seqwater
WATER FOR LIFE

2018 Bulk Water Price Review

Seqwater Submission PART A

31 July 2017

Summary

As south east Queensland's bulk water supply authority, we are committed to delivering the most secure and affordable drinking water supply possible. The focus of our business since amalgamation in 2013 has been reducing costs, risk reduction, compliance, consolidating operational efficiencies and effectiveness and integrating planning. These activities have all produced value for money for the community of south east Queensland (SEQ).

Over the life of the current bulk water price path we have delivered consistent year on year operating savings. We have exceeded the $50M cost saving target set by the Queensland Competition Authority (QCA) in the 2015 Review by a further $67M over three years. Our rigorous approach to capital planning has also meant our investment program to 2028 is lower than the 2015 target, while achieving the same outcomes for customers.

These savings mean the total costs to be recovered in prices over the remaining 10 years of the price path is now 9%, or $822M lower, than that expected from the 2015 Review.

Water demand is however lower than was expected in 2015, where consumption was expected to reach 185 litres per person per day (L/p/d) by 2018. Instead consumption has been closer to 169 L/p/d. This means our customers, the council-owned water businesses, have been paying less (in total) for bulk water than was expected in 2015. Our revenues have also been lower.

We have forecast lower water demand over the next 10 years compared to the 2015 Review, as demand over recent years has not reached 185 L/p/d as expected. Instead our updated forecast transitions demand from current levels at around 169 L/p/d to 185 L/p/d in the final years of the price path, in 2026-27 and 2027-28.

The lower demand has produced a benefit of helping to defer the investment in new bulk water supply infrastructure. Our planning assessment has shown infrastructure built during the Millennium Drought, including the SEQ Water Grid, combined with dam levels and lower than forecast water consumption, means our region is unlikely to require a new bulk water supply until close to 2040, outside of severe drought.

Summary

Key Points

- We have continued the focus on cost reduction and implementing efficiencies over the 2015 Regulatory Period. We have implemented cost saving measures which have exceeded the efficiency targets set by the QCA in the 2015 Review, and cost saving opportunities have now been fully captured.
- As a result we are able to propose a 9% reduction to the total costs or annual revenue requirement (ARR) for providing bulk water to our customers over 10 years compared with that forecast in the 2015 review. This equates to a $822M saving, and incorporates an ongoing efficiency target.
- Water demand in SEQ has been less than we expected in the 2015 Review, and we have therefore reduced our demand forecasts.
- Into the future, our costs could change significantly from climatic extremes, including drought, or through changes to interest rates. Changes in demand will also impact the bulk water price, particularly under a 100% volumetric tariff.

Summary

Current performance

Seqwater was established in 2013 as part of a suite of institutional reforms in SEQ, including the merger of the SEQ Water Grid Manager, Linkwater and parts of the Queensland Water Commission. Seqwater is now the single custodian of the region's bulk water and distribution assets, delivering treated water to our five council-owned customers who distribute the water to consumers across SEQ.

We made our last submission to the QCA in mid-2014, just after the merger. This submission was a key input to the QCA's 2015 review (the 2015 Review) of prices which set the bulk water price for three years. At this review it was expected we would achieve operating cost savings of around $50M following the merger. We have out-performed these savings by a further $67M over the three year period to 2017-18, which is a direct result of our focus on reducing costs and pursuing efficiencies over the 2015 Regulatory Period.

This work has involved a critical review of budgets and expenditure, as well as implementing cost-saving strategies, such as reducing contractor costs through greater insourcing, optimising our maintenance and reducing our water treatment costs through process improvements.

Our actual capital expenditure to 2017-18 has been less than the allowance set in 2015, with around 30% less capitalised expenditure being added to our regulatory asset base than expected. We consider this to be a positive result given the need to establish a new framework for capital planning and delivery following the merger. We have also implemented a number of important improvements to our asset management, many of which have been in response to the QCA's recommendations from 2015.

We have also taken additional time to ensure the best solution is adopted and implemented at the right time. While we do not defer or delay urgent works meeting an immediate risk or need, other projects have benefited from additional planning work to identify the best option and its timing.

This has meant a number of key (but not-urgent) projects that were originally included in our capital program for the 2015 Regulatory Period are being completed over a slightly longer timeframe or are being started at a later date than was originally planned. The end-result is lower life-cycle costs and more effective solutions.

This deferral of work has not increased our total capital expenditure to 2027-28. Rather, our rigorous capital planning processes have meant our forecast capital expenditure is 10% lower than the allowance set in 2015 while still delivering services to customers and meeting our regulatory obligations.

At the same time, Price Path Debt has increased more than expected. This Price Path Debt is the difference between our historic revenue allowance and the revenue we actually receive. Actual bulk water sales and revenue have been around 6% less than forecast, which has contributed to the Price Path Debt balance being around $331M higher than expected in 2015, at around $2.49B at 30 June, 2018.

Demand Forecast

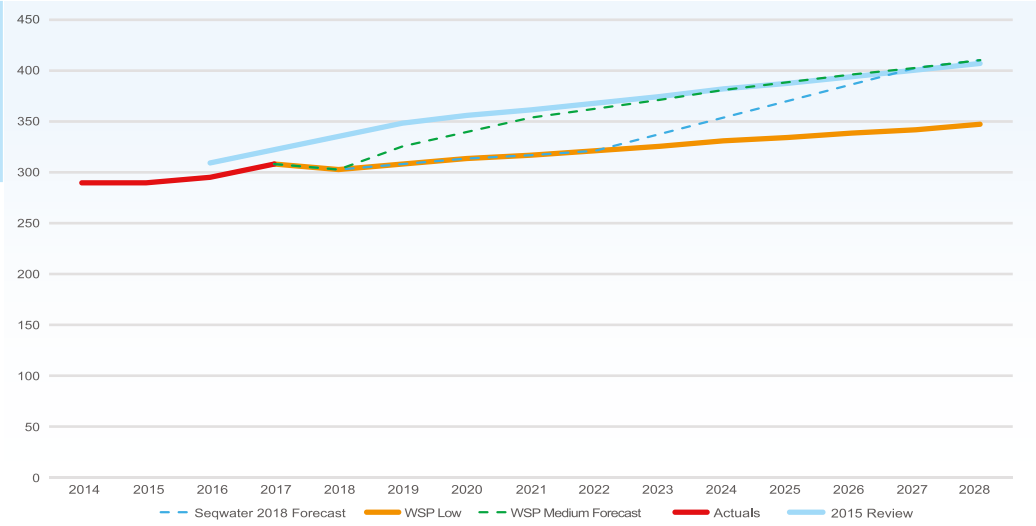
Our Water Security Program sets out a planning window for water demand between a 'low' and 'high' forecast. The 2015 Review adopted the 'medium' forecast for pricing purposes, which assumed demand would reach 185 L/p/d by 2018. However, demand is currently closer to 169 L/p/d.

For this 2018 Review we have adopted a demand forecast that commences with demand at the 'low' forecast (equivalent to 169 L/p/d) and which continues to 2021-22, and then transitions to the 'medium' forecast level of demand in 2026-27 when demand is expected to reach 185 L/p/d.

The starting point for this forecast is 307GLin 2018-19, which is similar to the actual demand in 2016-17 of around 308GL. Demand in 2016-17 (equivalent to 173 L/p/d) was affected by very dry conditions and was therefore much higher than previous years.

Our forecast of demand to be used for price setting purposes is set out below, and is within the bounds of the low and high demand forecast used for water security planning.

Demand (actual / forecast, GL)



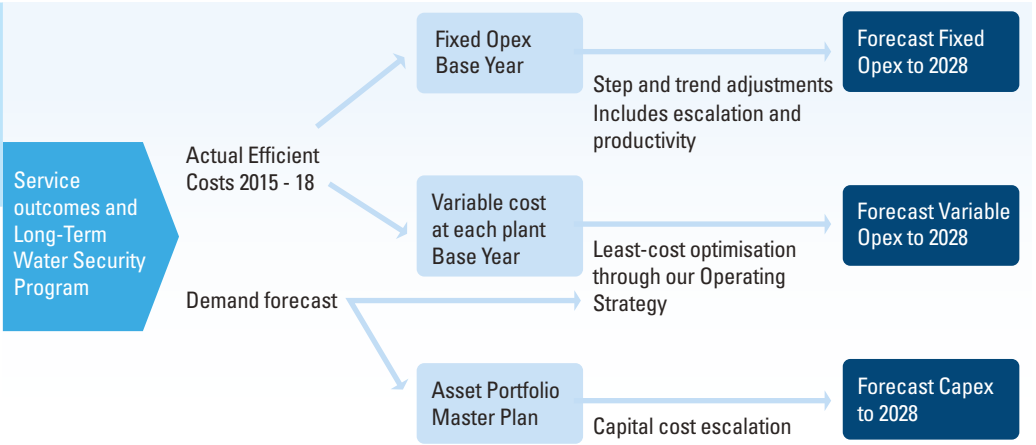
Note: 2016-17 demand is based on an estimate, and will be updated once final meter reading data is available. The 2017-18 volume is our budget estimate for that year.

Our revenue proposal for this submission

Our revenue proposal has been developed to ensure we provide bulk water services to our customers efficiently and in a way that meets their long-term needs. Our proposal is integrated with our long-term water security planning, and has also benefited from customer review of our proposed capital program.

Expenditure forecasting approach

Expenditure forecasting approach



We have used a 'base-step-trend' approach to forecasting our operating expenditure. The 'base' incorporates the significant savings achieved since 2015 and continues these savings into the future. We have then adjusted for step

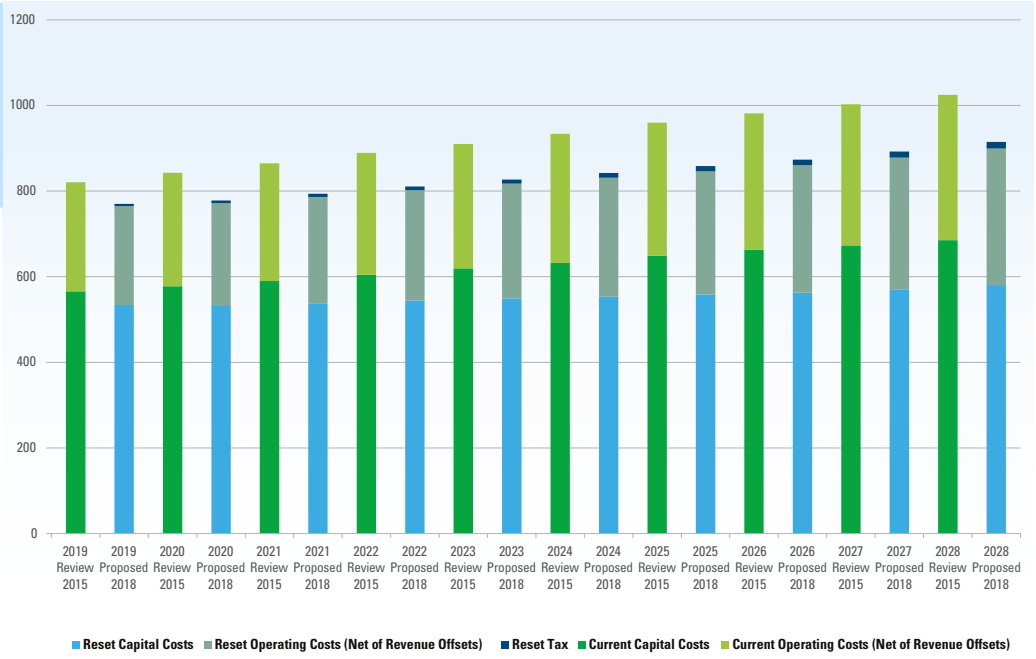
changes in the expenditure that we expect will occur over 10 years, and have also applied cost trends or input cost escalators. Despite having performed better than the efficient operating cost target set for us in 2015, we consider that further efficiencies can be realised through continuous improvement, and propose an ongoing efficiency target of 0.2% of controllable costs per annum. These savings are incorporated into our forecast.

While we have been able to maintain cost savings in fixed operating expenditure (7% lower than the 2015 target to 2028), electricity prices are expected to increase substantially, offsetting some of these savings. The total savings in operating expenditure compared to the 2015 target over 10 years is $129M, or 4%.

Our forecast capital expenditure from 2018-19 to 2027-28 is 10%less than expected at the 2015 Review. Our forecast includes a small number of large major projects that require significant planning and investment.

Overall, the ARR to 2027-28 is around 9% or $822M less than the allowance set in the 2015 Review.

ARR over the price path period, 2015 Review compared to Seqwater's 2018 proposal



Note: Capital costs include return on assets, depreciation and asset indexation.

QCA Review and Recommended Prices

Following this submission, the QCA will review our proposed expenditure and recommend prices in accordance with the Referral Notice.

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1. Introduction

1. Introduction

Bulk water prices for south east Queensland (SEQ) have been set until 30 June, 2018 (the 2015 Regulatory Period). The Treasurer has directed the Queensland Competition Authority (the QCA) to review and recommend bulk water prices to apply from 1 July, 2018 to 30 June, 2021 (the 2018 Regulatory Period), and to prepare a draft report by 30 November, 2017 and a final report by 31 March, 2018. The terms for the review are set out in a Referral Notice.[1]

Seqwater is to provide a submission to the QCA by 31 July, 2017 as an input to the QCA's review and recommended prices. This document is Part A of our submission to the QCA, and sets out our:

- services and regulatory obligations (Section 2)
- past performance and future challenges (Section 3)
- proposed annual revenue requirement (Section 4)
- forecast capital and operating expenditure (Section 5)
- proposals for the regulatory framework into the future (Section 6).

We have also provided separately:

- a Part B to this submission which provides more detailed information about:
  - » the updated Price Path Debt balance at 1 July, 2018
  - » our capital and operating expenditure proposals
  - » our proposed weighted average cost of capital.
- three appendices, which cover:
  - » advice from PricewaterhouseCoopers (PWC) on cost escalation rates to be applied to our forecasts (Appendix 1)
  - » our concerns with the QCA's approach to certain elements of the cost of equity component to the WACC (Appendix 2)
  - » advice from Queensland Treasury Corporation's (QTC) debt cost estimates (Appendix 3).

1 This notice was made under section 23 of the *Queensland Competition Authority Act 1997*, and provided to the QCA on 25 May, 2017. A copy of the notice can be found on the QCA's website at http://www.qca.org.au/getattachment/f2e72530-7f72-424c-9c29-4bd1dffa7932/Treasurer-s-Referral-Notice.aspx

About Seqwater

Seqwater was established in 2013 as part of a suite of institutional reforms in SEQ including the amalgamation of the SEQ Water Grid Manager, Linkwater and the former Seqwater and parts of the Queensland Water Commission. We are now the single custodian of the region's bulk water and distribution assets, delivering treated water to our five council-owned businesses who distribute the water to the community and consumers across SEQ.

As SEQ's bulk water supply authority, we are committed to delivering the most secure and affordable drinking water supply possible. The focus of our business since the amalgamation in 2013 has been reducing costs, risk reduction, compliance, consolidating operational efficiencies and effectiveness and integrating planning. These activities have all produced value for money for the community of SEQ.

Our main bulk water customers are Queensland Urban Utilities, Unitywater, and the councils of Logan, Gold Coast and Redland. These are collectively referred to as SEQ Service Providers, but we refer to them as our customers in this submission.

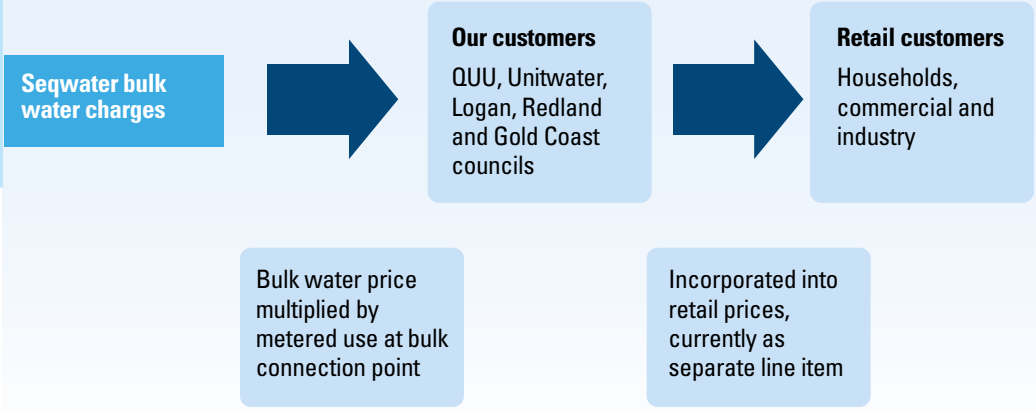
We are one of Australia's largest water businesses, with a geographical spread and a diverse asset base. We provide bulk water services from Noosa in the north to Tugun in the south, and from Gatton in the west to North Stradbroke Island in the East.

