Queensland Competition Authority

Draft report

Rural irrigation price review 2020–24 Part B: Sunwater

August 2019

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SUBMISSIONS

Closing date for submissions: 4 November 2019

Public involvement is an important element of the decision-making processes of the Queensland Competition Authority (QCA). Therefore submissions are invited from interested parties concerning its review of rural irrigation prices for 2020–24. The QCA will take account of all submissions received within the stated timeframes.

Submissions, comments or inquiries regarding this paper should be directed to:

Queensland Competition Authority
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Tel (07) 3222 0555
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Confidentiality

In the interests of transparency and to promote informed discussion and consultation, the QCA intends to make all submissions publicly available. However, if a person making a submission believes that information in the submission is confidential, that person should claim confidentiality in respect of the document (or the relevant part of the document) at the time the submission is given to the QCA and state the basis for the confidentiality claim.

The assessment of confidentiality claims will be made by the QCA in accordance with the *Queensland Competition Authority Act 1997*, including an assessment of whether disclosure of the information would damage the person's commercial activities and considerations of the public interest.

Claims for confidentiality should be clearly noted on the front page of the submission. The relevant sections of the submission should also be marked as confidential, so that the remainder of the document can be made publicly available. It would also be appreciated if two versions of the submission (i.e. a complete version and another excising confidential information) could be provided.

A confidentiality claim template is available on request. We encourage stakeholders to use this template when making confidentiality claims. The confidentiality claim template provides guidance on the type of information that would assist our assessment of claims for confidentiality.

Public access to submissions

Subject to any confidentiality constraints, submissions will be available for public inspection at our Brisbane office, or on our website at www.qca.org.au. If you experience any difficulty gaining access to documents please contact us on (07) 3222 0555.

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EXECUTIVE SUMMARY

The Queensland 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 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 water supply schemes (WSSs) and distribution systems for the period 1 July 2020 to 30 June 2024.

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

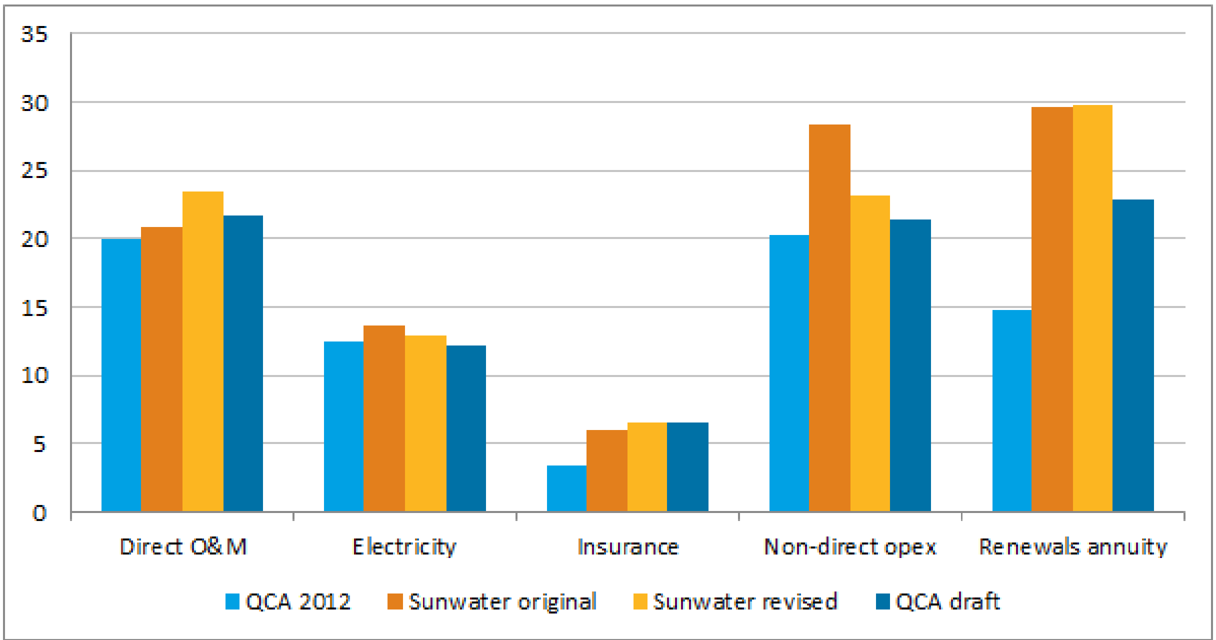
Costs

We are required to recommend prices that seek to recover certain prudent and efficient costs. We have assessed the operating expenditure (opex), renewals expenditure and dam safety upgrade capital expenditure (capex) proposed by Sunwater for prudency and efficiency. Our recommended costs are in Chapters 2 and 3.

Our estimated total revenue requirement for Sunwater over 2020–24 of $355.0 million is $62.2 million (15 per cent) lower than Sunwater's proposed (November 2018) revenue requirement of $417.2 million. The main sources of difference between our estimates and Sunwater's are our reductions to Sunwater's opex ($26.8 million) and renewals expenditure (which reduces the renewals annuity allowance by $35.4 million).

Our estimated base year opex is 10 per cent higher than our recommended opex for the final year of the 2012–17 price path. However, it is 10 per cent lower than what Sunwater proposed in its November 2018 submission, and 6 per cent lower than Sunwater's June 2019 resubmitted costs.

Figure 1 Base year cost breakdown ($2018–19, million)



Notes: 1. QCA 2012 reflects the QCA's recommended opex for 2016–17. 2. Direct O&M is direct operations and maintenance expenditure.

Source: Sunwater, sub. 45, November 2018; Sunwater, sub. 153, June 2019; QCA analysis.

Sunwater's late resubmission of its proposed opex forecasts in June 2019 addressed a number of issues with its November 2018 cost submission identified by the QCA, Sunwater and other stakeholders—in particular, issues with Sunwater's proposed base year non-direct costs. However, the June 2019 resubmission also resulted in material changes to Sunwater's direct operations and maintenance costs.

We recognise that some stakeholders have not had the opportunity to review the revised submission prior to our draft report. While we have used our best endeavours to assess the revised submission in the limited time available, we intend to continue to refine our assessment for our final report. We would therefore welcome submissions from stakeholders on Sunwater's revised costs.

Overall we consider Sunwater's historical direct operations and maintenance costs to be generally prudent and efficient. While Sunwater attributed higher base year costs than its most recent 2017–18 actuals to under-representation of time-sheet reporting for direct activities, we have insufficient justification for the level of the increase at the time of the draft report.

Sunwater's proposed non-direct costs have changed significantly between its November 2018 submission and its June 2019 resubmission, both at the aggregate level and at the individual cost category level. We have considered the cost drivers behind Sunwater's proposed increase in the corporate cost base and made a net downward adjustment mainly reflecting projected reductions in the cost base.

For Sunwater's renewals expenditure, we have:

- reduced historical renewals (exclusive of non-routine operations and corrective maintenance) from $104.9 million to $97.3 million (down 7.3 per cent), relative to the November 2018 submission
- excluded flood repair costs of $58.2 million (net of insurance revenues of $12 million), as insurance claims are yet to be finalised
- reduced forecast renewals expenditure over the 30-year planning period from $1,706.9 million to $1,185.0 million (down 30.6 per cent), relative to the November 2018 submission.

Our estimated annual renewals annuity allowance is 59 per cent higher than our recommended renewals annuity allowances over the 2012–17 price path. However, our allowance is 26 per cent lower than Sunwater's proposed annual allowance.

Draft prices

Our draft recommended prices for current tariff groups, for the period 2020–24, are detailed in Chapter 7 of each of the business-specific reports (Part B and Part C). These prices are also outlined in scheme-specific information sheets. Our draft recommended termination fees, and water harvesting, drainage and drainage diversion prices are detailed in Chapter 8 of both Part B and Part C.

We have derived our inflation forecast 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 of an average 2.37 per cent, which we have used to increase prices over the price path period.

Pricing issues that we have assessed as part of our investigation include:

- the appropriate tariff structure (section 6.2)—the cost-reflective (lower bound) prices in the draft report reflect our recommended apportionment of fixed and variable costs
- treatment of distribution losses (section 6.3)— we have estimated the costs associated with historical excess distribution loss WAEs, and allocated the bulk holding (fixed) costs of these to Sunwater on the basis that distribution system customers should not pay for distribution loss WAEs in excess of what is required to meet actual loss releases

- minimum access charges (section 6.4)—we have released a short issues paper on Sunwater's proposal that we received on 5 July 2019, in which we are seeking comment
- scheme-specific pricing issues (section 6.5)—we have considered scheme-specific pricing issues including the Giru Benefited Area (tariff group), for which we have proposed prices that transition to a cost-reflective price target that is the same as for Burdekin Channel tariff group customers, as we do not consider that the costs of supply differ materially between these two tariff groups
- alternative tariff groups (section 6.6)—we have provided alternative tariff groups for Dawson Valley WSS, St George WSS and Three Moon Creek WSS, as required under the terms of the referral.

We have reassessed the allocation of bulk WSS costs to customer priority groups, particularly in respect of Inspector-General for Emergency Management (IGEM) review costs, 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 sufficient time to adjust.

Our recommended fixed prices reflect the transitional path to the cost-reflective (lower bound) target outlined in the pricing principles in the referral. We have also generally assessed the appropriate level of any volumetric price increase with reference to the maximum level of annual real price increases that have occurred over the previous two price path periods of \$2.38/ML of water access entitlement (WAE) (\$2020–21).

We have separately 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 costs allowable under the terms of the referral
- below lower bound costs—those tariff groups with existing prices that are not yet sufficient to recover the costs allowable under the terms of the referral.

Above lower bound prices

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

Where existing volumetric prices are above cost-reflective volumetric prices, we have reduced the existing volumetric price to the cost-reflective price immediately. Where volumetric prices are below cost-reflective volumetric prices, we have maintained the existing volumetric price in real terms until overall prices reach the lower bound cost target.

Below lower bound prices

For those tariff groups with existing prices below lower bound costs, we have sought to transition fixed prices to the cost-reflective fixed price by the government's prescribed increase of \$2.38/ML of WAE (plus inflation).

Where existing volumetric prices are above cost-reflective volumetric prices, we have reduced the existing volumetric price to the cost-reflective price immediately. We have generally recommended volumetric prices that fully recover relevant variable costs, with the exception of the following tariff groups where this would lead to a price increase well above the \$2.38/ML of WAE (plus inflation) in previous price periods:

- Barker Barambah WSS—Redgate Relift
- Burdekin distribution system—Giru Benefitted Area

- Maranoa River WSS.

For these tariff groups, we consider it appropriate to stage this change in approach over reasonable timeframes. We have therefore recommended that volumetric (Part B and Part D) prices increase by our estimate of inflation over the price path period.

As required in the referral, we have recommended two pricing options for those schemes with dam safety upgrade projects that are expected to be commissioned in the price path period. One set of prices that excludes all dam safety upgrade capital expenditure (capex) and another that includes an appropriate allowance for dam safety upgrade capex forecast to be incurred from 1 July 2020 onwards. We note that the impact on prices of including an appropriate dam safety upgrade capex allowance is limited in this price path period, so we have provided indicative longer-term pricing impacts for all dam safety upgrade projects commencing in this price path period (Part A, Chapter 4).

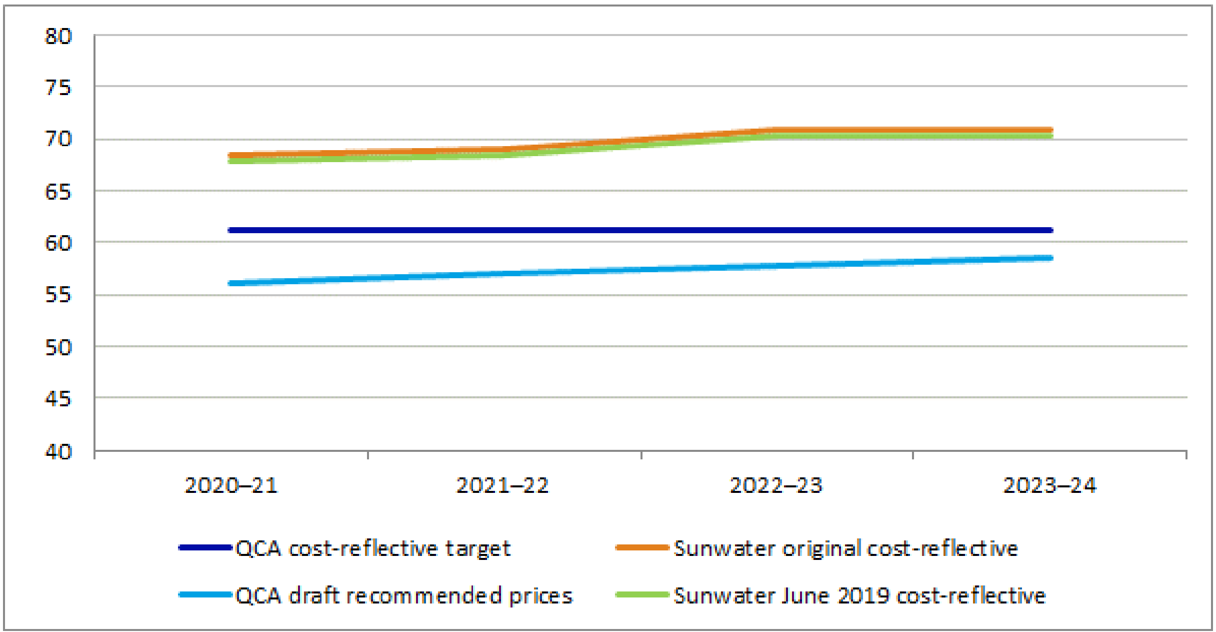
We have also reviewed the tariff groups in certain specified water supply schemes (Dawson Valley WSS, Three Moon Creek WSS and St George WSS) and developed alternative tariff groups as a second pricing option.

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.

Figure 2 compares revenue implied by Sunwater's submitted irrigation prices, our cost-reflective prices and our draft recommended prices.

Figure 2 Comparison of irrigation revenues (2020–24) ($2018–19, million)



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

Source: Sunwater, sub. 48; Sunwater, sub. 153; QCA analysis.

Draft recommendations

A summary of our draft recommendations from this Part B report are shown in Table 1.

Table 1 Summary of draft recommendations (Part B report)

Number	***Draft recommendation***	***Chapter***
8	We recommend that Sunwater should work with its customers and with the Government to move to a RAB-based approach for future price reviews.	Chapter 4
9	We recommend that the tariff structure should include: • a volumetric price that covers variable costs associated with the delivery of water services • a fixed price that reflects the balance of the revenue requirement allocated to the particular tariff group.	Chapter 6
10	We recommend that: • prudent and efficient bulk costs associated with necessary distribution loss WAEs be recovered from distribution system customers • the bulk holding (fixed) costs of distribution loss WAEs not required to service distribution system customers be borne by Sunwater • Sunwater should review its distribution loss WAEs and develop a strategy for their future treatment before the next price review.	Chapter 6
11	We recommend that: • dam safety upgrade capex and Inspector-General Emergency Management (IGEM) review costs should be allocated to medium and high priority customers using headworks utilisation factors (HUFs) for bulk WSSs, and using nominal WAEs for distribution systems • insurance costs should be allocated to medium and high priority customers using HUFs for bulk WSSs and using nominal water access entitlements (WAEs) for distribution systems.	Chapter 7
12	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 Appendix B. This includes pricing options for certain tariff groups.	Chapter 7
13	We recommend that: • termination fees should be calculated as up to 11 times (including GST) the relevant cost reflective distribution fixed (Part C) tariff • Sunwater can apply a lower multiple to the relevant cost reflective fixed tariff if it is in its commercial interests to do so • Sunwater should never recover any revenue shortfall from remaining customers upon exit of the scheme by another customer.	Chapter 8
14	We recommend that: • current drainage charges for the Burdekin-Haughton distribution scheme be increased each year by our measure of inflation • drainage costs associated with the Mareeba-Dimbulah distribution system should continue to be recovered from the Part C tariff.	Chapter 8
15	We recommend that current drainage diversion charges be increased each year by our measure of inflation.	Chapter 8
16	We recommend that distribution system water harvesting charges should comprise any applicable DNRME water harvesting charges, our recommended Part D charge, and a Sunwater lease fee if relevant.	Chapter 8
17	We recommend that Sunwater improve its engagement with customers by: • ensuring that customers are engaged on an ongoing basis to provide more 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	Chapter 10

Number	Draft recommendation	Chapter
	• ensuring that its consultation draws a clearer link between proposed expenditure and both prices and service level outcomes for customers • engaging with its customers prior to the next price review to develop a pricing proposal that incorporates its proposed prices for all of its tariff groups with irrigation customers.	

Next steps

Public involvement is a key part of our decision-making process and we invite interested parties and stakeholders to comment on our draft report. Submissions are due by 4 November 2019.

The Government will decide irrigation prices after considering our final recommendations, which we must provide by 31 January 2020.

THE ROLE OF THE QCA – TASK, TIMING AND CONTACTS

The Queensland Competition Authority (QCA) is an independent statutory body which promotes competition as the basis for enhancing efficiency and growth in the Queensland economy.

The QCA’s primary role is to ensure that monopoly businesses operating in Queensland, particularly in the provision of key infrastructure, do not abuse their market power through unfair pricing or restrictive access arrangements.

The QCA's primary role with respect to irrigation water pricing is to recommend prices to be charged by Sunwater and Seqwater to irrigation customers in specific water supply schemes and distribution systems. In recommending prices, we take into consideration the matters in section 26 of the Queensland Competition Authority Act 1997, inclusive of the terms set out in the Minister's referral notice (Appendix A).

Key dates

QCA publishes notice of investigation	31 October 2018
Initial stakeholder submissions identifying key issues to be considered in QCA review	30 November 2018
Lodgement of regulatory submissions by Sunwater and Seqwater	By 30 November 2018
Draft report to the Queensland Government	By 31 August 2019
Submissions due on draft report and Sunwater minimum access charge issues paper	4 November 2019
Final report to the Queensland Government	By 31 January 2020

Contacts

Enquiries regarding this project should be directed to:

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1 INTRODUCTION

The Queensland Government has asked the Queensland Competition Authority 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 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 water supply schemes and distribution systems for the period 1 July 2020 to 30 June 2024.

This part of the draft report (Part B) assesses the costs and prices associated with irrigation schemes operated by Sunwater.

1.1 Background

While the Queensland Government sets the irrigation prices that Sunwater charges, it can direct the QCA to recommend prices. We completed our first review of Sunwater's irrigation prices in 2012 and recommended prices for the period 1 July 2012 to 30 June 2017 (the 2012 review).[1] The Government set bulk water prices for the five-year period that were consistent with our recommendations.

We also recommended price paths in that review, for the irrigation customers in 22 water supply schemes (WSSs) and 8 associated distribution systems operated by Sunwater. The government decided to set price paths consistent with the QCA's recommendations.

From 2017–18 to 2019–20, the Government has extended the 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 cost-reflective levels incurred increases of $2 per megalitre (in $2012–13 real terms) until revenues consistent with cost-reflective prices were reached.

Irrigation prices for 2006–11 were approved by the Government on the basis of Sunwater’s recommendations. These prices were developed during 2005–06 as part of a consultative process between Sunwater and the Statewide Irrigation Pricing Working Group (Tier 1) and Scheme Irrigation Pricing Working Groups (Tier 2).

1.2 Referral

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 Queensland Government will consider our recommendations when it sets those prices.

The referral requires us to recommend prices that are based on all tariff groups transitioning to cost-reflective prices that incorporate the following allowable costs:

- prudent and efficient operational, maintenance and administrative costs

[1] QCA, *SunWater Irrigation Price Review: 2012–17*, final report, May 2012.
[2] See Appendix A for a copy of the referral.

- an appropriate allowance for prudent and efficient expenditure on renewing existing assets.[3]

Under the terms of the referral, allowable costs exclude:

- the recovery of capital expenditure prior to 1 July 2000 used to build the existing assets
- the costs of supplying 185,000 ML to Lower Burdekin Water
- subject to certain exceptions:
  - recreational costs incurred from 1 July 2020
  - costs associated with augmentation of existing assets, new assets or any capital expenditure that is not a like-for-like or modern equivalent replacement or does not reflect a regulatory requirement.

The referral requires that our recommendations also provide an additional set of prices, which should include an appropriate allowance for prudent and efficient capital expenditure associated with dam safety upgrade costs that are forecast to be incurred from 1 July 2020 onwards.

We have been asked to recommend prices that adopt the current tariff groups, except for certain water supply schemes operated by Sunwater that we have been asked to review: Dawson Valley WSS; Three Moon Creek WSS and St George WSS.

1.3 Irrigation services

An irrigation service is defined in the referral as the supply of water or drainage services for irrigation of crops or pastures for commercial gain.[4] This terminology is different to that used in the previous reviews[5] and means that our recommended prices may potentially apply to a narrower range of irrigation customers compared to our previous review.

As a result of the irrigation services constraint, the structure and level of prices for non-irrigation customers in the specified WSSs and distribution systems are outside the scope of this investigation. The referral clarifies that nothing prevents the water businesses from negotiating full commercial prices to supply water to non-irrigation customers.

Note that this change in definition does not have an impact on the level of irrigation prices that we recommend. Our recommended prices for each irrigation tariff group are estimated by reference to the level of the cost-reflective price for medium priority water access entitlements (WAEs) or, where a high priority irrigation tariff group current exists, by reference to the cost-reflective price for high priority WAEs.

1.3.1 Local management arrangements

The Government has been looking at transitioning Sunwater's eight distribution systems to local management arrangements (LMA), where local irrigators would own and operate the systems.

The referral states that we are not required to recommend prices for distribution systems that transfer to LMA before we release our draft report.[6] Consequently, we have not recommended

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[3] Allowable costs also include the QCA's regulatory fees up to a cap of $2.5 million, and exclude recreational costs incurred from 1 July 2020.

[4] Consistent with schedule 4 of the *Water Act 2000*.

[5] In the previous reviews, we were required to more broadly recommend 'irrigation prices to apply' to specified water supply schemes.

[6] Section 738N of the *Water Act 2000* states that irrigation services provided by a local irrigation entity is not a monopoly business activity for the purposes of the QCA Act.

prices for the St George, Theodore and Emerald distribution systems. While we have recommended prices for the Eton distribution system, we note that it is in the final stages of finalising the transfer terms. If agreement is reached on those terms and there is sufficient customer support, then this system may transfer before our final report is published.

We have also recommended prices for Sunwater's remaining distribution systems as these are not transitioning to LMA.[7]

1.4 Overview of Sunwater's services

Sunwater is a government-owned corporation that owns and manages a regional network of bulk water supply infrastructure throughout Queensland that supports irrigated agriculture, mining, power generation, industrial and local government.

Sunwater's water storage and distribution infrastructure includes 19 major dams, 64 weirs and barrages, 79 pumping stations, and more than 2500 kilometres of pipelines and water channels.

Sunwater's core service is to store and release water to satisfy customer demand, subject to customers' rights to take water (water access entitlements). Sunwater provides this service in accordance with the Water Act 2000, associated water plans and resource operations licences.

1.4.1 Services provided

Sunwater's operations comprise 56 service contract areas. A service contract area represents a group of assets that generate cash inflows largely independent of cash flows from other groups of assets. For example, a bulk water service contract may include a dam, associated weirs, water accounting services, and a range of operational and maintenance services.

Irrigators account for the vast majority of Sunwater's customers (92 per cent in 2018–19). However, they account for a minority of Sunwater's total revenue (23 per cent in 2018–19).

Irrigation service contracts

Our investigation relates to the 27 service contracts containing irrigations customers (the irrigation service contracts)—22 bulk WSSs and 5 distribution systems.

Bulk WSSs

Sunwater has 22 bulk WSSs providing bulk water services that involve storing for, and delivering raw water to, customers in accordance with customers' water access entitlements (WAEs).

The Department of Natural Resources, Mines and Energy (DNRME) determines the WAE held by each customer, including annual nominal volume, reliability (usually medium or high priority) and location of extraction.

Sunwater can only supply water to a customer with a WAE. Announced allocations specify the portion of a customer's WAE available for use (by priority group). They are updated throughout the water year (generally after rainfall events).

[7] The Bundaberg and Lower Mary distribution systems formally withdrew from the LMA process in 2017. The assessment of business case proposals for the Burdekin-Haughton and Mareeba-Dimbulah distribution systems was completed in March 2019, with the conclusion that the most viable option was for Sunwater to continue the operation of these systems.

Distribution systems

Eight of Sunwater's bulk schemes have links to distribution systems. Distribution systems generally consist of pumps, open channels and/or pipes designed to deliver water to customers not located on a river.

All distribution system customers must also hold bulk WAEs.

Other services

In addition to bulk water and distribution services, Sunwater provides the following services:

- drainage services—for customers in the Burdekin-Haughton and Mareeba-Dimbulah distribution systems, Sunwater provides drainage services to remove excess or run-off water from customers' properties and dispose of it via a system of drains that Sunwater maintains
- drainage diversion services—for customers in the Burdekin-Haughton distribution system, Sunwater allows customers to extract water from the drainage network. Customers supply their own pump and other infrastructure to access this water. Sunwater incurs some additional costs to provide this service and does not guarantee water availability
- water harvesting—in the Burdekin-Haughton distribution system, customers also hold water harvesting WAEs. Water harvesting WAEs are derived from natural (high) river flows and not as a result of storage infrastructure assets. However, Sunwater does incur costs as a result of delivering such water through its distribution systems.

Other service contracts

Sunwater owns and operates two water supply schemes that do not contain irrigation customers:

- the Awoonga Callide WSS, which supplies water to the Callide Power Station. The scheme pumps water from Awoonga Dam to the top of the dividing range, from where it gravitates into Callide Dam via the Stag Creek Pipeline
- the Julius Dam WSS, which supplies the city of Mount Isa and various mines.

Sunwater also operates the Tarong Pipeline, Kenya to Chinchilla Pipeline, Wooleebee Pipeline, Stanwell Pipeline, Stag Creek Pipeline, Blackwater Pipeline, Burdekin-Moranbah Pipeline, the Collinsville Pipeline and various offtakes.

In addition, Sunwater provides the following non-regulated services:

- asset developments—Sunwater investigates and develops new assets, particularly for water supply to the mining and industrial sectors
- external contracts—Sunwater provides facilities management services to the National Capital Authority for the operation of Scrivener Dam in Canberra and Townsville City Council for the operation of Ross River Dam. It also provides asset operation, maintenance and management services to the Dumaresq-Barwon Borders Rivers Commission. The major assets are Glenlyon Dam and Boggabilla Weir
- consulting—Sunwater provides engineering and related consulting services to other parties
- hydro-electricity—Sunwater owns and operates hydroelectric generators at Tinaroo Falls Dam and Paradise Dam
- water trading—Sunwater trades its portfolio of water entitlements in accordance with its Water Trading Code of Conduct.

Changes since the 2012 review

Changes to Sunwater's operations since the last review include:

- Sunwater is currently not providing services to customers in the Maranoa River WSS—that is, customers holding WAEs in this scheme are not being charged.
- Three distribution systems (Emerald, St George and Theodore) have transferred to local management entities.

1.4.2 Service delivery framework

Sunwater operates a decentralised water delivery regime. Under this regime, Sunwater owns and maintains the service infrastructure and provides a contracted service to its customers according to their WAEs. Customers are responsible for managing their own demand and bear the risk of water not being available under their WAE.

Sunwater does not have a role in demand-side management. DNRME determines the target reliability of a WAE.

There have been no material changes to these arrangements since the 2012 review for the schemes that Sunwater still owns and operates.

Supply contracts

Sunwater enters into a supply contract with its customer. Supply contracts can take the form of a standard (bulk, distribution or groundwater) supply contract, or a negotiated contract.

Most irrigation customers are subject to deemed (or unsigned) standard contracts pursuant to the Water Act 2000.

The standard contract requires Sunwater to release or divert water from Sunwater’s works in accordance with a customer’s WAE.

The standard contracts can be varied by Sunwater in agreement with customers. If Sunwater proposes changes to the standard contract that are not agreed to by customers, Sunwater can terminate the contract.

Sunwater undertook consultation on the standard supply contracts during 2001 and 2002.

Service standards

Sunwater must identify appropriate service standards including customer service and performance indicators.

Sunwater's service standards are set out in each scheme's Water Supply Arrangements and Service Targets (also referred to as 'Sunwater Rules') in standard supply contracts. These rules describe the process for ordering water and delivery times, circumstances that require suspension or restriction of supply, and the duration and frequency of shutdowns.

Sunwater advised that there have been no changes to service standards since the 2012 review. The current service standards were established in consultation with customer representatives in 2001.

They can be periodically reviewed in response to requests by customer representatives or at Sunwater’s own initiative (in which case Sunwater may initiate consultation with the customer with a view to establishing new terms and conditions and may by written notice maintain or terminate the prevailing Agreement). Sunwater’s proposed costs for 2020–24 are based on the existing service standards continuing throughout the price path period.

