparation for the *2013 Water Plan*, a new *Capital Program Delivery Strategy* was updated and approved by Board. The new strategy replaced 'alliance' delivery

methods with 'design and construct' delivery methods for capital projects, with Melbourne Water retaining project management responsibility.

As a result of this change, Melbourne Water has entered into long-term capital delivery contracts with Tier 1 designers and constructors to deliver a substantial proportion of its major capital delivery program (projects under \$50M).

This panel will deliver improved efficiency by locking in highly competitive rates, key personnel and capability. Individual projects are awarded within the panel to ensure ongoing competitive tension. The contracts include performance incentives to deliver projects under budget. Melbourne Water still retains the option of procuring projects via the open market when it is in the organisation's best interests. Projects over \$50M are procured on the open market.

Required revenue

Determining the revenue requirement

Melbourne Water calculates a revenue requirement that represents the amount of revenue it needs to deliver service outcomes and obligations while remaining a sustainable business. The revenue requirement is calculated using a 'building block' approach, represented by the following major components:

- Operating costs
- Providing a return on assets
- Depreciation of assets
- Adjustments from previous periods, and
- Tax allowance.

Table 15 shows a summary of the annual and total revenue requirement for the entire 2016 Price Submission period. The total revenue requirement is \$7,869M over the 2016 regulatory period, with the major contributor being operating expenditure (60%). The revenue requirement is forecast to grow by an average annual growth of 2.2% per year to 2025/26.

In establishing the overall revenue requirement, Melbourne Water has followed similar processes as for the 2013 Water Plan. This includes:

- Similar depreciation rates for depreciation of new and existing capital
- Disposals and contributions in line with recent actuals, and
- Tax allowance consistent with the ESC's financial model.

Table 15: Total revenue requirement (2015/16 Real Dollars)

\$M	2016/17	2017/18	2018/19	2019/20	2020/21	TOTAL
Operating expenditure	945.3	941.3	944.0	934.8	925.3	4,690.9
Return on existing capital expenditure	442.8	425.6	399.2	364.3	339.6	1,971.4
Depreciation of existing capital expenditure	155.6	155.6	155.6	155.6	155.6	778.1
Return on new capital expenditure	10.3	31.3	49.8	63.0	74.2	228.7
Depreciation of new capital expenditure	8.1	24.8	41.7	55.7	69.9	200.1
Tax allowance	-	-	-	-	-	-
Adjustments	-	-	-	-	-	-
TOTAL	1,562.2	1,578.6	1,590.4	1,573.4	1,564.6	7,869.1

Depreciation rates

Capital costs are also returned to the business over the life of the asset. The depreciation is calculated both on the opening RAB value, which is based on the remaining life of assets, and the new capital expenditure during the 2016 regulatory period, which is based on the assets' standard accounting lives. The straight line method, which spreads the costs evenly over the asset's useful life, is used to

estimate economic depreciation. The depreciation of the RAB has been undertaken consistently with the previous 2013 regulatory period, using the estimated remaining lives as set out in Table 16.

Table 16: Estimated average remaining lives

Asset Class	Remaining Life
Production / Storage Program	106
Water Transfer Program	118
Drinking Water Quality	42
Sewerage Transfer Program	82
Eastern Treatment Plant	37
Western Treatment Plant	61
Waterways and Drainage	77
Recycled Water	32
IT \ Corporate	11

Estimated remaining lives are used to calculate depreciation of current assets. This is because remaining life reflects the assumed economic life of the asset, which is an indication of how much 'use' the asset still has before it becomes redundant or obsolete (i.e. fully depreciated). In contrast, standard asset lives reflect the expected useful life of the asset if it had just been built. This means that standard lives are more appropriately used to calculate depreciation of new assets but it will lead to different asset lives used for depreciating the RAB and new assets (see Table 17).

Table 17: Assumed asset lives for depreciating new capital expenditure

Asset Class	Asset Life
Water	
Production / Storage Program Long Life Assets	84
Production / Storage Program Short Life Assets	24
Drinking Water quality	18
Water Transfer Program Short Life Assets	25
Water Transfer Program Long Life Assets	140
Sewerage	
Sewerage Transfer Long Life Assets	94
Sewerage Transfer Short Life Assets	26
Eastern Treatment Plant	45
Western Treatment Plant	29
Waterways and drainage⁶	
Drainage & Flood Protection Long life assets	100
Drainage & Flood Protection Short life assets	40
Stormwater Quality and Quantity assets	25
Waterways Condition assets	25
Land Development Program assets	75
Alternative Water Sources	
Recycled Water	32
Corporate	
Corporate Support	11
IT	3

⁶ The asset lives for the small number of assets associated with *Flows and Water Access management* and *Incident response and information provision* are allocated to appropriate program areas.

Tax allowance

Melbourne Water's regulatory tax allowance is currently forecast to be \$0M over the period consistent with the calculation in the ESC's financial model. A key driver of this outcome is the forecast tax depreciation used in the calculation. The Australian Tax Office is making a ruling on Melbourne Water's current estimate of tax depreciation associated with the VDP. A potential outcome of this would be a materially changed regulatory tax allowance. Consistent with section 4.18.4 of the guidance, Melbourne Water will advise the ESC and provide the ESC with a new financial model should this eventuate.

Melbourne Water's current forecast income tax payable over the period is provided in Table 18.

Table 18: Forecast Melbourne Water income tax payable (2015/16 Real Dollars)

\$M	2016/17	2017/18	2018/19	2019/20	2020/21
Income tax payable	\$71.1	\$73.1	\$71.0	\$74.2	\$78.2

This amount will also be impacted by the potential ruling described above. The difference in the tax payable reflects a range of factors including different tax treatment of assets compared with regulatory arrangements.

Contributions and disposals

Contributions, gifted assets and disposals are forecast at levels similar to recent actuals. A complete list of capital expenditure, contributions, gifted assets, proceeds from asset sales, written down value of assets disposed and net capital expenditure for each major service is provided in Appendix 5.

Regulatory rate of return

A key change to the calculation of the overall revenue requirement is the calculation of the Weighted Average Cost of Capital (WACC) which applies to the Regulatory Asset Base (RAB). Melbourne Water proposes to determine the WACC using the trailing average approach to determine cost of debt. This WACC will be applied to the RAB as per Table 19.

Table 19: Forecast Melbourne Water RAB (2015/16 Real Dollars)

\$M	2016/17	2017/18	2018/19	2019/20	2020/21
Opening RAB	9,924.7	10,217.2	10,549.0	10,831.6	11,078.7
Plus gross capital cost	523.7	582.6	546.0	520.7	499.0
Less customer contributions	55.7	55.7	55.7	55.7	55.7
Less disposals	11.8	14.7	10.3	6.5	6.4
Less regulatory depreciation	163.7	180.4	197.4	211.3	225.5
Closing RAB	10,217.2	10,549.0	10,831.6	11,078.7	11,290.2

Review of the WACC

In the course of the 2016 Price Review process, Melbourne Water sought expert advice on current best practice approaches from Frontier Economics⁷ on the calculation of the WACC. This review focussed on the calculation of the cost of debt and found that the rate-on-the-day approach has several major weaknesses including volatility in allowed returns during periods of high debt market volatility, inability of businesses to match actual cost of debt to the return on debt allowance and the costs of hedging activity where businesses try to match the actual cost of debt to the debt allowance. As a result, Melbourne Water is proposing a trailing average approach to calculating the cost of debt. The proposed methodology for its calculation is provided below.

Methodology proposed

The cost of debt calculation is proposed to be as follows:

- The trailing average approach would be used to determine the whole of the cost of debt rather than one or other of its individual components (i.e. the risk-free rate or debt risk premium)
- The annual rates would be calculated by averaging over an entire 12 month period from 1 April to 31 March. Spreading the averaging period over 12 months allows water corporations to finance their capital expenditure according to business requirements whilst keeping refinancing risk to a minimum
- The cost of debt would be calculated as the simple average of the annual rate for the 10 consecutive years immediately preceding the year the rate is being calculated for (i.e. a 10 year averaging period would be employed). A simple rather than weighted average is preferred for ease of understanding and to avoid complexity
- It is proposed the cost of debt reflect a corporate BBB yield over 10 years as this reflects a prudent debt management strategy as accepted within financial markets. The BBB rating corresponds to the midpoint of the credit rating range (i.e. BBB- to BBB+) used by the ESC for the *2013 Water Plan* and proposed by the ESC for the *2016 Price Submission*⁸
- The cost of debt allowance would be updated annually through the regulatory period by rolling the 10 year trailing average forward each year
- Note that in determining the trailing average cost of debt for 2016/17 a forecast cost of debt has been used for 2015/16 as the actual rate will not be known until 1 April 2016. Melbourne Water proposes that the cost of debt for 2016-17 (and hence WACC) be updated to reflect the actual cost of debt rate for 2015-16 in the ESC's Final Determination.

The risk free rate used to calculate the cost of equity reflects 40 day average yield of 10 year Commonwealth Government Bonds from 18 August to 13 October 2015 and CPI reflects the mid-point of the Reserve Bank of Australia's target inflation range. The remaining parameters are based on the ESC's guidance.

Forecast WACC for the 2016 regulatory period

Based on this methodology, Melbourne Water has forecast WACC over the period as provided in Table 20. For this forecast, an estimate of the cost of debt is required. This has been based on TCV forward rates (or shadow forecasts).

⁷ *Rationale and Implementation of a Trailing Average Return on Debt* – Frontier Economics, October 2015

⁸ It is proposed that the source of this data be - Reserve Bank of Australia Table F3 – Non-financial corporate BBB-rated bonds – Yield – 10 year target tenor [Series ID FNFYBBB10M]

Table 20: Forecast WACC using trailing average approach

<i>Nominal</i>	2016/17 to 2020/21				
Risk Free Rate	2.7%				
Equity Premium	6.0%				
Equity Beta	0.65				
Gearing (Debt/Assets)	60%				
Forecast Inflation	2.5%				
Cost of Equity	6.6%				
<i>Nominal</i>	2016/17	2017/18	2018/19	2019/20	2020/21
Cost of Debt	7.6%	7.3%	7.1%	6.6%	6.2%
Nominal Post Tax WACC	7.2%	7.0%	6.9%	6.6%	6.4%
					<i>Real</i>
Real Post Tax WACC	4.5%	4.4%	4.2%	3.9%	3.7%

Reasons for the approach

Melbourne Water considers that changing the methodology provides a number of advantages and better meets the relevant matters of Clause 11 of the WIRO, including:

- Reducing volatility in prices over time which will better enable low income and vulnerable customers to manage water bills
- Better aligning the regulatory allowance for financing costs with actual costs and thereby providing a better signal of the cost of providing services
- Promoting financial viability by incentivising prudent debt arrangements and significantly reducing exposure to refinancing risk.

Transition arrangements

Melbourne Water consulted on adopting the trailing average approach to cost of debt with the local water utilities as this will also have the potential to impact them in future regulatory periods. The local water utilities support moving to a longer averaging period for the cost of debt but have differed on how this could occur. The local water utilities have indicated that a transitional arrangement from the rate-on-the-day should be considered.

Melbourne Water also consulted with Treasury Corporation Victoria (TCV) which acts as banker for the Victorian water industry. TCV indicated the proposal is logical and consistent with TCV's current debt management practices conducted on behalf of the water industry.

Melbourne Water considers there is no compelling case for a transitional arrangement. Melbourne Water has recently started to use complex debt management processes including interest rate swaps to address the risk associated with the on-the-day approach. Melbourne Water has approximately 70% of its debt profile aligned to a 10-year debt strategy. Melbourne Water has been proactive in managing its debt to align

to the regulatory period, and the savings generated compared to the *2013 Water Plan* have already been returned to customers as part of the Government Water Rebate.

Pass-through of variations to the forecast WACC

Melbourne Water proposes to update the cost of debt annually during the the 2016 regulatory period to reflect a rolling 10-year average to produce an annual WACC to apply in each regulatory year. Where this WACC differs from that proposed in Table 20, a pass-through mechanism is proposed that will apply to wholesale water, wholesale sewerage and the Waterways and Drainage Charge. The impact on other tariffs is likely to be small and therefore a pass-through arrangement is not considered necessary. Appendix 6 provides details of the proposed mechanism.

Financial sustainability

In reviewing the revenue requirement, the ESC needs to consider the *Essential Services Commission Act 2001* (Vic.) objective of maintaining the industry's financial viability. Table 21 shows Melbourne Water's forecast performance against the ESC financial indicators for the 2016 regulatory period.

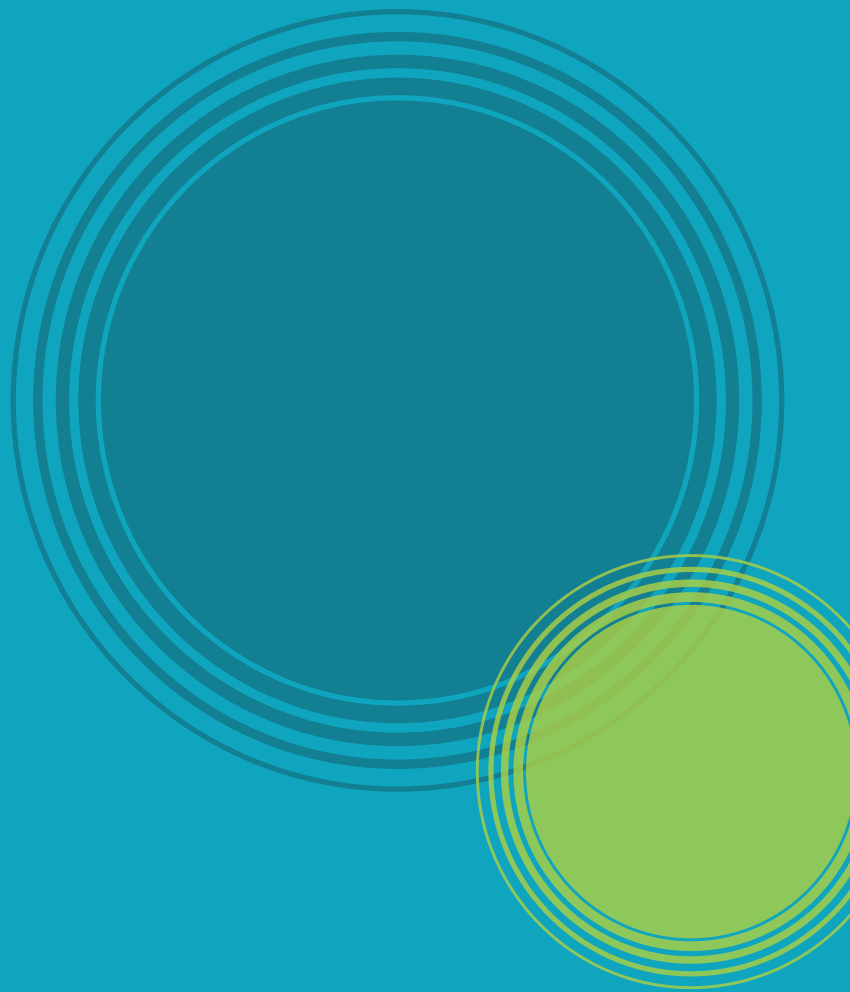
Table 21: 2016 regulatory period financial indicators

	2016/17	2017/18	2018/19	2019/20	2020/21
FFO interest cover	1.6	1.7	1.7	1.7	1.7
Net debt* / regulatory asset value	78.2%	74.5%	71.4%	68.4%	65.6%
FFO / Net debt*	5.5%	5.8%	6.1%	6.0%	6.0%
Internal financing ratio	87.9%	81.0%	89.7%	91.9%	95.3%

*Net debt is total interest bearing liabilities (including VDP lease liabilities). This is consistent with Melbourne Water's accounting calculation of financial ratios.

Melbourne Water proposed to maintain the uncertain and unforeseen events clause as per its 2013 Price Determination.

PART B – OUR SERVICES AND PRICES



Wholesale water services

Government and customer obligations and requirements

Melbourne Water supplies, treats and transfers drinking water to local water utilities through three programs: water production and storage, water transfer, and water quality.

These services are delivered under a range of legislative, policy and contractual obligations, outlined in Figure 7.

Figure 7: Water Supply legislative and policy framework



*Currently under review, in draft or in development

Service outcomes

Melbourne Water’s service outcome for wholesale water is the provision of high quality, safe and reliable drinking water to local water utilities.

Following wholesale customer consultation, Melbourne Water’s proposed expenditures are based on existing policies and obligations. These obligations require that expenditure is prudent and efficient and delivers demonstrated community benefit.

Several policy documents are currently under review or development. During the writing of this submission Melbourne Water has liaised with regulators and policy makers to understand any emerging obligations, and expenditures have taken into proposed changes to the Statement of Obligations⁹. Any new obligations that emerge

⁹ Draft issued 4 June 2015

following the development of this *2016 Price Submission*, that require delivery during the period, would be met through reprioritising existing expenditure in consultation with our customers.

How we consulted

Melbourne Water consulted with a range of customers and regulators on service outcomes that apply under its regulatory, legislative and contractual requirements for wholesale water. Melbourne Water's customers for wholesale water are City West Water, South East Water, Yarra Valley Water, Western Water, Gippsland Water, Barwon Water, South Gippsland Water and Westernport Water. Our key regulators are EPA Victoria and the Department of Health and Human Services (DHHS).

Consultation was also undertaken with DELWP, EPA Victoria and DHHS to ensure our programs remain in line with current government policy, EPA guidance and DHHS advice.

What customers told us

Overall, following consultation with wholesale water customers, standards of service for the 2016 regulatory period remain the same as the 2013 regulatory period.

During the consultation phase local water utilities sought a greater ability to 'trade off' standards of service for cost. Trade-off information was provided on specific issues bases. For example, consultation was undertaken with local water utilities about whether capital works to return the Yan Yean Treatment Plant into production should be included in the expenditures. This involved understanding the value of storage to all wholesale entitlement holders, as well as discussing standards of service with the primary customer affected by that supply, Yarra Valley Water.

During the 2016 regulatory period, Melbourne Water will work with local water utilities to develop information, processes and systems to support their ability to better understand and make potential trade-offs at a whole of system level in the future.

How we responded

A draft of the capital program was circulated and refined via a number of rounds of consultation. Examples of the changes made in response to feedback include:

- Included Yan Yean to Bald Hill Pipeline (\$3.4M – design only) and Yan Yean Pumping Station (\$2M – design only) projects to meet growth demand in Melbourne's north-west. Both projects are planned for construction in the 2021 regulatory period
- Continued to include Holden Zone Tank and Inlet Main (\$23.8M), Pakenham Security Supply Upgrade (\$10.9M) and Cranbourne Second Tank (\$9.2M) in response to growth in Melbourne's west and south-east
- Committed to projects to return the Yan Yean Treatment Plant to service (\$2.8M) during the 2016 regulatory period, to support low cost supply and customer

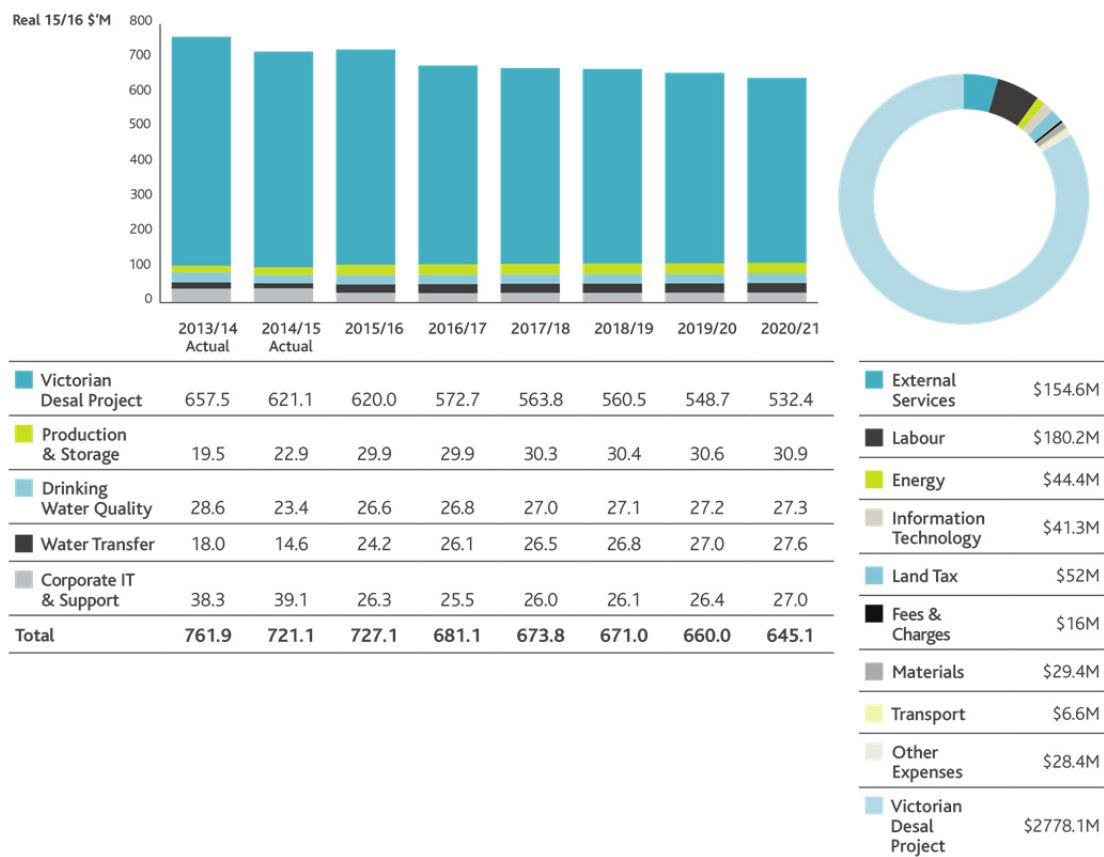
wholesale entitlement interests. This strategy has also resulted in the re-phasing of Plenty Pump Station Upgrade (\$19.7M)

- Received support from DHHS for inclusion of the Winneke Treatment Upgrade (\$31.7M) to meet requirements under the risk management framework in accordance with the *Safe Drinking Water Act 2003*
- As part of a commitment to our customers to review a range of projects, we have re-phased the O'Shannassy Dam Spillway Upgrade (\$19.6M), reflecting a review of its risk profile, and only included design costs in the 2016 regulatory period.

Proposed operating expenditure

Forecast operating expenditure for wholesale water services is \$3,330.9M over the 2016 regulatory period, accounting for 71% of total operating expenditure. This equates to an annual average of \$666.2M (Figure 8). Excluding desalination costs, average annual operating expenditure equates to \$110.6M.

Figure 8: Wholesale water operating expenditure by program and 5-year total by driver (2015/16 Real Dollars)¹⁰



Over the 2016 regulatory period, operational expenditure will reduce in real terms, mostly due to VDP contract costs¹¹ reducing over time. Excluding VDP payments, there are no significant expenditure increases proposed. The main drivers of operating expenditure are external services (which includes maintenance), labour and energy.

¹⁰ Actual Victorian Desalination Project expenditure incurred for the 2013-14 financial year was \$630.4M and for 2014-15 was \$613M in nominal terms

¹¹ VDP costs are further discussed on page 56.