Like most businesses, we need to recover the costs of providing our services from the customers who use them. We do this through bulk water prices.

Our customers pay bulk water prices for the water they take at their respective bulk connection points. These bulk water costs, as well as other costs involved in supplying retail customers, are then incorporated into retail water prices. The bulk water price typically makes up just over half of the retail water bill for households.

The current practice is for retailers to charge the same volumetric charge to their customers, and show this price as a separate line item on the retail bill (refer below).

Figure 1: Seqwater's bulk water prices and the retail water bill



We also supply bulk water services to Stanwell Corporation for power generation, and to Toowoomba Regional Council. The prices for these services are set in bulk water supply agreements.

We play a key role in providing water security to SEQ. To do this, we must actively plan for the future by considering the region's potential water needs and future water supply options, as well as design, operate and maintain our assets to manage fluctuations in weather conditions and water demand.

Last decade's Millennium Drought led the State Government to create a major infrastructure investment program to build the SEQ Water Grid. When there is plenty of water we use the Grid to minimise the costs of supply across the region by optimising the operation of the Grid and dispatch of various sources. In times of drought, we change the way water is sourced to provide water security. We also supply water to 16 stand-alone communities who are not connected to the Water Grid.

We plan for future water supplies and drought response and this plan, the South East Queensland Water Security Program, was most recently updated in March 2017. We develop this plan to meet the water security Levels of Service (LOS) objectives set for us by Government. A single LOS applies for the whole SEQ region, and we manage our assets and design drought responses accordingly.

Some of our dams – Wivenhoe, Somerset and North Pine – enable us to store and control the release of flood water to reduce the impacts on people and property downstream. We also provide public access to our dams for recreation, which is highly valued by the SEQ community. Providing this access requires us to maintain public facilities such as car parks, picnic grounds and tables, barbecues, lavatories and boat ramps.

Seqwater major assets

Legend

- Northern Pipeline Interconnector
- Western Corridor Recycled Water Scheme
- Southern Regional Water Pipeline
- Eastern Pipeline Interconnector
- Network Integration Pipeline
- Other bulk water pipelines connecting the SEQ water grid
- Local government boundary
- Reservoirs
- Water Treatment Plants (WTP) – connected to grid
- Water Treatment Plants (WTP) – off-grid
- Water Treatment Plants (WTP) – other
- Western Corridor Recycled Water Scheme
- Desalination plant

Water Treatment Plants (WTP)

1 Amity Point WTP
2 Atkinson Dam WTP
3 Banksia Beach WTP
4 Beaudesert WTP
5 Boonah Kalbar WTP
6 Borumba Dam WTP
7 Canungra WTP
8 Capalaba WTP
9 Dayboro WTP
10 Dunwich WTP
11 East Bank (Mt Crosby) WTP
12 Enoggera WTP
13 Esk WTP
14 Ewen Maddock WTP
15 Hinze Dam WTP
16 Image Flat WTP
17 Jimna WTP
18 Kenilworth WTP
19 Kilcoy WTP
20 Kirkleagh WTP
21 Kooralbyn WTP
22 Landers Shute WTP
23 Linville WTP
24 Lowood WTP
25 Maroon Dam WTP
26 Molendinar WTP
27 Moogerah Dam WTP
28 Mudgeeraba WTP
29 Noosa WTP
30 North Pine WTP
31 North Stradbroke Island WTP
32 Petrie WTP
33 Point Lookout WTP
34 Rathdowney WTP
35 Somerset Dam (Township) WTP
36 West Bank (Mt Crosby) WTP
37 Wivenhoe Dam WTP

Western Corridor Recycled Water Scheme

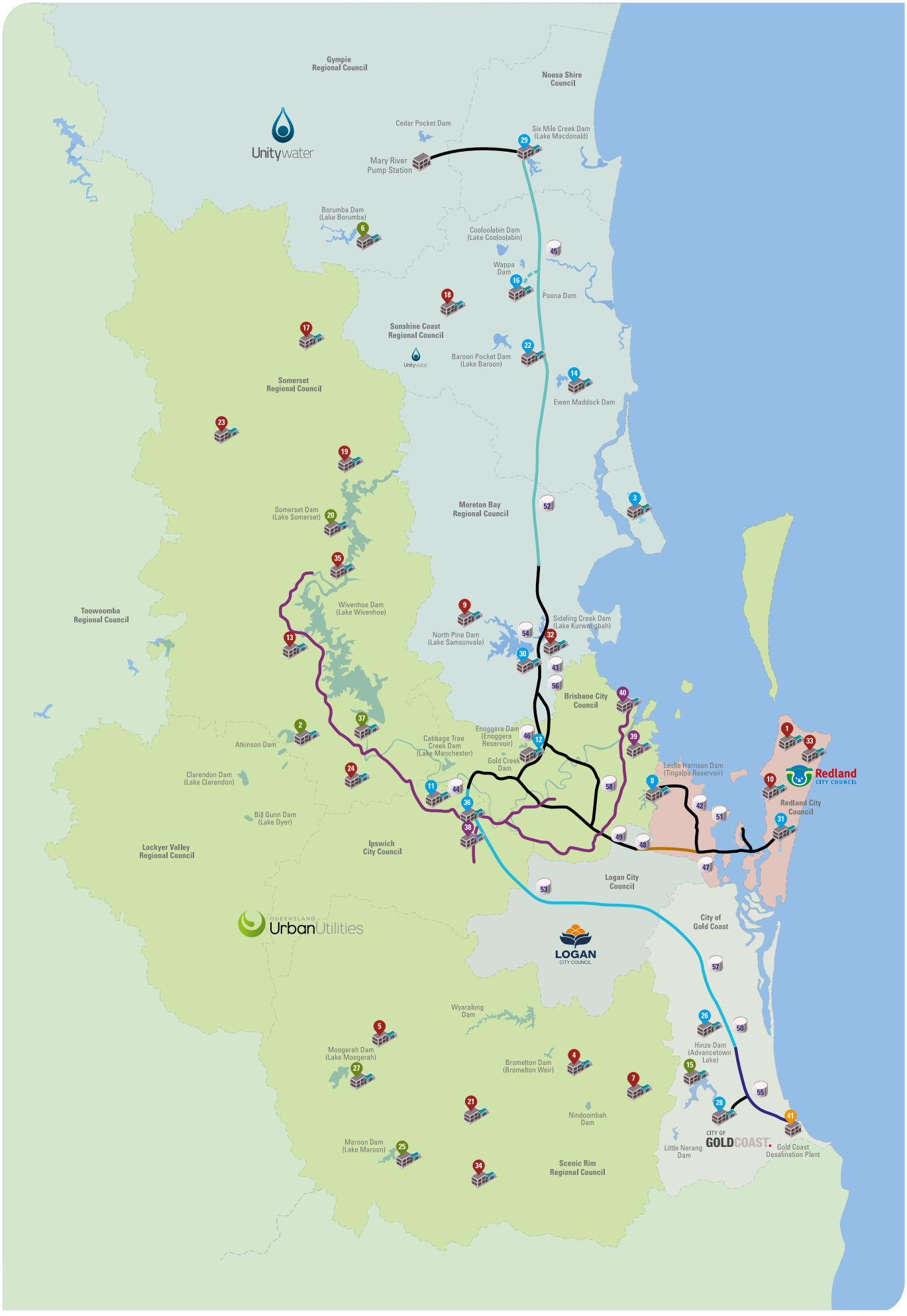
38 Bundamba Advanced Water Treatment Plant (AWTP)
39 Gibson Island AWTP
40 Luggage Point AWTP

Desalination Plant

41 Gold Coast Desalination Plant

Reservoirs

42 Alexandra Hills Reservoirs
43 Aspley Reservoir
44 Camerons Hill Reservoir
45 Ferntree Reservoir
46 Green Hill Reservoirs
47 Heinemann Road Reservoirs
48 Kimberley Park Reservoirs
49 Kuraby Reservoir
50 Molendinar Reservoir
51 Mt Cotton Reservoir
52 Narangba Reservoirs
53 North Beaudesert Reservoirs
54 North Pine Reservoirs
55 Robina Reservoir
56 Sparkes Hill Reservoirs
57 Stapylton Reservoir
58 Wellers Hill Reservoirs


Gympie Regional Council
Noosa Shire Council
Unitywater
Cedar Pocket Dam
Six Mile Creek Dam (Lake Macdonald)
Mary River Pump Station
Borumba Dam (Lake Borumba)
Cooloolabin Dam (Lake Cooloolabin)
Wappa Dam
Poona Dam
Sunshine Coast Regional Council
Baroon Pocket Dam (Lake Baroon)
Ewen Maddock Dam
Somerset Regional Council
Somerset Dam (Lake Somerset)
Moreton Bay Regional Council
Wivenhoe Dam (Lake Wivenhoe)
Toowoomba Regional Council
North Pine Dam (Lake Samsonvale)
Sideling Creek Dam (Lake Kurwongbah)
Brisbane City Council
Enoggera Dam (Enoggera Reservoir)
Cabbage Tree Creek Dam (Lake Manchester)
Gold Creek Dam
Atkinson Dam
Clarendon Dam (Lake Clarendon)
Leslie Harrison Dam (Tingalpa Reservoir)
Redland City Council
Bill Gunn Dam (Lake Dyer)
Lockyer Valley Regional Council
Ipswich City Council
Logan City Council
City of Gold Coast
Queensland Urban Utilities
LOGAN CITY COUNCIL
Wyaralong Dam
Moogerah Dam (Lake Moogerah)
Bromelton Dam (Bromelton Weir)
Hinze Dam (Advancetown Lake)
Nindooinbah Dam
Little Nerang Dam
CITY OF GOLD COAST
Gold Coast Desalination Plant
Maroon Dam (Lake Maroon)
Scenic Rim Regional Council

Regulation of our prices for providing bulk water services

Like many other bulk water providers in Australia, an independent body—operating within guidance provided by the Queensland Government— investigates and recommends the prices to be charged for providing these services. In our case, it is the QCA.

Bulk water prices have been set until 30 June, 2018. The Treasurer has directed the QCA to review and recommend bulk water prices to apply from 1 July, 2018 to 30 June, 2021, and to prepare a draft report by 30 November, 2017 and a final report by 31 March, 2018.

This means that we must provide a regulatory proposal to the QCA setting out the services we will offer and the associated expenditure to provide those services.

The Referral Notice requires QCA to consider and make recommendations which allow Seqwater sufficient revenue to recover prudent and efficient costs incurred from providing bulk water services and to repay Price Path Debt by 2027-28. Bulk water costs include, but are not limited to:

- prudent and efficient capital and operating expenditure;
- a return on assets (including working capital)
- an allowance for tax (where applicable);
- interest on Price Path Debt;
- depreciation;
- any costs detailed in Seqwater's bulk water supply agreements; and
- additional prudent and efficient operating and capital costs arising from Review Events.

Bulk Water Price Path

The bulk water price path is a key State Government policy which guides the setting of the prices we can charge our customers.

The price path began in 2008 and runs for 20 years until 2028. Prices were initially set below cost, and the under-recovery that resulted is called Price Path Debt. Price path debt is expected to peak in 2018-19, at around $2.49B, and is to be fully recovered by 2027-28.

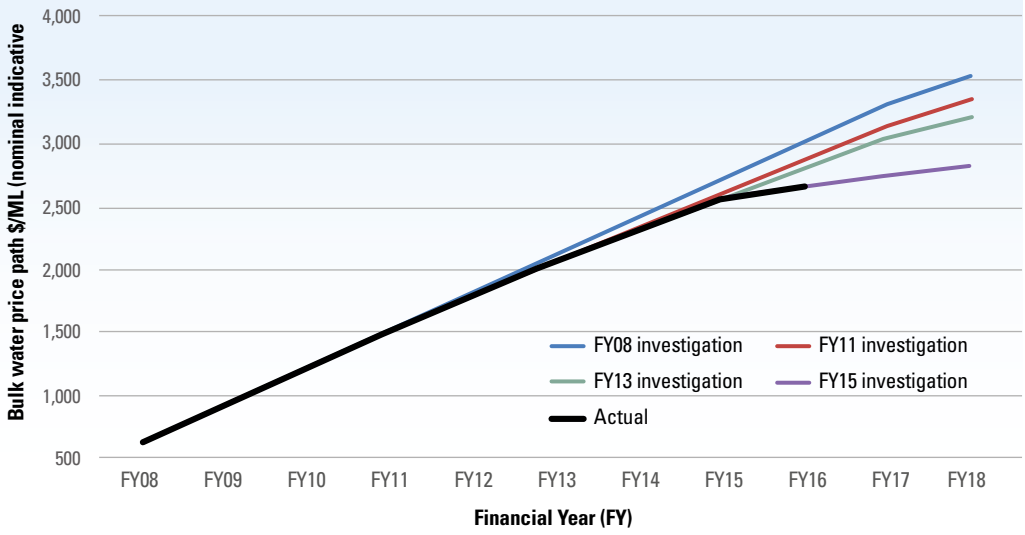
South East Queensland's local government areas historically paid different bulk water prices before the development of the Water Grid. The common infrastructure of the Water Grid means that the price path is converging those historically different prices into a common bulk water price. When all local government areas have reached a common price, the bulk water price is to be held constant, in real terms, to the end of the price path in 2028.

Although the bulk water price path has meant that prices have had to increase since 2008, we have been able to keep reducing the level of price increases by lowering our costs.

The graph below shows the final bulk water price, to which all prices are being transitioned (the common price), has reduced significantly since prices were first set in 2008. In the 2015 Review, the common price reduced by 12%.

The price path for the Brisbane council area is used for illustration.

Figure 2: Brisbane Bulk Water Price ($/ML nominal) FY08 - FY18



2 The graph depicts the trend of forecast and actual bulk water prices for the Brisbane local government area over 2007-08 to 2017-18 (in nominal dollars, assuming inflation of 2.5%). The most significant decrease occurred in the latest price path review (the 2015 Review), which set prices to 30 June, 2018. At this review, the common price reduced by around 12%, from $3,297/ML to $2,887/ML, which was the result of our reduced costs and expectations about increases in demand.

2. Our services and regulatory obligations

Key Points

- We have developed our expenditure proposals so we continue to meet the long-term needs of our customers and the water consumers of SEQ.
- Our bulk water services are set in statutory instruments such as the Bulk Water Code and bulk water supply agreements.
- Our service obligations mainly relate to meeting public health standards for drinking water quality, and long-term supply security targets set for us by Government.
- We have other regulatory obligations relating to the safety and operation of our assets.
- We also provide recreation services and some of our dams serve a flood-mitigation function. These costs are recovered in bulk water prices in accordance with Government policy.
- The costs of unregulated services, such as hydro-electricity generation, and services to water entitlement owners, such as irrigators, have been excluded from bulk water costs and prices.

Bulk water service obligations

We provide bulk water that has been treated to drinking water quality standards to our five customers at bulk connection points across SEQ.

In providing these services we must comply with a range of obligations.

The Bulk Water Supply Code[3] (the Code) regulates the services such as the supply of water between us and our customers. We must comply with the Code, which focusses on operational matters including:

- establishing Operating Protocols with our customers that govern requirements such as minimum storage levels in reservoirs, flow rates and pressure at connection points and notification requirements
- prepare and publish a Customer Confidence Report setting out our performance against drinking water quality standards
- metering obligations and standards
- provision of water consumption data
- emergency planning that coordinates responses across the water supply chain, including our customers' distribution networks.

We also have a contract with each of our customers determined by the Minister for Energy and Water Supply.[4] The contract requires us to use our best endeavours to supply to our customers at each bulk water supply point such volume of potable water as is necessary to meet the customer's demand.[5]

The contract defines the quality standards for drinking water. This details some specific quality parameters for each customer, while also requiring us to comply with the Australian Drinking Water Guidelines (ADWG). The ADWG sets minimum guideline values for drinking water quality at the bulk water supply point and also sets out the practices for managing water quality risks, such as a multi-barrier approach which includes catchment management and source protection.[6]

Outside of the contract, our obligations for drinking water quality are also regulated with respect to fluoride and e.coli levels specifically[7], and more broadly through compliance with an approved Drinking Water Quality Management Plan.

The *Water Act 2000* enables the creation of desired Level of Service (LOS) objectives for SEQ. The LOS objectives are the standards against which the region's long term water supply security is to be planned.

Other Services

Our assets that are used for bulk water supply also provide other important services to the community, including recreation at various dams and flood mitigation at Wivenhoe, Somerset and North Pine dams.

We manage more than 50% of the open space in SEQ outside of National Parks. More than 2.6 million people visited Seqwater recreation sites over 2016-17, which represents an increase of almost 300,000 visitors a year over the past four years. This highlights the extent to which our highly valued recreation services enhance the livelihoods of the people living and working in the region.

