Queensland Competition Authority

Final report

Rural irrigation price review 2020–24
Part C: Seqwater

January 2020

Level 27, 145 Ann Street, Brisbane Q 4000
GPO Box 2257, Brisbane Q 4001
Tel (07) 3222 0555
www.qca.org.au

Contents

EXECUTIVE SUMMARY

The Queensland Government (the Government) has directed the Queensland Competition Authority (QCA) to investigate the pricing practices for monopoly business activities of Sunwater and Seqwater relating to the supply of water for irrigation services, in specified water supply schemes (WSSs) and distribution systems.

The key objective of this review is to recommend prices to be charged by Sunwater and Seqwater to irrigation customers in the specified WSSs and distribution systems for the period 1 July 2020 to 30 June 2024.

This part of the report (Part C) assesses the costs and prices associated with irrigation schemes operated by Seqwater. Our overall approach to this review is outlined in Part A of the report.

In this report, we have recommended prices that increase gradually until they reach a cost-reflective level, where they recover the irrigation share of the scheme's operating, maintenance and capital renewal costs but do not recover a return on, or of, the scheme's initial asset base (as at 1 July 2000). This report refers to this level of cost recovery as 'the lower bound cost target'.

Costs

Our recommended prices seek to recover certain prudent and efficient costs. We have assessed the operating expenditure (opex) and renewals expenditure proposed by Seqwater for prudency and efficiency. Our recommended costs are in Chapters 2 and 3.

We have taken our findings in relation to our 2018–21 Seqwater bulk water price review into account in assessing prudent and efficient expenditure. In that review, we assessed the prudency and efficiency of Seqwater's proposed operating and capital expenditure (including irrigation-related costs) for the period 1 July 2018 to 30 June 2028.

We note that Seqwater's actual irrigation scheme opex was significantly lower than our opex forecasts over the 2013–17 price path period. In addition, Seqwater's proposed base year opex is lower than actual historical expenditure.

For renewals, we have reviewed historical and forecast projects with a material pricing impact. However, we have not proposed any further cost savings.

We have recommended that Seqwater work with its customers and with the Government to develop a proposal on transitioning to a RAB-based approach for consideration by us prior to 30 June 2021. We consider that moving away from an annuity approach for funding asset renewals in favour of a RAB-based approach would reduce the reliance on long-term renewals forecasts, improve transparency by allowing customers to see the pricing impacts of near-term renewals expenditure, and incentivise Seqwater to achieve efficiencies including the flexibility to reprioritise its expenditure to pursue least cost opportunities.

Prices

Our recommended prices and other charges, for the period 2020–24, are detailed in Chapters 7 and 8 of this report. These prices are also outlined in scheme-specific information sheets.

We have derived our inflation forecast for calculating price increases using Reserve Bank of Australia (RBA) forecasts where available and the midpoint of the RBA target band in later years. This method derives an inflation forecast that averages 2.24 per cent over the price path period.

For the Central Brisbane River WSS, we have assessed the zero allocation of costs to irrigators proposed by Seqwater and the Mid-Brisbane River Irrigators Committee (MBRI). While we welcome customers and the water businesses working together to reach agreement on pricing issues, we consider that the proposed cost allocation is inappropriate and inconsistent with the requirements of the referral. However, we have recommended a fixed price that is lower than the prevailing fixed price, based on an improved approach to assigning benefits attributable to different customer groups.

We have reassessed the allocation of bulk WSS costs to customer priority groups, particularly in respect of dam safety upgrade capex and insurance costs. We consider that each of these costs are asset-related rather than service-related, and as such, we have allocated these costs using the headworks utilisation factor.

Transition to lower bound prices

We have sought to recommend prices that transition gradually to lower bound costs, as this will give users time to adjust. We have assessed appropriate transition paths for two key categories of tariff groups:

- above lower bound costs-those tariff groups with existing prices that are already more than sufficient to recover the lower bound cost target
- below lower bound costs-those tariff groups with existing prices that are not yet sufficient to recover the lower bound cost target.

Above lower bound prices

For those tariff groups with existing prices above the lower bound cost target, we have sought to transition to prices that reflect the lower bound cost target by maintaining fixed prices in nominal terms until this cost target is reached.

Where existing volumetric prices are above the volumetric component of the lower bound cost target (cost-reflective volumetric prices), we have reduced the existing volumetric price to the cost-reflective volumetric price immediately. Where existing volumetric prices are less than or equal to cost-reflective volumetric prices, we have increased the existing volumetric price each year by our estimate of inflation until overall prices reach the lower bound cost target.

Below lower bound prices

For those tariff groups with existing prices below the lower bound cost target, we have sought to transition fixed prices to the fixed component of the lower bound cost target by annual increases of inflation plus an additional component of $2.38 per megalitre of WAE (from 2020–21, increasing by inflation), consistent with the pricing principles in the referral.

Where existing volumetric prices are above the volumetric component of the lower bound cost target (cost-reflective volumetric prices), we have reduced the existing volumetric price to the cost-reflective volumetric price immediately.

Where existing volumetric prices are less than or equal to cost-reflective volumetric prices, we have recommended that the total volumetric price increases by inflation (unless a lower than inflation increase reaches the cost-reflective volumetric price in the first year) until the fixed price reaches the fixed component of the lower bound cost target. The volumetric price then increases each year by $2.38 per megalitre (from 2020–21, increasing by inflation) until the lower bound cost target is reached.

This approach ensures a maximum annual real increase of $2.38 per megalitre of WAE ($2020–21).

Alternative pricing options

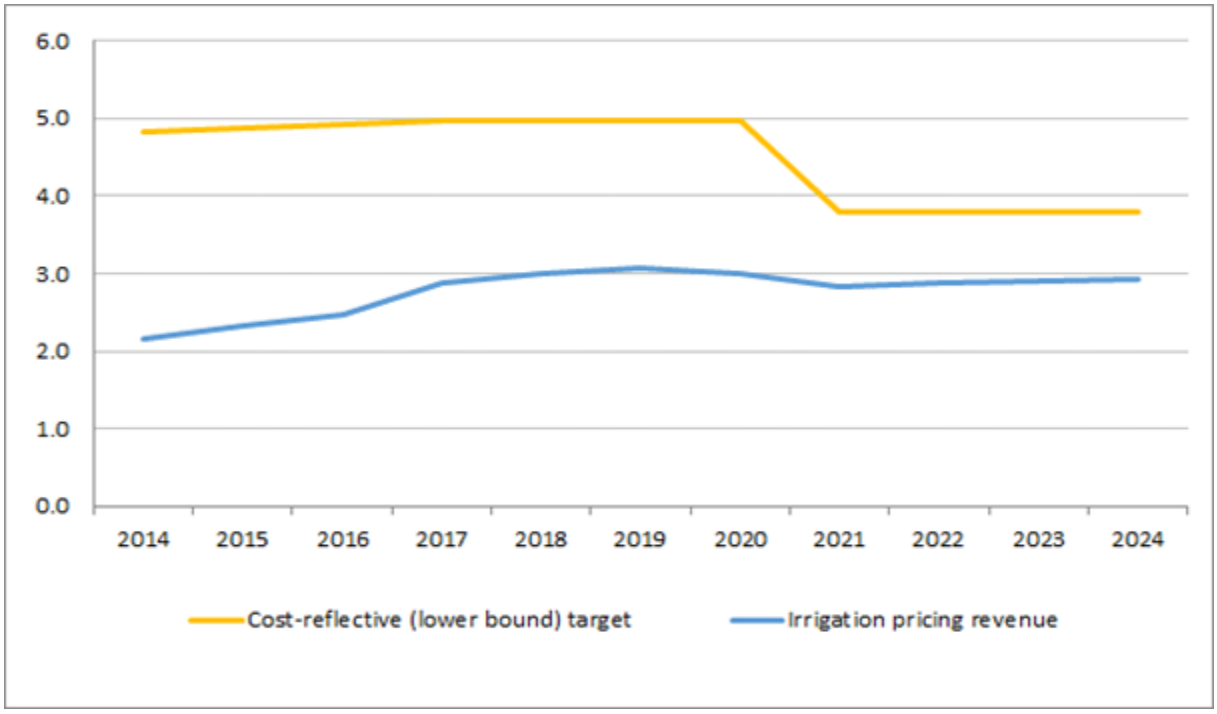
We have accepted Seqwater's proposal that a regulatory asset base (RAB) approach on an 'as-commissioned' basis would be appropriate for calculating a dam safety upgrade capex allowance. Since Seqwater does not have any dam safety upgrade projects forecast to be commissioned in this price path period, we have not calculated a separate pricing option inclusive of a dam safety upgrade capex allowance. However, we have provided an indicative impact of the potential future inclusion of the Somerset Dam Upgrade project capex (scheduled for commissioning in 2025–26) for Central Brisbane River WSS prices (see Part A, Chapter 4).

Implications

For each tariff group, the impact on water bills will vary depending on an irrigator's water use profile. We have presented indicative customer bill impacts and estimated customer bills in Chapter 9 and Appendix B.

Figure 1 compares revenue implied by our cost-reflective prices and our recommended prices.

Figure 1 Comparison of irrigation revenues ($2018–19, million)



Note: These revenues reflect the irrigation share of total scheme costs.

Recommendations

Our report was provided to the Government on 31 January 2020. The Government will consider our recommendations when it sets prices for irrigation customers in the relevant WSSs and distribution systems. A summary of our recommendations from Part C is shown in Table 1.

Table 1 Summary of recommendations (Part C report)

Number	*Recommendation*	*Chapter*
16	We recommend that Seqwater should work with its customers and with the Government to develop a proposal on transitioning to a RAB-based approach for consideration by the QCA prior to 30 June 2021.	4
17	We recommend that: • prudent and efficient bulk costs associated with necessary distribution loss WAEs should be recovered from distribution system customers	6

Number	*Recommendation*	*Chapter*
	• the bulk holding (fixed) costs of distribution loss WAEs not required to service distribution system customers should be borne by Seqwater • Seqwater should review its distribution loss WAEs and develop a strategy for their future treatment prior to the next price review.	
18	We recommend that: • prices for irrigation customers for each water supply scheme and distribution system should be set according to the prices set out in Tables 41 and 42 • prices for the Central Lockyer Valley WSS should be updated to take into account the Water Plan (Moreton) (Supply Scheme Arrangements) Amendment Plan 2019 as soon as practicable after the associated planning documents are finalised.	7
19	We recommend that: • termination fees applicable to customers in the Morton Vale Pipeline distribution system should be calculated as up to 11 times (including GST) the cost-reflective fixed (Part C) price • termination fees applicable to Pie Creek distribution system should be calculated as up to 11 times (including GST) the recommended fixed (Part C) price • Seqwater should have the discretion to apply a lower multiple to the relevant fixed price or waive the termination fee • Seqwater should never recover any revenue shortfall from remaining customers upon exit of the scheme by another customer.	8
20	We recommend that Seqwater should improve its engagement with customers by: • engaging with them on an ongoing basis, to keep a strong focus on what is important to customers over the course of the price path period and to provide a better understanding of customer requirements prior to the next price review • drawing a clearer link between proposed expenditure and both prices and service level outcomes for customers.	10

1 BUSINESS OVERVIEW

The Queensland Government (the Government) has asked us to investigate the pricing practices for monopoly business activities of Sunwater and Seqwater relating to the supply of water for irrigation services, in specified water supply schemes (WSSs) and distribution systems.

The key objective of this review is to recommend prices to be charged by Sunwater and Seqwater to irrigation customers in the specified WSSs and distribution systems for the period 1 July 2020 to 30 June 2024.

This part of the report (Part C) assesses the costs and prices associated with irrigation schemes operated by Seqwater.

1.1 Background

We completed our first review of Seqwater's irrigation prices in 2013 and recommended prices for the period 1 July 2013 to 30 June 2017 (the 2013 review).[1] The Government then set price paths commencing 1 January 2014 consistent with our recommendations.

From 2017–18 to 2019–20, the Government extended these price paths by applying an increase of 2.5 per cent each year to all tariff groups. In addition to this increase, tariff groups below the lower bound cost target incurred increases of $2 per megalitre (in $2012–13 real terms) until revenues consistent with the lower bound cost target were reached.

The objectives of the review are set out in the referral notice (the referral).[2] The key objective of the review is to recommend prices to be charged by the water businesses to irrigation customers in the specified WSSs and distribution systems for the period 1 July 2020 to 30 June 2024. The Government will consider our recommendations when it sets those prices.

The referral also asks us to account for the findings of our recent investigation of Seqwater's bulk water prices (the 2018 bulk review).[3]

1.2 Overview of Seqwater's services

Seqwater provides bulk water supply services to water retailers, other industrial customers, irrigation and other water access entitlement (WAE) holders. In 2016–17, irrigation revenues (including community service obligations (CSOs) accounted for around 0.4 per cent ($3.2 million) of Seqwater's regulated revenue, with the majority of Seqwater's regulated revenues coming from urban and industrial customers (99.6 per cent).

Seqwater owns and operates a network of water supply assets, including dams, weirs, water treatment plants, and manufactured water assets.

1.2.1 Non-irrigation services

Seqwater is responsible for supplying treated bulk water to local council areas in south east Queensland (SEQ). The water is supplied to bulk supply points and then delivered to businesses and households by the SEQ retailer servicing each area. Seqwater also provides bulk water supply

[1] QCA, *Seqwater Irrigation Price Review: 2013–17*, final report, April 2013.
[2] See Appendix A of Part A for a copy of the referral.
[3] QCA, *Seqwater Bulk Water Price Review 2018–21*, final report, March 2018.

services to Stanwell Corporation (for its power stations), Toowoomba Regional Council and water entitlement holders (such as Gympie Regional Council).

Prices for the services provided to these customers are not the subject of this review.

In addition, Seqwater provides flood mitigation services at Wivenhoe, Somerset and North Pine dams and access to recreation facilities at various dams.

1.2.2 Irrigation services

Seqwater has around 1200 irrigation customers across seven bulk WSSs[4] and two associated distribution systems[5]. These WSSs provide bulk water services that involve storing raw water and delivering it to customers in accordance with customers' WAEs.[6]

Seqwater can only supply water to a customer with a WAE. All distribution system customers must also hold bulk WAEs. Announced allocations specify the portion of a customer's WAE available for use. They are updated throughout the water year (generally after rainfall events).

Supply contracts

Seqwater enters into a supply contract with its customer. These are generally standard across all users and reflect the standard supply contracts set under the Water Act 2000. Under this standard contract, the customer, as owner of the WAE, bears the risk of the availability of water under their WAE. Customers can also trade WAEs in water plan areas where water licences and interim water allocations have been converted to water allocations.

These terms of supply have not changed since the 2013 review.

Service standards

Service standards were established in 2001 in all WSSs, except the Central Lockyer Valley and Central Brisbane River WSSs, in consultation with customer representatives. The service standards for Central Brisbane River and Central Lockyer Valley WSSs have been defined in the contract terms and through the water planning processes.

Changes to Moreton Water Plan

Over the past year, there has been public consultation on the Government's proposal to convert water entitlements in the Central Lockyer Valley WSS to tradeable WAEs. On 13 December 2019, the Water Plan (Moreton) 2007 (the Moreton Water Plan) amendment was finalised. However, the final water entitlement notice (which sets out the volumes of water allocations being converted), water management protocol, operations manual and resource operations licence are not expected to be released until February 2020.[7]

---

[4] Cedar Pocket WSS, Central Brisbane River WSS, Central Lockyer Valley WSS, Logan River WSS, Lower Lockyer Valley WSS, Mary Valley WSS and Warrill Valley WSS.

[5] Morton Vale Pipeline (which supplies water from the Central Lockyer Valley WSS) and the Pie Creek distribution system (which supplies water from the Mary Valley WSS). Distribution systems consist of pumps, open channels and/or pipes designed to deliver water to customers not located on a river

[6] A WAE is an ongoing entitlement to exclusively access a share of water, including water allocations or interim water allocations. Within each WSS, there are usually a number of different classes (or products) of WAE. The most common classes are high priority and medium priority. In general, irrigators hold medium priority WAEs. The water sharing rules under each operations manual determine the relative access to water for each priority.

[7] Business Queensland, Moreton water plan area, viewed 2 January 2020, https://www.business.qld.gov.au/industries/mining-energy-water/water/catchments-planning/water-plan-areas/moreton.

The prices derived in this report for Central Lockyer Valley WSS are based on the priority groups and volumes of water allocations in the current interim resource operations licence (ROL) in place for this scheme.

1.3 Seqwater's legislative and regulatory obligations

Seqwater must comply with a range of obligations when providing water services, as set out in a number of legislative and regulatory instruments. More information on the key obligations is provided in Part A (Appendix E).

1.4 Approach to reviewing Seqwater's irrigation prices

Figure 2 outlines the steps involved in calculating prices.

Figure 2 The QCA's approach to the review of Seqwater's irrigation prices

	Step	Description	Relevant Section
1	**Establish total costs at the scheme/system level**	Assess cost components, such as the appropriate allowance for renewals expenditure, to establish total costs for each scheme/system.	Part C Chapters 2–4
2	**Establish the forecast volume of water entitlements and usage**	Determine volume of entitlements and usage for each tariff group to use as a basis for revenue allocation and calculating prices.	Part C Chapter 5
3	**Determine the structure of cost-reflective fixed and volumetric prices**	Determine the allocation of revenue between fixed and volumetric prices across all tariff groups in the specified schemes/systems.	Part C Chapter 6-7
4	**Calculate recommend fixed and volumetric prices**	Derive fixed prices consistent with the pricing principles in the referral. Consider less than cost-reflective volumetric prices to moderate bill impacts.	Part C Chapter 7
5	**Calculate miscellaneous charges**	Derive drainage charges, drain diversion charges, termination fees and water harvesting charges for relevant schemes/systems.	Part C Chapter 8
6	**Undertake customer bill analysis**	Evaluate the impact of our pricing recommendations on irrigation customers.	Part C Chapter 9

2 OPERATING EXPENDITURE

This chapter sets out our assessment of the prudency and efficiency of Seqwater's proposed operating expenditure (opex) for the nine irrigation schemes (7 bulk WSSs and 2 distribution systems) relevant to this investigation. This includes all opex for these schemes, including costs allocated to irrigation and non-irrigation customers.

We have taken into account the findings of the 2018 bulk review as required by the referral. That review examined Seqwater's policies and procedures, and assessed the prudency and efficiency of Seqwater's proposed opex from 1 July 2018 to 30 June 2028.

We consider Seqwater's proposed opex to be generally prudent and efficient.

2.1 Overview

2.1.1 Seqwater's submission

Seqwater proposed opex of $52.3 million over the price path period (see Table 2).

Table 2 Seqwater's proposed opex for irrigation schemes ($ million, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*	*Total*
Labour	2.3	2.4	2.5	2.5	**9.7**
Electricity	0.4	0.4	0.4	0.4	**1.6**
Repairs and maintenance	1.1	1.1	1.1	1.2	**4.4**
Other	1.9	2.0	2.0	2.1	**8.0**
Local government rates	1.9	2.0	2.0	2.1	**8.0**
Dam safety inspection	0.1	0.1	0.1	0.1	**0.4**
Insurance	0.6	0.6	0.7	0.7	**2.6**
Total direct	**8.4**	**8.6**	**8.8**	**9.0**	**34.7**
Billing system	0.3	0.3	0.3	0.3	**1.3**
Operations	3.8	3.9	3.9	4.0	**15.6**
Non-infrastructure	0.1	0.2	0.2	0.2	**0.6**
Total non-direct	**4.2**	**4.3**	**4.4**	**4.5**	**17.5**
Total opex	**12.6**	**12.9**	**13.2**	**13.5**	**52.3**

Note: Totals may not add due to rounding. Source: Seqwater pricing model 2018.

Seqwater said that a key requirement of the referral was that we should take into account findings of the 2018 bulk review. Seqwater said that given it had submitted the same cost base we approved in this review, this should avoid the need for a detailed review of these costs.[8]

Seqwater's forecasting approach involved:

- setting 2018–19 base year opex consistent with those approved in the 2018 bulk review
- applying some specific adjustments where its financial systems had not appropriately allocated costs to specific irrigation schemes (including removing recreational costs)

[8] Seqwater, sub. 1, p.10.

- escalating input costs using the measures of input cost inflation we approved in the 2018 bulk review
- applying the continuing efficiency target (i.e. annual cost savings achievable by Seqwater by operating more efficiently) we approved as part of the 2018 bulk review.

Seqwater said that over recent years it had secured significant opex savings, with the 2018 bulk review showing it had exceeded our target organisation-wide opex savings by an additional $67 million over 2015–18.[9] Seqwater said that these cost savings also apply to its irrigation services.

Seqwater said that applying the same cost allocation approach from the 2013 review resulted in opex of $3.3 million allocated to irrigation customers in 2020–21, lower than the irrigation-related opex of $3.6 million that we treated as a revenue offset in the 2018 bulk review.

2.1.2 Other stakeholders' submission

Queensland Farmers' Federation (QFF) supported Seqwater's recommendation that we should not have to undertake significant investigations into the cost estimates and approaches that we have already recommended in the 2018 bulk review.

In response to our draft report, the Lockyer Water Users Forum expressed concerns with our level of assessment into costs within the Central Lockyer Valley WSS.[10]

The Mid-Brisbane River Irrigators Committee (MBRI) considered that the information presented in our draft report (see Table 3) should be extended to include years up to 2019–20.[11]

2.1.3 Key issues for consideration

We considered all aspects of Seqwater's proposal in making recommendations on the prudent and efficient level of Seqwater's opex.

We have taken our findings in relation to the 2018 bulk review into account, as required by the referral. In that review, we assessed the prudency and efficiency of Seqwater's proposed opex (including irrigation-related costs) for the period 1 July 2018 to 30 June 2028.

Seqwater's actual opex was lower than our target opex over the previous price path period (see Table 3).

Table 3 Seqwater's actual opex compared 2013 QCA-recommended opex for irrigation schemes ($ million, nominal)

Costs	*2013–14*	*2014–15*	*2015–16*	*2016–17*	*Total*
Seqwater actual opex	21.6	16.6	15.5	14.4	**68.1**
QCA recommended opex (2013 review)	18.2	18.5	18.9	19.3	**74.9**
Difference	**3.4**	**(2.0)**	**(3.4)**	**(4.9)**	**(6.8)**

Note: Totals may not add due to rounding. Source: QCA, 2013; Seqwater response to QCA RFI 31; various NSPs.

Note that while Seqwater escalated our forecast costs beyond 2016–17 in its network service plans (NSPs) (and in some cases, adjusted our 2016–17 forecast costs prior to escalating) and labelled these as QCA budgeted costs, these do not represent QCA forecasts. Accordingly, we have confined this table to the years that we forecast opex in the 2013 review.

[9] Seqwater, sub. 1, p. 10.
[10] Lockyer Water Users Forum, sub. 200, pp. 2–3.
[11] MBRI, sub. 204.

Taking into account our recent assessment of the prudency and efficiency of Seqwater's opex in the 2018 bulk review, we have identified the following issues for further consideration:

- reconciliation of Seqwater's proposed base year costs for irrigation schemes with Seqwater's total opex that we assessed in the 2018 bulk review
- appropriate allocation of non-direct opex to irrigation tariff groups
- appropriate escalation of input costs, given updated conditions.

2.2 Base year opex

2.2.1 Seqwater's submission

Seqwater submitted that it had used our recommended 2018–19 opex from the 2018 bulk review as the base year cost base, since this had already been established to be prudent and efficient.

Seqwater then excluded costs that only relate to urban bulk water services, and removed costs associated with recreational activities as required by the referral.

In response to our draft report, Seqwater submitted that its organisation-wide insurance costs had increased from $3.2 million to $6.4 million for the year ending September 2020 due to a hardening of insurance markets.[12]

2.2.2 QCA assessment

In accordance with the referral notice, we have taken into account our recommendations from the 2018 bulk review in assessing Seqwater's proposed base year opex.

We note that Seqwater's business-wide budgeted opex for 2018–19 ($246.9 million)[13] is slightly less than the $247.3 million[14] that we recommended in the 2018 bulk review. Of this expenditure, Seqwater is proposing to allocate $3.3 million to holders of medium priority entitlement in its irrigation schemes, compared to the $3.6 million that we excluded from opex in the 2018 bulk review.

In the 2018 bulk review, our focus was on major opex categories including labour (inclusive of employee expenses and contract labour), electricity and other materials and services.

Given that the above categories together constitute the majority of direct costs for irrigation schemes and the bulk of direct costs were reviewed as part of the 2018 bulk review, we consider Seqwater's base year opex to be generally efficient. Our assessment below focuses on irrigation-specific issues.

For direct opex, we assessed the allocation of labour costs to irrigation schemes, and electricity costs in the Pie Creek distribution system and Central Lockyer Valley WSS, and made some modelling adjustments. For non-direct opex, we assessed the non-direct cost base and its allocation to irrigation schemes, and made some modelling adjustments.

Base year direct opex

Allocation of labour costs to irrigation schemes

We have assessed the allocation of labour costs to Morton Vale Pipeline, as the allocated labour costs appeared to be high in comparison to recent actuals. Seqwater said that it found it efficient

[12] Seqwater, sub. 226, p. 10.
[13] Seqwater regulatory pricing model.
[14] QCA, *Seqwater Bulk Water Price Review 2018–21*, final report, March 2018, p. 34.

to resource operations and maintenance activity (such as de-silting, mowing and general maintenance) from a small pool of resources that work on two or more adjacent schemes. In this case, these costs are shared between four schemes (Central Lockyer Valley WSS, Morton Vale Pipeline, Lower Lockyer Valley WSS and Central Brisbane River WSS).

Seqwater does not track these activity costs by scheme, so for pricing purposes these costs are allocated from the pools to each scheme based on recent work history as advised by local management. This approach has resulted in 45 per cent of these costs being allocated to the Lower Lockyer Valley WSS[15] and 10 per cent to Morton Vale Pipeline[16].

We have assessed the percentage splits for labour costs between these four schemes using actual labour costs over the previous three years. This approach is used by Seqwater to allocate labour costs between schemes in the northern region (Mary Valley WSS, Pie Creek distribution system and Cedar Pocket WSS). Our analysis has resulted in revised percentage splits of 51 per cent for Lower Lockyer Valley WSS and 4 per cent for Morton Vale Pipeline distribution system. We consider these percentage splits reflect a more appropriate labour cost apportionment for these schemes over the upcoming price path period. The percentage splits for labour costs in the Central Lockyer Valley WSS and Central Brisbane River WSS remain unchanged.

Electricity costs

We have adjusted base year electricity costs for the Pie Creek distribution system and the Central Lockyer Valley WSS.

For the Pie Creek distribution system, the pumping of water is a significant driver of electricity costs. We therefore estimated a variable electricity cost per megalitre to apply to our forecast of water usage to derive efficient base year variable costs. We then added our estimate of efficient base year fixed costs.

Over the last seven financial years, electricity costs in the Central Lockyer Valley WSS have varied from $2,000 to over $100,000.[17] Electricity costs are driven by the pumping of water to the Lake Clarendon off-stream storage site during flow events and then pumping the water out for later usage. Lake Clarendon's current capacity sits at 0.2 per cent[18] and no pumping in or out occurred in 2017–18 or 2018–19.[19]

The low current capacity of Lake Clarendon means that pumping costs will not be incurred until a flow event. Forecasting such an event is highly subjective and risks over- and under-recovery.

Our estimated base year fixed electricity costs is $11,350, which is based on the historical electricity consumption and the latest electricity prices. We have recommended that Seqwater can recover a material change in off-stream pumping costs that it is unable to manage through an end-of-period adjustment (see Chapter 3, Part A).