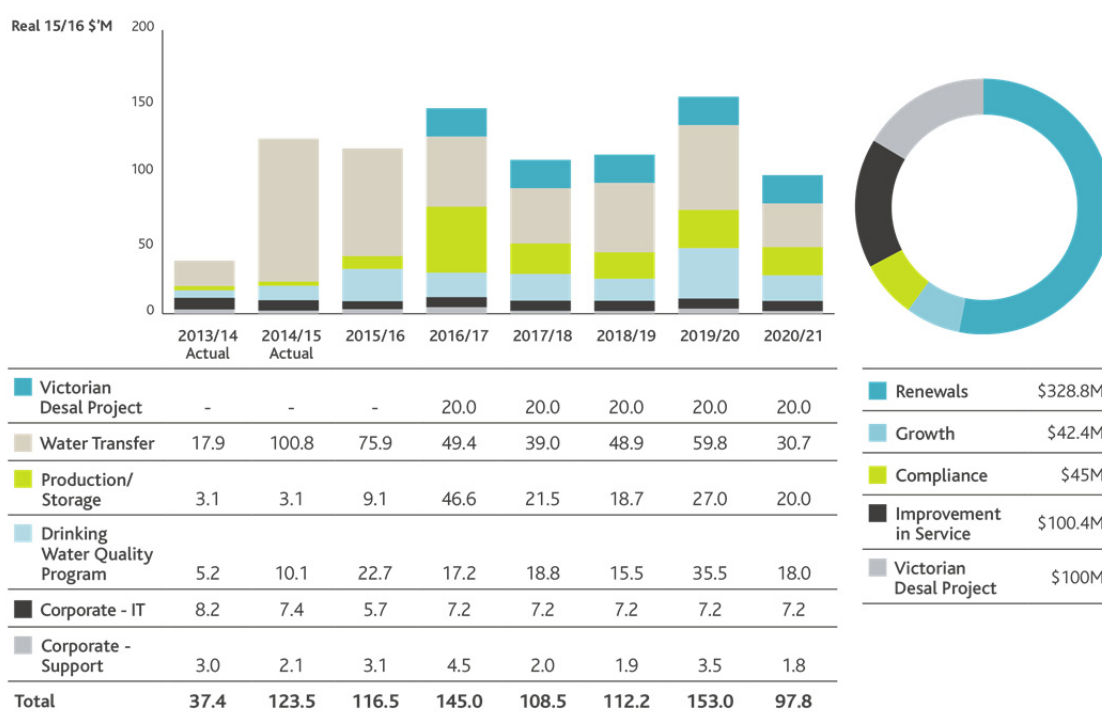
Proposed capital expenditure

Planned capital expenditure on wholesale water projects totals \$616.6M or approximately 23.1% of Melbourne Water’s total proposed capital expenditure.

Expenditure consists of identified major projects as well as allocations for minor works or renewal programs, where works occur in a rolling manner throughout the 2016 regulatory period to ensure prudent and efficient asset management.

Wholesale water capital expenditure is mostly driven by renewals of water transfer pipelines and mechanical and electrical assets, with some growth and compliance-driven projects (see Figure 9 below).

Figure 9: Wholesale water capital expenditure by program 5-year total by driver (2015/16 Real Dollars)



Looking ahead

The largest area of the capital spend is on water transfer projects including renewals of mechanical and electrical assets (\$19M), water supply tanks (\$22.6M) and water main renewals such as the Merri Creek to MCG Water Main (\$35.6M) and the St Georges Road Water Main (\$24.4M). Growth-driven works include the Holden Zone Tank and Inlet Main (\$23.8M), Pakenham Security Supply Upgrade (\$10.9M) and Cranbourne Second Tank (\$9.2M) in response to growth in Melbourne’s west and south-east.

The main driver of expenditure in water quality is the Winneke Treatment Plant Ultraviolet Disinfection System to meet requirements under the risk management framework in accordance with the *Safe Drinking Water Act 2003* (\$31.7M compliance), and mechanical and electrical renewals (\$37M).

In the water production and storage program, the main driver of expenditure is renewals of aqueducts and tunnels (\$74.2M), and reservoir and dam works including O'Shannassy Reservoir Outlet Pipe Renewal (\$15.6M) and Upper Yarra Dam Safety Upgrade (compliance with ANCOLD requirements) (\$9.5M).

Major capital projects

Our top five water capital projects are listed in Table 22, along with the top five renewals allocations. The supporting business cases for these projects will be made available to the ESC.

Table 22: Major water capital projects (2015-16 Real Dollars)

Project Name	Drivers (ESC)	Program	Start Date ¹²	End Date	Outcome	TOTAL Project Costs \$M	TOTAL 2016 Price Sub \$M
Projects							
Merri Creek to MCG Water Main Renewal (Section of M41)	Renewal of existing infrastructure (80%) Growth (20%)	Water Transfer	14/15	19/20	Provide supply security per BWSAs & water strategy	\$35.6	\$35.6
Winneke Treatment Plant – Ultraviolet Disinfection System	Compliance 100%	Water Quality	10/11	21/22	Comply with <i>Safe Water Drinking Act 2003</i> Requirements	\$31.7	\$31.7
St Georges Road Water Main Renewal (Section of M40)	Renewal of existing infrastructure (100%)	Water Transfer	10/11	18/19	Provide supply security per BWSAs & water strategy	\$38.4	\$26.4
Holden Water Supply Tank and Inlet Main	Growth (100%)	Water Transfer	10/11	20/21	Provide supply security per BWSAs & water strategy	\$23.8	\$23.8
Maroondah Aqueduct Renewal (Sections)	Renewal of existing infrastructure (100%)	Water Transfer	09/10	19/20	Maintain system losses to < 1% and eliminate risk of flooding of the Melba Highway and surrounding land in the works area	\$35.1	\$35.0
Allocations							
Water Quality - M&E Assets Renewals Program	Renewal of existing infrastructure (100%)	Water Quality	Ongoing		Provide supply security per BWSAs & water strategy	NA	\$37.9
Aqueducts Renewals Program	Renewal of existing infrastructure (80%) Improvement in Service (20%)	Water Production and Storage	Ongoing		Maintain system losses to < 1%	NA	\$27.8
Water Supply Tanks Renewals	Renewal of existing infrastructure (100%)	Water Transfer	Ongoing		Provide supply security per BWSAs & water strategy	NA	\$22.6
Water Transfer - M&E Assets Renewals Program	Renewal of existing infrastructure (100%)	Water Transfer	Ongoing		Provide supply security per BWSAs & water strategy	NA	\$19.0
Maroondah Aqueduct Renewal of Tunnel Sections	Improvement in Service (60%) Renewal of existing infrastructure (40%)	Water Production and Storage	Ongoing		Provide supply security per BWSAs & water strategy	NA	\$11.4

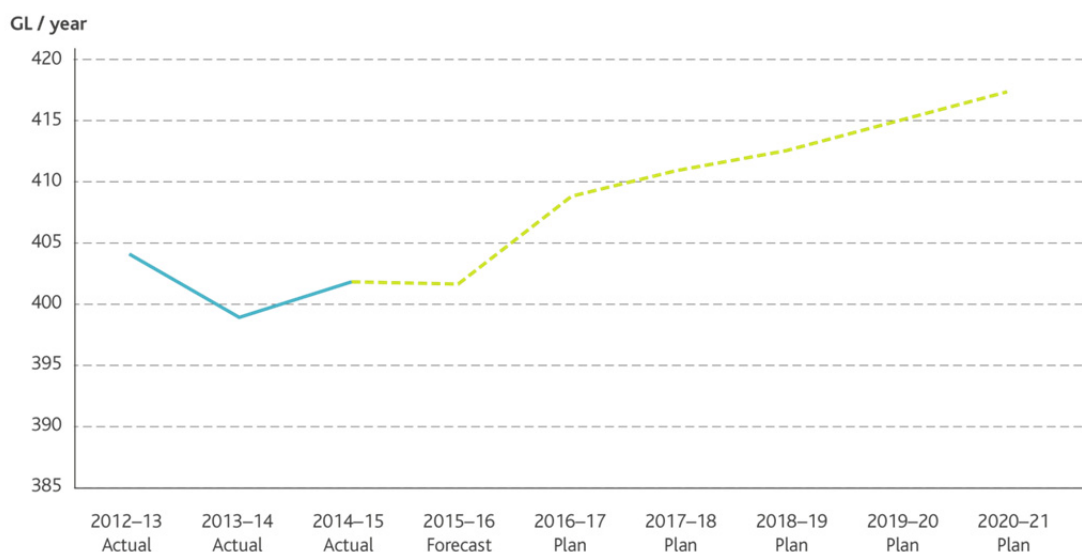
¹² Note that some start dates are several years previous. The start date is the date that investigations commence. Some projects have long investigative stages, or been re-prioritised subsequently.

Forecast demand

Figure 10 details the forecast demand for water services during the 2016 regulatory period following review by Melbourne Water and an independent third party. Overall demand is expected to grow by around 16GL over the next five years, from 401.6GL forecast in 2015/16 to 417.6GL forecast in 2020/21. This represents an annual increase of around 1% per annum which is considered reasonable noting that while annual demand is subject to climate variation, 2014/15 demand growth was about 1%. It has been assumed that water volume will continue to grow at this rate in the following regulatory period commencing 2021/22.

Local water utilities' water demand forecasts, as proposed for the *2016 Price Submission*, exhibit steady growth over the forecast period. Demand stabilised in 2014/15 after bouncing back from lower levels when water restrictions were lifted at the end of the Millennium Drought.

Figure 10: Forecast wholesale water volumes GL



Forecasting methodology and assumptions

Water demand forecasts were prepared using the best available data and methodologies. City West Water, South East Water and Yarra Valley Water use 'end use models' to generate forecasts of residential water consumption based on average household water use. These models are then aggregated and amended to take the following key assumptions into account:

- *Victoria in Future* (VIF) 2014 forecasts of population growth, demographic changes and household density
- Climate and water availability. The local water utilities forecasts as provided or amended all either explicitly or implicitly assume average climatic conditions over the 2016 regulatory period. This is considered appropriate as forecasting climate variation and rainfall is extremely difficult. Therefore return to drought and

exceptional rainfall scenarios were generally not produced by the local water utilities

- A range of non-price conservation measures that affect customer behaviour
- Price demand elasticity impacts. The local water utilities have either accounted for elasticity in their end use models or explicitly in the case of South East Water.

Melbourne Water maintains top-down linear regression models, which consider base demand and seasonal demand separately, to validate the local water utilities' forecasts. These models which considered average, dry and wet climatic conditions indicated that the forecasts commenced within the expected range. Divergences observed in the outer years were mainly due to the limitations of the regression models but pointed to areas for further review.

A further independent review¹³ was undertaken by Frontier Economics to assess the wholesale water (and sewage) forecasts prepared by the local water utilities. Frontier Economics designed the review in order to provide advice that specifically addressed key ESC Guidance Paper requirements. Adjustments were made to the local water utilities' forecasts when demand data did not support assumptions. In most instances the local water utilities revised their forecasts in response to issues raised.

The demand forecasts were used in discussions with the local water utilities to inform the timing of future capital augmentation works with a focus on deferral (along with associated operating costs) unless a projected supply-demand shortfall justified inclusion of the projects in the 2016 regulatory period. This contributed to ensuring that the growth element of Melbourne Water's proposed expenditures is prudent and efficient.

Proposed tariffs and prices

This section outlines current prices for Melbourne Water's wholesale water services, as well as proposed prices and changes since the *2013 Water Plan*.

How we consulted

Melbourne Water has consulted extensively with the local water utilities in the development of wholesale water price structures. This included:

- Engaging Jacobs to prepare a discussion paper to assist in identifying options for wholesale water prices, structures and price control arrangements for the *2016 Price Submission*
- Circulating the Jacobs report to local water utilities and holding workshops to discuss the report's proposals and consulting further on issues identified
- Regular regulatory manager meetings.

Summary of proposed changes

In response to customer feedback, Melbourne Water has changed:

- The structure of its headworks and water transfer charges

¹³ *Metropolitan wholesale water and sewerage demand review*, September 2015, Frontier Economics.

- The basis on which these charges are calculated
- The mix of revenue from fixed and volumetric charges.

Changes are proposed for the headworks wholesale charges, primarily to reflect policy changes to the Bulk Entitlement Framework. Transition arrangements are also planned to mitigate the impacts of changes to the tariff structure.

These changes will:

- Provide a clear cost signal associated with holding, buying or selling water entitlements
- Remove cross-subsidies ensuring signals are provided about the efficient cost of delivering services
- Retain a level of variable charge.

Melbourne Water proposes to retain a pass-through mechanism for VDP contract cost changes and for costs associated with a water order from the VDP. Specific changes to prices, including feedback provided by customers, are outlined below.

Wholesale headworks and transfer prices

Melbourne Water currently has separate wholesale water headworks and transfer prices, each having a 'variable' and a 'fixed' component (i.e. two part prices).

There is a single, variable headworks price for all local water utilities, reflecting the common security of supply benefit of an integrated headworks system to all local water utilities, irrespective of their location. There are also variable transfer prices for each local water utility that reflect the long-run marginal costs of the transfer network in the various supply areas. The variable and fixed prices for 2015/16, are set out in Table 23.

Table 23: Current bulk water variable and fixed prices in 2015/16

Retailer	Variable prices (\$/per ML)		Fixed prices (\$/per month)	
	Headworks	Transfer	Headworks	Transfer
City West Water	1,406.7	255.3	3,866,281	350,224
South East Water	1,406.7	170.3	7,634,019	1,815,192
Yarra Valley Water	1,406.7	152.4	7,093,535	1,981,578
Western Water	1,406.7	264.3	265,913	28,729
Gippsland Water	57.4	-	65	1,214

Bulk water entitlement reforms

In 2014 the Victorian Government implemented bulk water entitlement reforms. These reforms disaggregated and clarified access to Melbourne's water resources for local water utilities, including regional water utilities. Under the revised bulk water entitlements:

- Each metropolitan and regional water utility holds individually defined Greater Yarra System–Thomson River Pool Delivery Wholesale Entitlements
- Metropolitan water utilities hold individually defined entitlements in the Goulburn system and Desalinated Water Entitlements
- Metropolitan water utilities are responsible for managing individual standards of service and water demand/supply balances
- Metropolitan and regional water utilities are empowered to source water from a variety of sources and accrue the benefits of whole of water cycle management
- Melbourne Water holds source entitlements requiring it to harvest water to supply to metropolitan and regional water utilities, via a seasonal determination model.

As a part of these new wholesale water arrangements, Melbourne Water’s wholesale headworks prices are expected to reflect from 1 July 2016 the disaggregated wholesale water arrangements and the different costs of the various sources of water supply¹⁴.

Melbourne Water and each of its local water utility customers supports the 2014 wholesale water entitlement reforms and associated wholesale headworks price changes to ensure they reflect the security of supply benefit provided by the headworks services (i.e. the capacity reserved by the wholesale entitlements). In the future, if water trading is possible, this would mean there was a clear cost signal associated with holding, buying or selling water entitlements. It would also inform decisions about whole of water cycle management.

Implementing new water headworks prices will remove the current cross-subsidy of wholesale water prices by wholesale sewerage prices. This cross subsidy was implemented during the 2013 regulatory period to manage distribution impacts placed on Western Water as a result of costs associated with the VDP.

Melbourne Water proposes to implement fully fixed headworks prices for each water utility reflecting entitlements held in Greater Yarra System–Thomson River, North South Pipeline and Desalinated Water.

Westernport Water proposed reclassifying water treatment assets currently in headworks as transfer assets for pricing purposes on the basis that treatment is associated with the transport and delivery of water. The urban water utilities proposed that the current classification be retained as they consider harvesting and treatment to be integral to the storage of water, noting that the largest water treatment site, Winneke, treats water as it enters the storage rather than as it is released into the transfer system. Melbourne Water proposes to retain the current classification on the basis that relevant treatment assets each service a specific headworks reservoir.

Given that water headworks prices will become entirely fixed, local water utilities have expressed a preference for transfer prices to have a greater variable component to offset the potential revenue risk associated with future demand uncertainty.

¹⁴ Explanatory Note to the Disaggregation of Melbourne’s Wholesale Water Management Arrangements and Wholesale Entitlement Orders, page 14.

To meet this preference, Melbourne Water proposes to implement a single, fully variable transfer tariff reflecting dollars per megalitre. This approach also reflects the integrated nature of Melbourne Water's transfer system.

As Gippsland Water only uses the Tarago Reservoir, its headworks and transfer prices are determined with reference to its share of the Tarago headworks and transfer systems. Table 24 outlines the proposed water prices for 2016 regulatory period.

Table 24: Proposed wholesale water prices for 2016 regulatory period (2015/16 Real Dollars)

	2016/17	2017/18	2018/19	2019/20	2020/21
1.17 Storage Operator and bulk water service charges – Greater Yarra System – Thomson River (\$/per month)					
City West Water	4,296,392	1.73%	-0.04%	-1.36%	-0.25%
South East Water	5,800,283	1.73%	-0.04%	-1.36%	-0.25%
Yarra Valley Water	6,179,722	1.73%	-0.04%	-1.36%	-0.25%
Western Water	505,126	1.73%	-0.04%	-1.36%	-0.25%
Westernport Water			50,179	-7.38%	-
Barwon Water			802,868	-7.38%	-
South Gippsland Water			50,179	-7.38%	-
1.2 Storage Operator and bulk water service charges Victorian Desalination Project (\$/per month)					
City West Water	12,597,434	-1.54%	-0.60%	-2.11%	-2.96%
South East Water	17,006,774	-1.54%	-0.60%	-2.11%	-2.96%
Yarra Valley Water	18,119,370	-1.54%	-0.60%	-2.11%	-2.96%
1.3 Storage Operator and bulk water service charges North South Pipeline (\$/per month)					
City West Water	959,592	1.73%	-0.04%	-1.36%	-0.25%
South East Water	959,592	1.73%	-0.04%	-1.36%	-0.25%
Yarra Valley Water	959,592	1.73%	-0.04%	-1.36%	-0.25%
1.4 Storage operator and bulk water service charges –Transfer (\$/per ML)					
Wholesale transfer system	233.9	1.15%	-0.42%	-1.94%	-0.87%
Gippsland Water					
Headworks (\$/per ML)	342.2	1.73%	-0.04%	-1.36%	-0.25%
Transfer (\$/per month)	1,163.9	1.73%	-0.04%	-1.36%	-0.25%

Proposed transition arrangements for regional water utilities

Melbourne Water's proposed implementation of a Greater Yarra System–Thomson River headworks price to apply to all wholesale entitlement holders represents a new cost for regional water utilities which was not charged in the past if they had no water demand. However, the charge is proposed to reflect the fact that they benefit from having this water available (and there are costs associated with retaining this option) even if these water utilities do not draw on the supply.

Regional water utilities have indicated they require transitional arrangements to manage the price impacts, particularly as they will not be able to pass these costs on to their customers until the next regulatory period. To meet this request, Melbourne Water proposes to recover the regional water utilities costs over the first three years of their next regulatory period starting 2018/19.

Melbourne Water proposes to carry forward the interest which would have been earned had the originally proposed costs (in the first two years of the 2016 regulatory period not been deferred). Table 25 shows the proposed costs for the regional water utilities and the transition arrangements for cost recovery.

Table 25: Cost recovery from regional water utilities (2015/16 Real Dollars)

	2016/17	2017/18	2018/19	2019/20	2020/21	Total
Originally proposed cost recovery from regional water businesses						
Barwon Water	5,314,200	5,405,976	5,403,779	5,330,115	5,316,712	26,770,782
South Gippsland Water	332,137	337,873	337,736	333,132	332,294	1,673,174
Westernport Water	332,137	337,873	337,736	333,132	332,294	1,673,174
Proposed transitional cost recovery from regional water businesses						
Barwon Water			8,923,594	8,923,594	8,923,594	26,756,435
South Gippsland Water			557,725	557,725	557,725	1,672,277
Westernport Water			557,725	557,725	557,725	1,672,277
+ Interest on original cost recovery for 2016/17 to 2017/18						
Barwon Water	4.5%	4.4%	710,827			
South Gippsland Water	4.5%	4.4%	44,427			
Westernport Water	4.5%	4.4%	44,427			

Interest on the deferred (originally proposed) cost recovery from regional water businesses is determined using the formula below. The interest rate proposed is consistent with the forecast WACC (see page 32):

$$Int_j^{2018/19} = (Orig\ costs_j^{2016/17} \times 4.5\%) + (Orig\ costs_j^{2016/17} \times 4.4\%) + (Orig\ costs_j^{2017/18} \times 4.4\%)$$

Where

$Int_j^{2018/19}$ is retailer j interest charge on the deferred originally proposed cost recovery

$Orig\ costs_j^{2016/17}$ is retailer j originally proposed cost recovery for 2016/17

$Orig\ costs_j^{2017/18}$ is retailer j originally proposed cost recovery for 2017/18

Victorian Desalination Project costs pass-through

Melbourne Water is proposing a similar pass-through mechanism for costs associated with the VDP as applied in the 2013 regulatory period. This serves to ensure Melbourne Water only receives revenue through actual costs incurred. As per the 2013 Price Determination, it is proposed this would apply to contract cost changes and costs associated with a water order.

Based on wholesale customer consultations, a minor revision is proposed to allow for individual desalinated water orders from metropolitan water utilities. For example, in relation to desalinated water, City West Water could now order 40GL of a 50GL order, with South East Water and Yarra Valley Water each taking 5GL, whereas in the past there would have been one order across all local water utilities. Pass-through

arrangements are proposed to take this into account. Appendix 6 provides details about this arrangement.

Harvesting tariff

Melbourne Water was asked by local water utilities to consider a harvesting and treatment adjustment mechanism or tariff in conjunction with improving the process for developing the water harvesting Annual Operating Plan (AOP) protocols.

The proposed harvesting and treatment tariff would enable the cost impacts of deviations to be addressed. These decisions may mean that Melbourne Water would need to reimburse the primary entitlement holders if less water is harvested and treated or Melbourne Water would need to charge more to the primary entitlement holders if additional water is harvested and treated.

Melbourne Water believes the best way to directly address this issue is through a comprehensive and collaborative review of the operating rules and guidelines underpinning these decisions and how they are communicated through the AOP process. A tariff alone may be one output of this revision but is unlikely to resolve the underlying issue.

Price control

It is proposed that price caps continue to apply for wholesale water charges in the 2016 regulatory period.

Victorian Desalination Project

The Victorian Desalination Project (VDP) complements Melbourne’s water supply catchments by providing a rainfall-independent source of water for the city. The VDP is a large-scale, guaranteed source of water capable of supplying up to 150GL a year when required. The payments made for the VDP reflect the costs of having the desalination plant, water transfer pipeline and operational power supply financed and built and for these to be maintained in a ready state, capable of water production when a water order is made.

The VDP was designed, constructed and financed – and is now operated and maintained – by AquaSure under a Public-Private Partnership agreement managed by DELWP on behalf of the State. As part of this arrangement, AquaSure will receive payments from the State until 2039 (a period of 27 years from when the VDP became operational in 2012). These payments are passed onto Melbourne Water and included in its wholesale water charges. There have been significant savings made by DELWP under the VDP contract since it was announced, which has resulted in reduced costs to water customers. Around \$1.4 billion (nominal) has been saved to date over the contract term.

As part of the *2016 Price Submission*, Melbourne Water is examining whether to extend the period over which the costs of the VDP are collected from customers. The term of the contract between the State Government and AquaSure does not change. Melbourne Water will continue make contract payments until 2039 but is able to collect some of the cost from customers over a longer period, reflecting the estimated life of the VDP of around 60 years. Spreading a portion of the contract cost of the VDP’s asset life would mean those who benefit from the VDP would contribute to its costs.

Melbourne Water’s proposal takes into account the requirements specified in the ESC’s guidance, and most importantly, the views of our customers and other stakeholders. As detailed on page 14, customer views were sought through a robust research program. This was supplemented by feedback from local water utilities and a combined submission from consumer advocacy groups. Melbourne Water’s proposal reflects the outcomes of this process.

VDP costs

Melbourne Water’s forecast contract payment costs are provided in Table 26. These represent the latest information provided by DELWP. Currently the entire contract payment amounts are attributed to operating expenditure for price setting purposes.

Table 26: VDP contract schedule (2015/16 Real Dollars)

	2016/17	2017/18	2019/20	2020/21	2021/22
Contract payment schedule	\$592.7M	\$583.8M	\$580.5M	\$568.7M	\$552.4M

Melbourne Water estimates that of this cost an average of \$119.7M per year relates to operating costs, with the remainder contributing to capital costs. This is consistent with the amounts included in our financial accounts. Melbourne Water’s estimate of the VDP’s asset average life is 60 years, consistent with the depreciation schedule applied in Melbourne Water’s financial accounts.