We have undertaken extensive planning at our recreation sites in recent years to improve how we provide facilities and use partnerships to deliver services wherever possible (refer Box 1).

3 Bulk Water Supply Code, 1 January, 2013, as made under S360M of the Water Act 2000.

4 Refer to S360G of the *Water Act 2000*.

5 The obligation in relation to water quantity is to meet each customer's forecasts under the Code and contract.

6 Our bulk water supply agreements with Stanwell Corporation and Toowoomba Regional Council are for raw water, not drinking water.

7 For example, under the *Public Health Act 2005*.

Box 1: Recreation planning and delivery

We currently spend around $5M to $6M on operating and managing recreation facilities. We are not proposing any significant increases to expenditure, however we expect that demand for recreation will put pressure on our expenditure into the future. These services are largely enjoyed by residents in SEQ, and the costs are recovered in bulk water prices.[8]

Between 2012 and 2014 we undertook the largest ever review of recreation across SEQ's dams and surrounding catchments. This review involved 20 of our lakes which offer recreation and we sought feedback from recreation users and the broader community across the region. From 2013-14, in partnership with the then Queensland Department National Parks, Sport and Racing, we began to implement the recommendations of the review.

Key projects that we have been able to deliver for the community include the re-opening of Billies Bay and Hays Landing that is a new major recreation facility at Wivenhoe Dam, new boat ramps, and new multi-use trials and picnic facilities across the region.

We have partnered with the Queensland Parks and Wildlife Service (QPWS) to deliver access to Enoggera dam (Walkabout Creek Visitor Centre and facilities) through a unique lease agreement which has enabled us to share the use of both Seqwater land and water based activities. We are currently in the process of negotiating a similar access agreement for a walking track to be built at North Stradbroke Island's Blue Lake. We have also delivered an agreement with QPWS at Ewen Maddock Dam which enables mountain bike riders to use our car park to access the new mountain bike trails.

Some of our dams also service water entitlements held by customers, such as irrigators, commercial users and local governments outside of SEQ. The expenditure associated with this activity has been excluded from our revenue allowance and is recovered through contracts with those customers and supplemented by a Community Service Obligation payment with Government.

We also have installed hydro-electricity generation at Wivenhoe, Somerset and Hinze dams, which we treat as unregulated services. We invest in and operate these assets as a separate commercial venture, and exclude the costs from bulk water prices.

8 In accordance with the Referral Notice.

Key regulatory obligations

In order to provide our services, we need to comply with a wide range of legislative and regulatory requirements. These include:

- Dam Safety: we need to make sure our dams do not pose unacceptable risks to downstream communities. This can require capital and operating expenditure to improve the structures and/or changes to the way we store and release water .
- Flood operations and notifications: our major incident and emergency services work to reduce the severity of flooding.
- Water entitlements and resource management: we must manage the water entitlements from our dams to meet the requirements under the water planning framework and we must also store and release water in accordance with these requirements, and regularly report our performance.
- Development conditions: many of our newer assets have significant development conditions attached which must be complied with. These include environmental monitoring, fish passage, vegetation offsets and provision of recreation services.
- Noxious weeds and pests: we are one of the largest landholders in SEQ, and must meet our obligations for controlling noxious weeds and pests on this land.
- Environmental obligations and licensing: we have extensive obligations to ensure our activities do not do harm to the environment.

3. Past performance and future challenges

Key Points

- We have implemented cost saving measures which have exceeded the efficiency targets set by the QCA in the 2015 Review, and the cost saving opportunities have now been fully captured.
- Our actual fixed operating expenditure over the 2015 Regulatory Period has been 8% less than the efficient target set in 2015.
- Despite recent increases in electricity prices, we have managed to keep our variable operating expenditure 5% below the 2015 target on a $/ML basis. Total variable costs have been 11% lower than the allowance set in 2015 when we factor in lower than expected demand.
- Capital expenditure over the period has been 30% less than the program set in the 2015 Review. This has mainly been due to taking time to conduct the required planning work to select the best solution, implemented at the right time.
- We have made significant improvements in asset management and grid network optimisation, among other achievements.
- Actual revenue over the 2015 Regulatory Period has been 6% less than forecast due to lower than expected water sales. This has contributed to the Price Path Debt balance being around $331M or 15% higher than expected in 2015.
- We face a number of challenges and opportunities, including ensuring we can maintain supply amidst extreme weather events, improving the health of our catchments to reduce risks to drinking water, engaging with the community on long-term capital and planning projects and increasing collaboration to improve effectiveness and reduce costs to customers.
- Demand uncertainty presents a particular challenge. We have updated our demand forecasts from the 2015 Review, which assumed demand would increase to 185 L/p/d by 2018. However demand is currently around 169 L/p/d. Our updated forecast assumes that the increase in per capita consumption to 185 L/p/d does not occur until nearly the end of the remaining 10 years of the price path.

3. Past performance and future challenges

Performance over the 2015 Regulatory Period

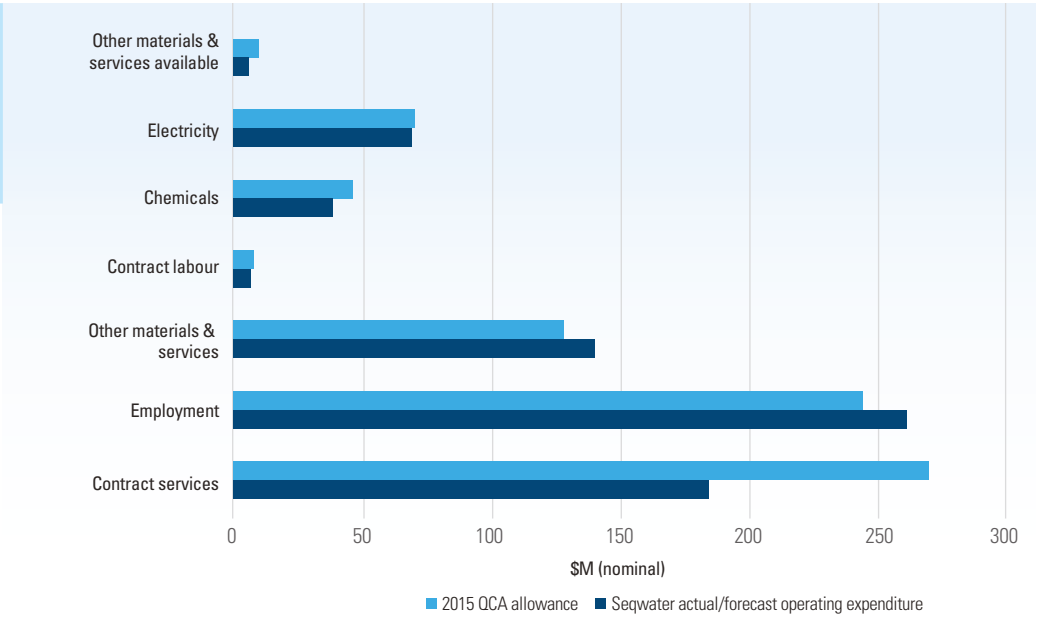
Operating expenditure

For the 2015 Regulatory Period, QCA set significant savings to our operating costs of $50M across the three years. We have exceeded these cost savings targets by a further $67M ($56M in fixed costs and $11M in variable costs), which is a direct result of our focus in reducing costs and pursuing efficiencies over the 2015 Regulatory Period.

This work has involved a critical review of budgets and expenditure, as well as implementing cost-saving strategies such as reducing contractor costs through greater insourcing, optimising our maintenance and reducing our water treatment costs through process improvements. We have now fully captured all cost saving opportunities.

Figure 3 below shows how we performed against each of the cost categories examined in the 2015 Review. Part B of our submission provides more detailed analysis.

Figure 3: Operating cost performance 2015 cost category 2015-16 to 2018-19 ($M)



Note: 2016-17 are mid-year estimates and 2017-18 is based on the budget

Reducing our fixed operating expenditure

Fixed operating expenditure is incurred regardless of the volume of water produced and delivered to customers.

Over the 2015 Regulatory Period, our fixed operating expenditure was around $56M or 8% lower than the efficient target set in 2015 (refer below).

Table 1: Fixed operating costs over the 2015 Regulatory Period ($M)

	2015-16	2016-17	2017-18	TOTAL
QCA Target	218	224	224	**666**
Actual costs	199	200	212	**610**
Difference (%)	**-9%**	**-11%**	**-5%**	**-8%**

A large part of these savings are in contract services. Most of these savings have been achieved through restructuring our business, optimising our engagement of contractors and in some cases, in-sourcing work previously outsourced.

Managing our variable costs

Despite significant increases in electricity costs, we have achieved offsetting savings in chemicals and sludge costs and also developed strategies to optimise variable costs across the Water Grid. This means that the average cost per ML of water produced is 5% lower than the 2015 Review. This data includes favourable assumptions about our electricity prices for 2017-18, and we now expect significantly higher prices than budgeted for this year.

Notwithstanding these expectations for higher electricity prices, lower than expected demand, combined with the cost savings, has meant total variable costs are currently budgeted to be around $12M or 11% less than expected at the 2015 Review. The tables below provide a summary.

Table 2: Variable operating costs 2015 Regulatory Period ($M)

	2015-16	2016-17	2017-18	TOTAL
2015 QCA Target	34	36	38	109
Actual costs	29	33	35	97
Difference (%)	**-16%**	**-9%**	**-8%**	**-11%**

Table 3: Total Variable Operating Costs – $/ML comparison

	2015-16	2016-17	2017-18	TOTAL
2015 Forecast	111	113	115	338
Actual / Expected	98	107	116	321
Difference	**-12%**	**-5%**	**2%**	**-5%**

Table 4: Variable Operating Costs (by input) - % saving against 2015 Review ($/ML)

	2015-16	2016-17	2017-18	TOTAL
Electricity	-8%	11%	16%	6%
Chemicals	-9%	-10%	-9%	-10%
Sludge	-37%	-39%	-24%	-33%

Note: 2017-18 based on budget. Recent increases in electricity prices have not been factored in and could significantly increase costs in this year.

Capital expenditure

We expect to capitalise over $311M of projects over the three years to 30 June, 2018, which is less than the allowance set in the 2015 Review.

We consider this to be a positive result given the need to establish a new framework for capital planning and delivery following the merger. Indeed we have implemented a number of important improvements to our asset management, many of which have been in response to the QCA's recommendations from 2015.

We are also now better at budgeting and delivering the annual capital program. For example, we met the budgeted capital expenditure for 2016-17. While this is less than the QCA allowance, performance in this year demonstrates improvement in forecasting and delivery.

We have also taken additional time to ensure the best solution is adopted and implemented at the right time. While we do not defer or delay urgent works to meet an immediate risk or need, other projects have benefited from additional planning work to identify the best option and its timing.

For example we have:

- reviewed our renewals program and identified a number of opportunities to defer renewals expenditure without risk to service outcomes;
- refined our dam safety improvement program to further optimise for the best solution and timing; and
- re-scheduled some projects at specific sites so that several projects can be delivered together, reducing cost and operational impacts.

This has meant a number of key (but not-urgent) projects that were originally included in our capital program for the 2015 Regulatory Period are being completed over a slightly longer timeframe or are being started at a later date than was originally planned.

The comparisons of our capitalised expenditure forecasts against the QCA's allowance for the 2015 Regulatory Period are provided below.

Table 5: Capitalised expenditure forecast for the 2015 Regulatory Period ($M)

	2015-16	2016-17	2017-18	Total
QCA allowance	122.7	124.3	195.9	**442.8**
Seqwater capitalised expenditure	88.4	93.9	129.4	**311.7**
Variance between QCA allowance and Seqwater capitalised expenditure	-34.2	-30.4	-66.5	**-131.1**

Actual capital expenditure in 2014-15 was also less than that assumed at the 2015 Review. Part B of our submission sets out the capital program delivery over the 2015 Regulatory Period in more detail.

Improvements/enhancements to our asset management framework

We have made a number of improvements to our asset management, many of which were in response to recommendations arising from the QCA's 2015 Review.

For example, we have enhanced our capital planning and delivery policies and procedures by further progressing to a longer-term delivery focus and incorporated maintenance and non-capital options in asset management planning. Governance, corporate planning and procurement activities have continued to improve and mature as a result of better awareness of their requirements and by strengthening the linkages between the established key performance indicators and corporate priorities.

Part B of our submission provides more details on our asset management and capital planning improvements and approach.

Asset management benchmarking

We participated in the Asset Management Customer Value (AMCV) benchmarking project run by the Water Services Association Australia (WSAA) in 2016. The process was aligned to incorporate principles of ISO 55001:2014 and benchmarked our processes and activities against a holistic, total lifecycle view of asset management including organisational leadership, customer focus and value optimisation as well as more traditional asset management areas across seven functions.

The benchmarking found that improvements had been observed since the study had last been undertaken in 2012. The project also found that our performance had improved relative to the other participants taking place in the benchmarking and that in 2016 we were at or above the median for most functions.

Seqwater's asset planning approach was recognised as leading practice at the 2016 AMCV Leading Practice Conference for its Asset Portfolio Master Plan (APMP) which provides our long-term capital forecast for bulk water in SEQ.

Safety

Improving safety at our workplaces has been a significant focus over recent years, and will continue to be a focus into the future.

We have conducted a number of risk deep dives into our high risk activities and as a result implemented improvement initiatives including 'life saving controls'. The 'life saving controls' explain ten critical hazards that impact Seqwater operations and control measures that must be fully applied as a minimum standard for every employee, contractor and visitor. One example of an initiative implemented to improve safety for the high risk activity of excavation is detailed below.

Box 2. Improving safety for excavation activities

Between September 2015 and August 2016 on Seqwater controlled assets, 15 events were reported where mechanical excavation meant underground services had been struck and damaged (including gas, water, sewer, fibre optic, electricity, storm water and telecommunications). In response, we reviewed and improved our Excavation, Trenching and Penetration Procedure that resulted in the number of service strikes reducing from 15 over the 12 months to August 2016 to three minor incidents only over the nine months since September 2016.

The implementation of the changes to the Excavation, Trenching and Penetration Procedure has been effective and is monitored via multiple layers as described below:

- Business case scoping and development – identification and inclusion of vacuum excavation as mandatory requirement and appropriate costing allocated
- Tendering – clearly communicating with contractors the mandatory requirement to follow the Excavation, Trenching and Penetration Procedure and to ensure adequate costs are allowed for vacuum excavation
- Review of contractor safety documentation – contractors are required to submit Safety Management Plans and Safe Work Method Statements prior to mobilisation for review by Seqwater. The review ensures the requirements for excavation work planning are conducted and align with requirements of the Excavation, Trenching and Penetration Procedure.
- Prestart/kick off meeting – prior to work, an onsite meeting is held between all stakeholders (Seqwater employees and Contractors) to re-enforce mandatory requirements and provide an opportunity to clarify our requirements of the Excavation, Trenching and Penetration Procedure.
- Excavation, trenching and penetration permit hold point – as per the Excavation, Trenching and Penetration Procedure, no mechanical excavation can commence on a site without approval by an Seqwater representative which includes the review of all the mandatory investigative work.
- Assurance program – onsite monitoring of contractors' implementation of controls as per the Excavation, Trenching and Penetration Procedure is conducted by various teams within Seqwater including WHS advisors, project managers, construction managers and external auditors.

Water security planning

We published the most recent Water Security Program in March, 2017, following extensive community and customer consultation. The program can be found at http://www.seqwater.com.au/waterforlife.

This plan sets out the drought response strategy for the region, identifying the key triggers and actions to be taken as regional water storages reduce.

In preparing this plan, we consulted with our customers and the SEQ community (refer below).

Box 3: Water Security Plan Program Consultation

Investing in water infrastructure, particularly new sources of water, is an intergenerational decision - the costs, benefits and implications will be felt by generations to come.

Our research for the Water Security Program 2016-2046 has shown that, providing there are no significant changes to demand or supply in the interim, a new water source is likely to be needed in the region's north by 2040.

This timeframe has provided an ideal opportunity to engage with communities about the region's water future, including explaining the need for new water sources, gathering feedback on values towards water and starting the conversation about the options available.

In developing a new water supply source, it is critical that the right decision is made at the right time. Changes in technology and community attitudes over time mean that plans for the future need to be adaptive - what may seem like the right water solution now may not be the right solution in the future.

Involving the community in these early stages of planning helps to initiate a deeper level of engagement closer to when the decision is needed. Our community engagement is based on the principles of public participation and community views and values are placed at the heart of the decision making process, not at the periphery. This means not simply asking the public to participate at the end of the planning and modelling but embedding community values in the planning process itself, in a way that can be updated and adapted over time. The decision to take this participatory approach is embedded in our strategic commitment to fostering knowledgeable and engaged communities.

