PRICE SUBMISSION 2018-2020

Contents

Background

Strong population growth will see customer numbers double in the next 15 years.

Significant capital investment is required to service this unprecedented growth.

Catering for growth, combined with climate change and existing dependence on external water sources, requires innovative integrated water management solutions.

Customers value fair, affordable services for the whole community.

Alternative water offers potential to significantly contribute to regional liveability and prosperity.

Western Water provides water, sewer and recycled water services to 66,000 properties across a region of 3,000 square kilometres to the north-west of Melbourne.

Our service region includes Melton, Sunbury, Bacchus Marsh and most of the Macedon Ranges. Our focus is to efficiently maintain quality services to our customer base in the face of strong population growth and climate change.

Western Water has four strategic themes:

- Customers: delivering value for customers
- Liveability: contributing to a highly liveable, viable region
- Environment: caring for the environment
- Innovation: leveraging partnerships and technology to create future opportunities.

Population growth

Western Water's service area includes the Melbourne fringe areas around Sunbury and Melton where significant population growth is occurring. It also includes fast-growing regional centres in Bacchus Marsh and Gisborne.

Since Western Water was formed over 20 years ago, our customer base has doubled. It is expected to double again in the next 15 years - to reach 350,000 people.

To service the region's unprecedented level of population growth, we must commit to extensive investment in capital works.

Customer value

As an essential service provider, we are fully aware of the need to provide services that are as affordable as possible for all customers.

The average (150kl per annum) residential customer will continue to pay the same $930 (real) each year in 2018/19 and 2019/20 as they are paying now.

Nonetheless, customers would welcome a review of Western Water's billing. The key issues they would like addressed are:

- whether the current tariff structure is fair
- if we can reduce the relatively high fixed proportion of the overall bill, and
- that we minimise the financial burden for those who can least afford it.

Liveability

Finding more opportunities for alternative water use in the region is a major focus for Western Water.

Alternative water is an ideal substitute for drinking water for many uses and, as the population grows, greater quantities of recycled water will be generated and will need to be managed locally.

While recycled water is currently being used by local farms, councils, contractors, and in recreation areas and homes, the most sustainable long-term use of alternative water supplies will be in the agricultural sector, where it could significantly contribute to regional economic prosperity.

Western Water's average residential customer will continue to pay $930 (real) per annum over the next two years

Planning for growth

Western Water growth forecasts were developed using several key datasets including Victoria in Future (VIF 2015 and 2016), Precinct Structure Plan land release information (PSP), and spatial analysis combined with critical information gleaned from local councils and key development industry relationships.

Climate change

Over the last 30 years there have been significant changes in temperature and rainfall in Victoria compared to long term records.

The Millennium drought had a significant impact on Western Water's service area. As local reservoirs ran close to dry, we responded by connecting our networks to the greater Melbourne supply system.

This interconnection has effectively diversified the water supply system in the region and is essential for ongoing security of water supply.

With continued growth and climate change, we must take care of all our water resources to ensure they are sufficient to meet future needs. We will work with customers to reduce consumption and explore alternative water solutions to make the most of drinking water supplies.

Innovation

The most important contributor to providing affordable services is operating at utmost efficiency.

Innovation is core to achieving this. Western Water is involved in a range of innovative trials internally and with the Intelligent Water Network to identify new ways of doing business that will meet customer expectations for service delivery and affordability.

Executive summary

Western Water's price submission covers a two year period to allow greater flexibility to address the challenges from unprecedented growth in the region. During this two year period, we propose that prices and customer bills will not increase in real terms.

Five customer outcomes are proposed, based on input from almost 6,000 customers:

1. Fair and affordable charges for all customers
2. Reliable, safe services to existing and new customers
3. Innovative approaches to addressing customer needs
4. Care of the environment, and
5. Sustainable contribution to the community and regional liveability.

The Essential Services Commission's new water pricing framework and approach aims to produce the best outcomes for Victorian customers. There was a clear expectation that engagement would strongly inform and influence the price submission so that it demonstrated value for money for customers. Western Water fully embraced this expectation in the engagement conducted for this submission.

Alongside this approach is the Commission's new incentive mechanism PREMO which links the return on equity earned by the water business to the level of ambition set for five areas: Performance, Risk, Engagement, Management, and Outcomes.

Tariffs

Price rises are limited to inflation for both years of the price submission. During this time, Western Water proposes to undergo extensive community consultation on its tariffs - particularly the fixed to variable ratio for water bills, the tiered water usage rates and the fixed sewerage charge. Non-residential tariffs will be included in this review. Work will also be undertaken on how the current water rebate can be incorporated into tariffs.

Bills

There will be no real increase in customer bills during the price submission period. Typical annual residential owner occupier water bills for 2018/19 will be $930 before inflation (based on 150kl usage per annum). In 2019/20, the typical annual bill is forecast to remain the same as for 2018/19 before inflation.

Table 1: Typical water and sewerage bills (not including inflation) for 2018/19-2019/20

Customer group	Average consumption (kL p.a.)	2017/18 annual bill	2018/19 annual bill	2019/20 annual bill
Owner occupier	150	$930	$930	$930
	180	$1,000	$1,000	$1,000
	250	$1,167	$1,167	$1,167
Tenant	150	$170	$170	$170
	180	$239	$239	$239
	250	$406	$406	$406
Landlord	0	$761	$761	$761
Non-residential	350	$1,596	$1,596	$1,596
	700	$2,432	$2,432	$2,432

Our engagement approach

Understanding customer needs is not a task just for the development of a price submission. It is an ongoing necessity to deliver a customer-focussed essential service. Western Water has established practices in place that regularly monitor customer satisfaction and attitudes and request input on critical topics whenever required.

Three-year time frame

The customer engagement underpinning this price submission began almost three years ago, with a series of online surveys to customers.

Recognising the significant knowledge held in-house, we also pooled our knowledge of customer issues from across all customer-facing areas of the business (e.g. contact centre, social media, events, maintenance staff) to ensure we had a comprehensive understanding of customer needs.

What customers want

Combining our own indicative and representative research findings with broader industry studies led to the development of key insights from which were developed a series of papers clearly articulating What Customers Want.

As the price submission was being prepared, these papers were distributed to business teams to ensure customer needs were at the heart of strategy development.

Water Matters

Western Water's engagement approach was to communicate broadly with the customer base to inform and involve as many customers as possible in our decision making.

A campaign was developed – called Water Matters – and promoted in customer newsletters, email news, local papers, social media and advertising. It was supported by a new consultation site, developed in-house, to extend our ability to inform and engage customers at their leisure in the digital environment.

Extensive customer involvement

In total, almost 6,000 customers contributed to the development of Western Water's price submission. Our approach was challenged and verified throughout the period in collaboration with Western Water's representative and highly informed Community Engagement Reference Group (CERG).

To ensure the widest range of customer input, we offered a range of engagement methods and locations – online, face to face, hard copy, telephone – with physical presence across the 8 main towns in the region. We also identified, consulted with and included the opinions and needs of a large range of stakeholder groups.

Engagement crossed the gamut of the International Association for Public Participation (IAP2) spectrum from the Inform level (via newsletters and emails), through to Empowering and Collaborating via focus groups, deliberative forums and with the CERG.

Notably, a significant piece of collaborative work with the community is proposed as an outcome of the price submission development – a two year, detailed, community working group reviewing Western Water's tariff structure.

Outcomes proposed for customers

Western Water proposes five core customer outcomes, supported by 18 measures of success including adapted service standards, performance targets and Guaranteed Service Levels (GSLs), including increased amounts payable to the community. We commit to reporting on our performance annually to customers.

Providing customer value is at the core of Western Water's Price Submission 2018-2020. Five key customer outcomes will deliver value for the price paid for services. These outcomes reflect what customers value most. Table 2 provides detail of how the outcomes will be measured.

1. Fair and affordable charges for all customers
2. Reliable, safe services to existing and new customers
3. Innovative approaches to addressing customer needs
4. Care of the environment
5. Sustainable contribution to the community and regional liveability

Table 2: Customer outcomes and measures of success

Customer outcome	Measures of success
Fair and affordable charges for all customers	Bills for the average residential customer remain among the lowest in Victoria
	20% customer hardship program participants graduated each year
	Tariff structure review undertaken in consultation with customers is completed in 2019/20
Reliable, safe services to existing and new customers	No more than 3 sewer service interruptions per year or compensation of $100
	No planned water supply interruptions during peak hours or longer than notified, or compensation of $100
	Water quality complaints below 4 per 1000 customers
	Priority 1 water incidents, sewer spills responded to within 30 minutes (on average)
	Planned interruptions to water supply will only occur once per 10 years and last up to 4 hours (on average)
Innovative approaches to addressing customer needs	Robust SMS communications solution, ready for introduction in next pricing period (2020-2025)
	Detailed evidence of the costs and benefits from digital meter trials to inform business and customer decision-making regarding future rollout
	Fully developed solution, tested with customers, for the provision of online services and information e.g. customer online portal
	100% of emergency calls are answered within 30 seconds, enabled by interactive voice response
	20% customers on e-billing by 30 June 2020
Care of the environment	Remain on target to reduce net greenhouse gas emissions by 10% by 2025 (based on average emissions from past 5 years)
	Customer satisfaction that Western Water cares for the environment is maintained at an average annual rating of 8 out of 10 or higher
Sustainable contribution to the community and regional liveability	Provide education presentations each year to children in 80% or more of the region's preschools and primary schools
	Continue detailed community engagement via Water Matters website, email, social media and face to face events
	Maintain customer perception that Western Water is a valuable member of the community at 70% or higher

Allocating risk

Western Water is currently tasked with the challenge of meeting the needs of a rapidly expanding customer base. This challenge is impacting every aspect of the business from planning, construction, service delivery and times, customer support, corporate services, tax contributions and debt levels.

Managing the impacts of these challenges and many others - including timing, resourcing, demand, legislative and compliance, financial and regulatory - require the business to assess the risks and the allocation of who is best able to deal with them.

Western Water seeks to achieve a balance in allocation. Key areas requiring a step up in costs relating to risk mitigation include environmental compliance, dam safety and security (cyber and physical).

Performance and monitoring

Western Water is committed to delivering a high level of service with a focus on efficiency and productivity improvements. This commitment is reflected in the revised set of Guaranteed Service Levels, the setting of targets which commit to improve or at least maintain current high performance.

The freezing of real prices for the next two years allows Western Water the necessary time to further explore efficient options to service the growth and move into the next phase of being a high performing new generation utility business.

Western Water is also committed to open and transparent reporting of performance to customers annually via the website and bill inserts.

Board assurance

An attestation from the Western Water Board of Directors on the quality and accuracy of information provided in this submission can be found in Appendix 2.

1. Customer engagement

Western Water's commitment to engagement extends well beyond the development of the price submission.

Appropriate levels of engagement were selected from across the IAP2 Spectrum and participation included online, phone-based and face to face methods.

In total Western Water undertook 23 engagement activities as well as 17 surveys, 8 town events - all supported by the Water Matters consultation site.

Consultation identified 21 key issues - outlined in the What Customer Want series of papers which now underpin strategy development.

1.1 Engagement approach

Western Water has sought input from a wide range of customers over the past three years to develop a clear, accurate understanding of what they value most about their water services.

We began by pooling insights from customer-facing staff, internal research and industry studies. Combined with representative data from our annual research program, this led to the identification of 21 key customer wants, set out in a series of papers called What Customers Want.

These customer papers were issued across the business to relevant teams for inclusion in strategy development. Consequently, what customers want underpins all the proposals set out in our submission.

Table 3: What Customers Want by strategic area

Value and affordability	Safe, reliable services	Innovation	Environment	Liveability
Fairer charges	Plan for the future	Better information about works	Care for waterways	Support the community
Reduce fixed charges	Help us save water	Easier billing solutions	Reduce energy use	Increase access to recycled water
Decrease bills (bills are too high)	Safe, reliable water services	I'd like to know how much I use		
Lower vacant land charges	Safe, efficient sewerage services	Improve water quality		
A better deal for business		Avoid service interruptions		
Reduce recycled water costs		Faster response times		
		Address water pressure		

Customer-focused engagement

Western Water's commitment to community engagement extends well beyond the development of a price submission – it is a necessity for a customer-focussed essential services organisation.

To maximise the value of engagement, we must always focus on issues that are relevant and important to customers and use a range of channels to encourage and enable as many customers as possible to consider and influence our plans for the future.

Figure 1 sets out the engagement undertaken by Western Water for this price submission including timing, method, subject, numbers involved and the level of engagement.

Topics requiring greater consultation were addressed across all levels of engagement from Inform to Empower to guarantee the most meaningful customer input for decision making.

Western Water recognises the value water has for Traditional Owners and will continue to expand its understanding and engagement over the price submission period. On the Western Irrigation Network (WIN) project, several Traditional Owner groups were engaged to ensure that their rights and interests were incorporated into the planning for the project. This engagement with Traditional Owners will continue as the project develops.

Figure 1: Price Submission engagement matrix

PRICE SUBMISSION ENGAGEMENT MATRIX

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PLANNING FOR FUTURE - GROWTH & CLIMATE	Customer newsletter: Have Your say feature (Jul-Oct 16) Customer newsletter: Planning for future feature (Mar-Jun 17)	Improvements for future (CSS) (May 16, n=851) Improving WW survey (May 16, n=100) Community events with key issues survey (Nov 16-Feb 17, n=157)	Community information sessions & planning survey (Jun-Jul 17, n=130) Urban Water Strategy FOCUS GROUPS incl CERG session (Nov 16, n=28)	Strategic planning and pricing DELIBERATIVE FORUMS (Aug 17, n=51)	COMMUNITY ENGAGEMENT REFERENCE GROUP reviews providing direction for approach & key decisions (Jul & Nov 16, Feb & Aug 17)
CUSTOMER VALUE	Customer newsletter: Where does my bill go? feature (Nov 16-Feb 17) Water Matters e-news: pricing, quality, supply (Feb 17)	Value for money survey (Apr 15, n=259) Stakeholder surveys (Jun-Jul 16, n=34) Business customer survey (Jun 17, n=66)	Developer forums (Jun 16, Aug 17, n=58)		
SERVICE DELIVERY	Water Matters e-news: service standards & GSLs (Aug 17)	Customer satisfaction surveys (May 15, 16, 17 n=800+) Services priorities survey (Dec 16, n=933) Water quality surveys (Dec 14- 194, Jun 15- 173, Feb 17- 76)	Service standards & GSLs FOCUS GROUPS (Jul 17, n=20) Service standards and GSLs online survey (Aug 17, n=235)		
INNOVATION		Customer self-serve survey (Jun 15, n=202) Electronic billing survey (Oct 15, n=578) Usage info needs survey (Jul 16, n=561)			
COMMUNITY & ENVIRONMENT	Customer newsletter: Role in the environment feature (Jul-Oct 17) Water Matters e-news: community, environment (May 17)	Community program spending survey (May 17, n=217) Waterways and Greenhouse online topics (May 17, n=64)			CUSTOMER-DRIVEN TARIFF STRUCTURE REVIEW 2018-2029

1.2 Public participation

In total, almost 6,000 customers from across Western Water' service region contributed to the development of our price submission through a variety of methods – online, phone-based and face to face – across 23 engagement events, 17 surveys, 8 towns and with the support of Western Water's new Water Matters customer consultation site.

Initial engagement tested concepts with customers while later engagement aimed at refining input and/or delving deeper into customer needs. Where necessary, additional engagement was undertaken on critical and complex topics like water conservation, service standards, pricing and managing the impacts of growth and climate change.

Throughout the engagement process, our approach was tested and verified by Western Water's representative Community Engagement Reference Group and the Board's Community Engagement Committee.

Engaging across the IAP2 Spectrum

As shown in Figure 1, engagement for Western Water's submission ranged across the IAP2 spectrum from simple communications via newsletters and emails at the Inform level through to focus groups, deliberative forums and CERG meetings (where participants were empowered and able to work with Western Water to develop proposals that would offer the best customer value).

Future engagement identified

Notably, a significant opportunity for customer collaboration was identified during the engagement period. This was the development of a two-year program to fully review Western Water's tariff structure, clearly considering impacts of any changes, testing new options, with the aim to identify and implement the optimal solution for all customers.

Customers agreed that there was not sufficient time to undertake this detailed and complex engagement activity during the preparation of this submission, and that the best possible outcome required a considered and collaborative approach away from the pressures of price submission development.

More information about Western Water's community engagement approach can be supplied on request.

2. Customer outcomes

Western Water developed five major customer outcomes based upon consultation and our understanding of What Customers Want. A total of 18 indicators support these outcomes, identified below as what customers receive.