Subsidiaries

Sunwater owns three subsidiary companies (not subject to this review):

- Burnett Water Pty Ltd — owns and operates Paradise Dam and Kirar Weir in the Burnett River catchment near Bundaberg.
- North West Queensland Water Pipeline Pty Ltd—owns pipelines that supply water from Julius Dam to rural, urban and industrial customers.
- Eungella Water Pipeline Pty Ltd—owns pipelines that supply water from Eungella Dam to mining customers.

1.4.3 Organisational restructures

Sunwater underwent organisational restructures in 2013–14 and 2017–18.

At the time of the 2012 review, Sunwater's organisational structure consisted of its Brisbane Head Office, which included the majority of corporate and specialised services and four major regional service centres at Clare (Far North), Eton (North), Bundaberg (Central) and Toowoomba (South). The regional service centres were supported by additional depots in Ayr, Biloela, Emerald, Goondiwindi, Mareeba, Maryborough, Moranbah, Mundubbera, Theodore and St George.

Since 2012, the Government has worked with Sunwater and distribution system customers to investigate whether there is a business case for transferring the distribution systems from Sunwater ownership to new entities owned and controlled by customers within the distribution systems. Three distribution systems have transferred to local management arrangements at the time of the draft report.

In 2013, the Queensland Commission of Audit report on the performance of government-owned corporations, amongst other things, made a number of recommendations regarding Sunwater's role in the provision of bulk, pipeline, and irrigation services to regional Queensland. In response, Sunwater reorganised its three major lines of business (bulk water, irrigation systems and industrial pipelines) into separately managed business groups to facilitate potential assets sales. The pipeline business was expected to be sold, the irrigation systems were intended to go to LMA and Sunwater was expected to retain the bulk water assets.

During this period, the bulk water business operated a service delivery model that involved a greater reliance on contractors, offset by a reduction in directly employed staff. However, once asset sales were no longer a focus of the Government, the shift to contractors over directly employed staff was reversed.

In 2017, Sunwater underwent a corporate restructure aimed at making it regionally focused, and improving customer service and cost efficiency. The restructure was intended to reduce travel costs, deliver greater efficiencies and integration across planning and delivery arms, and improve engagement between customers and planning processes. Sunwater said that a net reduction of 20 full-time equivalent employees, predominantly from the Brisbane office, has also resulted from these changes.[8]

As part of our investigation, we sought further information from Sunwater on the extent to which savings had been achieved.

[8] Sunwater, sub. 11, p. 30.

1.5 Sunwater's legislative and regulatory obligations

Sunwater 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).

1.6 Approach to reviewing Sunwater's irrigation prices

Figure 3 outlines the steps involved in calculating prices.

Figure 3 QCA's approach to the review of Sunwater's irrigation prices

	Step	Description	Relevant Section
1	Establish revenue requirement at the scheme/system level	Assess cost components, such as the appropriate allowance for renewals expenditure, to establish revenue requirement for each scheme/system.	Part B 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 B Chapter 5
3	Determine the structure of cost-reflective fixed and volumetric charges	Determine the allocation of revenue between fixed and volumetric charges across all tariff groups in the specified schemes/systems.	Part B Chapter 6-7
4	Calculate recommend fixed and volumetric tariffs	Derive fixed tariff in accordance with government pricing principles. Consider less than cost-reflective volumetric tariff to moderate bill impacts.	Part B Chapter 7
5	Calculate miscellaneous charges	Derive drainage charges, drain diversion charges, termination fees and water harvesting charges for relevant schemes/systems.	Part B Chapter 8
6	Undertake customer bill analysis	Evaluate the impact of our pricing recommendations on irrigation customers.	Part B Chapter 9

2 OPERATING EXPENDITURE

In this chapter, we assess the prudency and efficiency of operating expenditure (opex) for the 27 irrigation service contracts (22 bulk WSS and 5 distribution systems) relevant to this investigation of Sunwater. This excludes costs associated with the three distribution systems that have transitioned to local management arrangements (LMA).[9]

We have proposed prudent and efficient opex of $264.0 million over the price path period, a reduction of 9.2 per cent as compared to Sunwater's originally proposed opex of $290.8 million. Our proposed opex reflects various adjustments to Sunwater's proposed opex including adopting a historical base year rather than higher budgeted costs, excluding budgeted increases to corporate overhead cost categories with no clear justification, and updating cost escalators based on the latest (lower) forecasts.

2.1 Overview

2.1.1 Sunwater's submission

Sunwater provided us with two separate sets of proposed cost forecasts as part of this investigation:

- In November 2018, Sunwater provided its original submission on proposed costs
- In June 2019, Sunwater provided updated cost forecasts with changes including increased direct charging to service contracts and changes to its cost allocation approach.

November 2018 submission

Sunwater proposed opex of $290.8 million over the period 2020–21 to 2023–24. This comprised direct costs of $175.2 million and non-direct costs of $115.6 million.

Sunwater's forecast opex by cost category is summarised in Table 2.

Table 2 Sunwater's proposed opex for irrigation service contracts ($ million, nominal)

Cost category	***Price path period***				
	2020–21	***2021–22***	***2022–23***	***2023–24***	***Total***
Direct operations and maintenance	21.2	21.7	22.3	22.8	**88.0**
Electricity	14.3	14.8	16.1	16.0	**61.3**
Insurance	6.2	6.4	6.5	6.7	**25.9**
Total direct	**41.7**	**42.9**	**44.9**	**45.5**	**175.2**
Indirect	7.7	7.9	8.0	8.3	**31.8**
Local area support	13.6	14.0	14.3	14.7	**56.6**
Corporate support	6.5	6.7	6.9	7.1	**27.2**
Total non-directs	**27.8**	**28.5**	**29.3**	**30.0**	**115.6**

[9] Emerald, St George and Theodore distribution systems.

Cost category	*Price path period*				
	2020–21	*2021–22*	*2022–23*	*2023–24*	*Total*
Total opex	**69.6**	**71.5**	**74.2**	**75.5**	**290.8**

Note: Excludes distribution systems that have transitioned to LMA (Emerald, St George and Theodore). Totals may not add due to rounding.

Source: Sunwater, sub. 11; Sunwater, sub. 45.

Direct costs

Sunwater defined direct costs as those directly attributable to an asset (e.g. maintenance or insurance of an asset) or a service contract (e.g. electricity and other operations costs).[10]

Sunwater's actual direct opex over the previous price path period (from 2012–13 to 2016–17) was $182.6 million, $23.0 million higher than our forecast opex over this period of $159.6 million in the 2012 review. Sunwater identified electricity costs ($5.7 million higher than forecast) and insurance costs ($15.2 million higher than forecast) as the primary reason for exceeding the expenditure allowances recommended by the QCA in the 2012 review.

Non-direct costs

Sunwater stated that non-direct costs are costs, while not directly attributable to specific activities within a service contract area, are necessary to support its local or business-wide operations.[11] Sunwater groups non-direct costs into indirect, corporate support and local overhead support costs.

Sunwater's actual non-direct opex over the previous price path period (from 2012–13 to 2016–17) was $89.0 million, $11.3 million lower than our forecast opex over this period of $100.2 million in the 2012 review. This was primarily as a result of lower than forecast indirect costs over the entire price path period.

June 2019 cost resubmission

In June 2019, Sunwater provided us with updated costs forecasts (including opex) that, while comparable in aggregate to those in the November 2018 submission, were significantly different for the direct and non-direct costs categories (see Table 3).[12]

Table 3 Sunwater's proposed opex for irrigation service contracts over the price path period ($ million, nominal)

Cost category	*Original submission*	*Revised submission*	*Difference*
Direct operations and maintenance	88.0	98.4	10.4
Electricity	61.3	62.6	1.3
Insurance	25.9	28.5	2.6
Total direct	**175.2**	**189.5**	**14.3**
Indirect	31.8	35.3	3.5
Local area support	56.6	26.6	(30.0)

[10] Sunwater, sub. 11, p. 15.
[11] Sunwater, sub. 11, p. 16.
[12] Sunwater, sub. 153, June 2019.

Cost category	*Original submission*	*Revised submission*	*Difference*
Corporate support	27.2	35.5	8.3
Total non-directs	**115.6**	**97.4**	**(18.2)**
Total opex	**290.8**	**286.9**	**(3.8)**

Note: Excludes distribution systems that have transitioned to local management arrangements (Emerald, St George and Theodore).

Source: Sunwater, sub. 153.

Sunwater said that the key reasons for the differences between its originally proposed and revised opex forecasts included:

- an assumed greater level of direct charging of labour to service contracts, which resulted in a relative increase in direct labour costs attributable to service contracts (with offsetting decreases in local area support costs)
- large decreases in local area support costs, due to a reallocation of light vehicles to direct operations costs and increased direct charging of labour costs to service contracts
- an increase in insurance premiums to align with current market conditions and a revalued insurance asset base
- a small reduction in total Inspector-General Emergency Management (IGEM) costs and a modified approach to allocating these costs to service contracts
- changes to its cost allocation methodology.[13]

Implications for our assessment

Sunwater's late resubmission of its proposed opex forecasts in June 2019 addressed a number of issues with its November 2018 cost submission identified by the QCA, Sunwater and other stakeholders—in particular, issues with Sunwater's proposed base year non-direct costs. However, the June 2019 resubmission also resulted in material changes to Sunwater's direct operations and maintenance costs.

Since the resubmission, we have had to recast our assessment to consider the relatively higher direct costs proposed by Sunwater and reconcile shifts within the non-direct cost base. We recognise that some stakeholders have not had the opportunity to review the revised submission prior to our draft report. While we have used our best endeavours to assess the revised submission in the limited time available, we intend to continue to refine our assessment for our final report. We would therefore welcome submissions from stakeholders on Sunwater’s revised costs.

We note that given substantial issues with Sunwater's proposed costs in the 2012 review, we recommended that Sunwater improve its information systems. In particular, the Government accepted our specific recommendation that Sunwater improve its management accounting for the recording, documentation and analysis of labour cost information, and that Sunwater should submit its proposals to us for approval by 30 June 2014.

However, Sunwater did not adequately implement the labour cost capture improvement plan arising from the 2012 review. In particular, Sunwater's revised submission states that, due to

[13] Sunwater, sub. 152.

under-representation of time-sheet reporting for direct activities from 2015–16 to 2017–18, actual direct opex has been under-reported for these years.

Box 1—Labour cost information

We note that improved labour cost information can assist in achieving appropriate budgeting and allocation of staff, enabling efficient labour management. Poor quality labour cost information increases the difficulty of assessing whether efficiencies have been achieved over time, particularly given this impacts on the quality of direct and non-direct opex estimates.

We encourage Sunwater to fully implement the labour cost capture improvement plan that it submitted to the QCA in May 2014.

2.1.2 Key issues for consideration

We have considered all aspects of Sunwater's proposal in making draft recommendations on the prudent and efficient level of Sunwater's opex. Issues that attracted comment from stakeholders or we have identified for further consideration include:

- the extent to which Sunwater's proposed costs have been developed in a way that addresses the issues and actions arising from our 2012 review
- the prudency and efficiency of Sunwater’s proposed base year operating costs for 2018–19
- the appropriate methodology for allocating non-direct costs to service contracts[14]
- the escalation factors to be applied to costs for the purpose of forecasting operating costs.

Our investigation has been impacted by the lack of relevant and timely information from Sunwater, restricting the extent to which we could assess some information before releasing our draft report. It is intended that further detailed consideration will be given to Sunwater's costs and stakeholder submissions in response to the draft report. As a result, final prices may vary from draft prices.

2.2 Our assessment approach

We have reviewed in detail particular aspects of Sunwater's proposed operating costs to assess their reasonableness. We have assessed whether the level of operating costs is reasonable for a stand-alone rural irrigation business with a fixed base of existing assets and therefore limited opportunities for growth in demand.[15] We engaged AECOM to assist us in this assessment.

Our approach has involved reviewing Sunwater's proposed direct and non-direct operating costs, considering forecasting methods, base year efficiency, cost allocation, step changes, rates of escalation and proposed efficiency gains (Figure 4). Where appropriate, we have developed alternative estimates of reasonable operating costs, based on the findings of our investigation.

[14] Sunwater has 27 irrigation service contract areas out of 56 service contracts across its entire business.
[15] Under the referral, the costs associated with augmentation of existing assets or new assets are a commercial matter for businesses to negotiate with customers, and should generally be excluded from prices.

Figure 4 QCA's assessment approach for opex

We have sought to promote a regulatory process that is effective and efficient. Where relevant we have leveraged off the findings from the 2012 review that developed efficient cost benchmarks and provided specific recommendations that seek to improve Sunwater's cost forecasting approach and its capture of labour cost information.

2.3 Forecast methodology

We have reviewed Sunwater's submission to determine whether aspects of its operating policies and procedures, such as the approach to forecasting opex, and the information on which forecasts are based, are robust and likely to lead to prudent and efficient outcomes.

2.3.1 Sunwater's submission

Sunwater said it used a base-step-trend approach to forecast its opex over the price path period. Sunwater said it developed its base year costs from budgeted expenditure for 2018–19 as both 2016–17 and 2017–18 were abnormal years, involving some restructuring costs.[16]

2.3.2 Other stakeholders' submissions

Several stakeholders noted that Sunwater's forecast opex was based on 2018–19 budgeted base year costs and requested the QCA to investigate this forecasting approach.[17] BRIA noted the 2018–19 base year costs do not contain actuals and appear 'to be totally divorced from previous years of actuals, which were broadly in-line with the QCA's cost allowances in the previous review'.[18]

[16] Sunwater, sub. 11, p. 34.
[17] QFF, sub. 132, p. 5; KDWUA, sub. 112, p. 8; CHRC, sub. 101, p. 2.
[18] BRIA Irrigators, sub. 85, p. 26.

2.3.3 QCA assessment

The base-step-trend approach to forecasting operating costs involves determining a reasonable base year level of costs, applying escalations, incorporating material step changes in efficient costs, and recognising expected productivity improvements.

The starting point for this approach is to select base year costs that represent a reasonable estimate of future efficient operating costs. The base year costs would generally be derived from the business's actual historical costs, an approved regulatory allowance or other cost benchmark.

However, Sunwater has taken a different approach, proposing to use the 2018–19 Statement of Corporate Intent (SCI) budget figures as the base year. We consider that adoption of a base year based on budget forecasts makes it difficult to validate the basis of underlying assumptions made and the basis of any adjustments made to historical source data.

We have used Sunwater's historical costs as the starting point to assess the efficient level of base year expenditure.

2.4 Base year operations and maintenance expenditure

2.4.1 Sunwater's submission

To determine base level expenditure for 2020–21, Sunwater:

- used budgeted costs for 2018–19 as an initial estimate
- adjusted the 2018–19 estimate to remove costs associated with recreational areas
- escalated the resulting costs for different cost categories to reflect projected inflation
- applied an annual global 0.2 per cent reduction to 2020–21 to reflect projected efficiencies.[19]

Table 4 summarises base year operations and maintenance expenditure for the November 2018 submission and the revised June 2019 submission.

Table 4 Sunwater's proposed 2018–19 operations and maintenance base year opex for irrigation service contracts ($ million, nominal)

Cost category	*Original submission*	*Revised submission*	*Difference*
Direct operations and maintenance	20.8	23.4	2.6

Note: Excludes distribution systems that have transitioned to local management arrangements (Emerald, St George and Theodore).

2.4.2 Other stakeholders' submissions

No stakeholders provided submissions on direct operations and maintenance costs.

2.4.3 QCA assessment

We have assessed Sunwater's submission to determine the prudency and efficiency of the proposed base year operations and maintenance expenditure by:

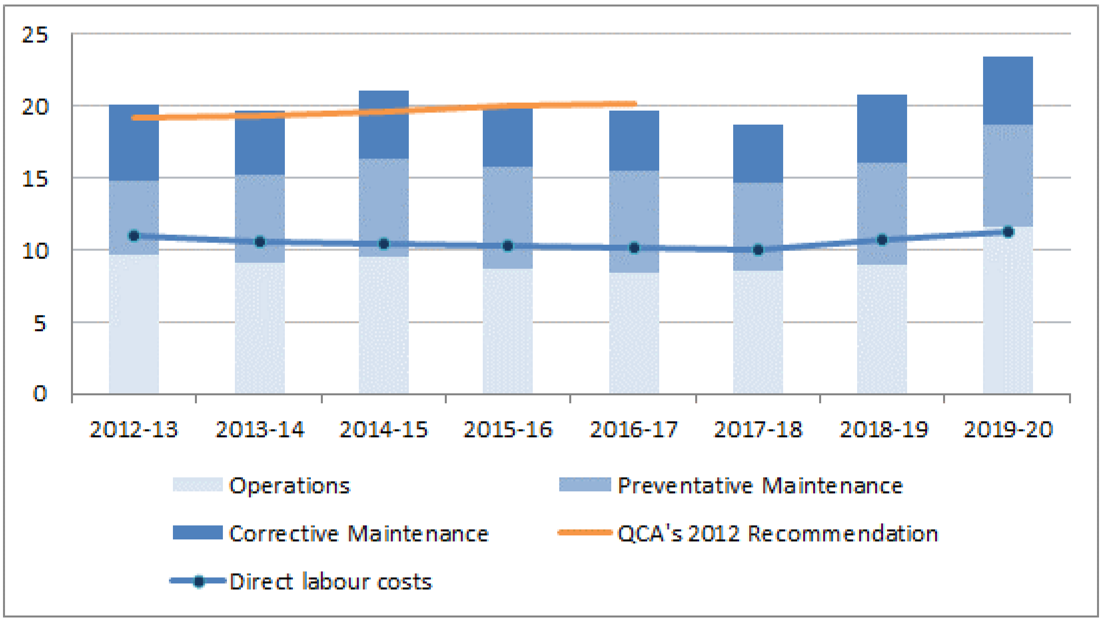
[19] Sunwater, sub. 11, p. 34.

- examining historical operations and maintenance expenditure at the aggregate level, comparing it with our recommended expenditure from the 2012 review and assessing the drivers behind any increases in costs
- examining Sunwater's maintenance regimes, work scheduling, and delivery to determine the efficiency with which Sunwater undertakes operations and maintenance activity
- assessing Sunwater's proposed base year costs at the scheme level with alternative estimates based on Sunwater's historical costs.

Prudency and efficiency of historical operations and maintenance expenditure

Figure 5 compares Sunwater's historical operations and maintenance expenditure with our recommended expenditure from the 2012 review.

Figure 5 Sunwater's direct operations and maintenance costs for regulated service contracts ($2018–19, million)



Notes: The 2017–18 figure reflects Sunwater's actual costs rather than the 'normalised' costs provided in Sunwater's submission for this year. The 2018–19 figure is the budgeted base year provided by Sunwater in its November 2018 submission. The 2019–20 figure is the budgeted base year provided by Sunwater in its June 2019 updated submission.

Source: Sunwater, sub. 45; Sunwater, sub. 153; QCA, Sunwater Irrigation Price Review: 2012–17, final report, May 2012; QCA analysis.

Expenditure over the period 2012–13 to 2017–18 was fairly consistent with our recommendation. However, in response to our requests for information, Sunwater said that there was an under-representation of time-sheet reporting for direct cost activities in the latter years, particularly over 2016–17 and 2017–18.[20]

AECOM noted that the increase of $4.8 million from 2017–18 actuals to Sunwater's resubmitted base year forecast for 2019–20 could only be partially explained by the following transfers from local area support costs:

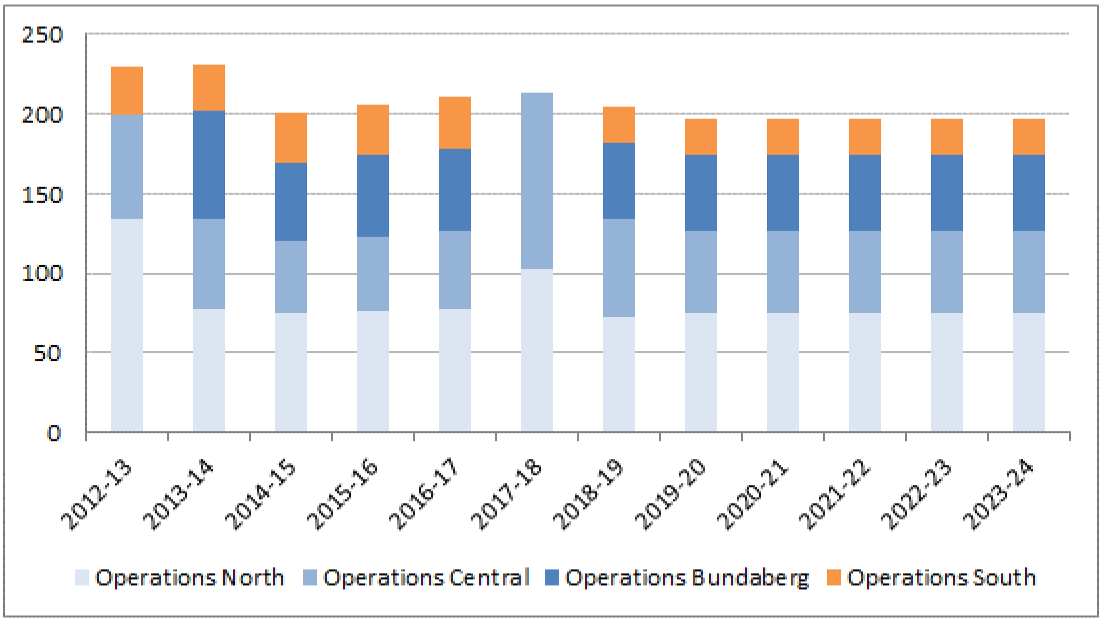
- direct charging of fleet costs to service contracts from 2019–20 (resulting in a transfer of $1.8 million)

[20] Sunwater response to AECOM RFI A43, A44 and QCA RFI 28.

- correction for undercharging of labour directly to service contracts (resulting in a transfer of $0.5 million).

AECOM also reviewed Sunwater's staffing arrangements and noted that total staff FTEs fell in 2014–15 as a result of corporate restructuring. Staff FTEs increased slightly in 2017–18 but have been budgeted to decrease by 16.5 FTEs in 2019–20 as a result of the transition of Emerald, St George and Theodore distribution systems to local management (Figure 6).

Figure 6 Sunwater's direct staff numbers (FTEs)



Note: Sunwater's FTE figures in 2017–18 allocated all direct staff FTE between Operations North and Operations Central only.

Source: AECOM, Rural Irrigation Operating Expenditure Review: Sunwater, August 2019, p. 40.

We note that the FTE reduction from 2014–15 has generally been sustained and that Sunwater has budgeted further reductions in FTEs over the price path period.

Wage growth has also been restrained with the average cost of staff increasing by 1 per cent in 2017–18 after a reduction of 6.5 per cent in 2016–17.

AECOM also reviewed Sunwater's staff utilisation levels in regional operations offices (i.e. hours booked on work activities on a scheme relative to the total time available) and noted that this had averaged 88 per cent in the year to March 2019, up from an average of 83 per cent over 2016–17 and 2017–18.

Sunwater said that reduced direct cost charging led to a greater portion of labour costs being allocated to overheads over this period. Sunwater management identified this as an issue and reemphasised direct labour charging across the business in 2018–19. AECOM considered the level of utilisation over the year to March 2019 to be an appropriate level, stating that a target of 90 per cent would be comparable to best practice.

AECOM also reviewed Sunwater's maintenance regime and work scheduling and delivery to determine the prudency and efficiency of operations and maintenance activity. AECOM considered Sunwater's maintenance regime and work scheduling and delivery to be efficient noting that Sunwater uses calendar based routine maintenance to minimise travel and coordinates work between regional offices when necessary.

Overall, we consider Sunwater's historical direct operations and maintenance costs to be generally prudent and efficient.

Base operations and maintenance expenditure at the scheme level

AECOM compared historical expenditure at the scheme level with our recommended expenditure from the 2012 review and noted there had been variability in historical expenditure at the scheme level typically driven by:

- damage due to extreme weather events leading to a temporary increase in maintenance costs until the relevant assets have been refurbished
- delays in scheduled asset refurbishments (as a result of high water levels) leading to higher maintenance costs in the interim
- temporary increases in operations costs due to unusually high water levels
- increasing maintenance costs (for some schemes) as a result of scheme assets nearing the end of their useful life
- increasing preventative maintenance in some distribution systems due to the need for weed control in channel assets.

Noting that annual workloads vary for the above reasons, AECOM advised that the historical average of costs between 2012–13 and 2017–18 was generally representative of base operations and maintenance expenditure at the scheme level as it evens out year–on–year variability.

Sunwater's June 2019 revised submission adjusted scheme-level operations and maintenance expenditure to account for undercharging of labour costs in prior years. Therefore, in averaging historical expenditure, AECOM adjusted 2016–17 and 2017–18 expenditure to account for undercharging. AECOM advised that it would be reasonable to assume staff utilisation of 88 per cent compared to the average utilisation rate of 83 per cent reported for these years.

Adjustments to AECOM's base year costs

We consider that AECOM's proposed base year estimates cover a sufficiently large historical data set to capture the expected variability in operations over the long-term. As a result, we generally accept that these do not require adjustment to bring them back to average expectations. However, we have made adjustments where there are clear justifications for changes. For example, adjustments to take into account changes in operations, new technology, one-off abnormal costs or clearly demonstrated efficiency gains. We have also considered whether there have been step changes in cost drivers – for example, whether preventative maintenance costs for distribution schemes have risen as a result of increased weed growth in channels.

Boyne River and Tarong WSS and Bundaberg distribution system are two schemes with historical costs significantly higher than our 2012 review forecasts, driven by factors that are not representative of normal operating conditions. For these two schemes, we have accepted Sunwater's revised estimates as these are more consistent with recent historical expenditure.

For Boyne River and Tarong WSS, the long-term average was impacted by abnormal cost items in 2012–13 and 2013–14. Costs in 2012–13 were more than triple the six-year average due to legal costs related to progressing Sunwater's claim for flood damage to Boondooma Dam.[21]

[21] Sunwater, *2013 Annual Performance Report, Boyne Bulk*, October 2013.

Expenditure in 2013–14 was lower than average due to the reversal of a component of the provision for legal costs made in 2012–13.[22]

For the Bundaberg distribution system, water usage was significantly higher than long-term averages over the past six years, with average usage over this six year period around 30 per cent higher than our forecast usage for the upcoming price path period. Water use was almost double our 2012 review forecast in 2013–14, leading to significantly higher costs due to increased surveillance and water management activities and additional Acrolein injections during the season to ensure the continued delivery of high volumes of water to customers.[23]

Sunwater continued to refine budgets from 2013–14 to 2017–18 with the aim of bringing overall expenditure into line with the QCA target. This included focussing on the procurement of Acrolein and also investigating alternative suppliers and application methods.[24] Sunwater's proposed base year costs are consistent with the reductions in costs over the 4 years to 2017–18, with water usage in 2017–18 also returning close to long-term average usage.

Our recommended base year direct operations and maintenance expenditure at the scheme level is summarised in Tables 5 and 6 below.

Table 5 QCA-recommended 2018–19 base year direct operations and maintenance expenditure for bulk schemes ($2018–19, '000)

WSS	*Sunwater's submission*		*QCA's draft recommendation*
	Original	*Revised*	
Barker Barambah	262	357	301
Bowen Broken Rivers	689	750	578
Boyne River and Tarong	194	248	249
Bundaberg	567	651	490
Burdekin-Haughton	1,103	1,156	1,108
Callide Valley	415	548	432
Chinchilla Weir	38	45	41
Cunnamulla	13	15	14
Dawson Valley	294	304	282
Eton	550	590	543
Lower Fitzroy	87	137	88
Lower Mary	105	116	47
Macintyre Brook	355	401	321
Maranoa River	15	15	10
Mareeba-Dimbulah	467	563	493
Nogoa-Mackenzie	902	948	892

[22] Sunwater, *2014 Annual Performance Report, Boyne Bulk*, October 2014.
[23] Sunwater, *2014 Annual Performance Report, Bundaberg distribution*, October 2014.
[24] Sunwater, *2016/17 Annual Network Service Plan, Bundaberg distribution*, October 2016.

WSS	*Sunwater's submission*		*QCA's draft recommendation*
	Original	*Revised*	
Pioneer River	445	505	470
Proserpine River	406	497	495
St George	361	389	404
Three Moon Creek	156	197	178
Upper Burnett	379	441	352
Upper Condamine	424	489	432
Total	**8,225**	**9,362**	**8,220**

Note: Totals may not add due to rounding.

Source: AECOM, Rural Irrigation Operating Expenditure Review: Sunwater, August 2019, pp. 44–58; QCA analysis.

Table 6 2018–19 base year direct operations and maintenance costs for distribution systems ($000s, nominal)

Scheme	*Sunwater's submission*		*QCA's draft recommendation*
	Original	*Revised*	
Bundaberg	2,652	3,001	3,010
Burdekin-Haughton	6,062	6,391	6,253
Eton	1,373	1,597	1,304
Lower Mary	343	363	339
Mareeba-Dimbulah	2,148	2,649	2,521
Total	**12,578**	**14,001**	**13,427**

Source: AECOM, Rural Irrigation Operating Expenditure Review, August 2019, pp. 58–61; QCA analysis.