Insurance costs

Seqwater's organisation-wide insurance costs were reviewed for prudency and efficiency as part of the 2018 bulk review.

The key driver in Seqwater's increase in insurance costs from 2018–19 to 2019–20 was the significantly increased cost of its Industrial Special Risks (ISR) program at the end of the previous

[15] Seqwater, sub. 5, p.10.
[16] Seqwater, sub. 4, p.14.
[17] Seqwater, NSPs 2012–13 to 2018–19.
[18] Seqwater, https://www.seqwater.com.au/dam-levels, 6 December 2019.
[19] Seqwater, post draft report, RFI 11, December 2019.

multi-year agreement. This was contributed to a significant increase in the ISR premium rate, combined with a higher value of assets based on their current valuation.

We consider that Seqwater has worked closely with its broker, Marsh, to investigate the prudent scope of insurances and deductibles and conduct a competitive and rigorous process in selecting insurers as part of its 2019 insurance renewal strategy. Given its policies and procedures, and given the recent cost drivers underlying Seqwater's insurance costs, we accept Seqwater's final insurance costs for 2019–20.

We have used 2018–19 actual insurance costs for our base year, and escalated this base year amount in 2019–20 by the actual cost increase of 98 per cent (see section 2.4).

Modelling adjustments

We have made an adjustment to base year local government rates. Seqwater proposed to use actual rates for 2017–18, escalated by CPI, to obtain the 2018–19 base year cost. Seqwater assumed CPI to be 2.5 per cent for this purpose. While we accept the use of actual rates for 2017–18, we have used the RBA's short-term inflation forecast of 1.75 per cent.[20]

We have also made modelling adjustments to correct for errors in Seqwater's pricing model. This has increased repair and maintenance costs by $85,600, compared to Seqwater's submission.

Summary

Table 4 shows our recommended base year direct opex by scheme.

Table 4 The QCA's recommended 2018–19 base year direct opex by scheme ($'000, nominal)

Scheme	*Seqwater submitted*	*QCA adjustment*	*QCA recommended*
Cedar Pocket	111.2	(0.1)	111.2
Central Brisbane River	4,075.2	(8.5)	4,066.7
Central Lockyer Valley	518.4	(113.5)	404.9
Morton Vale Pipeline	44.9	(17.8)	27.2
Logan River	1,389.4	(3.7)	1,385.6
Lower Lockyer Valley	434.9	49.5[a]	484.4
Mary Valley	483.1	(0.1)	483.0
Pie Creek	194.6	(10.7)	183.9
Warrill Valley	656.2	52.6[a]	708.9
Total direct opex[b]	**7,908.1**	**(52.2)**	**7,855.9**

a *Includes modelling adjustments to correct for errors in Seqwater's pricing model.* ***b*** *Totals may not add due to rounding. Source: Seqwater, sub. 1; Seqwater pricing model 2018; QCA analysis.*

Base year non-direct opex

Seqwater's non-direct opex derives from group or corporate functions—such as finance and human resources—that preclude direct attribution to individual irrigation schemes.

To determine the non-direct opex base, Seqwater forecast corporate and administration costs for the 2018–19 base year and removed:

- costs related solely to the provision of urban drinking water and water grid services
- one-off costs such as flood class action costs

[20] RBA, *Statement on Monetary Policy*, May 2019, table 5.1.

- costs attributable to assets not relevant to irrigation schemes.

Seqwater used total direct opex to allocate non-direct opex to irrigation schemes (Table 5). We have made modelling adjustments to correct for errors in Seqwater's cost allocation.

Table 5 Seqwater's proposed 2018–19 base year non-direct opex for irrigation schemes ($ million, nominal)

Cost category	*Cost base*	*Cost allocated to schemes*
Costs allocated across all shared assets	47.7	2.7
Costs allocated across all shared assets plus contractors	25.7	0.9[a]
Costs allocated across irrigation service contracts only	–	–
Total operations[b]	**73.5**	**3.6[a]**
Non-infrastructure	2.5	0.1
Total non-direct opex[b]	**76.0**	**3.7[a]**

a *Including modelling adjustments to correct for errors in Seqwater's pricing model increases these values to 1.3, 4.0 and 4.1.* ***b*** *Totals may not add due to rounding. Source: Seqwater, sub. 1; Seqwater pricing model 2018.*

We consider that Seqwater's proposed cost allocation approach is appropriate.

Table 6 shows our recommended base year non-direct opex by scheme.

Table 6 The QCA's recommended 2018–19 base year non-direct opex by scheme ($'000, nominal)

Scheme	*Seqwater submission*	*QCA adjustment[a]*	*QCA recommended*
Cedar Pocket	52.2	5.7	57.9
Central Brisbane River	1,924.3	205.7	2,130.0
Central Lockyer Valley	247.0	(32.1)	214.9
Morton Vale Pipeline	21.1	(6.9)	14.1
Logan River	641.7	79.4	721.1
Lower Lockyer Valley	217.4	49.5	267.0
Mary Valley	226.7	24.7	251.4
Pie Creek	91.3	4.4	95.7
Warrill Valley	307.9	61.0	368.9
Total non-direct opex[b]	**3,729.6**	**391.3**	**4,120.9**

a *Includes modelling adjustments to correct for errors in Seqwater's pricing model.* ***b*** *Totals may not add due to rounding. Source: Seqwater, sub. 1; Seqwater pricing model 2018; QCA analysis.*

2.3 Step changes to opex

2.3.1 Seqwater's submission

In its original cost submission, Seqwater proposed to include $0.3 million in indirect opex from 2020–21 as the 'notional' cost of a proposed upgrade to its billing and water accounting system for irrigation customers and other raw water WAE customers.[21] In response to our draft report, Seqwater submitted that the billing and water accounting system business case was being

[21] Seqwater, sub. 1, p. 21.

finalised, and that it intended to submit it subsequently. Seqwater said it had strengthened the proposal with additional investigation into new suppliers finding a lower cost option.[22]

Seqwater also included dam safety inspections of $0.1 million each year in its proposed step changes.

Seqwater said that it did not have an estimate of our regulatory fees for this irrigation price review so had not included these in its costs. Seqwater said that the recovery of QCA regulatory fees through prices was consistent with standard regulatory practice.[23]

2.3.2 QCA assessment

Seqwater submitted the business case for its customer billing proposal to us on 18 December 2019. This stated that one of the main drivers for the investment in a new customer billing system were expected efficiency gains, given that the current system is very labour intensive. Compared to its initial submission, Seqwater's proposed option included lower ongoing non-direct operational costs of $0.05 million per annum, and an upfront operational cost of $0.05 million. The proposed option also had a large capex component (see section 3.5).

Although one of the main drivers of the proposed investment were expected efficiency gains, Seqwater did not include any details of expected operational cost reductions in its customer billing system proposal. We are concerned that the inclusion of these costs in the base year without consideration of the impact of benefits in the subsequent forecasts may lead to an over-estimation of the resulting cost base.

We also have concerns regarding the level of customer consultation on the proposal, and the ability for customers to comment on the inclusion of billing system costs at this late stage. In addition, given the late stage at which Seqwater provided us with a copy of the business case, it has not been possible to undertake a detailed assessment of the efficiency of the proposed solution.

For these reasons, we have excluded the proposed customer billing system costs from the non-direct cost base.

As dam safety inspections are a compliance obligation for Seqwater, we have accepted Seqwater's proposed step change for this expenditure.

We have allocated shared regulatory costs or fees relating to this investigation based on water entitlements (ML) held by irrigation customers in each of the WSSs specified in the referral.

The total costs incurred by us in making recommendations under the referral are forecast to amount to $3.2 million. Costs have been allocated to Seqwater's WSSs over each year of the price path (see Table 7).

Table 7 The QCA's recommended annual step change in opex ($ million, nominal)

Step change	*Seqwater submission*	*QCA adjustment*	*QCA recommended*
Customer billing	0.3	(0.3)	–
Dam safety inspections	0.1	–	0.1
QCA regulatory fee	–	0.04	0.04

Note: Includes all costs in the specified 9 irrigation schemes operated by Seqwater, including those costs allocated to irrigation and non-irrigation customers. Source: Seqwater pricing model 2018; QCA analysis.

[22] Seqwater, sub. 226, p. 10.
[23] Seqwater, sub. 1, p. 10.

2.4 Cost escalation

2.4.1 Seqwater's submission

Seqwater proposed to use the same escalation factors as those that we approved for the 2018 bulk review, but it updated the estimates for the latest available forecasts (Table 8). In November 2019, Seqwater provided updated escalation factors for insurance reflecting its actual insurance costs in 2019–20 and the hardening of the insurance market.

Table 8 Seqwater's proposed annual cost escalation factors (%)

Cost category	*Basis for escalation factor*	*Forecast period*	*Escalation factor (%)*
Chemicals, other materials and indirect costs	CPI using latest short-term inflation forecast of the RBA	2019–20	2.25
	Midpoint of the RBA target range	2020–24	2.50
Insurance (original submission)	Midpoint of the RBA target range	2019–24	2.50
Insurance (November 2019 update)	Actual cost increase	2019–20	98.00
	Marsh (broker) forecast	2020–24	20 (2020–21); 10 (2021–22); 5 (2022–24)
Employee expenses	Queensland Government Budget 2018–19	2019–21	3.00
	10-year average wage price index for all sectors in Queensland (Australian Bureau of Statistics)	2021–24	3.10
Contract labour	Queensland Government Budget 2018–19	2019–21	3.00
	10-year average wage price index for all sectors in Queensland (Australian Bureau of Statistics)	2021–24	3.10
Contracted services	Weighted average of wage price index and consumer price index	2019–24	2.38 (2019–20); 2.59 (2020–22); 2.57 (2022–24)
Electricity	AEMO 2018 retail electricity price assumptions	2019–24	Between (7.40) and 9.04

Source: Seqwater, sub. 1, p. 18; Seqwater response to final report RFI 10.

2.4.2 QCA assessment

In accordance with the referral notice, we have taken into account our findings from the 2018 bulk review in assessing Seqwater's proposed cost escalation factors. We note that Seqwater proposed to use the same escalation factors as those that we accepted for the 2018 bulk review, but updated the estimates for the latest available forecasts.

We have updated our general inflation forecasts based on the RBA's latest short-term inflation forecast (currently available to December 2021) outlined in its Statement on Monetary Policy (November 2019).[24] We have adopted the RBA's most recent short-term inflation forecasts for the years ended June 2020 (2.0 per cent) and June 2021 (1.75 per cent). For the year ended June 2022, we have estimated an annualised inflation rate of 2.2 per cent based on the RBA forecasts for the years ended June 2021 and December 2021 (2.0 per cent) coupled with an assumption of annualised inflation of 2.5 per cent for the six-month period to June 2022. We have then assumed the midpoint of the RBA's target range for the later years of the price path period.

[24] RBA, *Statement on Monetary Policy, November 2019*, p. 68, Table 5.1.

We note Seqwater proposed similar escalation factors to those proposed by Sunwater. AECOM reviewed the escalation factors that Sunwater proposed and generally agreed with them.[25]

We note changes to insurance premiums are difficult to forecast as they are dependent on conditions in global markets. AECOM's review for this investigation noted evidence to support the view that the insurance market had tightened in the short term, and evidence from Seqwater's insurance adviser Marsh indicated large premium increases in property insurance in the Pacific region. We note that this analysis was undertaken prior to the bushfires on the east coast of Australia in late 2019 and early 2020.

As noted in section 2.2.2, we have accepted the actual increase in insurance costs for Seqwater in 2019–20. For 2020–21, we are recommending a 10 per cent increase in insurance costs, consistent with the escalation rate recommended by AECOM for Sunwater that we accepted. Seqwater faces the same insurance market as Sunwater and also uses Marsh as its insurance adviser. For the later years of the price path, AECOM recommend returning to CPI for insurance escalation. We have accepted this approach for Seqwater's insurance cost escalation, noting that we have recommended that Seqwater can recover a material change in insurance premiums that it is unable to manage through an end-of-period adjustment (see Chapter 3, Part A).

We have also accepted Seqwater's use of AEMO's retail electricity price assumptions (updated for the 2019 release) as the electricity cost escalator, consistent with the 2018 bulk review.

We have updated the labour escalation factor for Queensland Treasury's most recent forecasts of the Queensland wage price index (WPI) up to and including 2022–23. For 2023–24, we have used the 10-year average of the Queensland WPI of 2.73 per cent.

Our recommended escalation factors are summarised in the table below.

Table 9 The QCA's recommended cost escalation factors (%)

Cost category	*Basis for escalation factor*	*Forecast period*	*Escalation factor (%)*
Chemicals, other materials and indirect costs	CPI using latest short-term inflation forecast of the RBA	2019–22	2.00 (2019–20); 1.75 (2020–21); 2.20 (2021–22)
	Mid-point of the RBA target range	2022–24	2.50
Insurance	Actual increase	2019–20	98.00
	Based on Marsh (broker) forecast	2020–21	10.00
	CPI forecast	2022–24	2.20 (2021–22); 2.50 (2022–24)
Employee expenses and contract labour	Queensland Government Annual Budget 2018–19	2019–23	2.25 (2019–20); 2.50 (2020–22); 2.75 (2022–23)
	10-year average WPI for all sectors in Queensland over 2009–19 (ABS)	2023–24	2.73
Contracted services	Weighted average of WPI and CPI, using weighting approach proposed by Seqwater	2019–24	2.14 (2019–20); 2.17 (2020–21); 2.37 (2021–22); 2.64 (2022–23); 2.63 (2023–24)
Electricity	AEMO 2019 retail electricity price assumptions, adjusted to nominal terms using our CPI assumption	2019–24	(4.07) (2019–20); 2.14 (2020–21); 1.57 (2021–22); 1.60 (2022–23); 1.38 (2023–24)

Source: AECOM, Rural Irrigation Operational Expenditure Review, January 2020, pp 176–180; Queensland Government, Queensland Budget 2019–20, Budget Strategy and Outlook, Budget Paper No. 2, June 2019, p. 35; ABS, Wage Price Index, Australia, September 2019, Table 8a: Ordinary Hourly Rates of Pay Excluding Bonuses: All Sectors by State, Original, cat. no. 6345.0; AEMO, Retail Electricity Price ESOO 2019; QCA analysis.

[25] AECOM, *Rural Irrigation Operational Expenditure Review*, 2019, pp. 132–36.

2.5 Efficiency target

2.5.1 Seqwater's submission

Seqwater proposed a continuing efficiency target of 0.2 per cent each year (cumulative) of controllable opex across the regulatory period, consistent with our recommended target from the 2018 bulk review.

Seqwater submitted that all its opex for irrigation service contracts was controllable and that it had therefore applied the efficiency target to total opex.

Seqwater considered this prudent, as it had achieved significant efficiency gains over the previous regulatory period.

2.5.2 QCA assessment

Seqwater's proposal to apply a continuing efficiency target of 0.2 per cent per year (cumulative) of base year controllable opex is consistent with our approved target from the 2018 bulk review and with other recent regulatory reviews of water businesses in other jurisdictions (on a growth-adjusted basis).

There is currently a lack of robust information on achievable ongoing efficiency targets in the water sector. In the absence of robust empirical evidence to the contrary, we have accepted Seqwater's proposed continuing efficiency target.

2.6 Summary of total opex

Our recommended opex for Seqwater's irrigation service contracts is summarised in Table 10.

Table 10 The QCA's recommended opex for irrigation schemes ($ million, nominal)

Cost category	*2020–21*	*2021–22*	*2022–23*	*2023–24*	*Total*
Labour	2.3	2.4	2.4	2.5	**9.5**
Electricity	0.3	0.3	0.3	0.3	**1.1**
Repairs and maintenance	1.2	1.2	1.2	1.3	**4.9**
Other	1.9	2.0	2.0	2.1	**8.1**
Local government rates	1.9	1.9	2.0	2.0	**7.9**
Dam safety inspection	0.1	0.1	0.1	0.1	**0.4**
Insurance	1.3	1.3	1.3	1.4	**5.3**
Total direct	**9.0**	**9.2**	**9.4**	**9.6**	**37.2**
Operations	4.1	4.2	4.3	4.4	**17.1**
Non-infrastructure	0.1	0.2	0.2	0.2	**0.6**
Total non-direct	**4.3**	**4.4**	**4.5**	**4.6**	**17.7**
Total opex	**13.3**	**13.6**	**13.9**	**14.2**	**54.9**

Note: Totals may not add due to rounding. 'Other' includes QCA regulatory fee. Source: QCA analysis.

3 RENEWALS EXPENDITURE

This chapter assesses the prudency and efficiency of Seqwater's renewals expenditure. This includes all expenditure for these schemes, including costs allocated to irrigation and non-irrigation customers.

We have taken into account the findings from the 2018 bulk review, as required by the referral. In that review, we assessed the prudency and efficiency of Seqwater's capital expenditure (capex) for the period 1 July 2018 to 30 June 2028.

3.1 Overview

3.1.1 Seqwater's submission

Seqwater's renewals forecast was based on a composite approach, drawing data from multiple sources to derive long-term renewals profiles—with non-metering renewals for 2020–21 to 2034–35 sourced from its Asset Portfolio Master Plan (APMP) and forecasts for 2035–36 to 2049–50 derived from prior long-term renewals forecasts.[26]

Seqwater had included metering renewals to 2022, based on its meter replacement program, which is separate to the rest of its renewals planning process. Seqwater proposed to recover these costs through its renewals annuity, consistent with the 2013 review. It proposed a 30-year planning period for forecast renewals expenditure.

Seqwater stated that it had maintained the definition of renewals expenditure that was used for the 2013 review—that is, non-maintenance expenditure that is required to maintain the service capacity of the assets.

Table 11 Seqwater's renewals expenditure for irrigation schemes ($ million, nominal)

Cost	*2013–18*	*2018–20*	*2020–24*	*2024–33*	*2033–43*	*2043–53*	*Total 2020–53*
Metering	2.3	2.8	1.6	–	–	–	**1.6**
Non-metering[a]	2.7	2.9	10.7	14.3	59.5	65.1	**149.6**
Total[b]	**5.0**	**5.7**	**12.3**	**14.3**	**59.5**	**65.1**	**151.3**

a *Includes expenditure for Central Brisbane River WSS. In its November 2018 submission, Seqwater submitted that it was not proposing to recover renewals expenditure for Central Brisbane River WSS from its irrigation customers.*
b *Totals may not add due to rounding. Source: Seqwater response to QCA RFI 2.*

Dam safety upgrade capex

Seqwater did not forecast any dam safety upgrade capex over the price-path period.

3.1.2 Key issues for consideration

We have considered all aspects of Seqwater's proposal and have also taken into account the findings from the 2018 bulk review. In that review, we assessed the prudency and efficiency of Seqwater's capex for the period 1 July 2018 to 30 June 2028.

Issues that we have identified for further consideration include:

- Seqwater's historical renewals expenditure

[26] Seqwater, sub. 1, p. 22.

- changes in Seqwater's non-metering renewals program since the 2018 bulk review
- non-metering renewals expenditure beyond 2028
- introduction of a new customer billing system.

We engaged AECOM to assist us in this assessment.

3.2 Historical renewals expenditure

We have taken into account our findings from the 2018 bulk review in assessing Seqwater's historical renewals expenditure. We have also considered our recommendations from the 2013 review.

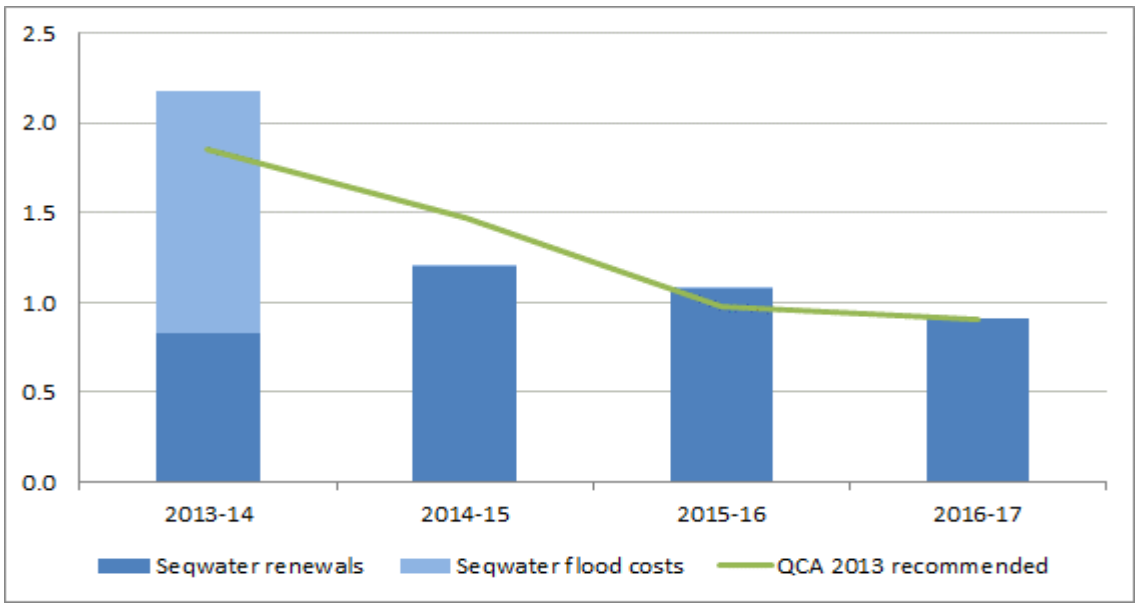
3.2.1 Seqwater's submission

Seqwater submitted that its actual renewals expenditure over the previous price path was $5.2 million, broadly similar to our recommended expenditure. Seqwater also incurred $1.4 million in uninsured flood damage costs.

3.2.2 QCA assessment

Actual expenditure has been generally below our recommended expenditure, except for flood costs incurred in 2013–14 (Figure 3).

Figure 3 Seqwater's historical renewals expenditure compared to the 2013 QCA-recommended expenditure for irrigation schemes ($ million, nominal)



Source: Seqwater response to QCA RFI 1; QCA, 2013.

With AECOM's assistance, we selected two renewals projects that were material in terms of potential price impact on an irrigation service scheme. These two projects were in the Central Lockyer Valley WSS:

- Flood costs not claimed—63 per cent of total flood damage costs
- Lake Clarendon channel refurbishment—55 per cent of scheme's non-metering renewals.[27]

[27] Rural Irrigation Capital Expenditure Review, AECOM, 2019, p. 16.

AECOM undertook engineering analysis of the prudency and efficiency of the sampled projects. AECOM's assessment did not identify any inefficiencies, and therefore AECOM did not recommend any adjustments.

Taking AECOM's findings into account, and given that Seqwater's actual expenditure is below our recommended expenditure from the 2013 review and that 2018 bulk review did not identify any inefficiencies in Seqwater's historical renewals, we have accepted Seqwater's proposed historical expenditure (see our recommended historical renewals in the table below).

Table 12 Seqwater's historical renewals expenditure for irrigation schemes, 2013–14 to 2019–20 ($ million, nominal)

Cost	*Seqwater submitted*	*QCA adjustment*	*QCA recommended*
Metering	5.1	–	5.1
Non-metering	5.6	–	5.6
Total	**10.7**	**–**	**10.7**

Source: Seqwater, sub. 1; Seqwater response to QCA RFI 34.

3.3 Non-metering renewals forecasts to 2027–28

3.3.1 Seqwater's submission

Seqwater proposed non-metering renewals of $3.3 million over the period to 2027–28 in its November 2018 submission, but in January 2019, it provided us with updated forecasts. It explained that:

- there were omissions in the original projections
- the revised projects were more in line with the methodology used for the 2018 bulk review.

The difference between the November 2018 forecasts and the January 2019 forecasts is summarised below.

Table 13 Seqwater's non-metering renewals expenditure for irrigation schemes ($ million, nominal)

Cost	*2020–24*	*2024–28*	*Total*
Original submission	1.6	1.7	**3.3**
Revised submission[a]	3.0	2.7	**5.7**
Difference[b]	**1.3**	**1.0**	**2.3**

a *Excludes expenditure for Central Brisbane River WSS to enable like-for-like comparison with the original submission, as Seqwater proposed not to recover expenditure this scheme.* ***b*** *Differences may not reconcile due to rounding. Source: Seqwater, sub. 1; Seqwater response to QCA RFI 2; Seqwater pricing model 2018.*

3.3.2 QCA assessment

In the 2018 bulk review, we undertook a comprehensive assessment of Seqwater's asset planning and management and found this to be consistent with good industry practice. In particular, we found that Seqwater's corporate governance and procurement framework provides an effective approach to managing key asset and investment risks and compliance obligations, and that its capital planning framework was consistent with its legislative requirements and good industry practice.[28]

[28] QCA, *Seqwater Bulk Water Price Review* 2018–21, final report, March 2018, p. 39.

For this reason, we have targeted our assessment to differences between our recommended expenditure in the 2018 bulk review—based on Seqwater's APMP at that time—and Seqwater's resubmitted expenditure. Table 14 compares the recommended expenditure from the 2018 bulk review with Seqwater's resubmitted expenditure.

Table 14 Seqwater's non-metering renewals program, 2020–21 to 2027–28 ($2018–19, million)

Scheme	*Seqwater submission*			*The 2018 bulk review*
	Shared assets[a]	*Irrigation only assets*	*Total*	
Central Brisbane River[b]	13.7	–	13.7	7.1
Central Lockyer Valley	1.7	–	1.7	1.6
Lower Lockyer Valley	0.2	0.3	0.5	0.0
Cedar Pocket	0.1	–	0.1	–
Mary Valley	0.2	–	0.2	0.2
Pie Creek	1.1	0.4	1.5	–
Logan River	0.8	–	0.8	0.8
Warrill Valley	0.2	0.1	0.3	0.1
Total[c]	**18.0**	**0.8**	**18.8**	**9.8**

a *Total value of assets before allocation. Irrigation share allocated using headworks utilisation factors (discussed in Chapter 7).* ***b*** *Figures obtained from Seqwater's APMP; Seqwater was not proposing to recover renewals expenditure for Central Brisbane River from its irrigation customers. However, we consider it is appropriate to recover a share of these costs from irrigation customers (see Chapter 6).* ***c*** *Totals may not add due to rounding. Source: Seqwater response to QCA RFI 2; QCA, Seqwater Bulk Water Price Path 2018–21, final report, March 2018.*

We note that Seqwater's submission is based on its latest APMP. Our review indicates that the increase in expenditure in Central Brisbane is largely the result of the deferral of expenditure on Somerset Dam from earlier years to 2020–21.

With AECOM's assistance, we selected two irrigation-only projects for review as these were not a focus of the 2018 bulk review. These projects were material in terms of potential price impact on the Pie Creek distribution system:

- Air valve replacements at Pie Creek main channel—covered 49 per cent of total renewals in this system over the price path period and 35 per cent of this asset type
- Long-term renewals at Pie Creek pump station—covered 91 per cent of total renewals in this system over Seqwater's proposed planning period and 83 per cent of this asset type.[29]

AECOM undertook engineering analysis of the prudency and efficiency of these projects. We accept AECOM's recommendations of no inefficiencies in these projects. Our recommended profile of non-metering renewals expenditure over the period to 2027–28 is summarised below.

Table 15 Seqwater's non-metering renewals expenditure for irrigation schemes ($ million, nominal)

Cost	*2020–24*	*2024–28*	*Total*
Seqwater	10.7	10.3	21.0
QCA recommended	**10.7**	**10.3**	**21.0**

Note: Includes expenditure for Central Brisbane River. Source: Seqwater, sub. 1; Seqwater pricing model 2018; Seqwater response to QCA RFI 2.