How we consulted

Melbourne Water consulted extensively on this issue. Key activities included:

- Obtaining public feedback through a *Consultation Paper* in June 2015
- Consultation with local water utilities
- Independent research program which included:
 - three deliberative-style forums held in early August 2015 attended by 122 participants, and
 - a separate quantitative survey of over 801 residential customers which sought responses to similar questions to those posed in the forums.

A wide range of scenarios for spreading VDP payments across the VDP’s asset life were considered as well as a scenario associated with adding the current written-down value of the asset to the Regulatory Asset Base (RAB) and treating it as a regulated asset. These scenarios were provided to local water utilities.

Melbourne Water also consulted with local water utilities, consumer groups and the ESC in the design of the research program. As part of the research program, residential and non-residential customers were first asked whether in principle (regardless of the short term benefits) they supported spreading the cost of the VDP. Customers were then presented with options relating to spreading \$20M per annum and \$40M per annum across the VDP’s asset life. These options were estimated to reduce average customer bills by around \$8 and \$16 respectively per year. The impact on Melbourne Water’s financials of these scenarios is provided in Table 27 and Table 28.

Table 27: Financial indicators for \$20M per year scenario

	2016/17	2017/18	2018/19	2019/20	2020/21
FFO interest cover	1.6	1.7	1.7	1.7	1.7
Net debt* / regulatory asset value	78.2%	74.5%	71.4%	68.4%	65.6%
FFO / Net debt*	5.5%	5.8%	6.1%	6.0%	6.0%
Internal financing ratio	87.9%	81.0%	89.7%	91.9%	95.3%

*Net debt is total interest bearing liabilities (including VDP lease liabilities). This is consistent with Melbourne Water’s accounting calculation of financial ratios.

Table 28: Financial indicators for \$40M per year scenario

	2016/17	2017/18	2018/19	2019/20	2020/21
FFO interest cover	1.6	1.7	1.7	1.7	1.7
Net debt* / regulatory asset value	78.3%	74.4%	71.1%	68.0%	65.1%
FFO / Net debt*	5.4%	6.0%	5.9%	5.9%	6.0%
Internal financing ratio	87.8%	83.8%	88.7%	91.4%	94.9%

*Net debt is total interest bearing liabilities (including VDP lease liabilities). This is consistent with Melbourne Water’s accounting calculation of financial ratios.

What customers and other stakeholders told us

Feedback from the *Consultation Paper*

Public feedback submitted via Melbourne Water’s website saw over 200 votes for spreading the ongoing payments of the VDP. Overall, just over half of the votes submitted were for continuing to collect the costs of the VDP over the existing contract period (51%) while 42% preferred the collection of the cost over the 60 year asset life. The remaining 7% were unsure.

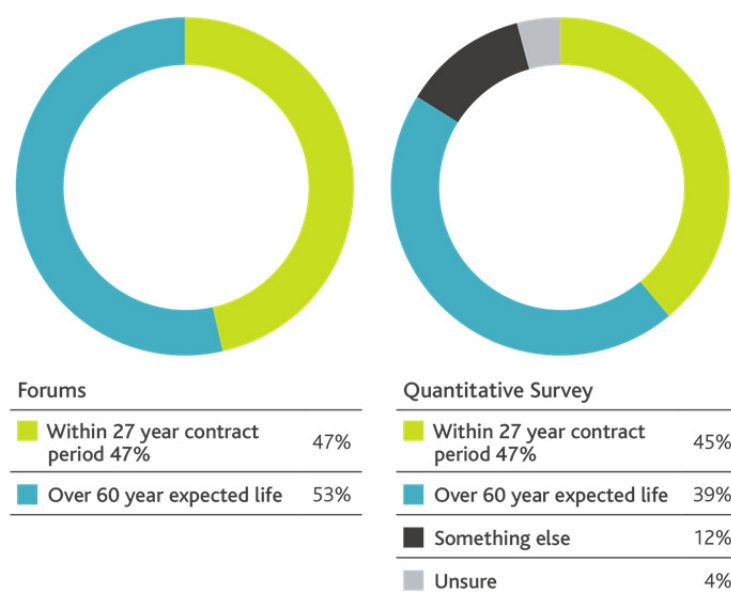
Independent research program

At the deliberative-style forums, participants were provided with an overview of the VDP and the concept of spreading the collection of the VDP costs over 60 years. They were then asked to indicate their in-principle preference for this option or for staying with the current payment timing before being presented with the specific price impact scenarios.

The in-principle results were divided, with 53% of participants preferring the 60-year option and 47% preferring the 27-year option.

In the quantitative survey, for the same question, 45% preferred the 60-year option, 39% the 27-year option and 12% said they would prefer something else. A small proportion said they were unsure (4%). Refer to Figure 11.

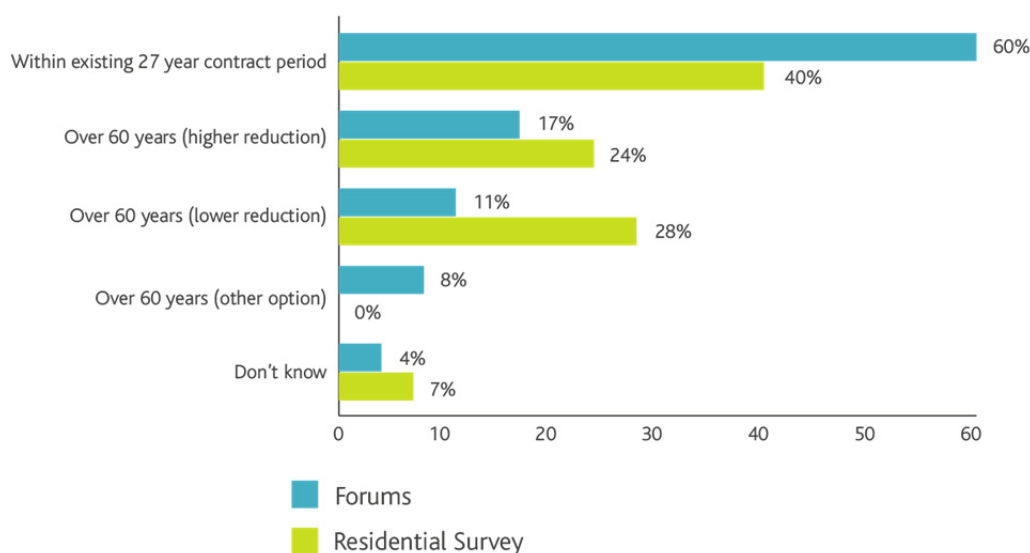
Figure 11: Research outcomes – in principle question



Following this exercise, participants were then provided with scenarios relating to spreading \$20M per year and \$40M per year over the 60-year estimated asset life. For an average customer, this was estimated to save around \$8 and \$16 respectively. The impact on other customer groups was also provided. Following presentation of these results, the majority of participants preferred to continue to pay within the existing 27-year contract period (60%), while just over a third (36%) preferred the option of spreading the payments over the longer period.

In the quantitative survey, for the same scenarios, 53% preferred the 60-year option, 40% the 27-year option and 7% said they would prefer something else. (refer to Figure 12).

Figure 12: Research outcomes – scenarios



Some feedback received during the forums that the scenarios presented seemed small in terms of overall customer impact, and therefore this influenced the results. While this was one of the reasons given by participants, the quantitative survey indicated the standout reason participants favoured paying the costs within the 27-year contract period was the preference to pay the debt sooner to save money and avoid higher interest in the long run (34%). Whereas only 15% of the reasons given for not wanting to spread payments were related to the price reduction amounts. Other reasons provided included concerns about burdening future generations (11%), an expectation that costs would continue to go up so it would be better to pay now at the current price (9%), and similarly that the future was not certain and that other things would arise that would need to be paid for in the years ahead (8%).

Research conclusions

Overall, consistent with previous customer testing on this issue, Melbourne Water found customers had strong, but split views on the issue. Melbourne Water is confident this independent research accurately reflects the preferences of end-

consumers from across greater Melbourne in light of the robust methodology and mix of participants.

Local water utilities

Local water utilities were provided with all of the scenarios they requested for spreading the costs over the 60 years. Feedback received from local water utilities supported the spreading of the costs of the VDP over the life of the asset.

Consumer groups

Melbourne Water received a submission from the Victorian Council of Social Services, the Consumer Utilities Advocacy Centre and the Consumer Action Law Centre, which outlined their combined position to support spreading the costs of the VDP over its asset life. The groups indicated:

“We believe that it is efficient and equitable that the costs of the desalination plant should be spread across the customers who will benefit from the plant over its estimated 60 year life.”

Proposed approach to capitalisation

Weighing customer feedback with advice from local water utilities and customer advocacy groups, Melbourne Water’s proposed approach is to spread a relatively small proportion of the VDP payments, totalling \$100M, over the 2016 regulatory period (refer to Table 29).

While deliberative research did not conclusively support spreading payments at this time, Melbourne Water believes there are good reasons for spreading a small amount of the VDP costs, because it:

- Provides further bill relief (in addition to savings identified elsewhere in the 2016 Price Submission) at a time where affordability is a significant issue for customers
- Acknowledges the views of consumer groups and local water utilities in relation to the principle of aligning the cost of the VDP with the benefits. This also provides a more efficient price signal for providing this service
- Does not impose significant interest costs for future customers which was a concern raised by many community research participants
- Will ensure the issue is considered in the next regulatory period.

Table 29: VDP amounts attributable to opex and capex (2015/16 Real Dollars)

\$M	2016/17	2017/18	2019/20	2020/21	2021/22
Amounts attributable to operating expenditure	\$572.7M	\$563.8M	\$560.5M	\$548.7M	\$532.4M
Amounts attributable to capital expenditure	\$20M	\$20M	\$20M	\$20M	\$20M

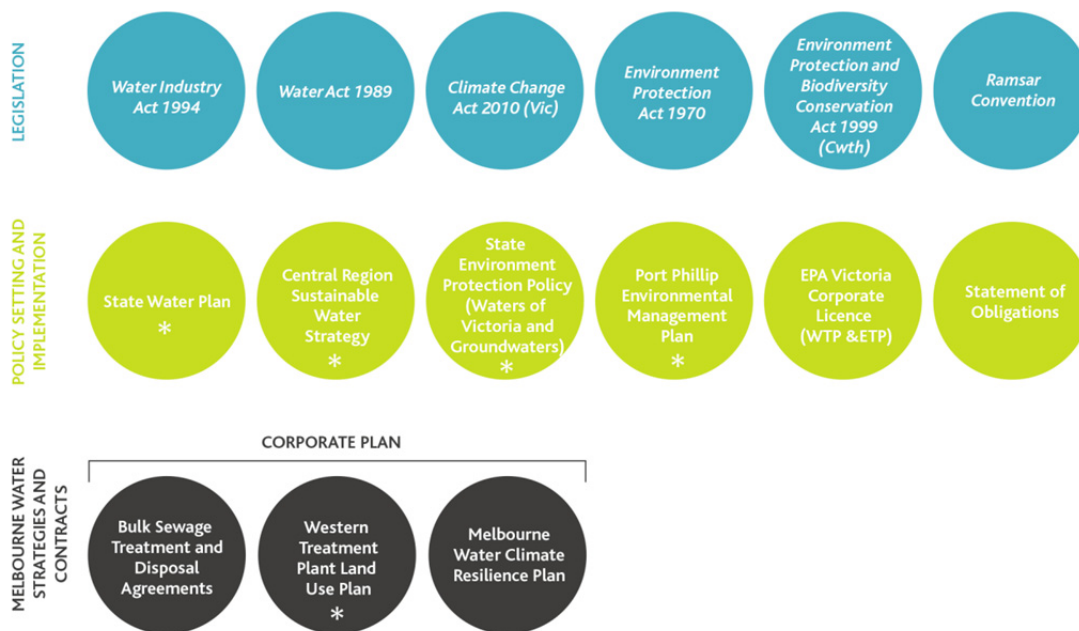
Wholesale sewerage services

Government and customer obligations and requirements

Melbourne Water transports, treats and disposes of 90% of the sewage generated in Melbourne at two treatment plants: the Western Treatment Plant (WTP) and the Eastern Treatment Plant (ETP).

These services are delivered under a range of legislative, policy and contractual obligations, outlined in Figure 13.

Figure 13: Wholesale Sewerage legislative and policy framework



*Currently under review, in draft or in development

Service outcomes

Melbourne Water’s service outcome for wholesale sewerage is the provision of safe sewage transfer and treatment to local water utilities.

Melbourne Water’s proposed expenditures are based on existing policies and obligations. These obligations require that expenditure is prudent and efficient and delivers demonstrated community benefit.

Several policy documents are currently under review or development. During the writing of this submission Melbourne Water has liaised with regulators and policy makers to understand any emerging obligations, and expenditures have taken into

consideration proposed changes to the Statement of Obligations¹⁵. Any major new obligations that emerge following the development of this pricing submission, that require delivery during the period, will be met through reprioritising existing expenditure in consultation with our customers.

How we consulted

Melbourne Water has consulted with a range of sewerage customers and regulators on service outcomes that apply under a wide range of customer, regulatory and legislative requirements.

Melbourne Water's key customers for sewerage services are City West Water, South East Water and Yarra Valley Water. We also provide recycled water to a range of customers from the WTP and ETP (see page 82). The WTP provides a range of diverse services to the community, including supporting significant biodiversity values.

Consultation has been undertaken with DELWP and EPA Victoria to ensure Melbourne Water's sewerage service aligns with current government policy and EPA guidance.

What our customers told us

Following consultation with our sewerage customers, standards of service for the 2016 regulatory period remain the same as the 2013 regulatory period.

However, during the consultation phase, customers sought a greater ability to 'trade off' standards of service for cost. During this 2016 regulatory period, Melbourne Water will work with local water utilities to develop information, processes and systems to support the ability to better understand and make potential trade-offs on a whole of system basis.

EPA Victoria provided Melbourne Water with guidance for the *2016 Price Submission*.

How we responded

A draft of the capital program was circulated and refined via a number of rounds of consultation. Examples of the changes made in response to feedback include:

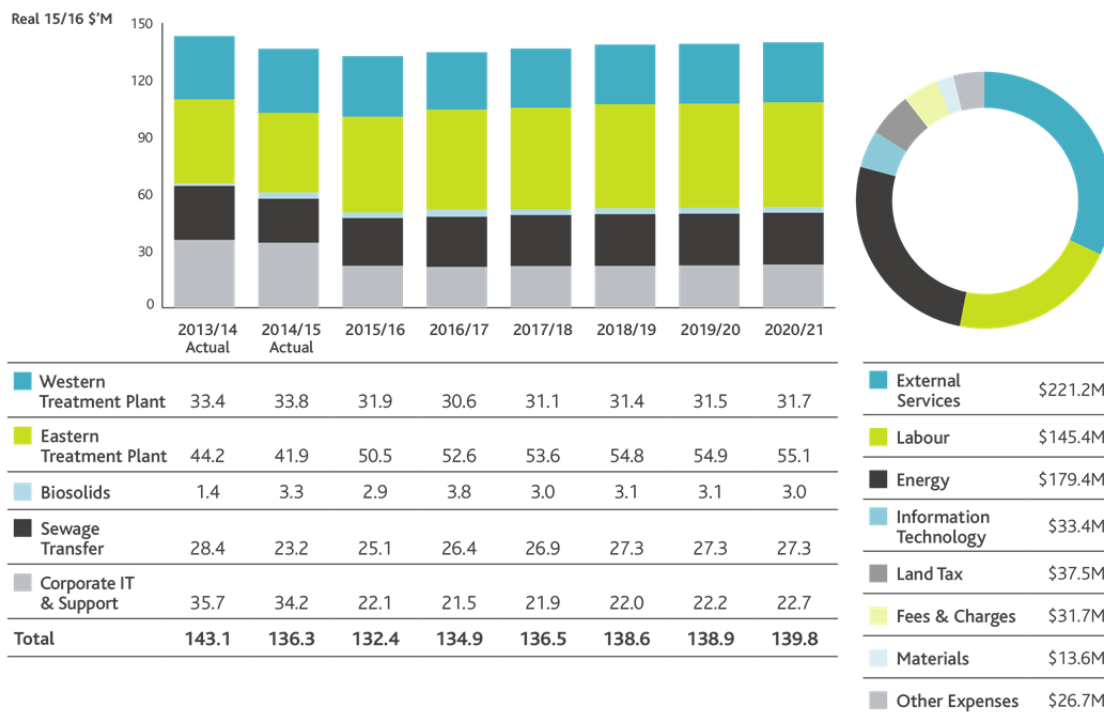
- Re-phased \$104.8M of expenditure at ETP by re-phasing the \$57.2M Aeration Tanks Works Augmentation and the \$47.6M Primary Tank Augmentation (leaving only design costs during the 2016 regulatory period)
- Reviewed optimisation initiatives to find approximately \$12M in efficiencies by integrating the Waste Activated Sludge Pre-Treatment project within the current budgets of other related projects
- As part of a commitment to customers to review a range of projects, we have reviewed risk assessments for a range of sewerage projects resulting in the re-phasing of Gardiner's Creek Sewer Main Upgrade (\$6.2M) and the Kew Sewer Pump Station Upgrade (\$4.1M).

¹⁵ Draft issued 4 June 2015

Proposed operating expenditure

Forecast sewerage operating expenditure is \$688.8M over the 2016 regulatory period, accounting for 14.7% of total operating expenditure. Average annual operating expenditure equates to \$137.8M (see Figure 14).

Figure 14: Wholesale sewerage operating expenditure by program area and 5-year total by driver (2015/16 Real Dollars)



There are no significant operating expenditure increases proposed. The main drivers of operating expenditure are external services (which includes maintenance), labour and energy

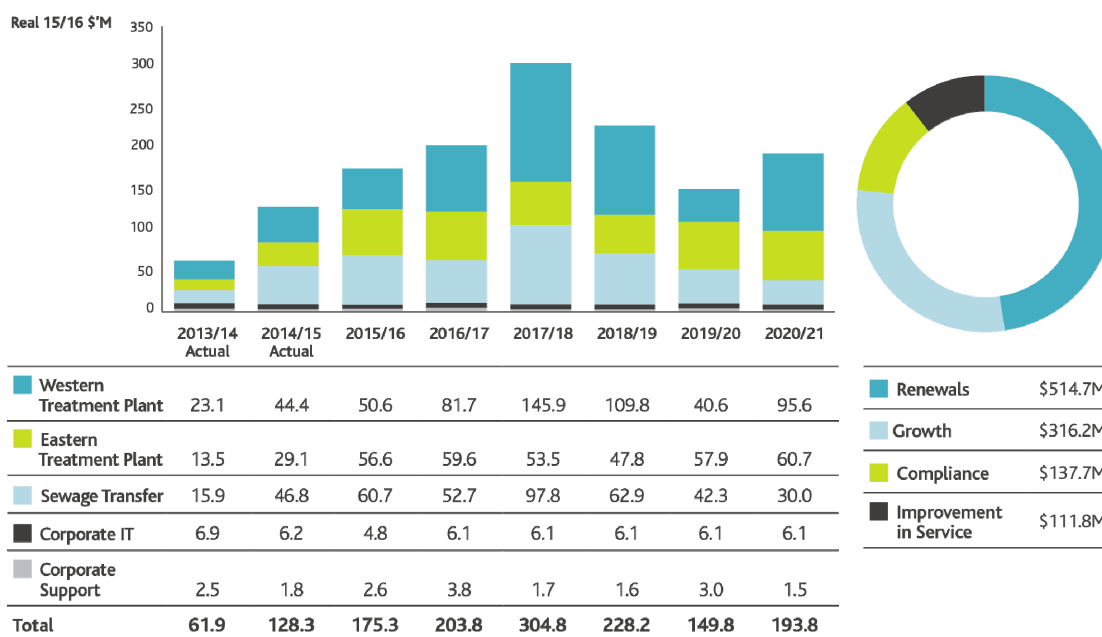
Proposed capital expenditure

Planned capital expenditure for sewerage projects totals \$1,080.5M or approximately 40.4% of total proposed capital expenditure (Figure 15).

Expenditure consists of identified major projects as well as allocations for minor works and renewals. These works will be undertaken in a rolling manner throughout the 2016 regulatory period to ensure prudent and efficient asset management.

The program is mostly driven by the renewal of sewers and growth-related infrastructure projects at ETP and WTP.

Figure 15: Wholesale sewerage capital expenditure by program area and 5-year total by driver (2015/16 Real Dollars)



Looking ahead

The majority of the sewerage capital spend is in WTP growth and sewerage transfer renewals of major main sewers:

- A significant investment program is proposed at WTP over the 2016 regulatory period to manage receiving water quality and provide capacity for growth. Significant projects to cater for growth include the second stage of treatment capacity augmentation (\$182.2M), increasing sludge drying capacity (\$38.6M) and a new biosolids stockpile area (\$9.5M). Some significant renewals are also proposed, including the renewal of the existing activated sludge plant (\$74.7M), with around \$16.9M spent on renewing existing sludge drying assets, and M&E asset renewals to maintain service levels (\$29.9M)
- The majority of planned investment at ETP is for renewing assets such as mechanical and electrical renewals (\$90.7M), minor civil asset renewals (\$18.8M) and blowers (growth and renewals) (\$25.1M). Other works are being undertaken to cater for sewage load growth such as increasing sludge thickening and digestion capacity (\$41.1M)
- Critical sewer renewals planned for delivery over the 2016 regulatory period include the Maribyrnong River Main (\$17.2M), the Hobsons Bay Main renewal (\$42.4M) and the Hawthorn Main renewal (\$28.3M), while \$11.4M is allocated to reduce odour to meet EPA Victoria requirements. Work will also be undertaken on the Hobson’s Bay Main Sewer Yarra Crossing Asset Life Optimisation Project (\$40.2M), which has enabled the renewal of this asset to be deferred by around 25 years. Mechanical and electrical renewals will also be undertaken in the sewerage transfer system of around \$37.1M to maintain standards of service.

- Around \$11.6M will be invested to deliver the outcomes of the *Ringwood Sewerage Strategy* to manage water quality and meet EPA Victoria obligations.

Major capital projects

Our top five sewerage capital projects are listed in Table 30 along with the top five renewals allocations.

Table 30: Sewerage major projects (2015/16 Real Dollars)

Project Name	Driver (ESC)	Program	Start Date ¹⁶	End Date	Outcome	TOTAL Project Costs \$M	TOTAL 2016 Pricing Sub \$M
Projects							
WTP Treatment Capacity Increase	Growth (100%)	Sewerage Treatment / Disposal WTP	11/12	20/21	Compliance with EPA Vic discharge licence requirements at the WTP and meet Bulk Sewage Agreement requirements.	\$193.3	\$182.2
WTP 55E ASP Renewal	Renewal of existing infrastructure (50%) Compliance (50%)	Sewerage Treatment / Disposal WTP	10/11	24/25	Compliance with EPA Vic discharge licence requirements at the WTP and meet Bulk Sewage Agreement requirements.	\$103.5	\$74.7
ETP Sludge Digestion Augmentation	Growth (100%)	Sewerage Treatment / Disposal ETP	14/15	22/23	No offensive odours beyond the boundaries of the ETP and meet Bulk Sewage Agreement requirements.	\$41.5	\$41.1
Upper Hobsons Bay Main Sewer Renewal	Renewal of existing infrastructure (100%)	Sewerage Transfer	11/12	20/21	Meet Bulk Sewage Agreement requirements.	\$42.9	\$42.4
WTP Sludge Drying Pans Augmentation	Growth (100%)	Sewerage Treatment /Disposal WTP	16/17	19/20	To increase the sludge drying capacity at the WTP by 5,250 dry tonnes per annum.	\$38.6	\$38.6
Allocations							
ETP – M&E Assets Renewals Program	Renewal of existing infrastructure (100%)	Sewerage Treatment /Disposal ETP	Ongoing		Compliance with EPA Vic discharge licence requirements at the ETP and meet Bulk Sewage Agreement requirements.	NA	\$90.7

¹⁶ Note that some start dates are several years previous. This is because the start date is the date that investigations commence. Some projects will have long investigative stages, or have been suspended due to re-prioritisation since commencing investigation.