2.5 Base year electricity costs

2.5.1 Sunwater's submission

Sunwater submitted that managing electricity costs had been a key challenge in the previous price path. Sunwater said that it had devoted resources to optimising tariff selection each year to help minimise the impact of electricity retail tariff increases, noting that these had been higher than those we forecast in the 2012 review.[25]

In its November 2018 submission, Sunwater said its proposed electricity costs were variable costs and proposed to recover them from volumetric prices.[26] In its June 2019 resubmission, it amended this approach to assign all electricity costs in the Eton bulk WSS to fixed costs, with electricity costs for all remaining bulk WSSs and distribution systems allocated to variable costs.

[25] Sunwater, sub. 11, p. 18.
[26] Sunwater, sub. 49, p. 16.

2.5.2 Other stakeholders' submissions

Stakeholders were generally concerned about how Sunwater derived its base year electricity costs and about its energy procurement and efficiency practices.

Bundaberg Regional Irrigators Group (BRIG) requested that we investigate how Sunwater had derived its base year electricity costs. Of particular concern to BRIG was that an analysis by Jacobs indicated that Sunwater had increased its base year electricity costs (on a dollars per megalitre basis) by 12 per cent since the previous price path period even though regulated retail electricity prices had increased at a much slower rate over that period.[27] BRIG expressed concerns with the escalation method used by Sunwater to establish the base year noting that the estimated costs per megalitre should reflect an average mix of scheme usage, rather than a mix that results in higher or lower than average electricity costs per megalitre.[28]

Central Highlands Cotton Growers and Irrigators Association and the Nogoa Mackenzie Irrigation Advisory Committee (IAC) considered that Sunwater should undertake an annual review of tariffs and pumping efficiencies with relevant IACs.[29]

BRIG submitted that Sunwater should review its tariffs more frequently than annually, and at the end of high water use growing seasons, noting that this would allow Sunwater to take advantage of mid-year tariff reforms. BRIG recommended that Sunwater publish information on energy demand, usage, and selected tariffs for each of the 14 pump stations in the Bundaberg scheme.[30]

Fairbairn Irrigation Network also considered that Sunwater should be held accountable for its electricity usage and be encouraged to implement more efficient usage strategies.[31]

Burdekin River Irrigation Area Ltd (BRIA) and BRIG both considered that Sunwater should provide more detailed information on potential proposals to manage electricity, including implementing off-grid options.[32] BRIA further noted that there were a number of operational initiatives Sunwater could introduce to manage electricity costs.[33]

Wide Bay Burnett Regional Organisation of Councils Inc (WBBROC) considered that for schemes where energy costs are a significant proportion of total water charges, meters should be adapted to enable collection of time-volume data and thereby encourage optimal timing of energy use.[34]

Bundaberg Regional Council considered that benchmarking electricity costs against other schemes or businesses and presenting this information to customers would also provide guidance on future investment decisions.[35]

2.5.3 QCA assessment

We have assessed the prudency and efficiency of Sunwater's base year electricity costs by reference to:

- the appropriateness of Sunwater's energy procurement program

[27] BRIG, sub. 54, p. 9.
[28] BRIG, sub. 54, p. 10.
[29] CHCGIA, sub. 99, p. 4; Nogoa Mackenzie IAC, sub. 127, p. 2.
[30] BRIG, sub. 54, p. 9.
[31] Fairbairn Irrigation Network, sub. 104, p. 6.
32 BRIA Irrigators, sub. 85, p. 42; BRIG, sub. 54, p. 9.
33 BRIA, sub. 85, p. 40.
[34] WBBROC, sub. 149, p. 9.
[35] Bundaberg Regional Council, sub. 87, p. 3.

- the appropriateness of energy efficiency measures
- cost drivers underpinning base year electricity costs.

We engaged AECOM to assist us in this assessment.

Energy procurement program

Sunwater follows a formal procurement process as per the Queensland Procurement Policy for the supply of electricity under a market contract arrangement. Since 2012, Sunwater has engaged external market consultants to undertake annual tariff reviews with energy retailers and recommend the optimal regulated tariff or market contract arrangements.

In recent years, Ergon Energy Retail has analysed some larger sites on transitional tariffs to provide regulated retail tariff options for Sunwater to consider beyond 2020 when a suite of transitional and obsolete tariffs are scheduled to be phased out.[36]

Sunwater's June 2019 update to electricity costs included a revised estimate for electricity costs for the Burdekin-Haughton distribution system as it has moved from a regulated tariff to a market contract. This has resulted in a 14 per cent decrease in 2018–19 base year electricity costs from $6.6 million to $5.7 million.

AECOM concluded that Sunwater's procurement process for electricity is efficient, as it enables Sunwater to maintain competitive retail tariffs.

We accept AECOM's findings, which are supported by the material decrease in electricity costs for the Burdekin-Haughton distribution system that Sunwater has achieved.

Energy efficiency

AECOM agreed with the energy efficiency strategies identified in Sunwater's Energy Strategy, which included prioritising the installation of smart metering and/or energy monitoring systems.

However, AECOM noted that Sunwater had not incorporated potential cost reductions, achieved through energy efficiency savings, into forecast electricity prices, on the basis that:

- potential efficiency savings had not yet been quantified
- some of the efficiency measures require capital expenditure which are not yet included in capital expenditure forecasts
- the targets are intended for internal continuous improvement purposes.

AECOM noted the apparent lack of suitable interval data for several large and small sites, stating that smart metering and associated monitoring platforms are currently available and in use amongst Australian water utilities.

AECOM recommended that Sunwater increase the implementation of smart metering across the remainder of its sites. Access to detailed energy interval data is necessary for accurate measurement and efficient optimisation of operations, as well as efficient integration of renewable and other behind-the-meter power generation.

We encourage Sunwater to consider investing in smart metering where the benefits from such investment are likely to outweigh the costs.

[36] Phasing-out of transitional and obsolete tariffs has been postponed to 30 June 2021.

Pumping efficiency

AECOM investigated Sunwater's operational pumping efficiency and concluded that pump station regimes have been optimised to perform most of their pumping within off-peak tariff periods. Relatively high pumping during peak periods can be explained by the supply requirements of the pumping station.

Efficiency of base year electricity costs

Electricity costs comprise a significant component of Sunwater's opex, with a key driver being the need to pump water, predominantly in distribution systems. In bulk schemes, key drivers of electricity costs are the need to balance off-stream storages (Bowen Broken, Dawson Valley and Eton WSSs) or pump water to supplement stream flows (Barker Barambah – Redgate Relift and Upper Condamine bulk water schemes).

Bulk WSSs

In our 2012 review, we concluded that electricity costs in bulk WSSs other than Barker Barambah and Upper Condamine WSSs were not correlated with water usage. Consistent with our 2012 review, we have allocated the electricity costs in bulk WSSs (excluding Barker Barambah and Upper Condamine WSSs) to fixed costs.

In Barker Barambah and Upper Condamine WSSs, there are tariff groups in each scheme for which electricity costs are driven by water usage. We have therefore treated electricity costs in these schemes as variable.

We have assessed Sunwater's proposed base year electricity costs for bulk WSSs by comparing these with alternate estimates derived by AECOM by applying its assessment of the optimal 2019–20 retail electricity tariff to historical electricity consumption and demand at the individual pump station level.

As shown in Table 7, Sunwater's base year estimates are not materially different from AECOM's alternate estimate. We have therefore accepted Sunwater's revised base year electricity cost estimates for bulk WSSs.

Table 7 AECOM's estimated base year electricity costs, by bulk WSS ($000, nominal)

WSS	*Sunwater's proposed (November 2018)*	*Sunwater's proposed (June 2019)*	*AECOM's alternate estimate*
Barker Barambah	40	40	81
Bowen Broken Rivers	182	183	153
Bundaberg	10	10	11
Burdekin-Haughton	110	127	78
Callide Valley	5	5	8
Dawson Valley	45	55	49
Eton	400	401	419
Lower Fitzroy	2	2	2
Macintyre Brook	4	4	–
Mareeba-Dimbulah	3	1	4
Nogoa-Mackenzie	18	19	39
Pioneer River	4	5	5

WSS	Sunwater's proposed (November 2018)	Sunwater's proposed (June 2019)	AECOM's alternate estimate
Proserpine River	8	8	7
St George	6	7	5
Three Moon Creek	22	22	9
Upper Burnett	6	6	7
Upper Condamine	90	90	64
Total	**956**	**984**	**941**

Note: Sunwater did not propose electricity costs in Boyne River & Tarong WSS, Chinchilla Weir WSS, Cunnamulla, Lower Mary River, and Maranoa.

Source: Sunwater, sub. 45, November 2018; Sunwater, sub. 153, June 2019; AECOM, Rural Irrigation Operating Expenditure Review: Sunwater, August 2019, p. 68.

Distribution systems

Table 8 shows Sunwater's base year electricity costs at the individual distribution system level.

Table 8 Sunwater's base-year electricity costs for distribution systems

Distribution system	November 2018			June 2019		
	Variable cost ($/ML)	Water usage (ML)	Total cost ($2018–19 '000)	Variable cost ($/ML)	Water usage (ML)	Total cost ($2019–20 '000)
Bundaberg	61.75	73,329	4,528	61.69	73,398	4,528
Burdekin-Haughton	27.95	234,827	6,564	22.50	236,165	5,314
Eton	23.61	27,533	650	22.62	28,597	647
Lower Mary	70.67	4,245	300	70.66	4,245	300
Mareeba-Dimbulah	6.46	97,692	631	6.46	97,692	631

Note: Sunwater's June 2019 estimates reflect electricity costs from their 2019–20 budget process. These have been de-escalated to 2018–19 base year costs in Sunwater's revised regulatory model.

Source: Sunwater, sub. 45, November 2018; Sunwater response to QCA RFI 23; Sunwater, sub. 153, June 2019; Sunwater's financial model.

Electricity costs in these schemes are largely driven by water pumping requirements (which drive electricity consumption) and movements in electricity tariffs.

We estimated a variable electricity cost per megalitre to apply to our forecast of water usage to derive efficient base year variable costs. We have then added our estimate of efficient base year fixed costs where relevant.[37] We engaged AECOM to assist in estimating the variable (per megalitre) and fixed electricity costs for these schemes.

AECOM reviewed tariffs currently available at specific connection sites in the relevant schemes and selected optimal tariffs with which to cost energy consumption. AECOM determined energy consumption by averaging annual consumption between 2013–14 and 2017–18 and selecting a year of consumption that most closely matched the average consumption over this period (the

[37] Our forecast water usage for each bulk water scheme and distribution system is detailed in Chapter 5.

'representative year'). AECOM also made assumptions about energy usage patterns (e.g. peak and off-peak usage and maximum monthly demand) where data was not available.

AECOM estimated the fixed cost component by applying the underlying pricing structure from the most cost-effective tariff available to the representative year of consumption. AECOM considered that pricing components, such as those relating to capacity charges, connection charges, and daily supply charges, would not vary with water usage.

We consider that using a 'representative year' as the basis for estimating variable electricity costs may be problematic. In section 2.4 we discuss the challenges of determining the efficient level of recurrent expenditure for operational and maintenance costs given that year-on- year variability in operational conditions will impact on costs. We consider that similar issues arise in relation to variable electricity costs and that year-on-year variability, brought about by factors such as storage volumes and climatic conditions, will have an impact on pumping requirements and therefore costs, for each connection site. In practice, the representative year may also result in a level of consumption that is materially different from the average consumption.

As with operational and maintenance costs, we consider that an average, rather than a representative year, should be the basis from which electricity costs are determined. We also consider this approach is consistent with the approach for deriving water usage estimates.

Accordingly, we have extended AECOM's analysis to incorporate average usage patterns over the past five years.[38] We have done this for the existing 2019–20 electricity tariff that Sunwater is using, noting that this is generally consistent with AECOM's assessment of the current optimal tariff.[39]

We have assessed whether a component of electricity costs should be assigned to fixed costs. Since our 2012 review, there has been a rebalancing of some electricity tariff structures from variable to fixed tariff components. For example, the underlying pricing structure for some standard business tariffs will often include a capacity charge that is likely to be incurred by Sunwater in the operation of its pumping stations, irrespective of water usage. This rebalancing is particularly prevalent in the standard business tariffs that Sunwater is expected to move to from 2021–22 onwards following the phasing out of transitional and obsolete tariffs.

Consistent with AECOM's approach, we have assigned our calculated 2019–20 base year electricity costs between fixed and variable costs based on the fixed and variable nature of the underlying tariff components.

The impact on fixed and variable electricity costs associated with the expiry of transitional and obsolete tariffs in 2021–22 is discussed in section 2.11.

Our estimates for base year electricity costs in Sunwater's distribution systems are summarised in Table 9 below.

Table 9 The QCA's draft 2019–20 base-year electricity costs, distribution systems[a]

Distribution system	*Variable cost ($/ML)*	*Water usage forecast (ML)*	*Variable cost ($)*	*Fixed cost ($)*	*Total base year cost ($)*
Bundaberg	51.60	72,040	3,717	590	4,307
Burdekin-Haughton	16.86	229,160	3,864	1,310	5,174

[38] This is the longest period possible with historical and consumption data for the large connection sites.
[39] We have not however applied AECOM's current optimal tariff, as it is based on a 'representative year', which may not reflect the optimal tariff over different operating conditions.

Distribution system	Variable cost ($/ML)	Water usage forecast (ML)	Variable cost ($)	Fixed cost ($)	Total base year cost ($)
Eton	24.60	21,725	535	5	540
Lower Mary	52.34	4,706	246	36	282
Mareeba-Dimbulah[b]	66.24	5,042	334	133	467

a *The base year costs are derived as a scheme-level average of costs derived by applying Sunwater's existing electricity tariff to historical consumption and demand over 2013–14 to 2017–18 at the individual connection site level.* ***b*** *These electricity costs and water usage forecasts relate to the re-lift section of the Mareeba distribution system.*

Source: QCA analysis.

2.6 Base year insurance costs

2.6.1 Sunwater's submission

The bulk of Sunwater's insurance program is for industrial special risks (around 80 per cent) and combined general liability (around 15 per cent), with a range of other liability insurance making up the remainder.[40]

Insurance premium costs for these insurance programs are generally allocated to irrigation schemes based on declared asset values. All other insurance programs held by Sunwater are part of non-direct costs that are separately allocated with other non-direct costs to irrigation schemes.

Sunwater said that the main driver of insurance costs over the previous price path period was a change in the risk tolerance of insurers. Market movements and extreme weather events (that caused significant flood damage in 2010–11 and 2012–13) have led to higher premiums. Premiums increased further in 2016–17 as a result of an increase in the declared asset values due to a revaluation of insured assets.[41]

Following its November 2018 submission, Sunwater submitted that its insurance broker Marsh had advised an expected 11 per cent increase in insurance costs from 2018–19 to 2019–20.[42]

Sunwater said that Marsh had advised that the insurance market is now a hard market with significant insurance losses between 2011 and 2017 leading to selective underwriting, increased premiums and restricted cover. Marsh considered this will affect industrial-specific risk premiums going forward.[43]

2.6.2 Other stakeholders' submissions

Several stakeholders said that Sunwater should adopt an approach to insuring assets that recognises the relative risk of flood damage occurring in a specific scheme or asset.[44] For example, Barker Barambah IAC noted that premiums paid over the past six-year period for its scheme were more than double the claim proceeds despite having the two major floods on record in 2011 and 2013.[45]

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40 Sunwater response to AECOM RFI A37 and A66.
41 Sunwater, sub. 11. p. 21.
42 Sunwater response to QCA RFI 24.
43 Sunwater response to AECOM RFI A37 and A66.
44 Nogoa Mackenzie IAC, sub. 127. p. 3; CHCGIA, sub 99. p. 4, Canegrowers, sub 91. p. 2; Theodore Water, sub 140. p. 3.
45 Barker Barambah IAC, sub. 83. p. 2.

Stakeholders also sought assurance that Sunwater was not insuring assets for which they could not successfully claim against ('uninsurable assets'). BRIA and KCGO considered that Sunwater's insurance program should be reviewed to ensure that only insurable assets were being insured, and its insurance program was being effectively managed.[46] BRIA said the review should explain why insurance costs are set to increase.[47]

Lower Burdekin Water and Pioneer Valley Water Co-op considered that further investigation of Sunwater's insurance program was required to ensure that it was prudent and represented value for money.[48] MDIAC recommended an investigation of whether self-insurance would reduce Sunwater's insurance costs.[49]

2.6.3 QCA assessment

We have assessed the prudency and efficiency of Sunwater's proposed insurance costs by reference to:

- the appropriateness of policies and procedures for procuring insurance
- the appropriateness of the level of insurance coverage, deductibles, and options for self-insurance
- the drivers of increases in actual costs relative to our recommended costs from the 2012 review.

Procurement policies and procedures

AECOM said that Sunwater had engaged a professional insurance broker to access the global market and provide advice on the appropriate level of insurance. Prior to commencing its renewal process, Sunwater updates its insurance renewal strategy to document the proposed approach to renewal. Sunwater's insurance broker then facilitates the renewal process by making underwriting submissions to the market, and negotiating with potential insurance providers.

AECOM noted that Sunwater engages with insurance brokers with the intention of obtaining better premiums, by conducting workshops and infrastructure tours with providers to demonstrate its risk management capability.

AECOM concluded that Sunwater had an efficient procurement process, since Sunwater used the services of a professional broker to obtain competitive premiums via the global market and actively engaged with insurance providers with the intent of negotiating better premiums.

Insurance coverage, deductibles, and options for self-insurance

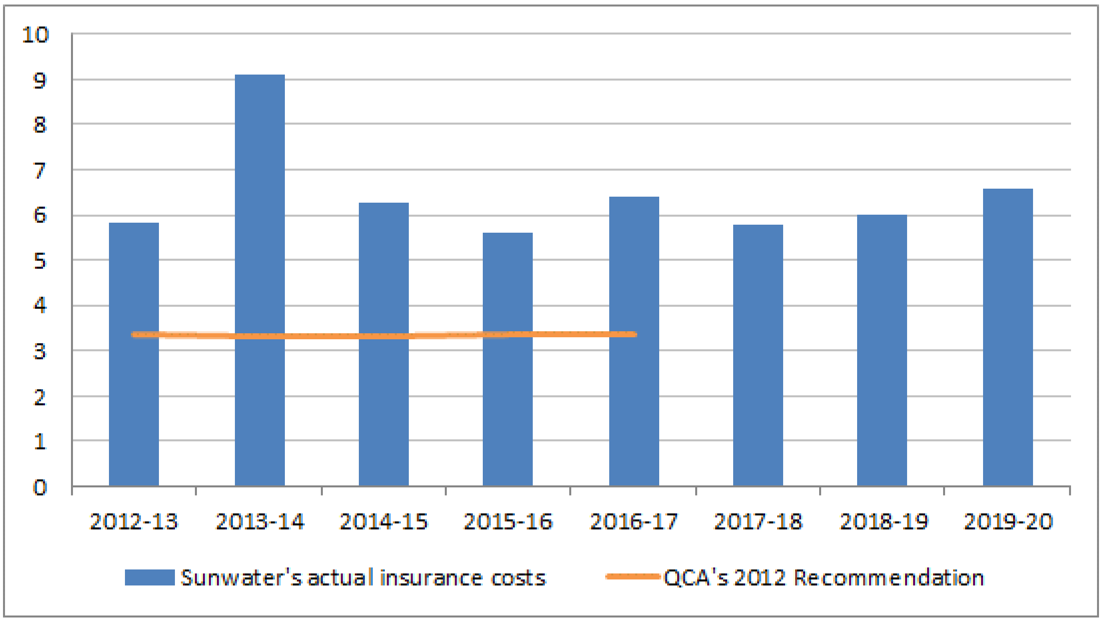
AECOM noted that Sunwater had sought external expert advice on the prudent scope of insurances and deductibles. Sunwater obtained indicative premium reductions that may be achieved if distribution system assets were excluded from insurance coverage from its insurance broker Marsh. Sunwater considered that any further reduction in premiums from self-insurance would not compensate Sunwater for the risk it would retain.

[46] BRIA Irrigators sub 85. p. 46; KCGO, sub 111. p. 3.
[47] BRIA Irrigators, sub 85. p. 43.
[48] Lower Burdekin Water, sub. 118. p. 16; Pioneer Valley Water Co-op, sub. 130, p. 5.
[49] MDIA Council, sub. 123. p. 2.

Efficiency of historical insurance costs

Sunwater's actual insurance costs over the period 2012–13 to 2017–18 were significantly higher than recommended by us (Figure 7).

Figure 7 Sunwater's historical insurance costs ($2018–19, million)



Notes: 1. The 2018–19 figure is the budgeted base year provided by Sunwater in its November 2018 submission. 2. The 2019–20 figure is the budgeted base year provided by Sunwater in its June 2019 updated submission.

Sources: Sunwater, sub. 11; QCA, Sunwater Irrigation Price Review: 2012–17, final report, May 2012.

AECOM noted:

- The flood events of 2010–11 and 2012–13 placed considerable upward pressure in the pricing of industry special risk insurance policies in the following years for bulk water supply businesses.
- There was a material increase in insurance costs in 2013–14, reflecting flood damage caused by Cyclone Oswald in 2013, which had a significant impact on the pricing of industrial special risks policies.
- Sunwater's asset revaluation process has resulted in premium increases.

Insurance costs would generally change over time due to changes in asset replacement costs and changes to asset risk assessment affecting insurance market rates. The key driver of higher insurance costs (as compared to those we forecast in the 2012 review) has been a change in asset risk assessment—in response to extreme weather events in 2010–11 to 2012–13— that affected insurance market rates. There was a step change in actual insurance costs in 2012–13 of up to $5.8 million ($2018–19 dollars), compared to $3.3 million approved by us.

We note that Sunwater's insurance costs were assessed as part of the Government's review of local management arrangements in 2014. Independent advice then was that the step change in 2012–13 actual costs was due to a change in asset risk assessment by insurers. In addition, in the short term, there was a further one-off adjustment forecast to occur in 2014–15 due to the 2012–13 flood event and above-inflation increases forecast over the medium term (subsequent 5-year period).

Sunwater's actual insurance costs in the most recent year (2017–18) remained at a similar level in real terms to 2012–13, with some volatility over this period (Figure 7). This is expected, since insurance premiums can be susceptible to market and environmental influences (such as flooding and cyclones), which can result in one-off adjustments.

Further, as noted by Marsh, global commercial insurance prices rose by 3 per cent on average in the first quarter of 2019 marking the sixth consecutive quarter of increases.[50]

Given that Sunwater has worked closely with its broker to conduct a competitive and rigorous process in selecting insurers over the past year, and given the recent cost drivers underlying Sunwater's insurance costs, we propose to accept Sunwater's budgeted insurance costs for 2019–20 as an appropriate base year insurance cost.

Allocation of insurance costs to schemes

Sunwater's current approach to allocating insurance costs to irrigation schemes is based on each schemes' asset value. We accept that declared asset values would be a cost driver for insurance costs, and accept this as a basis for allocating insurance that is primarily asset related. Also, the nature of the insurance cover is that it is a pooled cost that, at the scheme-level, would generally be lower than the stand-alone cost of insurance.

2.7 Summary of base year direct opex

Our recommended base year direct opex is summarised in Table 10 below.

Table 10 The QCA's draft 2018–19 base direct opex for irrigation service contracts ($ million, nominal)

Cost category	*Sunwater's November 2018 submission*	*Sunwater's June 2019 updated submission*	*QCA's draft recommendation*
Base operations and maintenance	20.8	23.4	21.6
Base electricity	13.6	12.9	12.2
Base insurance	6.0	6.6	6.6
Total base year costs	**40.4**	**42.8**	**40.5**

Note: Totals may not add due to rounding.

Source: AECOM, Rural Irrigation Operating Expenditure Review: Sunwater, August 2019, p. 128; QCA analysis.

2.8 Base year non-direct opex

2.8.1 Sunwater's submission

Sunwater submitted non-direct opex of $115.6 million over the period 2020–21 to 2023–24.

Sunwater said that it had used a base-step-trend approach to forecast non-direct opex.[51]

To determine base year costs for 2020–21, Sunwater:

- used budgeted costs for 2018–19 as an initial estimate of the cost base

[50] Marsh, *Global Insurance Market Index*, 2019.

[51] Sunwater, sub. 11, p. 34. Sunwater used a base-step-trend approach to forecast routine expenditure which encompasses direct and non-direct opex.

- adjusted the 2018–19 estimate to remove costs associated with recreational areas and allow for a step change in costs associated with the implementation of the Inspector General for Emergency Management's 2015 review (IGEM costs)
- allocated a share of the cost base to irrigation service contracts using the share of direct labour as the allocator
- escalated the resulting costs for different cost categories to reflect projected inflation
- made base year reductions to corporate support costs, local area support costs and indirect costs to reflect targeted efficiency improvements
- applied an annual global 0.2 per cent reduction to 2020–21 to reflect projected efficiencies.[52]

Sunwater grouped non-direct costs into three categories:

(a) *Local area support costs* are incurred to support operational activities in each of four regions and include regional accommodation costs, local administration support and training. They are common to service contracts managed in a region.

(b) *Indirect costs* consist of defined cost pools including billing and customer support, asset management (including dam safety, asset systems, channels and drainage), flood room operations, IGEM emergency management, water planning, hydrographic services and environmental support costs. They are common to sub-sets of service contracts (e.g. dam safety costs would only be recovered from service contracts with a dam).

(c) *Corporate support costs* are common to all service contracts and include human resources and payroll, information and communication technology, corporate communications, legal, property, finance, internal audit, plus the costs of the CEO, Chief Financial Officer and the Sunwater Board.[53]

Sunwater's base year non-direct opex is summarised in the table below.

Table 11 Sunwater's proposed 2018–19 base year opex for irrigation service contracts ($ million, nominal)

Cost category	***Original submission***	***Revised submission***	***Difference***
Indirect	7.8	8.4	0.7
Local area support	13.5	6.3	(7.2)
Corporate support	7.0	8.4	1.4
Total non-directs	**28.2**	**23.1**	**(5.1)**

Note: Excludes distribution systems that have transitioned to local management arrangements (Emerald, St George and Theodore).

2.8.2 Other stakeholders' submissions

There was broad concern amongst stakeholders as to the increase in Sunwater’s non-direct cost base, and the lack of clarity regarding how it allocated non-direct costs to irrigation service contracts.

[52] Sunwater, sub. 11, p. 34.
[53] Sunwater, sub. 11, p. 16.

QFF, BRIA, Canegrowers and Canegrowers Mackay each considered that further explanation was required as to the reason for the increase in non-direct costs between 2017–18 and 2018–19.[54] BRIA considered that Sunwater needed to explain why the non-direct allocation to irrigation schemes are forecast to increase by 58 per cent over two years, and that if this is due to an overall change in non-direct costs, then Sunwater needs to outline additional functions it is undertaking to cause this cost increase and the benefits that accrue to irrigators.[55]

Kinchant Dam Users Association noted that despite Sunwater undertaking a number of restructures and downsizing, the flow-on to reducing overheads has not occurred.[56]

Stakeholders also considered the impact of the increase in non-direct costs at the scheme level. BRIA noted that forecast non-direct costs allocated to Burdekin-Haughton scheme are significantly higher than past expenditure, and that it was not possible to determine whether this is due to an overall increase in non-direct costs, or because of a change to the way overheads are allocated.[57]

Cotton Australia noted that at one stage the overheads applied to a small channel scheme accounted for more than 65 per cent of the scheme’s costs.[58] Theodore Water notes that for Dawson Valley, a significant change in non-direct costs occurred between 2014–15 and 2016–17, and that forecasts for the new price path period are based on what seem to be abnormal increases in costs compared to previous years.[59]

In terms of Sunwater’s proposed changes to its cost allocation methodology, BRIA requested the QCA to undertake a comparative assessment of the two methodologies to determine whether this results in a larger or smaller share to irrigators, and identify if there are opportunities for a more equitable and transparent method.[60]

QFF considered that Sunwater should be required to outline its total non-direct costs and explain the allocation method used for irrigation customers to determine whether all non-direct costs have increased at this rate, or just irrigation costs.[61] Central Highlands Regional Council advocated a similar view and recommended the QCA review the step change in overheads and report on the prudence of the driver and allocation of these costs.[62]

WBBROC advocated for greater transparency and disaggregation of administrative and support costs in Sunwater’s network service plans and annual performance report. It also considered that these costs should be benchmarked for efficiency against bulk water businesses and other Sunwater regions.[63]

2.8.3 QCA assessment

We have assessed Sunwater's submission to determine the prudency and efficiency of the proposed base year non-direct costs.

[54] QFF, sub. 132, p. 3; BRIA Irrigators sub. 85, p. 32; Canegrowers, sub 91, p. 2; Canegrowers Mackay, sub. 96, p. 4.
[55] BRIA Irrigators, sub. 85, p. 32.
[56] KDWUA, sub. 112, p. 6.
[57] BRIA Irrigators, sub. 85, p. 30.
[58] Cotton Australia, sub. 102, p. 2.
[59] Theodore Water, sub. 140, p. 3.
[60] BRIA Irrigators, sub. 85, p. 32.
[61] QFF, sub. 132, p. 3.
[62] CHRC, sub. 101, p. 2.
[63] WBBROC, sub. 149, p. 19.