Table 4: Customer outcomes driven by customer needs

Customer outcome	What customers want	Western Water actions	Measures of success (what customers receive)
Fair and affordable charges for all customers	• Collaborative tariff structure review over 2018-2019 • Support for vulnerable customers	• Commitment to a tariff review by late 2019 • Continued focus on vulnerable customers via hardship program	• Tariff structure review with customers completed late 2019 • Customer satisfaction that the price of water services represents value for money maintained at an average annual rating of 6 out of 10 or higher • 20% customer hardship program participants graduated each year
Reliable, safe services to existing and new customers	• Safe, reliable drinking water and sewerage services • Committed Target 155 education program • Implementation of integrated water management solutions	• Water system improvements program implemented to minimise customers affected by bursts • Commitment to promote Target 155 messaging and actions • Continued investment in sewer spill prevention	• No planned water supply interruptions during peak hours or longer than notified, or compensation of $100 • Water quality complaints below 4 per 1000 customers • Priority 1 water incidents, sewer spills responded to within 30 minutes (on average) • Planned interruptions to water supply will only occur once per 10 years and last up to 4 hours (on average) • No customer will experience more than 3 sewer service interruptions per year or compensation of $100
Innovative approaches to addressing customer needs	• E-billing expanded • Trial and implementation of digital meters and related usage apps • Improved water quality and service provision via intelligent networks • Better access to usage and billing information	• Increased promotion and functionality of e-billing • Ongoing investment and trial of SMS communications solutions for incidents and digital meters • Continued trial of Waternamics and other electronic solutions for water services management	• 100% of emergency calls are answered within 30 seconds via the IVR • 20% customers on e-billing by 31 December 2020 • Robust SMS communications solution, ready for introduction in next pricing period (2020-2025) • Detailed evidence of the costs and benefits from digital meter trials within and outside to inform business and customer decision-making regarding future rollout • Fully developed solution, tested with customers, for the provision of online services and information e.g. customer online portal
Care of the environment	• Maintain and extend environmental commitments • Reduce greenhouse gas emissions by 10% by 2025	• Introduce efficient solutions to meet the GGE reduction pledge including renewable energy projects, biogas cogeneration and minimising impact on environment from all new infrastructure	• Remain on target to reduce greenhouse gas emissions by 10% by 2025 (based on average emissions from past 5 years) • Customer satisfaction that Western Water cares for the environment is maintained at an average annual rating of 8 out of 10 or higher
Sustainable contribution to the community and regional liveability	• Continued investment in community support programs	• Continued investment in education, sponsorship, grants, Choose Tap and T155 programs • Committed to ongoing, relevant community engagement	• Provide education presentations to children in 80% or more of the regions preschools and primary schools • Continue detailed community engagement via Water Matters website, email, social media and face to face events • Maintain customer perception that Western Water is a valuable member of the community at 70% or higher

2.2 Service standards

Western Water's existing service standards address water interruptions (planned and unplanned), sewer interruptions (blockages and spills), and customer service relating to EWOV complaints and answering telephone calls.

Over the current regulatory period (based on a five-year average), Western Water has met targets determined by the ESC - except for three standards:

- unplanned interruptions (where a small number of significant mains bursts impacted many customers)
- increasing frequency of planned water interruptions, and
- a reduction in non-emergency calls answered within 30 seconds.

Extensive engagement occurred about service standards. Customers were asked which service standards were most relevant, and if any should be added, removed or changed. Customers also considered the impacts of growth on service delivery, changing expectations around communication and technology, and potential costs incurred to meet any new or improved standards.

Changes to service standards based on customer input include splitting response times for sewer spills and blockages. We will also work towards delivering a range of other commitments including a three-day response time for emails, increasing notice for planned interruptions, and introducing SMS communications as standard practice.

Response times can be longer if critical incidents are quickly attended

Given existing short response times within the context of the expanding customer base - both in numbers and geographic spread - customers were comfortable that staff extend response times.

However, they specified that Western Water maintain its commitment to respond as quickly as possible to incidents, particularly when there is potential for significant damage, water loss or a sewer spill.

Planned interruption times can increase if they reduce the frequency of interruptions - as long as customers are well-informed

Growth will result in an average of 4.2% increase in properties every year. As a result, it is likely that customers in growth areas will be interrupted more often as we connect new mains to our existing system.

Western Water proposed extending the time for planned interruptions to allow greater flexibility to do routine maintenance or repairs in the one interruption rather than interrupting customers multiple times.

Customers accepted the proposal to extend planned interruption duration and the potential for increased frequency of interruptions, particularly in growth areas.

In exchange, they stated they would be more satisfied if they were informed well in advance about planned interruptions and kept up to date about both planned and unplanned interruptions when they were occurring.

We can take up to 2 minutes to answer calls as long as emergency calls are answered quickly

With an increased focus on first call resolution and additional customer services provided over multiple channels, the time to respond to telephone calls has increased over the 2013-2018 regulatory period.

Customers indicated a response time of two minutes for phone calls would be acceptable going forward - for non-emergency calls.

There should be less requirement for customers to call Western Water in future as customer communications increases via electronic methods including the ability for customers to perform their own enquiries and pay bills online.

Proposed standards driven by customers

Table 6 details Western Water's proposed service standards for 2018-2020 - which are based on Western Water's performance over the past five years, future considerations for service delivery (incorporating the impacts of growth and delivering affordable services), and customer expectations.

Extensive consultation (including online surveys and focus groups) has led to the development of the proposed standards for the regulatory period, as well as identification of additional service commitments.

A total of 13 standards were not discussed in detail with customers because Western Water is proposing to continue with the performance achieved over the past five years. With these, customers were willing to accept the proposed standards as long as no additional costs are incurred.

For most standards, we propose improvements on past standards except for both the average duration and the average minutes off water supply for unplanned interruptions.

These standards are closely related and results were strongly impacted by local incidents in the past two years due to circumstances outside Western Water's control.

It was recognised that increasing the standard's duration would be more reasonable for unplanned interruptions. Nonetheless, Western Water will continue to strive to limit unplanned interruption times.

Sewer service standards continues to improve

There are significant improvements for many standards - particularly in the sewer service area, brought about by Western Water's highly effective Sewer Spill Prevention Strategy.

New customer commitments to be developed

Table 5 outlines customer service commitments which were identified through the consultation process. Western Water will explore these over the submission period in order to implement as soon as possible.

Table 5: Additional service commitments being investigated during the price submission period

Service commitment	Current commitment	Commitment recommended
Planned interruptions - number days' notification in advance to customers	2 days	10 days
(NEW) Time to respond to phone call (if all faults answered within 30 seconds)	n/a	2 minutes
(NEW) Response time for email*	10 days	3 days
SMS service to advise customers before, during and at the end of all planned and unplanned interruptions	In development	Underway

Table 6: Service Standards proposed

Service Standard	Current Services Standard for 2013-2018	Possible Standard (based on 5-year average performance)	Standard proposed
Water supply interruptions - unplanned			
Priority 1 response time	25 mins	15.6 mins	30 mins^
Priority 2 response time	25 mins	33.1 mins	60 mins
Priority 3 response time	90 mins	73.4 mins	24 hours
(NEW) Priority 4 response time	n/a	24 hours	Not required if Priority 3 is 24hrs
Restored within 5 hours	98%	98.3%	98.3%
Average duration[O]	1 hour 28 mins	2 hours 6 mins	2 hours 6 mins
Average minutes off water supply	12.7 mins	14.1 mins	14.1 mins
Interruptions per 100 km	17.9	12.0	12.0
Average frequency per customer	0.16 (1 in 6 years)	0.11 (1 in 9 years)	0.11(1 in 9 years)
Customers experiencing more than 5/year	2	0	0
Water supply interruptions - planned			
Planned interruption duration	3 hours	2.7 hours	4 hours
Duration per customer	12.1 mins	31.1 mins	45 mins
Planned interruption frequency	0.09 (every 10 years)	0.19 (every 5 years)	0.10 (every 10 years)
Restored within 5 hours	95%	99.0%	99.0%
Sewer spills and blockages			
Response time for sewer spills and blockages[#]	24.2 mins	16.5 mins	-
- (NEW) Response time for sewer spills[#]	-	-	30 mins^
- (NEW) Response time for sewer blockages[#]	-	-	60 mins
Number blockages per 100km of main	24.7	14.0	14.0
Average time to rectify a blockage	92.3 mins	47.2 mins	47.2 mins
Spills contained within 5 hours	99.86%	100%	100%
Customers receiving more than 3 blockages per year	2	0	0
Customer service and other standards			
% phone calls answered within 30 seconds	94%	94%	75%
Complaints to the Energy and Water Ombudsman per 1,000 customers	1	0.7	0.7
Water losses	9.55%	9.2%	9.2%

 # Spills and blockages have been treated as one standard. Results indicate the standard should be split into two.

^ Greater response time acceptable on the understanding that priority 1 water and sewer spills will always be addressed as quickly as possible.

O Focus group discussion was based on the standard average duration of interruption across all customers. They indicated that longer duration was acceptable to undertake whatever work was necessary to reduce the likelihood of future interruptions. The actual duration of interruptions was tested with the online survey respondents.

3. Guaranteed Service Levels

Along with engagement on service standards, Western Water undertook extensive engagement on its Guaranteed Service Levels (GSLs). The GSL scheme will continue for the 2018-2020 price submission period.

Under the scheme, payments are made to residential customers where designated performance levels are not met. The Guaranteed Service Level (GSL) Scheme forms an important part of our customer service offering and is automatically generated by the business so that customers do not need to apply.

GSLs provide customers with a guarantee as to the minimum level of service that can be expected. It provides us with an incentive to improve our services in areas highly valued or most impacting our customers.

Western Water's existing GSLs have driven improved performance outcomes over the current regulatory period. Planned interruptions are carefully scheduled to ensure customers are not interrupted during peak hours or for longer than notified.

A Sewer Spills Prevention Strategy is in place which has targeted sewer hotspots, resulting in reduced blockages and spills and thus customer interruptions. Sewer spills are responded to as soon as possible.

Western Water has a customer assistance team dedicated to supporting customers experiencing payment difficulties. Close monitoring ensures all avenues are explored prior to restricting customers or commencing legal action.

Western Water has managed its performance to ensure that no Guaranteed Service Level payments have been required across this regulatory period.

New GSL proposed

During consultation, a new GSL was proposed whereby customers receiving more than five water supply interruptions in a year would be compensated by $100. We are working towards capturing this data so we can introduce this GSL in the next price submission period.

Minimum GSL payments increased

Customers indicated that the current compensation for more than three sewer interruptions was not reflective of the inconvenience caused. As a result, Western Water responded that it would increase the GSL payment to $100.

To emphasise our commitment to ensuring customers experience appropriate service levels, Western Water proposes to increase the existing minimum payments for all GSLs from $50 to $100.

Table 7: Guaranteed Service Levels and proposed compensation amounts for 2018-2020

Guaranteed service level	Current GSL compensation amount	Proposed GSL compensation amount
Planned water supply interruption during peak hours (5-9am, 5-11pm)	$50	$100
Planned water supply interruption longer than notification given	$50	$100
More than three sewer interruptions in 12 months	$50	$100
Sewerage spills inside a house, caused by the business or a failure of the business' system(s), not stopped within one hour of notification	$500	$500
Restricting or commencing legal action prior to taking reasonable endeavours (as defined by the Essential Services Commission) to contact the customer about help available if they are experiencing difficulties paying (Hardship GSL)	$300	$300

4. Managing risk

This section sets out significant risks and explains how they have been addressed through our proposals, including the business allocation of risk and how the proposals support efficiency and best value to customers.

A detailed assessment has been undertaken for each risk, including an assessment of the nature and scale of the risk and its probability of occurring. Detailed risk assessments are available for review by the ESC.

Western Water's risk assessment is based on a standard approach to risk management aligned with ISO 31000.

Significant risks identified and assessed are around the:

- forecasting of connection growth and demands
- delivery of reliable services
- safety of employees and the public
- environmental impacts arising from our operations, and
- financial viability of Western Water.

Key considerations in assessing risk mitigation actions and the allocation of risk within the submission include:

- the party that is best placed to manage the risk
- the cost and benefit arising from the risk mitigation action – the efficiency
- delivery of our customer outcomes
- compliance with regulatory, statutory and legal obligations including those under the Minister's Letter of Expectations, and
- the financial viability of Western Water.

Following is a summarised position on Western Water's risk considerations and the allocation of risk within the submission.

The key areas where there is a step-up in costs relating to risk mitigation activity are:

- environmental compliance
- data and network intelligence
- dam safety, and
- security program – cyber and physical security.

4.1 Connections and demand forecasting risk

Our customer charges are established to recover efficient costs with both revenues and costs based on connection and demand forecasts that are underpinned by independent estimates to the extent possible.

Western Water appreciates the benefits arising from accurate forecasting, however also understands that invariably actual connection growth and water demand will differ from our forecasts due to many external factors including the economic climate, timing of land released for development, fluctuations in weather conditions, and demand management.

Risk implications

Inaccurate forecasting of connection growth or usage demand may result in:

- customers paying more than an efficient cost for services - where actual growth or demand is higher than forecast and Western Water recovers greater than expected revenues, or
- increased financial risk to Western Water due to recovering insufficient revenues to meet costs – where actual growth or demand is lower than forecast.

Inaccurate forecasting of connection growth or demand may also impact Western Water's forecasting of capital and operational supplies and services. In particular careful focus must be paid to:

- the sizing and the timing of delivery of infrastructure
- water supply volumes, and
- waste water management.

Risk reduction

Data and intelligence - Enhanced growth and demand forecasting and predictive capabilities (developed through increased data and network intelligence) will enable optimisation of Western Water's operating plans, master plans, demand management activities, water loss management, and sourcing strategies. Increasing our forecasting capability will provide an opportunity for Western Water to respond to changes in growth and demand in a timely and efficient manner.

A detailed assessment has been undertaken for each risk, including the nature and scale of the risk and its probability of occurring

To reduce the risk of inaccurate forecasting and to drive efficient decision making, Western Water has included capital investment in its submission to support increased data capture, analysis and predictive modelling of growth and demand.

Risk allocation

Tariff structures - The allocation of financial risk associated with variation in water demand may be changed through varying the structure of fixed and variable tariff charges. Changes in the tariff structure will impact customers to varying degrees with some customer outcomes being adverse as compared to the current structure.

Western Water also needs to take care that changes in the tariff structure do not result in an under-recovery of its fixed costs. Significant engagement with the community, customers and customer representative groups is required prior to proposing changes in the tariff structure.

As such, Western Water has proposed no change in the tariff structure within this proposal however - consistent with customer feedback for a review of the structure of charges - the proposal includes funding for a comprehensive review of pricing to be completed by late 2019.

Form of price control - The form of price control is a key tool available to manage Western Water's financial risk associated with variances in actual outcomes to those assumed in the pricing proposal including connection, population and demand outcomes.

Moving to a revenue capped or hybrid form of control in this pricing period would reduce Western Water's financial exposure through a transfer of the risk to our customers. Despite the risk reduction benefit to Western Water of adopting a revenue cap or hybrid form of price control, the pricing proposal assumes retention of the current price cap arrangement.

The decision to accept risk on behalf of our customers is based on Western Water being in a better position than customers to manage the financial risk. In addition, it results in a price outcome that is aligned with customer feedback for smoothed prices and price certainty over the regulatory period.

4.2 Services delivery risk

Western Water appreciates the essential nature of its water and sewerage services and seeks to ensure infrastructure assets and water supplies are adequate to enable delivery of such services.

Services may be impacted by a range of events including:

- natural disasters or weather events
- third party interference
- insufficient water inflows
- failure to construct or maintain infrastructure/ assets in a timely manner, and
- loss of key supplier.

Risk implications

Customer service disruptions may have significant impacts for the community and customers including the potential loss of life for vulnerable customers.

Disruption to services, or a failure to deliver services, may result in increased cost and loss of revenue to Western Water that will not be passed through to customers. Western Water's reputation may also be negatively impacted.

Risk reduction

Capital delivery - To assist Western Water with timely delivery of growth related infrastructure as well as our renewal capital expenditure program, Western Water has sourced via a competitive process, engineering services support under a three-year partnership agreement (plus performance-based extensions).

Western Water is enhancing information on assets resulting in more effective decisions on asset maintenance and renewals.

Water source planning - Western Water's local water sources are insufficient to meet current demands in periods of prolonged drought and will be insufficient to meet daily demands under normal climate conditions in the future based on our forecast connections growth.

Western Water's risk to insufficient water sources to meet future demand is being managed in the short term through the purchase of water allocations as they become available.

Planning is underway to address the risk over the medium to longer term through a range of options including:

- programs to substitute drinking water with recycled water for agricultural use
- stormwater harvesting for drinking water use
- use of recycled water for environment flows, and
- a potential review of the Melbourne water system bulk entitlements.