Project Name	Driver (ESC)	Program	Start Date ¹⁶	End Date	Outcome	TOTAL Project Costs \$M	TOTAL 2016 Pricing Sub \$M
Hobsons Bay Main Yarra Crossing Optimisation Program	Renewal of existing infrastructure (70%) Improvement in Service (30%)	Sewerage Transfer		Ongoing	Meet Bulk Sewage Agreement requirements.	NA	\$40.2
Sewer Transfer – M&E Assets Renewals Program	Renewal of existing infrastructure (100%)	Sewerage Transfer		Ongoing	Meet Bulk Sewage Agreement requirements.	NA	\$37.1
WTP – M&E Assets Renewals Program	Renewal of existing infrastructure (100%)	Sewerage Treatment /Disposal WTP		Ongoing	Compliance with EPA Vic discharge licence requirements at the WTP and meet Bulk Sewage Agreement requirements.	NA	\$29.2M
ETP – Minor Capital Assets Renewals Program	Renewal of existing infrastructure (100%)	Sewerage Treatment /Disposal ETP		Ongoing	Compliance with EPA Vic discharge licence requirements at the ETP and meet Bulk Sewage Agreement requirements.	NA	\$18.8M

Forecast demand

Figure 16 and Figure 17 provide the volume and load forecasts for sewerage services for the 2016 regulatory period. Demand in volume terms is expected to continue to increase at a rate of 1.8% over the five year period while load demand is dependent on expected economic conditions. Sewage volume demand is growing at a faster rate than water (1%) due to potable substitution and other contributing factors. It has been assumed that sewage volume and load will continue to grow at this rate in the following regulatory period commencing 2021/22.

Figure 16 Wholesale sewage volumes (GL)

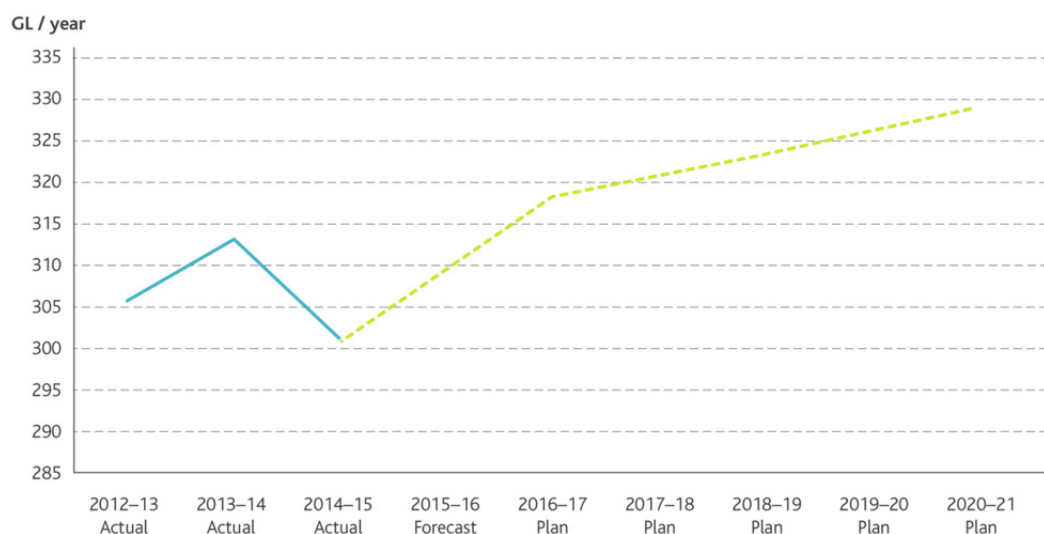
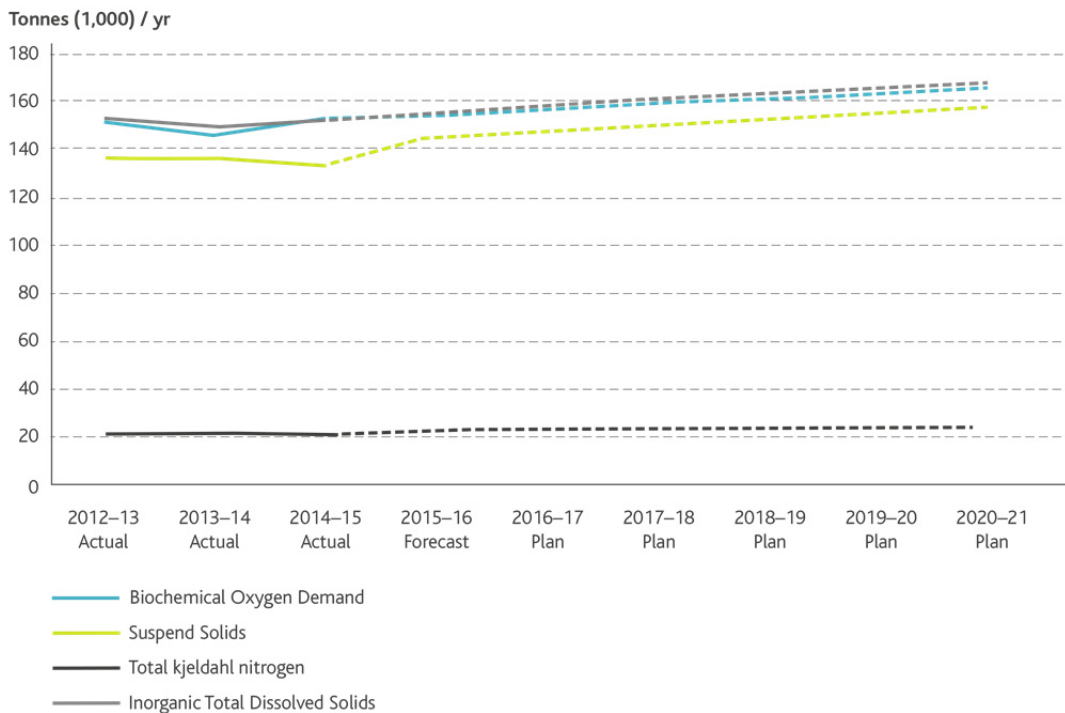


Figure 17: Wholesale sewage load ('000 tonnes)



Forecasting methodology and assumptions

The assumptions used by local water utilities to develop sewage demand forecasts are similar to those used to develop wholesale water forecasts, and include population growth, economic activity and climatic conditions. These forecasts also account for volumes diverted to local treatment plants operated by the local water utilities.

The sewage load forecasts were prepared by a joint Melbourne Water / local water utilities working group, with forecasts calibrated to observed loads at Melbourne Water’s treatment plants. Future projections accounted for:

- Population growth
- The overall level of economic activity
- Industrial closures accounted for where known.

Inflow and infiltration of the sewerage transfer system associated with wet weather events contributed to some observed variability in the historical data.

The combined local water utility sewage volume forecasts were reviewed by Frontier Economics using a similar approach to the wholesale water volume forecasts, discussed on page 44.

Proposed tariffs and prices

This section outlines the current prices for Melbourne Water’s wholesale sewerage services, as well as proposed price changes since the 2013 regulatory period.

How we consulted

Melbourne Water has consulted extensively with the local water utilities in the development of wholesale sewerage price structures. This included:

- Engaging Jacobs to prepare a discussion paper to assist in identifying options for wholesale sewerage prices, structures and price control arrangements for the *2016 Price Submission*
- Circulating the Jacobs report to local water utilities and holding workshops to discuss the report's proposals and consulting further on issues identified
- Regular regulatory manager meetings.

Summary of proposed changes

The primary change proposed to wholesale sewerage tariffs involves implementing separate sewerage treatment and transfer volume prices for each system. This change will:

- Provide clearer signals relating to the costs of transferring and treating sewage in the eastern and western systems
- Minimise adverse cost impacts on local water utilities during significant storm and wet weather events.

More detail about the proposed changes to wholesale sewerage prices, including feedback from customers, is provided below.

Wholesale sewerage prices

Melbourne Water currently has separate wholesale sewerage prices for its eastern and western systems. The sewerage prices comprise 'variable' and 'fixed' components with variable charges for the volume transferred and treated in the eastern and western system respectively and a fixed charge for each local water utility.

In addition, Melbourne Water has separate variable prices for major trade waste parameters (i.e. biological oxygen demand, suspended solids, total kjeldahl nitrogen and inorganic total dissolved solids) treated at the ETP and WTP.

These parameters reflect the different costs of transferring and treating sewage and trade waste in the east and west of Melbourne. Variable and fixed prices for 2015/16 are set out in Table 31.

Table 31: Wholesale sewerage variable and fixed prices in 2015/16 (2015/16 Real Dollars)

	Western System		Eastern System
Volume (\$/per ML)		342.4	595.4
Biological Oxygen Demand (\$/per tonne)		17.1	585.3
Suspended solids (\$/per tonne)		3.4	323.5
Total kjeldahl nitrogen (\$/per tonne)		285.8	1,210.1
Total dissolved solids (\$/per tonne)		29.3	29.3
	City West Water	South East Water	Yarra Valley Water
Fixed price (\$/per month)	8,653,393	11,244,398	12,277,962

During the consultation phase, metropolitan water utilities expressed a preference to disaggregate western and eastern volume tariff into separate transfer volume and treatment volume components for each system. Under this approach it is proposed that separate fixed prices for each wholesale customer would remain.

The metropolitan water utilities believe developing separate transfer and treatment prices would provide clear signals relating to the costs of transferring and treating sewage in each system. Signals include the cost of the investment or operations needed to meet increased demand and the cost that could be avoided if demand was reduced. Prices would also inform the metropolitan water utilities' decisions around local versus central treatment, including innovative treatment options.

During the 2013 regulatory period Melbourne Water set its variable sewerage prices to align with Victorian Government policy, which required a minimum 60% variable component on water bills. This resulted in variable sewerage prices being greater than the true variable costs.

Metropolitan water utilities expressed concern that during significant storm and wet weather events they were exposed to inappropriate additional costs due to increases in inflow and infiltration that were out of their control. They expressed a preference for variable sewerage prices based on each local water utility's short run marginal costs so they would only be exposed to the true variable costs during wet weather events.

Taking this feedback into account, Melbourne Water proposes to implement separate variable transfer and treatment prices for its ETP and WTP sewerage systems. It is proposed that variable treatment prices would reflect the long run marginal cost and variable transfer prices would reflect the short run marginal cost. A dollar per month charge, reflective of the difference in revenue, is also proposed.

Major trade waste parameters

During the consultation phase for the *2016 Price Submission*, City West Water raised concern over the ongoing relevance of inorganic total dissolved solids (ITDS) as a trade waste parameter impacting on price. City West Water questioned the meaningfulness and effectiveness of a price on ITDS, and suggested it was no longer required because:

- The polluter-pays prices were levied only on trade waste customers, even though they were only one of the significant contributors to ITDS levels – the others being inflow and infiltration as well as residential customers. City West Water argued the pricing signal was only reaching a subset of customers and was therefore ineffective. Likewise they argued signals could not be meaningfully sent to residential customers as it was difficult for them to respond
- The prices were not passed on by all local water utilities to trade waste customers and, where they were passed on, the prices were not always reflective of those levied by Melbourne Water

- The prices were not reflective of the costs that could be avoided given the tariff was initially implemented on a transitional path to avoid price shocks, yet full transition has not been achieved.

Melbourne Water considers the driver for ITDS prices is to send a polluter-pays signal to trade waste customers about the costs associated with treating sewage at ETP or WTP, particularly the cost required to produce fit-for-purpose recycled water.

Treatment costs are based on how close plant inflows are to EPA Victoria limits for ITDS. Higher costs to treat recycled water reflect influent levels that are close to licence limits. Therefore, a price reflecting these costs sends a signal about costs that could be avoided if lower influent levels were received by ETP or WTP. Removing ITDS prices would also remove a price signal about the future costs of addressing ITDS.

For the reasons outlined above, Melbourne Water proposes to maintain the current ITDS price as set in 2015/16 for the *2016 Price Submission*. Melbourne Water is however working with the local water utilities to assess the potential for regulation of the amount of ITDS trade waste that customers can discharge to be compliment, or possibly replace, the ITDS charge in the future.

In relation to other major trade waste parameters (biological oxygen demand, suspended solids and total kjeldahl nitrogen), the local water utilities expressed a preference for prices to reflect their associated long run marginal cost. Melbourne Water proposes to retain biological oxygen demand, suspended solids, total kjeldahl nitrogen and ITDS prices for its ETP and WTP sewerage systems. These prices will be set to reflect the associated long run marginal cost. Table 32 outlines the proposed sewerage prices for 2016/17. A full list of Melbourne Water's proposed sewerage prices is included in Appendix 2.

Table 32: Proposed wholesale sewerage prices in 2016/17 (2015/16 Real Dollars)

	2016/17	2017/18	2018/19	2019/20	2020/21
1.5 Bulk sewerage usage charge – Treatment (\$/per ML)					
Western system	374.7	-	-	-	-
Eastern system	55.7	-	-	-	-
1.6 Bulk sewerage usage charge – Transfer (\$/per ML)					
Western system	36.8	-	-	-	-
Eastern system	5.3	-	-	-	-
1.7 Bulk sewerage usage charge – Load, major trade waste (\$/per tonne)					
BOD – western system	170.8	-	-	-	-
BOD – eastern system	427.5	-	-	-	-
SS – western system	141.8	-	-	-	-
SS – eastern system	819.1	-	-	-	-
TKN – western system	292.3	-	-	-	-
TKN – eastern system	210.1	-	-	-	-
TDS – western system	29.3	-	-	-	-
TDS – eastern system	29.3	-	-	-	-
1.8 Bulk sewerage service charge (\$/per month)					
City West Water	4,574,516	3.25%	1.90%	-2.62%	-0.45%
South East Water	12,158,196	2.67%	1.49%	-1.59%	-0.00%
Yarra Valley Water	10,075,750	2.92%	1.75%	-1.67%	0.05%

Price control

It is proposed that price caps continue to apply for wholesale sewerage charges in the 2016 regulatory period.

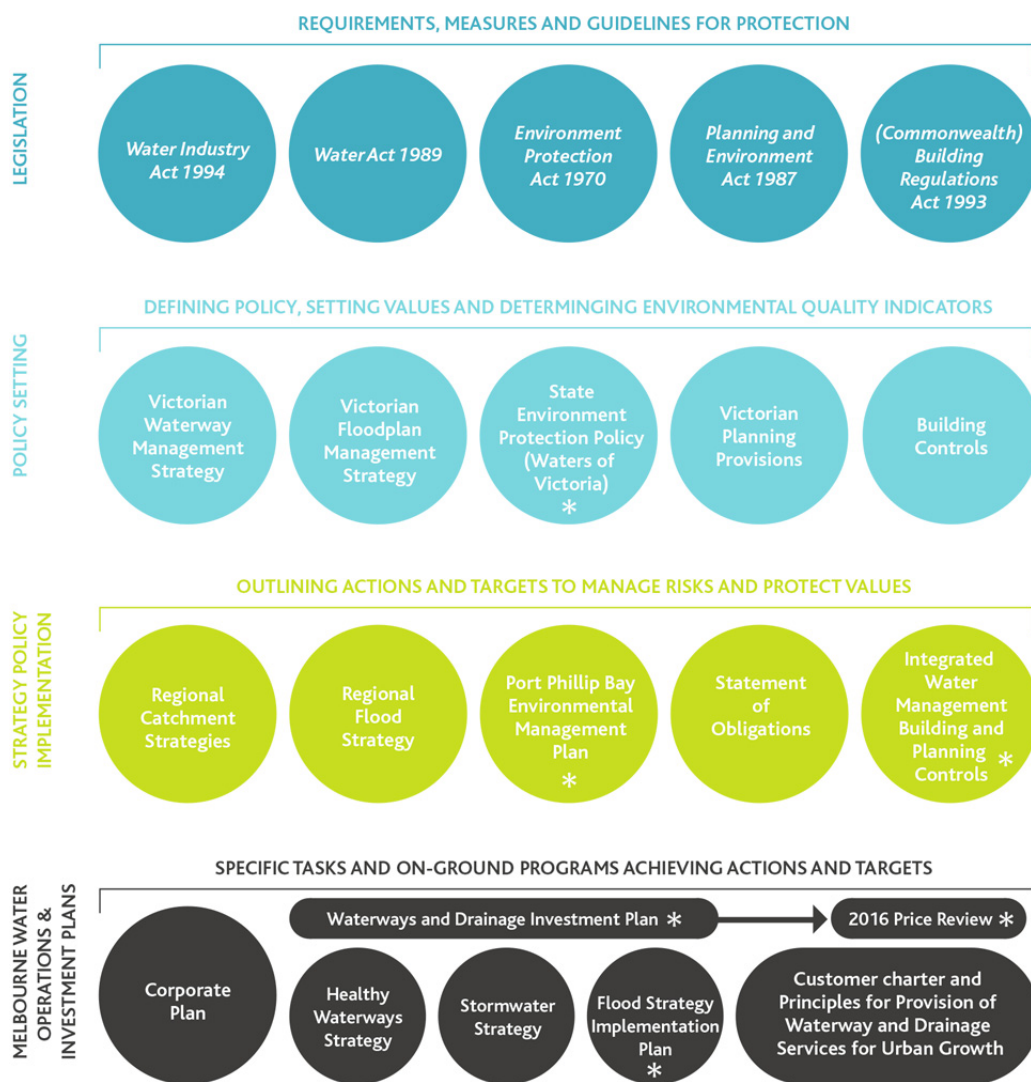
Waterways and drainage services

Government and customer obligations and requirements

Melbourne Water provides Waterway and Drainage Services to the people of the Port Phillip and Westernport Region.

These service obligations are ascribed to Melbourne Water under a comprehensive legislative and policy framework outlined in Figure 18.

Figure 18: Waterways and drainage legislative and policy framework



*Currently under review, in draft or in development

Service outcomes

Melbourne Water delivers its waterways and drainage services to benefit the community. Extensive consultation with customers and stakeholders informs how these services are delivered.

Our *flow and water access management, incident response and information provision* and *land development* services include established responsibilities, clear obligations and standards of service definitions. Melbourne Water works closely with water users, the Victorian Environmental Water Holder, development industry representatives, emergency service providers and EPA Victoria to ensure these services are delivered effectively and efficiently.

The *waterway condition management, stormwater quality and quantity management* and *flood risk management* services are clear Melbourne Water obligations. The standards of service for these services is determined by customer preferences and willingness to pay. Each of these services is underpinned by a strategy developed in consultation with the community and key stakeholders.

Our approach to determining the optimal standard of service for waterways and drainage services is driven by considering a variety of options for prudent and efficient expenditure against our obligations and what our customers are willing to pay. This process provides clarity of intent in terms of expenditure, customer benefits and intended outcomes. This process included:

- The Department of Treasury and Finance's Investment Logic Mapping
- Understanding willingness to pay, and
- Analysis of costs, risks and priorities.

A detailed explanation of this work is set out in Melbourne Water's Waterways and Drainage *Investment Plan* which Melbourne Water is required to prepare under the Statement of Obligations.

How we consulted

Melbourne Water invested significant effort during the development of the *2016 Price Submission* to understand customers' willingness to pay for waterways and drainage services. More detail about this process is provided on page 15, which included:

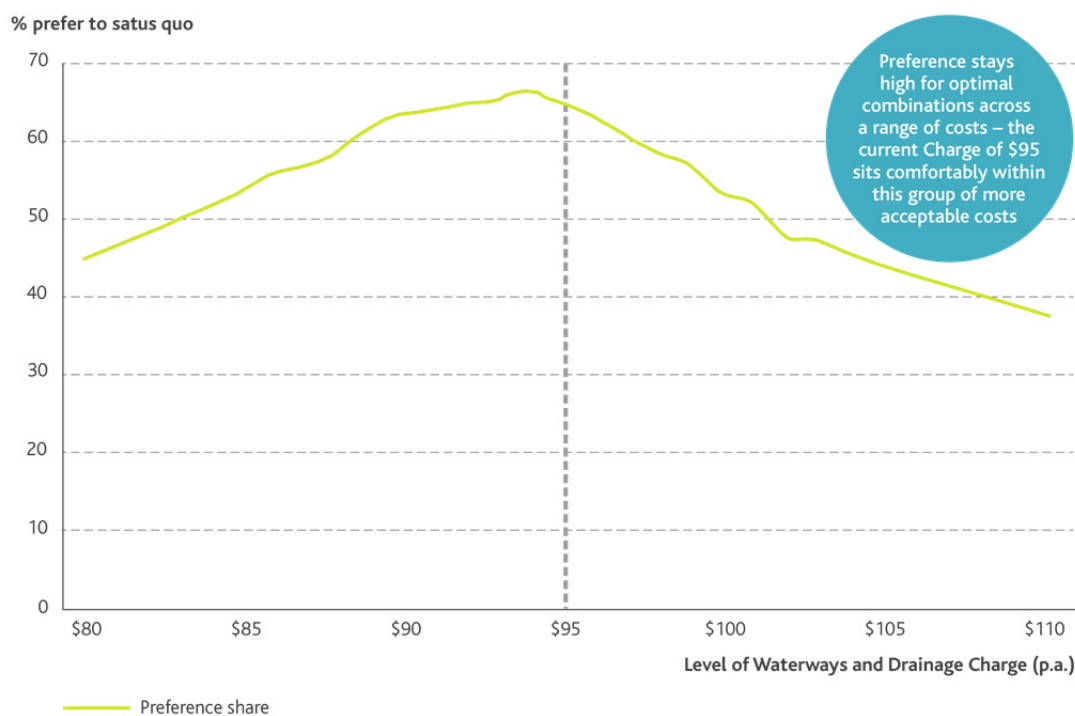
- A customer survey of over 1,000 residential and non-residential customers to understand customer preferences about the overall extent of investment in delivering waterway and flooding outcomes, as well as the types of activities that they would like Melbourne Water to invest in
- A willingness-to-pay study conducted by La Trobe University investigating customer preferences for waterway outcomes
- Interviews with a number of local councils, culminating in a *Local Government Customer Charter* in late 2015.

What our customers told us

The results of our consultation program indicate broad satisfaction with Melbourne Water’s current level of investment in waterways and drainage services, with a high proportion of respondents indicating a willingness to pay aligned with the existing Waterways and Drainage Charge. The survey findings suggest that customer preference diminishes where standards of service result in a lower Waterways and Drainage Charge than the current price. This is also true to a greater extent where standards of service imply a higher price. While supporting the current price, customers also indicated a desire for a broader mix of services:

- 65% prefer the optimal combination of benefits at the current price of \$95
- Consumers want to change the level of 11 of the 18 benefits.

Figure 19: Customer preferences for waterways and drainage services (2015/16 Real Dollars)



Note: This chart shows the percentage of the community who prefer the optimal combination of activities at each cost to the status quo (current activities funded by the charge).

The customer survey, based on a trade-off approach, indicated the greatest preference for maintaining the Waterways and Drainage Charge at its current level.

The outcomes of the willingness-to-pay study conducted by La Trobe University indicated that Melburnians value waterways and are willing to pay for ecological and amenity improvements. However, greater value is placed on ecological improvements while a willingness to pay for amenity improvements is only significant where an equal or greater investment is made for ecological improvements.

These insights from customers and the wider community were a key input into Melbourne Water’s investment and standards (*5 Price Submission*).