Changes to non-direct costs allocated to irrigation service contracts will be driven by:

- changes to Sunwater's total non-direct cost base (before allocation to irrigation and non-irrigation service contracts)
- changes in direct labour between irrigation and non-irrigation activities (as direct labour is the basis for allocating non-direct costs).

The following changes have also impacted our assessment:

- Sunwater has undertaken an organisational restructure, which has resulted in changes to the classification of some cost pools between Sunwater's non-direct cost categories from 2016–17 to 2017–18.[64]
- Sunwater has made incremental changes to its cost allocation methodology in developing its 2018–19 budgeted costs (provided in its November 2018 submission) and in its 2019–20 budgeted costs (provided in its June 2019 resubmission).

With the assistance of our consultant, AECOM, we assessed Sunwater's proposed non-direct costs through the following steps:

- We examined historical non-direct expenditure, comparing it with our recommended expenditure from the 2012 review and assessing the drivers behind any increases in costs relative to our recommendations from the 2012 review.
- From this assessment, AECOM selected a base year for further assessment. AECOM determined that 2017–18 was an appropriate base for developing an alternative base year estimate to assess Sunwater's proposed base year costs, as it reflected the most recent year of actual revealed costs.
- AECOM assessed increases in Sunwater's total 2017–18 non-direct cost base (before allocation to service contracts) and proposed adjustments to remove one-off or non-recurring costs and to adjust for inefficiencies. AECOM also assessed changes in Sunwater's non-direct cost base to determine whether there were any costs in the 2018–19 and 2019–20 base year that did not occur in 2017–18 but would generally occur on a recurring basis.
- AECOM then assessed Sunwater's proposed cost allocation methodology for allocating its non-direct cost base to irrigation and non-irrigation service contracts. AECOM developed alternative base year estimates by applying Sunwater's cost allocation methodology to its alternative non-direct cost base derived in the previous step.

Choice of base year

To determine an appropriate base year, we have compared Sunwater's historical non-direct expenditure with our recommended expenditure from the 2012 review for different categories of non-direct costs.

Indirect costs

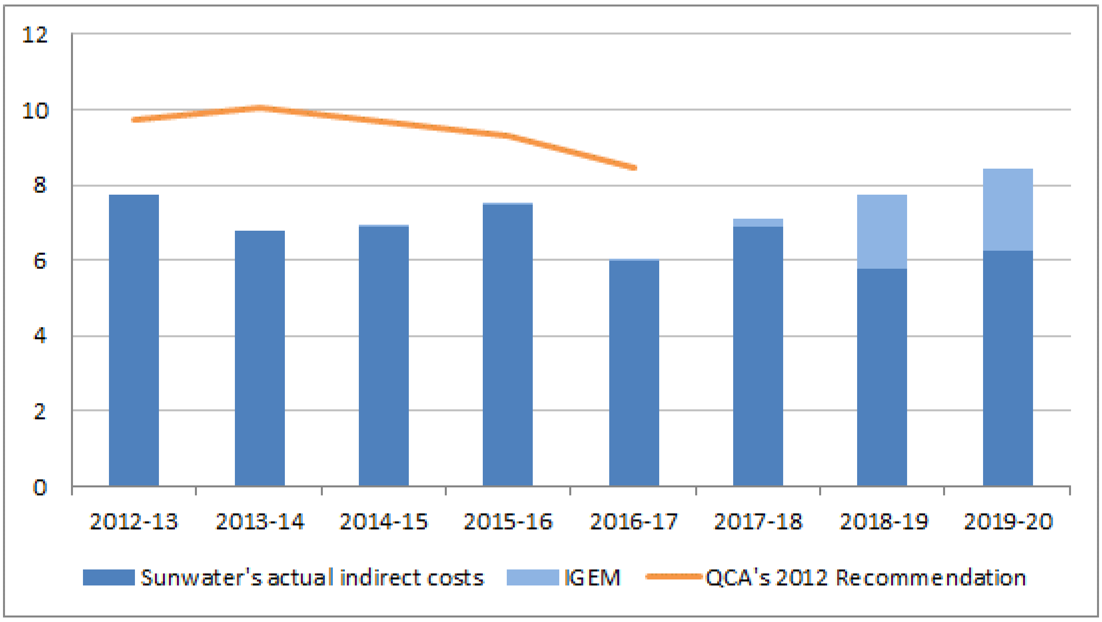
Sunwater's actual indirect costs for regulated service contracts have remained below our recommended levels from the 2012 review (Figure 8), although Sunwater expects to incur additional costs to implement IGEM recommendations from 2018–19.

Given that costs have been significantly below our recommended costs from the 2012 review, we have used the most recently revealed costs for 2017–18 as the basis for assessing indirect costs.

[64] Sunwater response to QCA RFI 51.

We note that indirect costs are lower in the 2018–19 and 2019–20 budgeted costs due partly to the removal of the cascading of corporate overheads into indirect costs as part of changes to Sunwater's cost allocation methodology. This increases the level of corporate costs allocated to service contracts rather than via indirect cost pools.

Figure 8 Sunwater's indirect costs for irrigation service contracts ($2018-19, million)



Notes: 1. The 2017–18 figure reflects Sunwater's actual costs rather than the 'normalised' costs provided in Sunwater's submission for this year. 2. The 2018–19 figure is the budgeted base year provided by Sunwater in its November 2018 submission. 3. The 2019–20 figure is the budgeted base year provided by Sunwater in its June 2019 updated submission.

Source: Sunwater, sub. 45; Sunwater, sub. 153; Sunwater Irrigation Price Review: 2012–17, final report, May 2012; QCA analysis.

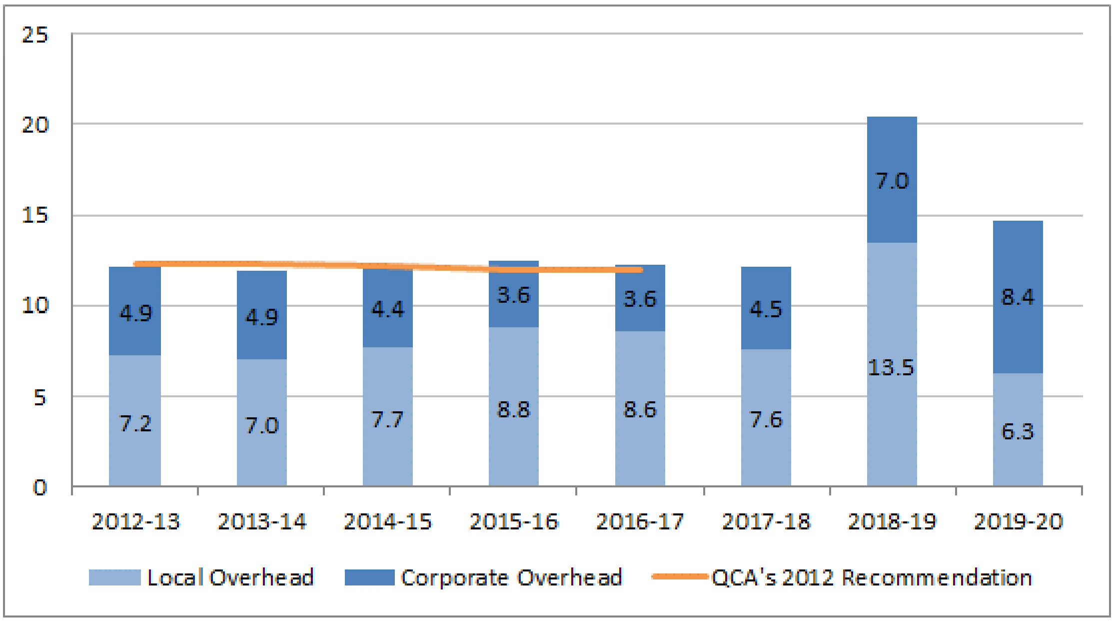
Local area and corporate support costs (overheads)

Sunwater's historical overhead costs have been broadly within the costs we recommended in the 2012 review (Figure 9).

Sunwater proposed a significant increase in these costs in its November 2018 submission (see Figure 9) and subsequently provided us with lower revised estimates in June 2019, which were still significantly higher than previous years' actuals.

A key driver of Sunwater's initially budgeted figure for 2018–19 was the significant increase in local area support costs across Sunwater's service contracts. As shown in Figure 9, local area support costs went from $7.6 million in 2017–18 to $13.5 million in Sunwater's initially budgeted costs for 2018–19. In its revised June 2019 submission, Sunwater explained that it had reduced its local area support costs to $6.3 million partly reflecting improved direct charging of labour to service contracts and the transfer of fleet costs from local overheads to direct operations and maintenance from 2019–20.

Figure 9 Sunwater's local area and corporate support costs for irrigation service contracts ($2018–19, million)



Notes: 1. The 2017–18 figure reflects Sunwater's actual costs rather than the 'normalised' costs provided in Sunwater's submission for this year. 2. The 2018–19 figure is the budgeted base year provided by Sunwater in its November 2018 submission. 3. The 2019–20 figure is the budgeted base year provided by Sunwater in its June 2019 updated submission.

Source: Sunwater, sub. 45; Sunwater, sub. 153; Sunwater Irrigation Price Review: 2012–17, final report, May 2012; QCA analysis.

We note that this level of expenditure is consistent with historical expenditure on local area support costs. However, corporate support costs are budgeted to increase from $4.5 million in 2017–18 to $8.4 million in 2019–20. This level of expenditure is significantly above the historical average from 2012–13 to 2017–18.

To complement our assessment of the prudency and efficiency of historical costs, we have undertaken benchmarking of Sunwater's local area and corporate support costs by comparing Sunwater's expenditure against that of other water utilities of a similar size and/or service offering that are also subject to independent regulatory oversight.[65]

Our comparator businesses include the following rural water utilities (which provide irrigation services):

- Southern Rural Water[66]
- Lower Murray Water – Rural.

[65] WaterNSW was excluded from this analysis, as corporate overheads costs were not publicly available. Information for the remaining businesses was sourced from price submission financial models submitted by each business to Essential Services Commission's 2018 water price review.

[66] Southern Rural Water's service area covers some urban centres. However, urban services are provided by Western Water and City West Water.

Given that corporate activities tend to be centralised[67] and relatively common across utilities[68], we consider that meaningful comparisons can be made with urban water utilities and have therefore also included three urban water utilities in our comparison:

- Goulburn Valley Water—a regional urban water business
- Barwon Water—a regional urban water business
- Yarra Valley Water—a metropolitan urban water business.

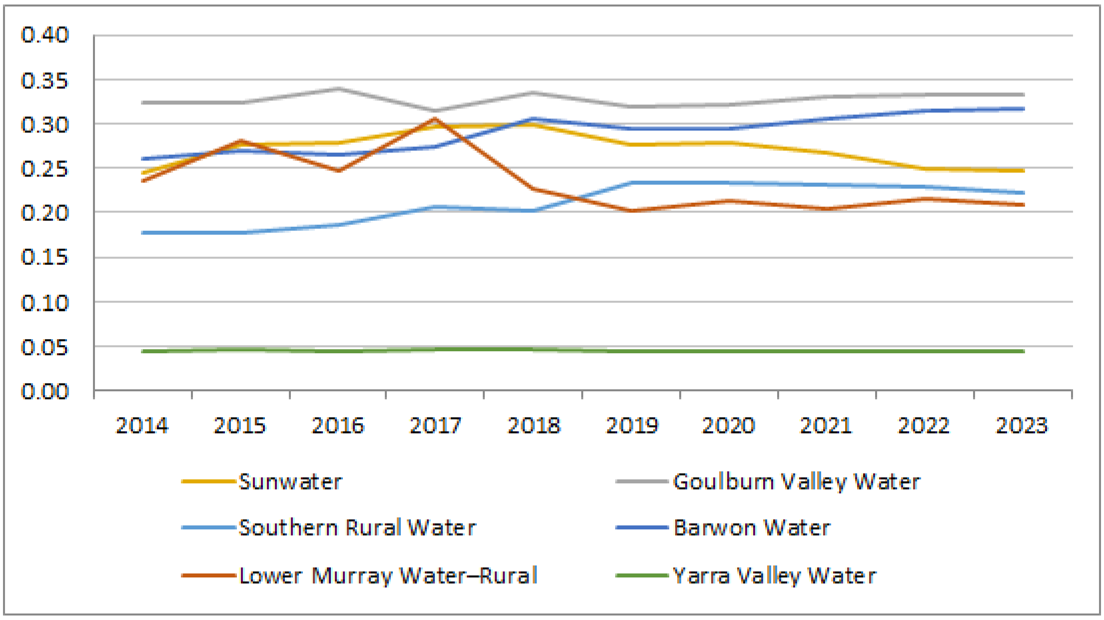
We have compared these businesses across two metrics that reflect cost drivers relative to Sunwater's corporate expenditure including:

- corporate expenditure per total operating expenditure
- corporate expenditure per megalitre of water delivered.

We note that this analysis is indicative only and as with any unit cost based approach, is subject to qualification including differences in the activities undertaken by the businesses and the operating environments that they face.

Sunwater's corporate expenditure per dollar of total operating expenditure is consistent with that of the comparator businesses over the course of the period (with the exception of Yarra Valley Water and the rural businesses) (Figure 10). The profile of the expenditure is also consistent with the other businesses. Following increases up to 2017–18 (representing lower direct charging of labour, resulting in higher local overheads), the ratio trends downward over the forecast period.

Figure 10 Corporate overhead costs per dollar of opex across comparator water businesses



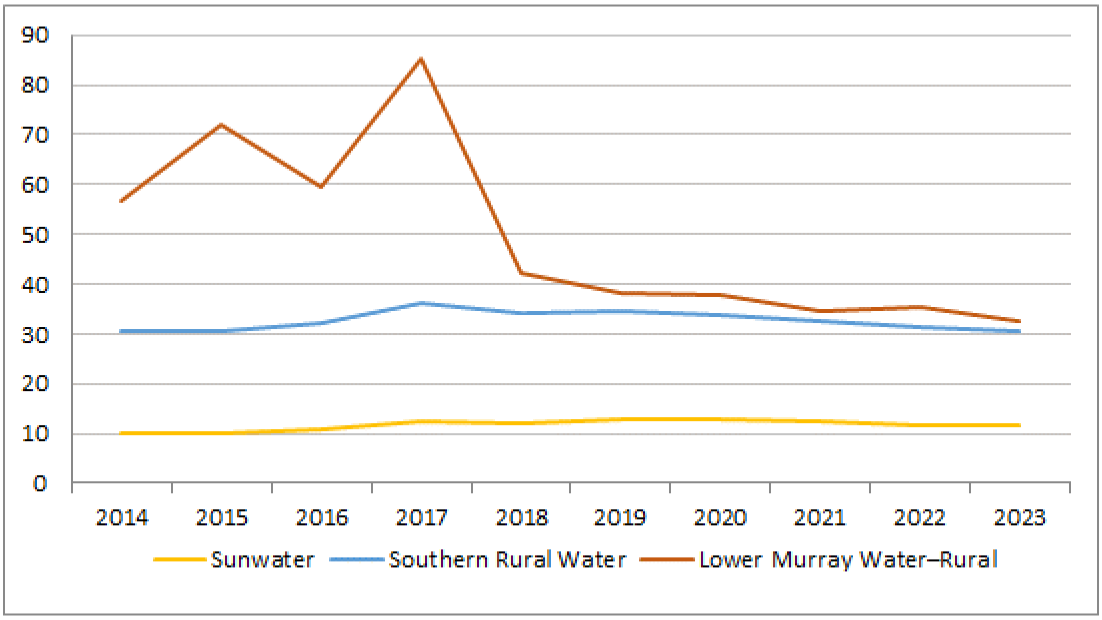
Notes: 1. Sunwater's corporate overhead costs combines local area support costs with corporate support costs, and includes overheads allocated to operating (or routine) costs and renewals (or non-routine) costs.2. The 2017–18 figure reflects Sunwater's actual costs rather than the 'normalised' costs provided in Sunwater's submission.

[67] Depending on geographical spread of a rural utility, some corporate staff may be located in regional centres.
[68] There are likely to be a few differences in cost drivers including property expenses (likely to be higher in urban centres) and stakeholder engagement (which could potentially be higher in urban centres given the larger customer base).

Source: Sunwater, sub. 153, June 2019; Sunwater's financial model (SFM); Southern Rural Water—price submission financial model (2017); Lower Murray Water—price submission financial model (2017); Goulbourn Valley Water—price submission financial model (2017); Barwon Water—price submission financial model (2017); Yarra Valley Water—price submission model (2017); QCA analysis.

Sunwater's corporate expenditure per megalitre of water delivered is lower than that of Southern Rural Water and Lower Murray Water—Rural over the period, with Lower Murray Water—Rural exhibiting a high level of variability over the period 2014–15 to 2018–19 (Figure 11).

Figure 11 Corporate costs per megalitre of water delivered



Notes: 1. Sunwater's corporate overhead costs combines local area support costs with corporate support costs, and includes overheads allocated to operating (or routine) costs and renewals (or non-routine) costs. 2. The 2017–18 figure reflects Sunwater's actual costs rather than the 'normalised' costs provided in Sunwater's submission. ML delivered refers to total water delivered from bulk WSSs.

Source: Sunwater, sub. 153, June 2019; Sunwater's financial model (SFM); Southern Rural Water—price submission financial model (2017); Lower Murray Water—price submission financial model (2017); Goulbourn Valley Water—price submission financial model (2017); Barwon Water—price submission financial model (2017); Yarra Valley Water—price submission model (2017); QCA analysis.

As Sunwater's historical costs have been broadly consistent with our recommendations from the 2012 review, and trends in key corporate expenditure metrics have been broadly in line with comparator businesses, we propose to use the most recently revealed costs for 2017–18 as the basis for assessing Sunwater's proposed local area and corporate support costs.

Prudency and efficiency of the base year non-direct cost base

We have separately assessed the non-direct cost base (before allocation to service contracts) for indirect, local area support, and corporate support costs, as there are different cost drivers for these costs.

Indirect costs

Sunwater's indirect costs are grouped into the following cost categories:

- Major projects and technical services
- Operations
- Water resources and dam safety (including Inspector-General of Emergency Management (IGEM) costs).

We have assessed IGEM costs separately as a step change, as they relate to a new regulatory obligation.

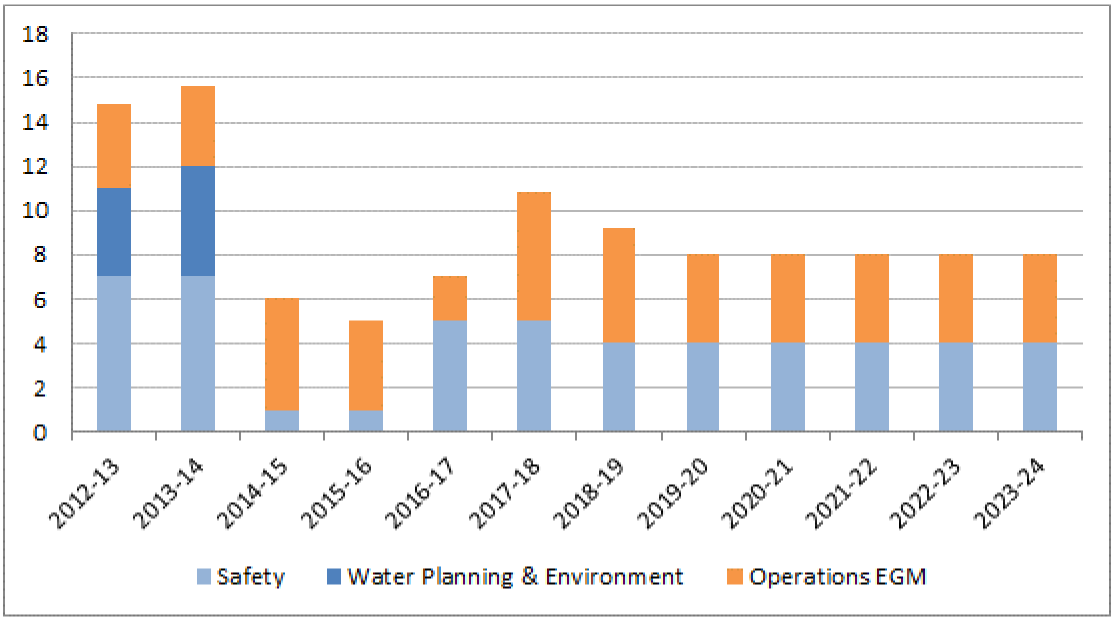
AECOM firstly assessed increases in Sunwater's total indirect cost base in 2017–18 and made adjustments to remove one-off or non-recurring costs. AECOM also assessed changes in Sunwater's indirect cost base to determine whether there are any costs in the 2018–19 and 2019–20 base year that did not occur in 2017–18 but would generally occur on a recurring basis.

Efficiency of labour use in indirect cost pools

We note that indirect cost centres have undergone a number of restructures over recent years making it difficult to track trends and changes in FTEs over the previous price path period.

However, there was a significant drop in FTEs in 2014–15 followed by a gradual increase to 2017–18 (Figure 12). Further, Sunwater is projecting a decline of 2.8 FTEs between 2017–18 and 2019–20, after which FTEs are expected to stabilise. While part of the decline is the result of cost centres shifting to local area and corporate support costs, we consider that Sunwater has achieved efficiencies since the 2012 review.

Figure 12 Sunwater's indirect staff FTEs for all service contracts

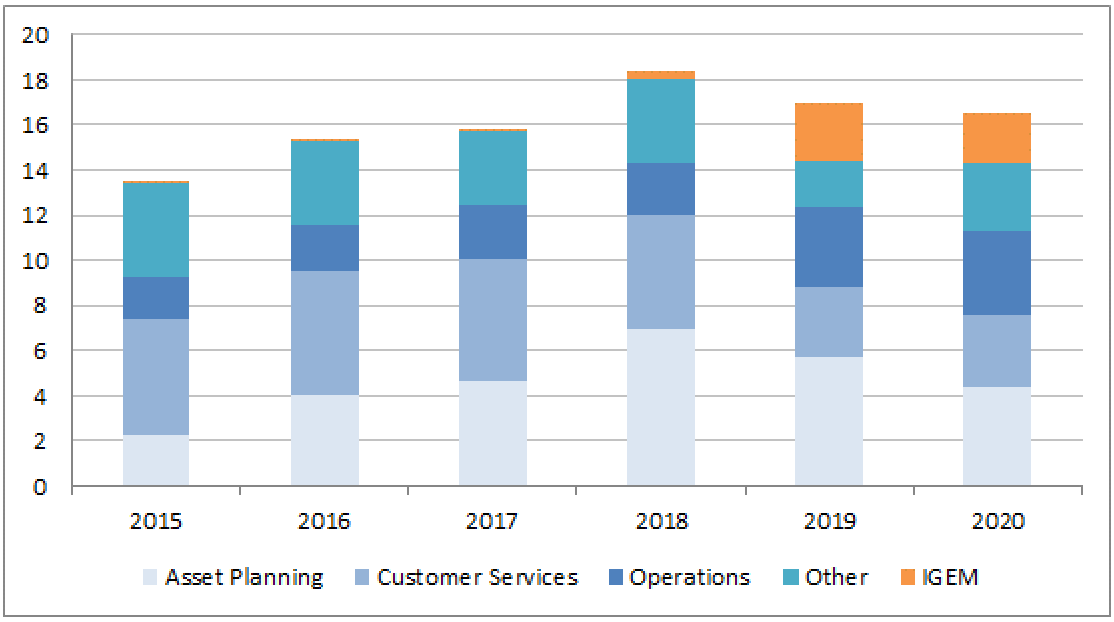


Source: AECOM, Rural Irrigation Operating Expenditure Review: Sunwater, August 2019, p. 86.

Efficiency of 2017–18 base year costs

In terms of Sunwater's total indirect cost base (before allocation to service contracts), 2017–18 actual costs were 16.5 per cent higher than for 2016–17 (Figure 13).

Figure 13 Sunwater's indirect cost base (before allocation to service contracts) ($2018–19, million)



Source: AECOM, Rural Irrigation Operating Expenditure Review: Sunwater, August 2019, p. 87.

After reviewing the drivers of this increase, AECOM accepted Sunwater's proposed 2019–20 indirect cost base (excluding IGEM costs) on the basis that it appropriately accounted for the reallocation of some cost centres to other non-direct cost categories, the removal of one-off or non-recurring costs, and adjustments to include recurring costs not included in 2017–18 costs.[69]

We consider IGEM costs in section 2.9.2 below as a step change.

Local area support costs

Sunwater has grouped local area support costs into eight cost centres including regional operational centres in the north, central and southern regions and Bundaberg.

AECOM noted that 51 per cent of staff are based in the regional resource centres.

AECOM reviewed actual costs for the 2017–18 base year including analysing FTE staff to determine prudency and efficiency and assessing historical trends in the cost base to identify one-off costs and adjust the base year costs accordingly.

Efficiency of labour use in regional areas

As there have been several restructures of regional operations centres since the previous price path, AECOM aggregated operational centres into the groupings that Sunwater proposed to use from 2019–20 for the purposes of comparing historical trends in FTE staff.

Because Emerald, Theodore and St George moved to local management, regional resource centre staff numbers were reduced by 16.5 FTEs.

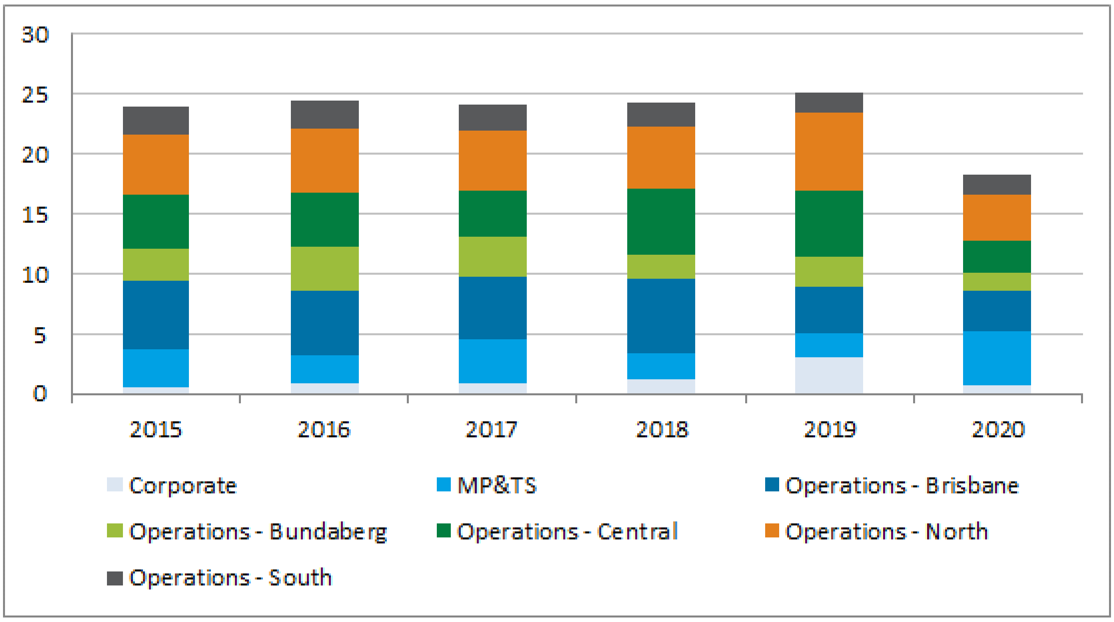
Operations North operates at a relatively high utilisation rate and has the lowest cost per FTE (although the latter could be the result of a higher proportion of lower paid staff or lower support costs).

[69] AECOM, *Rural Irrigation Operating Expenditure Review: Sunwater*, August 2019, p. 104.

Efficiency of 2017–18 base year costs

Historical trends in local area support costs are summarised in the figure below.

Figure 14 Sunwater's local area support cost base ($2018-19, million)



Source: AECOM, Rural Irrigation Operating Expenditure Review: Sunwater, August 2019, p. 79.

AECOM noted that local area support costs were relatively stable over the period 2014–15 to 2017–18. While Sunwater's budgeted cost for 2019–20 is lower than actual costs for 2017–18, this was as a result of:

- a shift in information and communication technology (ICT) costs from local area support to corporate support
- a shift in fleet costs from local area support to direct operations costs
- an increase in direct charging of labour to service contracts (resulting in a decrease in the residual to be recovered from local area support).

AECOM considered that Sunwater's proposed 2019–20 cost base reflected an efficient level of base year costs, on the basis that it appropriately accounted for reallocation of some cost centres since 2017–18, the removal of one-off or non-recurring costs, and adjustments to include recurring costs not included in 2017–18 costs.[70]

Corporate support costs

Corporate support costs include ICT, Finance, Corporate Development, People and Stakeholder Relations, Legal, Office of the CEO, Corporate Services and Procurement.