[29] Rural Irrigation Capital Expenditure Review, AECOM, 2019, pp. 18, 45.

3.4 Non-metering renewals forecasts beyond 2027–28

3.4.1 Seqwater's submission

Seqwater proposed non-metering renewals of $69.6 million over the period beyond 2027–28 in its November 2018 submission, but it provided us with updated forecasts in January 2019. It explained that there were omissions in the original projections and the revised projects were more in line with the methodology used for the 2018 bulk review.

The difference between the November 2018 forecasts and the January 2019 forecasts is summarised in Table 16. As Seqwater submitted that it was not proposing to recover renewals expenditure for Central Brisbane River from its irrigation customers, we have excluded Central Brisbane non–metering renewals expenditure from this table.

Table 16 Seqwater's non-metering renewals expenditure for irrigation schemes ($ million, nominal)

Cost	*2028–33*	*2033–43*	*2043–53*	*Total*
Original submission	2.5	24.8	42.2	69.6
Revised submission[a]	1.9	14.9	64.8	81.6
Difference[b]	**(0.6)**	**(10.0)**	**22.5**	**12.0**

a *Excludes expenditure for Central Brisbane River to enable like-for-like comparison with the original submission, as Seqwater proposed not to recover expenditure this scheme.* ***b*** *Differences may not reconcile due to rounding.*

Source: Seqwater, sub. 1; Seqwater pricing model 2018; Seqwater response to QCA RFI 2.

3.4.2 QCA assessment

With AECOM's assistance, we selected two irrigation-only projects for review as these were not a focus of the 2018 bulk review. These projects were selected from a cross-section of the major asset classes that were material in terms of potential price impact on an irrigation scheme:

- Crowley Vale Weir inlet works—raw water pump (Central Lockyer Valley WSS)—this project was selected to assess how asset planning methods were being applied to small projects
- Air valve type 1 replacements (Morton Vale Pipeline distribution system)—covered 17 per cent of total renewals in this system and 80 percent of this asset type
- Atkinson Dam building renewals (Lower Lockyer Valley WSS)—covered 93 per cent of total renewals in this scheme over Seqwater's 30-year planning period and 32 per cent of this asset type.[30]

AECOM undertook engineering analysis of the prudency and efficiency of these projects. We accept AECOM's recommendations of no inefficiencies in these projects. Our recommended non-metering renewals expenditure over the planning period beyond 2027–28 is summarised below.

Table 17 Seqwater's non-metering renewals expenditure for irrigation schemes ($million, nominal)

Cost	*2028–33*	*2033–43*	*2043–53*	*Total*
Seqwater[a]	4.0	59.5	65.1	128.6
QCA recommended	**4.0**	**59.5**	**65.1**	**128.6**

a *Includes expenditure for Central Brisbane River. Source: Seqwater, sub. 1; Seqwater pricing model 2018; Seqwater response to QCA RFI 2.*

[30] Rural Irrigation Capital Expenditure Review, AECOM, 2019, pp. 18, 45.

3.5 Customer billing and water accounting system

3.5.1 Seqwater's submission

In its November 2018 submission, Seqwater proposed to recover $0.3 million in indirect operational costs from 2020–21 associated with an upcoming upgrade to its billing and water accounting system for irrigation customers and other raw water WAE customers. As Seqwater had yet to finalise a business for this proposal at that time, we excluded these costs from opex in our draft report (see Chapter 2).

On 18 December 2019, Seqwater submitted a business case for this proposal, which indicated that the bulk of the proposed expenditure was capex in nature. Specifically, Seqwater proposed upfront capex of $0.7 million mainly comprising development costsand to recover these costs through the renewals annuity.

3.5.2 QCA assessment

Seqwater has provided detail about the drivers behind this project, which include:

- legislative compliance obligations
- service improvement.

Based on these drivers, it is likely prudent to update the current system.

However, given the late stage at which Seqwater provided us with a copy of the business case, it has not been possible to undertake a detailed assessment of the efficiency of the proposed solution. If Seqwater proceeds with this project over the price path period, it can seek to recover the associated prudent and efficient costs through an end-of-period adjustment to its renewals allowance.

For this reason, we have excluded these costs from renewals expenditure at this time.

3.6 Summary

Our recommended profile of total non–metering and metering renewals expenditure over the 30-year planning period is summarised in Table 18.

Table 18 QCA's recommended renewals expenditure over the price path and planning period ($million, nominal)

Cost	*2020–24*	*2024–33*	*2033–43*	*2043–53*	*Total*
Seqwater's proposed	12.3	14.3	59.5	65.1	151.3
QCA recommended	**12.3**	**14.3**	**59.5**	**65.1**	**151.3**

Note: Includes expenditure for Central Brisbane River. Seqwater was not proposing to recover renewals expenditure for Central Brisbane River from its irrigation customers, as stated in its November 2018 submission.

Source: Seqwater, sub. 1; Seqwater response to QCA RFI 2; QCA analysis.

4 TOTAL COSTS

This chapter explains how we have calculated total prudent and efficient costs for each irrigation scheme. These costs consist of:

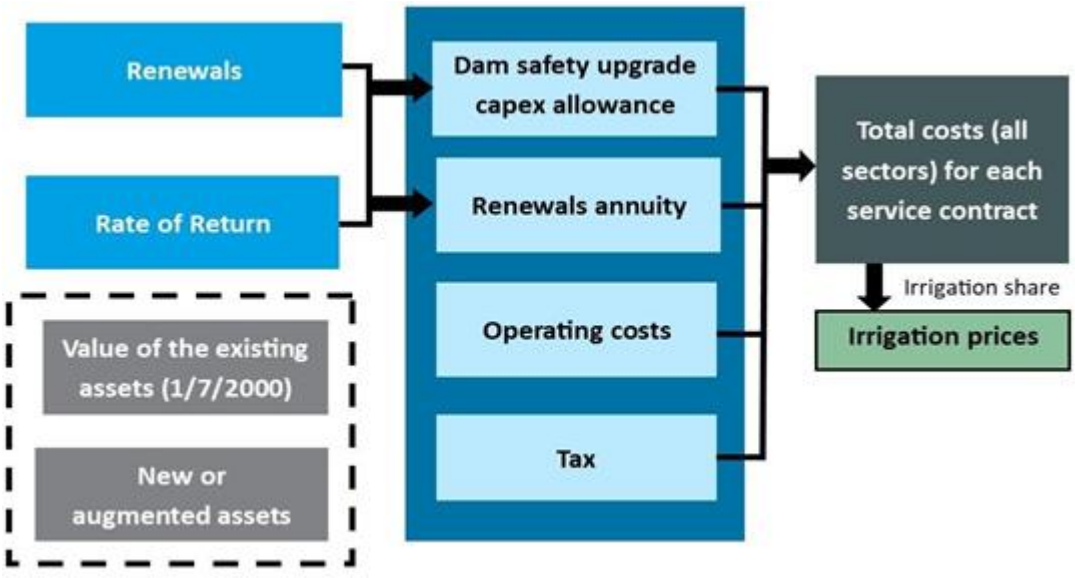
- *prudent and efficient operating costs*
- *an allowance for the prudent and efficient costs of renewing assets*
- *an allowance for prudent and efficient dam safety upgrade capex forecast to be incurred from 1 July 2020, to be applied in the set of prices where this allowance is included*
- *other costs components, including revenue offsets and a tax allowance.*

4.1 Calculating total costs

We have used a building block approach to calculate the total prudent and efficient costs for each irrigation service contract, covering all sectors including irrigation, urban and industrial. Under this approach, we considered the following cost components:

- opex—the ongoing costs of running the business and maintaining assets (Chapter 2), including operations, maintenance and administration costs
- renewals expenditure allowance—an appropriate allowance for the costs of renewing existing assets (section 4.2), reflecting our assessment of renewals expenditure (Chapter 3) and an appropriate rate of return (Part A, Appendix C)
- revenue offsets—identified on a service contract basis (section 4.5)
- tax—consistent with our post-tax nominal approach to the weighted average cost of capital (WACC), we include an allowance for tax as part of total costs (section 4.6).

Figure 4 Calculating total costs for each irrigation service contract



Note: As per the referral, costs recovered from irrigation prices are not to consider the value of existing assets (as at 1 July 2000) or the costs associated with new or augmented assets (unless we are satisfied that existing customers will benefit and they have been consulted). The dam safety upgrade capex allowance is only considered in the alternative set of prices that we are required to recommend under the terms of the referral.

We have also assessed an additional cost component—an appropriate allowance for dam safety upgrade capex forecast to be incurred from 1 July 2020 onwards—to calculate the alternative pricing option that includes an appropriate allowance for dam safety upgrade capex (see section 4.3).

4.2 Renewals expenditure allowance

4.2.1 Approach

Seqwater's submission

Consistent with previous price path periods, Seqwater proposed a rolling annual annuity approach to recovering prudent and efficient expenditure on the renewing existing assets.

Other stakeholders' submissions

No other stakeholder provided comments on this issue.

QCA assessment

While historically, rural water businesses across a number of Australian jurisdictions have used the annuity approaches for calculating the appropriate allowance for asset renewals, since the early 2000s a growing number of the larger rural water businesses have transitioned to RAB-based approaches. Over the life of the asset, and using identical costs, the present value of a renewals annuity should be the same as the present value of the RAB-based approach.[31] The key difference between the annuity and RAB-based approaches is the time profile of capital costs received by the business.

Under the annuity approach, forecast renewals expenditure required to maintain assets is smoothed over a set period of time. While this may result in customers paying upfront for expenditure that is forecast to be incurred in future years, it may also result in businesses incurring expenditure upfront that is recovered through payments over a set period. A water business that has built up an annuity reserve will not have to rely on raising finance for renewals expenditure. Therefore, it will not generally receive a return on capital spent to renew existing assets.

Under the RAB-based approach, renewals expenditure is smoothed so that the firm recovers a return on, and of, capital over the life of the renewal (starting from when the expenditure is incurred or the asset is commissioned). The return of capital will exactly recover the cost of the asset, and the return on capital will recover financing costs (interest on debt and a return to equity holders).

In theory, a renewals annuity should be calculated over a term equivalent to the asset with the longest life in the asset base. Where the term for a renewals annuity is shorter than the term of the longest-life asset, an under- or overestimate of the annual capital costs applicable to an asset may occur, depending on the timing of the calculation within the life cycle of the asset. For the purposes of this review, Seqwater proposed an annuity based on a 30-year period (see section 4.2.3).

Potential issues with renewals annuity approaches

There are a number of potential issues inherent to renewals annuity approaches that have driven the transition to RAB-based approaches. These include:

[31] QCA, *Issues in the Application of Annuities*, information paper, 2014.

- uncertainty associated with costs and demand
- effective engagement with customers.

We consider that there are benefits in transitioning to a RAB-based approach. A RAB-based approach can be more transparent, as it allows customers to see the pricing impacts of near-term renewals expenditure and requires the business to provide the capital and service the associated financing costs. This aligns closely with the planning focus of Seqwater's NSPs, which is on renewals expenditure in the short term to the end of the next price path period.

A RAB-based approach for renewals expenditure would provide for consistency with Seqwater's proposed approach for recovering irrigators' share of dam safety upgrade capex (see section 4.3). It would also align with the RAB-based approach Seqwater proposed, which is used to develop its bulk water prices through which it recovers the majority of its revenues.

Implications of transitioning to a RAB-based approach

There are a number of implications to consider in moving to a RAB-based approach.

It is important to ensure that Seqwater has sufficient funds to adequately maintain and replace its infrastructure, as well as appropriate incentives to undertake this work cost-effectively.

The two principal considerations when transitioning to a RAB-based approach are the ability of a RAB-based approach to generate sufficient cash flows, and the value of the opening RAB.

A transition from an annuity approach to a RAB-based approach should only directly impact on the manner in which renewals expenditure is funded, not on the governance and procurement arrangements associated with Seqwater's renewals program. Under both approaches, expenditure must be prudent and efficient and represent good or best practice.

Generating sufficient cash flows

The RAB-based approach has been applied to regulated businesses' capital expenditure programs and RAB-based approaches to funding renewals expenditure have been managed in the water, energy, transport and telecommunications sectors. RAB-based approaches to pricing, such as those adopted in other jurisdictions, have been designed to achieve full cost recovery. Such approaches typically set prices to generate a revenue stream that funds a business's opex, a return on and of its assets and its tax liability.

Within the context of Seqwater, the issue of cost recovery is complicated by the Government's policy of not recovering a return on, or of, the scheme's initial asset base. However, this issue relates specifically to the valuation of assets, and affects both renewals annuity approaches and RAB-based approaches equally. In the context of transitioning from an annuity, financial sustainability is addressed by:

- determining which of the activities currently funded through an annuity are appropriate for capitalisation. Under a RAB-based approach those activities more appropriately categorised as opex would be funded by prices in a dollar for dollar relationship
- passing through those expenditures appropriately treated as capital to the asset base, where they will earn:
  - a return of the asset through regulatory depreciation—regulatory depreciation is a simple concept that guarantees full recovery of the businesses investment over the useful life of the asset
  - a return on the asset commensurate with its value over time and the WACC.

Combined the return on and of assets provide the businesses with an ability to fund its renewals program through (benchmark) capital raisings.

Under a RAB-based approach, where the existing negative balances are capitalised in an asset base, the businesses will have positive RABs that generate a return and ensure that prices reflect the opportunity cost of capital. We note that the Government's policy with respect to existing assets (as at 1 July 2000) applies to assets constructed over 19 years ago. The risk associated with a transition to a RAB timed for the next price review will be reduced where pre-2000 assets are nearing the end of their useful lives.

It is possible that a transition to a RAB-based approach will decrease cash flows over the short to medium term. This will most likely occur where significant increases in renewals expenditure are forecast over the annuity period (such as a bow wave). If such increases exist, the annuity calculation itself will be relatively high, as it represents an average of the cost over of the annuity period. Where this is the case, decreases in cash flow relating to a transition to a RAB-based approach reflect changes in the timing of businesses recouping renewals expenditure, not changes in the total level of expenditure recouped. Under a RAB-based approach, renewals expenditure is fully recovered through regulatory depreciation, and the return earned on renewals expenditure compensates the business for the cost of capital.

The value of the opening asset base

In order to transition to a RAB-based approach, Seqwater will need to establish a value for its opening RAB. In the context of economic regulation, the value of the opening asset base should reflect the value of the future stream of benefits associated with the assets. The opening value of the asset base is important, as it forms the basis for the determination of the return on and off assets included in Seqwater's revenue requirement. The value of the opening RAB will also have an impact on the level of cash flow.

A number of issues need to be addressed in setting the value of the opening RAB. How these issues are addressed will impact on the method used to value the opening RAB. In particular, Seqwater will need to show consideration for the existing annuity balances (positive and negative) and the temporal cash flow impacts of moving to a RAB-based approach, and will need to ensure that it does not over-recover future expenditures.

One of the principle issues in transitioning to a RAB-based approach relates to the treatment of the existing balances in the annuity bank. Where the balance is positive (i.e. customers have to date paid more in annuity charges than the amount that was incurred through actual renewals expenditure), an approach would need to be determined on how to best return the balance to customers. Options include:

- returning the balance directly through prices—Seqwater could return positive balances through rebates, price decreases or by offsetting future price increases
- offsetting the positive balance against the value of the RAB.

If the balance is positive at the time of transition, there would be merit in establishing explicit reporting requirements as part of subsequent price reviews on the progress in transitioning. These reporting requirements would not need to be overly onerous but may be a simple accounting of how the balance has been addressed over time.

Negative annuity balances[32] can be addressed by rolling the outstanding liability into the RAB and allowing for a return on and of the asset. The RAB-based approach would allow Seqwater to service any debt associated with the liability. The impact of rolling the annuity liability into the RAB on Seqwater's debt profile should be minimal if the negative balance is currently funded by debt.

Alternative approaches to capitalising the existing balances include:

- Set the value of the opening RAB such that it generates a revenue stream that equates with that of the current annuity revenue. This approach involves determining an asset value based on the current renewals revenue stream, the average life of the assets included in the annuity calculation and the current discount rate. Adoption of this approach can be problematic where the current annuity reflects relatively high levels of future expenditure. Backing out the opening value of the RAB from current annuities would generate a RAB value that reflects future expenditure and may necessitate discounting those future expenditures in the future, as and when they are rolled into the RAB, to ensure the RAB value is not overstated.
- Preserve the annuity balances and allow prices to increase to recover the negative balances over a set period of time (e.g. 10 years). This approach was recommended by the ESC in the transition of Lower Murray Water and Goulburn-Murray Water. It is similar to the capitalisation approach, with the practical difference being that the balance would be recovered over a set period of time and not over the remaining life of the assets.

Key considerations in transitioning to a RAB based approach

The primary consideration for Seqwater in transitioning to a RAB-based approach is to ensure that the resulting efficiencies are passed through to customers appropriately, that is, in a way that is consistent with the interests and outcomes sought by Seqwater's broader customer base. A successful transition will rely on Seqwater's ability to develop the supporting tools and functionality necessary to inform the process, including:

- financial, pricing and billing models, developed at the scheme level, which is necessary for accurately determining the long-term financial impacts of the transition and the billing impacts for customers both in the immediate and long term
- a comprehensive consultation strategy and program that allows all effected customers to understand the benefits and costs of a transition and its impacts, along with identifying the desired outcomes and objectives of its customers in relation to the maintenance and renewal of their assets and the associated tariff and billing structure.

We would expect Seqwater to be able to show that its proposed transition to a RAB-based approach is consistent with the long-term interests of its customer base. Ideally, Seqwater should adopt a logically structured process to determine the form and functionality of its potential transition. Such a process would be evidence-based and customer-centric and include:

- a comprehensive review of the current renewals expenditure profile that identifies appropriate opex and capex treatments under a RAB-based approach
- a review of the renewals works program itself, to ensure the timing and extent of works are consistent with what would be expected under a RAB-based approach

[32] That is, customers have to date paid less in annuity charges than the amount that was incurred through actual renewals expenditure.

- engagement of the broader customer base and stakeholders to:
  - identify customers' objectives and the outcomes they wish to see
  - inform and educate customers on the implications (including pricing impacts).

Conclusion

We accept Seqwater's proposal that a renewals annuity approach will provide for an appropriate renewals expenditure allowance. That approach will result in allowed revenues or prices such that renewals expenditure incurred is expected to be recovered in present value terms, with the discount rate equal to the rate of return on investment that is commensurate with the regulatory and commercial risks involved with providing access to the service. This ensures that Seqwater is adequately compensated for its renewals expenditure; hence, efficient investment will be made in the future, and at the same time, customers pay reasonable prices.

However, we consider that Seqwater should investigate options with its customers and with the Government to move to RAB-based approach for future price reviews. We note that transitioning to a RAB-based approach may have direct impacts on customers and Seqwater will need to engage with its customer base to both assess their preferences and to inform or educate customers on the potential impacts associated with transition.

We also acknowledge that a transition to a RAB-based approach needs to have regard for current government pricing policy. A RAB transition that resulted in lower prices (in the short to medium term) would not be consistent with the pricing principles in the referral.

Recommendation 16

We recommend that Seqwater should work with its customers and with the Government to develop a proposal on transitioning to a RAB-based approach for consideration by the QCA prior to 30 June 2021.

4.2.2 Opening annuity balance

Seqwater's submission

Seqwater said that the opening renewals annuity balances for 2020–21 were based on the opening annuity balances for 2013–14, less renewals expenditure, plus income and interest over the 2013–17 price paths.

For the Mary Valley WSS, Seqwater said that a recent review found that the headworks utilisation factor (HUF) approved in the 2013 review was too high due to the medium priority cut-off rule that applied to water supplied from Borumba Dam being incorrectly applied (see section 7.4). This resulted in a higher share of fixed bulk infrastructure costs being allocated to irrigators.[33] Seqwater proposed that the additional revenue collected due to this issue be credited as an adjustment to the opening renewals annuity balance. Seqwater said that customers agreed with this proposal.[34]

Seqwater proposed calculating and reporting the annuity balances for the irrigation share only of each scheme.[35] Seqwater said that this would allow for a simpler and more transparent calculation of those costs only recovered from the irrigation customers, such as the meter

[33] Seqwater, sub. 1, p. 44.
[34] Seqwater, sub. 7, p. 8.
[35] Seqwater, sub. 1, p. 26.

replacement program. Seqwater said that its shared schemes[36] only had a relatively small allocation of renewals costs under the HUF, and the annuity approach was generally not relevant for non-irrigation customers whose prices were generally based on a RAB approach (e.g. through SEQ bulk water prices).

Seqwater did not include irrigator-only adjustments in its regulatory model used to derive its proposed prices, but this information was included for reporting purposes in its scheme-level submissions.

Other stakeholders' submissions

No stakeholders provided submissions on this particular issue.

QCA assessment

A rolling renewals annuity involves the calculation of a separate new annuity path each year, based on the closing value of the annuity fund for the previous year and the present value of the forecast renewals for the term of the annuity (20 or 30 years)[37]. This process is repeated for each subsequent year. The term rolling refers to the progressive annual iterative process whereby the annuity calculation is moved forward annually.

The starting point for our assessment is the opening annuity balances for 2013–14. We have confirmed that Seqwater's 2013–14 opening annuity balances across all schemes reconcile with our recommended 2013–14 opening annuity balances.[38]

We accept that there may be merit in Seqwater's proposal to report renewals annuity balances for the irrigation share only of each scheme. This aligns with the approach that we have previously accepted for deriving the RAB used to calculate SEQ bulk water prices. For instance, in the 2018 bulk review review, only the high priority HUF share of capital expenditure is incorporated in the RAB.

We also accept that an irrigation-only share of annuity balances could be more transparent to irrigation customers for reporting purposes, particularly in the shared Seqwater schemes with high urban shares. This would allow for the capex in these shared schemes to be clearly allocated between the irrigation share (in the annuity balance) and SEQ bulk water share (in the RAB).

However, for the purposes of modelling prices we have used the whole of scheme annuity balance, consistent with Seqwater's modelling underlying its proposed prices. We note that this approach will not impact on our recommended prices for this price path period, as the renewals allowance only impacts on the fixed (Part A and Part C) prices, and no Seqwater tariff groups will transition to the Government's definition of cost-reflective fixed prices over this price path period.

We accept Seqwater's proposal to credit additional revenue collected due to the incorrect calculation of the Mary Valley WSS HUF as an adjustment to the opening renewals annuity balance for this scheme.

We have rolled forward the opening 2013–14 annuity balance for each scheme through to end of the previous price path in 2016–17. The roll-forward occurs each year by making the following adjustments to each year's opening balance:

---

[36] A shared scheme is a scheme supplying both urban high priority WAE customers and irrigation medium priority WAE customers.

[37] We assess the appropriate term of the annuity (or planning period) in section 4.2.3.

[38] QCA, *Seqwater Irrigation Price Review: 2013–17, final report*, April 2013, p. 93.

- adding the renewals annuity allowance from our 2013 review
- subtracting our recommended prudent and efficient renewals costs (see Chapter 3)
- adjusting for interest each year using the post-tax nominal WACC of 6.20 per cent from our 2013 review.

The opening 2017–18 annuity balance is then rolled forward to the commencement of the new price path period using the same approach. Our assessed annuity revenue allowance for 2016–17 was increased by forecast inflation (2.5 per cent) each year, in line with the increase in the lower bound cost target used by the Government to set the price path over this period.

Our recommended opening annuity balances for 2020–21 are shown in Table 19.

Table 19 QCA-recommended 2020–21 opening annuity balance (all sectors)[a] ($'000, nominal)

Scheme	*Seqwater (November 2018)*	*QCA recommended*
Cedar Pocket	68	68
Central Brisbane[b]	–	868
Central Lockyer Valley	(2,109)	(2,386)
Morton Vale Pipeline	123	411
Logan River	(2,319)	(2,169)
Lower Lockyer Valley	(1,470)	(1,512)
Mary Valley	(4,214)	(3,854)
Pie Creek	400	436
Warrill Valley	(1,789)	(1,693)

a *Includes irrigation and non-irrigation share.* ***b*** *Seqwater did not submit proposed costs for Central Brisbane River WSS, as it proposed zero prices for this scheme. Source: Seqwater, sub. 1, p. 50.*

4.2.3 Planning period

To calculate a renewals annuity, it is necessary to determine the length of the planning period. This is the period over which forecast renewals expenditures are incorporated into the calculation of the renewals annuity. In the 2013 review, we applied a 20-year planning period.

Seqwater's submission

Seqwater considered that moving from a 20-year to a 30-year planning period was appropriate for the following reasons:

- Many of Seqwater's assets used to provide irrigation services have lives greater than 20 years and the period of recovery should ideally match the asset life.
- A 30-year planning period leads to a less volatile renewals allowance and allows expensive renewal projects to be included without creating a volatile price impact.
- The discounting of future expenditure appropriately takes into account this uncertainty and the renewal project has a bigger impact on the annuity as it draws closer and becomes more certain.
- The annuity balance provides a balancing mechanism to ensure the business does not over-recover renewals costs.[39]

[39] Seqwater, sub. 1, p. 26.

Seqwater indicated that the 30-year annuity period was presented during the customer consultation process but no feedback was received on this issue.[40]

Other stakeholders' submissions

No stakeholders provided submissions on Seqwater's proposed planning period.

QCA assessment

We consider that both 20-year and 30-year planning periods may result in intergenerational equity issues, given that these do not cover the longest-life asset in Seqwater's asset base.

In the 2013 review, we chose a 20-year planning period because of our concerns regarding forecast renewals expenditure in the outer years. In 2018 bulk review, our consultant KPMG considered that, overall, Seqwater's capital planning framework was commendable and consistent with its legislative requirements and good industry practice.[41]

For this review, we have assessed the impact on the renewals annuity allowance of moving from a 20-year to a 30-year planning period. Across all schemes, the total renewals annuity allowance is 1.1 per cent lower under a planning period of 30 years compared to 20 years (Table 20).

Table 20 Total renewals annuity allowance over 2020–24 period—20-year vs 30-year planning period, bulk WSSs ($'000, nominal)

Scheme	*20-year planning period*	*30-year planning period*	*Difference (%)*
Cedar Pocket	24	19	(20.3)
Central Brisbane	8,493	6,402	(24.6)
Central Lockyer Valley	1,336	1,316	(1.5)
Morton Vale Pipeline	(100)	22	(122.1)
Logan River	938	804	(14.2)
Lower Lockyer Valley	693	1,598	130.5
Mary Valley	1,015	2,000	97.2
Pie Creek	449	339	(24.4)
Warrill Valley	1,093	1,293	18.4
Total	**13,941**	**13,795**	**(1.1)**

Note: Includes irrigation and non-irrigation customer share. Source: QCA analysis.

For this review, we have accepted Seqwater's proposed 30-year planning period.

4.2.4 Calculating the renewals annuity

In calculating the renewals annuity, the following is required:

- opening balance of the annuity balance at the beginning of the price path period (see section 4.2.2)
- forecast renewals expenditure over an appropriate planning period
- an appropriate discount rate that reflects Seqwater's opportunity cost of funds.

[40] Seqwater, sub. 1, p. 27.
[41] KPMG, *Seqwater expenditure review: prudency and efficiency assessment*, updated report for the QCA, March 2018, pp. 65–67.

Seqwater's submission

Seqwater proposed that for schemes with prices above the lower bound cost target, the surplus revenue should be returned to the annuity account moving forward (from 2020–21 onwards).[42] While Seqwater modelled the value of the surplus, it did not return this to the annuity balance within the regulatory model.

Other stakeholders' submissions

QFF supported using revenue recovered above the cost-reflective level to reduce the negative renewals annuity balances in Logan River, Mary Valley, and Warrill Valley WSSs.[43]

No stakeholder submissions on this issue were received in response to our draft report.