Western Water has included expenditure in the pricing proposal for progressing the feasibility of these longer-term options to meet water supply demands in the future.

Risk allocation

Western Water will bear the financial risk associated with the cost of purchasing water supplies above those forecast in the submission.

Costs associated with service delivery impacts, including business disruption costs, will be borne by Western Water over the pricing period. Developer costs may also be impacted in the event infrastructure is not planned appropriately and delivered to meet developer timeframes in the growth areas.

4.3 Employee and public safety risk

For the protection of its employees, contractors, customers and the public, Western Water recognises the critical importance of always:

- providing a safe workplace
- maintaining and securing its operations, assets and property, and
- delivering drinking water that is safe for human consumption.

Threats may result from third parties or from within Western Water.

Risk implications

Failure to protect, or provide safe services to our employees, contractors, customers and the public may negatively impact their quality of life or in a worst-case scenario, result in loss of life.

Risk reduction

Security enhancements - Western Water has identified opportunities to improve both physical security and IT security following audit reviews of its operations. Expenditure has been included in the price submission to implement the security improvements and reduce the threat to our employees, contractors, customers and the public.

Investment in safety - Western Water's proposal also includes expenditure associated with:

- maintaining programs to drive a safety culture across all operations
- increasing our use of intelligent systems to protect our employees e.g. lone worker app, GPS tracking and cameras in vehicles
- increasing our focus on the well-being of our employees
- continuing our robust program of water sampling and analysis and automating the program where it is efficient to do so
- continuing the maintenance and inspections of our assets and systems, and
- dam management and improvement programs.

Risk allocation

Increased costs associated with Western Water's investment in safety have largely been absorbed by the business through lower safety incidents as well as proposed efficiency and cost savings.

Western Water maintains the risk associated with a failure to protect employees, contractors, customers and the public.

4.4 Environmental risk

Western Water recognises the environmental and community benefits that arise from its environmental management systems and its focus on liveability in the region.

Western Water appreciates that customers want our activities to be beneficial to waterways and the environment with minimal impact on customer charges. As such we seek to minimise the cost of our environmental management activities through the receipt of grants and voluntary support arrangements and partnerships, in addition to utilising carbon offsets where feasible.

Western Water recognises the reputational and cost reduction benefits that arise from a culture of compliance and transparent reporting. We work hard at establishing and maintaining relationships with key environmental stakeholders including the Environment Protection Authority.

Risk implications

Ineffective environmental management may impact public health or result in temporary or permanent harm to the environment.

Western Water may incur fines or penalties because of non-compliance with environmental obligations.

Customers may pay more than an efficient cost in the event Western Water's environmental management systems fail and unplanned/reactive responses are required to rectify non-compliance or environmental harm incidents.

4.4 Environmental risk cont.

Risk reduction

Effective planning - Effective environmental management planning based on accurate growth and volume forecasts will support efficient capital and operating expenditure decisions, including the use of environmental offsets or recycled water for environmental flows where feasible, to ensure customers are not paying more than efficient costs.

Western Water's proposed investment in capital projects to support increased data capture, analysis and predictive modelling of growth and demand will support effective planning to mitigate environmental risk and deliver community benefits from our environmental management.

Compliance monitoring - Western Water has included expenditure within the price submission to obtain notification of new or amended legal obligations and to automate the monitoring and reporting of our compliance against relevant obligations.

The system will support environmental compliance reducing Western Water's risk to non-compliance fines/penalties or reactive management of environmental exposures.

Risk allocation

Expenditure forecasts - Supported by customer feedback Western Water has maintained expenditure levels for recovery of biodiversity and environmental management system costs.

However, the expenditure forecast includes increased costs associated with:

- the introduction of a compliance management system, and
- increased data capture, analysis and predictive modelling of growth and demand to support efficient environmental management.

Consistent with the current price submission period, Western Water has not included contingency for the rectification /management of environmental incidents.

Greenhouse gas emissions pledge - Western Water is proposing to accept the risk associated with meeting the emissions pledge within the price submission period. Western Water will continue to assess opportunities to reduce emissions in line with our pledge ensuring all options are considered to deliver an efficient cost outcome into the future.

Pass through adjustment - Western Water is proposing a pass-through price adjustment to recover the efficient cost of changes in legislation, regulations, ministerial directions and/or policy obligations.

This pass-through proposal includes changes to environmental obligations effectively allocating the risk of changes in costs driven by obligation amendments to our customers.

4.5 Financial risk

Western Water recognises its financial viability as being critical to its ability to provide reliable, safe and secure services and contribute to the development of its growing region.

Western Water is exposed to financial risk because of higher than forecast expenditure, possibly due to changes in third party arrangements – Bulk Water Entitlement charges, or from changes to policy, legislation, regulations or Ministerial Directions.

A pass-through arrangement may actually benefit customers as has been experienced in most recent years through the carbon tax and bulk entitlement reviews.

Financial viability risk also arises from variation to forecasts of connection, population and demand as assumed in the pricing proposal.

The significant growth within the region substantially increases Western Water's vulnerability to financial risk. Variances in both the timing and location of forecast growth contribute to this, as well as the increased debt levels to fund the infrastructure required to service the growth areas.

Risk implications

Ineffective management of Western Water's financial viability may result in a requirement for:

- contributions from shareholders
- expenditure reduction programs that may impact service delivery outcomes, and
- potential customer price increases in future regulatory periods.

Risk reduction

Pass through mechanisms - Western Water's financial proposal results in limited ability to manage significant uncertainties that may arise from changes in third party arrangements such as Melbourne Water Bulk Water charges, or from changes to policy, legislation, regulations or Ministerial Directions.

Adopting a risk mitigation strategy of including a probability weighted risk adjustment to cover the financial impact from uncertainties results in increased customer charges regardless of whether the uncertainties eventuate.

Instead, Western Water is proposing a pass through of the revenue requirement impact for the following uncertain events:

- variation in Melbourne Water charges, and
- variation in policy, legislation, regulations or Ministerial Directions or policies.

Length of regulatory period - Western Water's submission proposes a variation from the standard five-year regulatory period to a term of two years. In proposing the two-year term Western Water has considered:

- the very high rate of growth forecast for the next 5-year period and sensitivity of revenues – both tariff and developer charges, to variances in the growth
- the high level of uncertainty associated with the timing of growth
- the capital delivery lead time resulting in costs being incurred prior to identification of actual growth
- the overall allocation of risk between Western Water and the customer, and
- customer feedback regarding affordable charges.

A two-year term reduces the financial risk to a manageable level while providing time for Western Water to further explore efficient options to service the growth. Customers benefit as the cost of uncertainty in regard to timing of growth and demand is not incorporated in their charges.

Risk allocation

Expenditure forecasts - Western Water's pricing proposal is based on efficient expenditure forecasts that deliver agreed customer outcomes. No contingencies have been included within the expenditure forecasts.

Risk associated with the forecast expenditure requirement has been allocated to Western Water as it is better placed to manage the risk as opposed to customers. This includes exposure to the:

- rate of CPI escalation
- efficiency factor incorporated in the expenditure forecast
- variances from the P50 estimates utilised in forecasting costs, and
- out-of-sequence development within the region.

Financing cost of development - To enable developers to manage existing commitments based on current New Customer Contribution (NCC) pricing, Western Water's proposal assumes a transitioned approach to increased NCC charges. Western Water accepts the financial risk associated with the transitional approach.

With a focus on balancing our stakeholder outcomes, particularly affordability for customers, the pricing proposal has been developed with Western Water increasing its debt to fund cash timing shortfalls associated with funding growth related infrastructure.

Western Water accepts this increased financial risk over the short to medium term to smooth the economic impact of growth on its customers and ensure charges are fairly distributed across current and future customers that will use the assets.

The financial profile has been stress tested to ensure even under adverse financial conditions the business can meet its financial obligations and maintain an Interest Cover ratio at or above 1.5 times. The financial stress testing considered adverse outcomes from individually and combined drivers of revenue and expenditure.

5. Regulatory period

Western Water proposes a two-year regulatory period to run from 1 July 2018 to 30 June 2020. This aligns with the proposal set out in the ESC guidance.

The two-year regulatory period allows Western Water greater time to assess the business's capacity to address the challenges associated with servicing unprecedented levels of growth in its region, while providing affordable and value-adding services to customers before committing to longer term prices.

6. Revenue requirement

Providing customer value via servicing the water and sewer needs of our current and future customers is central to Western Water's existence.

Western Water is challenged with delivering services to almost 5,000 additional customer properties over the next two years. These services must be delivered in the most cost-efficient manner whilst ensuring regulatory and legislative compliance is achieved.

Through delivery of this price submission - with a calculated revenue requirement of $160.83M or net present value (NPV) revenue requirement of $154.60M - Western Water aims to best meet the needs of current and future customers.

The revenue requirement is made up of the following key elements:

- $110.92M Opex
- $39.48M Return on Assets
- $10.55M Regulatory depreciation, and
- ($0.12M) Non-prescribed revenue offset.

As Western Water prepares itself to be a 'new generation utility' full focus has been on cost savings, reducing expenditure, increased productivity and challenging the status quo.

Western Water performance over Water Plan 3 (2013 to 2018) has seen significant savings in opex and some large deferrals in capex as compared to the 2013 Final Decision. These savings have contributed to the $100 Government Water Rebate. It is proposed that Western Water will continue to deliver these savings into PS18. This will be reflected as an efficiency bill reduction to residential usage customers.

Two work programs have been established - Business Transformation and Strategic Futures. These are overseen by the Board and represent packages of work that the business is proposing to implement or deliver over the next two years to provide immediate and longer-term benefits to help support the business into the future.

Table 8: Revenue requirement for 2018-2023 ($M)*

	PS18				
	2018-19	2019-20	2020-21	2021-22	2022-23
Opex	55.32	55.60	56.11	56.56	57.35
Return on assets	18.73	20.74	23.11	25.52	27.68
Regulatory depreciation of assets	4.54	6.01	2.63	4.77	6.99
Tax allowance	0.00	0.00	0.00	0.00	0.00
Non-prescribed revenue offset	0.06	0.06	0.06	0.06	0.06
Total revenue requirement	78.53	82.29	81.80	86.79	91.96

** $ as at 1 January 2018*

Western Water is challenged with delivering services to almost 5000 additional customer properties over the next two years

7. Forecast operating expenditure

Western Water's operating expenditure forecast has been developed with consideration of the requirement to service a growing region while ensuring we meet our customer outcome for affordable and fair pricing.

To this end, Western Water has undertaken a bottom up build of its business as usual costs and then overlayed growth factors that were developed through modelling cost-drivers of individual expenditure items.

This has enabled us to understand our base expenditure required to deliver business as usual in our growing environment.

Western Water's base expenditure currently reflects a relatively efficient outcome demonstrated by a decline in our controllable operating cost per customer by over 8% (real) over the past five years (2013/14 to 2017/18).

This reduction in controllable costs has helped support the delivery of the $100 per annum Government Water Rebate to residential water usage customers.

This efficient outcome implies Western Water has been effective at absorbing the costs associated with growth over the past five years (2013/14 to 2017/18). Our operational cost forecast for the next two years reflects achievement of further efficiencies of over four percent (real) and absorption of growth.

Four percent cost efficiency improvement

Western Water has proposed to deliver a four percent per annum cost efficiency improvement on controllable business as usual (BAU) costs from 2015/16 base over the next two years. It is critical that we control our costs to keep bills as low as possible.

This price submission captures Western Water commitment by continuing to deliver real zero tariff increases and an efficiency bill reduction to its residential customers.

This will be delivered by a focus on thinking smarter, utilising technology and challenging the status quo. Western Water plans to investigate further opportunities to deliver cost savings and efficiencies through our Business Transformation and Strategic Future projects.

It is proposed that almost all the next two years' growth will be absorbed within existing controllable costs.

Table 9: Forecast operation expenditure 2013-2018 regulatory period vs 2018-2020 regulatory period

		2013/14 to 2017/18 regulatory period					2018/19 to 2019/20 regulatory period	
Controllable operating costs	Units	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Total controllable costs	2018 $M	38	35	37	40	40	41	41
Water customers	Number	56,930	58,477	60,158	62,234	64,528	67,153	70,031
Customer growth	%	2.6%	2.7%	2.9%	3.5%	3.7%	4.1%	4.3%
Controllable costs per customer	$ per customer	669	598	613	650	615	609	588

Table 10: Adjustments required to establish base year prescribed controllable opex ($M)*

Adjustment	Description	$M change
Actual		40.45
Consulting expenses	Consultants engaged to complete reviews including operational, recycled water, asset creation, asset revaluation, growth and financial viability. External expertise was also utilised in procurement of the new engineering partner.	-0.56
Contractor expenses	Staffing positions contracted out – water quality officer and land purchase investigation	-0.18
IWN	Expenditure incurred on behalf of industry by Western Water for communications program and staff costs recovered and offset	-0.17
Legals	One off legal costs above BAU	-0.06
Other	Sludge drying beds expenditure	-0.05
Price Submission	Price submission preparation including engagement, demand modelling, cost driver and financial modelling	-0.46
Urban Water Strategy	Only scheduled for completion every 5 years	-0.15
Adjusted base year		$38.83

** $ as at 1 January 2018*

Operational cost forecasting

In preparation for the price submission, cost driver analysis was conducted across most segments of the business. This resulted in a detailed study of daily business as usual activities and factored the costs up for growth.

The review of operational expenditure for the Treatment, Operational and Service Delivery teams was conducted with analysis providing the business with a solid foundation in relation to the personnel resources and operational expenditure required to service Western Water's network under the current situation.

Western Water's new engineering partner CH2M BECA conducted detailed analysis of the capital program and provided a breakdown of the consequential expenditure and savings going forward.

The capital program was then linked to the Treatment, Operational and Service Delivery analysis which enabled the business to more accurately forecast the impact of various projects on the operational and maintenance expenditure. Further work was undertaken on cost drivers for Developer Services, Customer Service, Metering and Billing teams.

The non-wage costs captured under this work are centred around the Bill to Pay area and include areas such as postage and payment collection fees. Other ancillary operating expenditure was built from known individual circumstances linked to contracts.

Table 11: Total prescribed operating expenditure ($M)*

	2018/19	2019/20
Operations and maintenance	13.86	13.60
Treatment	11.58	11.86
Customer service and billing	6.13	6.37
GSL payments	-	-
Corporate	9.11	9.12
Other operating expenditure	0.20	0.20
Total controllable operating expenditure	40.89	41.15
External bulk water charges (excl. temporary purchases)	11.25	11.38
External temporary water purchases	-	-
Licence fees	0.16	0.13
Environment contribution	3.01	2.95
Total non-controllable operating expenditure	14.42	14.45
Total prescribed operating expenditure	55.32	55.60

** $ as at 1 January 2018*

Table 12: Controllable operating expenditure by segment ($M)*

	2018/19	2019/20
Water	22.45	22.38
Sewerage	16.53	16.79
Recycled water	1.92	1.98
Total controllable operating expenditure	40.89	41.15

** $ as at 1 January 2018*

A minimum 4% per annum efficiency has been applied to all controllable costs

7.1 Salaries and wages (FTE calculation)

The base for the Salaries and Wages expense came from a bottom-up build of budgets for the 2017/18 Corporate Plan.

This captured all current roles, both filled and vacant, plus a placeholder in future years to cater for growth and an efficiency factor. The placeholder was replaced by more detailed work identified as part of the cost-driver analysis.

The cost-driver analysis work was used to identify future number of full time equivalents (FTEs) by the different departments within the business, identify the drivers of those activities, and then escalate the occurrences to determine the required number of staff to adequately service the growing customer base based on current processes and practices.

The final Wages & Salaries cater for the current Salaries Bands under the current EBA Agreement, the forecast annual wage escalation of 3% p.a. anticipated in the next Enterprise Agreement, and employment on-costs such as superannuation and Workcover.

Staff number increased marginally during 2017/18 in recognition of some key areas of risk to the business in security and compliance. However, staff numbers will remain static during the period of this price submission.

Delivering Western Waters' commitment

The extrapolation of the operational cost reviews including salary and wages based on current business processes and practices resulted in proposals for expenditure increases. These increases in expenditure need to be offset by increases in price to our customers.

Western Water recognises affordability to customers is paramount and identified the need to review how it can best service its expanding customer base in the most efficient manner possible whilst not reducing the quality of its service.

Western Water is focused on becoming a new generation utility, appreciating it must transform its business to keep up with the challenges of a changing working environment and the impost of a rapidly growing business.

In response, Western Water is running a business transformation program over the next two years which will focus on four key areas:

- capable, high performing people
- enhanced business intelligence
- optimised asset management, and
- business efficiency and innovation.

Project teams for each area have been created and are defining their core activities.