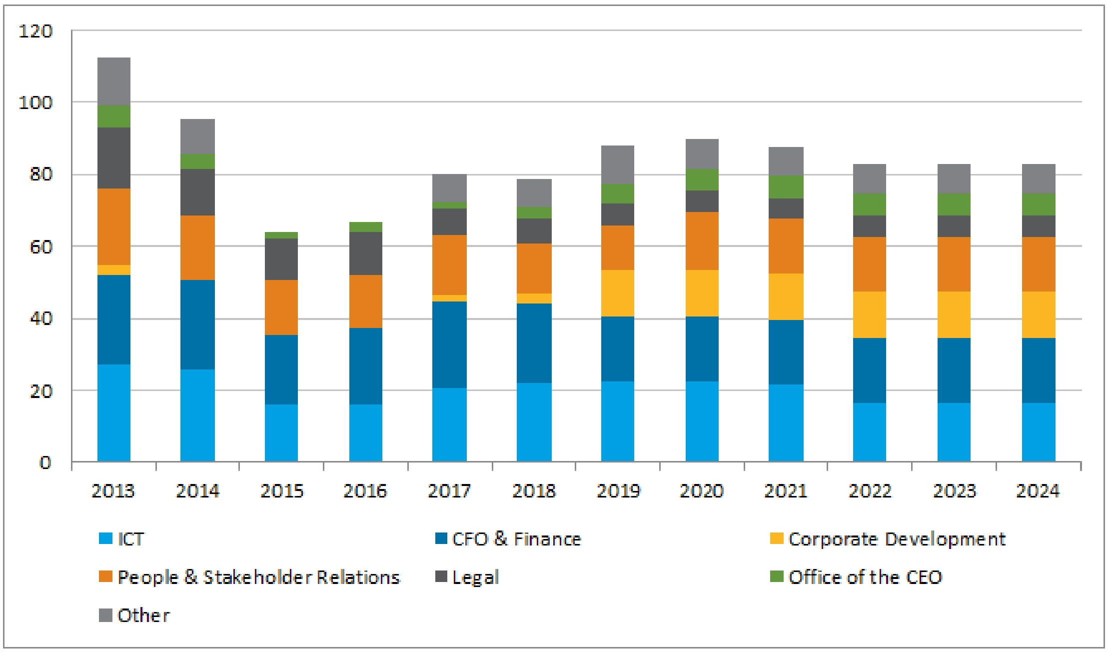
AECOM reviewed actual costs for the 2017–18 base year, including through analysing FTEs to determine prudency and efficiency and assessing historical trends in the cost base to identify one-off costs and adjust the base year costs accordingly.

[70] AECOM, *Rural Irrigation Operating Expenditure Review: Sunwater*, August 2019, p. 71.

Efficiency of corporate FTEs

While Sunwater delivered a 32.7 per cent reduction in corporate staffing in 2014–15, FTEs have steadily increased since then (Figure 15).

Figure 15 Sunwater's corporate FTEs for all service contracts

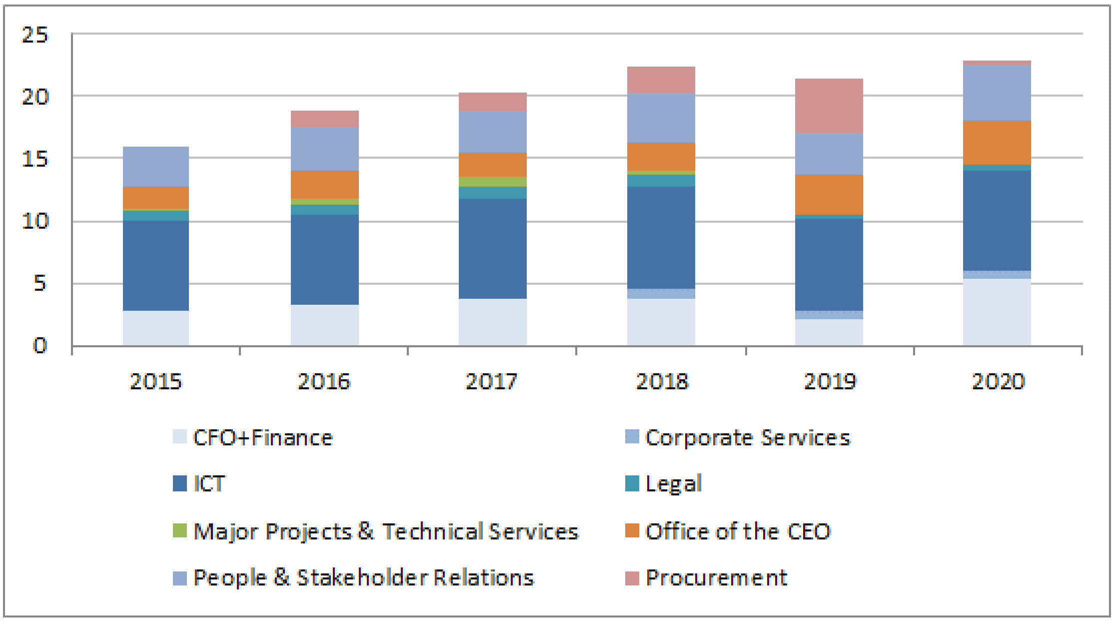


Source: AECOM, Rural Irrigation Operating Expenditure Review: Sunwater, August 2019, p. 113; Sunwater response to AECOM RFI 68.

Efficiency of 2017–18 base year costs

AECOM reviewed Sunwater's actual corporate expenditure (before allocation to service contracts) and observed an increasing trend between 2014–15 and 2017–18, as shown below.

Figure 16 Sunwater's corporate support cost base ($2018–19, million)



Source: AECOM, Rural Irrigation Operating Expenditure Review: Sunwater, August 2019, p. 115.

Corporate support costs for allocation using the direct labour cost allocator are higher in 2019–20 budgeted costs, due partly to changes to Sunwater's cost allocation methodology, including:

- removing the cascading of corporate overheads into indirect costs, thereby increasing the level of corporate costs allocated to service contracts rather than to indirect cost pools (which were subsequently allocated to service contracts through indirect costs)
- removing ICT desktop and network charges levied at resource centres on individual use of computers, and removing a recovery of corporate overhead through a 5 per cent loading on material costs, instead recovering these costs through corporate overheads.

After reviewing the drivers of this increase, AECOM made adjustments to 2017–18 actual corporate overhead costs to account for the reallocation of some cost centres to other non-direct cost categories, the removal of one-off or non-recurring costs, and adjustments to include recurring costs not included in 2017–18 costs.

AECOM's recommended adjustments are summarised in Table 12.

Table 12 Recommended corporate overhead cost base ($2018–19, million)

Cost category	*2017–18 actual cost*	*AECOM adjustment*	*Adjusted cost*	*AECOM's assessment*
CFO+Finance	3.7	1.6	5.3	AECOM added rent costs ($2.3 million) as this cost was moved to this cost centre in 2019–20 from Procurement, noting this was a reduction on previous premises. AECOM noted there is a planned reduction by 2.9 FTEs in 2019–20 for the finance cost centre. Costs associated with Corporate GM, including rent, have moved to indirect costs.
Corporate Services	0.7	–	0.7	No proposed change.
ICT	8.3	0.2	8.5	AECOM identified a new ICT cost pool for the purpose of project delivery ($0.5 million). AECOM noted that ICT FTEs had reduced by 21% since 2011. However, changes to the cost allocation methodology in 2017–18 now mean that staff ICT equipment are recovered from this category, rather than from local area support.
Legal	1.0	(0.3)	0.6	AECOM noted a projected cost reduction of 1 FTE in FY2019.
Major Projects & Technical Services	0.2	(0.2)	0.0	Sunwater has not budgeted costs in 2018–19 and 2019–20.
Office of the CEO	2.4	(0.1)	2.3	AECOM accepted 2017–18 actual costs, even though there had been increases in each of the previous 3 years. AECOM did not accept substantial budgeted increases, as no justification was provided for the need for increased cost for non-growth irrigation business.

Cost category	*2017–18 actual cost*	*AECOM adjustment*	*Adjusted cost*	*AECOM's assessment*
People & Stakeholder Relations	4.0	(1.3)	2.7	AECOM noted that two additional FTEs in 2017–18, and 1 FTE in 2019–20, were not relevant to the non-growth irrigation business and excluded cost increases associated with these from the base year.
Procurement	2.0	(1.7)	0.3	AECOM reallocated rent costs to Finance, consistent with Sunwater's approach from FY2020.
Total corporate support	**22.4**	**(1.8)**	**20.4**	

Source: AECOM, Rural Irrigation Operating Expenditure Review: Sunwater, August 2019, p. 119.

Allocation of non-direct cost base to irrigation service contracts

Sunwater uses direct labour to allocate:

- local area support costs to service contracts within a given region
- indirect costs to service contracts associated within a given cost pool[71]
- corporate support costs to all service contracts.[72]

We sought expert advice from AECOM in relation to the reasonableness of Sunwater's methodology for the allocation of indirect and overhead costs to its service contracts and customers.

AECOM assessed Sunwater's proposed methodology against the following principles:

- Wherever possible, costs should be directly identified and attributed to a service, segment or component.
- Where a cost cannot be directly identified and attributed, it should be allocated to a service, segment or component based on a causal driver of that cost.
- In the absence of a causal relationship, a reasonable (substitute) method of allocation should be used.

Sunwater's policy is to allocate labour costs directly to service contracts. Staff working in indirect, local area support or corporate support cost centres are expected to charge all time spent on activities directly benefitting specific service contracts to those contracts. Residual costs are then recovered from customers using direct labour costs as the allocator.

Sunwater has proposed a number of changes to its cost allocation methodology (CAM) for this review. AECOM's assessment of Sunwater's proposed changes are summarised in Table 13.

[71] IGEM and flood room operations costs are recovered on a risk-based approach and user-pays basis, respectively.
[72] Sunwater response to AECOM RFI A8.

Table 13 Changes to Sunwater's cost allocation methodology

Cost category	*CAM (2012)*	*CAM (2018)*	*AECOM comment*
Indirect	Use of multiple cost pools. Cost pools allocated to subsets of service contracts on the basis of causality – e.g. dam safety cost pool allocated to bulk water service contracts. Costs then recovered from service contracts in proportion to direct labour costs.	Indirect cost pools have been redefined. Some cost pools (e.g. IGEM) allocated to service contracts using a risk-based approach.	The restructuring of indirect costs reflects the changing structure of the organisation. The cost of IGEM and similar indirect activities is driven largely by risk, so use of this driver to allocate these costs more accurately reflects causality.
Local area support	Costs allocated across service contracts in proportion to direct labour costs.	Costs split between region-specific service contracts and allocated in proportion to direct labour costs.	The use of several regional overhead pools and allocation to regional schemes is more complex, but provides more accurate cost allocation, removes possible cross subsidies between regions, and makes cost control more transparent in each region.
Corporate support	A portion of cost base recovered through a 5 per cent loading on non-labour direct costs (excluding electricity and major projects). Remainder of cost base allocated across service contracts in proportion to direct labour costs.	The 5 per cent overhead loading on non-labour direct costs removed.	Loading of overhead to non-labour costs increases the cost of activities involving high material or contractor costs. The cost of senior management and head office functions is not usually closely correlated with the quantity of material used—it more commonly relates to staff effort (i.e. FTEs). Allocation of direct costs only avoids double allocation of overhead via indirect costs.

Source: AECOM, Rural Irrigation Operating Expenditure Review: Sunwater, August 2019, p. 32.

Overall, we consider that a single allocator using direct costed labour continues to be an appropriate approach for allocating non-direct costs to service contracts. The issue of under-reporting of direct charging may however affect the effectiveness of direct costed labour as an allocator; Sunwater should renew its efforts to improve time-sheeting practices.

We consider that the changes proposed by Sunwater to its cost allocation methodology are consistent with the principle that costs should be directly attributable where possible. For example, the proposal to move from a single overhead rate for all regions to a region-specific rate means that the costs incurred by the scheme are recovered from service contracts within the scheme.

AECOM noted that the share of the cost base budgeted to be allocated to irrigation service contracts in 2017–18 is relatively high compared with the historical share.[73] The irrigation share

[73] AECOM, *Rural Irrigation Operating Expenditure Review: Sunwater, August 2019*, p. 123.

of direct labour costs allocated to service contracts in 2019–20 is more reflective of Sunwater's forecast share over the price path period.

On that basis, we accept AECOM's recommendation that the share from 2019–20 is the appropriate share of our recommended cost base to be allocated to irrigation service contracts.

We consider that AECOM's proposed 2018–19 base year costs for non-direct costs are appropriate.

2.9 Step changes in base year expenditure

2.9.1 Recreational costs

Sunwater's submission

Sunwater stated that it separately accounts for recreation facility infrastructure and costs, and that it removed costs from the first year of the price path (2020–21), consistent with the requirements of the referral notice. Sunwater's total step reduction in its November 2018 submission was $1.6 million.

Other stakeholders' submissions

Stakeholders were strongly in support of removing costs associated with recreational activities from Sunwater’s expenditure allowance.[74] QFF, Kinchant Dam Users Association and Lower Burdekin Water each observed that costs associated with water treatment plants should be removed, as these were maintained for the benefit of recreational users.[75] QFF further noted that costs associated with studies to establish underwater objects should also be removed as the studies related to the safety of recreational users. Nogoa Mackenzie IAC requested the categorisation of recreation facility costs to ensure that all relevant costs are excluded.[76]

Several stakeholders requested scrutiny of any transitional costs incurred by Sunwater in the handover of recreational facilities to local councils, and considered that these should be excluded from Sunwater’s expenditure allowance.[77]

QCA assessment

Sunwater's updated costs submitted in June 2019 included revised estimates for the removal of recreation facilities. Step changes were also removed for Bundaberg and Callide Valley WSSs, as these assets had been handed over to local council for management since Sunwater's November 2018 submission. Overall, the updated estimates increased the step reduction in costs from $1.6 million to $1.7 million.

We have accepted Sunwater's revised step changes for recreation costs and removed $1.7 million from base year costs.

We consider that the removal of recreation costs from Sunwater's base year expenditure is prudent and efficient, as it relates to the removal of an obligation on Sunwater to provide these services.

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[74] Barker Barambah IAC, sub. 83, p. 3; BRIA Irrigators sub. 85, p. 47; KDWUA, sub. 112, p. 7; MDIA Council, sub. 123, p. 5; QFF, sub 132, p. 8; Lower Burdekin Water, sub. 118, p. 15; Canegrowers Isis, sub. 93, p. 6; Nogoa Mackenzie IAC sub. 126, p. 3.

[75] QFF, sub. 131, p. 8; KDWUA, sub 111, p. 8; Lower Burdekin Water, sub. 118, p. 16.

[76] Nogoa Mackenzie IAC, sub. 127, p. 3.

[77] BRIA Irrigators sub. 85, p. 7; QFF, sub. 132, p. 8; Lower Burdekin Water, sub. 118, p. 15; Nogoa Mackenzie IAC, sub. 127, p. 3.

2.9.2 IGEM costs

Sunwater's submission

Sunwater submitted costs associated with implementing IGEM recommendations that it proposed to recover from irrigation service contracts as summarised in Table 14.

Table 14 Sunwater's IGEM costs allocated to irrigation service contracts ($ million, nominal)

	2020–21	***2021–2022***	***2022–2023***	***2023–2024***
IGEM (November 2018)	2.6	2.7	2.8	2.9
IGEM (June 2019)	2.0	2.0	2.1	2.1

Source: Sunwater response to QCA RFI 25.

Sunwater's IGEM expenditure includes amortisation of its software development costs, which is capitalised in stages over two years, and amortised over eight years, starting in 2020.[78]

Other stakeholders' submissions

Most stakeholders considered that IGEM costs should be removed from Sunwater's operating expenditure allowance.[79] In their view, IGEM primarily benefits the downstream community, and as such, the costs associated with IGEM recommendations should be apportioned among the broader community.

Several stakeholders considered that in some instances, the presence of dams and weirs moderated or reduced the flooding impact caused by upstream rainfall.[80] Kinchant Water Users Association considered that in most cases dams reduce flooding from upstream rainfall events through holding part of the flood volume and releasing at a lower rate than the flood event if the dam had not been in place.[81] Barker Barambah IAC noted the flood moderation role the Bjelke-Petersen dam played in two recent major flood event in 2011 and 2013.[82]

Stakeholders considered that if dams were not in place, there would still be a requirement to manage the risk during events to assist populated areas within these zones. Stakeholders noted the requirement to manage the risk is not brought about by the presence of the dam, and would still be required whether the dams were there or not.[83]

A number of stakeholders noted that IGEM costs are in addition to costs already being paid by irrigators for Sunwater's stream gauging stations, which are used for flood modelling and monitoring.[84] QFF submitted that the Bureau of Meteorology, local disaster management groups, and council used data from Sunwater's stream gauging stations to inform the public of flood risk.

[78] Sunwater response to QCA RFI 25.
[79] Barker Barambah IAC, sub. 83, p. 2; BRIA Irrigators sub. 85, p. 47; Canegrowers, sub. 91, p. 3; Canegrowers MacKay, sub. 96, p. 4; CHCGIA, sub. 99, p. 4; CHRC, sub 101, p. 2; Cotton Australia, sub. 102, p. 3; KCGO, sub. 111, p. 2; KDWUA, sub. 112, p. 5; MDIA Council, sub. 123, p. 4; Nogoa Mackenzie IAC, sub 127, p. 3; QFF, sub. 132, p. 7; Pioneer Valley Water Co-op, sub. 130, p. 6; Superior Production Co, sub. 138, p. 2; Theodore Water, sub. 140, p. 4; Lower Burdekin Water, sub. 118, p. 16.
[80] Barker Barambah IAC, sub. 83, p. 2; CHCGIA, sub. 99, p. 4, KDWUA, sub. 112, p. 6; Nogoa Mackenzie IAC, sub. 127, p. 3, QFF, sub. 132, p. 6; Pioneer Valley Water Co-op, sub. 130, p. 6.
[81] KDWUA, sub 112, p. 6.
[82] Barker Barambah IAC, sub. 83, p. 2.
[83] Superior Production Co, sub. 138, p. 2; QFF, sub. 132, p.6; CHRC, sub. 101, p. 3; Canegrowers MacKay, sub. 96, p. 4; Cotton Australia, sub. 102, p. 3.
[84] BRIA, sub. 83, p. 47; CHRC. 101, p. 3, KDWUA, sub. 112, p. 6; MDIA Council, sub. 123, p. 4; QFF, sub. 132, p. 6; Superior Production Co, sub. 138, p. 2.

Canegrowers noted the information gathered by Sunwater in this regard provides a community service.[85]

Stakeholders also considered the IGEM recommendations potentially duplicated, or transferred, flood monitoring responsibilities to Sunwater.[86] Kinchant Dam Water Users Association considered that responsibility for providing flood information rests with the Bureau of Meteorology and Local Disaster Management Agencies, not Sunwater.[87]

QCA assessment

We have assessed Sunwater's IGEM costs according to the following criteria:

- The step change should relate directly to a new obligation, a change in existing obligation or some other new expenditure.
- The step change should be material relative to the total opex proposed.
- The expenditure associated with the step change should be prudent and efficient.

Changes in Sunwater's regulatory obligations

In 2015, the Inspector-General of Emergency Management conducted two reviews, one into the Callide Creek flood events during Tropical Cyclone Marcia and another following the May East Coast low. The second review effectively confirmed that the findings from the Callide review should be rolled out across the state.

The reviews revealed some gaps in relation to warning messages, community education and flood monitoring, and recommendations were made to improve emergency management protocols.

AECOM noted that the IGEM recommendations effectively gave Sunwater a formal role in flood warning for residents downstream of dams and weirs, where previously Sunwater had concentrated on water supply information, not flood prediction. AECOM also noted that prior to the IGEM review, Sunwater's dams and weirs had inadequate metering technology for it to perform a flood-monitoring role.

Based on expert advice from AECOM, we consider that Sunwater's regulatory obligations have considerably increased in scope, and measures to implement recommendations arising from the IGEM review are consistent with a step change in new regulatory obligations.

Efficiency of proposed expenditure

Sunwater's updated costs submitted in June 2019 included revised estimates for implementing IGEM recommendations. Sunwater revised its initial estimate of the share of IGEM costs to be allocated to irrigation service contracts to $1.9 million in 2019–20.

Sunwater stated that its IGEM costs are made up of labour, local support costs, advertising and amortisation.[88]

AECOM considered that given the risk Sunwater is required to mitigate, the costs incurred were prudent and cost-effective, and likely to achieve the outcomes expected.

We accept AECOM's assessment of prudent and efficient IGEM costs.

[85] Canegrowers, sub. 91, p. 3.
[86] QFF, sub. 132, p. 6; KDWUA, sub. 112, p. 6; Superior Production Co, sub. 138, p. 2.
[87] KDWUA, sub. 112, p. 6.
[88] Sunwater response to QCA RFI 25.

Allocation of expenditure to schemes

Sunwater's June 2019 revised submission included a revised risk-based cost allocation framework for assigning IGEM costs to schemes. Sunwater considered that its previous cost allocation framework disproportionately categorised most schemes as 'high risk'. Its revised cost allocation framework initially assigned 2.5 per cent of IGEM costs to each scheme with a referable dam or weir (approximately 57 per cent of total costs). The remaining IGEM costs are allocated to service contracts based on Sunwater's risk assessment, which factors in:

- messaging requirements
- relationship with the local disaster management group
- the population downstream of the dam
- dam complexity.

Costs associated with a flood event are recovered on a user pays basis according to the location impacted by the event.

We consider that Sunwater's revised approach to allocating IGEM costs to schemes is prudent.

We note that a number of stakeholders considered that IGEM costs should be apportioned to the general community, as they considered the main beneficiary of the IGEM recommendations is the downstream community. We consider that the purpose of the recommendations is to minimise harm to downstream communities as a result of dam outflows that are directly related to the operation of the dam during flood events. On this basis, the IGEM recommendations are better viewed as a compliance obligation placed on Sunwater directly in relation to the safe operation of a dam or weir during flood events.

2.9.3 QCA regulatory fees

Sunwater's submission

Sunwater said that the regulatory fees charged by us to Sunwater have not been included in this submission, as this information was not available at the time of finalising its forecasts.[89]

Sunwater proposed the following cost allocation approach to allocate the regulatory fees charged by us to each irrigation service contract:

- Account directly for each hour spent addressing issues that can be directly attributed to a specific service contract.
- For expenditure on areas of the review that affect multiple service contracts but not all, allocate costs using a fixed percentage, for example, reviewing dam improvement cost shares would be borne only by service contracts with a referable storage.
- For expenditure on issues affecting all service contracts, allocate costs via a common allocator, potentially based on the share of total expenditure.[90]

[89] Sunwater, sub. 11, p. 25.
[90] Sunwater, sub. 11, pp. 25–26.

Other stakeholders' submissions

Many stakeholders did not support the recovery of QCA regulatory fees through irrigation prices.[91]

Canegrowers Mackay said that customers are expected to pay for a service provided to the Government in a process that excluded the consumer from deciding on the terms of reference.[92]

Central Highlands Cotton Growers and Irrigators Association (CHCGIA) said that the cost of the QCA review should be removed from consideration as per the previous price path reviews.[93] CHCGIA said that the cost of the review of the monopoly activities provided by Sunwater should not be borne by irrigators.

Mareeba Dimbulah Irrigation Area Council (MDIAC) said that the QCA should provide a detailed breakdown of, and justification for, any costs it incurs in undertaking the irrigation price review.[94]

Wide Bay Burnett Regional Organisation of Councils (WBBROC) said that Sunwater's share of QCA fee costs should be at least 50 per cent and isolated from cost reflectivity as a non-allowable cost. Any residual QCA fee costs should be allocated equally in proportion to total water charge value as prescribed.[95]

QCA assessment

The referral directs us to recommend prices that recover costs including the regulatory fees charged by the QCA to Sunwater to make the recommendations under the referral up to a cap of $2.5 million. The key objective of this investigation is to recommend appropriate irrigation prices, with the referral also directing us to provide additional recommendations with respect to appropriate mechanisms to manage risk, apportioning dam safety upgrade capital expenditure and reviewing existing tariff groups in specified schemes.

We note that while QCA regulatory fees associated with other investigations that we have undertaken into the pricing practices of water businesses have been recovered from water prices, the costs incurred in the 2012 review process were not recovered from irrigation prices.

The apportionment of regulatory costs will generally have regard to fairly allocating the costs to the beneficiaries of the regulatory service, and also have regard to the terms of the referral. Where costs cannot be linked to a particular service or user, they would generally be allocated using a fair and reasonable cost allocation methodology.

We consider that direct allocation of some QCA costs to specific service contracts would increase administrative costs. In this review process, we note that the need to allocate more of our resources to certain schemes has been a result of Sunwater not effectively engaging with customers or proposing prices for certain tariff groups that have complex, scheme-specific issues. On balance, we do not consider that direct allocation of QCA costs to specific customer groups is appropriate.

Our general approach is to apportion shared regulatory costs or fees based on water volume or another relevant measure. For example, shared regulatory costs or fees relating to Aurizon

[91] Canegrowers Mackay, sub. 96; CHCGIA, sub. 99, p. 4; MDIA Council, sub. 123; Nogoa-Mackenzie IAC, sub. 127, p. 3; North Burnett Regional Council, sub. 128; WBBROC, sub. 149.
[92] Canegrowers Mackay, sub. 96, p. 4.
[93] CHCGIA, sub. 99, p. 4.
[94] MDIA Council, sub. 123, p. 4.
[95] WBBROC, sub. 149.

Network are allocated to the access holders in each coal system of the central Queensland coal network on a dollar per net tonne basis.

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 water supply schemes specified in the referral.

The total costs incurred by the QCA in making recommendations under the referral are forecast to amount to $3.1 million. The following costs have been allocated to Sunwater's WSSs over each year of the price path (see Table 15).

Table 15 QCA regulatory fee allocated to Sunwater's WSSs ($ million, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
QCA regulatory fee	0.6	0.7	0.7	0.7

Note: Sunwater's share of the regulatory cost within the $2.5 million cap ($2.36 million) has been projected across the price path period in present value neutral terms using our proposed WACC.

2.10 Escalation factors

2.10.1 Sunwater's submission

Sunwater has chosen to adopt, where appropriate, the same methodology to establish escalation factors for the price path period as the method applied by the QCA in its review of Seqwater's bulk water prices 2018–21. Sunwater's escalation factors for each year of the price path are summarised in Table 16.

Table 16 Sunwater's proposed annual cost escalation factors (%)

Cost category	*Basis for escalation factor*	*Forecast period*	*Escalation factor (%)*
Materials and insurance	CPI using latest short-term inflation forecast of the RBA	2019–20	2.25
	Mid-point of the RBA target range	2020–24	2.50
Labour	Queensland Government Annual Budget 2018–19	2019–22	3.00
	10 year average wage price index for all sectors in Queensland over 2008–18 (Australian Bureau of Statistics)	2022–24	2.91
Contracted services	Weighted average of wage price index and consumer price index	2019–24	2.38 in 2019–20 increasing to 2.59 for 2020–22 before decreasing to 2.57 for 2022–24
Electricity (default)	AEMO 2018 retail electricity price assumptions	2019–24	Between (7.40) and 9.04
Non-direct (labour and materials)	Weighted average with 50 per cent based on labour escalator and 50 per cent based on CPI	2019–24	2.63 in 2019–20, increasing to 2.75 for 2020–2022 and decreasing to 2.71 for 2022–24

Source: Sunwater, sub. 11, pp. 39–42.

2.10.2 QCA assessment

AECOM reviewed Sunwater's escalation factors, and generally agreed with the escalation factors adopted by Sunwater.

In terms of the inflation forecasts, AECOM noted that the RBA's latest short-term inflation forecast (currently available to June 2021) and the midpoint of the RBA's target range for the later years of the price path period were appropriate. AECOM recommended adopting the RBA's most recent short-term inflation forecasts, outlined in its Statement on Monetary Policy (May 2019), for the period from 2018–19 to 2020–21.

AECOM considered that the application of inflation forecasts to materials was appropriate, as inflation causes an increase in the overall price level within an economy, which would be reflected in the cost of materials used for routine works.

AECOM recognised that changes to insurance premiums were difficult to forecast as they are dependent on conditions in global markets. We note that while publicly available indicators suggest that insurance prices have increased in recent quarters, there were price decreases in some years over the previous price path period.[96] Given the lack of publicly available forward projections and the challenges in forecasting changes in insurance premiums over time, we accept Sunwater's proposal to apply inflation forecasts to insurance.

AECOM further noted that AEMO's retail electricity price assumptions were appropriate as the default electricity cost escalator, and noted that it was common practice for Australian businesses to use AEMO's escalation rates.

With regard to the non-direct cost escalator, AECOM noted that although Sunwater's approach resulted in a relatively complex outcome, it considered it to be a realistic projection of costs if labour and materials continue to be a significant proportion of Sunwater's cost base.

AECOM's recommended adjustments are summarised below.

Table 17 AECOM adjustments to cost escalators (%)

Cost category	***Nature of adjustment***
Materials and insurance	AECOM's adjustments reflect its recommendation to use of the RBA's latest short-term inflation forecast (where available) and the mid-point of the RBA's target range for the price-path period.
Labour	AECOM's adjustments reflect its recommendation to use Queensland Treasury's updated WPI forecasts up to and including 2022–23.
Contracted services	AECOM's adjustments reflect its recommendation to use Queensland Treasury's updated WPI forecasts up to an including 2022–23; and its recommendation to use the RBA's latest short-term inflation forecast and mid-point of the RBA's target range.
Electricity (default)	AECOM's adjustments reflect its recommendation to use the RBA's latest short-term inflation forecast and the mid-point of the RBA's target range.
Non-direct costs (labour and materials)	AECOM's adjustments reflect its recommendation to use Queensland Treasury's updated WPI forecasts up to an including 2022–23; and its recommendation to use the RBA's latest short-term inflation forecast and mid-point of the RBA's target range.