QCA assessment

Consistent with the 2013 review, we considered that the discount rate applied in calculating the renewals annuity (including the interest rate applied to both positive and negative annuity balances) should reflect Seqwater's opportunity cost of funds. On this basis, we accept Seqwater's proposed approach in principle, noting that it is consistent with our recommended approach in the 2013 review. However, we have recommended a different post-tax WACC than that proposed by Seqwater (see Part A, Appendix C).

In indexing the annuity, our estimate of inflation of 2.39 per cent is derived by taking the 10-year geometric average of the RBA short-term forecast for 2020–21, our derived inflation forecast for 2021–22 (see section 2.4), and the midpoint of the RBA's inflation target range (2.5 per cent) for 2022–23 to 2029–30. We consider that the 10-year geometric average for the inflation rate is consistent with the 10-year risk-free rate impounded in the nominal post-tax WACC.

Seqwater said that stakeholders supported its proposal to treat revenue above the lower bound cost target as a surplus and return it to customers via the renewals annuity balance. This is applicable in schemes with current prices above the irrigation cost recovery target—Logan River, Mary Valley and Warrill Valley WSSs.

As discussed in Chapter 2 of our Part A report, we have decided to apply the pricing principles in the referral and therefore cannot reduce the fixed (Part A) price. However, our decision does not prevent Seqwater (or Sunwater) from returning the surplus revenue above the cost target to the relevant schemes. This approach is consistent with the principle in the referral that prices are to be based on all tariff groups transitioning to the lower bound cost target.

For the purposes of this review, this modified treatment will have no impact on our recommended prices.

Our recommended renewals annuities for each of Seqwater's schemes are summarised in the table below. Scheme-level information is provided in Appendix A.

[42] Seqwater, sub. 1, pp. 25–26.
[43] Queensland Farmers' Federation, sub. 131, p. 2.

Table 21 The QCA's recommended renewals annuities for 2020–24 ($'million, nominal)

	2020–21	*2021–22*	*2022–23*	*2023–24*
QCA recommended	3.1	3.5	3.6	3.6

Note: Includes irrigation and non-irrigation customer share. Source: QCA analysis.

4.3 Dam safety upgrade capital expenditure allowance

4.3.1 Seqwater's submission

Seqwater proposed, if it were to recover irrigators' share of dam safety upgrade costs from irrigation customers, to use a RAB-based approach with projects incorporated in the RAB on an 'as-commissioned' basis for the following reasons:

- Dam safety upgrades have very long lives, similar to the dams they improve; therefore, it would not be appropriate to recover these costs over a 20- or 30-year period used in the renewals annuity method.
- A RAB-based approach on an 'as-commissioned' basis means customers do not contribute to the costs of the project until it is commissioned.
- Seqwater already uses a RAB approach for SEQ urban bulk water prices, so it would provide for consistency.[44]

Seqwater said that dam safety projects in the irrigation scheme have either been commissioned prior to 1 July 2020, or are not forecast to be commissioned until beyond 2023–24. On this basis, Seqwater said it is not proposing any costs associated with dam safety upgrades during the price path.[45]

4.3.2 QCA assessment

As a regulatory compliance cost, dam safety upgrade capex differs in nature to other renewals costs in the renewals annuity that seek to provide for the future cost of refurbishment and replacement of all assets within a defined system of existing assets. Dam safety upgrades do not reflect like-for-like or modern equivalent replacement of existing assets—rather, these projects upgrade existing assets to meet dam safety compliance requirements. We consider that capital costs that lead to the upgrade of existing infrastructure should be recovered using a separate capital annuity or RAB-based approach.

We do not consider that a renewals annuity with a 20- or 30-year planning period is appropriate for deriving an allowance for dam safety upgrade capex. Under the renewals annuity approach, the recovery of dam safety upgrade capex would substantially take place over the 20- or 30-year planning period, rather than over the life of the asset, as would occur under a RAB-based approach. In the 2018 bulk review, we assumed an asset life of 150 years for dam safety upgrades.

We accept Seqwater's proposal that a RAB-based approach is appropriate for calculating an appropriate allowance for the prudent and efficient capex on dam safety upgrades. A RAB-based approach would recover capital-related costs over the useful life of the asset, ensuring that the costs of the services are recovered over a timeframe that is the same as for the provision of the services. It also addresses intergenerational equity concerns associated with existing customers paying for services that also deliver benefits to future customers.

[44] Seqwater, sub. 1, p. 28.
[45] Seqwater, sub. 1, p. 28.

We accept Seqwater's proposal to incorporate dam safety upgrade capex in the RAB on an 'as-commissioned' basis. In previous SEQ bulk water investigations, we recognised dam safety upgrade capex in the RAB from the year in which a project is commissioned (i.e. on an as-commissioned basis), as it is from this point in time that capex starts delivering a service and providing benefits. Under the existing regulatory framework for SEQ bulk water prices, an ex post review of actual capex would be undertaken if costs are higher than previously approved forecasts, to ensure that only prudent and efficient costs are recovered in prices.

We consider that dam safety upgrade capex is similar to capex that seeks to increase the service or productive capacity of the existing asset base, in that it upgrades existing assets and provides benefits over the term of its economic useful life.

None of Seqwater's dam safety upgrade projects are expected to be commissioned in the price path period. However, some of its planned dam safety upgrades are expected to be completed beyond the price path period (Table 22).

Table 22 Projected timing of dam safety upgrade projects

WSS	*Projected timing (if any)*
Cedar Pocket WSS	No upgrade currently required
Central Brisbane River WSS	Somerset Dam (commissioning 2025–26) Wivenhoe Dam (commissioning 2031–32)
Central Lockyer Valley WSS	Dam safety upgrades for Bill Gunn Dam and Clarendon Dam are commissioning prior to 1 July 2020
Logan River WSS	Maroon Dam (commissioning 2036–37)
Lower Lockyer Valley WSS	Atkinson Dam (commissioning 2036–37)
Mary Valley WSS	Borumba Dam (commissioning 2035–36)
Warrill Valley WSS	Moogerah Dam (Stage 1B) (commissioning 2034–35) Moogerah Dam (Stage 2) (commissioning 2036–37)

Source: Seqwater, sub. 1, pp. 28–29.

In the 2018 bulk review, we recommended that $223.1 million in capex on the Somerset Dam safety upgrade project be recovered from SEQ bulk water prices, with commissioning to occur in 2025–26.[46] For indicative purposes, this additional cost would be equivalent to an additional $4.47 per megalitre in the fixed (Part A) price for irrigators in the Central Brisbane River WSS.[47]

4.4 Working capital allowance

4.4.1 Seqwater's submission

Seqwater has not proposed a working capital allowance. It said that while conceptually a working capital allowance would be appropriate, the allowance for irrigation services would likely be small.[48]

[46] While Seqwater submitted $285.5 million in incurred costs, we approved $223.1 million in our 2018–21 Seqwater bulk water price review. See QCA, *Seqwater Bulk Water Price Review 2018–21,* final report, March 2018, pp. 41–47.

[47] Note this is an indicative price impact, based on the WACC used in this report and an asset life of 150 years for regulatory depreciation (consistent with the asset life approved for this project in our 2018–21 Seqwater bulk water price review).

[48] Seqwater, sub. 1, p. 21.

4.4.2 QCA assessment

By far the largest portion of irrigators' payments to Seqwater relates to fixed Part A and C prices, which are paid in advance. This means that for irrigation activities it is likely that Seqwater would not generally suffer an economic cost resulting from the timing difference between receivables and payables.

As a result, we consider that a zero working capital allowance is appropriate. In the 2013 review, our approach was also not to incorporate a working capital allowance.

4.5 Revenue offsets

4.5.1 Seqwater's submission

Seqwater submitted that most of the revenue offsets that were identified in the 2013 review related to recreation services. As recreation costs are being excluded from this review, Seqwater said that recreation revenue should not be offset for the purpose of setting irrigation prices.[49]

Seqwater said that there were only minor remaining sources of alternate revenue for the schemes. These account for a total of $0.1 million in 2020–21, and have been accounted for in the relevant schemes.[50]

4.5.2 QCA assessment

We have not subjected Seqwater's proposed revenue offsets to review, as they are generally relatively minor. These revenue offsets were deducted from the scheme total costs and are therefore effectively shared between irrigation and other scheme users.

We have added revenue offsets for the Central Brisbane River WSS of $1.4 million in 2020–21.

4.6 Tax allowance

4.6.1 Seqwater's submission

Seqwater noted that in the 2013 review, tax cash flows were excluded from our revenue and price modelling, despite a post-tax WACC being applied.

Seqwater derived its renewals annuity allowance using a post-tax nominal WACC, noting that this was our preference in previous regulatory reviews. While tax is not explicitly excluded in this review, Seqwater has not proposed any tax cash flows. Seqwater said that we could therefore consider if the post-tax WACC remains appropriate without any tax cash flows.

4.6.2 QCA assessment

In the 2013 review, we said that the QCA-recommended efficient costs were equivalent to the definition of lower bound.[51] Given the definition of lower bound pricing excludes income tax[52], we did not calculate a separate tax allowance.

For Seqwater's irrigation business, the referral directs us to recommend prices that do not consider Seqwater's asset base and therefore do not allow a return on the historical investment. Under the renewals annuity approach that has been used since 2000, renewals expenditure are

[49] Seqwater, sub. 1, p. 18.
[50] This excludes Central Brisbane River WSS, as Seqwater did not propose costs or revenue offsets for this scheme.
[51] QCA, *Seqwater Irrigation Price Review 2013–17*, final report, April 2013, p. 246.
[52] QCA, *Seqwater Irrigation Price Review 2013–17*, final report, April 2013, p. vii.

excluded from the asset base and treated as 'operational'—that is, being deductible for tax purposes. As a result, no tax liability is associated with renewing existing assets.

The implication is that Seqwater is required to generate sufficient cash flows to cover only the returns to the providers of equity and debt capital—that is, the post-tax WACC, not the pre-tax WACC.

We consider that a zero tax allowance over the price path period for the irrigation service contracts is appropriate for this investigation.

4.7 Total costs

Total costs are presented in Table 23. These reflect the total costs across Seqwater's schemes that are the subject to our investigation and that will be allocated between irrigation and other scheme users (see Chapter 7). Scheme-level costs are outlined in Appendix A.

Table 23 The QCA's recommended total costs, 2020–24 ($ million, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*	*QCA total*
Operating costs	13.2	13.5	13.8	14.1	**54.6**
Renewals annuity	3.1	3.5	3.6	3.6	**13.8**
Revenue offsets	(1.5)	(1.5)	(1.5)	(1.6)	**(6.1)**
Tax	–	–	–	–	**–**
Total costs	**14.9**	**15.5**	**15.8**	**16.1**	**62.2**

Notes: Includes irrigation and non-irrigation customer share. Totals may not add due to rounding.

Source: QCA analysis.

5 FORECAST ENTITLEMENT AND USAGE VOLUMES

For the tariff groups considered in this investigation, the fixed (Part A and Part C) price is derived using water access entitlements (WAEs) in each tariff grouping, while the variable (Part B and Part D) price is based on an assumed level of water use for the scheme as a whole.

This chapter outlines and explains our estimated WAEs and usage volumes, which are used to convert Seqwater's total costs into prices for each tariff group.

5.1 Water access entitlements

Most WAEs held by irrigators are medium priority WAEs, although there are relatively low volumes of high priority irrigation WAEs in some schemes. Forecast WAEs are used in calculating prices and in allocating some fixed costs[53] between medium and high priority WAE customers in each scheme.

5.1.1 Seqwater's submission

Seqwater said that its forecast WAEs were based on the latest available information on ownership of water allocations in each of its schemes. Seqwater did not propose any adjustments to its scheme-level WAEs.

5.1.2 Other stakeholder submission

The Lockyer Water Users Forum recommended that the treatment of handed-in water entitlement allocations in the Morton Vale distribution scheme should be investigated by the Government in consultation with the scheme's customer group.[54]

5.1.3 QCA assessment

We have reconciled Seqwater's proposed WAE forecasts at the scheme level with our forecasts in the 2013 review and with information published by the Government (where available).

In the 2013 review, we found that original WAEs associated with the Morton Vale Pipeline had been 5,051 ML but then decreased due to customers handing back allocations. To avoid remaining customers paying for costs attributed to these volumes, we instead calculated fixed prices using 5,051 ML, as that was the agreed volume at the establishment of the scheme.[55]

Consistent with the 2013 review, we have adjusted Morton Vale Pipeline WAEs to 5,051 ML for calculating the Part C distribution fixed price. We have, however, retained Seqwater's submitted WAE of 3,420 ML for calculating the Part A bulk fixed price.

We note the comments by the Lockyer Water Users Forum and that this is a matter for the Government.

For the remaining WSS and distribution systems operated by Seqwater, we are satisfied that Seqwater's proposed WAE forecasts are an appropriate basis for deriving fixed prices.

[53] Except for asset-related headworks (bulk) costs, which are generally allocated between medium and high priority WAE customers using the headworks utilisation factor.
[54] Lockyer Water Users Forum, sub. 200, p. 3.
[55] QCA, *Seqwater Irrigation Price Review: 2013–17,* Volume 2: Central Lockyer Valley Water Supply Scheme, final report, April 2013, pp. 28–31.

Table 24 Proposed WAEs (ML), medium priority

Scheme	*Seqwater's proposed WAE*	*QCA recommended*
Cedar Pocket	495	495
Central Brisbane River	7,194	7,194
Central Lockyer Valley	16,357	16,357
Morton Vale Pipeline	3,420	5,051
Logan River	13,555	13,555
Lower Lockyer Valley	12,620	12,620
Mary Valley	21,899	21,899
Pie Creek	835	835
Warrill Valley	23,884	23,884

Source: Seqwater pricing model 2018; QCA analysis.

5.2 Usage volumes

Water usage volumes are used to derive the Part B and Part D tariff. For each WSS and distribution system, the variable costs are divided by the estimated water usage to calculate the volumetric tariff.

5.2.1 Previous investigation

In the 2013 review, 15 years of historical water use data was available for each WSS and distribution system. We noted that the previous 10 years of water use in SEQ had not been typical, as there has been low water use, due to up to nine years of drought followed by one to two years of floods.[56]

In response to a number of submissions on this issue, we recommended an averaging approach that excluded water years where the usage was below the 15-year average and estimated an average water usage from the remaining years (i.e. the average of the above-average water use years).[57]

5.2.2 Seqwater's submission

Seqwater considered basing the forecast water usage on 15 years of data will promote:

- the objectives of regulatory precedent and certainty, as the period is the same as for the previous QCA decision
- price stability, as a shorter period will be more variable, and could lead to price volatility at each price reset.[58]

Seqwater proposed a simple average of the 15-year period on the basis of the following:

- Seqwater's budgeting is not done based on a typical year, as suggested by us in the 2013 review. Seqwater considers its costs to be fixed and does not budget on the basis that above-average water deliveries will be needed. Seqwater bases its budget on historical trends, without excluding observations.

[56] QCA, *Seqwater Irrigation Price Review 2013–17*, Volume 1, final report, April 2013, p. 241.
[57] QCA, *Seqwater Irrigation Price Review 2013–17*, Volume 1, final report, April 2013, p. 241.
[58] Seqwater, sub. 1, p. 32.

- To calculate the variable charge based on an above-average water use forecast effectively ensures that Seqwater will not recover its variable revenue over the long term. It is not reasonable for us to recommend a variable cost component that cannot be recovered in normal conditions.
- This is consistent with other jurisdictions. For WaterNSW, the Independent Pricing and Regulatory Tribunal (IPART) divides the variable revenue requirement by the 20-year rolling average of water use.[59]

Seqwater said that using the long-term average of water usage as a basis for pricing was supported by its customers.[60]

5.2.3 Other stakeholders' submissions

In response to our draft report, Lockyer Water Users Forum said that over our proposed assessment period:

- in Central Lockyer, Lake Clarendon received 11 per cent and Bill Gun Dam received 30 per cent of entitlements
- in Lower Lockyer, Atkinson Dam received 19 per cent of entitlements.[61]

5.2.4 QCA assessment

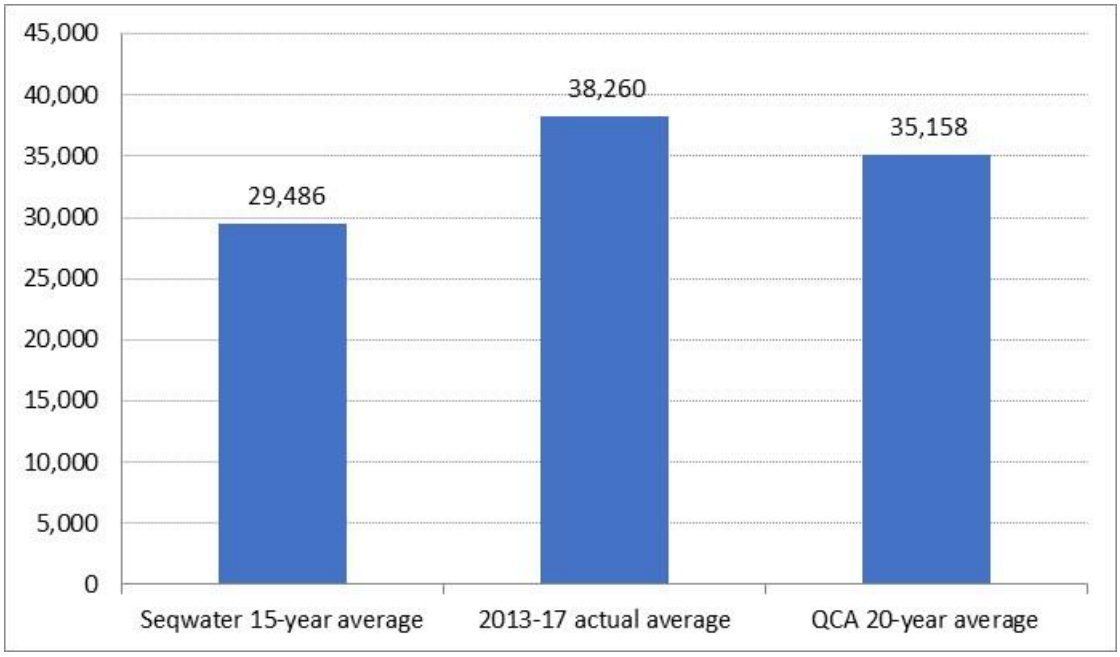
To establish a meaningful water use denominator, we consider that the approach to estimating the assumed level of water use should be representative of normally occurring conditions, consistent with our approach to estimating base year costs.

Our preference is to use a 20-year averaging period to cover a larger number of observations, obviating the need to exclude any data points. This is consistent with IPART's approach to deriving variable tariffs for WaterNSW. We consider that a simple averaging approach results in revenue and pricing outcomes that are both simple and transparent to customers.

Figure 5 shows water use estimates that were derived using a 20-year averaging period compared with actual water use over the previous price path period from 2013–14 to 2016–17.

[59] Seqwater, sub. 1, p. 32.
[60] Seqwater, sub. 1, p. 33.
[61] Lockyer Water Users Forum, sub. 200, p. 3.

Figure 5 Total bulk water use (ML per year)



Notes: Includes water usage associated with medium and high priority WAE. Excludes Central Brisbane River usage, for which usage data is only available from 2013–14 onwards. Includes bulk water delivered to distribution system customers. Seqwater's 15-year average relates to the period from 2002–03 to 2016–17. Our 20-year average relates to the period from 1999–00 to 2018–19.

The figures Lockyer Water Users Forum provided compare average annual releases from each dam in the Lockyer Valley schemes with the supply storage capacity (or full supply level) of the respective dam. Also, the average annual releases have been derived since the time of construction of the dam rather than our 20-year period. It is therefore not possible to compare those estimates with our average water use figures.

Table 25 outlines our recommended water usage assumptions for each scheme.

Table 25 The QCA's recommended water use in irrigation schemes (ML/year)

Scheme	*Seqwater proposed*	*QCA recommended*
Cedar Pocket	312	298
Central Brisbane River	n.a.	171,767
Central Lockyer Valley[a]	4,550	6,213
Morton Vale Pipeline	747	790
Logan River	6,172	7,473
Lower Lockyer Valley	1,746	2,274
Mary Valley[a]	10,920	10,941
Pie Creek	202	212
Warrill Valley	5,784	8,126

a *Includes an adjustment to account for distribution loss usage.*

Notes: Total water use includes water usage associated with medium and high priority WAE. Our recommended average for Central Brisbane River WSS is 6 years from 2013–14, as no earlier data is available.

Source: Seqwater responses to QCA RFI 23, 29 and final report RFI 8; QCA analysis.

6 PRICING FRAMEWORK ISSUES IN SEQWATER SCHEMES

The referral directs us to recommend irrigation prices for all current tariff groups. We are also required to review the tariff groups in certain water supply schemes and develop alternative tariff groups as a second pricing option.

This chapter outlines our assessment of pricing framework issues relevant to tariff groups in Seqwater's schemes. These are issues that stakeholders raised or that we identified for further consideration.

6.1 Background

The following pricing framework issues relevant to Seqwater schemes attracted comment from stakeholders or have been identified for further consideration:

- the appropriate treatment of distribution loss WAEs held by Seqwater to manage losses that occur when diverting water to customers in the distribution system (section 6.2)
- Seqwater's proposed zero cost allocation for the Central Brisbane River WSS (section 6.3).

6.2 Distribution and bulk losses

Seqwater owns distribution loss WAEs in distribution systems and some bulk WSSs to account for water losses incurred in the delivery of water to customers. These WAEs were granted to Seqwater under the Water Act 2000 when the associated schemes were included in a resource operation plan (ROP). These allocations are held by Seqwater to ensure that customers receive a reliable supply of water.

Many factors are responsible for distribution losses, including pipe leakage, evaporation, storage seepage, overflows and drainage for maintenance. Distribution losses are applicable to the following schemes operated by Seqwater: Morton Vale Pipeline distribution system, Pie Creek distribution system, Lower Lockyer Valley WSS and Warrill Valley WSS.

Although referred to as distribution losses in the relevant water management protocols, losses associated with the Lower Lockyer Valley and Warrill Valley WSSs are not genuine distribution losses, as they are losses associated with bulk assets (these relate to losses from channels and pipelines within a bulk tariff group).

The overall volume of loss WAEs held by Seqwater is not material in comparison to Sunwater, but the appropriateness of the distribution loss WAEs does warrant consideration.

6.2.1 Previous investigation

In the 2013 review, we considered that distribution loss WAEs were a valid consideration in establishing the cost of providing services, as they relate to the additional storage infrastructure required to ensure the level of supply required by customers.

Consistent with the 2012 Sunwater irrigation price review, we recommended that only prudent and efficient bulk costs associated with distribution loss WAEs should be recovered from distribution system customers, but distribution system customers should not pay for bulk holding (fixed) costs associated with distribution loss WAEs in excess of what is required to meet actual loss releases required by Seqwater. Consequently, we recommended that any bulk fixed costs in excess of what is required to provide a reliable supply of water should be borne by Seqwater.

Due to a lack of data, we were unable to establish what the actual level of distribution loss WAEs was for all schemes. Consequently, the appropriate allocation of distribution loss WAEs was assessed on a scheme by scheme basis (Table 26).

Table 26 Treatment of distribution loss WAEs in the 2013 review

Scheme	*2013 review approach*
Pie Creek	Data provided by Seqwater showed that from time to time the full distribution loss WAEs were required for Pie Creek distribution system. We therefore recommended that costs associated with all distribution loss WAEs be recovered from irrigators. However, since the holding of high priority WAEs had material price impacts for Pie Creek, we recommended that DNRME should reconsider the mix of high priority to medium priority distribution loss WAEs.[62]
Morton Vale Pipeline	We determined that excess distribution loss interim water allocations (IWAs) were likely to exist for Morton Vale. We considered customers should only pay 50 per cent of costs associated with distribution loss IWAs.[63] We noted that while Seqwater could not currently sell this excess distribution loss IWAs, the volume was not material enough to provide significant long-term volume risk management options.
Lower Lockyer Valley	As we were unable to establish what actual distribution losses were, and as Lower Lockyer Valley did not have permanently tradable WAEs, costs associated with the full allocation of 1500 ML medium priority distribution loss IWAs were allocated to customers.[64]
Warrill Valley	As we were unable to establish what actual distribution losses were, and as Warrill Valley did not have permanently tradable WAEs, costs associated with the full allocation of medium priority distribution loss IWAs were allocated to customers. However, it was noted that both medium and high priority customers benefit from distribution losses, with high priority IWAs making up 28 per cent of entitlements. This benefit was disproportionate, given the restrictions that apply to medium priority entitlements through the system of announced allocations. For these reasons, we considered that costs associated with distribution loss IWAs should be allocated using the headworks utilisation factor (HUF).[65]

Source: QCA 2013.

6.2.2 Seqwater's submission

In its November 2018 submission, Seqwater did not apply the 2013 review treatment in calculating its proposed irrigation prices. In response to our draft report, Seqwater provided in-principle support for our recommendation.

However, Seqwater did not agree with our findings that current holdings of distribution loss WAEs for Pie Creek were excessive. Seqwater stated that while over the past five years the full allocation of distribution loss WAEs was not required, since 2002–03 the full allocation of distribution loss WAEs has been required on three occasions. Seqwater therefore considered that the measurement of distribution losses should be over a longer period to allow for longer-term cyclical factors such as weather. Seqwater said that the full allocation of distribution loss WAEs is

[62] QCA, *Seqwater Irrigation Price Review 2013–17*, Volume 2: Mary Valley Water Supply Scheme, final report, April 2013, pp. 14–18.
[63] QCA, *Seqwater Irrigation Price Review 2013–17*, Volume 2: Central Lockyer Water Supply Scheme, final report, April 2013, pp. 24–28.
[64] QCA, *Seqwater Irrigation Price Review 2013–17*, Volume 2: Lower Lockyer Valley Water Supply Scheme, final report, April 2013, pp. 12–15.
[65] QCA, *Seqwater Irrigation Price Review 2013–17*, Volume 2: Warrill Valley Water Supply Scheme, final report, April 2013, pp. 13–16.

required over time, so that Seqwater is able to provide water to irrigators in accordance with its obligations under its ROL for the scheme.[66]

6.2.3 Other stakeholders' submission

No stakeholder provided a submission on this issue in relation to Seqwater schemes.

6.2.4 QCA assessment

We have reassessed the appropriateness of the 2013 review approach. Since the last review, Warrill Valley and Lower Lockyer Valley have been issued with permanently tradable WAEs. DNRME is in the process of establishing permanently tradable WAEs in Central Lockyer Valley, which includes Morton Vale Pipeline.

In the 2013 review, we recommended that DNRME review the efficient level of distribution loss WAEs allocated to Seqwater in accordance to the timeframes established for amending the ROPs. However, DNRME said that the volume of water allocation needed to cover the distribution losses is essentially a function of operation, asset maintenance and contractual arrangements between the scheme operator and the customer. Accordingly, any change to distribution loss WAEs should be instigated by Seqwater, and DNRME will assess the application according to the criteria.[67]

Distribution customers are unable to control the level of distribution loss WAE. Seqwater, as the owner of distribution loss WAEs, is responsible for the management of distribution loss WAEs within its distribution systems. Therefore, we consider that distribution system customers should only be allocated the costs associated with the level of distribution loss WAEs required to meet actual losses.