How we responded

Based on customer and community preferences, the proposed service outcomes for the delivery of the six waterways and drainage program areas over the 2016 regulatory period will be:

Flow and water access management

- Maintain our current level of service for this activity
- Continue to delivery environmental water requirements for major waterways

Land development

- Continue to deliver core service in line with our obligations and customer expectations
- Implement a program of investigation into waterway standards and greenfield and brownfield opportunities

Incident response and information provision

- Continue to meet agreed obligations for emergency management and incident response.
- Invest for management of pollution incidents

Waterway condition management

- Deliver targeted waterway management programs with an emphasis on planning controls, compliance and education.
- Increase investment to directly improve up to 30ha of green space for shade and cooling
- Naturalise concrete drainage channels for improved ecology and amenity

Stormwater quality and quantity management

- Work to improve cost effectiveness and enhance range of catchment interventions
- Maintain our stormwater treatment wetlands as per our obligations

Flood risk management

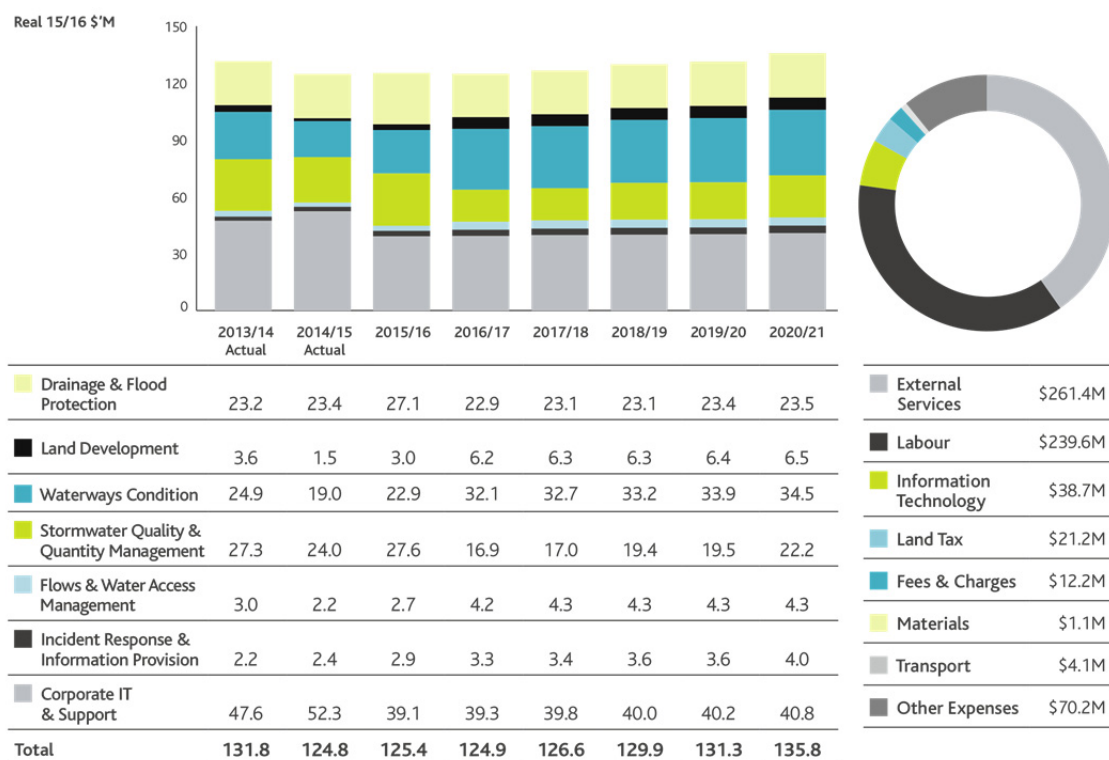
- Continue to address the legacy flood risks on a priority basis
- Improve community awareness of flood exposure and mitigation options.

Proposed operating expenditure

Forecast operating expenditure for waterways and drainage services over the 2016 regulatory period is \$648.5M (Figure 20).

This expenditure will be used to maintain 8,400km of waterways, 442 stormwater quality treatment systems, 30 estuaries, 1,500km of major drains, 235 retarding basins, 197km of levee banks, 22 pump stations, 10 tidal gates, and 160 urban lakes.

Figure 20: Waterways and drainage operating expenditure by program area and 5-year total by driver (2015/16 Real Dollars)



Looking ahead

A focus for the 2016 regulatory period will be the efficient management of waterways and drainage assets.

The number of waterways and drainage assets Melbourne Water is required to maintain is predicted to increase significantly, primarily due to urban development. It is estimated to maintain these additional assets at current standards of service would require an additional \$17.7M over the 2016 regulatory period. Melbourne Water intends to spend an additional \$9.7M, and save \$8.0M by adjusting the scope and volume of waterway and wetland condition maintenance.

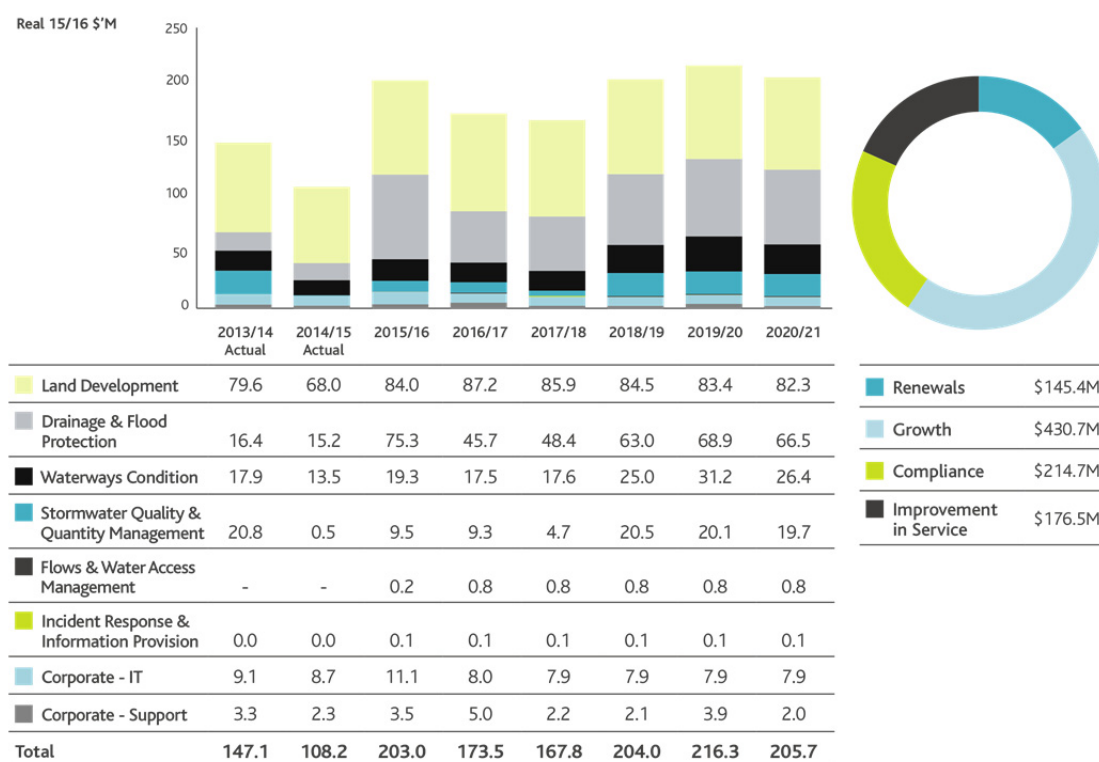
Melbourne Water will also invest around an additional \$8.5M to achieve a more sustainable regime to manage wetland sediment, in line with EPA Victoria's direction to Melbourne Water to achieve the regulatory requirements of State Environment Protection Policy (Waters of Victoria) and the 2001 *Port Phillip Bay Management Plan* nitrogen targets.

Melbourne Water will work with policy makers and EPA Victoria to review appropriate mechanisms for managing water quality. Melbourne Water will also provide significant incentives to local councils, landholders and the community to proactively protect waterways and water quality. This approach is efficient and effective as the condition of our waterways is strongly influenced by catchment-level drivers that are managed at a local level by multiple agencies. For this reason, we will invest to build the capacity of responsible agencies and community organisations to deliver better outcomes for waterways condition, water quality and flood protection. Operational expenditure will increase slightly over the 2016 regulatory period.

Proposed capital expenditure

Melbourne Water’s actual and forecast capital expenditure for waterways and drainage services over the 2016 regulatory period is \$967.3M or approximately 36.2% of Melbourne Water’s total proposed capital expenditure (Figure 21).

Figure 21: Waterways and drainage capital expenditure by program area and 5-year total by driver (2015/16 Real Dollars)



Looking ahead

Major capital expenditure for waterways and drainage service includes:

- \$423M for land development, including drainage and flood protection works as well as waterway protection works that support urban growth
- \$293M for flood risk management, of which:

- \$128M is allocated to address priority flooding issues in established areas of Melbourne where more than 130,000 properties are known to be at risk of flooding
 - \$46M is allocated to upgrade levees and retarding basins to meet the Australian National Committee on Large Dams (ANCOLD) guidelines, and \$70M is set aside to renew drainage assets
- \$118M to improve and protect priority waterways, estuaries and wetlands, in line with the targets in the *Healthy Waterways Strategy*, with \$68M for waterway improvement works across the regions five catchments
 - \$74M to protect the region’s waterways and the bays from the damaging effects of stormwater. Of this, \$53M is to maintain our obligated level of service for stormwater treatment to protect the water quality of Port Phillip Bay and Western Port Bay. This program relies on existing constructed wetland assets, which have an asset life of around 20 years. A proportion of this asset base will reach this milestone in 2018/19. In addition, current condition assessments indicate that investment is also required to ensure that assets not nearing the end of their asset life are operating as required.

Major capital projects

Melbourne Water’s top five waterways and drainage capital projects (by total project cost) are listed in Table 33, along with the top five renewals allocations. Each of these projects will be started or completed during the 2016 regulatory period.

Table 33: Major waterways and drainage capital projects (2015/16 Real Dollars)

Project Name	Drivers (ESC)	Program	Start Date	End Date	Outcome	TOTAL Project Costs \$M	TOTAL 2016 Pricing Sub \$M
Projects							
Murrumbeena Main Drain Flood Mitigation	Compliance	Drainage & Flood Protection	15/16	19/20	Reduced intolerable flood risks defined by the Flood Risk Assessment Framework	\$37.7	\$37.4
Alexandra Parade Main Drain Redecking	Renewals	Drainage & Flood Protection	18/19	21/22	Renewal of Drain Deck for compliance with Ausroads 1992 bridge design code	\$29.2	\$29.1
Jacana Retarding Basin Upgrade	Compliance	Drainage & Flood Protection	15/16	17/18	Retarding Basin assets meet SoO and ANCOLD requirements through identifying, assessing, prioritising and managing dam safety risks.	\$4.9	\$4.9
Regan St Retarding Basin	Compliance	Drainage & Flood Protection	15/16	17/18	Reduced intolerable flood risks defined by the Flood Risk Assessment Framework	\$9.6	\$9.3
Mile Creek East Retarding Basin Upgrade	Compliance	Drainage & Flood Protection	15/16	17/18	Retarding Basin assets meet SoO and ANCOLD requirements through identifying, assessing, prioritising and managing dam safety risks	\$6.5	\$6.1
Allocations							
Land Development Works	Growth	Land Development	Ongoing		New development will comply with flood protection standards and Meet BPEM Guidelines. All constructed waterways to meet Melbourne Water's standards	N/A	\$423.2
Flood Mitigation Works	Compliance	Drainage & Flood Protection	Ongoing		Reduced intolerable flood risks defined by the Flood Risk Assessment Framework	N/A	\$128.2 *Includes Project: Murrumbeena Main Drain Flood Mitigation

Project Name	Drivers (ESC)	Program	Start Date	End Date	Outcome	TOTAL Project Costs \$M	TOTAL 2016 Pricing Sub \$M
Healthy Waterways Strategy Delivery	Compliance	Waterways Condition	Ongoing		River, estuary and wetland improvement works including fish passage improvement, vegetation establishment and habitat to support our waterway values	N/A	\$68.4
Rehabilitation of Existing Wetlands	Renewals	Stormwater Quality	Ongoing		Stormwater treatment wetlands assessed reset and rehabilitated for compliance structural design intent	N/A	\$52.8 *Includes Project: Stormwater Quality Treatment Systems Improvements
Retarding Basin spillway/embankment upgrades	Compliance	Drainage & Flood Protection	Ongoing		Retarding Basin assets meet Statement of Obligations (ANCOLD requirements) through identifying, assessing, prioritising and managing dam safety risks	N/A	\$45.9 *Includes Project: Regan St Retarding Basin

Forecast demand

The demand for waterways and drainage services is based on the total number of rateable properties within Melbourne Water's management area. Therefore demand is driven by housing development in greenfield estates as well as subdivisions in established urban areas.

Year-end customer numbers are set out in Table 34 below. It has been assumed that the same growth rate would apply in the following regulatory period commencing 2021/22.

Table 34: Waterways and drainage customers at year end ('000)

	14/15	15/16	16/17	17/18	18/19	19/20	20/21
Residential	1,699	1,729	1,761	1,792	1,825	1,857	1,891
Non Residential	139	142	144	147	150	152	155
Rural	102	103	105	107	109	111	113
Patterson Lakes	1	1	1	1	1	1	1
Koo Wee Rup	4	4	4	4	4	4	4
Total WW&D	1,945	1,980	2,016	2,052	2,089	2,127	2,165
Growth Rate		1.8%	1.8%	1.8%	1.8%	1.8%	1.8%

Forecasting methodology and assumptions

Melbourne Water's overall average growth rate across all customer groups is 1.8% per annum over the 2016 regulatory period. This forecast is based on independent analysis prepared by BIS Shrapnel.

Proposed prices

This section outlines current prices for waterways and drainage services, as well as proposed changes to tariff structures since the 2013 regulatory period. Charges included within the waterways and drainage services are:

- The Waterways and Drainage Charge
- Precept area charges
- Developer Service Scheme charges
- Diversion charges
- Charges for miscellaneous services.

How we consulted

For the majority of the charges within the waterways and drainage, limited changes to the tariff structures are proposed. As such consultation took place using existing customer groups such as the Diversions Management Advisory Committee for diversions pricing and existing customer committees for the Patterson Lakes and Koo Wee Rup Longwarry Flood Protection District.

Waterways and Drainage Charge – Non-residential reform

In its guidance the ESC required Melbourne Water to move to a more cost-reflective tariff for the non-residential Waterways and Drainage Charge. It also required consideration of transition strategies for non-residential customers most affected by reforms. Given the substantial impacts of reforming this charge, Melbourne Water consulted extensively on this issue. Key activities included:

- Obtaining public feedback through a *Consultation Paper* in June 2015
- Deliberative research program which included:
 - three deliberative-style forums held in early August 2015 attended by 122 participants, and
 - a separate quantitative survey of over 801 residential customers which sought responses to similar questions to those posed in the forums.

These activities were designed to gain understand customer preferences for the reform on this charge (refer to page 14 for more information).

What our customers told us

Feedback from the *Consultation Paper*

Customers were invited to vote on preferred options for reforming the Waterways and Drainage Charge via Melbourne Water's *2016 Price Submission* website. Options presented to customers included updating the current property valuations, a property

impact charge or a flat charge consistent with residential customers. Melbourne Water received 70 on-line votes, with the majority of respondents preferring a property impact approach when levying the charge.

Deliberative research program

At the forums, participants were provided with a two-part presentation covering the Waterways and Drainage Charge and the concept of reforming it. They first considered whether they thought the charge should be changed and were then asked to consider a range of options for reform in the second part of the presentation. These options included:

- A property impact approach where each property pays a charge to reflect their relative impact on the waterways and drainage system
- A flat charge
- Updating property values from 1990 values to 2014,
- Leaving the charge as it is, or
- Something else.

Participants were asked to consider the various options through a brief roundtable discussion before moving around the room to discuss and consider the options in more detail at 'option stations'. Following a summary from facilitators, participants ranked options from most to least preferred.

In the quantitative survey, both residential and non-residential customers were asked for their views. Residential customers were given more information as the research was conducted online.

Overall, many forum participants were unsure whether the Waterways and Drainage Charge should be reformed (35% in the forums and 28% in the survey). However, in terms of options tested, the property impact approach was the most preferred overall, with 40% nominated this option. However among non-residential customers, the most preferred option was the flat charge (31%, followed by property impact at 28%). In the quantitative survey, residential customers' preferred option was a property impact charge at 46%. While for non-residential customers, 32% of respondents nominated both the flat rate and to leave it as is.

Research conclusions

Overall, participants did not form a clear consensus on a preferred option for levying the Waterways and Drainage Charge, which likely reflects the complexity of the topic and that many participants felt a hybrid approach may be better. However the research program encouraged Melbourne Water to:

- Consider a hybrid approach for non-residential customers that was administratively simple, relatively low cost and related to the benefits received or impact on waterways and the drainage system
- Consider a charge where the large majority of non-residential customers paid a basic flat charge, while a property impact charge was adopted for some customers, and

- Establish a non-residential flat charge that is roughly 1.5 times that for residential customers, which many supported on the basis that this reflected the average run-off ratio between residential and non-residential customers.

Proposed approach based on feedback received

Significant changes are proposed to the Waterways and Drainage Charge and some minor changes are proposed to miscellaneous service charges. The remainder of Melbourne Water’s tariff structures remain unchanged.

Waterways and Drainage Charge

As a result of the customer research, Melbourne Water proposes to reform the Waterways and Drainage Charge that applies to non-residential customers that still pay the charge based 1990 property values. Melbourne Water proposes the following changes:

- Transition the majority of non-residential customers to a flat charge to be set at 1.5 times the residential rate, and
- Transition towards a property impact charge for the higher impact customers (these have been assessed as the top 50 revenue paying non-residential customers) governed by pricing principles. These customers represent properties with the highest historical property values that generally have a proportionately higher impact on the drainage system and waterways.

No changes to the tariff structures are planned for residential and rural customers. To manage the transition arrangements, it is proposed that these customers’ prices remain at current levels and increase only in line with inflation. These arrangements are summarised in Table 35.

Table 35: Proposed Waterways and Drainage Charges (2015/16 Real Dollars)

	2016/17	2017/18	2018/19	2019/20	2020/21
Residential Price	\$95.58	\$95.58	\$95.58	\$95.58	\$95.58
Rural Price	\$52.52	\$52.52	\$52.52	\$52.52	\$52.52
Non-residential minimum	\$115.90	\$122.23	\$128.91	\$135.95	\$143.37
Non-residential (rate in \$NAV)	0.8533¢	0.6227¢	0.4544¢	0.3316¢	0¢
Property impact charge	Price established through pricing principles				

Proposed pricing principles

The proposed pricing principles for the identified higher impact customers are provided below.

The Waterways and Drainage Charge for the identified higher impact customers is proposed to be set to:

- Reflect the relative impact of each property on waterways under Melbourne Water’s management and its drainage system
- Include a component which can be offset through measures that mitigate runoff from properties
- Not change by more than 5% (in real terms) in any one year
- Not collect any more revenue in total (in real terms) from this customer group.

Melbourne Water provided a summary factsheet to consumer groups regarding the proposed changes and wrote to each of the customers impacted by the pricing principles about the proposed approach and offering a briefing.

How this meets requirements

Melbourne Water considers that its reform meets the needs of customers and the requirements of the ESC as set out in Clause 11 of the *Water Industry Regulatory Order 2014* (WIRO) in that it:

- Is consistent with customer feedback gathered through detailed research
- Limits price increases (in real terms) to a maximum of around \$7 per year (excluding the higher impact non-residential customers) or around 5.5% per year
- For the vast majority of customers, the tariff structure is simple to understand and reflects that everyone benefits from a safe and reliable drainage system and healthy waterways
- Is broadly reflective of costs in that the non-residential charge will be set at 1.5 times the residential rate to reflect the proportionally higher run-off created from non-residential properties
- Provides the opportunity to test opportunities to introduce an impact pays tariff model for a limited number of customers in a considered way.

Price control

Melbourne Water is proposing that a revenue cap be applied to the Waterways and Drainage Charge revenue collected from customers. The proposed revenue cap is provided in Table 36, which equals the revenue requirement for this service in present value terms over the five years.

Table 36: Revenue cap (2015/16 Real Dollars)

\$M	2016/17	2017/18	2018/19	2019/20	2020/21
Revenue cap	247.519	239.203	235.135	233.922	228.259

Within this revenue cap, Melbourne Water proposes to increase prices for residential and rural customers by CPI only across the 2016 regulatory period. Non-residential customers on the minimum charge will also have certainty in price changes as per Table 35. Likewise, consistent with the pricing principles, the revenue collected from the higher impact customers will be fixed (in real terms). The revenue cap will be met through adjustments to the customers to which the rate in \$NAV applies. Appendix 6 provides details about how the revenue cap will apply.

Melbourne Water considers this approach meets the relevant matters of clause 11 of the WIRO in that it provides certainty for the vast majority of customers while allowing for a degree of flexibility in managing the transition away from property values.

Patterson Lakes and the Koo Wee Rup Longwarry Flood Protection District

Proposed tariff structures for special precept areas will remain the same over the 2016 regulatory period, with a continuation of price annual adjustments for a 10-year transition of customers from property-based charges to a flat charge in the Koo Wee Rup Longwarry Flood Protection District.

Melbourne Water consulted with the customer advisory committee on standards of services moving forward. The committee indicated that it would like to see the level of service doubled but recognised that this would also result in prices doubling. The committee proposed to do its own consultation to gauge support but did not ultimately propose any change to existing arrangements.

Patterson Lakes will continue to pay for jetty maintenance and renewal services. The advisory committee expressed satisfaction with existing services levels and thanked Melbourne Water for completing the jetty renewal program.

In contrast, the Patterson Lakes Quiet Lakes Owners and Residents Association has expressed dissatisfaction with water quality in the ornamental lakes and wants Melbourne Water to implement and pay for a bore water flushing system. An independent review of pricing conducted in 2012/13 determined that this should be a fee for service arrangement. Melbourne Water will continue to consult with residents to see if they are willing to pay for water quality services. If so, Melbourne Water proposes that a principle-based tariff be determined based on the cost of providing the service.

A new tariff is proposed for the Patterson Lakes Marina to complement an existing contract. The tariff will recover the renewal and maintenance cost of a tidal gate that services the Marina. The method for calculating the tariff is consistent with the principles used to develop the Patterson Lakes jetty tariffs.

Developer charges

Proposed pricing principles for Developer Charges (drainage schemes and stormwater quality) are proposed to remain the same over the 2016 regulatory period. The ESC conducted a review of this scheme following the *2013 Water Plan* and endorsed the current pricing principles.

Diversions

Melbourne Water's existing suite of prices for water diversions will continue to apply during the 2016 regulatory period.

Diversion charges are used to collect revenue from licence holders who hold entitlements to extract water from rivers, streams and dams for a variety of purposes including domestic and stock use, agricultural irrigation, stormwater harvesting, power

generation and industrial cooling. Charges are levied on an annual basis against the total water allocation held under each licence.

Prices are based on the principle of cost recovery and reflect direct expenditures as well as a provision for overheads. This has resulted in a proposed price path of CPI-2.6% for the first year of the *2016 Price Submission* and a CPI increase only for the following four years. Melbourne Water is also proposing that prices for diversion-related application fees increase annually by CPI.

Proposed pricing paths have been communicated to all licence holders via a newsletter and through direct consultation with the Diversions Management Advisory Committee. The committee understands the pricing plan and supports the need for Melbourne Water to maintain a user pays/cost recovery approach when determining fees.

Charges for miscellaneous services

Pricing for Melbourne Water's miscellaneous services is set on a cost recovery basis. These services include provision of:

- Property information statements
- Property flood level information
- Hydrologic data
- Build over of Melbourne Water assets and stormwater connections
- Flood feasibility studies.

For the *2016 Price Submission*, charges for miscellaneous services were reviewed to ensure they were cost-reflective. Following this review, prices for building over Melbourne Water assets, stormwater connections fees and flood feasibility studies will increase annually by CPI only, while charges for property and flood information and hydrological data will decrease by CPI -11.7% and CPI -14.7% in 2016-17, followed by CPI increases only for the remaining 2016 regulatory period. Changes have been proposed following consultation with representatives of our main applicants.

Fast track applications

Following consultation with customers seeking to build over Melbourne Water easements, stormwater connections and other miscellaneous services, a new fast track assessment service fee is proposed. The proposed Fast Track Assessment Fee will provide an option for applicants to reduce assessment time from 28 to 10 days. The proposed \$1,000 fee is refundable (excluding the standard administrative fee) if the application is not processed within 10 days.

Inspection fees

Following a review process, it was identified that costs were not being recovered for the time spent by inspectors on site for water main connections and repeated visits for complicated construction works. The proposed new inspection fees will seek to recover the following amounts for those inspections:

- Water Supply Inspections (\$125 per hour)
- Complicated Projects/Additional Inspections (\$304 for three inspections or \$125 per hour).