We generally accept AECOM's recommendations.

[96] See, for example, Marsh, *Global Insurance Market Index*, First Quarter 2019.

We have updated the CPI forecast so that it is derived as the geometric mean over the price path period. We have also 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 2.92 per cent, consistent with our approach in our recent water pricing investigations.[97]

Our recommended escalation factors for direct opex are summarised in the table below.

Table 18 QCA recommended cost escalation factors (%)

Cost category	*Forecast period*	*Escalation factor (%)*
Materials and insurance	2019–2020	2.00
	2020–2024	2.37
Labour	2019–2023	2.25 (2019–20); 2.5 (2020–22); 2.75 (2022–23)
	2023–2024	2.92
Contracted services	2019–2020	2.05
	2020–2022	2.39
	2022–2023	2.44
	2023–2024	2.47
Electricity (default)	2019–2020	(7.63)
	2020–2021	(2.21)
	2021–2022	3.57
	2022–2023	8.90
	2023–2024	(0.57)
Non-direct costs (labour and materials)	2019–2024	2.13 (2019–20); 2.44 (2020–21); 2.44 (2021–22); 2.56 (2022–23); 2.65 (2023–24)

Source: AECOM, Rural Irrigation Operating Expenditure Review: Sunwater, August 2019, pp. 132–136; Queensland Treasury, Queensland Budget 2019–20, Budget Strategy and Outlook, Budget Paper No. 2, June 2019, p. 35; ABS, Wage Price Index, Australia, March 2019, Table 8a: Ordinary Hourly Rates of Pay Excluding Bonuses: All Sectors by State, Original, cat no 6345.0.

2.11 Scheme–specific electricity step changes

2.11.1 Sunwater's submission

Sunwater engaged an independent market expert to model the step change associated with the cessation of transitional and obsolete regulated retail tariffs across their WSSs and distribution systems.[98]

Sunwater said that it had 63 sites subject to transitional and obsolete regulated retail tariffs. Of these:

[97] QCA, *Seqwater Bulk Water Price Review 2018–21*, final report, March 2018; QCA, *Gladstone Area Water Board Price Monitoring 2015–2020,* final report, May 2015.
[98] Sunwater response to QCA RFI 11.

- 31 sites were individually modelled (representing 97 per cent of consumption for transitional sites) to estimate the step change in the year after the transitional or obsolete tariff ends
- 32 sites had the QCA median step change, as published in the QCA's final determination for 2018–19 regulated retail tariffs, applied in 2020–21 or 2022–23.[99]

For the individually modelled sites, Sunwater said that the independent market expert modelled electricity costs under the current tariff at the site and compared this with costs that would apply under all non-transitional tariffs to determine the lowest cost tariff for each site. Costs were calculated by applying 2018–19 regulated retail tariff rates to consumption and demand as follows:

- Large sites >100MWh: 4-year average consumption (March 2014 to February 2018) and demand (where applicable)
- Small sites <100MWh: 2017–18 actual consumption and demand (where applicable)

Where historical demand data was not available, Sunwater said that analysis was based on an assumed 3.2:1 kW:kWh factor for demand reads.

The cost difference between the current tariff and the lowest cost tariff was calculated to determine the step change to apply in 2020–21 or 2022–23 for the relevant site.

Sunwater said that for the pre-transition and post-transition years, the AEMO escalators were applied at the site level. The exception was when the AEMO escalator was negative in a pre-transition year. Escalators were not applied in these circumstances (i.e. the escalation is zero), as the QCA has in the past either escalated transitional and obsolete tariffs at a rate of 1.1 of a like tariff, or left the rates unchanged.

The scheme-specific escalators were derived using the weighted average of the price movements for all connection sites in the service contract, weighted by the average consumption for each of the connection points.

2.11.2 Other stakeholders' submissions

Canegrowers considered that it is likely there will be a significant reduction in network prices in the forthcoming electricity regulatory period, and it is important that these expected reductions are taken into account in the new irrigation water price path. Canegrowers formed this view based on the AER's new rate of return guidelines, the cost savings Energy Queensland is targeting for its networks, and the new tariff structures under consideration.[100]

BRIG raised concern with the escalation method used by Sunwater, noting that retail electricity price-escalation covering a four-year period is problematic when electricity price forecasts are uncertain due to large possible changes in wholesale market. On this basis, BRIG considered that given the QCA has already declared Ergon's tariffs for 2018–19, these tariffs should be used rather than uncertain forecasts. BRIG further notes that the QCA determination on 2019–20 electricity tariffs has no price increase for obsolete tariffs. [101]

[99] On 21 June 2019, the Queensland Government announced that customers on obsolete and transitional electricity tariffs, which were due to be phased on by 30 June 2020, will have an additional 12 months to 30 June 2021 to transfer to standard electricity tariffs.
[100] Canegrowers, sub. 91, p. 2.
[101] BRIG sub. 54, p. 11.

BRIG also noted the limited detail in Sunwater's submission made it difficult to analyse tariff transitions or any other drivers of electricity escalation.[102]

BRIA requested the QCA to review the projected escalation rates for electricity charges, to ensure that forecast future price changes are reflected in Sunwater's forecast costs and prices. For example, BRIA recommend that the QCA ensure that forecast future price decreases—or a softening of increases—are reflected accurately in Sunwater's forecast electricity costs and prices.[103]

Kinchant Dam Users Association noted that a number of Eton pumping sites fall into Ergon's large business category and will move from the obsolete tariff 62 to demand tariffs from 2010–21, which will see a significant jump in costs. It noted that Sunwater's network service plan, however, does not show a step change in electricity costs from 2020–21, and that this demonstrates a lack of incentive to adequately review electricity costs where pass through arrangements are awarded.[104]

Fairbairn Irrigation Network considered that Sunwater needed to demonstrate that it has accurately considered the tariff changes beyond 2020 in its forecasts.[105]

2.11.3 QCA assessment

We engaged AECOM to assess Sunwater's proposed electricity step changes to be applied to schemes where transitional and obsolete tariffs would be phased out in 2021.

Sunwater said that it was unable to provide the QCA with the underlying calculations to model the step changes, as these were developed by an external consultant who did not provide this level of detail. To assess the prudency and efficiency of Sunwater's step changes, AECOM derived alternative step changes using data from 2013–14 to 2017–18 by:

- modelling electricity costs under the current optimal tariff at each connection site and compared this with costs that would apply under all non-transitional tariffs
- identifying the lowest-cost non-transitional tariff for each connection site
- calculating the difference in cost between the current optimal tariff and the future optimal tariff to get the step change to apply in 2021–22 for the particular site
- deriving a weighted average step change for each scheme using the average consumption of each meter, along with its corresponding escalation rate.

Costs were calculated by applying 2019–20 regulated retail tariff rates to consumption and demand as follows:

- For large sites, AECOM compared the average annual consumption over 2013–14 to 2017–18 in each site to site energy data, to identify a representative year within the data set, using the year with total consumption closest to the calculated average annual consumption.
- For small connection sites, AECOM used actual consumption and demand for 2017–18 as the representative year to find electricity costs.

[102] BRIG sub 54, p. 12.
[103] BRIA Irrigators sub 85, p. 42.
[104] KDWUA, sub 112, p. 4.
[105] Fairbairn Irrigation Network, sub. 59, p. 6.

For the pre-transition and post-transition years, the AEMO escalators have been applied at the site level.

Consistent with our use of Sunwater's base year electricity costs for bulk WSSs, we have applied Sunwater's scheme-specific electricity cost escalators for bulk WSSs.[106]

We have modified AECOM's analysis to take into account the specific step changes that will occur to fixed and variable costs when schemes move from transitional and obsolete tariffs to standard business tariffs in 2021–22. This is because the underlying fixed/variable tariff balance of standard business tariffs are materially different to transitional and obsolete tariffs.

For example, AECOM identified the optimal tariff that many of the large connection assets in the Bundaberg distribution system should transition to as being demand-based tariffs—either tariff 50, 51A or 51C. Standard business tariffs 51A, 51B, 51C, and 51D include capacity charges that are a fixed charge intended to reflect the network capacity required to accommodate large connection assets, regardless of demand.

We consider that, assuming there is minimal change to the way connection sites are operated or the underlying efficiency of the connection asset, fixed costs are likely to materially increase as a result of transitioning to standard business tariffs.

Our scheme-specific electricity costs for distribution systems are summarised in the table below.

Table 19 The QCA's draft scheme-specific electricity costs, distribution systems

Distribution system	*Fixed/variable*	*2019–20*	*2020–21*	*2021–22*
Bundaberg	Fixed ($'000)	590	609	2,557
	Variable ($/ML)	51.60	50.46	39.29
Burdekin-Haughton	Fixed ($'000)	1,310	1,281	1,443
	Variable ($/ML)	16.86	16.49	16.24
Eton	Fixed ($'000)	5	5	222
	Variable ($/ML)	24.60	24.06	20.11
Lower Mary River	Fixed ($'000)	36	35	59
	Variable ($/ML)	52.34	51.18	88.22
Mareeba-Dimbulah	Fixed ($'000)	133	130	91
	Variable ($/ML)	66.24	64.77	84.61

Source: QCA analysis.

2.12 Efficiency targets

As noted in our recent review of Seqwater water's bulk water prices for 2018–21, regulators typically apply two types of efficiency targets to controllable opex:

- a catch–up efficiency target—a firm-specific target to move a business closer to the efficient frontier (typically measured as the best performing comparable businesses)

[106] Adjusted for the revised timing for the phase out of obsolete and transitional electricity tariffs, and for our use of a revised inflation forecasts for deriving AEMO nominal escalators.

- a continuing efficiency target—an industry-wide target reflecting the movement of the efficient frontier over time as productivity improves, for example, due to innovation and the adoption of new technologies.[107]

We have adjusted Sunwater's proposed opex to account for identified inefficiencies.

We have also considered Sunwater's proposal to apply a continuing efficiency target of 0.2 per cent per year (cumulative) of base year controllable opex.

This is comparable to our recently approved target for Seqwater in our review of bulk water prices for 2018–21, and to 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 Sunwater's proposed continuing efficiency target at this time.

2.13 Summary of total operating expenditure

Our recommended opex for Sunwater is summarised below.

Table 20 The QCA's draft opex for irrigation service contracts ($ million, nominal)

Cost category	*Price path period*				*QCA draft total*	*Sunwater original (2020–24)*
	2020–21	*2021–22*	*2022–23*	*2023–24*		
Direct operations and maintenance	21.8	22.3	22.8	23.4	**90.2**	**88.0**
Electricity	11.5	13.2	14.3	14.2	**53.3**	**61.3**
Insurance	6.9	7.0	7.2	7.3	**28.3**	**25.9**
Total direct	**40.1**	**42.5**	**44.3**	**44.9**	**171.8**	**175.2**
Local area support	6.2	6.3	6.5	6.7	**25.7**	**56.6**
Indirect	8.3	8.5	8.7	8.9	**34.3**	**31.8**
Corporate support	7.1	7.3	7.5	7.6	**29.5**	**27.2**
Total non-directs	**21.6**	**22.1**	**22.6**	**23.2**	**89.6**	**115.6**
QCA regulatory fee	0.6	0.7	0.7	0.7	**2.6**	**–**
Total opex	**62.4**	**65.3**	**67.6**	**68.8**	**264.0**	**290.8**

Note: Excludes distribution systems that have transitioned to local management arrangements (Emerald, St George and Theodore).

Source: QCA analysis.

[107] QCA, *Seqwater Bulk Water Price Review 2018–21*, final report, March 2018, p. 29.

3 RENEWALS EXPENDITURE

This chapter assesses the prudency and efficiency of Sunwater's renewals expenditure and dam safety upgrade capex. Major issues that stakeholders have raised or the QCA has identified for further analysis include asset planning and management, the prudency and efficiency of historical renewals expenditure and the prudency and efficiency of forecast renewals expenditure and dam safety upgrade capex.

We have identified a number of improvements that Sunwater could make to its asset planning and management including improvements to its inspection and maintenance regime for assets to better inform the timing of asset replacement.

Relative to Sunwater's November 2018 submission, we recommend a reduction of 7.3% in historical renewals expenditure and 29.5% in forecast renewals expenditure reflecting our assessment of the prudent and efficient level of expenditure. We have also excluded $58.2 million in flood repair costs (net of insurance revenues received) as insurance claims are yet to be finalised.

3.1 Overview

3.1.1 Sunwater's submission

Renewals expenditure

Sunwater has proposed a rolling renewals annuity for recovering renewals expenditure in its water supply schemes and distribution systems. This approach excludes dam safety upgrade capital expenditure, which Sunwater has proposed be treated separately for revenue and pricing purposes.[108]

In its November 2018 submission, Sunwater stated that it incurred actual 'non-routine'[109] expenditure of $173.5 million over 2012–13 to 2019–20, which it is proposed to incorporate in its opening renewals annuity balance.[110] This comprises renewals expenditure of $105.0 million, non-routine corrective maintenance expenditure (mainly flood-related) of $64.5 million and non-routine operations expenditure of $4.0 million[111], and compares to the QCA's forecast renewals expenditure over this period of $86.2 million.

Sunwater is proposing a 30-year planning period for forecast renewals expenditure[112] to reduce intergenerational equity concerns and because it can rely on an improved forecasting approach.[113]

Sunwater's actual and proposed renewals expenditures are detailed in Table . This expenditure reflects total renewals expenditure for Sunwater's irrigation service contracts (all sectors).

[108] Sunwater, sub. 11, p. 50.
[109] Sunwater described this as non-cyclical expenditure within the price-path period related to replacement or maintenance of infrastructure outside their normal schedule for maintenance (Sunwater, sub. 11, p. 15).
[110] Note that this amount excludes renewals expenditure on distribution systems that have transferred to local management arrangements prior to the draft report (Emerald, St George and Theodore).
[111] This amount is partially offset by insurance proceeds of $18.9 million, including partial recoveries for those claims yet to be finalised.
[112] Sunwater, sub. 11, p. xiv.
[113] Sunwater, sub. 11, p. 60.

Table 21 Sunwater's renewals expenditure for irrigation service contracts ($ million, nominal)

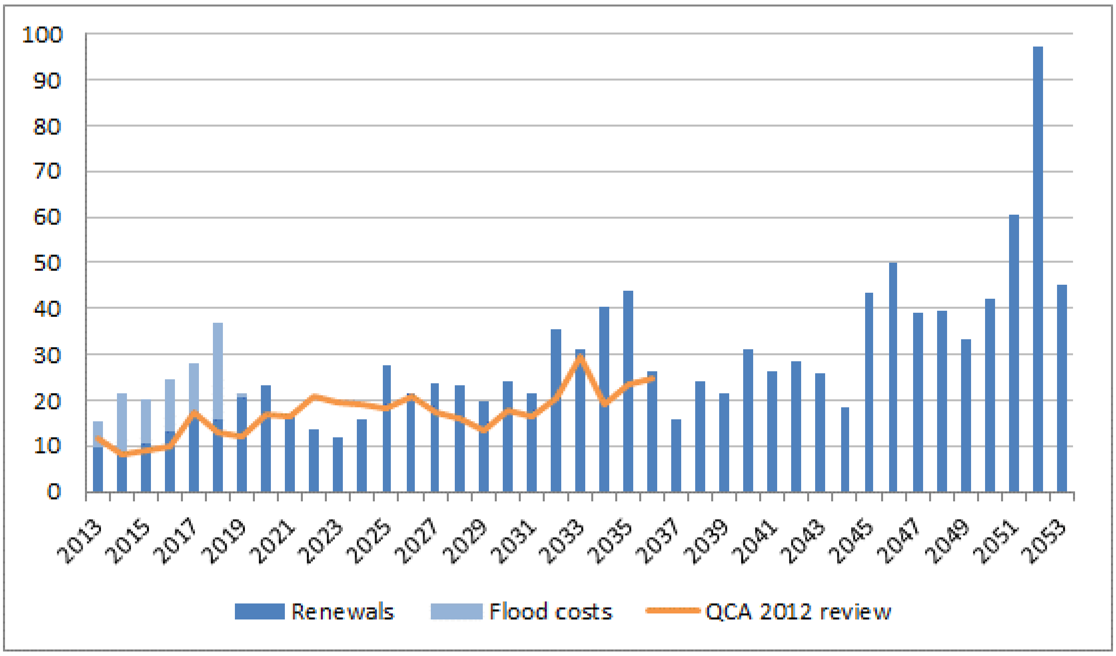
Cost	*Historical*	*Forecast*				
	2012–20	*2020–24*	*2024-33*	*2033–43*	*2043–53*	*Total (2020–53)*
Operations	4.0	–	–	–	–	–
Corrective maintenance	64.5	–	–	–	–	–
Renewals	105.0	61.8	287.9	444.8	956.7	**1,751.2**
Total ($ nominal, million)	**173.5**	**61.8**	**287.9**	**444.8**	**956.7**	**1,751.2**
Total ($2018–19, million)	**180.0**	**57.2**	**225.4**	**278.9**	**457.6**	**1,019.1**
Average ($2018–19, million)	**22.5**	**14.3**	**25.0**	**27.9**	**45.8**	**30.9**

Note: 1. Excludes dam safety upgrade capital expenditure. 2. Excludes distribution systems that have transitioned to local management arrangements prior to the draft report (i.e. Emerald, St George and Theodore). 3. Totals may not sum due to rounding.

Source: Sunwater, sub. 45, November 2018.

Figure shows Sunwater's submitted renewals expenditure, as compared to the QCA's forecast in the 2012 review.

Figure 17 Sunwater's renewals expenditure for irrigation service contracts ($2018–19, million)



Note: 1. Excludes dam safety upgrade capital expenditure. 2. Excludes distribution systems that have transitioned to local management arrangements prior to the draft report (i.e. Emerald, St George and Theodore).

Source: Sunwater, sub. 45, November 2018; QCA 2012.

In June 2019, Sunwater provided us with a revised non-routine program of works in which it:

- updated forecasts for 2018–19 and 2019–20, leading to a slight increase (of $1.0 million) in proposed renewals over 2012–20 to $174.5 million
- updated forecasts over the price path period and extended planning period, leading to a reduction (of $57.7 million, or 3.3 per cent) in proposed renewals over 2020–53 to $1,693.6 million
- removed additional non-routine recreational facility costs ($29.3 million) from forecast renewals expenditure over the price path period and extended planning period (2020–53), based on a detailed review of non-routine recreational facility projects.

Dam safety upgrade capex

Sunwater forecast dam safety upgrade capex over the price-path period of $385.7 million (Table 22).

Table 22 Sunwater's forecast dam safety upgrade capex ($ million, nominal)

WSS	*2020–21*	*2021–22*	*2022–23*	*2023–24*	*Total*
Barker Barambah	0.1	0.4	1.1	3.4	**5.0**
Bowen Broken Rivers	–	0.1	0.3	0.7	**1.1**
Bundaberg	0.8	1.4	0.0	–	**2.2**
Burdekin-Haughton	31.6	143.4	155.2	14.0	**344.3**
Macintyre Brook	0.7	1.7	0.4	–	**2.9**
Nogoa-Mackenzie	9.6	–	–	–	**9.6**
Pioneer River	3.9	0.4	–	–	**4.3**
Upper Burnett	0.1	0.4	1.1	2.8	**4.4**
Upper Condamine	11.2	0.8	–	–	**12.0**
Total	**58.0**	**148.6**	**158.1**	**20.9**	**385.7**

Note: 1. Capex is on an as-incurred basis. 2. Totals may not sum due to rounding.
Source: Sunwater, sub. 11, p. 53.

3.1.2 Key issues for consideration

We considered all aspects of Sunwater's proposal in making draft recommendations on the prudent and efficient level of Sunwater's renewals expenditure and dam safety upgrade capex. Issues that attracted comment from stakeholders or that we identified for further consideration include Sunwater's:

- asset planning and management framework
- historical renewals program
- renewals expenditure in the price path period
- renewals expenditure beyond the price path period
- dam safety upgrade capex.

3.1.3 QCA assessment approach

Our approach to assessing Sunwater's renewals expenditure and dam safety upgrade capex involves first reviewing its asset planning and management practices to ensure that they are consistent with industry best practice.

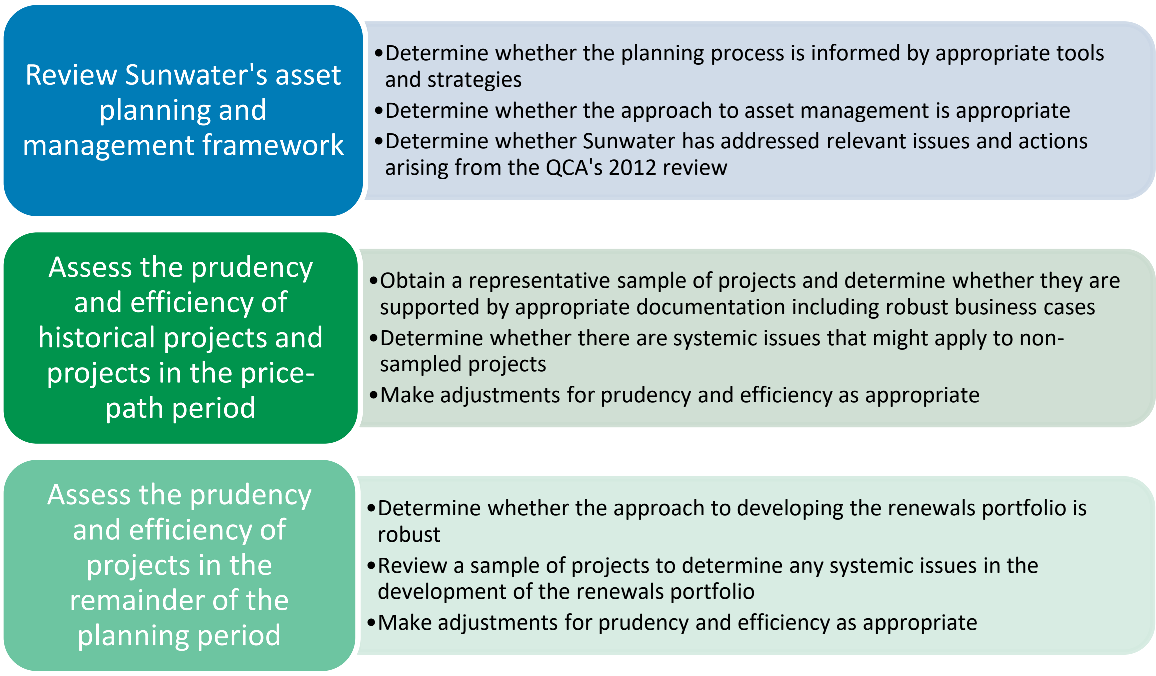
We then reviewed a sample of historical projects and projects in the price path period to assess the prudency and efficiency of projects over this period.

As projects beyond the price path period have a relatively high degree of uncertainty, there is unlikely to be a high level of documentation for these projects. We have therefore focused on the level of robustness with which Sunwater has developed its renewals program, including the forecast methodology and the approach to cost estimation. We also assessed a sample of projects to identify any systemic issues in the practical application of the renewals planning process.

In all instances, we extrapolated our findings to the rest of the renewals program where we have identified systemic issues in our assessment of sampled projects.

Our assessment approach is summarised in Figure 18.

Figure 18 QCA assessment approach for renewals expenditure



3.2 Asset planning and management

3.2.1 Sunwater's submission

Sunwater submitted that its asset planning methodology aims to maintain service standards at minimal cost. To do this, it employs asset strategies to extend asset life in ways that minimise the risk of asset failure. Depending on the nature and type of asset, Sunwater ensures their reliability by undertaking routine maintenance, periodically refurbishing them or running them to failure.[114]

[114] Sunwater, sub. 11, p. 46.

Sunwater submitted that its asset strategies apply to groups of similar asset types and that it uses these strategies to build its plans into the 30-year planning horizon.[115]

Sunwater said that it conducts its asset planning at a portfolio level with five-year plans forming a 'rolling' outlook of future years. It prioritises and initiates project works for a year based on its understanding of the service life of its assets, together with the latest information on:

- the operations environment
- customer requirements
- commercial conditions
- condition assessments.[116]

Sunwater said that one issue with its whole-of-life asset maintenance approach is that it automatically forecasts high replacement costs for similar assets at the end of their predicted service lives, whereas in practice, lower-cost options are considered. Sunwater submitted that it smooths out this cost imbalance by reviewing and updating its maintenance strategies based on historical data and learnings across similar assets.[117]

Sunwater stated that it reviewed its distribution system asset strategies in 2015 (as part of the transition of distribution systems to local management arrangements) and revised them to place greater emphasis on regular condition monitoring and condition assessments to manage portfolio risk to an acceptable level.[118]

Sunwater commissioned Jacobs to review its bulk water asset strategies in 2018 and stated that it is progressively applying the reviewed strategies to its project planning.[119]

3.2.2 Other stakeholders' submissions

Performance of asset management system

A number of stakeholders requested that we assess the performance of Sunwater's asset management system (AMS).

BRIA Irrigators expressed concern that large increases in capex proposed by Sunwater under the AMS are not well justified and may not be prudent and efficient.[120] It said that sample analysis carried out by Jacobs showed that Sunwater should not be recovering some of the capex proposed from irrigation customers, including:

- a project at Clare Weir which is required to rectify initial design inefficiencies
- a project to undertake a comprehensive inspection at Burdekin Falls Dam in 2021–22, only two years after the scheduled completion of a dam safety review at the same dam
- a proposal to maintain a sewerage treatment plant that has no clear link to irrigation services.[121]

[115] Sunwater, sub. 11, p. 46.
[116] Sunwater, sub. 11, p. 46.
[117] Sunwater, sub. 11, p. 46.
[118] Sunwater, sub. 11, pp. 46–47.
[119] Sunwater, sub. 11, p. 47.
[120] BRIA Irrigators, sub. 85, p. 4.
[121] BRIA Irrigators, sub. 85, p. 14.

BRIA Irrigators also considered that the large capex proposed for 2050 is not justified.[122]

Lower Burdekin and Central Highlands Regional Council submitted that we should assess the performance of the AMS, focusing on both past and future project costs, to ensure that Sunwater is managing the works in a cost-effective manner and is progressing proposed projects to actual asset renewal works with the minimum practicable preliminary costs.[123]

Canegrowers, Canegrowers Isis, Central Highlands Regional Council and QFF also considered there should be a major review of the AMS, stating that the cost of running the system and inefficiencies of Sunwater's approach is driving up the costs of non-routine expenditure, with costly asset condition assessments continually pushing asset replacement into the future.[124]

Kinchant Dam Water Users Association said that, following the QCA recommendations in the 2012 review, Sunwater has adopted processes that have led to reporting costs becoming a significant component of project costs. The association would like this aspect of renewals to be heavily scrutinised. It suggested that low-value projects (below a given minimum) be managed on a local basis and not through Sunwater's AMS. Projects with a value greater than the threshold should undergo detailed prudency analysis.[125]

Opex versus capex classification

A number of stakeholders requested us to ensure only valid renewals projects are included in non-routine expenditure and costs associated with maintenance activities are included in operational budgets.

Kinchant Dam Water Users Association submitted that the AMS must be subject to a rigorous and independent assessment to ensure that only valid asset renewal and replacement projects are included in non-routine expenditure.[126]

QFF and Fairbairn Irrigation Network also requested that small assets and projects such as air valves and patch painting be allocated to maintenance.[127, 128]

3.2.3 QCA assessment

In assessing Sunwater's asset planning and management framework, we have assessed the extent to which Sunwater has adapted the framework to reflect the recommendations from the 2012 review. We have also assessed whether the framework is consistent with current industry best practice.

We engaged AECOM to assist us in this assessment.

Recommendations from the 2012 review

In our 2012 review, we identified a number of issues with Sunwater's AMS, including the need for Sunwater to:

- reconsider the use of asset age as a criterion for assessing an asset's condition (i.e. where an asset is in better condition than might be predicted by a standard decay curve, it may be

[122] BRIA Irrigators, sub. 85, p. 4.
[123] Lower Burdekin, sub. 118, p. 16.
[124] Canegrowers Isis, sub. 93, p. 5; CHRC, sub. 101, p. 3; Canegrowers, sub. 91, p. 2; QFF, sub. 1321, p. 2.
[125] KDWUA, sub. 112, p. 2.
[126] KDWUA, sub. 112, pp. 2–3.
[127] QFF, sub. 132, p. 2.
[128] Fairbairn Irrigation Network, sub. 104, p. 3.

more efficient to extend the run-to-failure asset life rather than bringing forward its replacement)

- improve processes for planning asset life extensions beyond an asset's run-to-failure asset life
- substitute modern equivalent assets values for like-for-like replacement values when assessing replacement values
- adopt asset condition decay curves for different asset types rather than using a standard decay curve
- adopt asset condition assessment methods that extend beyond visual/operational based inspections, such as insulation breakdown tests and earth impedance tests for electrical cable assets
- formalise the transfer of information from condition assessments into Sunwater's works management system (WMS) including data and data entry validation
- review the escalation rates used to estimate renewals costs from the bill of materials.