We consider that Seqwater is best placed to manage the risk of distribution loss WAEs in excess of what is needed to ensure a reliable supply to distribution customers. The water planning framework does allow Seqwater to apply to change the purpose of distribution loss WAEs, which it could then sell to customers (see Box 1). Therefore, the appropriate incentives should be in place for Seqwater to minimise losses and maximise saleable WAEs.

[66] Seqwater, sub. 226, pp. 4–5.
[67] Submission to the QCA from the Department of Natural Resources and Mines, Queensland Government, *Seqwater Irrigation Price Review: 2013–17*, February 2013.

> **Box 1—Water planning framework under the Water Act 2000**
>
> Since the 2013 review, the Water Act 2000 has changed, to allow a new water planning framework to be implemented. This has seen resource operations plans (ROPs) replaced with water management protocols (WMPs), with some water plan areas yet to transition to the new framework. Other changes to the Water Act 2000 include the section under which an application to change to a water allocation is made.
>
> Applicants can apply to change the purpose of distribution loss WAE under section 159 (Applying for water allocation dealing consistent with water allocation dealing rules), whereas previously this was done under sections 129A or 130 of the Act.[68] This is stated in the relevant WMPs and ROPs, along with criteria that must be met for the change to be approved. The applicable water dealing rules can be prescribed to apply to the whole state or to a water plan area under section 158 of the Act. Where a WMP or ROP does not specify the water dealing rules for a water plan area, the state water dealing rules apply, which are listed under section 73 of the Water Regulation 2016.
>
> The relevant WMPs or ROPs specify the criteria that must be met for a change of purpose to distribution loss WAEs to be approved by DNRME. These criteria are unique to each scheme, but generally specify that Seqwater must provide evidence of permanent efficiency gains and that a sufficient volume of distribution loss WAEs is held to provide for actual losses in the system.

Seqwater has provided distribution loss data for the Pie Creek distribution system, Warrill Valley WSS and Lower Lockyer Valley WSS. No data was available for the Morton Vale Pipeline, since the pipeline is gravity fed from the dam.

Distribution loss WAEs are periodically announced in accordance with the level of water available in storages, as is the case for all types of WAEs. This means that when announced allocations are less than 100 per cent, the water to provide for losses is lower than the distribution loss WAEs. As water available to customers is also reduced, usage within the system will decrease. Consequently, we have adjusted the actual distribution loss data to account for the level of distribution system usage.

To calculate the efficient level of distribution loss WAEs, we have taken the maximum distribution loss WAEs required over the period after adjusting for usage.

Maximum actual distribution loss deliveries for Pie Creek, adjusted for the level of distribution system water use that year, have been significantly less than 100 per cent for a considerable number of years leading up to 2018–19. This is based on available data from the 2013 review, and updated data provided by Seqwater.

The table below shows an extract of our efficient distribution loss calculations for Pie Creek. We have calculated the efficient level of distribution loss WAEs to be 100 per cent high priority and 60 per cent medium priority. This also represents the maximum actual distribution loss deliveries over 16 years to 2018–19.[69]

We consider that our assessment has covered a long enough timeframe to measure distribution losses, and to allow for cyclical factors such as weather. We note that the available data shows actual (unadjusted) distribution losses have not exceeded distribution loss WAEs in the years leading up to 2018–19.

[68] *Water Act 2000* (Qld) (Water Act), s. 159.

[69] Prior to 2013–14, the maximum medium priority distribution loss WAEs used (adjusted for actual water use) was 97 per cent in 2002–03. Note that data was not available for 2006–07.

Table 27 Distribution loss WAEs used, Pie Creek distribution system (ML)

	2013–14	*2014–15*	*2015–16*	*2016–17*	*2017–18*	*2018–19*
High priority (HP) distribution loss WAE	60	60	60	60	60	60
Medium priority (MP) distribution loss WAE	426	426	426	426	426	426
Actual distribution losses (HP + MP)	93	9	53	147	42	110
HP distribution loss WAE used	60 (100%)	9 (16%)	53 (88%)	60 (100%)	42 (71%)	60 (100%)
MP distribution loss WAE used	33 (8%)	–	–	87 (20%)	–	50 (12%)
Water use as a percentage of WAE	26%	27%	21%	34%	25%	25%
MP distribution loss WAE used, adjusted for actual water use	30%	–	–	60%	–	47%

Source: Seqwater response to QCA RFI 41; QCA final report RFI 4; QCA analysis.

We recognise that usage in Pie Creek has remained low in recent years, which explains in part why actual distribution losses have been low. However, our calculations adjust for distribution system water usage. Many other factors such as climatic factors also affect the level of losses. Seqwater have informed that as Pie Creek is a supplementary scheme, during especially wet years the natural flows of the river can result in negative distribution losses. Despite these factors, it appears that the current holding of distribution loss WAEs is excessive for the operational requirements of Pie Creek, and represent a significant financial burden to customers.

Data for Warrill Valley and Lower Lockyer Valley shows that in most years since 2013–14, all distribution loss WAEs have been required for both schemes. Therefore, the current holding of distribution loss WAEs appears to be appropriate to ensure a reliable supply of water to customers.

Although no data is available for Morton Vale Pipeline, Seqwater has informed us that distribution loss IWAs are reserved to refill the pipeline, and distribution losses are caused by breaks or other failures in the pipeline. Seqwater believes it is appropriate that irrigators bear the cost of the full distribution loss IWAs. Seqwater also noted that, under the interim ROL, there is no provision to convert distribution loss IWAs to medium priority and sell it.[70]

Given the lack of information on actual distribution losses associated with the Morton Vale Pipeline since our 2013 review, we have maintained the current approach and recommend that 50 per cent of distribution loss IWAs is an efficient level.

For the next price review process, we would expect to be assessing the reasonableness of Seqwater's proposed strategy for its holdings of distribution loss WAEs, including Seqwater's views on the efficient level of its distribution loss WAE holdings. However, for the purpose of this review, we have sought to estimate an efficient level of distribution loss WAEs (see Table 28) in the absence of Seqwater having a strategy for the treatment of its holdings of distribution loss WAEs.

[70] Seqwater response to QCA RFI 42.

Table 28 Efficient distribution loss WAEs in Seqwater schemes

Distribution system/bulk WSS	*Efficient high priority loss WAE (%)*	*High priority loss WAE (ML)*	*Efficient medium priority loss WAE (%)*	*Medium priority loss WAE (ML)*
Morton Vale Pipeline distribution system	50	92	n.a.	n.a.
Pie Creek distribution system	100	60	60	256
Lower Lockyer Valley WSS	n.a.	n.a.	100	1,500
Warrill Valley WSS	n.a.	n.a.	100	3,714

Note: Adjusted distribution loss WAE figures have been rounded to the nearest integer. Source: QCA analysis.

Recommendation 17

We recommend that:

- prudent and efficient bulk costs associated with necessary distribution loss WAEs should be recovered from distribution system customers
- the bulk holding (fixed) costs of distribution loss WAEs not required to service distribution system customers should be borne by Seqwater
- Seqwater should review its distribution loss WAEs and develop a strategy for their future treatment, prior to the next price review.

6.3 Central Brisbane River WSS

As discussed in Chapter 2 of our Part A report, we have decided to recommend prices that are based on our assessment of prudent and efficient costs that Seqwater incurs to provide bulk water supply services and meet its legislative and regulatory obligations. To do this, we need an appropriate approach to allocating scheme-level prudent and efficient costs between high and medium priority WAE customers.

6.3.1 Stakeholder submissions

Seqwater and MBRI developed an approach to cost allocation between high and medium priority WAE customers in the Central Brisbane River WSS.[71] This approach was based on the findings of the Central Brisbane benefits study (the benefits study), which was undertaken by an independent consultant, SLR Consulting (SLR).[72]

The benefits study assessed hydrologic benefit of the dams to irrigators by comparing the amount of water they could extract under their WAEs in a 'no dams' case[73] and a 'with dams' case. It concluded that less water is available to irrigators in dry periods in the 'with dams' case, compared to the 'no dams' case[74]. Based on the findings of the benefits study, Seqwater submitted that irrigators should not contribute to recovery of the headworks-related costs.

[71] Seqwater, sub. 3, pp. 6–7.
[72] Seqwater, sub. 10.
[73] The 'no dams' case assumed that Wivenhoe and Somerset dams, high priority WAE and the relevant regulatory framework did not exist.
[74] The study assessed the relative hydrological performance between the two cases over the 'lowest diversion period' for supply for this scheme (1997 to 2011), which sought to align with the period of analysis under the HUF methodology. Results were also presented for the long-term average.

Seqwater and MBRI were of the view that:

- Consideration of the hydrologic benefits of the dams for medium priority WAE irrigators was justified given the unique circumstances of the Central Brisbane River WSS.[75]
- There was a difference between the hydrologic benefits and the benefits of the regulatory framework and that the latter were not a relevant consideration in the context of allocation costs between priority groups.[76]
- While medium priority WAE in the Central Brisbane River WSS are considered to be supplemented under the Moreton Water Plan (2007), it did not necessarily follow that they are actually wholly supplied by infrastructure within the scheme.[77]
- It was clear from the benefits study that the dam infrastructure does not provide any increased benefit to users in the worst performing years, especially when compared to performance that would have enabled the irrigation water take if the dams and regulation were not in place.[78]

Seqwater, MBRI and their consultant, Badu Advisory, also provided several examples where water allocations fall within the definition of supplemented water and have been recognised by us as not being supplied by scheme infrastructure for the purposes of calculating a HUF.[79]

In a separate submission[80], MBRI also considered that:

- the relevant infrastructure does not provide a service to irrigators and therefore irrigators are outside the charging regime for the system.
- our proposed approach to allocating costs between priority groups was not appropriate.

K Schmidt expressed similar views to MBRI and also considered that the regulatory framework provided a 'net disbenefit' to irrigators.[81]

6.3.2 QCA assessment

In developing our approach to allocating costs between WAE priority groups in the Central Brisbane River WSS, we have considered stakeholder submissions and additional information provided to us by stakeholders in response to our requests for information. We have also considered the advice provided by our consultant, Water Solutions.

SLR benefits study and Seqwater's proposed approach to determining the allocation of costs

Seqwater's proposed cost allocation for irrigation entitlements is predicated on the key finding of the benefit study—that is, irrigators do not receive a hydrologic benefit from Wivenhoe and Somerset dams (and the associated operation and entitlements).[82] That finding was based on a comparison between the existing 'with dams' case and a 'no dams' case, which assumed that:

[75] Seqwater/MBRI, sub. 227, p. 2. The Central Brisbane River WSS is unique in that only a very small proportion of the WAEs are for irrigation use.
[76] Seqwater/MBRI, sub. 227, p. 3.
[77] Seqwater/MBRI, sub. 227, p. 1.
[78] Seqwater/MBRI response to QCA RFI, April 2019.
[79] Seqwater/MBRI, sub. 227, p. 2; Badu Advisory, *Consideration of HUF issues in other schemes relevant to Central Brisbane*, December 2018.
[80] MBRI, sub. 205.
[81] Schmidt, K, sub. 225.
[82] Seqwater, sub. 3, p. 8.

(1) there was no regulatory framework and consequently no restrictions on the ability of irrigators to access water under their WAEs

(2) there was no high priority urban water supply

(3) Wivenhoe and Somerset dams were not in place.

We consider that these assumptions are not appropriate and/or not consistent with the regulatory framework that governs the taking of water by irrigators under their medium priority WAE. Irrigators have been authorised to take water under this framework and must comply with its requirements. Consequently, the assumptions result in conclusions regarding the hydrologic benefits of the dam that are not valid. Our reasons for forming that view are provided below.

Assumption 1: No system regulation

The 'no dams' case in the benefits study assumes that there is no regulatory framework[83] in place and consequently, that there are no legal restrictions on the manner in which irrigators can take water under their WAE. Seqwater and MBRI justified the removal of the regulatory framework on the basis that:

- it was 'inherently linked' to the relevant dams[84]
- the 'benefits' of the regulatory framework were not a relevant consideration in the context of allocating costs between priority groups.[85]

The Water Act 2000 (Qld) (the Water Act) regulates, amongst other matters, the allocation, management and use of water in Queensland. Under the Water Act, all rights to the use, flow and control of all water in Queensland are vested in the State[86] and it can allow the use of water by authorising persons to take or interfere with water, including by issuing a water allocation under the Water Act[87]. Irrespective of whether stakeholders consider that the Water Act and its associated regulation (the Water Act framework) are appropriate or benefit them, the taking of water by irrigators in the Central Brisbane River WSS must be consistent with the requirements imposed by this framework.

The Water Act states that taking water under a water allocation is subject to the relevant water plan and the conditions of the resource operations licence and any operations manual.[88] The Central Brisbane River WSS Operations Manual[89] requires the total volume of water that may be taken under an allocation in a water year to be consistent with the announced allocation(s).[90] Therefore we consider that the Water Act framework is a relevant consideration in the context of assessing the hydrologic benefit of the dams to irrigators as it places constraints on the ability of irrigators to take water under their WAE.

By removing the Water Act framework, the benefits study effectively assumes that, if the dams were not in place, irrigators would not have to comply with the laws and conditions that apply to

[83] Seqwater and MBRI refer to the regulatory framework as 'system regulation'.
[84] Seqwater, sub. 10, p. 16.
[85] Seqwater/MBRI, sub. 227, p. 3.
[86] See section 26 of the Water Act.
[87] See section 27 of the Water Act.
[88] See section 148 of the Water Act.
[89] Department of Natural Resources and Mines and Energy, *Central Brisbane River Water Supply Scheme Operations Manual*, January 2018.
[90] Section 8(2) of the operations manual states that 'the total volume of water that may be taken under a water allocation in a water year must not exceed the nominal volume of the water allocation multiplied by the announced allocation percentage'.

their taking of water (for example, the announced allocations requirements) and could instead take any water that flows past their diversion point up to the nominal volume specified in their WAE. Given that irrigators are not authorised by the State to take water in such a manner, we do not consider that this assumption is reasonable. In our view, the removal of the Water Act framework and its associated constraints in the 'no dams' case leads to an overstatement of the water that irrigators could lawfully take in low flow periods and consequently, an understatement of the hydrologic benefits of the relevant dam infrastructure to irrigators.

Furthermore, we do not agree with the view put forward by Seqwater and MBRI that the regulatory framework is in place for the benefit of urban users only[91]. Over the last twenty years or so, water policy and regulation in Queensland has changed significantly in response to concerns about the sustainability of water resources and the environmental impacts of water use. In particular, the Water Act framework introduced a materially different approach to water allocation and management in Queensland, which unlike the previous regulatory framework, included explicit requirements to consider environmental water needs and the longer-term sustainability of water use. [92] One of the key drivers for the introduction of the Water Act framework was a recognition that the regulatory framework in place at that time was inadequate, as it did not facilitate environmentally sustainable levels of extraction or deal effectively with the adverse environmental externalities associated with the consumptive use of water.[93]

In the Central Brisbane River WSS, water is managed consistent with the Water Plan (Moreton) 2007 (the Moreton Water Plan). This means the water in the system is now managed in a way that seeks to deliver specific ecological outcomes (including environmental flow objectives) and to provide for the continued use of all water entitlements, including medium priority WAEs for irrigation and high priority WAEs for urban water supply. As such, the plan seeks to balance the competing needs of the environment, urban users and rural users.[94]

This approach is materially different to that taken under previous regulatory frameworks, whereby entitlements were issued on a first-come, first-served basis and there was no requirement for a body issuing a new entitlement to consider the potential impact on the reliability of supply of existing users.[95] The previous approach had the potential to disadvantage existing users, including irrigators, as there was a possibility that the granting of new entitlements may have resulted in insufficient water to meet existing entitlements.[96] We note that such an outcome was not an inconsequential risk in the Moreton Water Plan area, given that at the time the plan was implemented, water resources were close to the full sustainable allocation and the area was expected to experience further population and economic growth.[97]

In contrast, under the Water Act framework, water allocations are protected through water allocation security objectives and performance indicators. Those objectives and indicators have been designed to ensure that future water planning and management decisions do not affect the

[91] Seqwater/MBRI response to QCA RFI, March 2019.
[92] Queensland Parliament, *Parliamentary Debates (Hansard)*, 22 June 2000, p. 1891 (Second reading speech for the Water Bill 2000 by the Hon RJ Welford MP).
[93] Queensland Parliament, *Parliamentary Debates (Hansard*), 22 June 2000, p. 1891 (Second reading speech for the Water Bill 2000 by the Hon RJ Welford MP); COAG communique, Hobart, 25 February 1994; COAG communique, Hobart, Attachment A—Water resource policy, 25 February 1994; COAG communique, Canberra, 25 June 2004.
[94] Department of Natural Resources and Water, *Moreton water resource plan*, consultation report, June 2007, p. 1.
[95] Queensland Parliament, *Parliamentary Debates (Hansard)*, 22 June 2000, p. 1891 (Second reading speech for the Water Bill 2000 by the Hon RJ Welford MP).
[96] Queensland Parliament, *Parliamentary Debates (Hansard)*, 22 June 2000, p. 1891 (Second reading speech for the Water Bill 2000 by the Hon RJ Welford MP).
[97] Department of Natural Resources and Water, *Moreton water resource plan*, consultation report, June 2007, p. 32.

probability of water users being able to take water under their water allocations. In addition, according to the Government, those objectives and indicators also provide a probability of supply which would assist long-term business and water use planning.[98] Water allocations have also been separated from land, providing water users with greater flexibility.[99] Irrigators in the Central Brisbane River WSS benefit from those measures. Consequently, we are of the view that the Water Act framework is in place to benefit consumptive water users (including irrigators), as well as the environment and the broader Queensland community.

Given the above analysis and noting that the Water Act framework would apply to WAEs in the Central Brisbane River WSS irrespective of whether relevant dam infrastructure was in place, we are of the view that the removal of this framework in the 'no dams' case is not appropriate or reasonable.

Assumption 2: No high priority urban water supply

The 'no dams' case in the benefits study also excludes all urban water supply.

We consider that the assumption of no urban water supply in the 'no dams' case is not valid as water supply for urban use has been drawn from the Brisbane River for over 100 years, well before the construction of Wivenhoe and Somerset dams. For example, the Ipswich Municipal Council began drawing water from the Brisbane River at Kholo in 1878 and the Brisbane Board of Waterworks began pumping water from the Brisbane River at the Mt Crosby Pumping Station in 1892.[100]

We note that Water Solutions also considered that the historical urban demand should have been included in the 'no dams' case for it to be an accurate representation of historical conditions.[101]

Assumption 3: No dams

The 'no dams' case in the benefits study also assumes Wivenhoe and Somerset dams do not exist and that medium priority irrigators are not supplemented[102].

Supplemented water supply schemes are operated by a water service provider, with releases made from infrastructure to meet water demands while maintaining the needs of the environment.[103] We note that Seqwater and MBRI have acknowledged that decisions regarding whether a water allocation is granted as supplemented under an interim resource operations licence, resource operations licence or other authority are matters for the Government following consultation with affected parties through the water planning process.[104] The Government has

[98] Department of Natural Resources and Water, *Moreton water resource plan*, consultation report, June 2007, p. 10.
[99] Queensland Parliament, *Parliamentary Debates (Hansard)*, 22 June 2000, p. 1893 (Second reading speech for the Water Bill 2000 by the Hon Rod RJ Welford MP).
[100] Queensland Urban Utilities, Our history, https://urbanutilities.com.au/about-us/who-we-are/our-history.
[101] Water Solutions, *Rural Irrigation Price Review 2020–24: Assessment of Hydrologic Factors*, prepared for the QCA, September 2019.
[102] Supplemented water is provided in a regulated scheme, usually supplied from either a dam, weir or other improvements (e.g. barrage, off-stream storage), but can include natural stream flow. It generally has higher reliability than unsupplemented water.
[103] Department of Natural Resources, Mines and Energy, *Queensland bulk water opportunities statement*, December 2018 update, p. 19.
[104] Seqwater/MBRI, sub. 227, p. 1 (footnote 7).

undertaken such a process for the Central Brisbane River WSS and has determined that the relevant WAE in this WSS are supplemented.[105]

Consistent with that determination, the reliability of the medium priority WAEs in the mid-Brisbane zone is directly linked to the combined useable volumes of Somerset and Wivenhoe dams.[106] The total volume of water that may be taken under a WAE in a water year in this WSS must also be consistent with the announced allocation(s).[107] The total volume of allocations in the system, along with the allocations for individual priority groups (including medium priority WAEs), have also been determined based on the yield of the system as a whole, including supplemented volumes, natural flows from tributaries and overland flows. That is, the allocations have been determined on the assumption that the relevant dam infrastructure is in place. We note that if allocations were determined on an unsupplemented basis, it is not a given that the allocations of unsupplemented consumptive users in the system would be the same as in the supplemented case.

Furthermore, under the Water Act framework, irrigators taking water under medium priority WAE do not have a right to the natural flows or overland flows in the system, to the exclusion of other consumptive users and the environment. These flows are shared between all users in proportion with their entitlements and consistent with the environmental flow objectives. All users in the WSS are therefore supplied from a combination of natural flows, overland flows and supplemented flows and consequently a water user cannot selectively claim that their water is only supplied from the unsupplemented sources.

Like surface water allocations in other areas of the state, the supplemented WAEs in the Central Brisbane River WSS were established consistent with the requirements of the Water Act and the relevant water plan.[108] Under those requirements, water is to be allocated and sustainably managed in a way that seeks to achieve a balance between specific general outcomes and ecological outcomes.[109] As we noted in our 2013 report, the Central Brisbane River WSS differs from other regulated WSSs that have a mix of medium and high priority WAEs only in that the medium priority WAEs in this scheme are a very small proportion of the overall scheme WAEs.[110]

While Seqwater, MBRI and Badu Advisory have identified priority groups in other WSSs that have been allocated a HUF of zero, we are unsure of the relevance of these examples to the allocation of costs within the Central Brisbane River WSS, given that the water sharing and operational arrangements that apply in these WSSs are very different to those that apply in the Central

[105] Schedule 15 of the Moreton Water Plan defines supplemented water. Water supplied in the Central Brisbane WSS falls within that definition as it is supplied under the Central Brisbane River Water Supply Scheme Resource Operations Licence.

[106] Announced allocations in the Central Brisbane WSS are based off usable storage volumes in Wivenhoe and Somerset (Central Brisbane River Water Supply Scheme Operations Manual, Department of Natural Resources, Mines and Energy, 2018, p. 3). Under these rules, there are limitations on the water that can be taken under a medium priority WAE when the combined percentage of usable volume in Wivenhoe and Somerset dams falls below a certain level (50 per cent). Once the combined percentage of usable volume in the dams reaches 15 per cent, irrigators can no longer take water under their medium priority WAE.

[107] Section 8(2) of the operations manual states that 'the total volume of water that may be taken under a water allocation in a water year must not exceed the nominal volume of the water allocation multiplied by the announced allocation percentage'. Under section 808A(1) of the Water Act, it is an offence to take a volume of water in a period that is more than the volume of water allowed to be taken under the water entitlement in the period.

[108] Department of Environment and Resource Management (December 2009) *Moreton Resource Operations Plan consultation report*, pp. 5, 8.

[109] Section 10 of the Moreton Water Plan.

[110] QCA, *Seqwater Irrigation Price Review: 2013–17*, final report, April 2013, p. 22.

Brisbane River WSS and that the HUFs for these WSSs have been calculated consistent with the standard HUF methodology.

Given the above, the 'no dams' case in the benefits study is not consistent with the Water Act framework and the conditions under which the State has authorised irrigators to take water under their medium priority WAEs, as it assumes that irrigators are supplied from natural flows and can divert water irrespective of the needs of the environment and other users. We are also of the view that irrigators taking water under medium priority WAEs benefit from the relevant dam infrastructure and therefore should be allocated an appropriate share of the costs.

Services provided by Seqwater to irrigators

MBRI and K Schmidt considered that the SLR report demonstrated that irrigators did not receive service from the relevant infrastructure and consequently should not be charged for water.[111]

As discussed above, we consider that the assumptions underpinning the SLR report are not valid and result in modelled outcomes and conclusions that do not reflect the hydrologic benefit of the relevant dam infrastructure to the medium priority WAE group. Consistent with the Water Act framework, irrigators are supplemented by the dam infrastructure and should therefore be allocated an appropriate share of the relevant costs.

Conclusion on proposed cost allocation and approach

Given the above, we conclude that:

- The Central Brisbane River WSS differs from other regulated WSSs that have a mix of medium and high priority WAEs only in that the medium priority WAEs in this scheme are a very small proportion of the overall scheme WAEs.
- The supplemented WAEs in the Central Brisbane River WSS have been established in accordance with the requirements of the Water Act framework. This approach is consistent with the approach for determining the WAEs in other supplemented WSSs throughout the state. As such, the foundation underpinning the establishment of entitlements in the Central Brisbane River WSS does not warrant a different approach to determining the hydrologic benefits.
- The assumptions underpinning the benefits study are not appropriate and/or not consistent with the regulatory framework that governs the taking of water by irrigators under their medium priority WAE or with the historical use of water from the Brisbane River. As a result, these assumptions result in conclusions regarding the hydrologic benefits of the dams that are not valid. Therefore it is not appropriate to base the cost allocation for this scheme on the findings of the benefits study.
- Irrigators taking water under medium priority WAEs benefit from the relevant dam infrastructure and therefore should be allocated an appropriate share of the costs. The proposed cost allocation of zero does not reflect an appropriate share of the costs.

Customer agreement

Seqwater and MBRI have indicated that their proposed approach is an agreement that falls within the scope of paragraph C(1.5) of the referral[112].

[111] MBRI, sub. 205, p. 5; Schmidt, K, sub. 225, p. 8.

[112] Under paragraph C(1.5) of the referral, where we consider that it has been demonstrated that customers have agreed to the costs and/or prices proposed by the businesses and that the proposed prices are in line with the requirements of this Notice, we must have regard to these agreements in recommending appropriate prices.

We welcome customers and the water businesses working together to reach agreement on pricing issues. We are also generally receptive to recognising these agreements when we recommend appropriate prices. However, in accordance with paragraph C(1.5), we consider that the agreements must be consistent with the requirements of the referral, including the pricing principles. As outlined above, we are of the view that irrigators taking water under medium priority WAEs benefit from the relevant dam infrastructure and should be allocated an appropriate share of the costs. As such, we consider that the proposed cost allocation of zero is inappropriate and inconsistent with the requirements of the referral.

We also do not support the Seqwater proposal to allocate those costs to urban users. Given that irrigators benefit from the water scheme infrastructure, such an approach would introduce an implicit cross-subsidy from high priority urban users to medium priority irrigators. This outcome would be inconsistent with the pricing principles in the referral, including the principle that prices transition to the lower bound cost target, and with Queensland's commitments under the National Water Initiative.[113] It may also set an unhelpful precedent whereby customer agreements are utilised to shift costs that should be allocated to irrigation customers to other customers within WSSs without the agreement of those other customers.

Alternative cost allocation approach

As we have decided that Seqwater's proposed cost allocation approach is not appropriate, we need to consider an alternative cost allocation approach.

The HUF methodology seeks to calculate the relative share of storage assets in each WSS required to supply medium and high priority WAEs. In the 2013 review, we accepted that the storage capacity required to deliver the priority of water required was an appropriate driver of costs and was therefore a reasonable approach to apportion costs between medium and high priority WAEs.

While the application of the HUF methodology was investigated for the Central Brisbane River WSS in the 2013 review, it would have resulted in an anomalous allocation of fixed costs to medium priority WAE holders. We instead opted for a simpler allocation approach, which took into account a range of triggers for the progressive reduction in medium priority allocations specified in the Moreton ROP. We argued that this approach was a better fit to the Central Brisbane circumstances.[114] This approach resulted in an allocation of 1.6 per cent of fixed-asset-related costs to irrigation customers.