Wholesale recycled water services

Government obligations and requirements

Melbourne Water supplies recycled water from WTP and ETP to City West Water, South East Water and Southern Rural Water as well as to MPH Agriculture and Topaq.

Recycled water is delivered under a range of legislative, policy and contractual obligations which determine the standards of service that Melbourne Water needs to deliver. Our key obligations are contained in the following documents:

- Wholesale Recycled Water Agreements
- Eastern Irrigation Scheme Contract Administration Manual
- The Victorian Class A Recycled Water Treatment Validation Guidelines
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth)
- EPA Victoria Corporate License.

Following significant recycled water infrastructure projects over the last decade, our recycled water program has no growth driven capital requirements for the 2016 regulatory period. WTP has a budget for renewal of some recycled water infrastructure during the period. Following recent upgrades at ETP, this plant now recycles all sewage to class A and renewals during the 2016 regulatory period are included in the standard treatment process renewals.

Melbourne Water manages its water recycling program to ensure safe, effective and efficient operational use. The focus for the 2016 regulatory period is to continue to work with local water utilities to manage summer peak demands using existing assets and work with South East Water to ensure adequate flows (instantaneous demand) are maintained in the South Eastern Outfall (SEO) during peak times. Proposed expenditures are based on our existing policies and obligations, with consideration of proposed changes to the Statement of Obligations (draft issued 4th June 2015). Consistent with the *2016 Price Submission* requirements, expenditure is prudent and efficient and delivers demonstrated community benefit.

Service outcomes

Melbourne Water is committed to efficiently managing the urban water cycle in a holistic, integrated way. The treatment and supply of fit-for-purpose recycled water from our sewage treatment plants is a key part of this holistic system.

How we consulted

Melbourne Water consulted with a range of customers and regulators on service outcomes that apply under a wide range of customer, regulatory and legislative requirements for recycled water.

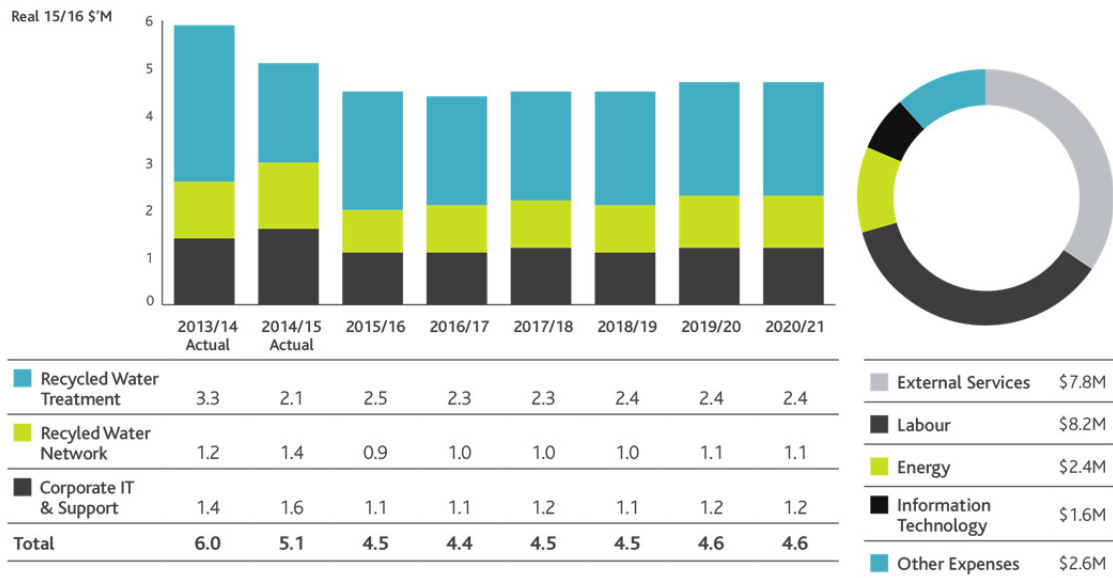
What our customers told us

During the 2016 regulatory period we will continue to meet our obligations under Wholesale Recycled Water Agreements and DHHS legislation and guidelines. We will also continue to investigate harvesting other water sources, such as stormwater, with customers and stakeholders.

Proposed operating expenditure

Forecast operating expenditure for recycled water services is \$22.6M over the 2016 regulatory period, accounting for 0.5% of total expenditure. Average annual operating expenditure equates to \$4.5M (Figure 22).

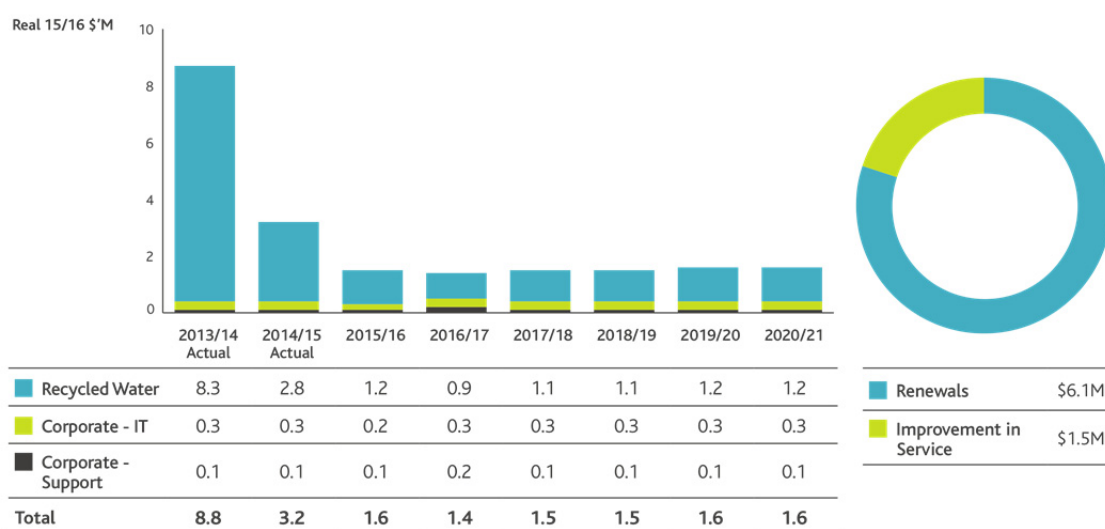
Figure 22: Wholesale recycled water operating expenditure by program area and 5-year total by driver (2015/16 Real Dollars)



Proposed capital expenditure

Planned capital expenditure on recycled water projects totals \$7.6M or approximately 0.3% of Melbourne Water's total proposed capital expenditure. Key projects consist of mechanical and electrical recycled water asset renewals at WTP. Renewals for ETP recycled water treatment are included in the standard treatment process renewals under the ETP program (Figure 23).

Figure 23: Wholesale recycled water capital expenditure by program area and 5-year total by driver (2015/16 Real Dollars)



Forecast demands

The wholesale recycled water demand forecasts are set out in Table 37.

Table 37: Recycled water demand by customer at year end ('000)

		14/15 Actuals	15/16	16/17	17/18	18/19	19/20	20/21
Western Treatment Plant								
City West Water	Class A	316	870	1,099	1,326	1,726	2,011	2,303
Southern Rural Water	Class A	4,021	3,800	3,800	3,800	3,800	3,800	3,800
MPH Agriculture	Class C	10,445	14,085	16,149	16,209	17,318	19,582	19,582
Environmental Obligations	Class C	18,129	10,500	10,500	10,500	10,500	10,500	10,500
Total		32,911	29,255	31,548	31,835	33,344	35,893	36,185
Eastern Treatment Plant								
Topaq	Class A	4,362	5,000	5,000	5,000	5,000	5,000	5,000
South East Water	Class A	1,169	2,849	2,849	2,849	2,849	2,849	2,849
Total		5,531	7,849	7,849	7,849	7,849	7,849	7,849

Forecasting methodology and assumptions

Melbourne Water's wholesale recycled water demand forecasts are based on advice from our customers.

Proposed prices

There are no changes proposed to the pricing principles for wholesale recycled water charges during the 2016 regulatory period. Melbourne Water proposes to maintain current contract rates until their expiry and then negotiate new rates consistent with pricing principles.



Non-regulated services

Melbourne Water delivers a small number of non-regulated services which meet the needs of its customers and add value to its overall service offering.

Although the ESC does not regulate these services, Melbourne Water understands that the ESC needs to be satisfied they are correctly classified to avoid regulated costs being under or overstated. Melbourne Water manages these services so that costs and revenues are appropriately 'ring-fenced' and do not impact on the quality of its obligated services. Table 38 provides a summary of unregulated services.

Capital expenditure

Melbourne Water is currently pursuing innovative opportunities to generate additional business revenue, which fall under the non-regulated guidelines. Melbourne Water considers these projects not to be regulated. During the 2016 regulatory period this expenditure is proposed for ecotourism at WTP (\$1.5M), which may lead to a community visitor centre and overnight visitor facilities for bird watchers and photographers. Melbourne Water would provide appropriate tariff offsets if this or other projects generated significant revenue due to the use of sewerage assets.

Disposals

Melbourne Water oversees unregulated disposals as part of the Riverwalk development at Werribee Fields, which is a joint venture between Melbourne Water and Places Victoria. Melbourne Water's equity is the land and Places Victoria's equity is the development costs and expertise. The financial return to Melbourne Water in excess of the land value and remediation expenditure is recorded as unregulated income (from a regulatory perspective) as it is outside the normal course of business. This is consistent with the approach taken for the 2013 Water Plan.

Operating expenditure

Unregulated expenditure totals \$3.2M over the 2016 regulatory period, which comprises:

- Werribee Fields costs relating to the sale of land at the respective sites which are both treated as unregulated
- Dandenong Treatment Plant Management Plan relates to continued remediation requirements at the site
- A Waste to Resources Trial Project at WTP during 2015/16, with any future funding to be determined following the outcome of the trial, and
- Other costs associated with new business opportunities to generate additional business revenue, which fall under the non-regulated guidelines.

Table 38: Unregulated expenditure summary

\$M	2016/17	2017/18	2018/19	2019/20	2020/21
Proceeds from disposals					
Werribee Field Land Sales	2.85	4.92	2.72	2.65	2.59
Total	2.85	4.92	2.72	2.65	2.59
Operating expenditure					
Werribee Field Land Sales	0.20	0.06	0.06	0.05	0.07
Dandenong Treatment Plant CALM Management Plan	0.08	0.08	0.08	0.08	0.08
Waste to Resources	0.25	0.25	0.25	0.25	0.25
Other Unregulated	0.23	0.23	0.23	0.23	0.23
Total	0.76	0.61	0.61	0.61	0.62
Capital expenditure					
Eco-tourism	0.53	0.97	-	-	-
Total	0.53	0.97	-	-	-



Supporting documents

The following documents were relied on in the development of the *2016 Price Submission*. These documents will be provided to the ESC as part of this submission.

BIS Shrapnel, ***Greater Melbourne Building Activity and Customer Connection Forecasts–2015 to 2021***, September 2015

GHD, ***Bulk Water Assets Benchmarking Study Final Report***, September 2014
(confidential)

Frontier Economics, ***Rationale and Implementation of a Trailing Average Return on Debt***, October 2015

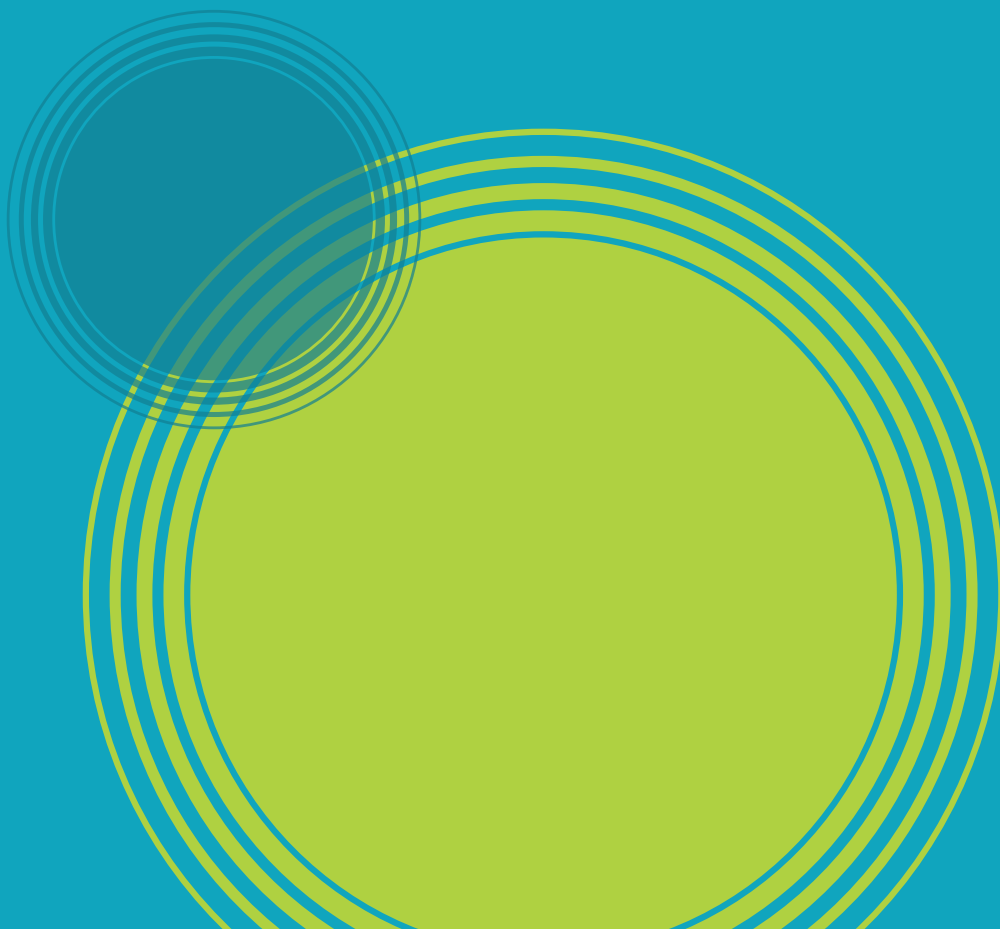
Frontier Economics, ***Metropolitan wholesale water and sewerage demand review***, September 2015

Melbourne Water, ***Waterways and Drainage Investment Plan***, October 2015

Newgate Research, ***2016 Price Review Deliberative Consultation Research Report***, October 2015

Explanatory Note to the Disaggregation of Melbourne’s Wholesale Water Management Arrangements and Wholesale Entitlement Orders

APPENDICES



Appendix 1 – Meeting ESC Requirements

4.1 Regulatory Period

- Melbourne Water is proposing a 5-year period. See page: 9.

4.2 Service Outcomes

Reference

- See page 9 for the list of regulated services
- Appendix 3 specifies the services and proposed service outcomes.
- Part B of this document outlines changes (where relevant to the service outcomes).

4.3 Required Revenue

Reference

- See page 30 for an overview of Melbourne Water’s revenue requirement.
- Rev&RAV_FO tab of the financial model provide a summary of the revenue requirement out to 2025-26.

4.4 Forecast Operating Expenditure

Reference

- Melbourne Water’s approach to establishing its operating expenditure is provided, starting on page 18. Part B for operating expenditure details for each of the services.
- The development of Melbourne Water’s 2014-15 baseline expenditure is provided in Table 12. This draws on information regarding the 2014 efficiency review provided on page 11.
- The BAUOpexProd_FO Tab has split expenditures are per the requirements in 4.4.2. A different split is provided in the document as this was the basis of our consultation. The bottom line numbers reconcile for each of the services.
- Note, the total expenditure totals in the Waterways and Drainage Section of Part B (see page 67) are a sum of the Waterways and Drainage and Diversions services provided in the BAUOpexProd_FO Tab of the financial model.

4.5 Forecast Efficiency Improvements

Reference

- Melbourne Water’s performance against the efficiency hurdle and approach to efficiencies is provided in the section starting on page 18.
- A brief description of the efficiency programs arising from the 2014 efficiency review is provided on page 11 and future efficiency program provided in page 22.

4.6 Forecast Capital Expenditure

Reference

- The approach to capital expenditure is provided on page 27 and expenditures for each service provided in Part B.
- Expenditure data out to 2025-26 is provided in the ESC’s financial model, tab BAUCapex_AC_FO.
- The top 5 projects for each service are listed in Part B. Note the penalty and incentive payment arrangements with contracts is common for all projects and outlined on page 28.
- Part B also provides major ongoing renewal programs for each service.
- Note: All figures for 2015-16 are provided as a forecast. For calculation of the RAB, the determination amounts for 2015-16 are used.

Appendix 5 provides a summary of:

- Performance against major projects from the 2013 Water Plan
- Actual capital expenditure including a forecast for 2015-16 split by renewals, growth, improved service and compliance for each service.
- A reconciliation of the capital expenditure, contributions, gifted assets, proceeds from asset sales, written down value of assets disposed and net capital expenditure by service.

4.7 Treatment of Desalination Security Payments

Reference

- The approach to the treatment of the Desalination Security Payments is provided in page 51

4.8 Forecast Regulatory Asset Base

Reference

- These requirements are included in the revenue requirement sections. See page 32. This has been calculated to comply with the requirements of 4.8.
- Performance and justification for inclusion of 2012-13 to 2014-15 expenditure for inclusion in the RAB is provided in the section commencing on page 13. This section also includes a reconciliation of capital expenditure against benchmarks. Appendix 5 provides a summary of the performance against major projects from the 2013 Water Plan.

4.9 Regulatory Rate of return

Reference

- These requirements are included in the revenue requirement sections. See page 32.

4.10 Tax Allowance

Reference

- These requirements are included in the revenue requirement sections. See page 32. The Rev&RAV_FO Tab provides the Tax allowance out to 2025-26.

4.11 Demand

Reference

- Demand for each of the services is included in the relevant sections of Part B for each services. These section also outline how each of the forecasts have been developed.

4.12 Form of Price Control

Reference

- Details for price control arrangements are included in the relevant sections of Part B. The major change to the price control arrangements from the 2013 regulatory period is for the Waterways and Drainage Charge where a revenue cap is proposed. Details of the proposed arrangements are provided on page 78.

4.13 Prices and Tariff Structures

Reference

- Details of proposed prices and tariffs are included in the relevant sections of Part B.
- Appendix 2 provides a complete list of tariffs and prices.

4.14 Adjusting Prices

Reference

- Price pass-through mechanisms are proposed for VDP contract costs and water orders and for changes in the WACC compared with forecast. Appendix 6 contains the details of these arrangements.
- Melbourne Water would also like to maintain the uncertain and unforeseen events clause as per the current determination.

4.15 Developer Charges

Reference

- Melbourne Water is not proposing changes to the pricing principles for developer charges. See page 80

4.16 Financial Position

Reference

- These requirements are included in the revenue requirement section. See page 35.

4.17 General Information Requirements

Reference

- All information will be provided as required.
- All financial information is provided in 2015-16 dollars.

4.18 Additional Requirements

Reference

- See Executive Summary
- The financial model is provided separately. Melbourne Water has provided a second financial model which reflects the proposed approach to the WACC. A reconciliation between the two financial models will also be provided.
- Melbourne Water will notify the ESC of any substantial changes to the assumptions underpinning the price submission. As page 32, a ruling from the ATO may materially impact Melbourne Water's tax allowance.
- For non-regulated services, see page 86

Appendix 2 – Tariff schedule

WATER AND SEWERAGE PRICES

Estimated tariffs for years 6 – 10 can be found in the regulatory template accompanying this submission

Tariff and Price Component (real \$15/16)	Price (1 July 2016)	PPM (Year 2)	PPM (Year 3)	PPM (Year 4)	PPM (Year 5)
1.1 Storage Operator and bulk water service charges - Greater Yarra System – Thomson River (\$/per month)					
City West Water	4,296,392	1.73%	-0.04%	-1.36%	-0.25%
South East Water	5,800,283	1.73%	-0.04%	-1.36%	-0.25%
Yarra Valley Water	6,179,722	1.73%	-0.04%	-1.36%	-0.25%
Western Water	505,126	1.73%	-0.04%	-1.36%	-0.25%
Westernport Water			50,179	(7.38%)	-
Barwon Water			802,868	(7.38%)	-
South Gippsland Water			50,179	(7.38%)	-
1.2 Storage Operator and bulk water service charges Victorian Desalination Project (\$/per month)					
City West Water	12,597,434	-1.54%	-0.60%	-2.11%	-2.96%
South East Water	17,006,774	-1.54%	-0.60%	-2.11%	-2.96%
Yarra Valley Water	18,119,370	-1.54%	-0.60%	-2.11%	-2.96%
1.3 Storage Operator and bulk water service charges North South Pipeline (\$/per month)					
City West Water	959,592	1.73%	-0.04%	-1.36%	-0.25%
South East Water	959,592	1.73%	-0.04%	-1.36%	-0.25%
Yarra Valley Water	959,592	1.73%	-0.04%	-1.36%	-0.25%
1.4 Storage operator and bulk water service charges -Transfer (\$/per ML)					
Wholesale transfer system	233.9	1.15%	-0.42%	-1.94%	-0.87%
Gippsland Water					
Headworks (\$/per ML)	342.2	1.73%	-0.04%	-1.36%	-0.25%
Transfer (\$/per month)	1,163.9	1.73%	-0.04%	-1.36%	-0.25%
1.5 Bulk sewerage usage charge – Treatment (\$/per ML)					
Western system	374.7	-	-	-	-
Eastern system	55.7	-	-	-	-
1.6 Bulk sewerage usage charge – Transfer (\$/per ML)					
Western system	36.8	-	-	-	-
Eastern system	5.3	-	-	-	-
1.7 Bulk sewerage usage charge – Load, major trade waste (\$/per tonne)					
BOD – western system	170.8	-	-	-	-
BOD – eastern system	427.5	-	-	-	-
SS – western system	141.8	-	-	-	-
SS – eastern system	819.1	-	-	-	-
TKN – western system	292.3	-	-	-	-
TKN – eastern system	210.1	-	-	-	-
TDS – western system	29.3	-	-	-	-
TDS – eastern system	29.3	-	-	-	-

Tariff and Price Component (real \$15/16)	Price (1 July 2016)	PPM (Year 2)	PPM (Year 3)	PPM (Year 4)	PPM (Year 5)
1.8 Bulk sewerage service charge (\$/per month)					
City West Water	4,574,516	3.25%	1.90%	-2.62%	-0.45%
South East Water	12,158,196	2.67%	1.49%	-1.59%	-0.00%
Yarra Valley Water	10,075,750	2.92%	1.75%	-1.67%	0.05%

WATERWAYS AND DRAINAGE PRICES

Estimated tariffs for years 6 – 10 can be found in the regulatory template accompanying this submission