We recommended that Sunwater undertake a review of its renewals planning process considering the above issues and provide us with a copy of the review.[129]

We also recommended that, in forecasting renewals expenditure, Sunwater should undertake:

- high-level options analysis for all material[130] renewals expenditures expected to occur over the planning period
- detailed options analysis (taking into account trade-offs and impacts on opex) for all material renewals expenditures expected to occur within the subsequent regulatory period.[131]

The Government accepted these recommendations and directed Sunwater to develop an implementation plan, in consultation with the QCA and peak irrigation bodies, by 30 September 2012. Sunwater was also to provide the Government and the QCA with a copy of the review of its renewals planning processes by 30 June 2014.[132]

Sunwater provided us with a copy of a review of its renewals planning processes in May 2014 that stated among other things that it had resolved to:

- improve its options assessment process to identify technological improvements and move away from like-for-like replacement of assets as appropriate
- undertake more frequent condition assessments and establish annual works delivery plans
- undertake detailed options analyses for projects one-year ahead, in future years in the price path once renewals were more certain and, thereafter, for the subsequent price path.

[129] QCA, *SunWater Irrigation Price Review: 2012–17,* final report, May 2012, pp. 159–161.
[130] We defined material expenditure as expenditure that accounts for 10 per cent or more in present value terms of total forecast renewals expenditure over the planning period.
[131] QCA, *SunWater Irrigation Price Review: 2012–17,* final report, May 2012, p. 161.
[132] Minister's Decision under section 36 of the QCA Act, QCA Final Report on the Review of Sunwater Irrigation Prices 2012–17.

Changes implemented by Sunwater since the 2012 review

AECOM assessed Sunwater's submission to determine the extent to which Sunwater had made improvements to address the issues underlying the QCA's recommendations in the 2012 review.

Asset condition assessments

Sunwater reported that it updated condition assessments for the majority of bulk water assets in 2015 with 80 per cent of these assets now with a completed assessment.

AECOM also sighted documents indicating that Sunwater has adopted a more formal process for the transfer of asset condition data into its WMS.[133]

While AECOM expected these developments to have improved the accuracy of renewals planning, it noted that Sunwater continues to use non-invasive testing methods in condition monitoring. AECOM also noted that documentation provided by Sunwater indicates that it still uses age as a parameter in asset condition assessments.[134]

Asset replacement costs

AECOM noted that while Sunwater reported that it conducted a revaluation of its irrigation system assets in 2016 and estimated asset replacement values using modern equivalent values where possible, not all assets have been valued on this basis, and Sunwater has provided no indication on the extent to which it has adopted this valuation method.

Options analysis

Sunwater reviewed its approach to options analysis in 2018 and considered that conducting options analysis for all material projects would result in inefficiencies, as:

- many options studies were deemed of limited value as outcomes were often known beforehand based on engineering experience
- many options analyses took a week to prepare at a cost of between $5,000 and $10,000
- preparing options analyses up to 20 years in advance resulted in out-of-date solutions due to technological change
- projects may be removed from the annuity period incurring unnecessary work.[135]

As a result, and in consultation with irrigator advisory committees (IACs), Sunwater revised its approach, proposing only to prepare options analysis where:

- there is no obvious solution
- the current maintenance strategy is changing
- technology has changed significantly
- there is high risk involved in project execution.[136]

For less complex projects with fewer practical outcomes, it proposed to use its engineering knowledge and experience to determine the optimum solution.[137]

[133] AECOM, *Rural Irrigation Capital Expenditure Review: Sunwater*, August 2019, p. 41.
[134] AECOM, *Rural Irrigation Capital Expenditure Review: Sunwater,* August 2019, p. 41.
[135] Sunwater, sub. 11, p. 48.
[136] Sunwater, sub. 11, p. 48.
[137] AECOM, *Rural Irrigation Capital Expenditure Review: Sunwater,* August 2019, p. 42.

AECOM considered that, while the approach of conducting options analyses based on complexity rather than cost materiality is reasonable in theory, there would need to be quantifiable measures (e.g. to determine when a 'significant' change in technology has occurred) to guide the implementation of this approach and ensure consistency in its application. At a minimum, Sunwater would need to provide detailed guidelines clearly outlining qualifications and thresholds.

Overall, AECOM considered that a materiality threshold for options analysis remains a more appropriate approach.

AECOM also recommended that Sunwater:

- put in place a formal process for incorporating customer feedback in option selection decisions
- ensure that it conducts options analyses for projects within the regulatory period
- employ a more analytical approach when selecting options for further assessment (e.g. give consideration to alternative technological solutions or alternative timing)
- provide greater justification for the values/rating used in options assessments.

Broader renewals planning approach

AECOM advised that it had not seen adequate evidence of whole-of-life cost optimisation taking place under the current planning process.

Sunwater had proposed to develop a suite of asset decay curves in light of the issues identified in the 2012 review relating to the use of a standardised asset decay curve for all asset classes, However, Sunwater since reported that it does not have adequate information available to generate additional decay curves.

AECOM considered that Sunwater has been managing its assets long enough to enable it to have collected this data (at least for some asset types). On this basis, AECOM considered that there was insufficient evidence of predictive maintenance taking place and that this state of affairs was inconsistent with current industry best practice.

AECOM stated that it would expect that a suite of asset decay curves would be employed and continuously updated (informed by observed asset failure) in order to optimise predictive capability and recommended that Sunwater implement this improvement.

AECOM noted a number of other shortcomings in the planning process including:

- inadequate evidence to indicate that the relationship between renewals expenditure and operating activities are appropriately taken into account in the forecasting approach – AECOM recommended that Sunwater give more rigorous (and documented) consideration to the trade-off between operating and capital works in the renewals planning process (especially in outer forecast years)
- insufficient evidence of process improvements for planning for asset life extensions beyond standard run-to-failure asset life
- lack of evidence of renewals validation occurring outside of the 12-month period or scheduling (or other) efficiencies being provided for outside of the 12-month period
- outdated planning framework and process documents—for example, the ‘Asset Management Planning Methodology Paper’ dated February 2011 has not been updated as a result of the 2012 review.

AECOM concluded that Sunwater had not adequately addressed numerous issues identified in the 2012 review. AECOM considered that the current planning approach had the potential to result in an overestimation of future renewals costs, or otherwise sub-optimal outcomes.

We accept AECOM's conclusions. We consider that a robust asset management and planning system is essential to accurate renewals forecasts and recommend that Sunwater undertake a detailed review of its asset management and planning process to address the shortcomings identified by AECOM.

Box 2— Potential improvements to Sunwater's asset planning and management framework

Sunwater should, as a matter of urgency, consider:

- improving its predictive maintenance and asset condition reporting arrangements to better inform the timing of asset replacement
- reviewing its cost estimation approach and ensure that asset values are based on modern equivalent replacement values where appropriate
- developing transparent guidelines for options analyses.

3.3 Historical renewals expenditure

The referral requires the QCA to recommend an appropriate allowance for prudent and efficient expenditure on renewing existing assets including expenditure incurred in the previous price path periods. Existing assets are assets commissioned prior to 1 July 2000. Subject to certain conditions[138], the referral requires that expenditures on renewing assets should not include costs associated with:

- augmentation of existing assets
- new assets
- any capital expenditure that is not a like-for-like or modern equivalent replacement or does not reflect a regulatory requirement.

In undertaking our assessment, we have considered whether the expenditure is:

- appropriately classified as renewals expenditure
- prudent
- efficient.

3.3.1 Overview of historical renewals program

Sunwater submitted that it recovers non-routine expenditure through the annuity allowance to smooth the natural fluctuations in these costs over time for pricing. This expenditure could be capex or opex. [139]

Sunwater said that direct non-routine costs are non-cyclical within the price path period and relate to expenditure to replace or maintain infrastructure outside their normal schedule for maintenance.[140] Sunwater said that while the majority of this expenditure is renewals expenditure, it also includes non-routine corrective maintenance (mainly to repair damage

[138] Unless we are satisfied that the inclusion of these costs will generate net positive benefits for existing customers and relevant customers have been consulted.
[139] Sunwater, sub. 11, p. 15.
[140] Sunwater, sub. 11, p. 15.

caused by floods). Sunwater said that non-routine corrective maintenance was a major driver for its historical non-routine expenditure.[141]

Sunwater's historical non-routine expenditure also includes non-routine operations. Sunwater said that the main drivers of expenditure in this category include:

- flood operations
- the Callide Flood Review following the flooding of Callide Creek during tropical cyclone Marcia in February 2015
- costs associated with Boondooma Dam following flooding events
- a research project into copper sulphate to control algae in the Mareeba-Dimbulah distribution system
- transfer costs related to handing over recreation facilities to councils.[142]

Sunwater's historical renewals (including flood costs) are presented in Table 23.

Table 23 Sunwater's proposed historical renewals expenditure ($ million, nominal)

Cost	*2012–13*	*2013–14*	*2014–15*	*2015–16*	*2016–17*	*2017–18*	*2018–19*	*2019–20*	*Total*
Operations	(0.2)	0.5	1.3	1.4	0.7	0.3	0.0	–	**4.0**
Corrective maintenance	5.1	11.7	7.5	9.5	9.6	20.1	0.9	–	**64.5**
Renewals	7.1	6.8	8.7	11.3	14.8	13.8	18.9	23.5	**104.9**
Total	**12.0**	**19.0**	**17.6**	**22.1**	**25.2**	**34.2**	**19.9**	**23.5**	**173.4**

Note: 1. Excludes distribution systems that have transitioned to local management arrangements prior to the draft report (i.e. Emerald, St George and Theodore). 2. Totals may not sum due to rounding.

Source: Sunwater, sub. 45.

Sunwater's submission separately presented renewals expenditure, non-routine corrective maintenance and non-routine operations.

3.3.2 Renewals expenditure

Sunwater's submission

Sunwater's actual renewals expenditure for 2012–13 to 2019–20 (exclusive of operations and corrective maintenance) was $105 million.[143]

Sunwater said that it undertakes actual work annually based on the outcome of condition assessments and risk and that, as a result, there is a disconnect between the program of works underpinning the renewals expenditure recommended by the QCA in the 2012 review and the actual program of works carried out by Sunwater.

Sunwater identified the following as key drivers of the variance between actual renewals expenditure and QCA-recommended renewals expenditure:

[141] Sunwater, sub. 11, p. 15.
[142] Sunwater, sub. 11, p. 45.
[143] Sunwater, sub. 45.

- the bringing forward of 20-year dam safety reviews, comprehensive risk assessments and associated input studies to ensure that the Dam Improvement Program is based on the most up-to-date information
- investigations into the condition of anchors and under-drainage on all concrete lined spillways, following spillway issues experienced in 2015 at Fairbairn Dam
- other unplanned renewals expenditure.[144]

Other stakeholders' submissions

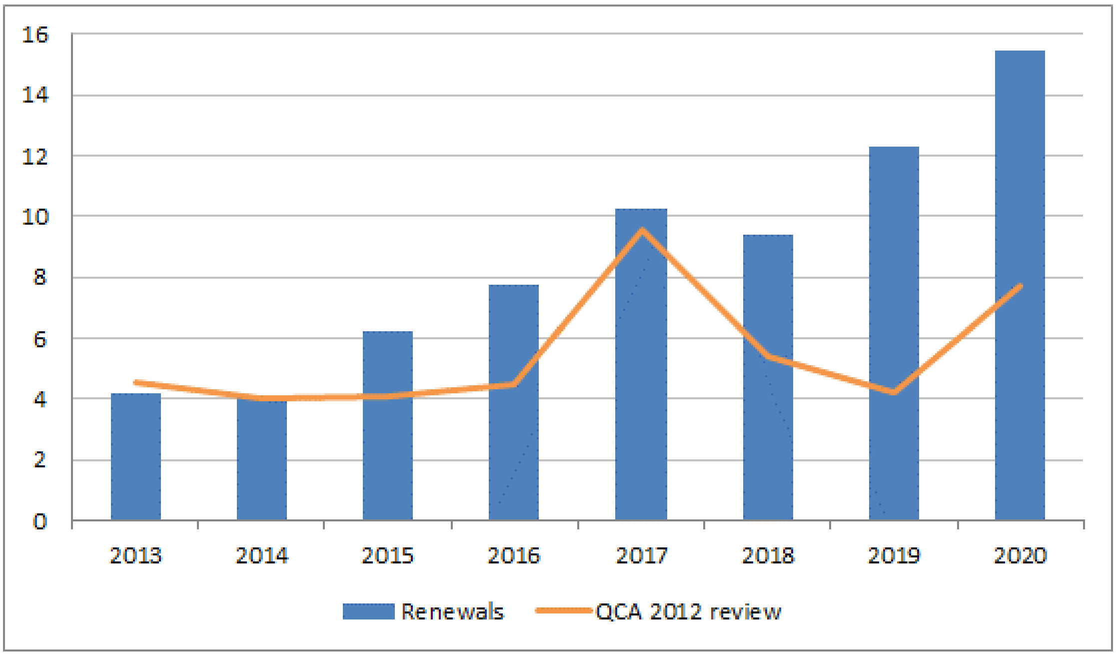
A number of stakeholders requested that we review Sunwater's historical renewals to ensure that only prudent and efficient expenditure is passed on to customers. BRIA submitted that we should review the five largest historical projects to determine the prudency and efficiency of the historical expenditure.[145]

QCA assessment

Overview of expenditure in bulk water schemes

Sunwater's historical expenditure for bulk WSSs over the previous price path period was above the expenditure we recommended from 2014–15 to 2016–17 (Figure 19). Sunwater also estimated that actual expenditure will remain significantly higher than the QCA-recommended expenditure after 2016–17.

Figure 19 Sunwater's historical renewals expenditure—bulk WSSs ($ million, nominal)



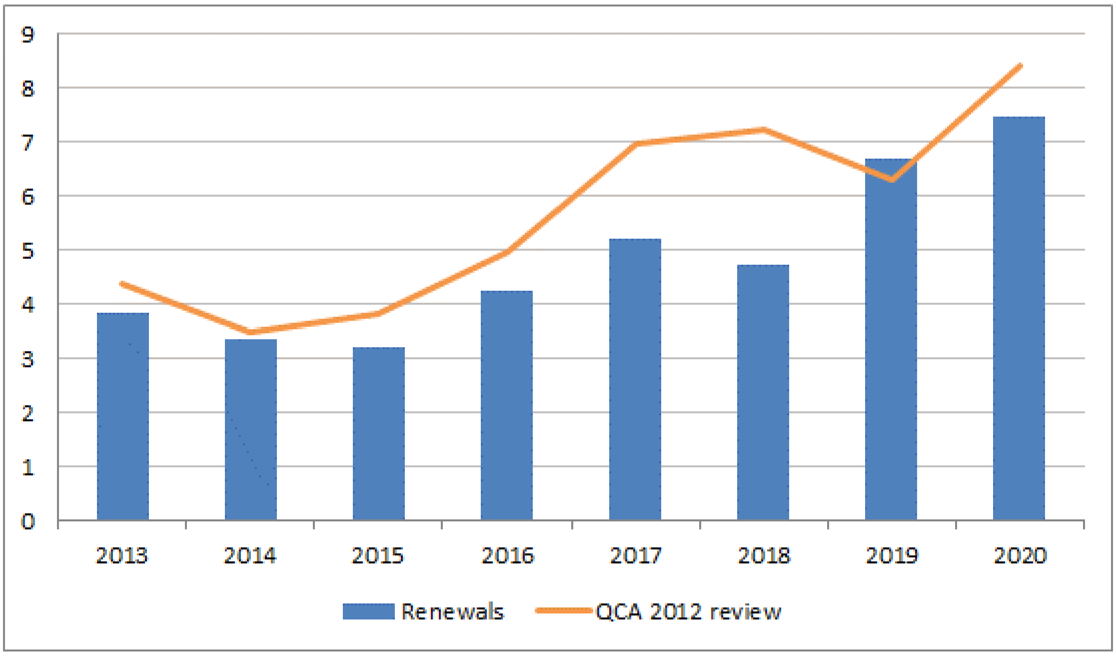
Sources: Sunwater, sub. 11; QCA, SunWater Irrigation Price Review: 2012–17, final report, May 2012.

Overview of expenditure in distribution systems

Sunwater's historical expenditure for distribution systems over the previous price path period was below the expenditure that we recommended (Figure 20).

[144] Sunwater response to draft QCA information requirements, November 2018, p. 11.
[145] BRIA Irrigators, sub. 85, p. 9.

Figure 20 Sunwater's historical renewals expenditure—distribution systems ($ million, nominal)



Note: Excludes distribution systems that have transitioned to local management arrangements prior to the draft report (i.e. Emerald, St George and Theodore).

Sources: Sunwater, sub. 11; QCA, SunWater Irrigation Price Review: 2012–17, final report, May 2012.

We engaged AECOM to assist us with our assessment of the prudency and efficiency of the historical expenditure. AECOM reviewed a sample of projects across bulk schemes and distribution systems (Table 24).

Table 24 Sample of historical renewals projects reviewed by AECOM ($'000, nominal)

Project	***Scheme***	***Value***
Investigate spillway chute floor at Peter Faust Dam	Proserpine WSS	607.2
Reinstate down stream rock protection at Mary River Barrage	Lower Mary WSS	386.7
Refurbish outlet works gate at Allan Tannock Weir	Cunnamulla WSS	25.9
Refurbish float wells at Coolmunda Dam	Macintyre Brook WSS	283.4
Permanently plug river conduit inlet tower at Eungella Dam	Bowen Broken WSS	408.3
Replace regulating valve on Palm Tree Creek Pipeline	Pioneer Valley WSS	955.6
Replace control system for Teemburra Dam	Pioneer Valley WSS	472.2
Callide flood review	Callide WSS	1,545.9
Upgrade PLC and SCADA system at MOSS Pump Station	Dawson Valley WSS	260.7
Replace control equipment at Eden Bann Fishway	Lower Fitzroy WSS	139.2
Investigate spillway seepage at Fairbairn Dam	Nogoa Mackenzie WSS	731.8
Replace lighting system at Tinaroo Falls Dam Gallery	Mareeba-Dimbulah WSS	480.0
Flood damage repairs at Don Beattie PSTN	Bundaberg Distribution	1,272.6
Replace switchboards and control equipment at Brightley PSTN	Eaton Distribution	968.3

Project	Scheme	Value
Implement findings of strategic plan for SCADA - stage 2	Mareeba Distribution	877.0
Install stage two functional outlet works at Giru Weir	Burdekin Distribution	766.8
Copper Sulphate Research Project for West Barron Main Channel	Mareeba Distribution	436.2
Value of sampled projects		**10,617.8**
Total value of historical projects		**78,228.2**
Proportion sampled (% by value)		**13.6**

Note: 1. Excludes projects with expenditure after 2017–18. 2. Totals may not sum due to rounding.
Source: Sunwater response to AECOM request for information.

AECOM identified inefficiencies in a few of the projects sampled with key themes including:

- poor scoping and cost estimation at project inception with a piecemeal approach to scoping and consistent underestimation of costs
- ineffective approach to tendering including insufficient engagement with the market prior to tendering, inadequate bidding timelines and inefficient use of procurement exemptions
- inadequate project management and documentation including missing scoping documents and project management plans, undocumented changes to project scope, budget and schedule, inappropriate use of contingency amounts and lack of close-out reports.

As a result, AECOM considered that a reduction of 4.2 per cent should be applied to non-sampled projects (Table 25).

Table 25 Recommended adjustments to the value of historical renewals projects ($2018–19, '000)

Project	Prudency assessment	Efficiency assessment	Submitted cost	Adjustment	QCA draft	Per cent deduction
Replace regulating valve on Palm Tree Creek Pipeline	Prudent	Partly efficient	955.6	(90.7)	865.6	(9.4)
Callide flood review	Prudent	Partly efficient	1,545.9	(135.9)	1,405.9	(9.1)
Investigate spillway seepage at Fairbairn Dam	Prudent	Partly efficient	731.8	(74.4)	661.8	(9.6)
Install stage two functional outlet works at Giru Weir	Prudent	Partly efficient	766.8	(144.9)	626.8	(18.3)
Sampled projects with adjustments			**4,000.1**	**(445.8)**	**3,554.3**	**(11.1)**
Sampled projects with no adjustments			**6,617.7**	**–**	**6,617.7**	
Total sample			**10,617.8**	**(445.8)**	**10,172.0**	**4.2**

Note: Totals may not sum due to rounding.

Source: AECOM, Rural Irrigation Capital Expenditure Review: Sunwater, August 2019, p. 65; QCA analysis.

Note: Totals may not sum due to rounding.

AECOM also reviewed a number of projects forecast to occur between the historical period and the start of the price-path period (the transitional period). AECOM identified some project specific adjustments and other projects with systemic issues. AECOM advised that a downward adjustment of 5.1 per cent should be applied to non-sampled projects to account for systemic issues identified in the sample assessment (Table 26).

Table 26 Recommended adjustments to the value of transitional renewals projects ($2018–19, '000)

Project	*Prudency assessment*	*Efficiency assessment*	*Submitted cost*	*Adjustment*	*QCA draft*	*Deduction*	
						Per cent	*Type*
Meter replacement Dawson Valley	Prudent	Partly efficient	85	(33)	52	39	Project specific
Refurbish pump at Gattonvalle pump station	Not prudent	Not efficient	70	(70)	–	100	Systemic (high cost estimate)
Eungella Dam repairs	Prudent	Partly efficient	673	(227)	445	34	Systemic (budget overrun)
Repairs at Ben Anderson Barrage	Prudent	Partly efficient	386	(133)	253	34	Systemic (budget overrun)
Dam safety review - Burdekin Falls Dam	Prudent	Partly efficient	146	(25)	120	17	Systemic (high cost estimate)
Develop recreational use storage management plan	Not prudent	Not efficient	75	(75)	–	100	Project specific
Sampled projects with adjustments			**1,435**	**(563)**	**870**	**39**	
Sampled projects without adjustment			**7,486**	**–**	**7,486**		
All projects reviewed			**8,921**	**(563)**	**8,357**	**6.3**	
Project-specific adjustments				**(108)**		**1.2**	
Projects adjustments				**(456)**		**5.1**	

Project	Prudency assessment	Efficiency assessment	Submitted cost	Adjustment	QCA draft	Deduction	
						Per cent	Type
with systemic issues							

Note: Totals may not sum due to rounding.

Source: AECOM, Rural Irrigation Capital Expenditure Review: Sunwater, August 2019, p. 69.

Summary

We accept AECOM's assessment. Our recommended adjustments to Sunwater's historical renewals program are summarised in Table 27.

Table 27 The QCA's draft renewals expenditure for Sunwater ($ million, nominal)

Cost	2012–13	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19	2019–20	Total
Sunwater's original submission	7.1	6.8	8.7	11.3	14.8	13.8	18.9	23.5	**104.9**
Sunwater's revised submission	7.1	6.8	8.7	11.3	14.8	13.8	19.3	20.8	**102.6**
QCA draft	**6.5**	**6.6**	**8.2**	**10.8**	**14.3**	**13.2**	**17.9**	**19.8**	**97.3**

Note: Totals may not sum due to rounding.

Source: Sunwater, sub. 11; QCA analysis.

3.3.3 Non-routine corrective maintenance

Sunwater's submission

Sunwater treats non-routine corrective maintenance like renewals expenditure and recovers this through the renewals annuity.

Sunwater submitted that flood damage is by far the greatest driver of its non-routine corrective maintenance expenditure with flood damage costs of $63.0 million making up the majority of $63.5 million in non-corrective maintenance expenditure over the period 2012–13 to 2017–18.

Sunwater said that it incurred the majority of flood damage costs against bulk water assets, principally dams.[146] One of the key drivers of flood damage expenditure was repair work at Boondooma Dam (Boyne River and Tarong WSS).

Sunwater said that it has a number of insurance claims pending for flood events that occurred in 2010–11 (for the Boondooma Dam spillway damage) and 2012–13. However, it had included the associated flood damage costs in actual non-routine expenditure. Sunwater undertook to inform us of the outcome of its insurance claims (if known) during the course of this review.[147] Flood damage costs by scheme is summarised in Table 28.

[146] Sunwater, sub. 11, p. 23.
[147] Sunwater, sub. 11, p. 59.

Table 28 Flood damage repair costs by scheme/system, 2012–13 to 2017–18 ($ million, nominal)

Scheme/system	*Below deductible*	*Claim closed*	*Claim ongoing*	*Total*
Barker Barambah	–	–	0.7	0.7
Bowen Broken Rivers	0.2	–	–	0.2
Boyne River and Tarong	–	–	36.3	36.3
Bundaberg (bulk)	0.1	0.5	12.8	13.5
Callide Valley	0.8	–	2.1	2.9
Dawson Valley	–	–	0.2	0.2
Eton	0.1	–	–	0.1
Lower Fitzroy	0.6	–	0.1	0.7
Lower Mary	0.1	–	0.1	0.1
Nogoa-Mackenzie	–	0.4	–	0.4
Pioneer River	0.2	–	–	0.2
Proserpine River	0.2	–	–	0.2
St George	0.6	–	–	0.6
Three Moon Creek	–	–	1.0	1.0
Upper Burnett	0.3	0.1	2.5	2.9
Upper Condamine	–	–	0.1	0.1
Bundaberg (distribution)	0.1	–	2.2	2.3
Burdekin-Haughton (distribution)	0.2	–	–	0.2
Eton (distribution)	0.1	–	–	0.1
Lower Mary (distribution)	–	–	0.1	0.1
Total	**3.8**	**1.0**	**58.2**	**63.0**

Note: 1. Totals may not sum due to rounding. 2. Excludes costs incurred in 2010–11 and 2011–12 relating to the 2010–11 flood event. 3. Excludes costs of $0.9 million forecast to be incurred in 2018–19. 4. Excludes distribution systems that have transitioned to local management arrangements prior to the draft report (i.e. Emerald, St George and Theodore). 5. Totals may not sum due to rounding.

Source: Sunwater response to QCA RFI 16.

Other stakeholders' submissions

A number of stakeholders submitted that any flood repair costs that are covered by insurance (particularly if claims are yet to be finalised) should be excluded from historical renewals expenditure.[148]

[148] See for example, Canegrowers, sub. 90; Cotton Australia, sub. 101; QFF, sub. 131; Canegrowers Isis, sub. 92; BRIA Irrigators, sub. 84; Theodore Water, sub. 140; Nogoa-Mackenzie IAC, sub. 127; Fairbairn Irrigation Network, sub. 104.

QFF submitted that the QCA should examine the allocation of flood repair works to non-direct costs (often charged out at full commercial rates) to ensure there is no double counting of these costs.

QCA assessment

In our previous investigation, we did not consider it appropriate to recover flood damage costs in the absence of an estimate of the associated insurance claims revenue. Sunwater's insurance payout estimates were considered to be confidential until negotiations with the insurance company were finalised. As publication of this information could affect negotiations, which would not be in the interests of Sunwater and its customers, we excluded flood damage costs (net of any insurance revenue received) from the renewals annuity allowance until negotiations had been finalised. Once revenues (and costs) were finalised and able to be made public, the remaining costs would be dealt with using a within-period or end of period adjustment to prices.[149]

We consider that this approach remains appropriate. Including flood repair costs in the renewals allowance and subsequently removing these costs once insurance claims have been finalised could lead to price volatility or irrigation prices increasing above the true cost-reflective level.[150] Our recommended approach also gives Sunwater an incentive to expedite the resolution of outstanding insurance claims.

In cases where insurance claims have been finalised, we have assessed the prudency and efficiency of any net costs by considering, among other things:

- whether the costs cover repair activity undertaken as a direct result of the event—we have sought evidence that the repair activity was incremental to business-as-usual operations and relates to renewals rather than opex
- whether Sunwater's insurance policy is appropriate, with a level of cover consistent with the insurance cost allowance we approved as part of our 2012–17 irrigation price review
- whether Sunwater managed the claims process in a prudent and efficient manner.

We engaged AECOM to assist us in this assessment. AECOM reviewed a sample of flood repair projects (Table 29).

Table 29 Sample of flood repair projects reviewed by AECOM

Project	*Scheme*	*Status of insurance claims*	*($2018–19, million)*		
			Cost	*Insurance claim*	*Net cost*
Repairs at Moolabah Weir	St George WSS	Below deductible	0.7	–	0.7
Repairs at Tartrus Weir	Nogoa McKenzie WSS	Closed	0.3	0.3	–
Repairs at Eden Bann Weir	Lower Fitzroy WSS	Below deductible	0.5	–	0.5
Total			**1.5**	**0.3**	**1.2**

Note: Totals may not sum due to rounding.

Source: Sunwater response AECOM RFI A10.

149 QCA, *SunWater Irrigation Price Review: 2012–17*, final report, May 2012, p. 44.

150 Based on the Government's definition of allowable costs in the referral. The referral also notes that is prices are above the cost-reflective level, they are maintained in nominal terms rather than reduced.

AECOM's assessment is summarised in Table 30.