We asked Water Solutions to provide advice on whether an alternative cost allocation approach could provide an improved approach to assigning benefits attributable to each WAE priority group in the Central Brisbane River WSS, as compared to approach we used in the 2013 review. In its advice, Water Solutions proposed an alternative cost allocation approach that was a modified version of the standard HUF methodology. Its report sets out this approach and the reasons why it considers this approach is more appropriate for apportioning costs between medium and high priority WAE groups in the Central Brisbane River WSS.[115]

Seqwater and MBRI engaged a consultant, Badu Advisory, to review Water Solutions' proposed approach. Badu Advisory raised concerns about Water Solutions' approach and proposed an

[113] See Chapter 2 in Part A of our report for more information.
[114] See QCA, *Seqwater Irrigation Price Review 2013–17*, Volume 2: Central Brisbane River WSS, final report, April 2013, section 4.5.
[115] Water Solutions, *Rural Irrigation Price Review 2020–24: Assessment of Hydrologic Factors*, prepared for the QCA, September 2019.

alternative approach that was also a modified version of the standard HUF methodology.[116] It calculated an alternative HUF of 0.8 per cent[117] and its report sets out its approach and the reasons why it considers this approach is more appropriate for apportioning costs in this WSS. In response to that submission, Water Solutions provided further advice to us and adjusted its proposed cost allocation approach to incorporate the Badu Advisory approach to storage evaporation.[118] As a result, Water Solutions' calculated HUF was 1.39 per cent.

In determining the appropriate approach for allocating costs between the medium and high priority WAE groups in this WSS, we have considered stakeholder submissions on this issue, including the Badu Advisory material provided by Seqwater and MBRI. We have also considered the advice provided by Water Solutions. We consider that Water Solutions' revised approach is the most appropriate methodology for determining the relative benefits of Central Brisbane River WSS's storage assets between medium and high priority WAE customers, as it is more consistent with the standard HUF methodology and better reflects the characteristics of this WSS.

Consistent with our approach in the 2012, 2013 and current reviews, we have rounded the calculated percentage to the nearest whole percentage point. This results in a calculated percentage of 1.0 per cent.

[116] Badu Advisory, *Headworks utilisation factors for the Central Brisbane WSS*, October 2019.
[117] Badu Advisory, *Headworks utilisation factors for the Central Brisbane WSS*, October 2019, p. 8.
[118] Water Solutions, *Rural Irrigation Price Review 2020–24: Assessment of Hydrologic Factors: Further Assessment—Central Brisbane*, prepared for the QCA, January 2020.

7 RECOMMENDED PRICES

The referral directs us to recommend irrigation prices for all current tariff groups in the nine irrigation schemes (7 bulk WSSs and 2 distribution systems) relevant to this investigation. This chapter outlines how we have converted total scheme costs to our recommended irrigation prices for the period 1 July 2020 to 30 June 2024.

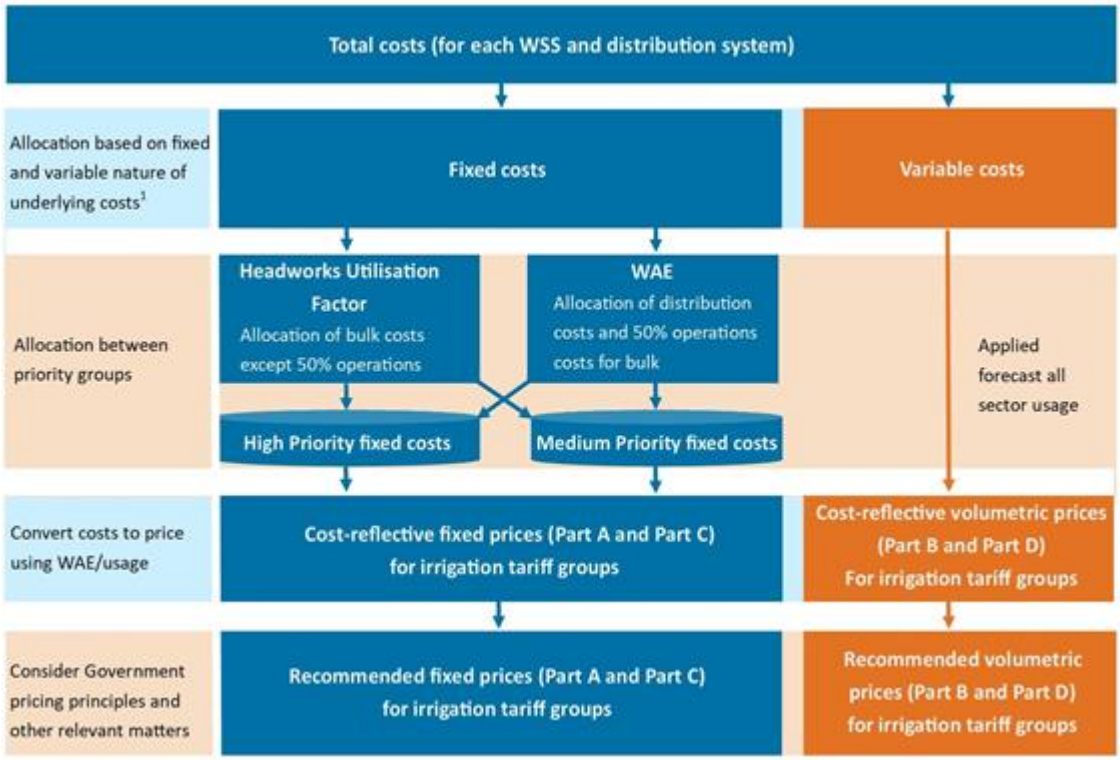
7.1 Background

Seqwater proposed an amended approach to calculating irrigation prices as compared to the 2013 review. Our assessment of Seqwater's proposed approach is in section 7.2.

Our approach to deriving irrigation prices is consistent with the 2013 review approach (Figure 6). The main steps in converting total scheme costs (Chapter 4) to prices are the following:

- Allocate costs to be recovered from the fixed (Part A and Part C, if applicable) price and volumetric (Part B and Part D, if applicable) price using a simple and transparent approach that broadly aligns with the fixed and variable nature of underlying costs (section 7.3).
- Allocate fixed costs between medium and high priority WAE customers (section 7.4).
- Convert costs to a fixed and volumetric price that reflects the lower bound cost target (referred to as the 'cost-reflective' price in each tariff group, in the referral) (section 7.5).
- Consider matters in the referral, including the Government's pricing principles, and in section 26 of the QCA Act when calculating recommended prices (section 7.6).

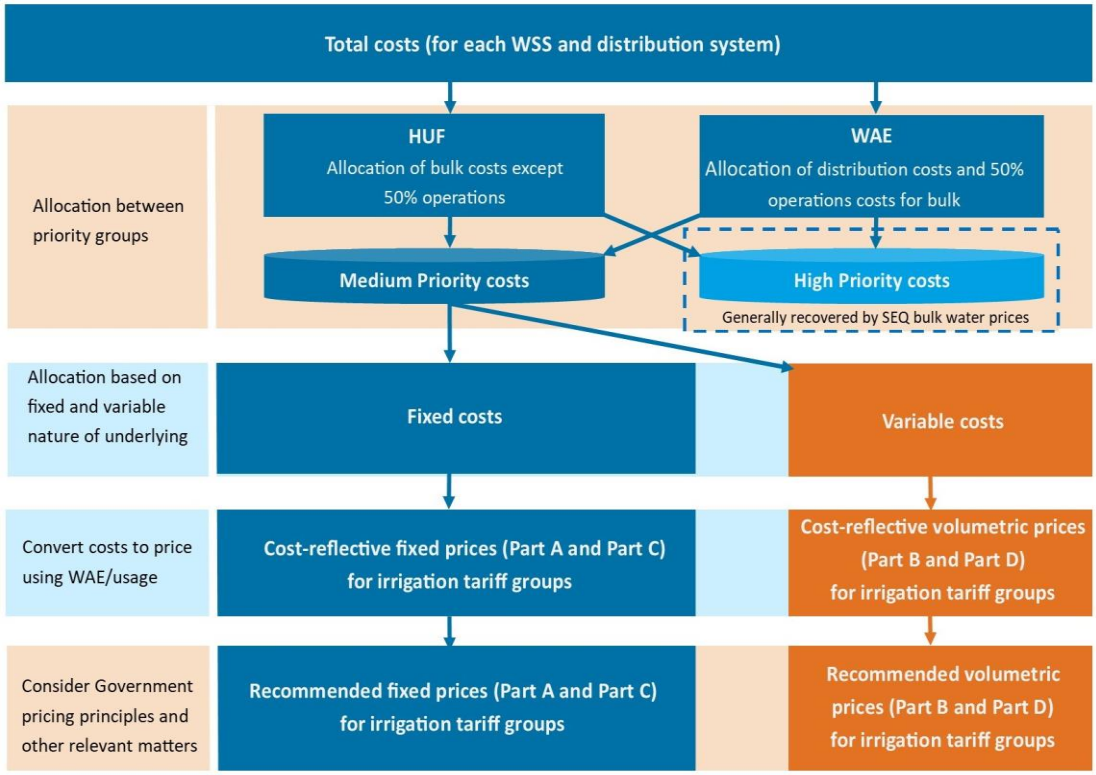
Figure 6 Approach to deriving recommended irrigation prices



7.2 Seqwater's proposed pricing methodology

Seqwater's proposed approach to deriving recommended irrigation prices (Figure 7) differs from the methodology in the 2013 review. The key change is the allocation of total scheme costs between medium and high priority customers prior to allocating costs between fixed and volumetric prices.

Figure 7 Seqwater's proposed approach to deriving irrigation prices



Source: QCA analysis.

Seqwater's regulatory pricing model allocates scheme-level total costs between medium and high priority customers by the appropriate cost allocator for each cost category (i.e. HUF or WAE). High priority costs are then removed from consideration, and medium priority costs are allocated between fixed and variable prices, based on Seqwater's proposed split at the cost category level.

Seqwater said that the only true variable cost is electricity pumping costs for the Pie Creek distribution system; however, it consulted with customers and they supported allocating some costs to the volumetric charge. Seqwater proposed that in addition to the variable costs of electricity pumping costs in the Pie Creek distribution system, 5 per cent of some cost categories should be treated as variable costs and recovered through the variable charge.[119]

We consider that there are opportunities for Seqwater to reduce costs in Seqwater schemes during times of lower water use, and that the fixed/variable splits used in the 2013 review remain appropriate (outlined in section 7.3).

On this basis, we consider that variable costs incurred in relation to water use should be allocated between medium and high priority customers on the basis of relative water usage. This requires the establishment of fixed and variable costs as an initial step in the price calculation approach.

[119] Seqwater, sub. 1, p. 38.

7.3 Allocating costs to fixed and volumetric prices

We consider that the tariff structure should include a volumetric price that broadly aligns with variable costs associated with the delivery of water services (see Chapter 3, Part A). The fixed price should reflect the balance of total costs allocated to the particular tariff group.

7.3.1 Previous investigation

In the 2013 review, we applied the average fixed/variable splits at the activity level from the 2012 Sunwater irrigation price review. We considered that this approach was appropriate given the similarities in assets and operations between Sunwater and Seqwater, and the cost involved in appointing an independent consultant to seek to more precisely calculate the fixed/variable split.

In the 2012 review, our consultant Indec investigated whether a causal relationship could exist between costs and water usage over a five-year period. Indec undertook a statistical analysis of past costs and considered the most appropriate management approach to deliver services.[120] The analysis was undertaken on a scheme-wide basis (that is, other customer sectors were included in addition to irrigation customers).

Indec concluded that, with the exception of electricity to pump water (considered a variable cost), and some indirect and overhead costs (considered fixed costs), many other expenditure types were semi-variable[121] in relation to water use. We accepted Indec's findings for operating costs but recommended that renewals costs were fixed in relation to water use.

Table 29 below presents the findings for operating costs for both bulk and distribution systems.

Table 29 Variable operating costs by activity—2013 review (%)

Activity	*Variable costs in bulk WSSs (%)*	*Variable costs in distribution systems (%)*
Direct operations and maintenance[a]	20	20–35
Electricity pumping costs	100	100
Other electricity costs	—	—
Non-direct costs	—	—

a *Excludes electricity costs. Source: Indec 2011; QCA analysis.*

7.3.2 Seqwater's submission

Seqwater said it had examined whether a cost is fixed or varies according to water deliveries—costs that do not vary with the volume of water deliveries should be recovered through the fixed charge, and costs that vary with water deliveries should be recovered through the variable charge.[122]

Seqwater did not consider it reasonable to continue to rely on our analysis from the previous irrigation review, because the review was undertaken in 2011 and was undertaken for another business (Sunwater) and applied to Seqwater.[123] Seqwater said that in the 2018 bulk review, we recommended that 15 per cent of 2018–19 base year operating costs were variable. Seqwater

[120] Indec, *Qualitative Framework and Assessment of Fixed and Variable Cost Drivers*, final report, prepared for the QCA, 2011.
[121] Semi-variable costs are costs that have a fixed minimum component and a variable component that does not exhibit a constant relationship with incremental units of usage (but do vary in a less direct manner).
[122] Seqwater, sub. 1, p. 35.
[123] Seqwater, sub. 1, p. 36.

said that none of the identified variable costs (chemicals, electricity usage at water treatment plants and sludge) related to irrigation activities.[124]

Seqwater said that in recent regulatory reviews for rural water businesses in other jurisdictions, other regulators had concluded that 100 per cent of costs were fixed. In particular:

- WaterNSW—in IPART's review of prices for rural bulk water services from 1 July 2017 to 30 June 2020, WaterNSW submitted that a cost-reflective tariff would be close to 100 per cent fixed. IPART allowed a volatility allowance recognising that WaterNSW is subject to revenue volatility risk arising from the difference between its largely fixed cost structure and the approved tariff structure (which reflects a fixed to variable split of 40:60 in many valleys).
- Goulburn-Murray Water—the Essential Services Commission of Victoria (ESC) approved 100 per cent fixed bulk storage and diversion charges, with ESC's consultant Indec concluding that costs related to diversion services are fixed and do not vary with water usage.
- Lower Murray Water—the ACCC's Water Monitoring Report 2016–17 reported bills consisting entirely of fixed charges for Lower Murray Water.

Seqwater proposed a significant rebalancing of costs from variable to fixed. Seqwater said that customers generally support the proposed ratio of fixed to variable costs. It proposed that 5 per cent of direct operating costs (i.e. excluding non-direct costs) and 100 per cent of electricity (pumping) costs be allocated to variable costs (see Table 30).[125]

Table 30 Variable operating costs by activity—Seqwater's proposed approach (%)

Activity	*Variable (per cent)*
Direct operations and maintenance[a]	5
Electricity pumping costs	100
Other electricity costs	5
Insurance	5
Local government rates	—
Dam safety inspection	5
Non-direct costs	—
Renewals annuity	—
Dam safety upgrade capex	—

a *Includes labour, repairs and maintenance, and other direct costs and dam safety inspection costs. Excludes electricity costs, local government rates and dam safety inspection costs. Source: Seqwater, sub. 1, pp. 38–39.*

7.3.3 Other stakeholders' submissions

In the Lockyer Valley schemes (Central Lockyer Valley WSS and Lower Lockyer Valley WSS), stakeholders commented on supply reliability concerns and requested that we look at pricing alternatives.[126] In particular, stakeholders said that a future price path with a heavy weighting (up to 95 per cent) on a fixed charge is not sustainable, as water users rely on the availability of water for their production to produce revenue (discussed in section 6.1).

[124] Seqwater, sub. 1, p. 36–37.
[125] Seqwater, sub. 1, p. 38–39.
[126] Barden Produce, sub. 81, p. 1; Golden Finch Lawns, sub. 61, p. 1; Member for Lockyer, sub. 124, p. 1; Lockyer Valley Regional Council, sub. 116p. 2; Lockyer Valley Irrigators, sub. 115, p. 2; QFF, sub. 130, p. 4; Somerset Regional Council, sub. 75, p. 1.

7.3.4 QCA assessment

Electricity costs

Electricity costs in Pie Creek distribution system comprise a significant component of its overall operating costs, due to the cost of pumping water.

We requested information from Seqwater on the calculations underlying its proposed base year electricity costs for the Pie Creek distribution system. Seqwater said that Pie Creek pump station was designated as a small electricity site in Seqwater, meaning that the annual budget is based on prior expenditure.[127] Seqwater said that it escalated its 2017–18 budget for network service plan (NSP) reporting by 2.5 per cent to derive the base budget for 2018–19.

Consistent with the 2013 review, we have assigned our calculated 2018–19 base year electricity costs between fixed and variable costs based on the fixed and variable nature of the underlying electricity tariff components.

Table 31 shows our proposed split between fixed and variable costs for the Pie Creek distribution system.

Table 31 The QCA's 2018–19 base-year electricity costs for Pie Creek distribution system

Tariff group	*Variable cost ($/ML)*	*Water usage forecast (ML)*	*Total variable cost ($'000)*	*Total fixed cost ($'000)*	*Total base year cost ($'000)*
Pie Creek	92.88	212	19.7	0.5	20.2

Source: Seqwater response to QCA RFI 24; QCA analysis.

Other costs

We consider that the fixed/variable splits that we recommended in the 2013 review are an appropriate starting point for the current review. We noted in the 2013 review that Sunwater and Seqwater schemes share similar characteristics. Most operating costs are fixed and do not vary with water use. The assets and their operation are similar across both businesses. Both businesses have a large degree of manually operated schemes (with some exceptions) that require ongoing effort to deliver water. In times of reduced supply, some activities can be reduced or deferred.

We asked Seqwater whether there have been any material changes to its operational and maintenance processes since 2013 that would materially affect the level of variable costs. Seqwater did not identify any such changes in its response.[128] Given the similarities in scheme characteristics and the lack of material changes to input processes since the 2012 and 2013 reviews, we would expect the fixed/variable splits to remain broadly similar between Seqwater and Sunwater.

In the 2018 bulk review, we were not required to assess the fixed to variable split of costs, but to recommend a fully volumetric price for SEQ bulk water services provided by Seqwater. Seqwater provided detailed costs at the fixed/variable and cost category level[129]; however, we assessed costs at the total operating cost level for recovery through SEQ bulk water prices.

In terms of regulatory precedence in other jurisdictions, we consider that the approach taken in our 2013 review is generally consistent with IPART's most recent WaterNSW price determination.

[127] Seqwater response to QCA RFI 24.
[128] Seqwater response to QCA RFI 37.
[129] Seqwater, submission to the QCA, *Seqwater Bulk Water Price Review 2018–21*, draft report, 31 July 2017.

In that review, IPART considered that fixed costs should be recovered through fixed charges, and variable costs should be recovered through variable (usage) charges, as this promotes the economically efficient use of water infrastructure assets.[130]

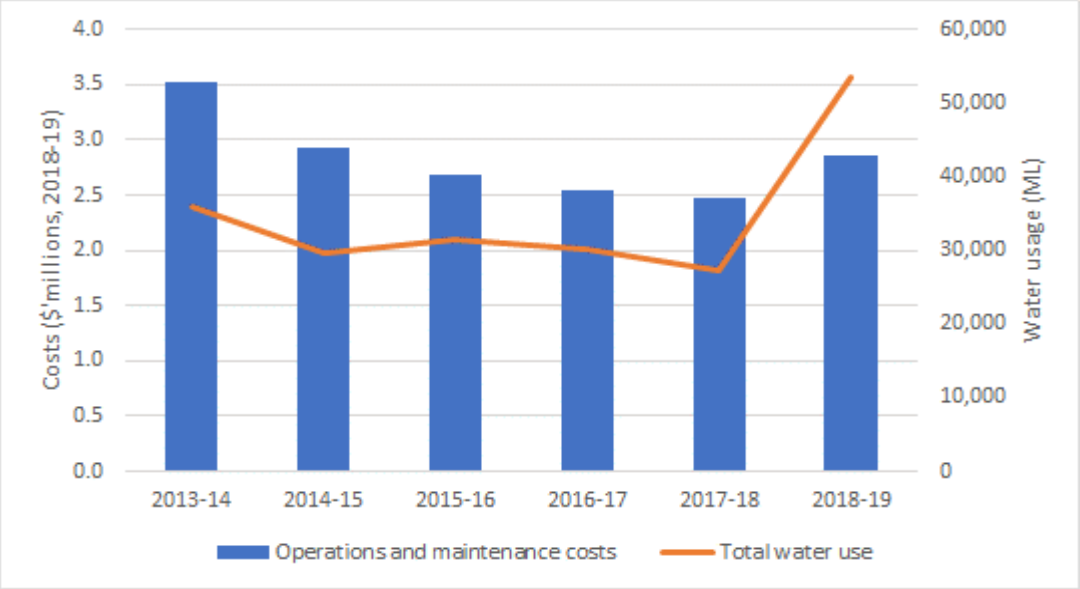
Given that WaterNSW's costs were largely fixed, IPART considered that an 80:20 fixed to volumetric tariff structure better reflected WaterNSW's largely fixed cost structure and struck a reasonable balance of risk sharing between WaterNSW and its customers. However, it did approve existing tariff structures that did not align with those views (including a 40:60 fixed to variable ratio in some valleys), contingent on the use of a risk management product that would result in WaterNSW receiving revenues that aligned with its preferred 80:20 split.[131]

For ESC's 2016 review of prices, Goulburn-Murray Water stated its view that its cost structure for delivering diversion services was 'relatively fixed' in terms of varying with volumes of water use.[132] ESC's consultant, Indec, assessed total operating costs and annual water usage for the period from 2010–11 to 2014–15 for diversion services. While a high-level assessment showed that total costs did not vary with water usage, Goulburn-Murray Water did state that operating costs were predominantly labour related and the mix of labour related activities changes between periods of low and high water use.[133]

Seqwater's operational staff can allocate time between Seqwater schemes within close geographic proximity (for example, Cedar Pocket Dam, Mary Valley and Pie Creek) depending on operational requirements. In addition, we consider that there are opportunities to reduce costs in Seqwater schemes during times of lower water use—for example, some contractor expenses do not need to be incurred if repair and maintenance requirements decrease. Direct operations and maintenance costs have reduced from 2013–14 to 2017–18, as total irrigation water usage has decreased over the same period, and increased with water usage in 2018–19 (Figure 8).

[130] IPART, *WaterNSW—Review of prices for rural bulk water services from 1 July 2017 to 30 June 2021*, final report, June 2017, p. 117.
[131] IPART, *WaterNSW—Review of prices for rural bulk water services from 1 July 2017 to 30 June 2021*, final report, June 2017, pp. 115–122.
[132] ESC, *Goulburn-Murray Water Price Review 2016*, final decision, June 2016, p. 68.
[133] Indec*, 2016–20 Review of Water Prices for Goulburn-Murray Water: Tariff Structure Proposals*, final report, prepared for ESC, January 2016, p. 27.

Figure 8 Seqwater's actual direct operations and maintenance costs and water usage



Notes: Total whole of scheme costs. Excludes Central Brisbane River WSS.

Source: Seqwater response to QCA RFI 31; QCA analysis.

In its response to our draft report, Seqwater said the inclusion of the additional data point (2018–19) requires a re-consideration of our conclusions since while water use was much higher than previous years in 2018–19, costs were not materially different. However, we note that costs increased by 17 per cent in real terms in 2018–19. While Seqwater noted that the correlation (calculated using the R-squared value) between water use and costs reduced significantly with the inclusion of an additional data point, we do not consider correlation analysis will provide robust outputs based on only 6 historical data points (2013–14 to 2018–19).

We do not consider that Seqwater has provided sufficient justification for moving away from the fixed/variable splits that we applied in the 2013 review. Seqwater has said that customers are generally supportive of the proposed rebalancing of costs from volumetric to fixed prices in most Seqwater schemes[134], but that is in the context of constraints on increasing or decreasing fixed prices that arise as a result of our decision to apply the pricing principles in the referral (see Chapter 2 of Part A). Given that the fixed price is effectively set under these principles for all Seqwater schemes[135], the effect of this rebalancing is a significant reduction in customers' bills in the first year of the price path period.

The allocation of costs between the fixed and variable components of prices involves a degree of subjectivity and judgement. The referral directs us to have regard to ensuring, where possible, that revenue and pricing outcomes are both simple and transparent to customers. For this review, we have adopted the 20 per cent allocation of direct operations and maintenance costs that we applied for bulk WSSs in the 2013 review, as we consider this is simple and transparent and broadly reflects the underlying fixed and variable nature of the costs of operating Seqwater's irrigation schemes.

Table 32 presents our recommended fixed/variable cost allocations for Seqwater.

[134] In particular, in Cedar Pocket, Logan River, Mary Valley (including Pie Creek) and Warrill Valley schemes.

[135] The current fixed price for all Seqwater schemes is either well below the cost-reflective (lower bound) price and will increase by inflation plus $2.38/ML (from 2020–21, increasing by inflation), or the current fixed price is well above the cost-reflective price and will be maintained in nominal terms over the price path period.

Table 32 Variable costs by activity—the QCA's recommended approach (per cent)

Activity	*Seqwater's proposed*	*QCA recommended*
Direct operations and maintenance[a]	5	20
Electricity pumping costs	100	Pie Creek only
Other electricity costs	5	—
Insurance	5	—
Local government rates	—	—
Dam safety inspection	5	—
Non-direct costs	—	—
Renewal annuity	—	—
Dam safety upgrade capex	—	—

a *Excludes electricity costs. Source: QCA analysis.*

Table 33 shows the proportion of revenue allocated to the fixed and volumetric prices for each bulk WSS, before the application of the pricing principles in the referral.

Table 33 The QCA's recommended fixed and variable cost apportionment, 2020–24

Scheme	*2013 review (%)*		*2020–24 review (%)*	
	Fixed	*Variable*	*Fixed*	*Variable*
Cedar Pocket	90	10	89	11
Central Brisbane River	89	11	92	8
Central Lockyer Valley	89	11	93	7
Morton Vale Pipeline	78	22	89	11
Logan River	91	9	95	5
Lower Lockyer Valley	90	10	94	6
Mary Valley	91	9	93	7
Pie Creek	81	19	86	14
Warrill Valley	89	11	92	8

Note: Whole of scheme costs. Source: QCA, Seqwater Irrigation Price review: 2013–17, final report, April 2013; QCA analysis.

7.4 Allocating costs between medium and high priority users

Seqwater's customers hold WAEs specifying the reliability or priority group of the entitlement, for example, medium or high priority WAEs. Holders of high priority WAEs can usually rely on being able to access their nominal volume more often than holders of a lower priority WAE (e.g. medium priority).

When water supplies are low, high priority WAE holders tend to be allocated a larger share of their WAE than lower priority WAE holders. Medium priority customers often do not get any water until high priority customers have received 100 per cent of their nominal volume.

It is therefore necessary for our cost allocation approach to account for these differing priority groups of water entitlements.

7.4.1 Previous investigation

In the 2013 review, variable costs were allocated between medium and high priority WAE according to water use. This approach effectively assumed the same volumetric price for medium and high priority customers.

For Logan River, Mary Valley and Warrill Valley WSSs (where there are medium and high priority customers), our recommended approach for allocating fixed costs between medium and high priority WAE used:

- the HUF for the renewals annuity allowance and fixed repairs and maintenance costs
- the HUF for 50 per cent of costs and nominal WAE for 50 per cent of costs, for all other fixed operating costs.

This approach is summarised in Table 34.