Under the *Water Act 2000*, South East Queensland's Water Security Program needs to be revised at least every five years, providing us with the opportunity to engage with our communities over the long term using a phased approach.

Our 'Water for Life' community engagement explored the community's views and values about water and developed weighted criteria to score options for the Water Security Program 2016-2046. This engagement included community forums, quantitative surveys, online tools and face-to-face events. We sought a broad range of views to inform planning so both the forums and survey research used statistically valid samples that were demographically representative.

Issues relating to decisions about investment in water infrastructure are complex. Forum participants explored these complexities via a mix of table discussions, presentations and films, as well as feedback and voting sessions. From the results gathered, it is clear that more information about the decision-making process, including the criteria, makes a difference to community priorities.

The iterative nature of the Water Security Program provides an opportunity to engage communities over the long term to help determine the right water future for South East Queensland.

Lower than expected water demand and revenue

Water demand is inherently uncertain and in the 2015 Review we proposed a long-term demand forecast equal to the 'medium'[9] demand forecast outlined in our first Water Security Program. This forecast assumed residential demand would increase to185 litres / person / day (L/p/d) by 2017-18.

However, average residential consumption is around 169 L/p/d and the expected increase to around 185 L/p/d has not yet occurred.

Overall, actual demand has been around 6% less than expected when the forecasts were developed for the 2015 Review.

Table 6: Bulk water demand over 2015 Regulatory Period (GL)

	2015-16	2016-17	2017-18	TOTAL
2015 forecast	309	322	335	**966**
Actual demand	295	308	303	**906**
Difference	**-5%**	**-4%**	**-10%**	**-6%**

Note: 2016-17 is an estimate as available at the time of submission, and will be updated, pending final end of year readings. The 2017-18 demand is our budget estimate for that year.

This has led to an expected revenue shortfall of around $163M over the 2015 Regulatory Period.

Actual demand in 2016-17 is still being finalised at the time of making this submission. Demand in this year was higher than past years, largely due to very dry conditions over summer. Even with these unusual climatic conditions, regional residential demand averaged around 173 L/p/d for that year, which is only around 2.5% above the average consumption observed in the latest Water Security Program of 169 L/p/d. In any case, demand is well below the 2015 expectations for 185 L/p/d by 2017-18.

Price Path Debt

The Referral Notice provides for an update to Price Path Debt balance at 1 July 2018 to adjust for a number of factors, including demand and capital expenditure, as well as interest on the Price Path Debt balance. The net impact of lower demand, lower interest rates and adjustments to the Regulatory Asset Base (RAB) and the revenue allowance is an increase to the forecast of Price Path Debt of around $331M, or around 14% to $2.49B at 1 July 2018.[10] This is a forecast based on estimated values for 2016-17 and will be updated for the QCA once 2016-17 actual data is finalised. Revenue for 2017-18 is based on our budget but actual revenue will not be known at the time of the QCA's final report in March 2018. Therefore, we suggest that Price Path Debt is updated with the final values for 2017-18 at the next review in 2021, as has occurred for 2014-15 in this review.

The detailed calculation for our estimate of the Price Path Debt balance is provided in Part B.

9 Referred to as the 'most likely' demand series in that document.

10 This balance does not include end-of-period adjustments for Review Events. As set out later in this submission we will provide supplementary information about these costs once they have been finalised.

Opportunities

We foresee a number of opportunities to continue to deliver services at least-cost for our customers over the coming years.

Optimising the Water Grid

We developed and refined how we operate the Water Grid and established the 'least cost' mode of operations to meet current demands. This work is contained in our Annual Operating Strategy (AOS), which has been recognised nationally as leading practice (refer Box 4 below).

This optimisation resulted in some high-cost water treatment plants being placed in care and maintenance mode, with their production replaced with lower-cost sources. These plants will be called upon again when drought conditions emerge. Future versions of the AOS will be developed in consultation with our customers and will consider the costs across the whole supply chain.

Box 4. Annual Operating Strategy (AOS)

The AOS describes how we intend to meet water demands for the coming 12 months, having regard to an appropriate balance between security and cost efficiency outcomes. The essence of this strategy is that while key bulk storage levels are high, the system operation is optimised on cost alone, with production volumes maximised from treatment plants with the lowest cost per volume. The strategy specifies bulk storage levels that trigger a change to a higher cost mode of operation for the purpose of water security.

This AOS was acknowledged as being leading practice in strategic planning and demand forecasting in the in the 2016 Asset Management Customer Value Project (AMCV) which was run by WSAA. We were asked to present the AOS to a Leading Practices Conference held by WSAA in late 2016.

Increasing collaboration

We intend to build upon the collaborations with our customers to deliver least-cost services to water consumers and to better manage risk across the supply chain. For example, we are working with customers to develop a regional disinfection strategy, addressing some of the legacy problems associated with having a mixture of disinfection technologies across the grid. While still in the planning phase, we expect there will be capital expenditure required over the next regulatory period to optimise disinfection across the Grid.[11]

We are also looking to build our collaboration with local partners to help us deliver works and meet outcomes. This includes partnerships with landholders and community groups to deliver catchment improvements, using a shared-funding model which has been recognised through industry awards (refer Box 5 below).

The benefits of this collaboration are reflected in our expenditure forecasts for this work.

11 The capital expenditure arising from these studies is in our capital program as the project has not yet reached the gateway required for inclusion in the program. This is not to say the necessary investments won't be carried out or included into future asset investment programs.

Box 5: Baroon Pocket Catchment Management

We have identified catchment-based risks to the quality of raw water supplied from Baroon Pocket Dam to the Landers Shute Water Treatment Plant. The primary raw water quality hazards are potentially pathogenic microorganisms arising from intensive agriculture and peri-urban/rural residential areas, and turbidity generated from landslides with connectivity to waterways.

In order to address these catchment-based risks, we maintain a partnership agreement with the Lake Baroon Catchment Care Group (LBCCG). Under a Partnership Agreement, we identified and prioritised the water quality risks and provided funding for LBCCG to deliver on-ground projects, as well as community education and engagement to help mitigate the risks.

Projects delivered by LBCCG under this agreement provide Seqwater with a gateway to key landholders, properties and the broader community that would not otherwise exist. Perhaps of most significance is the leverage that the investment by Seqwater enables, with the LBCCG able to draw in funds from other sources to value-add to water quality improvement projects.

Due to its successes and achievements, the relationship has become a model framework for implementation of other community-based catchment programs, with the water quality improvement program delivered via this partnership agreement winning the Community Rural and Agriculture Award in the annual Health Waterways Awards in 2015.

Research and innovation

Extensive shifts in climate, environmental degradation in catchments, changing policy and regulatory settings, population growth and technological breakthroughs could all singularly or together have significant impacts on regional water security.

In response, we undertake an ongoing research program to improve our knowledge and develop innovative solutions to emerging problems. (Box 6 provides a recent example).

Box 6: Research leading to cost savings

Seqwater commissioned researchers at the University of Queensland to undertake a detailed analysis of potential impacts on dissolved oxygen levels from inundated vegetation at Hinze Dam in late 2009.

The Hinze Dam Stage 3 Project to raise the dam wall required several hundred hectares of vegetation clearance to minimise water quality impacts. The cost to clear the vegetation was significant due to the limited accessibility of the site. Research determined that the risks to water quality from inundating vegetation were much less than previously modelled. The researchers were able to recommend that vegetation should only be removed where easily accessible and to reduce physical risks to boating. These findings greatly reduced the original estimate of vegetation clearing significantly, resulting in a saving of $3M.

From 2009 to 2013, research was undertaken with UQ to develop passive water samplers for the monitoring of toxic micro-pollutants in reservoirs. Research focussed on developing and testing the samplers in Seqwater storages and targeting chemicals of concern such as pesticides. The successful development of the sampling technique led to Seqwater adopting passive samplers as part of the routine monitoring program in 2014. This led to a reduction in monitoring costs and access to better contaminant occurrence data to inform risk assessment. Since 2014, Seqwater saves $100K per year on monitoring costs due to the implementation of these research outcomes.

In 2012, Seqwater worked with Griffith University to develop an autonomous data driven tool to predict manganese concentrations in raw water to reduce monitoring costs and improve operational efficiency in water treatment processes. The tool utilised computational techniques and water quality data from vertical profiler systems to predict water concentrations in both Hinze and Little Nerang Dams. The success of this project has led to ongoing savings in monitoring costs at both storages, increasing from $40K per year from 2014 to 2016 to $150K per year from 2017.

To allow us to best manage future uncertainty and plan effectively, we have invested $7 million in a research program over the past several years in partnership with Griffith University, the University of Queensland and other research providers. Research outcomes have informed and improved risk assessment processes, guided investments in improving catchment condition and water treatment processes and ensured that we cost effectively protect environmental health and meet regulatory requirements. As indicated above, research projects can and have delivered direct and quantifiable cost savings.

We intend to continue this important research work, with ongoing research costs included in our operating cost forecasts. The benefits, which include cost savings and improvements to risk management, will emerge over time.

Challenges

We foresee a number of challenges that could shape how we deliver services and invest in assets into the future. Many of these challenges arise from our unpredictable climate. The key items are set out below.

Flood events and supply continuity

Over recent years there have been a number of flood events that have threatened the continuity of water supply to SEQ. These threats emerge in a number of ways, including massive spikes in the sediment load of source water, which can significantly limit the capacity at treatment plants, restricting physical access to site for the delivery of chemicals and other inputs, and inundation of our pumping and treatment assets by flood waters.

We are taking steps to manage these risks, but some of the solutions will take time and careful planning to make sure the most cost-effective option is adopted. Our capital expenditure forecast includes provision for a number of likely investments.

Responding to drought

Droughts are unpredictable and we have to adapt to each drought as it unfolds. Our response must be proportionate to a drought's severity and duration, as well as factors such as changing water use behavior, population, infrastructure and technology. We must plan our operational strategies and identify triggers for action or review in advance of a drought so there is optimal management of our resources when drought does occur.

The Water Security Program sets out the plan for responding to droughts. These responses include:

- transitioning from how we operate the Water Grid from 'least cost' mode into 'drought response' mode. This means we might have to deploy higher cost sources in order to preserve water and make the best use of what is available.
- initiating public awareness and education activities on water efficiency and water saving tips when key bulk water storages reach 70%.
- augmenting supply by, for example, increasing production at the Gold Coast Desalination Plant and preparing to use the Western Corridor Recycled Water Scheme.
- reducing demand through various programs and, if required, water restrictions.

We have identified a number of short and long-term actions so that we can implement the drought responses in the Program and adapt to the next major drought as it develops. The preparatory work is occurring in 2017-18. However, if drought triggers are activated there will be significant additional costs to secure supplies for the region. Such costs are not included in our forecasts due the uncertainty of drought triggers being reached, but we expect they will be recoverable if and when they arise (refer Section 6).

Community engagement

The Water Security Program has been developed with extensive community engagement. Our forecasts include provision for this ongoing community education and engagement to support implementation of the program.

Ensuring the safety of our dams

Dams are long-life assets and require continual assessment, monitoring and maintenance. In Queensland, dam owners are responsible for the safety of their dams under the *Water Supply (Safety and Reliability) Act 2008* (the Act) and all 26 of our referable dams are regulated under the Act.

The Department of Energy and Water Supply (DEWS) requires Seqwater to comply with the *Queensland Dam Safety Management Guidelines* which have been established under the Act. As with all dam operators across the country, we also seek to meet the national guidelines set by the Australian National Committee on Large Dams (ANCOLD).

In response, we have developed a dam safety improvement program to meet the current Queensland dam safety guidelines and to also reflect the latest engineering standards.

Improving catchment health

Urbanisation and other development in our catchments presents an ever-increasing challenge as we apply a multi-barrier approach to managing drinking water quality.

In response, we are preparing long-term catchment plans to target investment and other actions to reduce risks to drinking water quality. Implementation of these plans requires a long-term approach and will involve some direct investment in catchment improvements in partnership with the relevant landholders. These costs are included in our capital expenditure forecasts.

Demand uncertainty and our updated forecast

As indicated earlier in this section, lower-than-forecast demand has led to an expected revenue shortfall of around $163M, which has been added to the forecast 2017-18 Price Path Debt balance.

This 2015 demand forecast was set at the 'medium'[12] demand forecast developed for the first Water Security Program, and assumed that residential demand would reach 185 L/p/d over the 2015 Regulatory Period.

The Referral Notice for the 2018 Review states that the forecast demand is to be provided by Seqwater, and the QCA is to ensure that the forecasts are within the range (high-low) published in the Water Security Program.

The 'low' series assumed a continuation of residential demand of 169 L/p/d, and lower-end projections for population growth as provided by the Queensland Government's Statistician's Office. Non-residential demand was assumed to continue at 89 L/p/d.

The 'high' series assumed that residential demand grows to 200 L/p/d by 2020-21, accompanied by the upper-range of population growth forecasts. Non-residential demand was assumed to increase to 100 L/p/d and continue at that level thereafter.

The medium forecast assumed increases to residential water demand to 185 L/p/d by 2020-21, and the medium series population growth forecast. Non-residential demand was forecast to reach 100 L/p/d by 2020-21 and continue at that level thereafter.

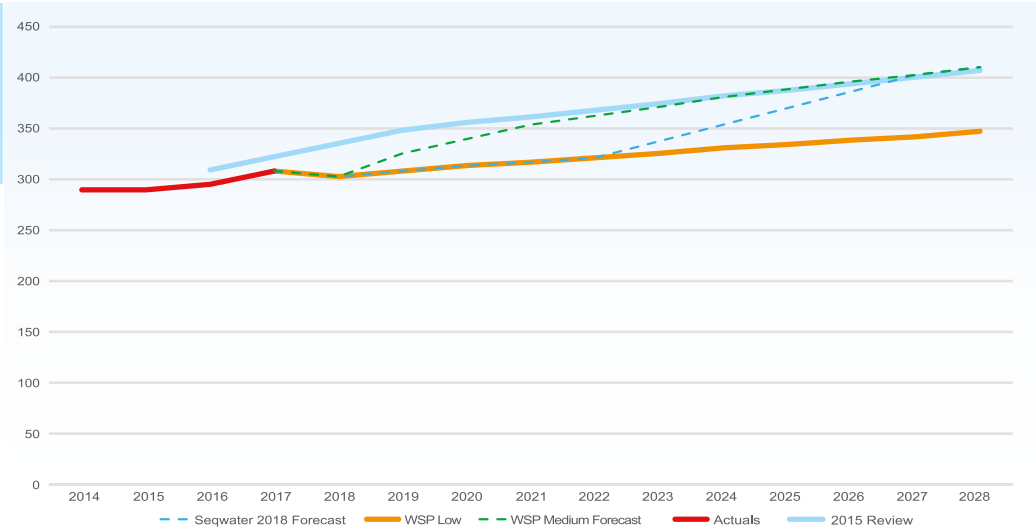
Demand has not reached 185 L/p/d, as anticipated in the 2015 Review, and is currently closer to 169 L/p/d as per the 'low' series.

Therefore for this 2018 Review we have adopted a hybrid demand forecast that commences with demand at the low forecast and continues to 2021-22, and then transitions to the medium forecast level of demand (185 L/p/d) in 2026-27. This approach recognises that current demand is less than previously anticipated, and allows a longer timeframe for demand to reach 185 L/p/d.

The starting point for this forecast is 307GL in 2018-19, which is similar to the actual demand in 2016-17 of around 308GL. As indicated earlier in this section, demand in this year was affected by very dry conditions and is therefore much higher than previous years.

Our forecast of demand to be used for price setting purposes is set out in Figure 4, and is within the bounds set by the Notice.