The insights gleaned from the cost driver work will be utilised within the business transformation program and will provide the foundation for Western Water into the future and assist with servicing the needs of growth in the most efficient manner and the preparation of its next price submission.

Western Water is committed to delivering zero real bill increases to customers combined with an efficiency bill reduction over the next two years' and expenditure forecasts have been prepared accordingly.

Proposed controllable costs are informed by the detailed cost driver work but adjusted to assist delivery of the commitment.

This means that Western Water will continue to operate a very lean, low cost business whilst it prepares itself for transformation.

BAU controllable costs are assumed to absorb almost all the growth at 4% per annum whilst overall,

controllable costs will increase marginally by 2.5% per annum from baseline to deliver identified one-off or new expenditure obligations.

These identified costs will also be subject to further rigour and review to ensure they meet the stringent efficiency standards and justification imposed on all other expenditure.

In addition to the business transformation program, Western Water has already put in place a number of technological and process changes which will support achievement of this challenge of keeping BAU costs low. These initiatives include:

- utilisation of the Western Water Connect (Stage 1 delivered, Stage 2 scheduled) for expediting basic property service inquiries
- Waternamics designed to assist with data analytics
- the avoided cost via e-billing
- streamlining of fault calls, and
- focus on reducing customer calls via first-point resolution.

7.2 Chemicals

The cost of chemicals is one of the core operational expenditure lines. Western Water has recently entered into a number of the VicWater industry chemical contracts.

The chemicals expenditure analysis has been built out of the source model forecasted system flows for the following categories:

- potable flows
- sewage flows, and
- recycled water flows.

The source model analyses the storage and transfer of water, sewer and recycled water flows on a daily, seasonal and annual level across Western Water's systems. The inputs are customer growth (including agriculture) and climate driven demands and rainfall. The outputs are dam levels, bulk water requirements, treatment plant flows, streamflow discharges and major transfer flows.

The importance of using the Source model flow information versus the forecasted water demand is that water may be required to be dosed several times as it passes different points within the network.

The specific chemical information and requirements of each plant were identified - including average treatment dosage, specific gravity, unit cost and strength. This was used to determine an overall unit cost of chemicals per megalitre by site.

The individual chemical unit costs are assumed to increase by CPI.

The overall cost of water treatment is dictated by the source of the water, the quality of that source and the ultimate destination.

7.3 Electricity

Electricity is also one of Western Water's largest operational costs. We are currently under the Department of Treasury and Finance (DTF) contract for electricity supply which is provided by RED Energy.

Western Water also operates a biogas cogeneration plant at its Melton Recycled Water Plant which enables it to generate its own power.

Due to the criticality, many of Western Water's key sites have secondary power generation facilities such as diesel generators. This secondary generation provides security during power outages and the ability to feed power back into the grid or operate off the grid where opportunity arises.

The electricity model is based on being able to identify the individual usage levels and cost of the various assets contained in the Western Water network. Assets were individually mapped to the respective water system for potable water, sewerage and recycled water.

It is assumed Western Water's energy requirements will increase as more pumping, treatment and delivery is required, pumps are run harder and it is expected power prices will also increase. This is predicted to be marginally offset by investment in positive greenhouse gas abatement projects such as solar energy solutions and greater use of our systems in off peak periods.

7.3 Electricity cont.

Forecast energy use

New additions to the Western Water network were captured from the Capital Program delivered by the Strategy and Planning team. The usage requirements of the new pump stations are based on the average usage by the asset class and asset site size allocation – small, medium and large - which is determined on the kilowatt hour (kWh) specifications.

The Renewable Resources team have provided the forecast energy consumptions (kWh) savings that they anticipate will generate from greenhouse gas projects detailed in the Capital Program. Those savings have been allocated against the respective National Measurement Initiative code within the model to produce a net consumption energy usage figure. Projects include solar programs and energy management systems.

Actual energy consumption in 2016/17 was used to determine the base level of forecast usage and the percentage of peak versus off peak usage.

The water demand flows by town calculated by the Source model, were used to calculate the annual percentage of water consumption growth by system versus the prior year.

The assets individually had their energy consumption calculated by adopting the prior year's usage and then adjusting accordingly by the respective growth in that system.

Forecast energy cost

The approach taken in forecasting the total cost was to separately identify the variable and fixed components that determine the total organisation's electricity expense.

Western Water's sites are classified as small, medium or large by the electricity provider in accordance with the load demands they place on the network. Each of the various sizes comes with its specific set of tariffs for Peak and Off-Peak Usage (Variable), Network Charges (Fixed), Other Charges and Green Charges (Variable).

The demand charges (fixed element) relates to a select number of medium and large sites. This is due to the specific load demands that they place on the network (i.e. a pump station will place a large requirement for electricity when pumps are started).

The electricity companies charge a daily rate for these assets based on the capacity of the system provided for that asset.

Reference was made to the VicWater consultant's report VicWater's Supply Chain Excellence Program (SCEP forecast) which provided a price outlook. Forecasts in the report confirm the outlook is for a step up in energy costs for Victorian users once the existing contractual arrangements mature.

Western Water has applied this report using the mid-point predictions which allow for a slight increase in usage charges. The individual components of the electricity tariffs have been escalated by CPI.

7.4 Greenhouse gas reduction

The Department of Environment, Land, Water and Planning (DELWP) accepted Western Water's greenhouse gas reduction pledge of 10% below baseline emissions (an average of 2012-2016 emissions) by 2025. This equates to a 46% reduction on forecast business as usual emissions.

Western Water has identified several projects for inclusion in the price submission period that will enable us to achieve this goal. The projects are both capital and operational in nature and include renewable energy installations, energy efficiency projects and increased biogas generation. These projects will reduce Western Water's reliance on greenhouse gas emission intensive energy sources.

Preliminary investigations of these projects indicate that most initiatives have a positive levelised cost of carbon abatement. This means that while reducing Western Water's greenhouse gas emissions, they will also reduce operational expenditure over the asset's life.

7.5 Non-controllable costs

Bulk water

Western Water has two wholesale suppliers of water - Southern Rural Water and Melbourne Water - and manages a number of small local water storages itself.

To boost security of supply, all towns (except for Myrniong) are interconnected to the Melbourne water supply system.

The larger towns of Melton and Sunbury are currently serviced by water sourced solely from the Melbourne system. This is proposed to continue throughout the submission period to ensure consistency of supply and reduced water quality issues resulting from variations of supply, as well as enabling smaller towns to draw from their local supply.

Bulk water remains Western Water's largest cost. Water is purchased from Melbourne Water for a largely fixed fee based on bulk entitlements, with a variable fee dependent on volumes drawn and reflective of transfer costs.

The Southern Rural Water charge is a fixed annual fee regardless of volume of water drawn.

Due to changes to industry wide bulk entitlements, Western Water no longer contributes towards the desalination plant.

Table 13: Bulk water volumes & costs ($M) 2018/19-2019/20*

	2018/19		2019/20	
	ML	$	ML	$
Melbourne Water	10,500	8.9	10,800	9.0
Southern Rural Water	3,627	1.8	3,321	1.8

** $ as at 1 January 2018*

Bulk sewage charges

Western Water and City West Water share a district boundary for their respective water and sewerage service areas within which they provide bulk sewage transfer services for their respective customers amongst other services. Both Western Water and City West Water have taken the opportunity to optimise this situation to service customers at the least cost. Western Water has entered an agreement via Memorandum of Understanding with City West Water.

The agreement enables Western Water to cost effectively transfer bulk sewage to the Western Treatment Plant via City West Water's pipes and pumping assets.

It provides for the reimbursement of agreed costs associated with construction of infrastructure via a return on assets and regulatory depreciation and relevant recovery of operational expenditure associated with the maintenance of infrastructure and flows of the bulk sewage.

The ultimate treatment and disposal of the bulk sewage is to be done by Melbourne Water. The Melbourne Water fee is to be recovered by City West Water as a direct pass through based on flows.

The proposed costs associated with this agreement are reflected below.

Table 14: Proposed costs ($) associated with City West Water bulk sewage agreement - 2018/19 to 2019/20*

		2018/19	2019/20	Total
CWW Fixed Sewer Service Charge	Real $	589,872	589,872	1,179,744
CWW Variable Sewer Charge	Real $	0	0	0
Melbourne Water – treatment, transfer charge – pass through	Real $	21,378	44,107	65,485
Total		611,250	633,979	1,245,229

** $ as at 1 January 2018*

Licence fees

Western Water pays licence fees to the Environment Protection Agency (EPA) for licences to manage the seven recycled water plants and ESC for pricing regulation. In addition, a *Safe Drinking Water Act* Administration Levy is imposed by Department of Health and Human Service (DHHS).

The EPA licence fee has increased from 2016/17 base year by $15,000 per annum. This increase is reflective of licence amendments for discharge to waterways for both Melton and Riddells Creek treatment plants.

The ESC licence fee is allocated based on cost distribution from the ESC. As Western Water is proposing only a two-year submission, it is expected the proportion allocated will be higher during the 2019/20 financial year applicable to our next scheduled review.

There are no known increases proposed on the DHHS levy.

Environmental Contribution

Western Water has forecast an increase in the Environmental Contribution effective from 2018/19 in line with fourth tranche.

This increase is in line with 5% of core tariff revenue for 2014/15 and is proposed to remain constant in nominal terms for the period of the submission.

7.6 Allocation of shared costs

Western Water's approach is to directly attribute costs to a service classification, prescribed segment or activity category wherever appropriate.

The chart of accounts and cost centre breakdown enables many costs to be directly attributed without need for allocation. Where allocation of shared costs is required, appropriate allocations have been utilised.

8. Forecast capital expenditure

8.1 Current performance

Western Water isn't new to meeting the challenges of growth. Under the current price submission, the delivery of the capital program has been strongly influenced by the rate and location of growth. Delays in some developments - particularly in Toolern and Sunbury - have been offset by the requirements to expedite infrastructure to service the Rockbank and Melton South area.

Western Water has established close relationships with councils and developers which have enabled close monitoring of timing and location of growth and support to adapt the capital program to meet changing needs.

Western Water is focused on delivering efficient, affordable infrastructure to both current and future customers. Several savings or long-term deferments have been identified within the current capital program. Further planning work on several projects have enabled the optimisation of the proposed solution. This is evident in both the Parwan Recycled Water Plant and Gisborne Recycled Water Plant works.

In contrast, the shortage of availability of sewer contractors in the industry has resulted in delivery delays and the impact of price inflation is becoming evident. Western Water is working with its engineering partner to monitor the market and considering ways to procure construction contractors in the longer term.

Further changes from the proposed current capital program have resulted from the development of the most recent Urban Water Strategy, whereby the economic benefits of delivering Class A to new growth areas as proposed was assessed. Subsequently, both Class B and C recycled water for agricultural purposes was considered more economical. This has resulted in reductions in Class A recycled water investment.

The success and experience gleaned in delivering the current capital program has helped influence the capital program proposed in PS18.

Western Water has demonstrated its ability to deliver an escalating program whilst ensuring the solutions and timing are optimised.

8.2 Capital program development

Western Water is proposing to deliver its largest capital program in history of $131M over the next two years. This is driven predominantly by growth - which represents around 75% of the total expenditure.

Western Water faces the dual challenges of servicing rapid, widespread growth and minimising the impact on customers and the land development industry.

A large investment is required in the core network elements that will provide the backbone to service the growth regions whilst maintaining standards of service to existing customers.

Infrastructure planning has focussed on:

- solid understanding of customer demands and loadings
- strong understanding of the yields of our local catchments and the increased volumes needed to be supplied from the lower-lying Melbourne systems
- maximising the utilisation of existing assets, particularly available spare capacity in adjacent water business systems
- providing alternative paths for beneficial reuse of recycled water that recognise the variability in the available end uses with climate as well as the limitations on the environment to accept discharges into waterways
- strong utilisation of staged works and temporary assets, particularly for remote developments, and
- balancing of life-cycle costs recognising increased energy requirements as systems reorientate supply from elevated natural catchments.

The program is supported by master plans and related documentation which detail the options considered and the impact on operational expenditure.

These plans are underpinned by the Urban Water Strategy, which has assessed the options for sourcing bulk water supplies and reusing/transferring wastewater, including key decisions on the extent of Class A recycled water provision.

Western Water faces dual challenges of servicing rapid growth while minimising the impact on customers and the land development industry

Significant capital savings have been identified with a demand management plan to deliver Target 155 usage across the region by 2022.

Flexible servicing solutions have been developed to enable rapid adaptation to the evolving land development sequencing, with strong market relationships to allow early identification of impending changes.

Major transfer and collection systems have been designed to allow alternative flow paths to cater for variability of supply and demand, monitored and controlled by smart systems that use predictive tools to optimise the system balance. Off season transfer to local storages will allow deferral of major system augmentations.

New technology is being trialled to increase the efficiency of treatment processes, particularly in power costs. The asset management program has been optimised to provide the best balance between renewals and proactive/reactive maintenance, underpinned by a structured inspection program with improvements in remote monitoring.

Renewals investment has been targeted at maintaining the current standard of service to allow the investment focus in the growth program and to support improvement projects.

A key element of the program is a suite of improvement projects that will deliver ongoing savings, increased reliability and/or improved delivery standards.

The program has been compiled and subjected to a prioritisation process based on alignment to the Corporate Strategy, impact on business risk and value for money, as well as impact on enabling capabilities. Lower priority projects have been removed and will only be delivered based on demonstrated need.

Improved program management and project delivery systems are being implemented to ensure the agility to manage the dynamic program that the business environment faces.

The early identification of optimal contract arrangements and the selective use of project bundling will improve delivery efficiency.

Early concept design of projects is allowing resolution of long lead issues and coordination with customers and other stakeholders to ensure projects are ready for quick delivery as circumstances evolve, and to allow rapid adjustment to the capital program.

Delivery of capital works is transitioning, as the scale and complexity of the works increase, to an increased focus on delivery by the land development industry and a strategic partnership with a global engineering firm to bring expertise and scalable resourcing.

Western Water's capital program has been developed based on connection forecasts that are underpinned by the Victoria in the Future 2015 estimates and on reductions in customer water demand to achieve Target 155 by 2022.

Notwithstanding current indications of growth rates at higher levels, Western Water has adopted the lower growth rates of the Victoria in the Future 2015 forecasts, taking the risk to minimise the impact of growth on customers.

The program has been developed to meet the outcomes, including performance criteria, outlined in this submission. This includes achieving optimal balances between capital investments, ongoing operational expenditure, and maintaining reliability, in consultation with our customers.

The program is underpinned by the Urban Water Strategy. This has provided optimisation of the water balance to ensure the resilience of the system to efficiently supply potable water, collect and treat sewer flows, and reuse treated effluent with resilience to climate variability and growth/demand uncertainties.

The detail of the program has been prepared by a combination of strategies and master plans developed to apply the outcomes of the Urban Water Strategy to ensure the efficiency of the individual elements of the highly interdependent system.

The master plans and strategies have identified risks and developed appropriate mitigation measures to respond to the uncertainties.

Major projects

The top five projects are listed in Table 15 with a brief description of their justification and objectives. See Appendix 5 for more detail on these projects as well as other significant projects.

The list represents the largest projects by expenditure for projects incorporating interdependent elements.

Larger specific programs have been identified under the significant category detailed in the appendix.

Each item is supported by a business case providing the basis for inclusion with consideration to its stage of development and reflecting the most likely approach where outcomes must be delivered within the water pricing period.

8.3 Innovation

Western Water is experiencing unprecedented growth yet must continue to minimise price impacts on customers. To be a valued water business that supports the region we constantly challenge the way we deliver our services. Innovation is part of Western Water's culture.

The increasing expectations of customers continue to drive innovation efforts, creating business efficiencies which, in turn, create cost savings and improved service offerings.

Western Water is a partner with the Intelligent Water Network. Over the regulatory period Western Water will continue trialling new and emerging operational and commercial technologies.

Included in the program are leak detection technologies, research into reducing hydrogen sulphide in sewers (extending asset life) and sewer monitoring by CCTV.

We are currently introducing Waternamics software which can monitor systems in real time, collect and manage data and provide information to help plan maintenance and capital works.

Improved customer service outcomes include self-service for customers and developers, intelligent meters to provide usage and other information more frequently, monthly electronic billing for all customers, a customer app and SMS notifications.

Table 15: Western Water's top 5 major projects ($'000) - 2018/19 to 2019/20*

Program/scheme	2018/19	2019/20	Pricing period total
Melton Recycled Water Plant - additional onsite storage	6,320	6,263	12,583
Bacchus Marsh Recycled Water Plant to Melton Recycled Water Plant interconnector	500	5,515	6,015
Grant Street sewer pump station, Bacchus Marsh	1,000	4,865	5,865
Melton South Exford Road sewer pump station/rising main/ sewer	1,559	2,683	4,242
Sunbury Recycled Water Plant upgrade	3,225	213	3,438

** $ as at 1 January 2018*

9. Return on regulatory asset base (RAB)

9.1 Rolled forward regulatory asset base

The rolled forward regulatory asset base is outlined in the tables below. Please note that 2012/13 numbers have been adjusted to reflect 2012/13 actuals (as per guidance).