Table 34 Fixed cost allocation between medium and high priority WAEs in the 2013 review

Cost component	*Fixed cost allocation methodology*	
	Bulk WSSs	*Distribution systems*
Repair and maintenance	HUF	WAE
All other operating costs	50% by HUF, 50% by WAE	WAE
Renewals annuity	HUF	WAE

For the Central Brisbane River WSS, we said that since meter reading, release scheduling and water releases are likely to occur to a lesser extent than for other schemes, there is a case to allocate less operations costs to irrigators in this scheme than for other WSSs. We proposed to allocate 100 per cent of fixed operating costs on the basis of the adjusted WAEs in the Central Brisbane River WSS.

For the remaining bulk WSSs (Cedar Pocket Dam, Central Lockyer Valley and Lower Lockyer Valley WSSs), in which materially all customers are allocated medium priority WAEs, we allocated fixed costs using WAEs.[136]

7.4.2 Seqwater's submission

Seqwater engaged Badu Advisory to review and update the HUFs for three of Seqwater's WSSs where material quantities of medium and high priority WAEs exist (Logan River, Warrill Valley and Mary Valley WSSs).[137] The assessment of the appropriate cost allocation between medium and high priority customers for Central Brisbane River WSS was considered separately (see section 6.3).

Seqwater said that based on this review, the HUFs were updated to take into account:

- cut-off rules that prevent releases from headworks storage under defined conditions—the 2013 review analysis did not properly incorporate the medium priority cut-off rule that applies to water supplied from Borumba Dam in the Mary Valley WSS. Correctly modelling the cut-off rule materially changes the HUF in this scheme
- changes in high priority allocations—Logan has additional high priority allocations due to the addition of new storages, and some conversion of medium priority to high priority. While this lowers the share for irrigation, it also increases the costs to be shared as the costs associated with the new storages now need to be included

[136] We allocated 100 per cent of fixed costs to medium priority customers in the Cedar Pocket and Lower Lockyer Valley WSSs, and 98.9 per cent to medium priority customers in the Central Lockyer Valley WSS.
[137] Seqwater, sub. 9.

- significant changes to water sharing rules—the Logan ROP also updated the water sharing rules to provide preferential access by the newly created high priority water allocations to the water stored in the scheme's combined storage
- correction and updating of the 15-year critical period—the 2013 review analysis (incorrectly) used 14 years of data. The updated analysis (appropriately) uses 15 years of data.[138]

Table 35 below outlines Seqwater's proposed HUF changes as compared to the 2013 review.

Table 35 Seqwater's proposed headworks utilisation factors

WSS	*2013 review (%)*	*Proposed HUF (%)*	*Reason*
Logan River	16	2	Significant impact from changes to ROP and water sharing rules, with new storages added (in particular, Wyaralong Dam) and changed water sharing rules. Minor error: 14 years vs 15 years.
Mary Valley	26	11	Significant impact from missed cut-off rule. Minor error: 14 years vs 15 years.
Warrill Valley	11	10	Minor impact from change in volume of high priority allocations. Minor error: 14 years vs 15 years.

Source: Seqwater, sub. 1, p. 35.

Seqwater said that these reductions in the HUF have resulted in significant reductions to the costs allocated to medium priority customers, and consequently the cost-reflective prices in these schemes. Seqwater proposed that the difference between actual revenue collected and cost-reflective revenue be credited to the annuity balance in each scheme to reduce the pressure on future prices.[139]

7.4.3 Other stakeholders' submission

QFF supported Seqwater's proposal to apply revenue recovered above cost-reflective in the three schemes with variations in the HUF over the new price path so as to reduce the substantial negative annuity balances in these schemes.[140]

7.4.4 QCA assessment

The HUF methodology seeks to calculate the relative share of storage assets in each WSS required to supply medium and high priority WAE. This recognises that relatively more infrastructure is required to deliver high priority WAE than medium priority WAE and, consequently, relatively greater headworks costs are associated with high priority WAE than medium priority WAE.

Essentially, the storage capacity required for each WAE category is the cost driver for the purpose of cost allocation. It indicates that storage-related infrastructure costs, associated with each megalitre of high priority WAE, are greater than the storage costs for each megalitre of medium priority WAE.

We accept that the storage capacity required to deliver the priority of water required is an appropriate driver of costs and is therefore a reasonable approach to apportion costs between medium and high priority WAE.

[138] Seqwater, sub. 1, pp. 34–35.
[139] Seqwater, sub. 1, p. 35.
[140] QFF, sub. 131, p. 2.

We have reassessed the bulk WSS costs that are allocated to priority groups using the HUF, particularly for new compliance costs relating to dam safety upgrade capex. We have also reassessed the allocation approach for insurance costs, in response to stakeholders' comments and also in light of Sunwater's proposed treatment of flood damage costs and associated insurance claim revenues.

Based on this assessment, we consider that insurance costs, and dam safety capex should be allocated to medium and high priority customers using HUFs (see section 7.4 of Part B).

Assessment of proposed HUFs

In the 2012 review, we commissioned Gilbert & Sutherland Pty Ltd (G&S) to conduct an independent review of Sunwater's proposed HUF methodology. Based on this independent review, we modified Sunwater's methodology for apportioning the top layer of storage between medium and high priority to reflect the ratio of nominal WAE volumes for medium and high priority customers.[141] We accepted this same HUF methodology in the 2013 review.

We have accepted Seqwater's proposed HUFs for the Logan River, Warrill Valley and Mary Valley WSSs. These have been derived appropriately using the HUF methodology that we adopted in the 2013 review.

For the Central Brisbane River WSS, we have adopted a modified HUF approach to calculate an allocation of 1.0 per cent of fixed costs to medium priority customers (see section 6.3).

As the three remaining WSSs (Cedar Pocket Dam, Central Lockyer Valley and Lower Lockyer Valley WSSs) materially only have medium priority WAE, we have allocated fixed costs using WAE.

Table 36 compares our recommended cost allocation with that used in the 2013 review.

Table 36 The QCA's recommended allocation of fixed asset related costs to medium priority

WSS	*2013 review (%)*	*Seqwater's proposal (%)*	*QCA recommended (%)*
Cedar Pocket	100	100	100
Central Brisbane River	1.6	—	1
Central Lockyer Valley	98.9	98.9	98.9
Logan River	16	2	2
Lower Lockyer Valley	100	100	100
Mary Valley	26	11	11
Warrill Valley	11	10	10

Source: QCA, Seqwater Irrigation Price Review: 2013–17, final report, April 2013; Seqwater, sub. 1; QCA analysis.

Our recommended approach to allocating fixed costs between medium and high priority WAE is as follows:

- For bulk WSSs where different priority groups exist (Logan River, Warrill Valley and Mary Valley WSSs), 50 per cent of fixed operations costs are allocated by nominal WAE, with the remaining costs allocated using the HUF (or equivalent) in Table 36 above[142] .
- For Central Brisbane River WSS, all fixed costs are allocated using the modified HUF in Table 36 above.

[141] QCA, SunWater Irrigation Price Review: 2012–17, final report, 2012, pp. 183–92.

[142] All fixed repairs and maintenance, insurance costs, non-metering renewals and dam safety upgrade capex, and 50 per cent of fixed operations costs, are allocated via the HUF.

- For Cedar Pocket, Central Lockyer Valley and Lower Lockyer Valley WSSs, all fixed costs are allocated using nominal WAE.
- For distribution systems, all fixed costs are allocated using nominal WAE.
- Consistent with the 2013 review, we consider that the metering renewals costs be recovered exclusively from irrigation customers, as the metering program is for the exclusive benefit of irrigation customers.

7.5 Cost-reflective prices

To establish recommended prices, we have first derived cost-reflective prices for each tariff group that reflect the lower bound cost target and increase by our measure of inflation over the price path period.

The fixed (Part A and Part C) prices are based on WAEs in each tariff grouping. The volumetric (Part B) price reflects the average water use for the scheme as a whole based on the average 20-year water use (see section 5.2).

Our estimate of inflation over the price path period of 2.24 per cent is derived by taking the four-year geometric average of the RBA short-term forecast for 2020–21, our derived inflation forecast for 2021–22 (see section 2.4), and the midpoint of the inflation target range (2.5 per cent) for 2022–23 and 2023–24. We have used this estimate of inflation to derive cost-reflective prices.

Our estimates of cost-reflective volumetric prices are higher in real terms than our cost-reflective tariffs in the 2013 review for some tariff groups due to the lower volume forecasts in this review (see section 5.2).

7.6 Government pricing principles

7.6.1 Seqwater's submission

Seqwater said that it had proposed prices that had taken into account the Government's pricing principles.[143] Seqwater's existing volumetric prices were generally above its proposed cost-reflective prices, which Seqwater adjusted down to cost-reflective levels based on the referral.

For Pie Creek distribution system, Seqwater proposed to moderate bill impacts for volumetric (Part D) price. Seqwater said that this proposal was consistent with the approach taken in the 2013 review and was allowed for under the referral.

7.6.2 Other stakeholder's submission

See Part A (section 2.6.1) for our assessment of stakeholders' submissions on the Government's pricing principles.

7.6.3 QCA assessment

As outlined in Part A (section 2.6.1), we have decided to recommended prices that are consistent with the pricing principles outlined in the referral.

Our recommended fixed prices reflect the transitional path to the fixed component of the lower bound cost target. We have assessed the appropriate level of any volumetric price increase with

[143] Seqwater, sub. 1, p. 41.

reference to the maximum level of annual real price increases that have occurred over the previous price path periods of $2.38 per megalitre of WAE ($2020–21) (see section 2.7, Part A).

We have used our estimate of inflation over the price path period of 2.24 per cent (see section 7.6) in deriving the increases in recommended prices in this section.

As outlined in section 2.7 in Part A, we have separated our assessment of irrigation prices into two key categories of tariff groups:

- above lower bound prices—those tariff groups with existing prices that are already more than sufficient to recover the lower bound cost target
- below lower bound prices—those tariff groups with existing prices that are not yet sufficient to recover the lower bound cost target.

Above lower bound prices

For tariff groups with existing prices above the lower bound cost target, we have sought to transition to prices that reflect the lower bound cost target by maintaining fixed prices in nominal terms until this cost target is reached.

The exception to this approach is the Central Brisbane River WSS, for which the referral states that the fixed (Part A) price at the commencement of the price path period may be less than the prevailing 2019–20 fixed (Part A) price, where:

- cost allocations are reapportioned as anticipated in the 2013 review final report
- it is an outcome of wider cost allocation investigations with customers.

Seqwater and MBRI worked together to investigate alternative approaches to cost allocation between high and medium priority WAE customers in the Central Brisbane River WSS. The joint Seqwater/MBRI submission proposed assigning costs to medium priority WAE customers (including irrigators) based on a comparison of hydrologic benefits to irrigators between the existing case (the 'with dams' case) and an alternative scenario (the 'without dams' case).[144]

We concluded that medium priority WAE holders benefit from the relevant dam infrastructure and therefore should be allocated an appropriate share of the costs (section 6.4).

Our consultant, Water Solutions, considered whether the results from this study, or additional modelling based on an alternative cost allocation approach, could provide an improved approach to assigning benefits attributable to each WAE priority group in the Central Brisbane River WSS, compared to the adjusted nominal WAE used in the 2013 review. Water Solutions proposed that the most appropriate cost allocation approach was a modification to the standard HUF methodology.

We considered that Water Solutions' proposed approach is an appropriate methodology for determining the relative benefits of Central Brisbane River WSS's storage assets between medium and high priority WAE customers.

Given that our review process has developed an updated cost allocation approach that has resulted in the lower bound cost target being lower than the prevailing 2020–21 fixed (Part A) price, we have recommended the lower fixed (Part A) price for this scheme that is consistent with the lower bound target.

[144] Seqwater, sub. 3, pp. 6–7.

In recommending volumetric prices for other schemes above the lower bound cost target, we have applied the following approach:

- Where existing volumetric prices are above the volumetric component of the lower bound cost target (cost-reflective volumetric prices), we have reduced the existing volumetric price to the cost-reflective volumetric price immediately.
- Where existing volumetric prices are less than or equal to cost-reflective volumetric prices, we have increased the existing volumetric price by our estimate of inflation until overall prices reach the lower bound cost target.

Table 37 shows bulk WSS tariff groups with existing prices above the lower bound cost target, with existing levels of both fixed and volumetric prices above cost-reflective fixed and volumetric prices.

Table 37 Tariff groups with existing prices above the lower bound cost target, with the volumetric price above cost-reflective ($/ML, nominal)

Tariff group	*2019–20 current prices*		*2020–21 cost-reflective prices*	
	Fixed ($/ML)	*Volumetric ($/ML)*	*Fixed ($/ML)*	*Volumetric ($/ML)*
Central Brisbane River	24.48	11.76	6.27	2.55
Mary Valley	24.13	9.63	14.20	7.98

Source: QCA analysis.

Table 38 shows bulk WSS tariff groups with existing prices that are more than sufficient to recover lower bound costs, with existing fixed prices above cost-reflective fixed prices and volumetric prices below cost-reflective volumetric prices.

Table 38 Tariff groups with existing prices above the lower bound cost target, with the volumetric price below cost-reflective ($/ML, nominal)

Tariff group	*2019–20 current prices*			*2020–21 cost-reflective prices*		
	Fixed ($/ML)	*Volumetric ($/ML)*	*Revenue ($'000)*	*Fixed ($/ML)*	*Volumetric ($/ML)*	*Revenue ($'000)*
Logan River	26.80	11.58	412	18.78	18.41	331
Warrill Valley	25.41	8.48	554	18.82	11.90	438

Note: Revenue has been derived by applying the irrigation WAE to the fixed price, and 15-year irrigator-only average usage to the volumetric price. Source: QCA analysis.

The existing prices for these tariff groups generate revenues that are above the lower bound cost target (i.e. cost-reflective revenues). Consistent with the key pricing principle in the referral of transitioning existing irrigation prices to lower bound costs, we have maintained volumetric prices in real terms over the price path period for these tariff groups.

Below lower bound prices

For those tariff groups with existing prices below the lower bound cost target, we have sought to transition fixed prices to the fixed component of the lower bound target by the annual increase of inflation plus $2.38 per megalitre of WAE (from 2020–21, increasing by inflation) outlined in the pricing principles in the referral. Of these tariff groups, we have applied the following approach in recommending volumetric price:

- Where existing volumetric prices are above the volumetric component of the lower bound cost target (cost-reflective volumetric prices), we have reduced the existing volumetric price to the cost-reflective volumetric price immediately.

- Where existing volumetric prices are less than or equal to cost-reflective volumetric prices, we have assessed the transitional path for volumetric prices based on the matters in the referral and the matters we are required to have regard for under section 26 of the QCA Act.

Over the past year, there has been public consultation on the Government's proposal to convert water entitlements in the Central Lockyer Valley WSS to tradeable WAEs. On 13 December 2019, the Moreton water plan amendment was finalised. However, the final water entitlement notice (which sets out the volumes of water allocations being converted), water management protocol, operations manual and ROL are not expected to be released until February 2020.[145] The prices derived in this section for Central Lockyer Valley WSS are based on the priority groups and volumes of water allocations in the current Interim ROL in place for this scheme.

Table 39 shows the Central Lockyer Valley WSS tariff group with existing prices that are less than the lower bound cost target, with the volumetric prices above cost-reflective.

Table 39 Tariff groups with existing prices below the lower bound cost target, with the volumetric price above cost-reflective ($/ML, nominal)

Tariff group	*2019–20 current prices*		*2020–21 cost-reflective prices*	
	Fixed ($/ML)	*Volumetric ($/ML)*	*Fixed ($/ML)*	*Volumetric ($/ML)*
Central Lockyer Valley	35.42	11.46	59.57	11.01

Note: Prices for the Central Lockyer Valley WSS are based on the priority groups and volumes in the current interim ROL in place for the scheme. Source: QCA analysis.

For this tariff group, we recommend fixed prices that reflect the transitional path to cost-reflective fixed prices outlined in the referral. We have reduced the existing volumetric price to the cost-reflective price immediately.

Table 40 shows tariff groups with existing prices that are less than the lower bound cost target, with existing levels of both fixed and volumetric prices below cost-reflective levels.

Table 40 Tariff groups with existing prices below the lower bound cost target, with the volumetric price below cost-reflective ($/ML, nominal)

Tariff group	*2019–20 current prices*		*2020–21 cost-reflective prices*	
	Fixed ($/ML)	*Volumetric ($/ML)*	*Fixed ($/ML)*	*Volumetric ($/ML)*
Cedar Pocket	22.36	42.84	343.34	71.13
Lower Lockyer Valley	47.53	25.80	100.65	33.24
Pie Creek	54.30	91.58	409.80	257.52
Morton Vale Pipeline	45.76	15.19	69.26	18.52

Note: The fixed price is the Part A and Part C (where applicable) prices, and the volumetric price is the Part B and Part D (where applicable) prices. Source: QCA analysis.

We consider the price paths with an annual increase of inflation plus $2.38 per megalitre of WAE (from 2020–21, increasing by inflation) reflect the maximum level of increases that have occurred

[145] Business Queensland, Moreton water plan area, viewed 2 January 2020, https://www.business.qld.gov.au/industries/mining-energy-water/water/catchments-planning/water-plan-areas/moreton.

over the previous two price path periods and allow prices to transition to the lower bound cost target in a staged manner that allows users time to adjust.

We therefore recommend that total volumetric (Part B + Part D) prices increase by inflation until the corresponding fixed price reaches the fixed component of the lower bound cost target, after which the volumetric price increases each year by inflation plus $2.38 per megalitre (from 2020–21, increasing by inflation) until the lower bound cost target is reached. This approach ensures a maximum annual real increase of $2.38 per megalitre of WAE ($2020–21).

Summary of recommended prices

Table 41 summarises the existing 2019–20 price and our recommended prices for bulk WSSs operated by Seqwater.

Table 41 Existing and recommended prices—bulk WSSs ($/ML, nominal)

Bulk WSS	*Price*	*Existing*	*Final recommended prices*			
		2019–20	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Cedar Pocket	Part A	22.36	25.24	28.24	31.36	34.61
	Part B	42.84	43.80	44.78	45.78	46.81
Central Brisbane River	Part A	24.48	6.27	6.41	6.55	6.70
	Part B	11.76	2.55	2.60	2.66	2.72
Central Lockyer Valley	Part A	35.42	38.59	41.89	45.32	48.88
	Part B	11.46	11.01	11.26	11.51	11.77
Logan River	Part A	26.80	26.80	26.80	26.80	26.80
	Part B	11.58	11.84	12.10	12.38	12.65
Lower Lockyer Valley	Part A	47.53	50.97	54.55	58.26	62.11
	Part B	25.80	26.38	26.97	27.57	28.19
Mary Valley	Part A	24.13	24.13	24.13	24.13	24.13
	Part B	9.63	7.98	8.16	8.34	8.53
Warrill Valley	Part A	25.41	25.41	25.41	25.41	25.41
	Part B	8.48	8.67	8.86	9.06	9.27

Note: Recommended prices for the Central Lockyer Valley WSS are based on the priority groups and volumes in the current interim ROL in place for the scheme. Source: QCA analysis.

Table 42 summarises the existing 2019–20 price and our recommended prices for distribution systems operated by Seqwater.

Table 42 Existing and recommended prices—distribution systems ($/ML, nominal)

System	*Price*	*Existing*	*Final recommended prices*			
		2019–20	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Morton Vale Pipeline	Part A	35.42	38.59	41.89	45.32	48.88
	Part B	5.72	8.02	8.20	8.38	8.57
	Part C	10.34	10.58	10.81	11.05	11.29
	Part D	9.47	7.51	7.68	7.85	8.03
	Total fixed	**45.76**	**49.17**	**52.70**	**56.37**	**60.17**
	Volumetric	**15.19**	**15.53**	**15.88**	**16.23**	**16.60**
Pie Creek	Part A	21.59	14.20	14.51	14.84	15.17
	Part B	9.63	7.98	8.16	8.34	8.53
	Part C	32.71	43.70	47.12	50.65	54.34
	Part D	81.95	85.65	87.57	89.53	91.54
	Total fixed	**54.30**	**57.90**	**61.63**	**65.49**	**69.51**
	Volumetric	**91.58**	**93.63**	**95.73**	**97.87**	**100.07**

Note: The fixed prices are the Part A and Part C prices, and the volumetric prices are the Part B and Part D prices.
Source: QCA analysis.

Recommendation 18

We recommend that:

- prices for irrigation customers for each water supply scheme and distribution system should be set according to the prices set out in Tables 41 and 42
- prices for the Central Lockyer Valley WSS should be updated to take into account the Water Plan (Moreton) (Supply Scheme Arrangements) Amendment Plan 2019 as soon as practicable after the associated planning documents are finalised.

8 MISCELLANEOUS CHARGES

The referral directs us to make recommendations on appropriate prices including termination fees, drainage prices, drainage diversion prices and water harvesting prices.

Seqwater does not provide drainage, drainage diversion or water harvesting services in any of its irrigation schemes. It charges termination fees in the Morton Vale Pipeline and Pie Creek distribution systems. In this chapter, we present our recommendations on these charges.

8.1 Termination fees

Termination fees are applicable when distribution system water access entitlements (WAEs) are permanently transferred to a different section of the scheme, generally the river.

The termination fee is intended to allow Seqwater to recover fixed costs associated with the permanently transferred WAEs. This protects remaining customers from prices being increased to ensure Seqwater's revenue adequacy.

8.1.1 Previous investigation

In the 2013 review, we recommended that Seqwater's termination fee should be calculated as up to 11 times (including GST) the cost-reflective distribution fixed (Part C) price. This was based on the Water Charge (Termination Fees) Rules 2009 for the Murray-Darling Basin (MDB). The ACCC released amended guidelines in 2011 that allowed for the inclusion of GST and a termination fee multiple of up to 11 times (including GST).[146]

This was recommended as our approach for Sunwater considered that the present value of the ongoing cost-reflective fixed prices was close to 11 and on the basis of achieving administrative simplicity and consistency.[147] A lower multiple could be applied at Seqwater's discretion should it be consistent with Seqwater's commercial interests (for example, in the interests of more efficient system management).

This approach recovered up to 60 per cent of Seqwater's relevant fixed costs from the exiting customer. We said that the balance should be allocated to Seqwater, thereby providing Seqwater with a further incentive to reduce its fixed distribution system costs and/or attract new customers. Importantly, remaining customers should not pay any of the outstanding costs. [148]

Seqwater's view was that irrigators of the Morton Vale Pipeline had an existing contract with Seqwater that specified a methodology for calculating termination fees, and the conditions of this contract had precedence.[149] We recommended that if Seqwater chose to renegotiate the Morton Vale Pipeline contract, then our recommended approach for calculating termination fees should apply.

We noted that original entitlements associated with the Morton Vale Pipeline had been 5,051ML, but this volume reduced due to customers handing back allocations. To avoid remaining customers paying for costs attributed to the volumes that were handed back, we considered that

[146] ACCC, *ACCC final advice on an amendment to the Water Charge (Termination Fees) Rules 2009*, June 2010.
[147] QCA, *Seqwater Irrigation Price Review: 2013–17*, final report, April 2013, p. 74.
[148] QCA, *Seqwater Irrigation Price Review: 2013–17*, final report, April 2013, pp. 73–77.
[149] QCA, *Seqwater Irrigation Price Review: 2013–17*, Volume 2: Central Lockyer Valley Water Supply Scheme, final report, April 2013, pp. 28–29.

the relevant cost-reflective fixed (Part C) price used to derive termination fees should be based on 5,051 ML WAEs, as this was the agreed volume at the establishment of the scheme.[150]

For Pie Creek, the recommended approach resulted in a termination fee that was substantially higher than any other scheme. In addition, we recognised the unique circumstances that existed in Pie Creek and the economic concerns that stakeholders had raised. Therefore, we proposed an alternative approach to apply as a transitional arrangement, with the termination fee calculated as up to 11 times the recommended (not cost-reflective) Part C price. This was until Seqwater and the Government's consideration of future options for this tariff group had been completed.

This recommendation could imply a higher community service obligation (CSO) contribution from Government to offset the cost impact on remaining users. However, we considered this was a matter for the Government to determine in negotiations with Seqwater.[151]

8.1.2 Seqwater's submission

Seqwater proposed the arrangements for termination fees should continue as per the current price path arrangements:

- For the Morton Vale Pipeline, termination fees should be 11 times the cost-reflective fixed (Part C) price.
- For the Pie Creek distribution system, the termination fee should be 11 times the recommended fixed (Part C) price.[152]

In response to our draft report, Seqwater submitted that it supports all our recommendations for termination fees. However, it did not foresee any realistic scenarios where it would be in its commercial interest to set lower termination fees.[153]

8.1.3 Other stakeholders' submissions

No other stakeholders provided submissions on this issue.

8.1.4 QCA assessment

We have reassessed the appropriateness of the 2013 review approach. Seqwater has proposed no changes to the way termination fees are calculated.

In 2016, the ACCC completed its review of the water charge rules for the MDB, and proposed amendments to these rules including to the Water Charge (Termination Fees) Rules 2009. Based on this review, the current Water Charge (Termination Fees) Rules 2009 will be repealed under the Water Charge Amendment Rules 2019 on 1 July 2020. Termination fees rules will subsequently be contained in Part 10 of the Water Charge Rules 2010.

In its final advice, the ACCC stated that the imposition of a termination fee ensured a contribution from exiting irrigators for the ongoing fixed costs of operating the infrastructure and provided a degree of revenue certainty for infrastructure operators. Accordingly, the ACCC considered that the calculation of the maximum termination fee should only include fixed infrastructure charges imposed per unit of water delivery right held. This means that any variable charges and fixed

[150] QCA, *Seqwater Irrigation Price Review: 2013–17,* Volume 2: Central Lockyer Valley Water Supply Scheme, final report, April 2013, pp. 28–31.
[151] QCA 2013, *Seqwater Irrigation Price Review: 2013–17*, Volume 2: Mary Valley Water Supply Scheme, final report, April, pp. 19–21.
[152] Seqwater, sub. 1, p. 43.
[153] Seqwater, sub. 226, p. 6.

charges levied on rights other than volume of water delivery right held (such as an access charge) would not be included in the termination fee calculation.[154]

We note that the ACCC recommended termination fees be based on actual fixed (not cost-reflective) prices. Most operators in the MDB have historically set fixed prices at a level that is considerably lower than fixed costs. The ACCC considered that setting the termination fee based on actual fixed prices may provide an incentive for operators to move towards cost-reflective pricing.[155] Seqwater, however, does not have the discretion to alter its tariff structure or set prices to cost-reflective levels. Therefore, we consider that it is appropriate for Seqwater termination fees to be based on cost-reflective prices.

Based on balancing the interests of the terminating and remaining customers, and the water business, the ACCC considered that there was no strong reason to change the termination fee multiple of 11 times (including GST).[156]

We consider that a termination fee applied as up to 11 times (including GST) the cost-reflective distribution fixed (Part C) price balances the interests of Seqwater and its customers with providing appropriate incentives for Seqwater to supply only those services required by its customers. A lower multiple could be applied at Seqwater's discretion, should it be consistent with Seqwater's commercial interests (e.g. in the interests of more efficient system management).

With regard our recommendations in the 2013 review for Morton Vale Pipeline, we recognise that the termination fee stated within the Morton Vale Pipeline contract is a separate matter. This relates to a fee for early termination of the capital charge that is payable by customers up to 2026. It is not related to the termination fee recommendations that we are required to provide, which relate to fixed costs associated with the ongoing operation, maintenance and renewal of the scheme.

We consider that since remaining customers should not pay for any shortfall in revenue upon exit of the scheme by another customer, the termination fee for Morton Vale Pipeline should continue to be based on the cost-reflective fixed (Part C) price calculated using 5,051ML WAE—the agreed volume at the establishment of the scheme.