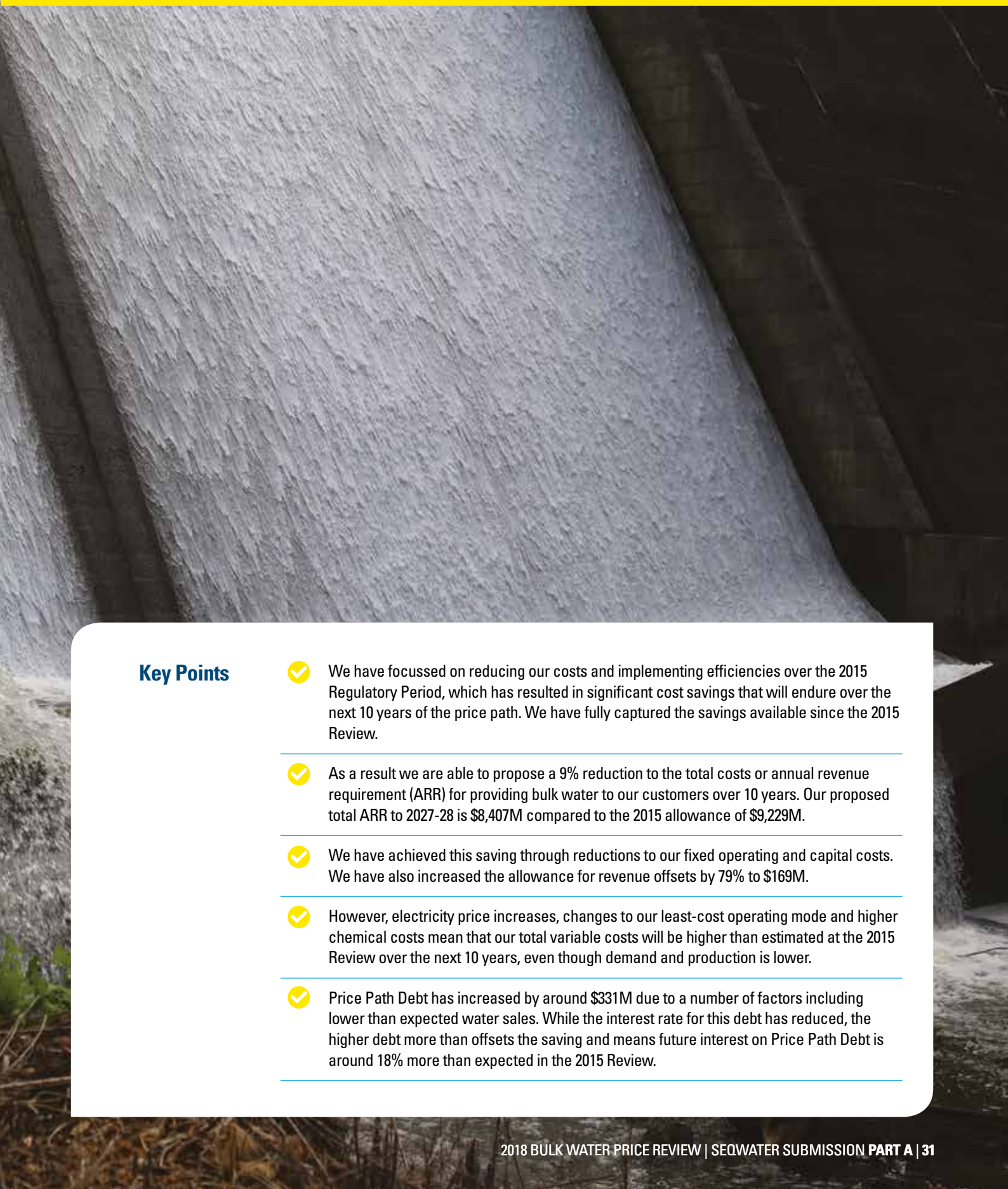
Figure 4: Demand (actual / forecast, GL)



Note: 2016-17 demand is based on an estimate, and will be updated once final meter reading data is available. The 2017-18 volume is our budget estimate for that year.

12 Referred to as the 'most likely' series in that document.

4. Annual Revenue Requirement and Price Path Debt



Key Points

- We have focussed on reducing our costs and implementing efficiencies over the 2015 Regulatory Period, which has resulted in significant cost savings that will endure over the next 10 years of the price path. We have fully captured the savings available since the 2015 Review.
- As a result we are able to propose a 9% reduction to the total costs or annual revenue requirement (ARR) for providing bulk water to our customers over 10 years. Our proposed total ARR to 2027-28 is $8,407M compared to the 2015 allowance of $9,229M.
- We have achieved this saving through reductions to our fixed operating and capital costs. We have also increased the allowance for revenue offsets by 79% to $169M.
- However, electricity price increases, changes to our least-cost operating mode and higher chemical costs mean that our total variable costs will be higher than estimated at the 2015 Review over the next 10 years, even though demand and production is lower.
- Price Path Debt has increased by around $331M due to a number of factors including lower than expected water sales. While the interest rate for this debt has reduced, the higher debt more than offsets the saving and means future interest on Price Path Debt is around 18% more than expected in the 2015 Review.

4. Annual Revenue Requirement and Price Path Debt

The Referral Notice requires that prices are to recover bulk water costs, which are defined as including:

- prudent and efficient capital expenditure and operating expenditure
- a return on assets, including working capital
- an allowance for tax
- interest on Price Path Debt (with Price Path Debt to be repaid by 2027-28)
- depreciation
- any costs detailed in Seqwater's bulk water supply agreements
- additional prudent and efficient operating and capital costs arising from Review Events.

These bulk water costs can be grouped into two components as follows:

- an ARR derived using the conventional regulatory 'building blocks' approach - whose key components include a return on assets, depreciation, operating and maintenance costs and tax costs - and including operating and capital costs arising from Review Events; and
- recovery of Price Path Debt, which is the accumulated shortfall between actual revenue and the ARR since the price path started in 2008.

Together these bulk water revenue requirements represent the amount of revenue we need to provide bulk water services.

This section sets out our proposed ARR[13] which has been developed in accordance with our commitment to provide services at least cost. We also set out how Price Path Debt and interest will be recovered.

Annual Revenue Requirement

The ARR is built from the following "building blocks":

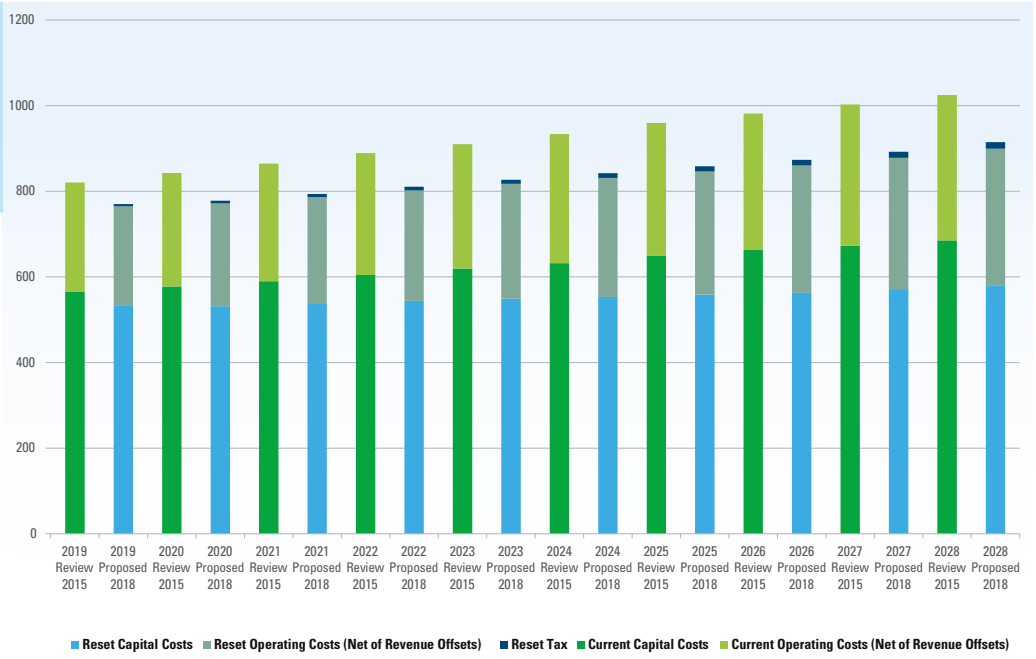
- a rate of return on our RAB, determined by applying a Weighted Average Cost of Capital (WACC)
- the return of the RAB, which is equivalent to depreciation
- our operating costs
- an allowance for income tax.

In the 2015 Review, the QCA forecast an ARR over 10 years to 2027-28 of $9,229M. We have reassessed the ARR over the 10 years based on our updated expenditure forecasts and the requirements of the Referral Notice. The result is a reduction to the ARR of $821M, a 9% decrease over the 10 years. Figure 5 below provides a comparison across time, and is presented as capital costs (return on the RAB and working capital, and depreciation of the RAB[14]), operating costs and an allowance for tax.

13 The ARR is equivalent to the Maximum Allowable Revenue, or MAR, in the Referral Notice.

14 Less asset indexation.

Figure 5: ARR, 2015 Review compared to Seqwater's 2018 proposal ($M, nominal)



Note: the Reset values refer to our proposed ARR for this 2018 Review

The components to the ARR are discussed below, starting with the RAB.

Regulatory Asset Base

The RAB is comprised of our infrastructure including dams, weirs, water treatment plants, pipelines, other infrastructure, and non-infrastructure items such as vehicles. It is adjusted, or "rolled forward", from one year to another by adding capital expenditure (net of disposals), and applying depreciation and indexation.[15]

The RAB includes many older assets that have provided water to SEQ for decades, including dams, water treatment plants and some pipelines. The RAB also includes the more recent investment in infrastructure to respond to the Millennium Drought, which now underpins the long-term water security for the region.

15 Under a nominal pricing model, the RAB is indexed annually.

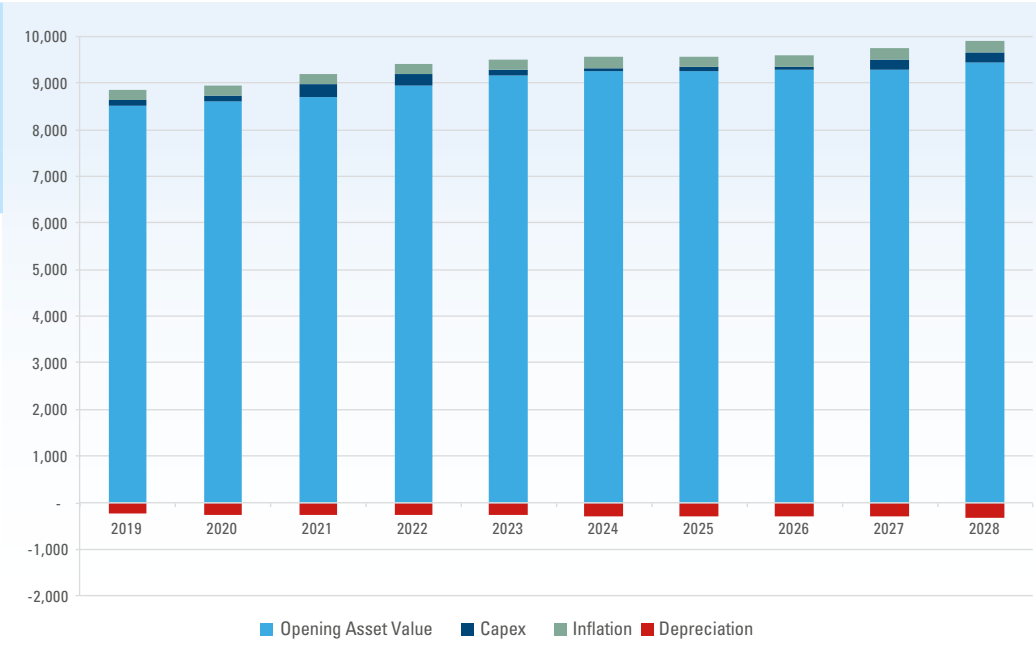
The opening RAB at 1 July, 2018 is $8,459M, based on expected capital expenditure for 2016-17 and budgeted capital expenditure for 2017-18. We propose to update the RAB for the actual expenditure incurred through the course of this review and the next review, consistent with past practice. Part B of our submission sets out how the RAB has been rolled forward to the end of the 2015 Regulatory Period.

We have incorporated our capital expenditure forecasts into the RAB roll-forward from 2018-19 to 2027-28. Projects are rolled into the RAB as they are commissioned or capitalised. We have proposed forecast capital expenditure over the 10 years that is 10% less than allowed for in the 2015 Review over the corresponding period. Section 5 below provides more information about our capital expenditure forecasts.

We have applied an assumed indexation rate to the RAB at 1 July 2018 of 2.5%, reflecting the mid-point of the Reserve Bank of Australia's inflation target band.[16]

The figure below shows the forecast RAB balances to 2027-28, incorporating proposed capital expenditure, depreciation and indexation.

Figure 6: Projected RAB Balances ($M, nominal)



Return on the RAB

The Referral Notice provides for a rate of return at a benchmark WACC. The WACC comprises two components:

- a cost of debt, which is to be set based on actual cost of debt estimates by Queensland Treasury Corporation (QTC)
- a cost of equity, which is to be calculated by the QCA.

We have asked QTC to provide their estimated debt values from 2018-19 to 2027-28, which relates to our water infrastructure borrowings. These rates reduce over time as the more expensive debt in our portfolio, which was affected by the global financial crisis, expires and is replaced by new debt at currently lower rates.

We have also proposed a value for the cost of equity of 6.82%. Part B provides more detail of our proposal, which draws heavily from past regulatory decisions and advice from Frontier Economics.

We have applied the QCA's long-standing methodologies and parameter values for market-sensitive parameters for the cost of equity and imputation credits (gamma). However, we intend to put forward alternative proposals to QCA through future reviews of the QCA's approach to WACC. Our specific concerns are set out in more detail in Appendix 2.

We propose a benchmark capital structure of 60% debt, which is consistent with regulatory practice for water businesses in Australia.

Table 7 provides a summary of the proposed WACC and its components. Part B provides more detailed information.

16 This indexation is deducted from the ARR. CPI forecasts for 2016-17 and 2017-18 are as per PWC escalation advice at 2%. CPI applied for true-up purposes is Brisbane CPI all groups.

Table 7: Proposed WACC ('Vanilla')

	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27, 2027-28
Cost of debt (QTC)	5.50%	5.25%	5.10%	4.95%	4.80%	4.70%	4.65%	4.6%	4.55%
Cost of equity	6.82%	6.82%	6.82%	6.82%	6.82%	6.82%	6.82%	6.82%	6.82%
Gearing	60%	60%	60%	60%	60%	60%	60%	60%	60%
WACC	**6.03%**	**5.88%**	**5.79%**	**5.70%**	**5.61%**	**5.55%**	**5.52%**	**5.49%**	**5.46%**

We have also calculated working capital consistent with the approach used for the 2015 review, and applied a rate of return at the above WACC rates.

Depreciation

We have applied straight-line depreciation to the RAB, using the remaining useful asset lives as accepted by the QCA in its 2015 Review and in accordance with the Referral Notice. Depreciation for new capital expenditure is based on our assessed lives of those assets.

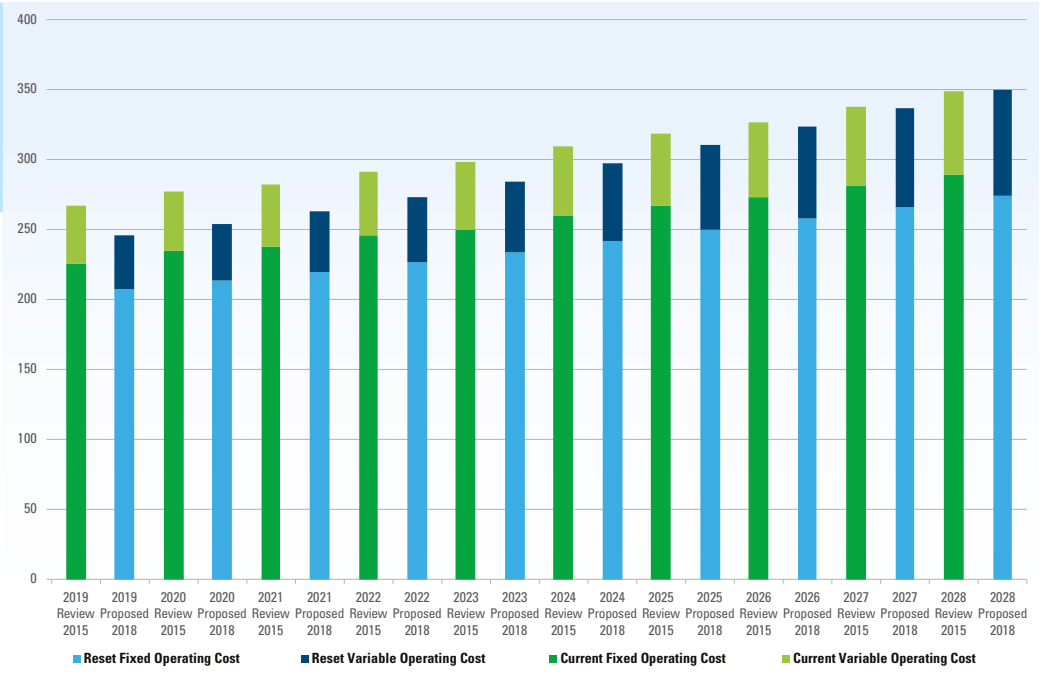
Operating Expenditure

The significant savings we have achieved for our operating costs have been carried through to our expenditure forecasts. In summary over the 10 years to 2027-28:

- we are proposing an overall operating expenditure allowance that is 4% lower than that provided in the 2015 Review
- fixed operating expenditure is 7% less than the 2015 allowance
- higher electricity prices are largely responsible for our variable operating expenditure being 11% higher than the 2015 allowance.