Table 16: Regulatory asset base 2012/13 to 2017/18 ($M)*

		WP3				
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Opening asset base	**299.69**	**312.49**	**321.27**	**328.15**	**351.05**	**396.60**
plus capex#	26.24	21.04	18.39	36.81	66.15	70.42
less government contributions	-	2.07	-	0.10	0.09	-
less customer contributions	6.16	5.05	6.05	7.95	14.00	13.86
less disposals	0.46	0.46	0.47	0.48	0.34	0.42
less regulatory depreciation#	6.82	4.68	4.98	5.39	6.16	7.21
Closing asset base	**312.49**	**321.27**	**328.15**	**351.05**	**396.6**	**445.53**

** $M as at 1 January 2018*

 # the 2017/18 capital and regulatory depreciation are based on the forecast used in 2013 price determination. These will be adjusted to reflect 2017/18 actuals in the 2020 Price Submission.

Table 17: Regulatory asset base 2018/19 to 2022/23 ($M)*

	PS 18				
	2018-19	2019-20	2020-21	2021-22	2022-23
Opening asset base	**445.53**	**491.21**	**545.95**	**609.78**	**666.14**
plus capex	58.79	72.34	80.27	76.73	75.50
less government contributions	-	-	-	-	-
less customer contributions	8.15	11.18	13.39	15.17	16.27
less disposals	0.42	0.42	0.42	0.42	0.42
less regulatory depreciation	4.54	6.01	2.63	4.77	6.99
Closing asset base	**491.21**	**545.95**	**609.78**	**666.14**	**717.96**

** $M as at 1 January 2018*

9.2 Return on debt

Western Water will apply the ten-year trailing average cost of debt as set out in the ESC guidance.

9.3 Return on equity

The ESC has set Western Water's return on equity at 4.5% per annum (in real terms, after tax). This level reflects the rate of return a 'Standard' business would receive under the PREMO incentive mechanism. As a result, Western Water was not required to self-assess itself under the PREMO rating

9.4 Regulatory depreciation

Western Water has used a straight-line depreciation profile to all its assets applied once the asset enters service. Western Water continues to apply a depreciation override on all assets (existing and new) to assist with balancing customer price outcomes over the life of the assets.

10. Tax allowance

Western Water is a tax paying entity under the National Tax Equivalent Regime. A significant contributor to Western Water's tax expense is New Customer Contributions (NCC) revenue arising from both cash charges and gifted assets – with the revenue immediately assessable and payable.

Western Water has applied the Commission's NCC charging framework under which NCC charges will have regard for the incremental costs associated with the new connection, including the incremental tax costs associated with forecast NCC revenue.

As our NCC charge incorporates recovery of the NCC gifted assets cost of tax, Western Water has elected to exclude this tax expense from its tax allowance building block, effective from 1 July 2018. Economically Western Water recovers the cost of the tax however there is a timing difference in making the cash tax payment and receipt of the cash in the future from new customer tariff revenues.

Western Water has elected to fund the cash timing difference by increasing its level of debt and thereby avoiding the need to seek the funding from all customers through higher tariffs (via inclusion of the tax cost in the tax allowance). This outcome ensures no intergenerational shifts in pricing and provides a fair outcome for both new and existing customers.

Table 18: Tax allowance for PS 18 ($M)*

	PS18				
	2018-19	2019-20	2020-21	2021-22	2022-23
Tax allowance	0	0	0	0	0

** $ as at 1 January 2018*

11. Demand

Demand forecasting is a key data requirement for developing expenditure and revenue requirement forecasts.

As Western Water uses the price-cap form of price control, the rigour behind demand forecasts is extremely important to reduce variances in actual outcomes to those assumed in the submission.

This section addresses the processes undertaken for demand forecasting. It is a key driver for the cost of operating the business and vital in the determination of business income. Western Water has developed an established set of operating rules and a water balance model to maximise its use of local supply while preserving water security. This model aligns with the latest supply-demand modelling input information and key assumptions as presented in our Urban Water Strategy.

The Urban Water Strategy was completed in collaboration with DELWP, Melbourne Water and the three metropolitan water retailers to provide an assessment of bulk water demand and supply availability for Western Water's region. Our price submission uses the overarching recommendation in our Urban Water Strategy and applies many of the same forecasting assumptions to the focused two-year period from 2018/19 to 2019/20.

Forecasting methodology

Western Water's demand forecasts have been modelled through an Integrated Supply-Demand Planning (iSDP) model. A number of demand assumptions have been developed based on common assumptions with the Melbourne retailers and calibrated based on Western Water's billing data. The iSDP model was used as the primary demand forecasting tool. This modelling tool has previously been accepted by the Essential Services Commission for pricing submissions and considered to be robust.

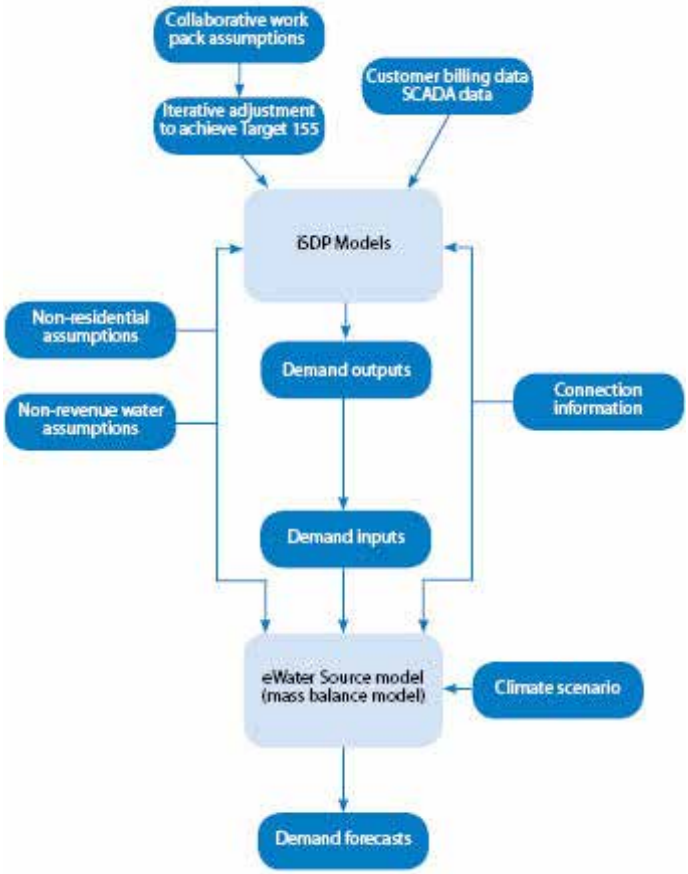
Demand can be heavily influenced by climate. Western Water has developed an Integrated Water Mass Balance model using eWater Source. This model has the capabilities to test Western Water systems from catchment yields, drinking water treatment and transfer, sewage generation and sewage treatment to recycled water generation and supply.

The outputs of the iSDP have been used as input into a mass balance model to further disaggregate water demand requirements and understand how these are impacted by various climate scenarios. For instance, Western Water is required to generate demand requirements on the Melbourne system in preparation of Corporate Plans, capital programs, water resources strategies and provision of this information to Melbourne Water for similar tasks. Climate can have a large impact on how much water Western Water requires from the Melbourne system.

The demand forecast methodology adopted by Western Water can be seen in Figure 2.

A key input to demand forecasting is the rate of growth of serviced customers in the region (connections and population). Further information on growth forecasting can be found in Appendix 3.

Figure 2 : Demand forecasting process used by Western Water in preparation of the Urban Water Strategy and Pricing Submission



Current residential potable demand per capita

Historically, average water usage for Western Water customers has been higher than the Melbourne metropolitan average.

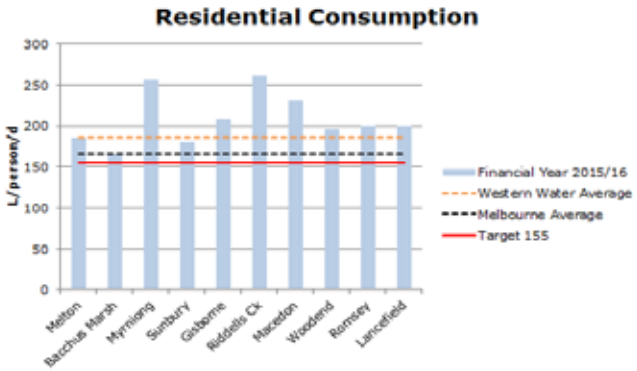
The average residential water use across Melbourne was 166 l/p/d in 2015/16. In contrast, Western Water customers used an average of 185 l/p/d over 2015/16.

Possible reasons that lead to a higher water usage for Western Water customers compared to other metro water corporations include:

- climate to the west of Melbourne has a lower annual rainfall on average compared with the eastern Melbourne region requiring greater irrigation to maintain open space
- many towns in the region have larger than average block sizes compared to those in Melbourne (greater garden size and/or semi-agricultural use), and
- a portion of customers live in high bushfire risk areas.

Chart 1 presents the results of our demand assessment segmented by the Western Water supply areas. The assessment indicates that in 2015/16 Bacchus Marsh had the lowest average residential consumption amongst Western Water region. The average Bacchus Marsh residential consumption is the same as the Melbourne average residential consumption of 166 l/p/d.

Chart 1: Residential consumption by town 2015/16



Water usage in the large urban centres of Melton and Sunbury is above the Melbourne average but around the Western Water average of 185 l/p/d.

Macedon, Riddells Creek and Myrniong have the highest residential consumption within the Western Water region. These are mostly rural residential properties and may use more water for irrigation of stock, gardens and lawns.

Water efficiency drivers

Water use efficiency is a key pillar in establishing forecast demands. We expect additional efficiency gains in water consumption over the coming period due to:

- uptake of efficient appliances and fixtures in existing households over time
- providing drivers for new households adopting water efficient appliances during development stage
- dedicated programs to achieve water efficiency measures, and
- asset management to drive down water losses.

Water for Victoria commits to water efficiency and aims to reinvigorate water efficiency programs for Melbourne and regional Victoria (Action 5.3).

The Victorian Water Efficiency Strategy (VWES) has been developed to assist in delivering this action as well as water efficiency programs such as Target 155, Target Your Water Use and the Schools Water Efficiency Program.

In line with government policy, Western Water has committed to achieving Target 155 region wide. The higher water usage within Western Water region requires a more aggressive approach and greater incentives to achieve Target 155.

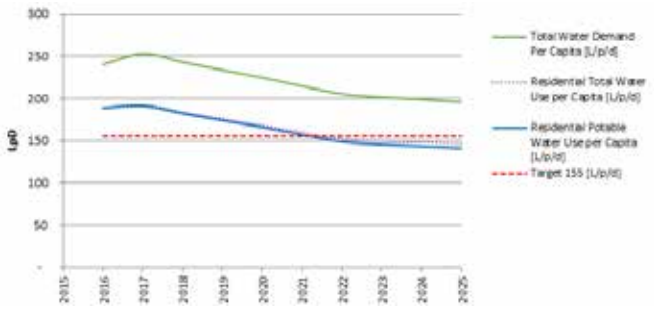
Historically average water use for Western Water customers has been higher than the Melbourne metropolitan average

We propose to carry out the following initiatives aimed at achieving Target 155:

- encourage housing in all new developments to meet water efficiency standards via implementation of integrated water management plans for all new developments
- investigate the viability of requiring tank installations on all new properties and as part of renovation works. Seek support from the government to offer discounted tanks/subsidies
- invest in intelligent water networks and assess incentive programs to optimise water use (e.g. prioritisation of digital meters on high users/large businesses)
- where available, promote the health, safety and other benefits of using dual water networks
- promote water efficiency including community programs such as Target 155 and the Schools Water Efficiency Program
- work with commercial customers to ensure volunteer water efficiency activities and practices are encouraged
- participate in working groups to deliver the next wave of water efficiency programs, and
- work with the community to ensure readiness for action in case of future droughts, extreme events and climate change including understanding priority water uses.

Based on the water saving initiatives we have in place, we believe that we will achieve Target 155 in 2022 as shown in Chart 2.

Chart 2: Price Submission forecast water use per capita



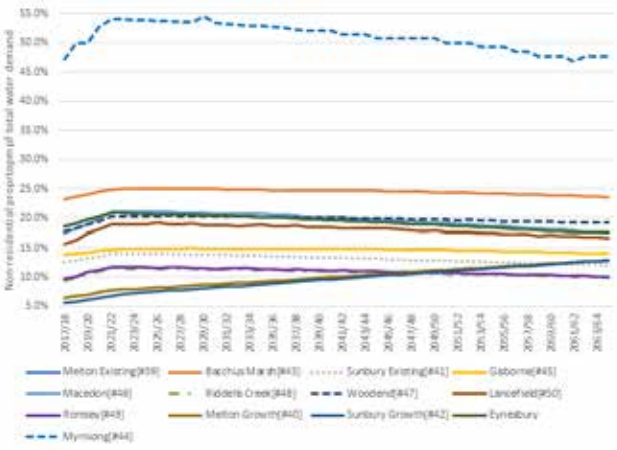
Non-residential water

Separate demand models have been prepared to forecast residential water and non-residential water. Non-residential forecasts do not use end use models like residential water. Non-residential water forecasts break customers into two types of non-residential customer – average customer and intense use customer.

For each non-residential customer group forecast connections are multiplied by historical demand per non-residential connection for each customer type.

By the end of the water forecasting period (2065), a reduction of 22% in water use is expected per average customer. This varies depending on the location within the Western Water region. No efficiencies are expected for high use customers.

Chart 3: Non-residential proportion of urban demand over demand forecasting period



Non-revenue water

Non-revenue water across the Western Water region has been relatively low and stable of recent years and is difficult to envisage much improvement region wide (9.08% in 2015/16). However, the percentage of non-revenue water varies for each town, with some towns being higher than others.

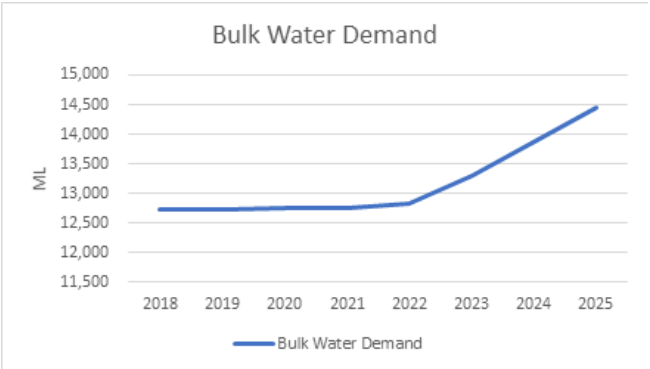
An assessment has been completed on non-revenue water for each town based on 2015/16 data to determine the non-revenue water factors. These non-residential factors have then been applied to each demand model to calculate non-revenue water volumes. Non-revenue water factors have been applied as a flat rate with no assumed improvements.

Western Water will continue to investigate and implement actions where viable to address high water losses.

Bulk water demand

The forecast bulk water demand based on the customer and unit demand assessment, demonstrated in Chart 4, shows as local supply diminishes, there is greater demand for bulk water purchases.

Chart 4: Bulk water demand



Source of bulk water

Western Water has multiple bulk entitlements (BEs), water storages, groundwater bores, water supply systems and an interconnected transfer network.

The water supply systems can be supplemented with alternative water from other sources during water shortages, transfer infrastructure failures or water quality issues.

It is noteworthy that Western Water's price for different sources of water varies. Optimising Western Water's costs associated with different supplies versus water security is an important strategic issue.

Operating the water supply sources at the least cost may jeopardise water security. Operating to maximise water security may not be the most efficient operating expenditure. It is important to find the right balance between the two.

Climate heavily influences the operating strategy. Good annual rainfall and inflows means local resources are more likely to be available. Poor annual rainfall means a heavier reliance on reliable inflows from the Melbourne system.

Over the life of the pricing submission it is difficult to accurately forecast the climate conditions. As such, average climate conditions have been assumed. However, this is likely to vary year by year depending on climate from the preceding year and short-term climate predictions.

Western Water seeks to balance the short to medium water security priorities whilst optimising the operational costs through the preparation of an Annual Operating Plan (AOP).