In the previous review, as a transitional arrangement, we recommended the termination fee for Pie Creek should be calculated as up to 11 times the recommended (not cost-reflective) Part C price. This was until Seqwater and the Government's consideration of future options for this tariff group had been completed. Seqwater has informed us that a DNRME-led review of the Pie Creek distribution system in line with the recommendations of the 2013 final report was completed in February 2018. As part of the review, Seqwater was asked to complete an engineering review to identify potential ways to improve scheme efficiency and reduce operational costs. This process included consultation with customers and QFF, and site visits. However, the outcomes of the review did not result in any operational changes.

It is clear that the recommended approach still results in a disproportionately high termination fee for Pie Creek compared to other schemes. We also note that Seqwater proposed no change to current termination fee arrangements. Therefore, we recommend that the termination fee for Pie Creek should continue to be calculated as up to 11 times (including GST) the recommended

[154] ACCC, *Review of the Water Charge Rules, final advice*, 2016, p. 263.
[155] ACCC, *Review of the Water Charge Rules, final advice*, 2016, p. 277.
[156] ACCC, *Review of the Water Charge Rules*, final advice, 2016, pp. 265, 271.

(not cost-reflective) Part C price. See Table 43 for the maximum termination fee for each tariff group.

Our recommended approach ensures that the shortfall should not be recovered from remaining customers as result of other customers terminating. This means that Seqwater will bear the revenue risk if it is not able to sell the terminated WAEs once the termination revenue has been exhausted. On the other hand, if Seqwater is able to sell the terminated WAEs before the termination revenue has been exhausted, Seqwater should be able to retain the additional revenue. This will provide the appropriate incentive for Seqwater to attract new customers.

Table 43 Maximum termination fees for each tariff group ($/ML WAE, nominal)

Tariff group	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Morton Vale Pipeline	106.60	108.99	111.43	113.93
Pie Creek	480.70	518.32	557.15	597.74

Source: QCA analysis.

Recommendation 19

We recommend that:

- termination fees applicable to customers in the Morton Vale Pipeline distribution system should be calculated as up to 11 times (including GST) the cost-reflective fixed (Part C) price
- termination fees applicable to Pie Creek distribution system should be calculated as up to 11 times (including GST) the recommended fixed (Part C) price
- Seqwater should have the discretion to apply a lower multiple to the relevant fixed price or waive the termination fee
- Seqwater should never recover any revenue shortfall from remaining customers upon exit of the scheme by another customer.

9 IMPACTS ON CUSTOMER BILLS

The referral directs us to consider how our recommended appropriate prices might be reflected in customer bills for each irrigation tariff group. This chapter outlines bill impacts for Seqwater's irrigation customers.

The customer bill impacts are presented in nominal dollar values. This means that prices **include forecast inflation**.[157] Our analysis of bill impacts has been based on the 15-year irrigator-only average usage for each water supply scheme and distribution system.

The customer bill impacts presented in this chapter are indicative only—an irrigator's unique water use profile will determine the individual bill impacts. We have also provided indicative customer bill estimates as part of our recommendations—these can be found in Appendix B.

Scheme information sheets also provide indicative bill impacts for varying levels of usage.

9.1 Customer bill impacts

In making our recommendations, we have considered the likely impact on Seqwater's customers.

For bulk WSS prices, indicative bill impacts are derived using the fixed (Part A) price and by applying average irrigation water use (at the scheme level) to the volumetric (Part B) price. For distribution system prices, bill impacts are derived using the sum of the fixed (Part A and Part C) price and the average irrigation water use applied to the volumetric (Part B and Part D) price.

The per cent change has been calculated from 2019–20 to 2020–21, and over the price path period (from 2019–20 to 2023–24).

9.1.1 Indicative bill impacts

The table below shows indicative bill impacts (in $/ML) for existing tariff groups after bill moderation (see Chapter 7 for details on how we have moderated bill impacts).

Table 44 Indicative bill impacts compared to current prices ($/ML nominal)

Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Cedar Pocket	60	48.15	51.61	62.79	7	30
Central Brisbane River	30	28.06	7.05	7.53	(75)	(73)
Central Lockyer Valley	40	40.06	43.05	53.64	7	34
Morton Vale Pipeline	15	47.97	51.44	62.58	7	30
Logan River	31	30.37	30.45	30.70	–	1
Lower Lockyer Valley	15	51.51	55.04	66.45	7	29
Mary Valley	34	27.38	26.83	27.01	(2)	(1)
Pie Creek	24	75.91	79.99	93.12	5	23
Warrill Valley	24	27.47	27.51	27.66	–	1

Source: Seqwater pricing model 2018; QCA analysis.

[157] We have forecast inflation over the regulatory period to be 2.24 per cent (see Chapter 7).

10 CUSTOMER ENGAGEMENT

In the 2013 review, we made recommendations relating to Seqwater improving its customer engagement processes. We consider that effective customer engagement provides opportunities for closer alignment of the outcomes sought by businesses and their customers.

This chapter provides an assessment of the customer engagement conducted by Seqwater against what is currently considered good practice in the Australian water sector.

10.1 Background

Customer engagement is important in competitive markets to define customer expectations which firms can seek to address. Customer engagement is even more important in monopoly markets because, in the absence of alternative service providers, it provides an opportunity for customers to reveal their preferred combinations of service quality and price.

Customer involvement is an important mechanism for providing appropriate checks and balances on the activities of regulated service providers. To meet these objectives it is essential that customers are meaningfully engaged in decision making on an ongoing basis.

In its November 2018 submission, Seqwater provided information on its customer engagement activities including:

- its customer engagement strategy
- the key issues customers raised during customer engagement and their response to the issues raised
- their learnings from customer engagement, and whether each business considers views expressed were sufficiently representative of the broader customer base.

10.2 Seqwater's submission

Seqwater said that it had not established Irrigation Advisory Committees in its schemes, as the customers did not indicate demand for this form of engagement. It provides all customers in the scheme with an opportunity to engage with it through annual forums focusing on NSPs.[158]

The NSP forums are usually held around May to present draft annual outcomes and budgets and seek feedback from customers. The NSPs are then published by 30 September. Seqwater said that this process was implemented based on our recommendations from the 2013 review. [159]

Seqwater had undertaken customer engagement in two steps during the development of the price submission:

- establishing small reference groups (Irrigation Customer Reference Groups (ICRGs)) for detailed feedback
- holding 'town-hall' style forums in each scheme area to which all customers are invited.[160]

[158] Seqwater, sub. 1, p. 47.
[159] Seqwater, sub. 1, p. 13.
[160] Seqwater, sub. 1, p. 13.

Seqwater said that the exception to this approach was for the Central Brisbane River WSS. Seqwater engaged directly with the Mid-Brisbane River Irrigators Committee (MBRI), which represents the majority of irrigation customers in the scheme.

In preparation for this pricing review, Seqwater contacted regular participants from the forums in each scheme to be involved in ICRGs for six of its schemes. This involved a number of different rounds of meetings:

- initial introductory meetings from April to June 2018.
- a second round of meetings, which were held in August 2018—during which Seqwater shared its understanding of policies for the review and indicative cost information, and discussed information to be shared with customers at the wider forum
- a final round of meetings which held in October 2018—to discuss the final positions for Seqwater's submission and seek any final feedback.[161]

Seqwater invited all customers in the six schemes to attend forums held in September 2018. It also informed them of an engagement website that Seqwater established for the review. Customers could give feedback via a survey on the website if they could not attend the forum. Seqwater said that it did not receive many survey responses either via the engagement website or at the forums.[162]

Key messages from the ICRGs included:

- support for Seqwater's proposals, with the exception of the Lockyer Valley schemes. These proposals included the allocation of fixed and variable costs, the long-term average water usage assumption, and the proposal to reinvest any surplus into the renewals fund to reduce the renewals annuity balances
- concerns about reliability of water in some schemes (Lockyer Valley schemes and Logan River)
- concerns about affordability and sustainability of some schemes (Lockyer Valley schemes, Pie Creek and Cedar Pocket)
- concerns about the performance of Lockyer Valley schemes and the affordability of these schemes into the future; customers wanted these issues taken into account for future prices.[163]

10.3 Other jurisdictions

Water businesses and regulators across other jurisdictions are actively seeking to improve their engagement with customers. This trend is most evident in Victoria, with the implementation of the PREMO framework, and in South Australia, with SA Water adopting customer-centric planning.

To assess Seqwater's customer engagement against what is considered good practice, we have compared Seqwater's proposal against the practice of other water utilities of a similar size and/or

[161] Seqwater, sub. 1, p. 47–48.
[162] Seqwater received 22 survey responses from the six WSSs (i.e. excluding Central Brisbane River WSS) and two distribution systems, out of a total of over 1,000 irrigation customers in these schemes (Seqwater, sub. 1, p. 50).
[163] Seqwater, sub. 1, p. 49.

service offering that have recently been through regulatory review processes. The water businesses included in the analysis are:

- Southern Rural Water (SRW)—SRW provides irrigation services in Victoria and was rated by the ESC as leading under the PREMO framework with regard to its customer engagement
- WaterNSW—WaterNSW is the primary provider of irrigation services in NSW and is subject to economic oversight by IPART
- SA Water—SA Water is a vertically integrated water service provider in SA and is regulated by ESCOSA. SAWater provides irrigation and rural services.

10.3.1 Southern Rural Water

SRW uses various mechanisms to engage with its customers. These include:

- Customer Consultative Committees—members are selected to ensure a broad range of customer views are heard and meet regularly with SRW to provide input on a range of issues including helping to shape tariff structures or system and service improvements
- board engagement—board meetings are held at locations across SRW's region, which provides the board with direct insight into the issues and concerns of customers at a local level. The director and board also meet regularly with the customer committees to listen to issue and concerns raised
- field days—SRW staff attend a number of field days and similar events to provide a forum for customers to speak directly with staff
- Customer First Team—provides a regular forum for staff from across SRW to share their perspectives and promote opportunities to improve customer service. The team also visits customer sites to get a better appreciation of the issues that are of most interest for customers
- project engagement—irrigation district modernisation and other specific projects have significant and ongoing customer engagement programs of their own, including price impacts and project works.[164]

Face-to-face engagement is also supported by other channels including:

- detailed biennual customer surveys
- short transactional customer surveys and feedback
- regular newsletters, websites and social media.

Additional engagement took place during the development of SRW's price submission in order to design and test its proposals. A range of methods were used including online and phone surveys, regional focus groups, one-on-one interviews, social media and attendance at industry field days. This process started about a year before the price submission was due.

Topics covered in SRW's customer engagement included:

- service improvements related to water trading, maintenance of irrigation assets, water security and its strategy for the Macalister Irrigation District
- support for customers experiencing financial hardship

[164] SRW, submission to ESC, *Water price review 2018*, 2017.

- prices and affordability
- tariff structures including the mix of fixed and variable charges in residential customer bills.

10.3.2 WaterNSW

In the lead-up to the 2018 ESC water price review, WaterNSW engaged in face-to-face meetings with customers. It presented information and sought direct feedback from customers during these meetings.[165]

The CSC Reference Group was also established to assist WaterNSW with the development of the pricing proposal and comprised nominated leads from each of the CSCs. The reference group provided input on issues such as:

- key themes and matters of importance
- the package of information to present during consultation
- issues to consult on
- how to conduct the consultation process
- pricing matters that would not change.

WaterNSW engages with its customers on an ongoing basis. However, WaterNSW engaged in a more targeted consultation program for the purposes of its pricing proposal. This involved five phases:

- Phase 1—Establishment of CSC Reference Group and agreement on key matters and principles (November to December 2015)
- Phase 2—Key customer representatives provided with necessary background information to enable them to assess pricing information and analysis (January to March 2016)
- Phase 3—Presentation of pricing information and analysis and opportunities for customers to provide feedback (April to June 2016)
- Phase 4—Ongoing consultation with customers and IPART as part of its public consultation process on WaterNSW's proposal (July 2016 to June 2017)
- Phase 5—Post-determination consultation (June 2017 onwards).

Key matters for consultation included:

- tariff structures including the fixed to variable split
- impact of the unders and overs mechanism
- proposing the introduction of a mechanism to address WaterNSW revenue volatility
- how prices are derived from costs.

10.3.3 SA Water

SA Water used a number of mechanisms to engage with its customers during its 2016 pricing proposal at Stage 1, 3 and 5 of its engagement program:

[165] WaterNSW, *Pricing proposal to the Independent Pricing and Regulatory Tribunal: Regulated prices for NSW Rural Bulk Water Services from 1 July 2017 to 30 June 2021,* 30 June 2016.

- At Stage 1, SA Water used 15 focus groups with 118 customers and consultation with Customer Advisory Groups to understand customer values, needs and expectations.
- At Stage 3, SA Water used 9 workshops (116 residential and 28 business customers), engagement with Customer Advisory Groups and an online survey (1232 customers) to engage customers about service improvements and investment opportunities developed by SA Water in response to the Stage 1 findings.
- At Stage 5, SA Water used 4 workshops (36 residential and 11 business customers) to gain customer feedback on SA Water's proposed response to the Stage 3 insights. Workshop participants were selected from those customers that attended the Stage 3 workshops.

SA Water engaged with its customers on an ongoing basis through its Customer Engagement Program. However, for the purposes of the 2016 price submission (due August 2015), SA Water engaged with customers on a more targeted basis from November 2013 to March 2015:

- Stage 1—November 2013 to February 2014 (understand customer values, needs and expectations)
- Stage 2—Internal business planning to develop potential service improvement and improvement opportunities in response to feedback from Stage 1
- Stage 3—June 2014 (provide customers with the opportunity to consider costs and benefits of proposed investment and service improvement opportunities. Customers were provided with a level of education to enable them to make an informed decision at the workshops)
- Stage 4—Internal business planning using feedback from Stage 3 to refine service improvement opportunities which customers supported
- Stage 5—March to April 2015 (consultation on expenditure proposals for the 2016 to 2020 regulatory period).

The topics discussed centred around six core areas that were developed at Stage 1 and tested during the customer engagement process. These included:

- customer experience (e.g. SMS technology)
- service standards
- service delivery and investment (e.g. investments in preventative maintenance)
- water quality (e.g. taste of water supplies)
- water recycling
- water for growth (e.g. opportunities to support economic development through initiatives such as partnering with industry and business)

For all the topics, potential service improvements and investment opportunities were presented to customers in the form of cost impacts and implications on prices/bills.

10.4 QCA assessment

We have assessed the following elements of the Seqwater's engagement with customers, based on the information provided in its November 2018 submission and its response to our draft report:

- structure—the form or structure of the engagement, and covers the formal arrangements used and the stated purpose of each of these arrangements

- timing—the timing or scheduling of consultation, including during the development of the price submission and on an ongoing basis
- scope—the scope of issues covered in the engagement.

10.4.1 Structure

While it is a reasonable approach for Seqwater to use its annual forums to largely inform customers about its pricing proposal, we consider that there are opportunities for Seqwater to expand on the use of the forums as a vehicle to design and test aspects of its proposal with customers. We consider that the adoption of a customer-centric approach involves developing engagement programs that are more than informative in nature and are aimed at identifying and incorporating customer preferences into planning and decision-making.

We also recommend Seqwater broaden its engagement by adopting other engagement channels to improve customer representation and avoid any issues associated with capture. This is particularly important in the context of the low response rate for the customer survey and the variability in participation rates in the annual forums and customer reference groups.

Moving forward Seqwater should consider developing an engagement strategy that:

- provides a detailed understanding of the needs, behaviours and preferences of its customers and stakeholders
- allows it to plan and design engagement programs that are fit-for-purpose depending on the topic or critical decision and its customer's preferences. In particular we note that there is value in identifying how customers prefer to be engaged including identifying customers preferences in relation to the different platforms of engagement (for example, web based vs one on one interviews or workshops).

10.4.2 Timing

In our draft report we raised concerns on the timing of Seqwater's consultation, particularly when Seqwater gave customers only eight months to provide input on the development of the pricing proposal. Furthermore, the forum and survey were conducted two months before the submission was due, constraining the opportunity for customers to influence planning and design outcomes and test the proposals.

We also found that there was a lack of clarity on how Seqwater has incorporated its ongoing engagement through the annual forums in the development of its proposal and how it used this engagement to create focus on the issues that are most important to customers in terms of service delivery and price/bill impacts.

In response to our draft report Seqwater indicated that they are committed to continued customer engagement and are seeking ways to draw greater participation from the wider customer base. However Seqwater has not clearly communicated how it will use its ongoing engagement to continuously test proposals with its customers and leverage learnings throughout the process. This is important for Seqwater to demonstrate that it is listening and responding and provide more focus on issues that are important to customers.

10.4.3 Scope

In our draft report we noted that there was no clear connection between the proposed costs and pricing and billing outcomes for customers. We considered that the consultation would be more meaningful if it clearly linked proposed expenditure, prices and services. In the absence of this

information, customers are not capable of making informed decisions on the trade-offs and relativities involved in price and service.

We observed that Seqwater did not appear to provide a clear link between the proposed costs and service level outcomes for customers. There was also no clear identification of the billing and service level outcomes customer want. We also noted that Seqwater's process did not clearly delineate between negotiable and non-negotiable issues, making it difficult to tailor engagement processes such that they are fit for purpose. As a result, there was a material amount of customer feedback that appeared to be either highly technical in nature or alternatively not typically topics that customers would be engaged on.

In response to our draft report Seqwater sought further clarity on what would draw "a clearer link between proposed expenditure and both prices and service level outcomes for customers".

We consider that it is reasonable to expect Seqwater to be able to draw the link between what they are proposing to spend and how this is reflected in the prices that are charged, the level of services that its customers will receive and the likely bill impacts.

For example, a key outcome that customers might want delivered is a water supply system that enables good practice irrigation. In order to meet this outcome, Seqwater should be able to articulate:

- the proposed actions that it seeks to implement in order to meet the customer outcome (e.g. invest in improved asset management and upgrading assets)
- the associated expenditure (operating costs and capital expenditure) from delivering the proposed actions
- the expenditure impacts on prices and billing
- proposed key performance indicators to track performance against delivery of the customer outcome (e.g. the percentage of water released into an irrigation system that is actually delivered to customers).

10.4.4 Summary

Based on our findings above, we consider that Seqwater should seek to improve the structure, timing and scope of its customer engagement.

Recommendation 20

We recommend that Seqwater should improve its engagement with customers by:

- engaging with them on an ongoing basis, to keep a strong focus on what is important to customers over the course of the price path period and to provide a better understanding of customer requirements prior to the next price review
- drawing a clearer link between proposed expenditure and both prices and service level outcomes for customers.

APPENDIX A: TOTAL COSTS BY SCHEME/SYSTEMS

Cedar Pocket WSS

Table 45 Total whole of scheme costs, Cedar Pocket WSS ($'000, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Labour	63.7	65.3	67.1	69.0
Electricity	0.4	0.4	0.4	0.4
Repairs and maintenance	15.1	15.5	15.9	16.3
Other	33.1	62.6	33.9	37.2
Insurance	7.0	7.2	7.3	7.5
Non–direct	60.1	61.4	62.9	64.5
Renewals annuity	4.9	4.9	4.9	4.9
Revenue offsets	(0.8)	(0.8)	(0.8)	(0.9)
Total costs	**183.4**	**216.4**	**191.6**	**198.8**

Note: Total whole of scheme costs, including those costs allocated to irrigation and non-irrigation customers.

Central Brisbane River WSS

Table 46 Total whole of scheme costs, Central Brisbane River WSS ($'000, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Labour	1,084.1	1,111.2	1,141.8	1,172.9
Electricity	177.8	180.5	183.4	186.0
Repairs and maintenance	125.6	128.5	131.9	135.4
Other	2,618.0	2,582.3	2,662.4	2,686.1
Insurance	581.0	593.8	608.6	623.9
Non–direct	2,210.6	2,259.3	2,315.8	2,373.6
Renewals annuity	1,604.1	1,601.6	1,599.0	1,597.0
Revenue offsets	(1,418.9)	(1,450.2)	(1,486.4)	(1,523.6)
Total costs	**6,982.3**	**7,007.0**	**7,156.5**	**7,251.3**

Note: Total whole of scheme costs, including those costs allocated to irrigation and non-irrigation customers.

Central Lockyer Valley WSS

Table 47 Total whole of scheme costs, Central Lockyer Valley WSS ($'000, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Labour	124.2	127.3	130.8	134.4
Electricity	11.1	11.3	11.5	11.6
Repairs and maintenance	174.0	178.1	182.8	187.6
Other	53.4	71.1	52.6	43.4
Insurance	146.2	149.4	153.2	157.0
Non–direct	223.0	227.9	233.6	239.4
Renewals annuity	328.6	328.7	328.2	330.9
Revenue offsets	(1.4)	(1.5)	(1.5)	(1.5)
Total costs	**1,059.1**	**1,092.4**	**1,091.2**	**1,102.9**

Note: Total whole of scheme costs, including those costs allocated to irrigation and non-irrigation customers.

Morton Vale Pipeline distribution system

Table 48 Total whole of scheme costs, Morton Vale Pipeline ($'000, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Labour	12.4	12.7	13.1	13.4
Electricity	–	–	–	–
Repairs and maintenance	5.2	5.3	5.5	5.6
Other	10.9	11.1	11.3	11.4
Insurance	2.3	2.4	2.4	2.5
Non–direct	14.7	15.0	15.4	15.8
Renewals annuity	5.5	5.5	5.5	5.5
Revenue offsets	–	–	–	–
Total costs	**51.1**	**52.0**	**53.1**	**54.2**

Note: Total whole of scheme costs, including those costs allocated to irrigation and non-irrigation customers.

Logan River WSS

Table 49 Total whole of scheme costs, Logan River WSS ($'000, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Labour	314.4	322.2	331.1	340.1
Electricity	10.5	10.7	10.8	11.0
Repairs and maintenance	299.6	306.7	314.8	323.1
Other	655.8	714.3	676.4	711.7
Insurance	331.2	338.5	347.0	355.6
Non–direct	748.4	764.8	783.9	803.5
Renewals annuity	201.3	201.0	201.1	200.8
Revenue offsets	(20.2)	(20.6)	(21.1)	(21.7)
Total costs	**2,541.0**	**2,637.6**	**2,644.1**	**2,724.2**

Note: Total whole of scheme costs, including those costs allocated to irrigation and non-irrigation customers.

Lower Lockyer Valley WSS

Table 50 Total whole of scheme costs, Lower Lockyer Valley WSS ($'000, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Labour	158.4	162.3	166.8	171.3
Electricity	44.6	45.3	46.0	46.7
Repairs and maintenance	107.7	110.2	113.0	115.9
Other	168.4	166.6	172.9	199.3
Insurance	59.8	61.1	62.6	64.2
Non–direct	277.1	283.2	290.2	297.5
Renewals annuity	132.4	488.7	488.0	488.6
Revenue offsets	(5.7)	(5.9)	(6.0)	(6.1)
Total costs	**942.6**	**1,311.6**	**1,333.6**	**1,377.5**

Note: Total whole of scheme costs, including those costs allocated to irrigation and non-irrigation customers.

Mary Valley WSS

Table 51 Total whole of scheme costs, Mary Valley WSS ($'000, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Labour	204.8	209.9	215.6	221.5
Electricity	7.6	7.8	7.9	8.0
Repairs and maintenance	122.0	124.9	128.2	131.5
Other	148.0	126.8	124.4	129.6
Insurance	108.9	111.3	114.1	116.9
Non–direct	260.9	266.6	273.3	280.1
Renewals annuity	500.5	499.7	499.0	501.2
Revenue offsets	–	–	–	–
Total costs	**1,352.7**	**1,347.0**	**1,362.4**	**1,389.0**

Note: Total whole of scheme costs, including those costs allocated to irrigation and non-irrigation customers.

Pie Creek distribution system

Table 52 Total whole of scheme costs, Pie Creek ($'000, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Labour	61.6	63.2	64.9	66.7
Electricity	19.8	20.1	20.4	20.7
Repairs and maintenance	84.5	86.5	88.8	91.1
Other	21.4	21.3	21.2	21.1
Insurance	5.5	5.6	5.7	5.9
Non–direct	99.3	101.5	104.1	106.7
Renewals annuity	84.0	83.9	84.4	87.2
Revenue offsets	–	–	–	–
Total costs	**376.2**	**382.0**	**389.5**	**399.3**

Note: Total whole of scheme costs, including those costs allocated to irrigation and non-irrigation customers.

Warrill Valley WSS

Table 53 Total whole of scheme costs, Warrill Valley WSS ($'000, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Labour	271.7	278.5	286.2	294.0
Electricity	8.8	9.0	9.1	9.2
Repairs and maintenance	237.2	242.7	249.0	255.4
Other	204.1	213.5	236.1	219.3
Insurance	44.3	45.3	46.4	47.6
Non–direct	382.9	391.3	401.1	411.1
Renewals annuity	286.4	286.0	360.8	360.2
Revenue offsets	(30.0)	(30.7)	(31.4)	(32.2)
Total costs	**1,405.5**	**1,435.6**	**1,557.1**	**1,564.6**

Note: Total whole of scheme costs, including those costs allocated to irrigation and non-irrigation customers.

APPENDIX B: ESTIMATED BILLS BY SCHEME/SYSTEM

For bulk WSS prices, indicative bill estimates are derived using the fixed (Part A) price and by applying average irrigation water use (at the scheme level) to the volumetric (Part B) price. For distribution system prices, indicative bill estimates are derived using the sum of the fixed (Part A and Part C) price and the average irrigation water use applied to the volumetric (Part B and Part D) price.

Indicative bill estimates

Table 54 shows indicative bill estimates for tariff groups, after bill moderation, for three levels of WAE.

Table 54 Bill estimates compared to current prices ($, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
Cedar Pocket					
100 ML WAE	4,815	5,161	6,279	7	30
500 ML WAE	24,075	25,805	31,393	7	30
1,000 ML WAE	48,151	51,609	62,786	7	30
Central Brisbane					
100 ML WAE	2,806	705	753	(75)	(73)
500 ML WAE	14,031	3,523	3,765	(75)	(73)
1,000 ML WAE	28,063	7,046	7,531	(75)	(73)
Central Lockyer Valley					
100 ML WAE	4,006	4,305	5,364	7	34
500 ML WAE	20,028	21,523	26,818	7	34
1,000 ML WAE	40,056	43,046	53,635	7	34
Morton Vale Pipeline					
100 ML WAE	4,797	5,144	6,258	7	30
500 ML WAE	23,987	25,718	31,292	7	30
1,000 ML WAE	47,973	51,436	62,585	7	30
Logan River					
100 ML WAE	3,037	3,045	3,070	–	1
500 ML WAE	15,184	15,224	15,349	–	1
1,000 ML WAE	30,368	30,448	30,699	–	1
Lower Lockyer Valley					
100 ML WAE	5,151	5,504	6,645	7	29
500 ML WAE	25,754	27,521	33,227	7	29
1,000 ML WAE	51,508	55,042	66,455	7	29
Mary Valley					
100 ML WAE	2,738	2,683	2,701	(2)	(1)
500 ML WAE	13,692	13,413	13,505	(2)	(1)
1,000 ML WAE	27,383	26,826	27,011	(2)	(1)
Pie Creek					
100 ML WAE	7,591	7,999	9,312	5	23
500 ML WAE	37,953	39,993	46,561	5	23
1,000 ML WAE	75,906	79,986	93,121	5	23
Warrill Valley					
100 ML WAE	2,747	2,751	2,766	–	1
500 ML WAE	13,733	13,756	13,829	–	1
1,000 ML WAE	27,467	27,513	27,657	–	1

Source: Seqwater pricing model 2018; QCA analysis.