The figure below compares the total fixed and variable operating expenditure allowed in the 2015 Review against our current proposal. Section 5 provides more detail about our operating expenditure forecast.

Figure 7. Operating costs (fixed and variable), 2015 Review and Seqwater proposed 2018 ($M, nominal)



Note: operating costs include costs that are allocated to irrigation services, to provide a like-for-like comparison with 2015 Review data which included these costs.

Allowance for tax

The Referral Notice provides for an allowance for tax (where applicable) in bulk water costs and prices. Recovery of tax costs based on a benchmark firm is conventional regulatory practice and applies to regulated prices for water and other utility businesses across Australia.

In the 2015 Review there was no allowance for tax costs, given assumptions at the time around level of gearing and rate of return.[17]

However, it is now appropriate to include a tax component, as the rate of return is based on a benchmark capital structure (60%) and incorporates a return on equity. We have calculated a tax allowance consistent with these assumptions and conventional regulatory practice.

Tax costs need to incorporate the imputation credits that would be enjoyed by equity holders. The net tax costs, after imputation credits are accounted for, are incorporated into the ARR. Gamma, which is the assumed level of imputation credits, is set at 0.47 consistent with the QCA's current approach. While we do not agree with this value, we have adopted it for this review. We will, however, put forward our proposals as the QCA reviews its overall approach to WACC, and for the next review in 2021.

Review Events

The Referral Notice provides for prudent and efficient costs arising from Review Events to be recovered in prices. These events were previously defined by the QCA in its 2015 Review, and also include the costs of drought response. To date we have identified costs relating to drought response from operating the Grid in drought mode, as well as costs arising from ex-Tropical Cyclone Debbie.

For this submission, we have not included any costs incurred from potential Review Events. We will provide a detailed supplementary submission setting out costs for Review Events to the QCA through the course of the review. Part B of our submission provides more detail. Any claims would be dealt with as end-of-period adjustment and added to the Price Path Debt.

We may also make supplementary submissions to seek to recover additional drought response costs if triggered under the Water Security Program, for example if the Key Bulk Water Storages reach 70%.

Section 6 discusses Review Events in future regulatory periods in more detail.

Revenue offsets

We supply bulk water to a number of other entities, including Toowoomba Regional Council and Stanwell Corporation. Rather than allocate a proportion of bulk water costs to these customers, the Referral Notice requires that the revenues from these customers are deducted from the ARR, so we do not over-recover our costs.

We have also offset other revenue, mainly from leasing our land, consistent with the 2015 Review.

Some of the bulk water assets supply other customers who hold their own water entitlements, such as irrigators and Gympie Regional Council. We have allocated operating and capital expenditure to these entitlement holders consistent with the Referral Notice, which means no revenue offset is required.

We also earn revenue from the Wivenhoe Dam Hydro-Electric Station, under a contract with Stanwell Corporation. We consider this to be an unregulated asset and activity. We have therefore excluded the operating and capital costs for bulk water prices. In addition, we have contributed 50% of the revenue (net of direct operating costs) we receive as a revenue offset, in accordance with the QCA's recommendations in its 2013 Review. While we believe there is a case

17 QCA (2015). Final Report, p65

to keep 100% of the revenue, we accept there are some specific circumstances for this asset that warrant a revenue sharing approach. The box below provides some context.

We have not offset any revenue from the Somerset Hydro as this plant has been refurbished as a stand-alone commercial venture and we have excluded all capital and operating costs accordingly. Over time there may be other opportunities to expand hydro generation at our storages. The commercial incentives to do so will be far greater if such investments are treated as unregulated assets.

Box 7: Regulatory treatment of revenue from Wivenhoe Hydro

The initial regulatory decisions made by the Queensland Water Commission (QWC) allowed us to retain the revenues from the Wivenhoe Hydro and remove any direct and indirect costs from the charges to the Water Grid Manager. However, it was later determined that the direct costs were only small administrative charges associated with the monthly payments and there was no material overhead.

This arrangement continued until the 2012-13 QCA pricing process, when QCA recommended offsetting 50% of the revenues (net of direct operating costs) against the ARR. This allowed us to keep 50% as an incentive to initiate these types of arrangements in the future. The Minister accepted the principle proposed by QCA but extended the offset to 100% on the basis that the water users were presumed to take the financial costs and risks associated with the scheme. Under this arrangement we received no financial advantage from the hydro scheme.

The Referral Notice for the 2015-18 review did not require offsets for the hydro revenues and they were not considered in the review.

The total revenue offset from 2018-19 to 2027-28 is $169M, which is 79% higher than the 2015 Review amount of $94.3M. This offset is higher due to expectations that the bulk water supply agreements with Stanwell Corporation and Toowoomba Regional Council will continue beyond their current term.

Summary of the forecast ARR to be recovered in prices

The total forecast ARR over 10 years from 2018-19 to 2027-28 is set out below, by individual components, and compared to the allowance in 2015. This is the ARR to be recovered in prices, and is offset by other revenue sources.

Table 8: Total forecast ARR 2018-19 to 2027-28 ($M, nominal)

	2015 Review	Seqwater proposed	Difference
Return on assets	6,075	5,200	-14%
Depreciation	2,774	2,768	0%
Operating costs	3,064	2,934	-4%
Tax allowance	-	112	-
Sub total	**11,913**	**11,014**	**-8%**
Less inflationary gain or asset indexation	2,398	2,284	-5%
Less revenue offsets	94	169	79%
Less Mid-year Cash flow Adjustment	193	154	-20%
TOTAL	**9,229**	**8,407**	**-9%**

Note: return on assets include a return on working capital, as per item (2)(a)(ii) of the Notice. The mid-year adjustment is a technical adjustment applied in the regulatory building block approach.

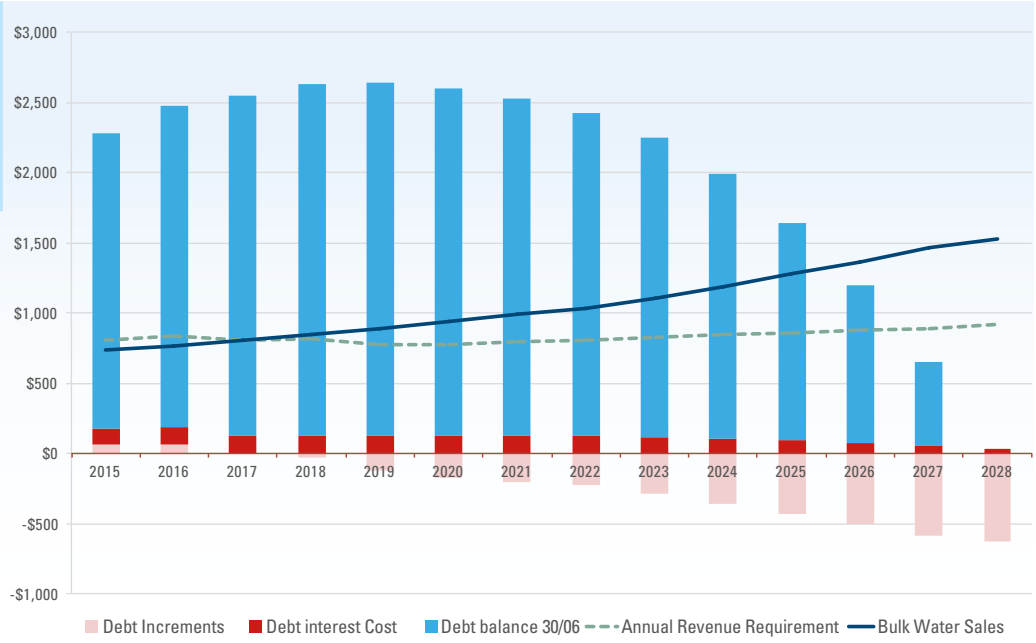
Price Path Debt recovery

Bulk water prices are set to recover our ARR over the 20 year price path period to 2027-28.

The difference between actual revenues in the early years of the price path, when prices were still transitioning upward, and the ARR is accounted for as Price Path Debt. This is a regulatory accounting concept to make sure the price path is neutral in net present value terms.

The price path is designed so that the under-recovery in the early years is recovered in the later years. Figure 8 shows the profile of the Price Path Debt balance to 2027-28.

Figure 8: Price Path debt Balance ($M, nominal)



As indicated in Section 3, the price path debt balance at 1 July, 2018 is forecast at $2.49B, which is $331M more than the 2015 Review estimate.

The Referral Notice requires that interest on this debt is to be calculated using Seqwater's cost of debt as advised by QTC, who estimated a rate from 1 July, 2018 at 5.11% per annum.[18] The advice is set out in Appendix 3.

This rate is lower than the estimate of 6.25% used for the 2015 Review.

Applying these lower rates to a higher balance means the total interest on the price path debt over the 10 years to 2027-28 is $983M, compared to the 2015 Review estimate of $862M.

Total bulk water costs

The total costs to be recovered over the remaining 10 years of the price path are summarised below.

Table 9: Total bulk water costs ($M, nominal)

	2018-19	2019-20	2020-21	Total over 10 years
ARR	772	779	796	8,407
Interest on price path debt	127	127	125	983
Repayment of price path principal	123	170	199	3,471
Total costs	**1,022**	**1,077**	**1,120**	**12,862**

18 This rate is set to equal the debt pool that was originally created for the price path debt, which is known as the Water Grid Manager (WGM) debt pool. QTC suggest this debt pool is used as the basis for setting the interest rate to apply to price path debt. See Appendix 3.

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5. Forecast operating and capital expenditure

Key Points

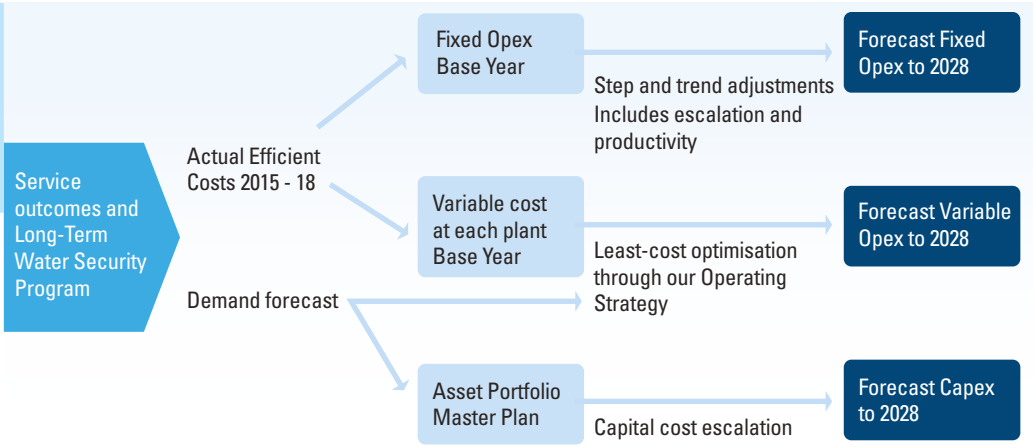
- Our expenditure forecasts have been developed to ensure we continue to deliver services to our customers at least cost.
- We have implemented cost saving measures which have exceeded the efficiency targets set by the QCA in the 2015 Review, and the cost saving opportunities have now been fully captured.
- We have not only achieved but managed to exceed the operating 'catch up' efficiency target set for us at the 2015 Review. These catch-up efficiencies are embedded into our expenditure forecasts.
- We have escalated the inputs to our operating expenditure and incorporated adjustments for one-off or step changes. On top of these savings we are proposing a cumulative annual productivity target or ongoing efficiencies of 0.2% of controllable operating expenditure.
- Our proposed fixed operating expenditure is $2,367M for the 10 years to 2027-28, which is 7% less than the corresponding 2015 estimates over the same period.
- Total variable operating expenditure is 11% higher over 10 years, mostly due to higher electricity prices.
- The net impact is that total operating costs (fixed and variable) are 4% less than the 2015 Review allowance.
- Our proposed capital expenditure for the10 year period that will be added to the RAB is 10% lower than expected in the 2015 Review.

5. Forecast operating and capital expenditure

We have proposed the total operating and capital expenditure necessary to comply with all relevant regulatory obligations and requirements and supply bulk water to customers. Our revenue proposal has been developed to ensure we provide bulk water services to our customers at least cost, and in a way that meets their long-term needs. Our proposal is integrated with our long-term water security planning, and has also benefited from customer review of our proposed capital program which is contained in our Asset Portfolio Management Plan (APMP). We have also allocated operating and capital expenditure to non-bulk water services (e.g. irrigation) in accordance with the Referral Notice.

Figure 9 below provides an overview of how we have forecast operating and capital expenditure.

Figure 9: Expenditure forecasting approach



Part B of our submission sets out our forecast operating and capital expenditure in detail. A summary is provided below.

Fixed operating expenditure 2018-19 to 2027-28

We propose fixed operating expenditure over the 10 years of $2,367M, which is 7% less than the allowance set in 2015 over the same period as we carry forward the efficiencies achieved over the 2015 Regulatory Period.

We have adopted a base-step-trend approach for forecasting fixed operating expenditure consistent with conventional regulatory practice, which has involved:

- setting a base year to reflect our efficient fixed operating costs, which we have set at 2018-19.
- making annual adjustments to the 2018-19 year by adding or subtracting one-off or new and additional ongoing costs from 2019-20.
- escalating our input costs using a set of cost indices.
- applying an ongoing efficiency saving.

This approach and the outcomes are set out below.

Base year and incorporation of catch-up efficiencies

We have adopted 2018-19 as our operating expenditure base year. We have adopted this year as it reflects our contemporary view of our costs, incorporates the catch-up efficiencies from the 2015 Review as well as the additional efficiencies we have achieved over the 2015 Regulatory Period.

We believe this is an efficient starting point as it incorporates catch-up efficiencies by exceeding the allowance set for us in the 2015 Review. The base year costs are also consistent with our actual 'revealed' costs since 2015-16.

Exceeding the 2015 Review efficiency target (catch up efficiencies)

Catch-up efficiencies are typically regarded as savings required to meet benchmark efficient costs at a point in time.

The 2015 Review incorporated significant efficiency savings, some of which were nominated by Seqwater while others were set by the QCA. We have reduced our costs below these efficiency targets, and our proposed fixed operating expenditure is 7% less than the 2015 allowance over the remaining 10 years of the price path. These savings have been the result of deliberate management effort to reduce costs, and have included initiatives such as optimising our use of insourcing.

Our recent cost performance also reflects a mature business that has been vertically integrated through mergers to achieving scale and scope efficiencies. For example, fixed operating costs before the merger were around $280M to $295M.[19] After the merger, at the 2015 Review the efficient fixed costs for the merged business were set at $217.5M. Having now implemented the merger, fixed operating expenditure is lower again.

Our proposed fixed operating expenditure also includes and preserves the efficiency savings in our current Enterprise Bargaining Agreement (EBA) to 2027-28, which are incorporated into the base year.

We therefore consider our current level of fixed operating expenditure, as reflected in our 2018-19 base year, to be an efficient baseline.

Development of the 2018-19 base year

The base year for our operating expenditure is our April 2017 forecast for the 2018-19 financial year. A two year budget was developed for 2017-18, the last year of the 2015 Regulatory Period, and 2018-19, the first year of the next Regulatory Period. We have adopted a future, budget amount as our base year as it reflects our contemporary view of our costs.

This base year is consistent with the most recent years of actual operating expenditure fixed costs we have incurred in 2015-16 and 2016-17.

19 Refer to the QCA's review of Grid Services Charges for 2012-13, tables 1 and 2. Inclusive of irrigation costs.

Table 10 presents an overview of fixed cost in each year.

Table 10: Year-on-year tracking of fixed bulk water costs ($M, nominal)

Year	Actuals / Budget	Non-bulk water costs	Net Fixed Costs	Year on year change
2015-16	$198.5	$3.4	$195.1	
2016-17	$200.3	$3.3	$197.0	1.0%
2017-18	$211.7	$3.3	$208.4	5.8%
2018-19	$210.4	$3.4	$207.0	-0.7%

Note: The 2017-18 budget includes a number of significant, though irregular, cost items including costs for operating the Gold Coast Desalination Plant while another water treatment plant is shutdown for capital works.

This table shows that our proposed base year fixed operating expenditure in 2018-19 is only 6% higher than the actual costs in 2015-16 in nominal terms. We therefore submit that the 2018-19 base year aligns with our historic 'revealed' costs and is an efficient starting point.

Fixed cost escalation

We have applied cost escalation to our inputs, based on advice from PWC. In preparing these forecasts, PWC examined a range of indices and regulatory precedent, and relied heavily on independent forecasts.