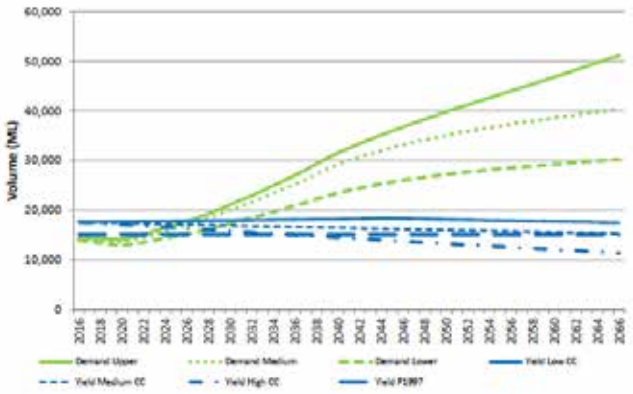
The AOP is developed based on modelling results from Western Water's mass balance model. The model contains a set of standard operating rules and varying climate assumptions.

Multiple modelling runs are completed based on different operating rules, climate conditions and demand forecast. Based on the modelling runs, a decision is then made on what to plan for in the coming financial year (via the Corporate Plan).

Monitoring how we are tracking against the operating plan is completed via monthly reporting.

Over the coming price period, Western Water will ensure the adaptive management of our water resource portfolio. Proactive monitoring of our systems, deployment of intelligent networks and testing customer and stakeholder preferences will inform strategic water resource planning and investment decisions.

Chart 5: Pricing submission forecast water use per capita



12. Form of price control

In considering its options, Western Water acknowledges that the form of price control is a key tool available to businesses to manage risks arising due to variances in outcomes.

This risk is especially well managed by applying a revenue cap.

Feedback from customers strongly supports price certainty and smoothed pricing.

Western Water proposes to retain the same form of price control as is applied in the current price period being the individual price caps.

Western Water believes it should manage the financial risk of these outcomes and support price certainty to its growing customer base.

13. Price and tariff structure

Western Water is currently experiencing and proposing future large customer growth. This effectively means its current customer base will more than double in size within the next 15 years.

To accommodate this expanding customer base, Western Water must consider the needs of current customers in parallel with those that have not yet moved to the region.

Western Water also needs to be open to technological advancements and services offered by like service providers.

Our customer research shows that customers trust and respect their water utilities, which are seen to be more community oriented than other utilities.

However, some customers question why their water utility does not offer a greater range of options like other utilities do.

They want the ability to make informed choices about their own usage through the provision of more information and charges that make it easier to control water bills. They want choice but not too much.

13.1 Tariff review

Customers have stated a very clear preference for increasing the variable component of their bill. However, we must consider the impact higher variable pricing has on those less able to influence their usage such as large families or vulnerable customers.

Tariff changes benefit some customers and disadvantage others. Some customers have expressed concerns about the unknown effects of significant changes to tariff structures. First, because of the unknown impact changes have on their total bill and, second, because it makes it harder for them to compare their current bills with their historic bills.

When considering proposed tariff changes, Western Water does not want to add to the impact of price increases by changing tariffs at the same time.

With consideration of this, Western Water has committed to a detailed review of tariffs outside of this price submission process so that careful consideration can be given to which customers are affected by proposed tariff changes and to what extent.

If the bill impacts are too great but customers support proposed changes, we will phase the changes over several years.

During the price submission process, customers were asked how they would like to influence this process and Western Water has committed to engaging customers in the tariff review process.

Western Water is proposing zero real price increases over the next two years.

The majority of customers receive water bills every four months.

A full list of regulated tariffs and price path can be found in Appendix 1.

13.2 Residential tariffs

As indicated above, we are planning no changes to our existing residential tariff structures. The residential tariffs are:

- fixed charge for the water service
- fixed charge for the sewerage service
- fixed charge for Class A service (where applicable)
- three-step volume charge for water where the price of each step increases as higher usage thresholds are crossed, and
- volume charge for Class A.

The water and Class A volume charges are applied to the metered volume of water and Class A used by the customer. Meter reads occur every four months.

13.3 Non-residential tariffs

The current non-residential tariff includes:

- fixed charge for the water service
- fixed charge for the sewerage service
- fixed charge for the Class A service (where applicable), and
- single-step volume charge for water and Class A (where applicable).

Like residential tariffs, the water charges are applied to the metered volume of water used by the customer.

*Table 19: Proposed residential tariffs**

	Units	2017/18	2018/19	Change
Residential water tariff				
Fixed water service charge (20mm meter)	$/year	$229.90	$229.90	0%
Water usage charge – block 1 (0-440 litres/ day)	$/kl	$1.7995	$1.7995	0%
Water usage charge – block 2(441-880 litres/ day)	$/kl	$2.3875	$2.3875	0%
Water usage charge – block 3 (881+ litres/ day)	$/kl	$3.6596	$3.6596	0%
Residential sewer tariff				
Fixed sewerage service charge	$/year	$530.64	$530.64	0%
Residential Class A recycled water tariff				
Fixed Class A recycled water service charge	$/year	$109.60	$109.60	0%
Class A recycled water usage charge	$/kl	$1.7995	$1.7995	0%

** $ as at 1 January 2018*

*Table 20: Proposed non-residential tariffs**

	Units	2017/18	2018/19	Change
Non-residential water tariff				
Fixed water service charge (20mm meter)	$/year	$229.90	$229.90	0%
Water usage charge	$/kl	$2.3875	$2.3875	0%
Non-residential sewer tariff				
Fixed sewerage service charge	$/year	$530.64	$530.64	0%
Non-residential Class A recycled water tariff				
Fixed Class A recycled water service charge	$/year	$109.60	$109.60	0%
Class A recycled water usage charge	$/kl	$1.7995	$1.7995	0%

** $ as at 1 January 2018*

13.4 Trade waste tariffs

Western Water introduced a risk ranking and quality and quantity charging approach to trade waste in the 2008.

We propose to continue with fees based on a risk ranking and quality and quantity charging for large discharge customers. Minor trade waste customers will continue to be charged the annual service charge.

Western Water propose inflation - only increases to the price of trade waste services for the period of this price submission.

*Table 21: Proposed trade waste tariffs**

	Units	2017/18	2018/19	Change
Trade waste charges				
Application fee – Risk Rank 1 (per application)	$ ea	$135.85	$135.85	0%
Application fee – Risk Rank 2 (per application)	$ ea	$213.54	$213.54	0%
Application fee – Risk Rank 3 (per application)	$ ea	$396.41	$396.41	0%
Application fee – Risk Rank 4 (per application)	$ ea	$940.10	$940.10	0%
Management fee – Risk Rank 1 (per annum)	$/year	$263.96	$263.96	0%
Management fee – Risk Rank 2 (per annum)	$/year	$553.71	$553.71	0%
Management fee – Risk Rank 3 (per annum)	$/year	$1237.93	$1,237.93	0%
Management fee – Risk Rank 4 (per annum)	$/year	$2518.54	$2,518.54	0%
Volumetric charge – Category B (per kl)	$/kl	$1.6475	$1.6475	0%
Volumetric charge – Category C (per kl)	$/kl	$1.1535	$1.1535	0%
Trade waste charges – Risk Ranks 2, 3 & 4				
BOD >400mg/L	$/kg	$0.3331	$0.3331	0%
Suspended Solids >400mg/L	$/kg	$0.2123	$0.2123	0%
Total Phosphorus >30mg/L	$/kg	$0.4959	$0.4959	0%
Total Combined Nitrogen >60mg/L	$/kg	$0.6379	$0.6379	0%
Total Oxidisable Sulphur >100mg/L	$/kg	$0.9215	$0.9215	0%
Sodium >250mg/L	$/kg	$0.1412	$0.1412	0%
Arsenic >0.2g/day	$/kg	$0.2123	$0.2123	0%
Heavy Metals — Cadmium >0.4g/day	$/kg	$0.2123	$0.2123	0%
Heavy Metals — Chromium (III & VI) >100g/day	$/kg	$0.2123	$0.2123	0%
Heavy Metals — Copper >100g/day	$/kg	$0.2123	$0.2123	0%
Heavy Metals — Lead >100g/day	$/kg	$0.2123	$0.2123	0%
Heavy Metals — Mercury >0.2 g/day	$/kg	$0.2123	$0.2123	0%
Heavy Metals — Nickel >10g/day	$/kg	$0.2123	$0.2123	0%
Heavy Metals — Selenium >10g/day	$/kg	$0.2123	$0.2123	0%
Heavy Metals — Zinc >100g/day	$/kg	$0.2123	$0.2123	0%
Trade waste penalty units				
1st major breach	$ ea	$180	$180	0%
2nd major breach	$ ea	$380	$380	0%
3rd major breach	$ ea	$850	$850	0%
4th major breach	$ ea	$1730	$1730	0%

** $ as at 1 January 2018*

13.5 Miscellaneous tariffs

Miscellaneous charges are a fee for service established by Western Water's Administration By-Law 97/2. They are designed to recover from the service recipient the cost of providing that particular service. Not all customers will require the use of these services on a general basis, it may only be on sale of property that the needs are incurred. Therefore, it is not appropriate to spread the cost across all customers on an ongoing basis.

They are generally applied based on actual/full cost recovery methodology. These costs may include direct – contractor/third party invoice costs, internal marginal cost and recovery of overheads.

13.6 Prescribed sewer contract revenue

Western Water has entered an agreement via Memorandum of Understanding with City West Water. The agreement requires Western Water to receive and transfer bulk sewerage through the pipes, assets and catchment area of Western Water, for City West Water's respective customers.

This agreement provides for the reimbursement of agreed costs associated with construction of infrastructure via a return on assets and regulatory depreciation and relevant recovery of operational expenditure associated with the maintenance of infrastructure and flows of the bulk sewage.

The proposed revenue from this agreement is reflected in Table 22.

Table 22: Proposed revenue from City West Water sewer contract - 2018/19 to 2019/20

		2018/19	2019/20	Total
CWW Fixed Sewer Service Charge	Real $	127,894	127,894	255,788

13.7 Efficiency bill reduction

Western Water is proposing to continue with an efficiency bill reduction to residential water customers for this submission. To help avoid bill spike to customers, assist with balancing cash flow and help avoid large credit amounts appearing for tenant customers, Western Water intends to deliver the efficiency bill reduction to customers via three equal amounts over the year. The reduction will be of an amount up to a maximum of the value of usage incurred for that bill cycle (i.e. bills will not go into credit because of the efficiency bill reduction).

14. Adjusting prices

While there are several factors which create uncertainty for Western Water in the foreseeable future, we value customer feedback on the need for price stability.

This risk is minimised for customers during the short regulatory timeframe for this submission as we are only proposing minimal mechanisms required to adjust prices.

The mechanisms Western Water proposes are:

- continuation of annual adjustment of prices for prescribed price movements and CPI
- pass through of trailing average cost of debt adjustments
- pass through of Melbourne Water bulk water charges (including price and changes in cost of debt) - these may be increases to cost or savings
- adjustment for regulatory, legislation or ministerial directive changes.

15. New customer contributions

New customer contributions (NCCs) are contributions made by developers towards the cost of providing major sewerage, water and alternative water infrastructure for new connections. The required infrastructure may be the expansion of the existing networks into new growth areas and/or the augmentation of existing networks and treatment facilities.

The ESC guidance paper sets out pricing principles where the NCCs charge must be less than stand-alone cost, greater than avoidable cost and have regard to the incremental future revenues earned from customers from that connection.

Western Water's overarching principle - driven by customer support - is that NCCs should reflect the cost of providing water, sewerage and alternative water infrastructure for new connections and not be set so low that our existing customer base is subsidising development costs. Nor should it be set so high that the total revenue received from the new connections subsidises the existing customer base.

The proposed NCCs reflect the principles set out in the ESC guidance. Western Water is currently experiencing high growth in new (greenfield) areas. The nature of these developments is that they require major new infrastructure to service them and often also require upgrades to treatment facilities to manage the extra load.

It is proposed this charge be transitioned over the next two regulatory periods. This proposal was found acceptable by developers at a forum held by Western Water in late 2017. The transitional approach will enable developers to better manage their risk associated with the increase. This demonstrates the support Western Water continues to provide to promote development within its region.

Infill reflects the new development occurring within existing areas already serviced by Western Water. They require minimal infrastructure to service additional development and some potential upgrades to treatment plants. This is directed at unit developments on vacant land or subdivision of occupied land for increased density. It is proposed the charge applicable to this type of development is 50% of the standard NCCs charge.

Plans will be produced showing the extent and assumed timing of growth assets. The capital program is based on logically sequenced expansion. If specific development requires assets to be provided earlier than planned, then incremental financing costs will be calculated and applied to a development in addition to the applicable NCCs.

In the following tables, NCCs revenue forecasts are based on the proposed NCCs prices and NCCs lot forecasts are based on detailed analysis of development growth and timing.

Table 23: Proposed NCCs per lot ($)

	2017/18	2018/19	2019/20
Greenfield	$4,316	$4,900	$5,900
Infill	$2,158	$2,450	$2,950

Table 24: Proposed NCC lots

	2017/18	2018/19	2019/20
Greenfield	1,773	2,068	2,271
Infill	521	557	606
Total	2,294	2,625	2,878

Table 25: Proposed NCC revenue ($M)*

	2017/18	2018/19	2019/20
Greenfield	$7,653	$10,132	$13,401
Infill	$1,124	$1,366	$1,789
Total	$8,777	$11,497	$15,190

** prior to adjustment for tax on gifted assets*

16. Financial position

Western Water has modelled the financial impacts of the proposals within this price submission. Whilst, the impost of delivering infrastructure and services to a rapidly expanding customer base is challenging in the short term, Western Water's financial viability remains positive and provides longer term strength.

The impacts on the financial position of the proposed real zero price path are captured within the regulatory template.

It should be noted that Western Water's modelled key indicators vary slightly from outputs of the ESC regulatory template. This is due to the application of standardised assumptions applied in the regulatory template to items such as interest and tax payments.

17. Other

Non-prescribed revenue

Western Water currently has limited non-prescribed revenue opportunities. It currently earns a very limited revenue stream from rental of houses situated on treatment plant sites and interest received on monies invested.

Additional products and services

We have reviewed all products and services for which we currently levy a charge, to ensure we continue to recover the costs associated with providing services. If the cost of providing individual products and services to customers can be recovered through these charges, this helps reduce the price for the wider customer base.

Further details on prices for miscellaneous products and charges are contained in Appendix 1. These charges are in real $ as at 1 January 2018 and will be increased by CPI each year.

APPENDICES

Appendix 1: Tariff schedule

Variable water, sewerage, trade waste charges and disposal of septic waste are rounded down to 4 decimal places. All other charges are rounded down to 2 decimal places.

Efficiency bill reduction appears as a reduction on residential water usage customer bills and is not reflected in tariffs.

Table A1: Tariff schedule 2018/19-2019/20

		2018/19		2019/20	
Consumer Price Index		0.0%		0.0%	
	Price				
Tariff and price component	(1 July 2017 - $2017/18)	Year 1	(from 1 July 2018)	Year 2	(from 1 July 2019)
Residential water tariff Service charge (per annum)					
- 20mm	$229.90	0.0%	$229.90	0.0%	$229.90
- 25mm	$359.23	0.0%	$359.23	0.0%	$359.23
- 32mm	$588.57	0.0%	$588.57	0.0%	$588.57
- 40mm	$919.65	0.0%	$919.65	0.0%	$919.65
- 50mm	$1,436.97	0.0%	$1,436.97	0.0%	$1,436.97
- 80mm	$3,678.68	0.0%	$3,678.68	0.0%	$3,678.68
- 100mm	$5,747.97	0.0%	$5,747.97	0.0%	$5,747.97
- 150mm	$12,932.98	0.0%	$12,932.98	0.0%	$12,932.98
Usage charge block 1 (0-440 litres/day) (per kl)	$1.7995	0.0%	$1.7995	0.0%	$1.7995
Usage charge block 2 (441-880 litres/day) (per kl)	$2.3875	0.0%	$2.3875	0.0%	$2.3875
Usage charge block 3 (881+ litres/day) (per kl)	$3.6596	0.0%	$3.6596	0.0%	$3.6596
Non-residential water tariff Service charge - Commercial/Free Access/Benevolent (per annum)					
- 20mm	$229.90	0.0%	$229.90	0.0%	$229.90
- 25mm	$359.23	0.0%	$359.23	0.0%	$359.23
- 32mm	$588.57	0.0%	$588.57	0.0%	$588.57
- 40mm	$919.65	0.0%	$919.65	0.0%	$919.65
- 50mm	$1,436.97	0.0%	$1,436.97	0.0%	$1,436.97
- 80mm	$3,678.68	0.0%	$3,678.68	0.0%	$3,678.68
- 100mm	$5,747.97	0.0%	$5,747.97	0.0%	$5,747.97
- 150mm	$12,932.98	0.0%	$12,932.98	0.0%	$12,932.98
Usage charge – Non-residential (per kl)	$2.3875	0.0%	$2.3875	0.0%	$2.3875
Residential sewerage tariff (per annum)					
Sewer service charge	$530.64	0.0%	$530.64	0.0%	$530.64
Non-residential sewerage tariff (per annum)					
Service charge - Commercial/Free Access/Benevolent	$530.64	0.0%	$530.64	0.0%	$530.64
Residential and non-residential recycled water tariff - Class A Service charge (per annum)					
- 20mm	$109.60	0.0%	$109.60	0.0%	$109.60
- 25mm	$171.26	0.0%	$171.26	0.0%	$171.26
- 32mm	$280.61	0.0%	$280.61	0.0%	$280.61
- 40mm	$438.46	0.0%	$438.46	0.0%	$438.46
- 50mm	$685.10	0.0%	$685.10	0.0%	$685.10
- 80mm	$1,753.90	0.0%	$1,753.90	0.0%	$1,753.90
- 100mm	$2,740.49	0.0%	$2,740.49	0.0%	$2,740.49
- 150mm	$6,166.12	0.0%	$6,166.12	0.0%	$6,166.12
Usage charge Class A recycled water - residential (per kl)	$1.7995	0.0%	$1.7995	0.0%	$1.7995

Appendix 1 Tariff schedule cont.