Tariff and Price Component	Price (1 July 2016) (real \$15–16)	PPM (Year 2)	PPM (Year 3)	PPM (Year 4)	PPM (Year 5)
2.1 Waterways and Drainage Charge – All properties located within the area designated as the Urban Growth Boundary, except those indicated in 1.2					
Residential					
- Minimum fee (\$ per annum)	\$95.58	-	-	-	-
Non-residential					
- Minimum fee (\$ per annum)	\$109.90	5.46%	5.46%	5.46%	5.46%
- Rate in \$ NAV (cents per annum)	1.1692¢	-27.0%	-27.0%	-27.0%	NA
- Property impact charge	Pricing Principles				
2.2 Waterways and Drainage Charge – All non-residential properties included in the waterway management district as a result of extending Melbourne Water's service area in November 2005 (including all properties within the Shire of Mornington Peninsula), non-residential properties as a result of the extension of the Urban Growth Boundary since 2010 and lifting of farm exemptions except those indicated in 1.3					
Non-residential					
- Minimum fee (\$ per annum)	\$109.90	5.46%	5.46%	5.46%	5.46%
2.3 Waterways charge – All properties located outside the area designated as the Urban Growth Boundary (\$ per annum), except those indicated in 1.4					
- Minimum fee (\$ per annum)	\$52.52	-	-	-	-
2.4 Special drainage area charge – All properties in the following parts of the area of the former Dandenong Valley and Western Port Authority as at 5 November 1991, which up to 1997, were subject to a special drainage and river improvement rate					
Koo Wee Rup - Longwarry Flood Protection District	Continuation of the pricing reform commenced in 2013 and concluding in 2021 which will see Divisions A and B replaced with a single cost-reflective price. The current prices in \$NAV will be replaced with unique price paths for individual properties to transition to the single cost-reflective price. During this period those cost of service will be subject to annual CPI adjustments less 1% for service efficiency targets.				
Patterson Lakes					
Properties with access to timber jetties	1,484.00	-2.5%	-2.5%	-2.5%	-2.5%
Annual maintenance	135.56	-	-	-	-
Properties with access to concrete jetties	1,031.00	-2.5%	-2.5%	-2.5%	-2.5%
Annual maintenance	135.56	-	-	-	-
Marina	343,073	-2.5%	-2.5%	-2.5%	-2.5%
Annual maintenance	38,128	-	-	-	-
2.5 Miscellaneous services					
Property information statements					
- City West Water	4.61	-	-	-	-
- South East Water	4.61	-	-	-	-
- Yarra Valley Water	4.61	-	-	-	-
Provision of flood level information	38.44	-	-	-	-
Provision of hydrological data					
Storm frequency analysis for selected storm events	132.57	-	-	-	-
Standard fee: One type of daily data from maximum of two stations	82.45	-	-	-	-

Tariff and Price Component	Price (1 July 2016) (real \$15-16)	PPM (Year 2)	PPM (Year 3)	PPM (Year 4)	PPM (Year 5)
Standard fee: One type of hourly data from a single station	82.45	-	-	-	-
Provision of one type of 6 minute data from a single station for a period of up to 5 years	82.45	-	-	-	-
Other requests (per hour)	132.57	-	-	-	-
Application fee for construction over Melbourne Water easements or underground pipe (\$)	195.16	-	-	-	-
Inspection fee	397.48	-	-	-	-
Storm water connections/other authorities works/third party works (\$ per connection)					
Application/connection fee	144.30	-	-	-	-
Inspection fee	397.48	-	-	-	-
Fast Track Assessments	1000.00	-	-	-	-
Inspection Charges					
Water Supply Inspections (\$125 per hour)	125.00	-	-	-	-
Complicated Projects/Additional Inspections (\$304 for 3 inspections or \$125 per hour)	125.00	-	-	-	-
Flood feasibility study (\$ per half day)					
Flood feasibility study	768.99	-	-	-	-
Non-core miscellaneous services					
2.6 Diversion charges unregulated waterways					
Licence service fee – All licences (\$ per annum)	268.23	-	-	-	-
Plus fee per kilowatt power generation (\$)	21.44	-	-	-	-
Charge \$ per ML – All months	31.34	-	-	-	-
Charge \$ per ML – On-stream winter-fill	15.81	-	-	-	-
Charge \$ per ML – Off-stream winter-fill	15.81	-	-	-	-
Charge \$ per ML – Licensed farm dam	15.81	-	-	-	-
Charge \$ per ML – Non-consumptive	2.02	-	-	-	-
Charge \$ per ML – Stormwater	31.34	-	-	-	-
Works Licence – Hazardous Dams (\$)	91.18	-	-	-	-
Works Operating Licence - General (\$ per annum)	53.86	-	-	-	-
2.7 Diversion charges regulated waterways					
Licence service fee – All licences (\$ per annum)	268.23	-	-	-	-
Charge \$ per ML – All months	65.60	-	-	-	-
Charge \$ per ML – Off-stream winter-fill	15.81	-	-	-	-
2.8 Diversion Application Fees					
Transfer – Sale of Land (\$)	302.46	-	-	-	-
Amalgamation, subdivision (existing licences) (\$)	396.32	-	-	-	-

Tariff and Price Component	Price (1 July 2016) (real \$15-16)	PPM (Year 2)	PPM (Year 3)	PPM (Year 4)	PPM (Year 5)
Minor Amendment (e.g. add / remove parcel, party or existing entity to existing licence) (\$)	114.72	-	-	-	-
Transfer – Downstream Trade (\$)	667.51	-	-	-	-
Transfer – Upstream Trade (\$)	985.62	-	-	-	-
Transfer – Repeat Trade Application (\$)	146.01	-	-	-	-
New Licence – Stormwater (\$)	990.83	-	-	-	-
New Licence – Non consumptive / Power Generation (\$)	667.51	-	-	-	-
Additional Charge Where Irrigation and Drainage Plan required (\$)	260.73	-	-	-	-
Works Licence – Amendment (e.g. Pump replacement) (\$)	354.61	-	-	-	-
New Works Construction Licence – Dam / Stormwater (\$)	756.17	-	-	-	-
New Works Construction Licence – Pump Only (\$)	594.49	-	-	-	-
Re-issue – Failure to renew – D&S (\$)	172.08	-	-	-	-
Re-issue – Failure to renew (all-licences) (\$)	260.73	-	-	-	-
Reissue – Following Revocation (\$)	1376.73	-	-	-	-
Copy of Record (\$)	52.14	-	-	-	-
D&S Dam Registration (\$)	93.85	-	-	-	-
Application to Renew (\$)	302.46	-	-	-	-
Land Information Statement (\$)	104.28	-	-	-	-

Appendix 3 – Obligations

Service to be regulated by ESC	Obligation or Customer Driven
Storage Operator and bulk water services	
<p>Melbourne Water is not proposing any major changes to the service outcomes for water services. Melbourne Water will continue to provide high quality, safe and reliable drinking water to local water utilities.</p>	<p>Obligation:</p> <ul style="list-style-type: none"> • Bulk Water Supply Agreements • National Parks Agreements and State Forests MOUs • <i>Water Act 1989</i> • <i>Water Industry Act 1994</i> • <i>Safe Drinking Water Act 2003 and Regulations 2005</i> • <i>Health (Fluoridation) Act 1973</i> • <i>Catchment and Land Protection Act 1994</i> • Statement of Obligations • Australian Drinking Water Guidelines
Bulk sewerage services	
<p>Melbourne Water is not proposing any major changes to the service outcomes for sewage services. Melbourne Water will continue to provide safe sewerage transfer and treatment and disposal services.</p>	<p>Obligation:</p> <ul style="list-style-type: none"> • Bulk Sewage Transfer, Treatment and Disposal Agreements • EPA Victoria Licences • State Environment Protection Policy (Waters of Victoria) • State Environment Protection Policy (Air Quality Management) • Bulk Sewage Transfer, Treatment and Disposal Agreements • <i>Water Act 1989</i> • <i>Water Industry Act 1994</i> • Statement of Obligations • <i>Environment Protection Act 1970</i> • State Environment Protection Policy (Waters of Victoria and Groundwaters) • <i>Climate Change Act 2010</i> • State Water Plan and Central Region Sustainable Water Strategy (under development)
Metropolitan waterways and drainage services	
<p>Detailed quantitative research has confirmed community support for the existing level of waterways and drainage services, while refinements have been made to the mix of services to better reflect community priorities.</p>	
Flow and water access management	<p>Obligation:</p> <ul style="list-style-type: none"> • <i>Water Act 1989</i> • <i>Water Industry Act 1994</i> (Compliance with Statement of Obligations issued by the Minister for Environment, Climate Change and Water)
Incident response and information provision	<p>Obligation:</p> <ul style="list-style-type: none"> • <i>Water Act 1989</i> • <i>Environment Protection Act 1970</i> • <i>Emergency Management Act 2013</i>
Land development	<p>Obligation:</p> <ul style="list-style-type: none"> • <i>Water Act 1989</i> • <i>Water Industry Act 1994</i> (Compliance with Statement of Obligations issued by the Minister for Environment, Climate Change and Water) • Principles for Provision of Waterway and Drainage Services for Urban Growth

Service to be regulated by ESC	Obligation or Customer Driven
Waterway condition management	<p>Obligations with Customer Driven Standard of Services</p> <ul style="list-style-type: none"> • <i>Water Act 1989</i> • <i>Environment Protection Act 1970</i> • <i>Planning and Environment Act 1987</i> • <i>Subdivision Act 1988</i> • <i>Water Industry Act 1994</i> (Compliance with Statement of Obligations issued by the Minister for Environment, Climate Change and Water) • Victorian Healthy Waterways Strategy • Port Phillip and Westernport Region Healthy Waterways Strategy
Stormwater quality and quantity management	<p>Obligations with Customer Driven Standard of Services</p> <ul style="list-style-type: none"> • <i>Water Act 1989</i> • <i>Environment Protection Act 1970</i> • <i>Planning and Environment Act 1987</i> • <i>Subdivision Act 1988</i> • <i>Water Industry Act 1994</i> (Compliance with Statement of Obligations issued by the Minister for Environment, Climate Change and Water) • Victorian Healthy Waterways Strategy • Port Phillip and Westernport Region Healthy Waterways Strategy • Stormwater Strategy
Flood risk management	<p>Obligations with Customer Driven Standard of Services</p> <ul style="list-style-type: none"> • <i>Water Act 1989</i> • <i>Emergency Management Act 2013</i> • Flood Management Strategy - Port Phillip and Westernport
Bulk recycled water services	
<p>Melbourne Water is not proposing any major changes to the service outcomes for recycled water services. Melbourne Water will continue to efficiently manage the urban water cycle in a holistic, integrated way. The treatment and supply of fit-for-purpose recycled water from our sewerage treatment plants is a key part of this holistic system.</p>	<p>Obligation:</p> <ul style="list-style-type: none"> • Bulk Recycled Water Supply Agreements • Statement of Obligations • EPA Victoria Guidelines • EPA Victoria Licences
Services to which developer charges apply	
<p>Land development (forms part of the land development program area of our waterways and drainage service).</p>	<ul style="list-style-type: none"> • As above
Diversion services	
<p>Diversion services (forms part of the flow and water access management program area of our Waterways and Drainage Service).</p>	<ul style="list-style-type: none"> • As above

Appendix 4 – Key Performance Indicators

	2016/17	2017/18	2018/19	2019/20	2020/21
Water					
Production and storage					
Maintain system losses as a percentage of water supplied to retail water businesses	<1.0%	<1.0%	<1.0%	<1.0%	<1.0%
Water transfer					
Compliance with retail water businesses' pressure requirements as set out in bulk water supply agreements	99.9%	99.9%	99.9%	99.9%	99.9%
Water quality					
Compliance with the water quality requirements in bulk water supply agreements:	100%	100%	100%	100%	100%
• Microbiological standards (E. coli)	100%	100%	100%	100%	100%
• Disinfection by-products	91.5%	91.5%	91.5%	91.5%	91.5%
• Aesthetics (turbidity)	100%	100%	100%	100%	100%
• Aesthetics (aluminium)	100%	100%	100%	100%	100%
Sewerage					
Treatment					
Compliance with EPA Victoria discharge licence requirements					
WTP	100%	100%	100%	100%	100%
ETP	100%	100%	100%	100%	100%
Sewerage transfer					
Offensive odours caused by sewerage transfer activities (that result in a regulatory action)	0	0	0	0	0
EPA SEPP compliance for sewerage system spills					
• System failure – zero spills due to sewerage system failure	0	0	0	0	0
• Zero spills due to storm events of a severity of up to 1-in-5 years	0	0	0	0	0
Biosolids					
Dry tonnes of biosolids beneficially reused (annually)	96,000 ¹⁷				
Waterways and Drainage					
Value for Melbourne Water customers					
Community satisfaction with waterways is maintained	>80%	>80%	>80%	>80%	>80%
Investment Plan					
Achieve Waterways and Drainage Investment Plan Targets	100%	100%	100%	100%	100%
Maintaining biodiversity around waterways					
	100%	100%	100%	100%	100%

¹⁷ Future targets are established annually, based on market conditions for biosolids. Melbourne Water is committed to biosolids reuse and has a program of investigating one-off opportunities and well as ongoing markets

	2016/17	2017/18	2018/19	2019/20	2020/21
Waterways that have undergone active management will be maintained or improved against an established baseline					
Restoration of concrete drains and restore to a more natural waterway by replanting with native plants by 2021	-	-	-	-	>5km
Improving amenity					
Invest directly in improving green spaces for shade and cooling across Melbourne by 2021	-	-	-	-	>30ha
Rainwater harvesting, stormwater capture and fit-for-purpose re-use are facilitated					
Facilitated stormwater management over 2016/17-2020/21 achieves multiple benefits (e.g. greening, flood protection, alternative water, capacity building etc.)	100%	100%	100%	100%	100%
Reducing flood risk and impact					
reduction in flood effects, achieved by projects in delivery by Melbourne Water by 2021	-	-	-	-	15%
Diversion services					
Diversions will be managed to meet the service requirements for licence and trade as specified in Melbourne Water's customer charter for diversion services	100%	100%	100%	100%	100%
Delivering development services					
Statutory response times for development referrals	100%	100%	100%	100%	100%
Industry response times will be achieved for development referrals	95%	95%	95%	95%	95%
Development Services Schemes and Strategies will be implemented and reviewed according to the development planning program	100%	100%	100%	100%	100%
Recycled water					
Recycled water schemes fully comply with regulatory obligations and their contractual requirements, as outlined in the relevant bulk recycled water supply agreements including:					
WTP					
• Volume demands	100%	100%	100%	100%	100%
• Reliability	100%	100%	100%	100%	100%
• Quality	100%	100%	100%	100%	100%
ETP					
• Volume demands	100%	100%	100%	100%	100%
• Reliability	100%	100%	100%	100%	100%
• Quality	100%	100%	100%	100%	100%
Corporate					
Renewable energy					
Renewable electricity sourced from the grid and electricity generated (used or exported) from renewable sources as a % of electricity used	75%	85%	100%	100%	100%
Complaints referred to EWOV responded to within EWOV established time	100%	100%	100%	100%	100%

Appendix 5 – Capital information

Performance against 2013 Water Plan major projects

Project Name

Description (of relevant obligation and the project itself)

WTP Treatment Capacity Augmentation Stage 2

Phase 1 (pilot plant trials and functional design) is due for completion around May 2016. Following Business Case approval from DTF, tender documents will be issued to the three Shortlisted Proponents with a view to letting the Phase 2 contract around October 2016.

	Product	Driver	WP3 Real 15/16 Cumulative 5 Year	WP3 Real 15/16 Cumulative 3 Year	13/14	14/15	15/16	16/17	17/18
PLAN	Sewerage	Growth	186,316	109,775	11,193	24,015	74,567	76,541	-
ACTUAL			152,469	11,035	613	4,496	5,926	31,024	110,410

Allocation - Flood Mitigation

The 5 year Water Plan 3 target was for a 10% reduction in extreme flooding, this changed to a 5% reduction over the 3 year period. 22,374 properties were assessed as being at risk of extreme flooding therefore the 5% target is 1119 properties.

The current projects will reduce the extreme risk by 1847 properties over the 3 year period.

	Product	Driver	WP3 Real 15/16 Cumulative 5 Year	WP3 Real 15/16 Cumulative 3 Year	13/14	14/15	15/16	16/17	17/18
PLAN	Waterways	Compliance	105,306	64,580	22,039	21,411	21,130	20,615	20,112
ACTUAL			86,285	44,536	7,141	2,692	34,703	16,409	25,340

St Albans - Werribee Pipeline Stage 2

Construction began in early October 2014. The project is on track to be completed on time and under budget in November 2015.

	Product	Driver	WP3 Real 15/16 Cumulative 5 Year	WP3 Real 15/16 Cumulative 3 Year	13/14	14/15	15/16	16/17	17/18
PLAN	Water	Growth	99,403	99,403	75,633	23,566	204	-	-
ACTUAL			44,837	44,722	3,307	33,939	7,476	115	0

Allocation - ETP Mechanical and Electrical renewals 2013-2018

The delivery of Melbourne Water's mechanical and electrical renewal program at ETP ensured that the ETP facilities continued to meet its required standards of service in an efficient and optimised manner. Commissioning of a major sewerage transfer project caused a delay and re-phasing to the works program.

	Product	Driver	WP3 Real 15/16 Cumulative 5 Year	WP3 Real 15/16 Cumulative 3 Year	13/14	14/15	15/16	16/17	17/18
PLAN	Sewerage	Renewals	78,672	50,309	17,775	16,688	15,846	14,755	13,608
ACTUAL			85,658	40,558	5,961	14,054	20,543	24,281	20,819

M040/041(Preston) Water Mains Renewals

The functional design phase begun in 2015 with the Design and Construction contract planned to be awarded in April 2016.

Project Name									
Description (of relevant obligation and the project itself)									
	Product	Driver	WP3 Real 15/16 Cumulative 5 Year	WP3 Real 15/16 Cumulative 3 Year	13/14	14/15	15/16	16/17	17/18
PLAN	Water	Renew-als	46,633	37,985	4,058	13,866	20,061	8,340	308
ACTUAL			24,388	18	0	18	0	3,710	20,660

M102 (North Essendon-Footscray) Water Main Renewal

The project is currently in tender phase, with the exception of the Essendon Airport stage which has been delayed slightly pending agreement of easements with the Federal Government. The expected completion date is late 15/16.

	Product	Driver	WP3 Real 15/16 Cumulative 5 Year	WP3 Real 15/16 Cumulative 3 Year	13/14	14/15	15/16	16/17	17/18
PLAN	Water	Renew-als	55,457	55,077	21,916	27,679	5,482	194	187
ACTUAL			41,273	41,229	331	13,121	27,777	26	18

Allocation - Retarding Basin Spillway Upgrades

The pilot project, Army Camp RB has been completed and a further 4 Retarding Basin Upgrade projects (Prospect Hill, Old Joes Creek, Blind Creek, Fussell Rd) are scheduled to be substantially delivered within 2013 water plan. Delay in first year was due to uncertainty of cost effective solutions for retarding basins and delivery of the pilot project (Army Camp RB) was delayed due design contractual issues.

In August 2014, a review identified potential to accelerate retarding basin upgrade program to enable more projects to be ready for delivery and facilitate greater bundling and potential for more efficient delivery. The accelerated program is on track.

The purpose of this program of works on retarding basins is to upgrade the embankments to comply with regulatory requirements and reduce the dam safety risk to a tolerable level utilising the ALARP principle in accordance with regulatory and policy requirements.

	Product	Driver	WP3 Real 15/16 Cumulative 5 Year	WP3 Real 15/16 Cumulative 3 Year	13/14	14/15	15/16	16/17	17/18
PLAN	Waterways	Compliance	56,386	35,732	14,689	10,323	10,720	10,458	10,196
ACTUAL			48,012	17,892	308	2,321	15,263	18,472	11,648

WTP Sludge Drying Augmentation

The Project achieved Practical Completion on 23rd August 2015 and was delivered under budget.

	Product	Driver	WP3 Real 15/16 Cumulative 5 Year	WP3 Real 15/16 Cumulative 3 Year	13/14	14/15	15/16	16/17	17/18
PLAN	Sewerage	Compliance	58,339	57,852	51,938	5,401	513	488	-
ACTUAL			30,193	30,193	11,409	17,276	1,508		

	Product	Driver	WP3 Real 15/16 Cumulative 5 Year	WP3 Real 15/16 Cumulative 3 Year	13/14	14/15	15/16	16/17	17/18
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Allocation - Sewerage Transfer Corrosion and Odour Management

The Corrosion and Odour Management allocation has allowed the effective management of Corrosion and Odour for the transfer network by maximising return on investment and ensuring no offensive odours were discharged from any Melbourne Water site or asset with innovative technologies being piloted.

PLAN	Sewerage	Compliance	45,542	30,615	14,246	14,689	1,681	13,329	1,598
ACTUAL			6,594	0	0	0	0	4,195	2,399

Product	Driver	WP3 Real 15/16 Cumulative 5 Year	WP3 Real 15/16 Cumulative 3 Year	13/14	14/15	15/16	16/17	17/18
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North Yarra Sewer Main Rehabilitation

The project will be completed under budget and ahead of schedule in October 2015.

PLAN	Sewerage	Renewals	41,735	24,310	2,191	4,258	17,861	17,425	-
ACTUAL			31,170	31,170	3,209	24,389	3,572	0	0

Capital expenditure by driver for 2013/14 to 2015/16

	2013/14	2014/15	2015/16 Forecast
WATER			
Compliance	11.1M	33.6M	4.3M
Growth	3.6M	34.8M	8.3M
Improvement in Service	8.7M	11.9M	22.9M
Renewal of existing infrastructure	14.0M	43.3M	81.1M
Sub-total	37.5M	123.6M	116.5M
SEWERAGE			
Compliance	12.4M	13.0M	11.9M
Growth	13.3M	32.6M	7.9M
Improvement in Service	3.2M	5.1M	20.8M
Renewal of existing infrastructure	33.1M	77.8M	136.8M
Sub-total	62.0M	128.5M	177.4M
WATERWAYS			
Compliance	31.0M	-	61.4M
Growth	79.8M	67.6M	85.5M
Improvement in Service	13.3M	17.9M	29.0M
Renewal of existing infrastructure	22.9M	22.4M	24.8M
Sub-total	147.0M	107.9M	200.8M
RECYCLED WATER			
Compliance	7.5M	2.3M	0.4M
Growth	0.0M	-	-
Improvement in Service	0.7M	0.5M	0.3M
Renewal of existing infrastructure	0.6M	0.3M	0.9M
Sub-total	8.8M	3.2M	1.7M
TOTAL	255.3M	363.3M	496.4M

2016 Price Submission Capital Data

	2016/17	2017/18	2018/19	2019/20	2020/21
WATER					
Total Gross Capital Expenditure	\$145.0M	\$108.5M	\$112.2M	\$153.0M	\$97.8M
Total Government Contributions	-	-	-	-	-
Total Customer Contributions	-	-	-	-	-
Total Net Capital Expenditure	\$145.0M	\$108.5M	\$112.2M	\$153.0M	\$97.8M
Gifted Assets	-	-	-	-	-
Proceeds from disposals	-\$4.5M	-\$2.1M	-\$0.5M	-\$2.3M	-\$2.2M
WDV of assets disposed	\$3.1M	\$2.0M	\$0.4M	\$2.1M	\$2.1M
SEWERAGE					
Total Gross Capital Expenditure	\$203.8M	\$304.8M	\$228.2M	\$149.8M	\$193.8M
Total Government Contributions	-	-	-	-	-
Total Customer Contributions	-	-	-	-	-
Total Net Capital Expenditure	\$203.8M	\$304.8M	\$228.2M	\$149.8M	\$193.8M
Gifted Assets	-	-	-	-	-
Proceeds from disposals	-\$6.6M	-\$11.9M	-\$9.3M	-\$1.9M	-\$1.8M
WDV of assets disposed	\$5.3M	\$9.6M	\$5.4M	\$1.1M	\$1.1M
WATERWAYS					
Total Gross Capital Expenditure	\$173.5M	\$167.8M	\$204.0M	\$216.3M	\$205.7M
Total Government Contributions	-	-	-	-	-
Total Customer Contributions	\$55.7M	\$55.7M	\$55.7M	\$55.7M	\$55.7M
Total Net Capital Expenditure	\$117.8M	\$112.1M	\$148.3M	\$160.6M	\$150.1M
Gifted Assets	\$19.5M	\$19.0M	\$19.0M	\$19.0M	\$19.0M
Proceeds from disposals	-\$0.7M	-\$0.7M	-\$0.5M	-\$2.3M	-\$2.3M
WDV of assets disposed	\$0.7M	\$0.7M	\$0.5M	\$2.2M	\$2.2M
RECYCLED WATER					
Total Gross Capital Expenditure	\$1.4M	\$1.5M	\$1.5M	\$1.6M	\$1.6M
Total Government Contributions	-	-	-	-	-
Total Customer Contributions	-	-	-	-	-
Total Net Capital Expenditure	\$1.4M	\$1.5M	\$1.5M	\$1.6M	\$1.6M
Gifted Assets	-	-	-	-	-
Proceeds from disposals	-\$0.0M	-\$0.0M	-\$0.0M	-\$0.0M	-\$0.0M
WDV of assets disposed	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
TOTAL					
Total Gross Capital Expenditure	\$523.7M	\$582.6M	\$546.0M	\$520.7M	\$499.0M
Total Government Contributions	-	-	-	-	-
Total Customer Contributions	\$55.7M	\$55.7M	\$55.7M	\$55.7M	\$55.7M
Total Net Capital Expenditure	\$467.9M	\$526.9M	\$490.3M	\$465.0M	\$443.3M
Gifted Assets	\$19.5M	\$19.0M	\$19.0M	\$19.0M	\$19.0M
Proceeds from disposals	-\$11.8M	-\$14.7M	-\$10.3M	-\$6.5M	-\$6.4M
WDV of assets disposed	\$9.1M	\$12.3M	\$6.3M	\$5.4M	\$5.3M

Appendix 6 – Price adjustments

There are three within period adjustments that Melbourne Water is proposing – desalination water order, desalination contract cost change and annual WACC update. This section also outlines how the proposed revenue cap arrangement would apply for the Waterways and Drainage Charge.