The PWC report is provided as Appendix 1. We have adopted the recommended escalators as per their advice.

Step changes or future one-off fixed cost adjustments

We have anticipated a number of adjustments and increases to our costs to 2027-28, which are summarised below.

Table 11: Fixed cost one-off cost adjustments or initiatives

Adjustment	Year(s)	$M	Explanation
Assessment of Major Contracts prior to expiry.	2019-20 and 2020-21	$1.0 over 2 years	These are the costs associated with assessing major outsourced contracts prior to the end of their term.
Water Quality Reporting.	2018-19 to 2022-23	$0.35 per annum	Water Quality Reporting for Recycled Water (Western Corridor re-commissioning / compliance related).
Gold Coast Desalination Plant and Western Corridor Recycled Water Scheme	Across the price path	Average $0.4 per annum	Annual changes in fixed operating costs in keeping the assets in their respective modes of operations.
ICT Projects	Across the price path	$0.25 to $0.5 increments and decrements	Changes in spend across the price path period to fund ICT projects for Enterprise Resource Planning and Technology Capability, Delivery and Resilience.
Provision of Additional Drafting Services	Annually from 2019-20	$0.06	Increased capital works and implementation of improved Management of Change (MoC) processes will result in an increased volume of updates.
QCA Reviews	Regulatory peak spends in: • 2020-21 • 2023-24 • 2026-27	$1.1 per Review	Recovery of QCA fees for bulk water reviews, assumed to be every three years. It comprises an assumed QCA fee of $0.95M,and consultant and contractor costs of $150k at each review. We will update the assumed QCA fee if more information becomes available.
Future water security program updates	Across 2 Year window of: • 2020-21 to 2021-22 and • 2025-26 to 2026-27	$0.3 per update	We expect to update the Water Security Program every five years. While most of the cost will be absorbed within existing resources, we will require additional specialist / consultant input at each update.
Integrated Master Plan Update	Across 2 Year window of: • 2020-21 to 2021-22 and • 2025-26 to 2026-27	$0.15 per update	This plan is a critical document for asset management and investment decisions. We update this every 5 years, and will require some specialist consultant support and advice.
Communication and education	Annually from 2018-19	$1.1	Evidence from other jurisdictions across the world shows that extensive and ongoing community engagement and education is vital for water security planning and implementation.
EBA Advice	Cyclically with assumed EBA processes of our Water Security Program. Evidence	$0.1M per agreement	Expert advice to support Seqwater throughout EBA negotiation processes.
Additional training spend – leadership	Annually from 2018-19	$0.05	Recurring costs arising from establishment of Seqwater staff leadership program.

We have also included provision for fixed costs following the re-commissioning of the Ewen Maddock Water Treatment Plant, converting it to hot standby from care and maintenance mode. This has occurred as part of changes to the AOS to give more support to sources in the northern sub-region. A further provision for additional fixed costs for a new water treatment plant required for Beaudesert has also been made, consistent with our capital investment proposal. Other adjustments have been made to account for shifts between costs being capitalised in different years.

Seqwater is also required to pay Unitywater under a legacy arrangement (ex-Moreton Bay Regional Council) regarding supply of recycled water from the Murrumba Downs AWTP.

This is known as the Moreton Bay Outcome Contribution (MBOC) which is comprised of capital plus fixed and variable operating charges. The current bulk water supply agreement states the MBOC capital charge obligation extends to 30 June 2020.

In the 2015 Review we assumed that MBOC will be incurred to the end of the contract term in 2020. We now expect this charge (around $4M per annum) could continue to the end of the price path or beyond, and have included the cost in our fixed expenditure forecasts.

Ongoing efficiencies

In the 2015 Review, the QCA chose not to apply an ongoing efficiency target, on the basis of cost savings already identified.

Given we have demonstrably achieved and exceeded the catch-up efficiency targets set for us, we submit that an aggressive ongoing efficiency target is not warranted as our base costs now reflect that of an efficient business.

While we consider our base year of fixed operating costs to be efficient, we propose to incorporate ongoing efficiency or productivity savings across the 10 years reflecting the opportunities for continuous improvement and our efforts to provide services to customers at least cost.

We have therefore incorporated a cumulative ongoing efficiency target of 0.2% per annum of our controllable costs. These controllable costs include labour and contractors, but exclude items for which we are largely bear market prices such as insurance, chemicals and electricity. Overall, these controllable costs are around 65% of our total fixed operating costs.

Variable operating expenditure 2018-19 to 2027-28

Our variable costs are the incremental costs of supply from our various water treatment plants and pump stations. The variable costs comprise electricity, chemicals and sludge costs that vary with output.

Variable costs are a function of the unit cost of production and the amount of water produced.

Variable costs over the 2015 Regulatory Period were 11% below the QCA allowance in total, and 5% lower on a volume weighted ($/ML) basis (refer tables 2 and 3 above).

We have based our production estimates from the long-term demand forecast used for pricing. We have assumed production occurs under the 'least cost' mode of operations, where we optimise the Water Grid to minimise the overall cost of supply.

The unit cost of production is based on our 2018-19 budget estimates, which are an extension of historic variable costs at each plant and taking account of the updated AOS.

We have also included a contingency to cover the impacts of dirty water events (turbidity, colour and salinity) and algal blooms (toxicity) that occur at our raw water sources, and are dependent on seasonal and climatic variation. The extra costs cover additional aluminium sulphate, sodium hydroxide and PAC (powdered Activated Carbon) used to deal with

these different events. It does not include impacts of major events on feedwater quality, such as cyclones or major floods, which are not accounted for in forecasts. This contingency is $1.2M in 2018-19, which represents around 8% of variable chemical costs.

In doing so we accept the risks for costs from seasonal or climatic variation, which leads to a change to the risk allocation in our regulatory framework. This is discussed in more detail in Section 6.

The weighted average variable cost per ML in 2018-19 is $125/ML, compared with 2017-18 of $117/ML. However the 2017-18 cost is based on our budget estimates for that year for electricity prices, chemicals and the previous least-cost operating mode (now updated). We now expect variable costs in the 2017-18 year to be higher, and hence the change to 2018-19 will be different.

Table 12: Variable Operating Costs (by input) ($/ML)

	2017-18	2018-19	Change $	Change %
Electricity	66	70	4	6%
Chemicals	43	48	5	12%
Sludge	8	7	-1	-12%

Note: electricity costs for 2017-18 based on the budget estimates for that year, and may not reflect recent market changes.

We expect to exhaust our current sites for sludge disposal during the course of the 10 year price path period, and have commenced planning to find new options. The impact on our costs is uncertain, and will depend on a range of technical and regulatory factors. While the impacts could be significant, we have not included any allowance into our expenditure forecasts for this submission given we are at the early stages of planning and the cost impacts are difficult to forecast. We do not expect these costs to emerge in the 2018 Regulatory Period, and will put forward our updated assessment into the next price review in 2021.

While we have managed to keep our unit cost of production within the 2015 Review allowance during the current Regulatory Period, we expect that total variable costs will be higher into the future even though demand and production is lower. This is mostly due to differences in the escalation in electricity prices between the 2015 Review (QCA allowance of 2.7%) and updated escalation rates advised by PWC, which are referenced from AEMO forecasts, which range from 3.87% to 6.29% over the same period (refer Appendix 1).

As a result, total variable operating expenditure is 11% higher over 10 years to 2028, mostly due to higher electricity prices compared to the 2015 Review.

Other operating costs

Our proposed operating costs do not include costs that would be recoverable as Review Events, as set out in Section 6.

We are also aware of some material costs that may arise during the course of the QCA's review, such as potential supply of recycled water to an industrial user. We have not included these costs into our forecasts as they are uncertain and subject to further business cases and analysis. However, if we reach a decision or become more certain about these costs, we will provide supplementary proposals to the QCA as soon as possible. We will aim to provide any updates prior to the QCA's draft report.

Forecast capital expenditure 2018-19 to 2027-28

Forecast capital expenditure is an input to the return on and of capital components of our revenue requirement. We have proposed the total capital expenditure necessary to provide our services, and comply with all relevant regulatory obligations and requirements in each year.

We are confident that our forecast capital expenditure is consistent with the Referral Notice and the costs incurred by prudent service provider acting efficiently.

We propose total capital expenditure over the remaining 10 years of the price path at $1,558M, which is 10% less than the 2015 Review for the same period.[20] Table 13 shows the composition by driver.

Table 13: Capital expenditure by investment driver proposed for the period

Investment driver	Capitalised investment 2018-19 to 2027-28 (%)
Compliance	**52%**
Growth	**19%**
Renewals	**28%**
Improvement (Service)	**1%**

Our capital expenditure proposal forecast includes a small number of major projects which will require significant investment. These include dam safety upgrades of Somerset Dam ($153.8M) and Lake Macdonald Dam ($95.7M) and augmentations required to meet growth in the Beaudesert Water Supply Zone ($109.2M).

The capital expenditure program in our proposal has a number of important features and themes, in particular:

- Value for customers: we undertake rigorous investment planning analysis and apply a high level of governance to our capital forecasts and project delivery. We analyse options over their life-cycle to determine the least cost options for customers, and consider operational solutions alongside capex options. We also look for opportunities to create efficiencies through capital investments
- Responding to climate variability: high streamflows and flooding creates risks to the continuity of our water supplies, as flood water can threaten critical assets and reduce the quality of feed water to critical levels. Our capital program includes projects to reduce these risks through investments in our pump stations and treatment plants. We also have a long-term program of targeted improvements to catchments to reduce sediment load and other water quality risks
- Safety of our assets and water supply: we must make sure our dams are safe to protect the communities downstream. We also need to make sure the water we supply is safe, through managing water quality risks using a multi-barrier approach. This leads to ongoing investments in catchments and water treatment plants
- Value for our communities: Our dams provide a valuable recreation resource for the community. A small part of our capital program is aimed at maintaining and enhancing the recreation amenities at dams, in accordance with a regional strategy
- Collaboration: We work collaboratively with our customers where this will improve outcomes and reduce costs. (refer box 7 below) We also work in partnership with customers on growth projects and consulted with customers about our capital expenditure forecast for this submission.

20 All amounts reported are for capitalised expenditure, rather than the cumulative expenditure on capital projects some of which will not be completed and commissioned by 2027-28. Such projects are not included in the RAB, and therefore are less relevant for pricing.

Box 7: Decommissioning Petrie WTP

A condition assessment of the Petrie WTP indicated that significant refurbishment costs were required to keep the plant operating and to continue safely servicing the Petrie Water Supply Scheme. Additionally, internal planning studies conducted by Unitywater identified an additional bulk water supply to the Petrie Water Supply Scheme would be required beyond 2020 to meet growing demands in the Northern Growth Corridor.

We worked with Unitywater to identify the least-cost solution across the supply chain. This resulted in a decision to decommission the Petrie WTP, eliminating the need for the required future upgrade. The least-cost option was for us to make a contribution to Unitywater to bring forward their planned connection instead.

By the end of 2017, about 100,000 additional residents in Moreton Bay will be connected to the Water Grid for the first time. A new pipeline will connect into the grid, saving water customers about $20 million by negating the need for the Petrie plant to be upgraded and by servicing customers from the more efficient North Pine WTP.

Development of our capital program

We have implemented significant improvements to our capital planning and delivery processes which mean we are confident about the prudence, efficiency and deliverability of our forecasts.

Long-Term Planning Reports

We develop Long Term Planning Reports (LTPRs) to establish a 30 year asset investment plan for each of our facilities. Depending on the type of facility, aspects such as legislative and regulatory compliance requirements, population growth (future demands), water quality requirements, hydraulic capacity, the asset renewal schedule, and infrastructure criticality are considered in establishing the investment plan.

The Asset Portfolio Master Plan

The Asset Portfolio Master Plan (APMP) is our main capital planning tool. It has been recognised as being leading practice in the water industry through the Asset Management Customer Value (AMCV) (previously known as Aquamark) benchmarking process.

The APMP consolidates capital projects included in long-term planning reports, asset management plans and other forward planning documents into a 20 year capital investment plan. Projects in the APMP are at a minimum Gateway 0 (zero). This allows the APMP to align and prioritise capital investments across the different asset types that we own and manage. Our capital investment program has been developed to align with the demand forecasts and is based on average inflows into the catchments.

We also sought feedback and input from customers to the APMP in a series of workshops in 2016-17. The main feedback was that customers were interested in including additional projects into the APMP, including enhancements to disinfection and bulk water meters. We agree these are critical projects and are working with customers to refine scope and implementation. However the projects have not yet been included as they have not yet reached the Gateway 0 stage (refer below) of our investment decision-making process to be initiated as projects. We expect that investments will occur over the coming years, and will incorporate those investments into our capital program.

Capital Expenditure Investment Decision-Making

The capital projects included our long-term planning reports, asset management plans and other forward planning documents are progressed through our formalised capital planning framework. Different options are assessed during the development of a capital project and project cost estimates are refined over the process.

The investment decision-making criteria that we use in the preparation of our business cases include detailed assessments for each proposed project to:

- Demonstrate the need or prudency, including alignment with the QCA drivers;
- Review the technical acceptability; and
- Assess the complexity of the project delivery.

All project assessments must include an operational expenditure solution, and this allows us to make sure that the capital projects that progress through our planning process are prudent. Project prioritisation is refined during three different stages: in the Long-Term Planning Reports, implicitly in the APMP and explicitly in the APMP prepared annually for the following budget year.

All projects and programs submitted for inclusion in the APMP are required to have substantiated documentation that demonstrate or show the prudency and efficiency of the capital cost.

Governance

Our asset investment decision-making is based on the gateway review process adopted by the Queensland Government and which is aligned with the internationally-recognised OGC Gateway™ Process. The investment gates used by Seqwater are summarised in Figure 10.

Figure 10: Summary of Investment Decision Gates

	Gate 0	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Seqwater	**Strategic Assessment**	**Preliminary Evaluation**	**Investment Justification**	**Investment Decision**	**Readiness for Service**	**Benefits Realisation**
Intent	Strategic alignment and Portfolio Planning	Project initiation and Planning	Business Case approval	Contract Award	Project Delivery and handover	Project Performance review

Capital cost estimates

Our capital expenditure forecasts have been developed to reflect the estimated costs of the proposed projects and have been developed in accordance with our cost estimating methodology and guidelines.

Our capital expenditure estimates have been developed to reflect all forecast costs that would be capitalised, and, therefore, only include the relevant asset planning and project delivery costs incurred in realising each proposed project.

The information that forms the basis of our capital investment program and the cost estimates is based on our 2017 APMP. This document was finalised in December 2016 in order to prepare the report to our Board for approval of the program in March 2017 and submission to the QCA for review in July 2017. The QCA's recommendation to the Minister will take place in late 2017, one year after the information included in the APMP was collected and compiled.

As a result of the process we use to prepare our long-term capital program, project cost estimates will inevitably change after the finalisation of the year's APMP as more information becomes available before the next update of the document. Updated cost assessments for the Somerset Dam Safety Upgrade and the Beaudesert Water Supply Zone Upgrade since the finalisation of the 2017 APMP have resulted in significant increases to the cost forecasts for these projects. More broadly, we acknowledge that that program will inevitably change and costs may be higher or lower than originally forecast as we progress through the Gateways and once we get into the project delivery stage.

Accuracy of our capital cost estimates

The level of accuracy of our cost forecasts varies, dependent on the status of each of those projects in our overall capital project delivery process. The costs are refined as project options are refined, design work is completed and project delivery is undertaken. As the accuracy of the cost estimates improves as the project progresses, some projects will be delivered for less than was first proposed, while others will cost more.

All of the projects and programs included in our capital program have been classified according to their status within the Gateways.

Figure 11 shows a breakdown of our proposed expenditure over the balance of the price path by Gateway status. This highlights that the proposed investment within Gateways 3 and 4 and in the project delivery phase is currently only in place for the first few years of the period. From 2022/23 onwards, almost all of the projects we have included in our forecast capital program are currently in the early stages of project planning.