Table A1: Tariff schedule 2018/19-2019/20 cont.

		2018/19		2019/20	
Consumer Price Index		0.0%		0.0%	
	Price				
Tariff and price component	(1 July 2017 - $2017/18)	Year 1	(from 1 July 2018)	Year 2	(from 1 July 2019)
Trade waste charges					
Application Fee – Risk Rank 1 (per application)	$135.85	0.0%	$135.85	0.0%	$135.85
Application Fee – Risk Rank 2 (per application)	$213.54	0.0%	$213.54	0.0%	$213.54
Application Fee – Risk Rank 3 (per application)	$396.41	0.0%	$396.41	0.0%	$396.41
Application Fee – Risk Rank 4 (per application)	$940.10	0.0%	$940.10	0.0%	$940.10
Management Fee – Risk Rank 1 (per annum)	$263.96	0.0%	$263.96	0.0%	$263.96
Management Fee – Risk Rank 2 (per annum)	$553.71	0.0%	$553.71	0.0%	$553.71
Management Fee – Risk Rank 3 (per annum)	$1,237.93	0.0%	$1,237.93	0.0%	$1,237.93
Management Fee – Risk Rank 4 (per annum)	$2,518.54	0.0%	$2,518.54	0.0%	$2,518.54
Volumetric Charge – Category B (per kl)	$1.6475	0.0%	$1.6475	0.0%	$1.6475
Volumetric Charge – Category C (per kl)	$1.1535	0.0%	$1.1535	0.0%	$1.1535
Trade waste quality charges - Risk Ranks 2, 3 and 4, (per kg)					
BOD >400mg/L	$0.3331	0.0%	$0.3331	0.0%	$0.3331
Suspended Solids >400mg/L	$0.2123	0.0%	$0.2123	0.0%	$0.2123
Total Phosphorus >30mg/L	$0.4959	0.0%	$0.4959	0.0%	$0.4959
Total Combined Nitrogen >60mg/L	$0.6379	0.0%	$0.6379	0.0%	$0.6379
Total Oxidisable Sulphur >100mg/L	$0.9215	0.0%	$0.9215	0.0%	$0.9215
Sodium >250mg/L	$0.1412	0.0%	$0.1412	0.0%	$0.1412
Arsenic >0.2g/day	$0.2123	0.0%	$0.2123	0.0%	$0.2123
Heavy Metals — Cadmium >0.4g/day	$0.2123	0.0%	$0.2123	0.0%	$0.2123
Heavy Metals — Chromium (III & VI) >100g/day	$0.2123	0.0%	$0.2123	0.0%	$0.2123
Heavy Metals — Copper >100g/day	$0.2123	0.0%	$0.2123	0.0%	$0.2123
Heavy Metals — Lead >100g/day	$0.2123	0.0%	$0.2123	0.0%	$0.2123
Heavy Metals — Mercury >0.2 g/day	$0.2123	0.0%	$0.2123	0.0%	$0.2123
Heavy Metals — Nickel >10g/day	$0.2123	0.0%	$0.2123	0.0%	$0.2123
Heavy Metals — Selenium >10g/day	$0.2123	0.0%	$0.2123	0.0%	$0.2123
Heavy Metals — Zinc >100g/day	$0.2123	0.0%	$0.2123	0.0%	$0.2123
Trade waste penalty units					
1st major breach	$180.00		$180.00		$180.00
2nd major breach	$380.00		$380.00		$380.00
3rd major breach	$850.00		$850.00		$850.00
4th major breach	$1,730.00		$1,730.00		$1,730.00
Customer contribution (per lot)					
Customer contribution - Infill	$2,157.56		$4,900.00		$5,900.00
Customer contribution - Greenfield	$4,316.19		$2,450.00		$2,950.00

Table A2: Miscellaneous fees and charges 2018/19-2019/20

		2018/19		2019/20	
Consumer Price Index		0.0%		0.0%	
	Price				
Tariff and price component	(1 July 2017 - $2017/18)	Year 1	(from 1 July 2018)	Year 2	(from 1 July 2019)
Water tapping fees - drinking and recycled water					
- 20 mm installation	$421.58	0.0%	$421.58	0.0%	$421.58
- 25 mm installation	$778.28	0.0%	$778.28	0.0%	$778.28
- 32 mm installation	$1,637.69	0.0%	$1,637.69	0.0%	$1,637.69
- 40 mm installation	$2,124.03	0.0%	$2,124.03	0.0%	$2,124.03
- 50 mm installation	$3,259.02	0.0%	$3,259.02	0.0%	$3,259.02
Water meter test - 20mm to 32mm (per test)	$113.55	0.0%	$113.55	0.0%	$113.55
Conditions of connection - sewer					
- residential standard (per application)	$210.69	0.0%	$210.69	0.0%	$210.69
- commercial standard (per application)	$291.82	0.0%	$291.82	0.0%	$291.82
Information statements - standard	$64.76	0.0%	$64.76	0.0%	$64.76
Plugging fees - drinking and recycled water	$154.44	0.0%	$154.44	0.0%	$154.44
Pressure and flow information	$303.26	0.0%	$303.26	0.0%	$303.26
Disposal of septic waste to treatment plants					
- per load	$427.03	0.0%	$427.03	0.0%	$427.03
- per kl	$55.3253	0.0%	$55.3253	0.0%	$55.3253
Non-core miscellaneous services	Actual cost		Actual cost		Actual cost

Appendix 2: Price Submission governance and Board attestation

Western Water's price submission process commenced in earnest close to three years ago. It was initiated by growth forecasting and capital planning and customer research to fully understand what customers want.

A detailed summary of all the key price submission activities was developed and tasked generally to a Senior Manager or senior staff members to ensure relevant strategies and documentation were developed, reviewed and/or updated. The progress on these activities was tracked and reported, with the relevant General Manager ultimately responsible for their delivery.

The Price Submission Steering Committee was established to ensure the process had good governance and oversight by the Executive Team. The Steering Committee was comprised of all members of the Executive, the Company Secretary, Manager Regulation and Governance and a senior communications and engagement advisor seconded to work full time on the submission. The Committee met regularly on a fortnightly basis as part of the Executive meeting or as required.

To assist with transparency and consistency all assumptions have been documented, updated and reviewed. These assumptions represent the key inputs into the submission with the owner of each of the assumptions required to confirm the documented assumption.

Throughout the planning and development of the submission, the Board have been provided with many contextual papers to enable them to understand the background of the key areas addressed. In addition, several key decisions were signed off by the Board.

Third party assistance

Western Water received assistance from a number of third party organisations to assist with preparation of this submission:

- KPMG
- Marchment Hill
- CMP
- Allens Consulting
- Red Strategic Consulting
- Marsden Jacob Consulting
- BMM Consulting.

Board attestation

Western Water's Board have been briefed, updated and/or had their approval sought throughout the submission preparation process on key issues. A list of key assumptions was approved by the Board in August 2017.

Their attestation to the quality and accuracy of information included in the price submission follows including that the guidance has been complied with in all materials aspects.

As at 9 March 2018, the directors of Western Water having made such reasonable inquiries of management as we considered necessary (or having satisfied ourselves that we have no query), attest that, to the best of our knowledge, for the purpose of proposing prices for the Essential Services Commission's 2018 Water Price Review.

- *Information and documentation provided in the price submission and relied upon to support Western Water's Price Submission is reasonably based, complete and accurate in all material respects.*
- *Financial and demand forecasts are the corporation's best estimates and supporting information is available to justify the assumptions and methodologies used; and*
- *The Price Submission satisfies the requirements of Western Water's Water Price Review Guidance paper issued by the Essential Services Commission in all material respects.*

On 1 October 2017, during development of the submission, four directors of Western Water's Board were replaced including the Chair.

To provide the Board with assurance that the template reflects the financials presented within the price submission document it has been independently reviewed by Marsden Jacob Consulting and a report provided to the Board prior to Board attestation.

Appendix 3: Growth assumptions

Growth assumptions

The forecasts were developed using several key datasets and incorporate best practice methodology consistent with the Victorian sector.

Input datasets include:

- Victoria in Future (VIF 2015 and 2016)
- weather and climate change forecasts (BoM, CSIRO)
- developer industry information
- Precinct Structure Plan land release information (PSP)
- residential end use modelling, and
- internal assessment and adjustment of historical forecast accuracy.

Customer Growth

The customer growth forecast is shown in Chart A1. It can be seen that the forecast for the next period continues the growth trend from the previous two years.

Chart A2 illustrates the comparison of the observed historical customer growth, Water Plan 3 forecast and the proposed forecast for PS18.

It can be seen that the observed customer growth exceeds the Water Plan 3 forecast in the first two years of the pricing period. The forecast for the PS18 continues the observed trend in customer growth.

Chart A1: Customer number growth forecast

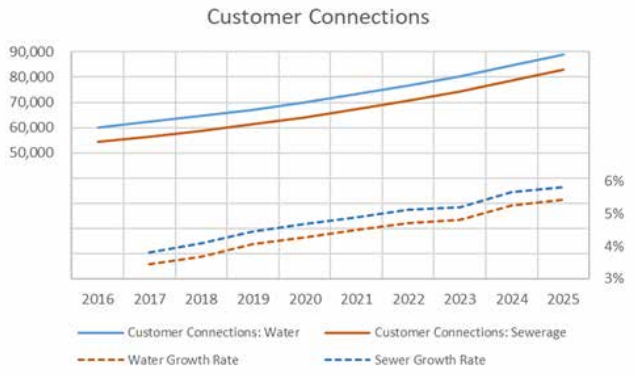
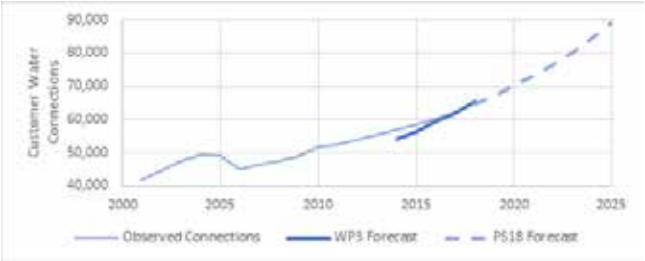


Chart A2: Customer number growth forecast



Appendix 4: Capital program

Western Water's capital program has been developed based on connection forecasts that are underpinned by the Victoria in the Future 2015 estimates and on reductions in customer water demand to achieve Target 155 by 2022.

The program has been developed to meet the outcomes, including performance criteria, outlined in this submission. This includes achieving optimal balances between capital investments, ongoing operational expenditure and maintaining reliability, in consultation with our customers.

The program is underpinned by the Urban Water Strategy. This has provided optimisation of the water balance to ensure the resilience of the system to efficiently supply potable water, collect and treat sewer flows and reuse treated effluent with resilience to climate variability and growth/demand uncertainties.

The detail of the program has been prepared by a combination of strategies and master plans developed to apply the outcomes of the Urban Water Strategy to ensure the efficiency of the individual elements of the highly interdependent system.

The master plans and strategies have identified risks and developed appropriate mitigation measures to respond to the uncertainties.

Project estimates have been developed at the P50 level, utilising Monte Carlo methods based on concept and preliminary design investigations for major projects, and a combination of historical data and third-party master plan estimates at the planning level.

A4.1 Major projects

The top five projects are listed below with a brief description of their justification and objectives. The list represents the largest projects by expenditure for projects incorporating interdependent elements. Larger specific programs have been identified under the significant category detailed in the next section.

Each item is supported by a business case providing the basis for inclusion, with consideration to its stage of development and reflecting the most likely approach where outcomes must be delivered within the water pricing period.

Table A3: Western Water's top five major projects ($'000) - 2018/19 to 2019/20*

Program/scheme	2018/19	2019/20	Pricing period total
Melton Recycled Water Plant - additional onsite storage	6,320	6,263	12,583
Bacchus Marsh Recycled Water Plant to Melton Recycled Water Plant interconnector	500	5,515	6,015
Grant Street sewer pump station, Bacchus Marsh	1,000	4,865	5,865
Melton South Exford Road sewer pump station/rising main/sewer	1,559	2,683	4,242
Sunbury Recycled Water Plant upgrade	3,225	213	3,438

** $ as at 1 January 2018*

A4.1.1 Melton RWP upgrade - additional onsite storage

This business case supports the design and construction of a 1,315ML additional onsite storage at the Melton Recycled Water Plant (RWP). Currently, there is insufficient storage available at Melton RWP to contain recycled water under 90th percentile conditions, a short-fall of around 350 ML.

Additional storage supports the recycled water strategy/corporate plan objective of providing fit for purpose services. In addition, the recently issued EPA temporary licence expires by 2022, by which time additional recycled water management projects will need to be in place.

It has been calculated Melton RWP will require at least 1,000ML of additional storage by 2025, in combination with additional land irrigation to meet 90th percentile requirements.

Failure to contain the 90th percentile recycled water volume will result in Western Water breaching the *Environment Protection Act* beyond 2022 with an increasing liability with the rapidly growing Melton catchment.

Construction of a wet weather storage was identified as the best option to achieve compliance when the current EPA licence expires.

Western Water has an obligation to manage the recycled water to minimise the environmental impacts. The obligations are stipulated in the State Environment Protection Policy (Waters of Victoria). The Policy requires that recycled water must be reused where it is practicable and sustainable.

To demonstrate that outcome, Western Water made a commitment to EPA that it would implement a number of short, medium and long-term options to sustainably manage recycled water from the Melton RWP.

Based on the commitment, and in recognition that infrastructure for achieving sustainable reuse takes time, EPA issued a licence amendment to discharge a portion of recycled water to the Werribee River for a period up to five years.

Without additional storage, Western Water will not be able to legally discharge recycled water to Werribee River beyond 2022. Any illegal discharge can result in enforcement action by EPA as demonstrated by EPA issuing a Pollution Abatement Notice and warning letter to Western Water for a previous unlicensed discharge.

Preventative actions to avoid any foreseeable non-compliance is the cornerstone of EPA's enforcement policy and therefore any inaction could lead to serious legal consequences.

Forecast growth within the Melton RWP catchment will exacerbate the need for additional storage. Construction of the additional storage is therefore prudent and necessary, prior to the cessation of the licence.

A4.1.2 Grant St sewer pump station, Bacchus Marsh

This project includes an upgrade of the existing Grant Street sewer pump station (SPS) (from 35 L/s to 100 L/s in the interim up to ultimately 145 L/s) and construction of 7.7 km rising main directly to the Bacchus Marsh RWP.

This investment is driven by growth and is designed to reduce the total sewage flows by approximately a third from the Bacchus Marsh catchment to the existing Avenue of Honour sewer pump station.

This is done by upgrading the existing Grant Street SPS to service the sewage from the Maddingley and Underbank catchment south of Werribee River, directly to Bacchus Marsh RWP for treatment.

The Grant Street SPS/rising main upgrade project is driven by the need to reduce the load on the existing focal point of the Bacchus Marsh sewerage system (i.e. the Avenue of Honour SPS).

The Master Plan 2015 indicated that under existing conditions and all future scenarios, the Avenue of Honour SPS exceeds the 25% threshold for daily run time, with the pump running at a predicted 36% under existing conditions.

If the investment did not proceed, the increasing risk of spills from the sewerage network would limit growth in Bacchus Marsh.