	Desalination water order	Desalination contract cost change	Annual WACC update
Greater Yarra System – Thomson River headworks price			X
North South Pipeline headworks price			X
Victorian Desalination Project headworks price	X	X	X
Sewerage fixed price			X
Residential Waterways and Drainage Charge			X
Rural Waterways and Drainage Charge			X
Non-residential Waterways and Drainage Charge			X

When a calculation is required under this document:

1. Year 't' is the year in respect of which the calculation is being made;
2. Year 't-1' is the year immediately preceding regulatory year 't'
3. Year 't-2' is the year immediately preceding regulatory year 't-1'.

All years referred to are regulatory years which means a period of twelve months commencing on 1 July and ending on 30 June. The first regulatory year is 2016/17.

CPI_t = the Consumer Price Index: All Groups Index for the Eight Capital Cities as published by the Australian Bureau of Statistics for the March Quarter immediately preceding the start of the relevant regulatory year

divided by

the Consumer Price Index: All Groups Index for the Eight Capital Cities as published by the Australian Bureau of Statistics for the March Quarter immediately preceding the March quarter referred to above

Desalination water order cost adjustment

In the event of a desalination water order, Melbourne Water proposes to adjust the VDP headworks price in order to recover the additional costs associated with the water order volume. The adjustment would take effect from the beginning of each subsequent regulatory year in the regulatory period.

Equation 1 allows for an adjustment in the desalination water order costs. The costs will be as per Table 39 until Melbourne Water is advised of a new schedule. This schedule is in line with the advice received on 25 August, 2015.

Equation 1: Desalination water order cost adjustment

$$DWO_{j,t} = DWO_t \times \frac{CPI_t}{CPI_{base}} \times \frac{Q_{j,t}^{DWO}}{Q_t^{DWO}}$$

Where:

$DWO_{j,t}$	Is the desalination water order costs allocated to retail water business j
DWO_t	Is the total desalination water order costs as listed in Table 39 in real 2015-16 terms
Q_t^{DWO}	Is the total desalination water order (ML)
$Q_{j,t}^{DWO}$	Is the desalination water order allocated to retailer j, where $\sum Q_{j,t}^{DWO} = Q_t^{DWO}$
CPI_t	Is the consumer price index for the March quarter in year t (all groups eight capital cities)
CPI_{base}	Is the consumer price index for the March quarter in year 2015-16 (all groups eight capital cities)

Table 39: Desalination water order costs (2015/16 Real Dollars)

Water order	2016/17
0	0
50	27.2
75	42.6
100	57.3
125	72.8
150	90.0

Desalination contract cost adjustment

When the contract costs for the VDP in any regulatory year differ from the schedule as per Table 40, the change in costs will be calculated in accordance with Equation 2. Table 40 may be updated or amended when advised, the current contract costs are in line with the advice received on 25 August, 2015.

Table 40: Victorian Desalination Project contract costs (2015/16 Real Dollars)

	2016/17	2017/18	2018/19	2019/20	2020/21
Victorian Desalination Project contract costs	\$592.7 m	\$583.8 m	\$580.5 m	\$568.7 m	\$552.4 m

Equation 2: Desalination contract cost changes

$$DCC_t^{adj} = \left(DCC_t^{for} - DCC_{t,base}^{det} \times \frac{CPI_t}{CPI_{base}} \right) + \left(DCC_{t-1}^{act} - DCC_{t-1}^{for} \times \frac{CPI_t}{CPI_{t-1}} \right) \times (1 + wacc_{t-1}^{act})$$

Where:

DCC_t^{adj}	Is the total change in desalination contract costs
DCC_t^{for}	Is the forecast desalination contract costs in year t. This will be in real\$ year t
$DCC_{t,base}^{det}$	Is the desalination contract cost allowed for in the revenue requirement for year t as per Table 40.
CPI_t	Is the consumer price index for the March quarter in year t (all groups eight capital cities)
CPI_{base}	Is the consumer price index for the March quarter in year 2015-16 (all groups eight capital cities)
DCC_{t-1}^{act}	Is the actual desalination contract costs in year (t-1). This will be in real\$ year (t-1)
$wacc_{t-1}^{act}$	Is the real post tax 'vanilla' WACC in year (t-1) as per Equation 5.

Equation 2 calculates the total contract cost changes in two components as Melbourne Water may be advised of a change in contract costs prior to and after the commencement of the financial year.

The first component to determine total changes in contract costs allows for adjustments in forecast desalination costs in year t compared to what was determined adjusted for CPI.

The second component to determine total changes in contract costs is an adjustment for changes in the contract costs between the forecast and actual from the previous year (t-1). These will be adjusted for one year of CPI and the WACC as it is a carry forward amount. VDP contract costs for the determination are as per Table 40.

Price adjustment to reflect annual update to WACC

For each year of the 2016 Price Submission Melbourne Water proposes the ESC adopt the forecast post-tax real WACC as outlined in Table 41.

Table 41: Forecast Real post tax WACC

	2016/17	2017/18	2018/19	2019/20	2020/21
Real Post Tax WACC	4.5%	4.4%	4.2%	3.9%	3.7%

The proposed WACCs outlined in Table 41 are multiplied by the proposed RABs outlined in Table 42 to determine Melbourne Water's total expected return on its water, sewerage and waterways and drainage assets.

Table 42: Proposed regulatory asset values (2015/16 Real Dollars)

\$M	2016/17	2017/18	2018/19	2019/20	2020/21
Water					
RAB ^{water}	3,200.6	3,254.0	3,288.0	3,339.9	3,379.9
RAB ^{NSP}	9.8	29.3	48.4	67.1	85.5
RAB ^{VDP}	703.1	695.9	688.8	681.6	674.4
Sewerage					
RAB ^{sewerage}	4,443.7	4,604.5	4,770.2	4,857.8	4,926.1
Recycled water					
RAB ^{AWS}	67.1	66.2	65.3	64.4	63.3
Waterways and drainage					
RAB ^{WWAY}	1,646.6	1,733.1	1,829.6	1,944.4	2,055.1

Equation 3 to Equation 5 outline the process required to determine the actual WACC in any given year.

Equation 3: Determining cost of equity

$$CoE^{nominal} = Risk\ free\ rate + (Equity\ premium * Equity\ beta)$$

Where:

<i>CoE^{nominal}</i>	Is the total cost of equity in nominal terms for all years
<i>Risk free rate</i>	Is equal to 2.7%
<i>Equity premium</i>	Is equal to 6.0%
<i>Equity beta</i>	Is equal to 0.65

Equation 4: Determining cost of debt

$$CoD_t^{nominal} = \sum_{i=t-1}^{t-10} \frac{CoD_i^{nominal}}{10}$$

Where:

<i>CoD_t^{nominal}</i>	Is the total cost of debt in nominal terms for year t
<i>CoD</i>	Is equal to the simple average of – <i>RBA Table F3 – Non-financial corporate BBB-rated bonds – Yield – 10 year target tenor [Series ID FNFYBBB10M]</i> over 365 days from 1 April to 31 March immediately preceding the start of year t

Equation 5: Determining the Actual WACC

$$WACC_t^{nominal} = CoE^{nominal} \times (1 - gearing) + CoD_t^{nominal} \times gearing$$

Where:

$WACC_t^{nominal}$	Is the post-tax 'vanilla' WACC in nominal terms for year t
$CoE_t^{nominal}$	Is the total cost of equity in nominal terms for year t
$CoD^{nominal}$	Is the total cost of debt in nominal terms for all regulatory years
$Gearing$	Is proposed to equal 60%

$$WACC_t^{act} = \left(\frac{1 + WACC_t^{nominal}}{1 + CPI_{wacc}} \right) - 1$$

Where:

$WACC_t^{act}$	Is the post-tax 'vanilla' WACC in real terms for year t round down to 1 decimal points, i.e. 4.56% is rounded to 4.5%
$WACC_t^{nominal}$	Is the post-tax 'vanilla' WACC in nominal terms for year t
CPI_{wacc}	Is the inflation factor which is equal to 2.5%

All cost adjustments associated with annually updating the post-tax real WACC will be placed on the retailer's fixed water and sewerage prices as set out below.

Price formulas

Adjusting the Greater Yarra System – Thomson River headworks price

The Greater Yarra System – Thomson River headworks price will be adjusted annually to reflect the new WACC. This is done in two steps. The first is to update the previous year's price for inflation and the prescribed price movement as per Schedule 1.1 in Appendix 2. The second step is to add on the adjustment for the movement in the WACC. This is done by taking the retailers share of entitlement (i.e. local water utility's entitlement divided by total entitlement), multiplying this by the RAB, and then the movement in the WACC. This figure is then divided by 12 to reflect that Melbourne charges on a monthly.

Equation 6: Greater Yarra System – Thomson River headworks price adjustment

$$P(GYS)_{j,t} = P(GYS)_{j,t-1} \times \frac{CPI_t}{CPI_{t-1}} \times (1 + PPM_{j,t}) + \left(\frac{1}{12} \right) \left[(WACC_t^{act} - WACC_t^{for}) \times RAB_t^{water} \times \frac{CPI_t}{CPI_{t-1}} \times BEshare_j^{GYS} \right]$$

Where:

$P(GYS)_{j,t}$	Is the monthly headworks price for the Greater Yarra System – Thomson River for retail business j in year t as per Schedule 1.1 in Appendix 2
CPI_t	Is the consumer price index for the March quarter in year t (all groups eight capital cities)
$PPM_{j,t}$	Is the prescribed price movement as per Schedule 1.1 in Appendix 2 for year t for business j.
$WACC_t^{act}$	Is the actual calculated real post tax ‘vanilla’ WACC for year t as per Equation 5
$WACC_t^{for}$	Is the forecast real post tax ‘vanilla’ WACC as per Table 41 for year t
RAB_t^{Water}	Is the average Water RAB in year t as specified in Table 42
$BEShare_j^{GYS}$	Is the share of Bulk Entitlement for the Greater Yarra System – Thomson River system held by business j as per Table 43

Adjusting the North South Pipeline headworks price

The North South Pipeline headworks price will be adjusted annually to reflect the new WACC. The first step is to adjust the previous year’s price to reflect movements in inflation and the prescribed price movement as per Schedule 1.3 in Appendix 2. This figure is then added to one-twelfth of the share of the bulk entitlements multiplied by the average RAB and the movements in the WACC.

Equation 7: North South Pipeline headworks price adjustment

$$P(NSP)_{j,t} = P(NSP)_{j,t-1} \times \frac{CPI_t}{CPI_{t-1}} \times (1 + PPM_{j,t}) + \left(\frac{1}{12}\right) (WACC_t^{act} - WACC_t^{for}) \times RAB_t^{NSP} \times \frac{CPI_t}{CPI_{t-1}} \times BEShare_j^{NSP}$$

Where:

$P(NSP)_{j,t}$	Is the monthly headworks price for the North South Pipeline in year t for retail business j as per Schedule 1.3 in Appendix 2
CPI_t	Is the consumer price index for the March quarter in year t (all groups eight capital cities)
$PPM_{j,t}$	Is the prescribed price movement as per Schedule 1.3 in Appendix 2 for year t for business j.
$WACC_t^{act}$	Is the actual real post tax ‘vanilla’ calculated WACC for year t as per Equation 5

$WACC_t^{for}$	Is the forecast real post tax 'vanilla' WACC in year t as per Table 41
RAB_t^{NSP}	Is the average North South Pipeline RAB in year t as specified in Table 42
$BEshare_j^{NSP}$	Is the share of Bulk Entitlement for the North South Pipeline held by business j as per Table 43

Adjusting the VDP headworks price

The Victorian Desalination Project headworks price is adjusted for inflation, prescribed price movement as per schedule 1.2 in Appendix 2, changes in contract costs, water order costs and movements in WACC. The contract costs and movements in WACC multiplied by the average RAB are then both multiplied by the share of BE that the local water utility holds. This and the water order costs are divided by 12 to reflect monthly charges.

Equation 8: Victorian Desalination Project headworks price adjustment

$$\begin{aligned}
 P(VDP)_{j,t} = & P(VDP)_{j,t-1} \times \frac{CPI_t}{CPI_{t-1}} \times (1 + PPM_{j,t}) \\
 & + \left(\frac{1}{12}\right) \left(DWO_{j,t} + (DCC_t^{total} \times BEshare_j^{VDP}) + (WACC_t^{act} - WACC_t^{for}) \times RAB_t^{VDP} \right) \\
 & \times \frac{CPI_t}{CPI_{t-1}} \times BEshare_j^{VDP}
 \end{aligned}$$

Where:

$P(VDP)_{j,t}$	Is the monthly headworks price for the Victorian Desalination Project in year t for retail business j as specified in Schedule 1.2 in Appendix 2
CPI_t	Is the consumer price index for the March quarter in year t (all groups eight capital cities)
$PPM_{j,t}$	Is the prescribed price movement as per Schedule 1.2 in Appendix 2 for year t for business j
$DWO_{j,t}$	Is the desalination water order costs allocated to retail water business j in year t
DCC_t^{total}	Is the total change in desalination contract costs
$WACC_t^{act}$	Is the actual calculated real post tax 'vanilla' WACC for year t as per Equation 5
$WACC_t^{for}$	Is the forecast real post tax 'vanilla' WACC in year t as per Table 41
RAB_t^{VDP}	Is the average Victorian Desalination Project RAB in year t as specified in Table 42

$BEshare_j^{VDP}$	Is the share of Bulk Entitlement for the Victorian Desalination Project held by business j as per Table 43
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Adjusting the sewerage price

The sewerage fixed charge is adjusted for inflation, the prescribed price movement as per Schedule 1.8 in Appendix 2 and movements in WACC. The formula below shows how the previous year's price is updated and then added to one-twelfth of the difference in the WACC multiplied by the average sewerage RAB and each retailers cost share.

Equation 9: Fixed sewerage price adjustment

$$P(\text{Sewerage})_{j,t} = P(\text{Sewerage})_{j,t-1} \times \frac{CPI_t}{CPI_{t-1}} \times (1 + PPM_{j,t}) + \left(\frac{1}{12}\right) \left[(WACC_t^{act} - WACC_t^{for}) \times (RAB_t^{sewerage} + RAB_t^{AWS}) \times \frac{CPI_t}{CPI_{t-1}} \times CShare_j^{sewerage} \right]$$

Where:

$P(\text{Sewerage})_{j,t}$	Is the monthly fixed sewerage price in year t for business j as per Schedule 1.8 in Appendix 2
CPI_t	Is the consumer price index for the March quarter in year t (all groups' eight capital cities)
$PPM_{j,t}$	Is the prescribed price movement as per Schedule 1.8 in Appendix 2 for year t for business j.
$WACC_t^{act}$	Is the actual calculated real post tax 'vanilla' WACC for year t as per Equation 5
$WACC_t^{for}$	Is the forecast real post tax 'vanilla' WACC consistent with Table 41
$RAB_t^{sewerage}$	Is the average Sewerage RAB in year t consistent with Table 42
RAB_t^{AWS}	Is the average Alternative Water Sources RAB in year t consistent with Table 42 ¹⁸
$CShare_j^{sewerage}$	Is the sewerage cost allocation share for retail business j as per Table 44

Table 43 outlines the local water utility's bulk delivery entitlement share for each headwork source.

¹⁸ Recycled Water RAB has been included in the sewerage price adjustment as the wholesale recycled water has a shortfall in revenue which is recovered through the sewerage prices charged to the retailers.

Table 43: Bulk delivery entitlement shares

Greater Yarra System – Thomson River	Bulk delivery entitlements (ML)	Retailer share
City West Water	155,227	24.9%
South East Water	209,562	33.6%
Yarra Valley Water	223,271	35.8%
Western Water	18,250	2.9%
Westernport Water	1,000	0.2%
Barwon Water	16,000	2.6%
South Gippsland Water	1,000	0.2%
<i>Total</i>	624,310	100.0%
Victorian Desalination Project		
City West Water	39,595	26.4%
South East Water	53,454	35.6%
Yarra Valley Water	56,951	38.0%
<i>Total</i>	150,000	100.0%
North South Pipeline		
City West Water	25,000	33.3%
South East Water	25,000	33.3%
Yarra Valley Water	25,000	33.3%
<i>Total</i>	75,000	100.0%

Table 44 outlines the local water utility’s sewerage cost allocation shares.

Table 44: Sewerage cost allocation shares

Retailer	Retailers sewerage cost allocation share
City West Water	22.7%
South East Water	40.3%
Yarra Valley Water	37.0%

REVENUE CAP ARRANGEMENTS FOR THE WATERWAYS AND DRAINAGE CHARGE

The following section outlines the calculation of the annual revenue requirements for each regulatory year for services funded by the Waterways and Drainage Charge. These annual revenue requirements provide smooth price paths and intend to ensure the collection of the revenue equal to forecast waterways and drainage expenditure in net present value terms over the five years.

Revenue requirements for regulatory years:

Regulatory year	Calculation of revenue requirements nominal
Where t = 2016-17	$rev_t = \$247.519 \text{ million} \times cpir_t$
Where t = 2017-18	$rev_t = \$239.203 \text{ million} \times cpir_t$
Where t = 2018-19	$rev_t = \$235.135 \text{ million} \times cpir_t$
Where t = 2019-20	$rev_t = \$233.922 \text{ million} \times cpir_t$
Where t = 2020-21	$rev_t = \$228.259 \text{ million} \times cpir_t$

Where t = 2016-17 $rev_t = \$247.519 \text{ million} \times cpir_t$

Where t = 2017-18 $rev_t = \$239.203 \text{ million} \times cpir_t$

Where t = 2018-19 $rev_t = \$235.135 \text{ million} \times cpir_t$

Where t = 2019-20 $rev_t = \$233.922 \text{ million} \times cpir_t$

Where t = 2020-21 $rev_t = \$228.259 \text{ million} \times cpir_t$

Where $cpir_t$ for the particular regulatory year is:

$$cpir_t = \frac{CPI_t}{CPI_{base}}$$

This is the Consumer Price Index: All Groups for the Eight Capital Cities as published by the Australian Bureau of Statistics for the March quarter immediately preceding the start of the relevant regulatory year

Divided by

the Consumer Price Index: All Groups Index for the Eight Capital Cities as published by the Australian Bureau of Statistics for the March Quarter 2015.

The Revenue Cap for Waterways and Drainage charges is defined by Equation 10. Equation 11 calculates for the maximum allowable revenue in any given year and Equation 12 calculates the adjustments made to the revenue cap for prior regulatory years.

Equation 10 Revenue Cap formula for Waterways and Drainage

$$\sum_{i=1}^n p_t^i \cdot q_t^i \leq MAR_t$$

Equation 11 Maximum Allowable Revenue for Waterways and Drainage

$$MAR_t = cap_t + (WACC_t^{act} - WACC_t^{for}) \times RAB_t^{WWAYS} \times \frac{CPI_t}{CPI_{t-1}}$$

Equation 12 Revenue cap adjustments for Waterways and Drainage

$$cap_t = rev_t + \left(cap_{t-1} - \sum_{i=1}^n p_{t-1}^i \cdot q_{t-1}^{i,e} \right) \times \frac{CPI_t}{CPI_{t-1}} \times (1 + WACC_{t-1}^{act}) + \sum_{i=1}^n p_{t-2}^i \cdot (q_{t-2}^{i,a} - q_{t-2}^{i,e}) \times \frac{CPI_t}{CPI_{t-2}} \times (1 + WACC_{t-2}^{act})$$

cap_t Is the updated revenue requirement cap based including adjustments from the previous two regulatory years.

rev_t Is the forecast revenue requirement of the Prescribed Price Movement as specified in Schedule 2.1 to 2.3 of Appendix 2. It includes revenue from

- Residential Waterways and Drainage Charge
- Rural Waterways and Drainage Charge
- Non-residential Waterways and Drainage Charge.

This may be amended by adjustments under the "unforeseen and

uncertain events” provision as required.

p_t^i	The proposed tariff i for regulatory year t
p_{t-1}^i	The actual tariff i for regulatory year t-1
p_{t-2}^i	The actual tariff i for regulatory year t-2
q_t^i	The forecast quantity of tariff i for regulatory year t
$q_t^{i,e}$	The estimate of actual quantities of tariff i for regulatory year t
$q_t^{i,a}$	The actual quantities of tariff i for regulatory year t
$WACC_t^{for}$	Is the real post tax 'vanilla' WACC as per Table 41.
$WACC_t^{act}$	Is the real post tax 'vanilla' WACC as calculated in Equation 5.
RAB_t^{WWAYS}	Is the average Waterways and Drainage RAB services as specified in Table 42.

Where i = Residential charge, Non-residential minimum fee, Non-residential Rate in the NAV, Rural charge, and Higher Impact Users charge.

Where the:

1. The Residential Waterways and Drainage Charge in regulatory year t is calculated as

$$p_t^{Res} = p_{2016-17}^{Res} \times cpir_t$$

2. The Rural Waterways and Drainage Charge in regulatory year t is calculated as

$$p_t^{Rural} = p_{2016-17}^{Rural} \times cpir_t$$

3. The Non-residential Charge in Schedule 2.1 in Appendix 2 (Minimum fee) and 2.2 in regulatory year t is calculated as

$$p_t^{NonresMin} = p_{t-1}^{NonresMin} \times PPM_t \times \frac{CPI_t}{CPI_{t-1}}$$

where PPM_t is a per set out in Schedule 2.1 (minimum fee) and 2.2 of Appendix 2.

4. The Non-residential Charge in Schedule 2.1 (Rate in \$ NAV) is 0.000c in t = 2020-21.
5. The revenue collected from the Higher Impact Users in year t will be such:

$$(1 - 5\%) \times p_{t-1}^{HIU,j} \cdot q_{t-1}^{HIU,j} \leq \frac{p_t^{HIU,j} \cdot q_t^{HIU,j}}{cpir_t} \leq (1 + 5\%) \times p_{t-1}^{HIU,j} \cdot q_{t-1}^{HIU,j}$$

$$\sum_{j=1}^n p_t^{HIU,j} \cdot q_t^{HIU,j} = cpir_t \times \sum_{j=1}^n p_{t-1}^{HIU,j} \cdot q_{t-1}^{HIU,j}$$

$$\sum_{j=1}^n p_{2015-16}^{HIU,j} \cdot q_{2015-16}^{HIU,j} = \$15.928M$$

where j is each customer within in the Higher Impact Users group.

6. The actual revenue for year t-1 will be known for the first three quarters of the year, but will be estimated for the final quarter. Therefore a further adjustment for any variance between the estimated and actual revenue in any year t-1 will feed through to the maximum allowed revenue in year t.

7. Any difference in the revenue collected and the MAR for t = 2020-21 will be included as a prior period adjustment for the fifth regulatory period.
8. In introducing this reform, the cap_t formula will be abbreviated for 2016-17 and 2017-18:

$$cap_{2016-17} = rev_{2016-17}$$

$$cap_{2017-18} = rev_{2017-18} + \left(cap_{2016-17} - \sum_{i=1}^n p_{2016-17}^i \cdot q_{2016-17}^i \right) \times \frac{CPI_{2017-18}}{CPI_{2016-17}} \times (1 + WACC_{2016-17}^{act})$$