Figure 11: Breakdown of proposed capital program for the remainder of the Price Path by Gateway status

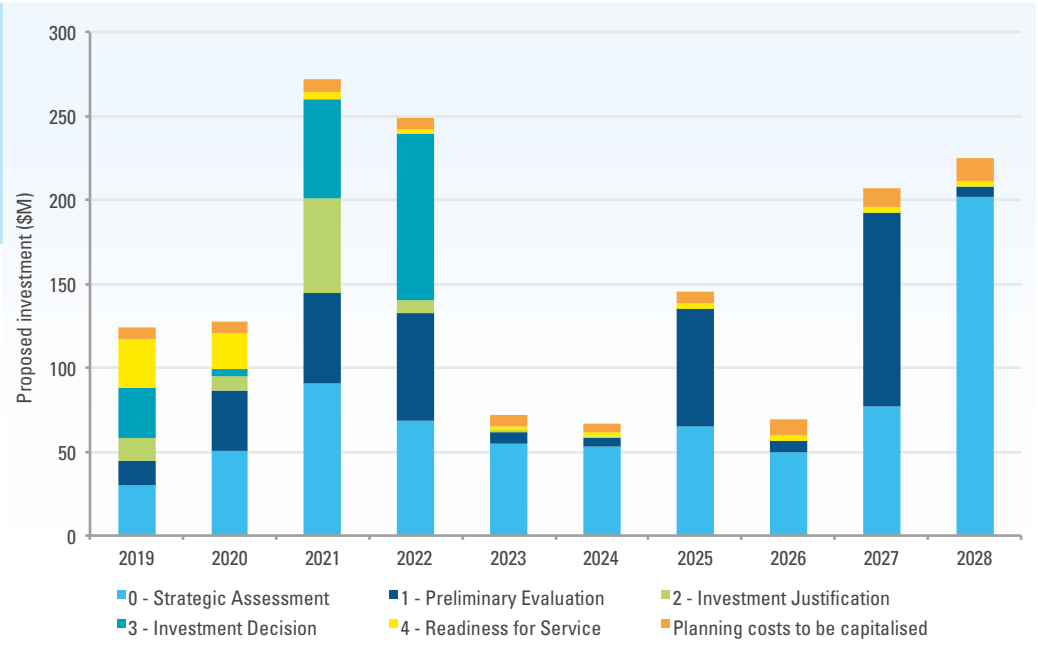


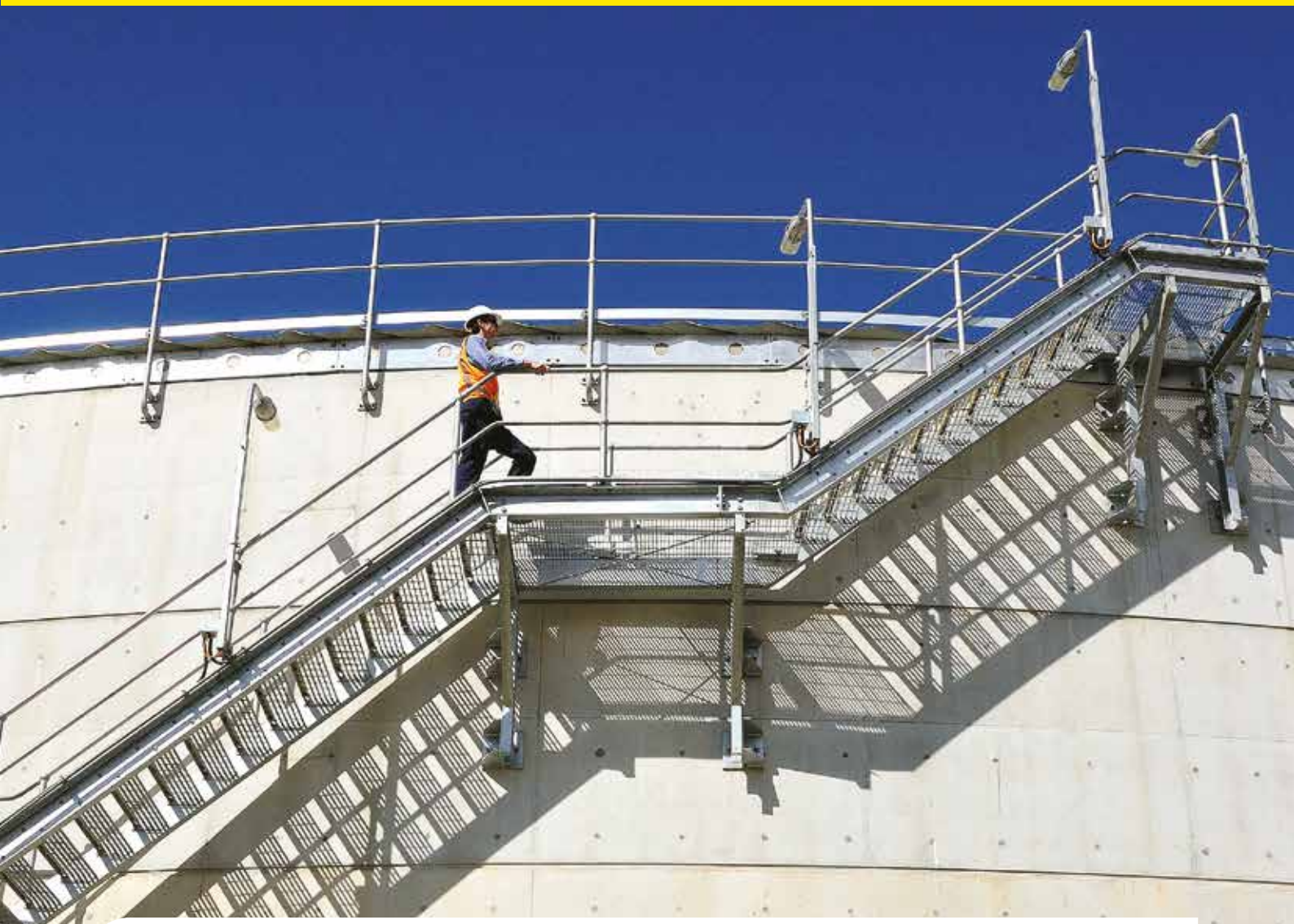
Table 14 provides the minimum target levels of cost estimate accuracy at different phases of project development and at each approval gate within our Gateway process.

Table 14: Expected Cost Estimate Accuracy at Different Approval Gates

Gate 0	Gate 1	Gate 2	Gate 3	Gate 4
-50%, +100%	-50%, +50%	±30%	-10% +15% D&C (Concept Design) -5% +10% Detail Design	-5% +10%

This highlights that with more than 77% of our proposed capital program for the remainder of the price path being within Gateways 0, 1 and 2, the accuracy of the cost estimates that have been prepared at this time are likely to change as the projects progress through the approval gates. This is a function of the long-term planning cycle.

6. Future Regulatory Arrangements



Key Points

- In order to provide greater regulatory certainty beyond 2018, we suggest that the QCA makes recommendations to the Minister that the Review Event framework under the Notice be applied into the 2018 Regulatory Period and beyond.
- We have provided a number of proposed clarifications to these Review Events.
- We also propose changes to the regulatory framework to provide greater flexibility and incentives for Seqwater to optimise its land portfolio.
- We would like to explore more flexible regulatory treatment of major projects that are classified as operating costs in accounting terms.
- The uncertainties in forecasting demand highlight the difficulties for a 100% volumetric charge. We would prefer to see the bulk water price transition to a more conventional two-part tariff, and will be working with stakeholders over the 2018 Regulatory Period to develop a proposal.

6. Future Regulatory Arrangements

Review events and risk allocation from 2018-19

The Notice provides for bulk water costs to include additional prudent and efficient costs arising from Review Events. These Review Events are defined in accordance with the QCA's 2015 Review, and include the costs of drought response over the 2015 Regulatory Period.

Review Events effectively operate as mechanisms to recover costs that are uncertain and not provided for in the capital or operating expenditure forecasts. They also determine the allocation of cost risk between Seqwater and customers. If an eligible Review Event occurs, then the costs can be recovered through either a mid-period or end-of-period adjustment.

We have presented our proposed claims for Review Events over the 2015 Regulatory Period as part of the price path balance review at 1 July, 2018 in Part B of our submission.

We support the continuation of the Review Event framework beyond 1 July, 2018 and have proposed some minor areas of clarification below. These proposed changes are integrated with our proposed capital and operating cost forecasts. Our proposals relate to the three types of Review Events considered by the QCA in the 2015[21].

- Emergency events;
- Law or government policy events; and
- Feedwater quality events.

Drought response costs are also included as an item for the 2015 Period, and we propose to continue provision to recover these costs from the 2018 Regulatory Period and beyond.

In order to provide greater regulatory certainty beyond 2018, we suggest that the QCA makes recommendations to the Minister that the Review Event framework under the Notice be applied into the 2018 Regulatory Period and beyond.

Emergency events

In its 2015 Review, the QCA recommended that where Seqwater could establish that it is not at fault for an emergency event which causes a change in revenue, or prudent and efficient costs:

- a material change be eligible for a mid-price path review,
- where not subject to a mid-price path review, the change be recouped by an end-of-period adjustment.

21 The QCA also considered cost of debt events. These are now dealt with under the framework for determining the Weighted Average Cost of Capital and interest on Price Path Debt.

Our proposal

We do not propose any changes, and note that emergency events have occurred in the 2015 Period, relating to damage caused by ex-Tropical Cyclone Debbie (refer Part B of our submission). For clarity, we have not included any allowance for repairs to assets from emergency events into our expenditure forecasts on the basis that this Review Revent exists to deal with such costs if and when they occur.

Law or government policy events

In its 2015 Review, the QCA recommended that where the effect on bulk water prices of a change in law or government policy is unambiguous, it be automatically passed through Seqwater to customers.

The QCA also recommended that where Seqwater can demonstrate that it is unable to manage the impact of law or government policy on bulk water prices which causes a change in revenue, or prudent and efficient costs:

- a material change be eligible for a mid-price path review,
- where not subject to a mid-price path review, the change be recouped by an end-of-period adjustment.

Our proposal

We do not propose any changes to apply for the 2018 Regulatory Period onwards.

Feedwater quality events

Seqwater is somewhat unique among other bulk water supplies in that most of our water is sourced from run-of-river, rather than direct from large storages. This means that water quality (feedwater) at the treatment plant intake is subject to dirty water events (turbidity, colour and salinity) and algal blooms (toxicity) that occur in the regions, dependent on seasonal and climactic variation.

In its 2015 Review, the QCA recommended that where Seqwater can demonstrate that it is unable to manage the impact of feedwater quality which causes a change in revenue, or prudent and efficient costs:

- a material change be eligible for a mid-price path review,
- where not subject to a mid-price path review, the change be recouped by an end-of-period adjustment.

In its commentary, QCA stated:[22]

> *To the extent that this risk can be managed, the QCA does not propose to make such risks generally eligible for mid-price path review or an end-of-period adjustment. However, should Seqwater be able to demonstrate in a particular instance that the risk and associated revenue and cost implications were not manageable the QCA recommends that material changes be eligible for [review and adjustment].*

22 QCA (2015). p93.

Our proposal

We do not propose any changes to the QCA's recommendations. However we would like to clarify their application. From 1 July, 2018 we propose to bear the risk of seasonal or climatic variations in the quality of our feedwater, and have prepared our operating cost forecasts accordingly (including contingency). Extreme events that lead to a sustained and sever deterioration in quality, similar in impact from cyclones or major flood (e.g. as occurred in 2011), are excluded and would remain a Review Event.

Drought response

The Referral Notice provides for the QCA to review any additional costs for drought response for efficiency where these occur in accordance with the Water Security Program and the costs are material. This review only relates to the 2015 Regulatory Period, and there is no guidance as to the regulatory treatment for drought response costs from 1 July, 2018.

Our proposal

We propose that drought response costs be included as a Review Event on an ongoing basis, and ask the QCA to make recommendations accordingly.

We have not included any allowance for drought response costs into our future expenditure program.

We define drought response at three different levels:

- changes to operating mode;
- response to regional drought triggers; and
- local drought at off-grid communities.

Each is discussed below.

Changes to operating mode

Chapter 5 of the Water Security Program describes the strategies and rules for operating the Water Grid assets under various scenarios.

We have developed a 'least cost[23]' mode of operation that optimises the grid assets to supply water at lowest cost. This least cost mode is the basis for our operating cost projections for this submission.

We also develop drought response mode of operation to optimise the grid assets for water security outcomes. Under this mode, we often need to use higher cost sources or change the direction of water flows that then involves more pumping cost. This has occurred, and continues to occur, in the 2015 Regulatory Period as we support supplies to the Northern part of SEQ due to low storage levels in that sub-region, particularly at Baroon Pocket Dam. We have also changed our 'least cost' mode of operations during the 2015 Regulatory Period in part to address the supply risk in the region.

We are seeking to recover the additional costs, which we are still incurring, as a Review Event (see Part B), and propose to continue these arrangements beyond 1 July, 2018.

Regional drought response

The Water Security Program sets out the following drought triggers and actions when the region's Key Bulk Water Storages reach pre-defined triggers.

The cost of implementing our drought response measures can be significant.

Further, those costs are uncertain because of the unpredictable nature of droughts. We therefore consider that it is not useful for us to seek or receive a drought response allowance before a drought occurs. We consider that the better approach is for us to identify prudent and efficient responses to a given drought and for the quality of those responses to be reviewed after the event.

Hence we have not included any allowance for these drought response costs into our operating and capital cost forecasts from 1 July, 2018.[24] To do so would increase bulk water costs and prices, even if water supply remained abundant.

23 Also referred to as Cost Effectiveness

24 We have made some investments in assets to improve how water can be moved across the grid and to particularly improve the capacity to bring water to the Northern part of SEQ. These are not drought response projects, but improve our capacity to respond when drought occurs. We have also incurred operating costs developing drought response plans, which we will consider part of our normal business operations.

Off-grid communities

We supply water to 16 off-grid community water supply schemes. The drought response at these off-grid communities is set out in Table 8-4 of the Water Security Program. When drought occurs, we augment supply to these plants through carting water from elsewhere in the region. The triggers for carting water are set in Water Supply Disruption Plans which are developed in conjunction with our customers. Carting has occurred over the 2015 Regulatory Period and we are seeking to recover these costs as a Review Event (see Part B).

We propose that carting and related efficient costs under Water Disruption Plans are dealt with as a Review Event from 1 July, 2018, and have excluded any provision for carting or other costs from our forecasts on this basis.

Proceeds for disposal of land

From time to time we find opportunities to sell surplus land. The current arrangements could effectively mean that all the proceeds of a sale are removed from our RAB and therefore from our revenue. This arrangement does not provide strong incentives to take up these opportunities.

At the same time there may be opportunities to negotiate purchase of strategic land around our dams, as part of optimising our land portfolio to manage water quality risks.

Contemporary regulatory practice has evolved to provide incentives to regulated businesses to optimise their landholdings. Ofwat, the economic regulator of England and Wales water businesses, requires that the proceeds of land sales are shared equally between the businesses and their customers.[25] In 2016, IPART[26] also accepted that the proceeds of Sydney Water's surplus land should be shared equally between the business and its customers, with the shares being determined on a slightly different basis[27].

We also propose to augment this arrangement through provisions to retain or ring-fence land sale proceeds, without any adjustment to the RAB, for purchase of strategic land. This could involve creating a specific regulatory account for land sale proceeds which is then applied to purchase other land as part of a broader land optimisation strategy.

While we do not foresee any immediate or material opportunities to dispose of land, we see value in this arrangement being incorporated into the future regulatory regime to keep pace with regulatory practice. We are also seeking some greater flexibility in dealing with any land sale proceeds as described above.

Recover of major operating cost projects

As we progress through the price path period we are finding a number of large projects that are categorised as operating costs by accounting definitions, but are more akin to capital expenditure. Moreover these events can be difficult to foresee when projects are at the early planning phases. Examples include funding works on our customers' assets, or operating plants normally in hot-standby to maintain supply during major shutdowns for works at other water treatment plants.

Perverse incentives could arise without a more flexible regulatory treatment, such as favouring capital expenditure over lower-cost operating expenditure.

We intend to put forward supplementary proposals to the QCA to seek a more flexible arrangement for the future.

Tariffs

Most utilities have tariffs composed of fixed and variable prices with the intention being that the mix of fixed and variable prices should reflect the composition of a utility's costs. Such cost-reflective tariffs drive efficient consumption of, and therefore investment in, a service.

Our tariff structure is wholly volumetric, which is a requirement of the Referral Notice. As evidenced by our submission, a 100% volumetric tariff means that changes in price at each review are highly sensitive to demand particularly given most of our costs are fixed.

We recognise that tariff structure is ultimately a matter for Government in deciding future bulk water pricing policy. We hope to work with Government, the QCA and other stakeholders over the 2015 regulatory period to explore alternative tariff models for future pricing reviews. This will include consideration of how bulk water prices are passed through by our customers to their retail consumers and the linkages between the bulk water price and the retail bill.

25 Ofwat, 2010, *The Treatment of Regulated and Unregulated Business in Setting Price Controls for Monopoly Water and Sewerage Services in England and Wales – A Discussion Paper,* p.28.

26 PART, 2016, *Review of Prices for Sydney Water Corporation from 1 July 2016 to 30 June 2020, Final Report,* pp116-119.

27 Being an estimate of the proportion of Sydney Water's line-in-the-sand RAB to the depreciated replacement cost or book value of the assets.