A4.1.3 Bacchus Marsh – Melton interconnector

This business case supports the detailed design and construction of a pipeline from the Melton Recycled Water Plant (RWP) to the Bacchus Marsh Recycled Water Plant to allow for alternating supply of recycled water both ways between the two RWPs, enabling:

- discharge of recycled water from Bacchus Marsh RWP in years when discharge to waterway is permitted
- supply of recycled water from Bacchus Marsh RWP to the Werribee River for environmental flows downstream of Melton Reservoir where it is of highest demand
- supply of recycled water from Melton RWP to contingency land currently being established (with opportunity for expansion) in the Parwan district to provide contingency for the Bacchus Marsh RWP
- supply of the large volumes of recycled water produced at Melton RWP to meet potential demands in the Parwan and Balliang districts and Bacchus Marsh Irrigation District, and
- combined storage opportunities for the Bacchus Marsh and Melton RWPs.

Western Water made a commitment to EPA that it would implement a number of short, medium and long-term options to sustainably manage recycled water from the Melton RWP.

Based on the commitment, EPA issued a licence amendment to discharge a portion of recycled water to the Werribee River for a period up to five years. Without additional storage and irrigation use, Western Water does not meet the EPA licence requirements for 90th percentile conditions. Forecast growth within the Melton RWP catchment will exacerbate the need for additional storage and additional reuse.

Regulatory action by EPA against Western Water is likely if non-compliant treated effluent is discharged to Werribee River once the current temporary licence expires in July 2022. Western Water was issued with a Penalty Infringement Notice in 2015 for an unlicensed discharge and therefore further unlicensed discharges must be avoided.

The Bacchus Marsh RWP does not have a licence to discharge and so all recycled water must be reused. Forecast growth within the Bacchus Marsh RWP catchment will exacerbate the need for additional storage and additional reuse. Regulatory action by EPA against Western Water is likely if non-compliant treated effluent is discharged.

Construction of the interconnector between Melton and Bacchus Marsh RWPs is therefore prudent and necessary, prior to the cessation of the licence at Melton RWP and as soon as practicable to meet compliance requirements at Bacchus Marsh RWP.

A4.1.4 Melton South Exford Rd sewer pump station

The Toolern precinct is a significant growth area within Melton, developing over the last seven years. An area along Exford Road, which includes developments called Exford Waters, Toolern Waters and Seventh Bend require a permanent sewer servicing solution.

Currently temporary solutions are in place, including eduction and temporary pump stations. These temporary solutions are now reaching their limits and a more permanent solution is required.

A servicing plan for the Exford Road area of Toolern has identified a favourable location close to the intersection of Exford and Greigs Roads. It can service up to 6000 lots and remove the need for three temporary pump stations. The construction of this pump station will enable the full development of the Exford Road area.

Without this pump station and rising main, the temporary pump stations and eduction programs will need to continue. These temporary solutions are very expensive to maintain. If the new pump station and rising main are not built, Western Water will have to cover much higher servicing costs than would otherwise be required.

A4.1.5 Sunbury RWP upgrade

This business case sought approval to invest capital (allocated in Western Water's Water Plan 2013-2018) to increase the capacity of the Sunbury Recycled Water Plant (RWP) to ensure compliance with Western Water's obligations under the *Water Act, Environment Protection Authority (EPA) Act* and State Environment Protection Policy (SEPP).

The Sunbury RWP is being upgraded and configured to achieve a total of 3.9ML/d of Class B recycled water for customer beneficial reuse (including capability to upgrade to Class A in the future) with the remaining 5.3ML/d recycled water to be discharged into Jackson Creek, meeting EPA discharge requirements.

A4.2 Significant projects

A number of significant projects were identified that, although not included in the top five, are critical to business outcomes and require significant expenditure.

The significance of each project is outlined below. They include large asset management programs, the preliminary stages of a number of items with large expenditure over the five-year outlook, and significant improvement/enabling items.

A business case, reflecting each project's stage of development, has also been prepared for each of these items.

Table A4: Western Water's top five significant projects ($'000)*

Program/scheme	2018/19	2019/20	Total
Greenhouse gas reduction scheme	1,734	1,239	2,973
Sewer Spill Prevention Strategy - Sewer Relining Program	1,385	1,200	2,585
Aintree sewer pump station	2,200	142	2,342
Melton transfer upgrades	258	990	1,248
Western Irrigation Network (WIN)	500	473	973
Sunbury transfer upgrades	27	396	423

** $ as at 1 January 2018*

A4.2.1 Greenhouse gas reduction scheme

Western Water adopted a 10% greenhouse gas reduction pledge in February 2017.

The pledge, to be achieved by 2025, was established from a baseline calculated from corporate emissions over the 2012 to 2016 period. When expected growth in emissions from a business as usual approach is taken into consideration, the 10% reduction pledge equates to a 46% reduction in emissions.

This strategy contains several actions aimed at reducing Western Water's greenhouse gas emissions, including capex projects. Projects were identified using Western Water's Marginal Abatement Cost Curve tool, which assesses the costs and benefits of different greenhouse gas mitigation projects and ranks them in order of the most attractive levelised cost of abatement.

Eight projects have been identified for implementation over the price submission period (2019-2020). Projects to commence implementation in 2017/18 have also been included, but this expenditure is not expected to fall within the 2019-2020 submission period.

The projects included in this business case were chosen because they were the most cost effective and feasible greenhouse gas emission reduction projects from a suite of approximately 40 that were assessed throughout 2016/17.

If the projects identified in this business case are not implemented, Western Water will be required to reduce its greenhouse gas emissions through alternative abatement projects. Western Water may also have to rely on less effective projects (both financially and in terms of emission reduction) to reach its reduction pledge.

The total greenhouse gas emissions that will be reduced from the projects in this business case are 12,708 tonnes of CO_2e.

If alternative mitigation projects cannot be found, Western Water risks not meeting its 10% reduction pledge, which could result in not meeting the requirements set out in the draft Statement of Obligations (Emissions Reduction).

A4.2.2 Sewer Spill Prevention Strategy - Sewer Relining Program

Western Water has developed a program of works to reduce the occurrence of sewer spills across the region, known as the Sewer Spill Prevention Strategy (SSPS). This program targets actions to prevent all known causes of sewage spills to minimise their unacceptable effects to the environment.

During the commencement of the SSPS in 2010, Western Water identified a greater number of issues in the sewer network than originally anticipated.

To account for the large quantities of work identified and the limited budget, Western Water has prioritised works based on risk and delivered SSPS works accordingly. This approach ensures that the budget is adhered to, but also presents an inherent risk to Western Water for required works that have been identified, but not completed.

A4.2.3 Aintree sewer pump station

The Melton growth corridor is posing significant challenges to Western Water in how to service the growth. The Aintree sewer pump station (SPS) has been designed to build flexibility into the network, delay the need for expensive augmentations and find cheaper ways to service the future population.

The construction of the pump station removes the need for an expensive gravity sewer to Rockbank SPS that had significant environmental and constructability issues. It enables a longer delivery period for the Kororoit Creek South sewer main and the need to build prior to development progressing.

The Aintree SPS is initially an interim pump station being built to send flows to the Rockbank SPS and to the Melton RWP.

After 10 years of operation it is likely to become a wet weather pump station whereby excess flows will be sent to the Melton RWP whilst the remainder will be sent to the City West Water network and down to the Western Treatment Plant.

This arrangement will better enable Western Water to manage the bulk recycled water flows currently being produced at Melton RWP.

When the wet weather flow diversion is in place, it will enable significant delays to future upgrades including the Rockbank SPS and rising main as well as plant capacity at the Melton RWP.

Ultimately there will be 30,000 lots within the Aintree SPS catchment. Most of the time these flows can be sent to the City West Water sewer.

During peak wet weather events, these flows will need to be sent to the Melton RWP. Whilst this increases the peak loading compared to the average loading, overall plant capacity and especially the recycled water network.

If this pump station is delayed, Western Water will need to find alternative methods for conveying the sewer flows from the Woodlea development to Rockbank SPS. It may need to invest in a more expensive and challenging gravity sewer and may not be able to contain a one in five-year sewer flow.

A4.2.4 Melton transfer upgrades

Local water supplies and the existing connection are not enough to provide a secure water supply to Melton.

Works are required to augment the existing network to enable sufficient water supply for the anticipated growth within the region. This will require removal of choke points, upgrades to pump stations and duplication of the main from Melbourne.

The anticipated growth rate is the most obvious driver for these works. It will eventually exceed the carrying capacity of the existing transfer network.

Capacity constraints are starting to arise in the high-level supply areas and some of the initial projects need to be undertaken to maintain these levels.

Without these projects, the Melton High Level pressure zone may not have sufficient capacity to supply demands during peak periods.

The likelihood of low water pressure increases as the population and demand grows until the capacity will be exhausted. It is likely that the impacts will be felt first on peak demand days and then more often during the year as the population continues to grow.

These projects have been programmed to take place over the next 15 years. They have been prioritised on a needs basis with the first projects being triggered by the demand in the high-level zone and the final works due to demand from increasing population.

A4.2.5 Western Irrigation Network (WIN)

This project is set to deliver a new network of pipelines for the provision of up to 16 GL/yr of climate-resilient and reliable recycled water to enable 4,200 Ha of irrigated agriculture to the west of Melbourne. The project is expected to create in excess of 850 jobs.

A4.2.6 Sunbury transfer upgrades

Local water sources and the existing connection are not enough to provide a secure water supply to Sunbury and the Macedon Ranges.

Works are required to augment the existing network to enable sufficient water supply for the anticipated growth within the region. This will require a major reorganisation of the network including upgraded pump stations and new pipelines.

The anticipated growth rate is the driver for these works. A recent study has found that the Rosslynne Reservoir is unlikely to be able to supply all water supply options if there isn't significant rainfall into the catchment.

Over time, the reliability of the Rosslynne Reservoir is expected to drop as the catchment becomes drier and runoff diminishes. Sunbury is about to experience growth generating demand that will exceed the current Melbourne Water supply.

To counteract the growth in demand and the reducing inflows, augmentations to the transfer system are required.

Without these projects both Sunbury and the Macedon Ranges may run out of water. The system is not designed to send peak flows from Sunbury to Gisborne and the initial impact will be an inability to meet peak demand and then, over time, the inability to provide a reliable water supply.

These projects have been programmed to take place over the next 15 years. They have been prioritised on a needs basis with the first projects being triggered by the levels in Rosslynne Reservoir and the final works due to demand from increasing population.

A4.3 Other capital programs

The investment items not included in the major and significant categories are grouped into programs by cost driver and system.

Western Water's capital program has increased significantly in most areas over that delivered in the previous pricing period.

Whilst this is largely focussed in growth, reflecting the acceleration in the number of new customers, there has also been some increase in the level of renewals and improvements.

It should be noted that the forecasts below are based on the primary cost driver of each program item. Many items have multiple cost drivers and the aggregate forecasts by cost driver will reflect the detailed split.

A4.3.1 Growth

Growth is the most significant driver of Western Water's capital program over the submission period.

A number of Precinct Structure Plan areas are programmed for release in the Melton and Sunbury regions before or during the submission period.

These areas are remote from key existing infrastructure, requiring an investment in the skeleton of the future systems.

Significant upgrades will also be required in the existing transfer, treatment and headworks elements including augmentations of existing potable water connections to the Melbourne Water system and, for the first time, interconnection to the Melbourne sewerage network.

Table A5: Western Water's other projects - growth related ($'000) - 2018/19 to 2019/20*

Program	2018/19	2019/20	Pricing period total
Growth - Water Transfer System	1,290	1,375	2,664
Growth - Melton HL/LL Zones	1,956	2,475	4,431
Growth - Mt Cottrell Zone (future)	0	20	20
Growth - Holden Zone (future)	2,447	5,194	7,642
Growth - Toolern Ck Catchment	1,883	4,388	6,271
Growth - Rockbank Catchment	1,190	806	1,996
Growth - Lower Kororoit Catchment	8	1,867	1,874
Growth - Melton Class A RW	849	410	1,259
Growth - Melton Class C RW	0	2,144	2,144
Growth - Bacchus Marsh Water	856	315	1,172
Growth - Bacchus Marsh Sewer	1,736	1,365	3,100
Growth - Sunbury Water	720	1,348	2,068
Growth - Sunbury Sewer	3,364	2,324	5,688
Growth - Sunbury Class A RWP	0	0	0
Growth - Gisborne Water	107	0	107
Growth - Gisborne Sewer	0	2,255	2,255
Growth - Other Towns Sewer	661	670	1,331
Growth - Other Towns Class B/C	1,332	738	2,069
Growth - Rosslynne WFP	0	0	0
Growth - Melton RWP	505	2,558	3,063
Growth - Gisborne RWP	2,796	0	2,796
Growth - Other RWP	1,550	78	1,628
Growth - Planning	1,641	1,567	3,207
Total	24,888	31,897	56,784

** $ as at 1 January 2018*

Staged master plans have been developed for critical networks, the transfer system/headworks and treatment sites, based on forecast growth and demand.

Each master plan examines options for the staged development of the system to optimise the balance between capital and operational expenditure, and risk, to maintain the agreed levels of service.

A critical issue is the potential for dispersed development within the widespread release areas, creating the potential need for alternative staging of works and the risk of compliance issues with low loads on larger network elements.

The forecast expenditure for each program under the growth element is summarised in Table A5 and detailed in the appropriate master plan.

A4.3.2 Renewals

Western Water has, over the current water pricing period, optimised its asset management program with consideration of the optimal balance of capital and operational expenditure, mindful of the impact on customer pricing of managing a significant portfolio of ageing assets. This needs to carefully balance the benefits of maximising the capacity of existing assets to reduce the customer price impact of capital expenditure.

Western Water's Asset Management Strategy details the approach to managing this balance and the rationale for the renewals investment within the individual programs listed below. The business cases provide the basis for changes to the level of expenditure compared to the current pricing period.

The program shows a declining level of expenditure in renewals in some programs over the period as major growth augmentation projects are undertaken, particularly in transfer systems.

Table A6: Western Water's other projects - renewals ($'000) - 2018/19 to 2019/20*

Program	2018/19	2019/20	Pricing period total
Renewals - Water Transfer System	1,207	917	2,125
Renewals - Water Networks	2,219	1,700	3,919
Renewals - Sewer Networks	2,089	1,949	4,038
Renewals - RW Networks	91	91	182
Renewals - Merrimu WFP	160	160	320
Renewals - Rosslynne WFP	170	170	340
Renewals - Romsey WFP	80	80	160
Renewals - Melton RWP	510	490	1,000
Renewals - Bacchus Marsh RWP	26	66	92
Renewals - Sunbury RWP	120	0	120
Renewals - Gisborne RWP	0	224	224
Renewals - Woodend RWP	40	80	120
Total	6,712	5,927	12,639

** $ as at 1 January 2018*

A4.3.3 Improvements

Western Water has significantly increased proposed investment in improvement projects over the current pricing period. In order to minimise the impact of the high growth on existing customer pricing, investments are required in customer, asset and other business systems to achieve efficiency savings and to avoid escalating operating costs.

Investments in improvements in hydraulic infrastructure are planned to maximise capacity of existing assets and systems and to avoid investments in augmentation or higher operating costs.

Many investments are focussed on reducing the risk of failure as increased growth impacts on existing core systems, particularly transfer infrastructure. Business cases have been prepared to demonstrate customer value in each of the identified projects, based on the stage of development of the project.

Table A7: Western Water's other projects - improvements ($'000) - 2018/19 to 2019/20*

Program	2018/19	2019/20	Pricing period total
Improvements - Water	2,553	2,502	5,055
Improvements - Sewer	1,355	1,153	2,508
Improvements - RW	80	80	160
Improvements - IT	1,910	1,085	2,995
Improvements - Other Corporate	1,190	1,240	2,430
Total	7,088	6,060	13,148

** $ as at 1 January 2018*

A4.3.4 Compliance

There is a significant reduction in the level of compliance expenditure in the next pricing period with the focus on this category during the previous period. The major expenditures under this program relate to fluoridation upgrades and groundwater improvements.

Table A8: Western Water's other projects - compliance ($'000) - 2018/19 to 2019/20*

	2018/19	2019/20	Pricing period total
Compliance - Water	120	1,980	2,101
Total	120	1,980	2,101

** $ as at 1 January 2018*

A4.3.5 Corporate

A focused investment program has been identified on enabling infrastructure to support growth in business capacity as the customer base expands.

Table A9: Western Water's other projects - corporate ($'000) - 2018/19 to 2019/20*

	2018/19	2019/20	Pricing period total
Corporate - IT	450	450	900
Corporate - Motor vehicles	825	825	1,650
Corporate - Other	0	1,226	1,226
Total	1,275	2,501	3,776

** $ as at 1 January 2018*

Appendix 5: Top 5 capital projects business cases

Due to confidentiality considerations, the top 5 capital project business cases will be provided to the ESC as a separate document to the price submission.

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