Table 30 Recommended adjustments to the value of flood related historical projects sampled by AECOM ($2018–19, million)

Project	*Assessment of prudency*	*Assessment of efficiency*	*Submitted net cost*	*Adjustment*
Repairs at Moolabah Weir	Prudent	Partly efficient	0.7	(0.04)
Repairs at Eden Bann Weir	Prudent	Efficient	0.6	–
Repairs at Tartrus Weir	Prudent	Efficient	–	–

Source: AECOM, Rural Irrigation Capital Expenditure Review: Sunwater, August 2019, p. 65.

We have also excluded projects from the renewals allowance where insurance claims are yet to be finalised as shown below.

Table 31 Projects excluded from renewals allowance due to unresolved insurance claims

Scheme/system	*Net excluded*[a]
Barker Barambah	0.3
Boyne River and Tarong	36.1
Bundaberg (bulk)	5.6
Callide Valley	0.8
Dawson Valley	0.1
Lower Fitzroy	–
Lower Mary (bulk)	0.1
Three Moon Creek	0.4
Upper Burnett	1.0
Upper Condamine	–
Bundaberg (distribution)	1.6
Lower Mary (distribution)	–
Total	**46.2**

a Ongoing claim net of insurance proceeds received.

Note: 1. Totals may not sum due to rounding. 2. Excludes costs incurred in 2010–11 and 2011–12 relating to the 2010–11 flood event.

Source: Sunwater response to QCA RFI 4; Sunwater response to QCA RFI 16.

Our recommended adjustments to Sunwater's non-routine corrective maintenance expenditure is summarised in Table 32.

Table 32 The QCA's draft renewals expenditure (corrective maintenance) for Sunwater ($ million, nominal)

Cost	*2012–13*	*2013–14*	*2014–15*	*2015–16*	*2016–17*	*2017–18*	*2018–19*	*2019–20*	*Total*
Sunwater's original submission	5.1	11.7	7.5	9.5	9.6	20.1	0.9	–	**64.5**
Sunwater's revised submission	5.1	11.7	7.5	9.5	9.6	20.1	0.9	2.0	**66.4**
QCA draft	**1.0**	**0.6**	**0.7**	**1.0**	**0.7**	**0.7**	**0.9**	**2.0**	**7.7**

a Adjustments account for updates in Sunwater's June 2019 revised submission.

Sources: Sunwater, sub. 11; QCA analysis. Note: Totals may not sum due to rounding.

3.3.4 Non-routine operational expenditure

Sunwater's submission

Sunwater treats non-routine operations expenditure as renewals expenditure and recovers this through the renewals annuity.

Sunwater spent $4.3 million on non-routine operations over the period 2012–13 to 2017–18.

QCA assessment

Sunwater's operations costs would not typically be treated as renewals expenditure as they do not consist of expenditure to renew or refurbish existing assets. However, we acknowledge that these costs are largely uncontrollable as they relate to activities required to deal with flood damage. On that basis, we consider it is appropriate to recover these costs through an end-of-period revenue adjustment.

As Sunwater is proposing to recover these costs over the course of the renewals planning period, we have accepted Sunwater's proposal (Table 33).

Table 33 Sunwater's renewals expenditure (operations) ($ millions, nominal)

Cost	*2012–13*	*2013–14*	*2014–15*	*2015–16*	*2016–17*	*2017–18*	*2018–19*	*2019–20*	*Total*
Sunwater's original submission	(0.2)	0.5	1.3	1.4	0.7	0.3	0.0	–	**4.0**
Sunwater's revised submission	(0.2)	0.5	1.3	1.4	0.7	0.3	0.0	1.4	**5.4**
QCA draft	**(0.2)**	**0.5**	**1.3**	**1.4**	**0.7**	**0.3**	**0.0**	**1.4**	**5.4**

Note: Excludes distribution systems that have transitioned to local management arrangements prior to the draft report (i.e. Emerald, St George and Theodore). Note: Totals may not sum due to rounding.

Sources: Sunwater, sub. 11; QCA analysis.

3.3.5 Summary

Our recommended adjustments to Sunwater's overall historical renewals program are summarised in Table 34.

Table 34 The QCA's draft historical renewals expenditure for Sunwater inclusive of non-routine operations and corrective maintenance ($ million, nominal)

Cost	*2012–13*	*2013–14*	*2014–15*	*2015–16*	*2016–17*	*2017–18*	*2018–19*	*2019–20*	*Total*
Sunwater's original submission	12.0	19.0	17.6	22.1	25.2	34.2	19.9	23.5	**173.4**
Sunwater's revised submission	12.0	19.0	17.6	22.1	25.2	34.2	20.3	24.2	**174.5**
QCA draft	**7.3**	**7.6**	**10.2**	**13.2**	**15.7**	**14.2**	**18.9**	**23.2**	**110.4**

Note: Excludes dam safety upgrade capital expenditure. Excludes distribution systems that have transitioned to local management arrangements prior to the draft report (i.e. Emerald, St George and Theodore). Totals may not sum due to rounding.

Sources: Sunwater, sub. 11; QCA, SunWater Irrigation Price Review_ 2012–17, final report, May 2012.

3.4 Renewals expenditure in price path period

3.4.1 Overview of renewals program

Sunwater conducts its asset planning at a portfolio level with rolling five-year plans informed by the latest information on:

- the operational environment
- customer requirements
- asset condition assessments.

Sunwater's proposed renewals program over the price path period is summarised in Table 35.

Table 35 Sunwater's renewals expenditure for irrigation service contracts ($ million, nominal)

Schemes	*2020–21*	*2021–22*	*2022–23*	*2023–24*	*Total*
Bulk WSSs	10.3	7.1	6.0	9.3	**32.7**
Distribution	7.1	7.0	6.9	8.2	**29.1**
Total	**17.4**	**14.1**	**12.8**	**17.5**	**61.8**

Note: 1. Excludes dam safety upgrade capital expenditure. Excludes distribution systems that have transitioned to local management arrangements prior to the draft report (i.e. Emerald, St George and Theodore). 2. Totals may not sum due to rounding.

Sources: Sunwater, sub. 11.

3.4.2 Other stakeholders' submissions

A number of stakeholders requested that the QCA review Sunwater's forecast renewals to ensure that Sunwater only passes on prudent and efficient expenditure to customers. BRIA considered that the QCA should review the five largest forecast projects to determine the prudency and efficiency of the forecast expenditure.[151]

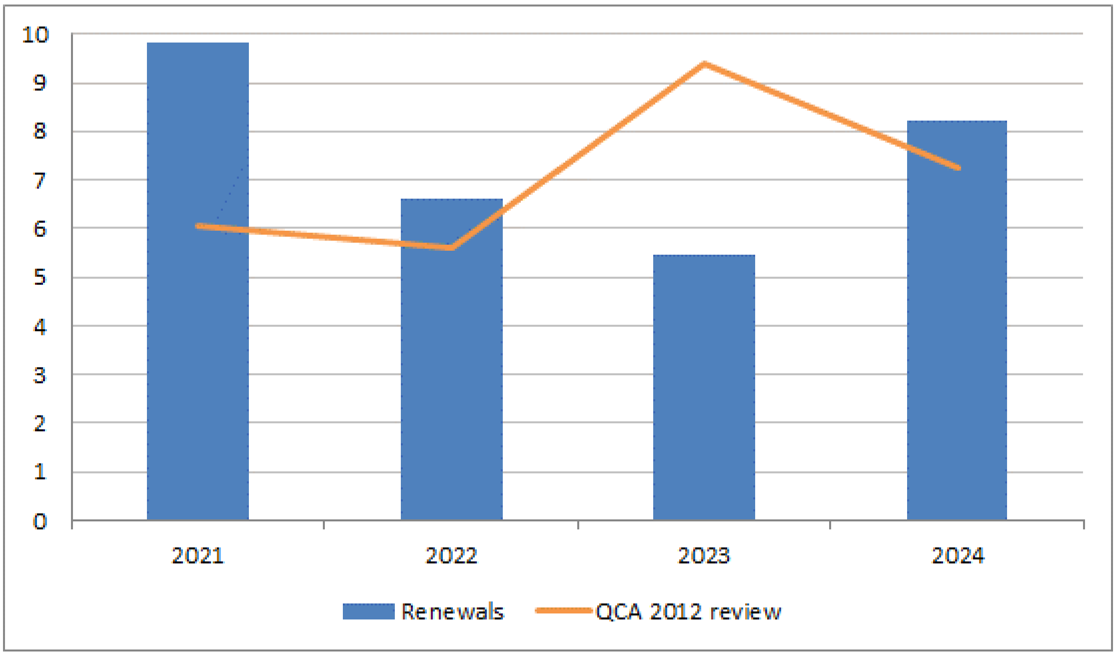
[151] BRIA Irrigators, sub. 85, p. 14.

3.4.3 QCA assessment

Overview of bulk supply schemes

The distribution of Sunwater's forecast renewals expenditure over the price path period (Figure 21) suggests that Sunwater has brought forward some expenditure previously forecast to occur later in the price path period to the start of the period.

Figure 21 Sunwater's forecast renewals expenditure—bulk WSSs ($ million, nominal)



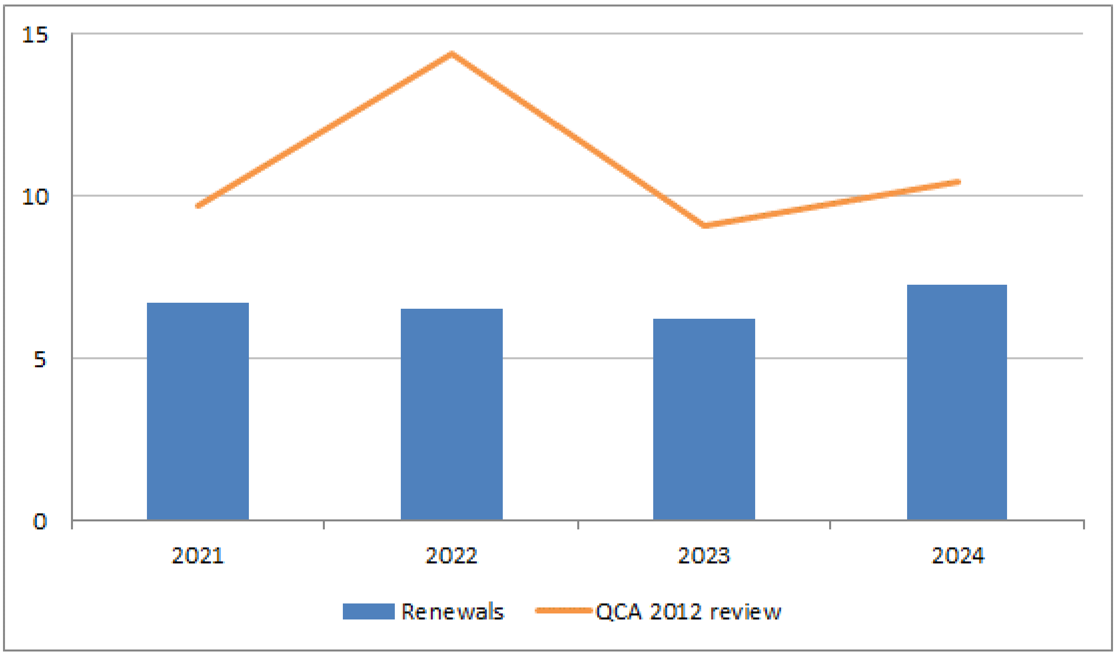
Note: Excludes dam safety upgrade capital expenditure.

Sources: Sunwater, sub. 11; QCA, SunWater Irrigation Price Review: 2012–17, final report, May 2012.

Overview of distribution systems

Sunwater's forecast renewals expenditure over the price path period (Figure 22) is significantly below the recommended expenditure from the 2012 review.

Figure 22 Sunwater's forecast renewals expenditure—distribution systems ($ million, nominal)



Note: Excludes distribution systems that have transitioned to local management arrangements prior to the draft report (i.e. Emerald, St George and Theodore).

Sources: Sunwater, sub. 11; QCA, SunWater Irrigation Price Review: 2012–17, final report, May 2012.

Assessment of sampled projects

We have reviewed a sample of projects in the price path period to assess the prudency and efficiency of projects over this period.

We engaged AECOM to assist us in our assessment. AECOM identified systemic issues with some of the projects assessed and recommended a 1.6 per cent reduction to non-sampled projects as a result.

AECOM's assessment is summarised in Table 36.

Table 36 Recommended adjustments to the value of projects in the price path period ($2018–19, '000)

Project	*Prudency assessment*	*Efficiency assessment*	*Submitted cost*	*Adjustment*	*QCA draft*	*Deduction*	
						Per cent	*Type*
Refurbish Weir (Allan Tannock)	Prudent	Partly efficient	51	(1)	50	3	Project specific
Meter replacement (Dawson Valley)	Prudent	Partly efficient	327	(119)	208	36	Project specific
Refurbish Teemburra Dam	Not prudent	Not efficient	350	(350)	–	100	Timing
Refurbish Kinchant Dam	Not prudent	Not efficient	285	(285)	–	100	Project specific

Project	*Prudency assessment*	*Efficiency assessment*	*Submitted cost*	*Adjustment*	*QCA draft*	*Deduction*	
						Per cent	*Type*
Owanyilla Pump Station	Not prudent	Partly efficient	441	(441)	–	100	Timing
Oakenden Main Channel	Prudent	Partly efficient	159	(117)	42	73	Systemic (high cost)
Sampled projects with adjustments			**1,613**	**(1,313)**	**300**	**81**	
Sampled projects without adjustments			**4,909**	**–**	**4,909**		
All projects reviewed			**6,522**	**(1,303)[a]**	**5,219[a]**	**20**	
Project-specific adjustments			**663**	**(405)**	**258**	**6.2**	
Project adjustments with systemic issues				**107**		**1.6**	

a *The timing of a refurbishment program at Gattonvale Pump Station has been adjusted resulting in $10,000 of expenditure occurring in the price path period. This reduces the total adjustment by $10,000.*

Note: Totals may not sum due to rounding.

Source: AECOM, Rural Irrigation Capital Expenditure Review: Sunwater, August 2019, p. 70.

3.4.4 Summary

Our recommended profile for renewals expenditure in the price path period is summarised in the table below. We have applied a 1.6 per cent reduction to non-sampled projects as recommended by AECOM.

Table 37 Sunwater's renewals expenditure for irrigation service contracts ($ million, nominal)

Schemes	*2020–21*	*2021–22*	*2022–23*	*2023–24*	*Total*
Sunwater's original submission	17.4	14.1	12.8	17.5	61.8
Sunwater's revised submission	27.9	14.8	13.7	14.4	70.7
QCA draft	**25.6**	**12.5**	**12.8**	**11.3**	**62.2**

Note: 1. Excludes dam safety upgrade capital expenditure. 2. Excludes distribution systems that have transitioned to local management arrangements prior to the draft report (i.e. Emerald, St George and Theodore). 3. Totals may not sum due to rounding.

Sources: Sunwater, sub. 11; QCA analysis.

3.5 Renewals expenditure in remainder of planning period

3.5.1 Overview of renewals program

Sunwater's forecast expenditure beyond the price path period is $2.7 billion (Table 38 and Figure 23).

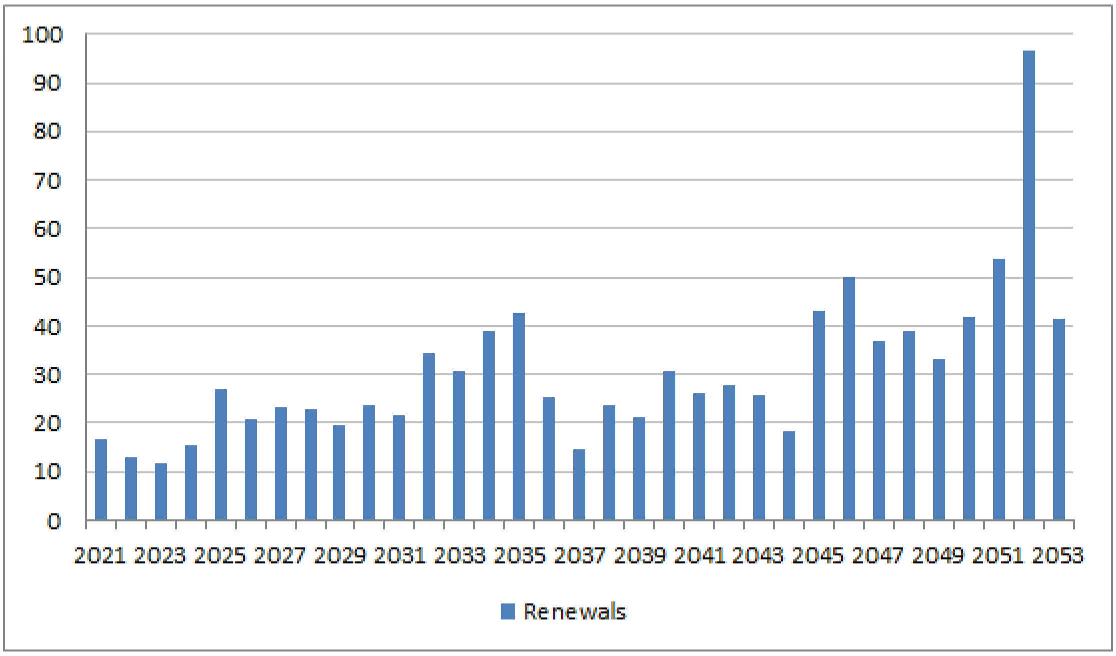
Table 38 Sunwater's renewals expenditure over 30-year planning period ($ million, nominal)

Cost	*2023–33*	*2033–43*	*2043–53*
Total (bulk WSSs and distribution systems)	305.4	444.8	956.7
Total ($2018–19, million)	241.0	278.9	457.6
Average ($2018–19, million)	24.1	27.9	45.8

Note: Totals may not sum due to rounding.

Sources: Sunwater, sub. 11.

Figure 23 Sunwater's renewals expenditure for irrigation service contracts ($2018–19 million)



Note: Excludes dam safety upgrade capital expenditure and distribution systems that have transitioned to local management arrangements prior to the draft report (i.e. Emerald, St George and Theodore).

Sources: Sunwater, sub. 11.

3.5.2 Other stakeholders' submissions

A number of stakeholders requested that we review Sunwater's forecast renewals to ensure that Sunwater passes on only prudent and efficient expenditure to customers. BRIA considered that the QCA should review the five largest forecast projects to determine the prudency and efficiency of the forecast expenditure.

3.5.3 QCA assessment

As projects beyond the price path period have a relatively high degree of uncertainty, there is unlikely to be a high level of documentation for these projects. We have therefore focused on the level of robustness with which Sunwater has developed its renewals program including the forecast methodology and the approach to cost estimation.

We have also assessed a sample of projects to identify any systemic issues in the practical application of the renewals planning process. We engaged AECOM to assist us in our assessment.

Forecast methodology

To forecast renewals expenditure over the 30-year planning period, Sunwater adopts standard expected asset lives for each asset class and, using this and the known age of each asset, plans for replacement at the expected end of service life (or a fraction earlier in the case of assets assessed to be critical).

Sunwater also plans for the refurbishment of assets at intervals during the service life of the asset to optimise lifecycle costs.

Once the timing of asset replacement/refurbishment has been determined, Sunwater estimates the associated costs based on a review of recent work of similar type.

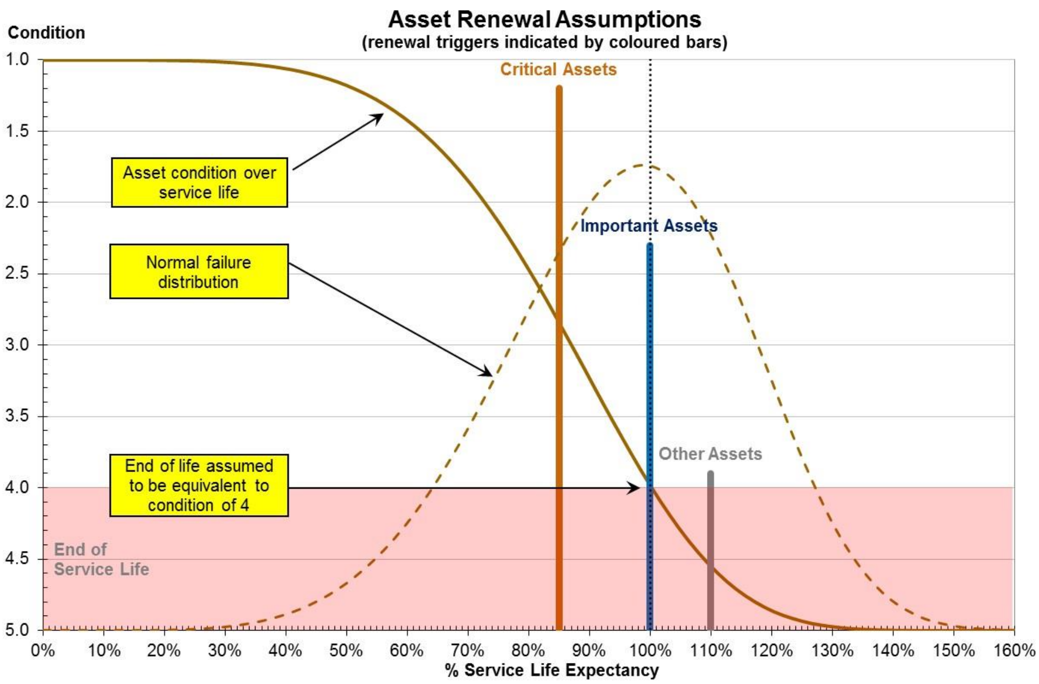
AECOM considered this approach to be reasonable with the exception of the use of a standard decay curve for all assets. AECOM said that not all assets would be expected to fail at the same rate and that the asset condition rating for a given class of assets should be informed by historical data on the failure rate of that class of assets.

AECOM considered these observations in assessing the prudency and efficiency of the 30-year renewals program.

Profile of the renewals program

In the absence of asset specific decay curves for Sunwater, AECOM assessed Sunwater's renewal program by using its in-house proprietary Weibull curve. This assumes a normal failure distribution (Figure 24). [152]

Figure 24 Failure rate of assets assuming a normal distribution of failure



Source: AECOM, Rural Irrigation Capital Expenditure Review: Sunwater, August 2019, p. 81.

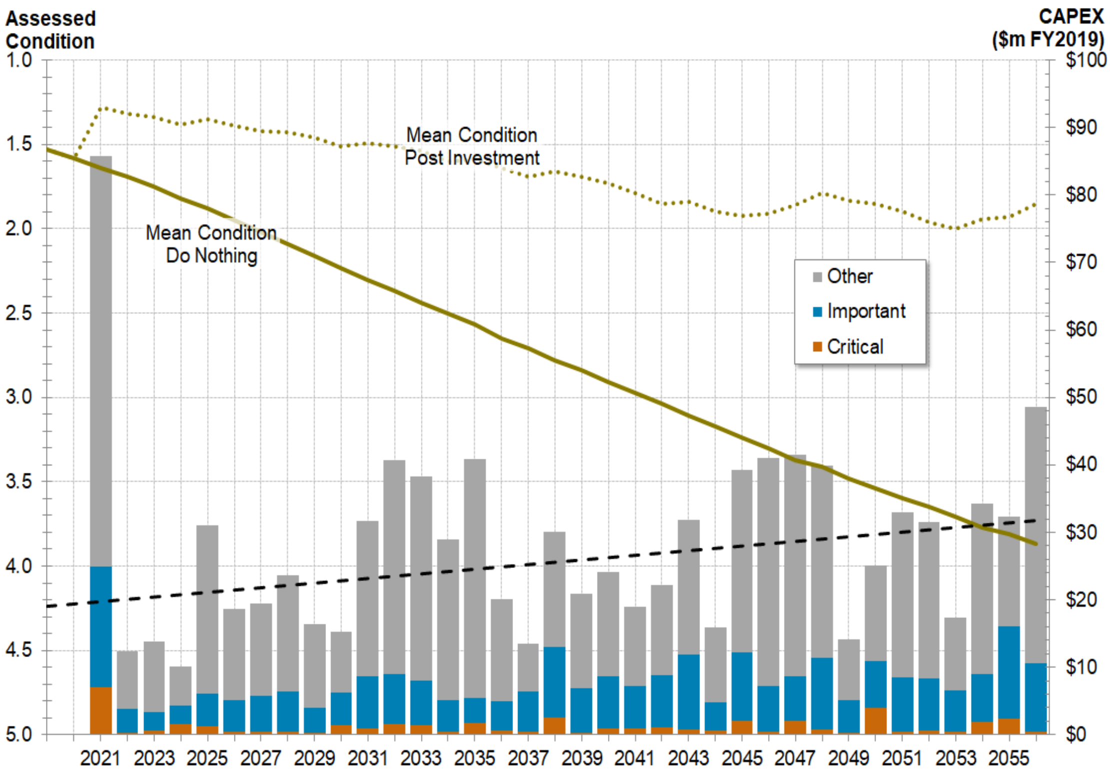
[152] In practice, failure rates would vary for different asset classes but in the absence of asset specific decay curves, AECOM assumed a normal distribution across asset classes.

Assets can be maintained in a condition ranging from 1 (excellent) to 5 (failed/inoperable) (Figure 25). Assuming a normal distribution of failure rates, the average condition rating of an asset at the end of its expected service life is 4. Critical assets would be renewed before reaching a condition rating of 3 (or about 85 per cent through their expected service life), important assets when they reached a condition rating of 4 and all other assets when they reached a condition rating of 4.5.

AECOM's modelling indicated that Sunwater is overly conservative in the timing of renewals as a consequence of using a single decay curve for all assets.

In particular, AECOM considered that under best practice arrangements, assets would be maintained in a range whereby the condition rating would be between 2 and 3 (the 'state of good repair'). However, Sunwater is currently maintaining assets to a condition rating well above this (Figure 25).

Figure 25 Weighted average condition rating by year of assets in the forward renewals program (under Sunwater's current planning assumptions)



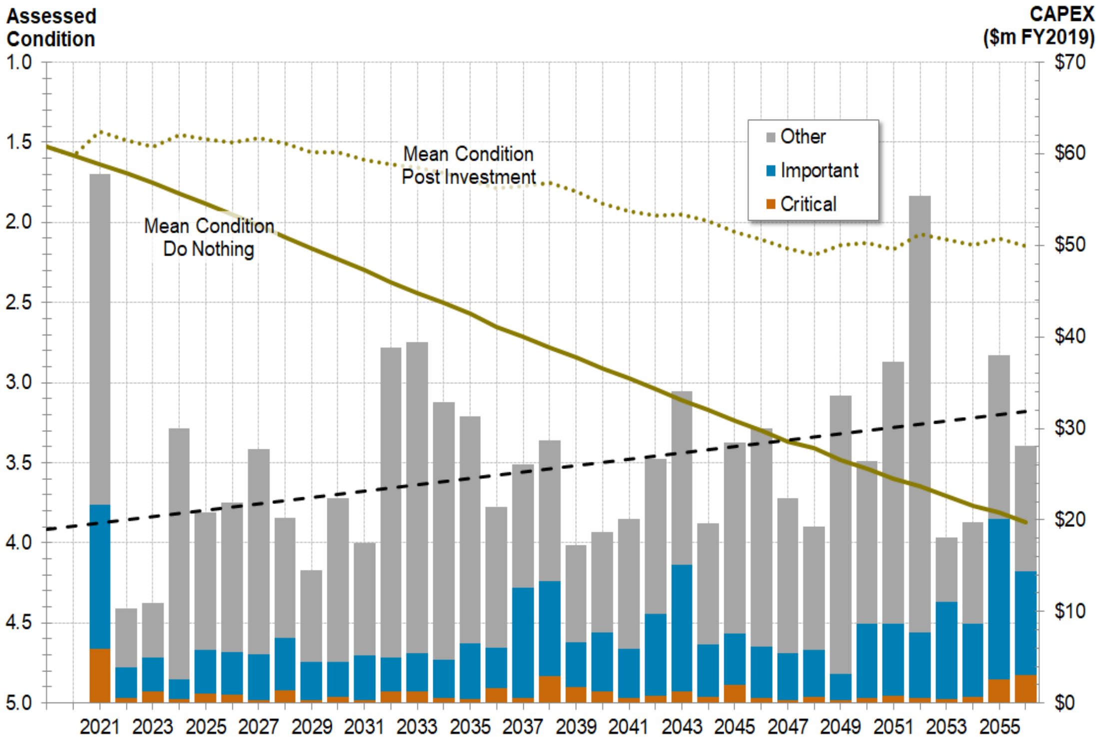
Notes: 1) The solid brown line shows the weighted average asset condition (weighted by replacement value) in each year of the program assuming that no investment takes place. 2) The dotted brown line shows the weighted average asset condition after the scheduled investment. 3) The black line is a trend line of annual investment needed. It increases because higher value assets with longer service lives fall due for renewal later in the planning period.

Assumes, as per Sunwater, that critical (high risk) assets are renewed at 63 per cent of useful life, important (medium risk) assets at 88 per cent and other (low risk) assets at 100 per cent of useful life.

Source: AECOM, Rural Irrigation Capital Expenditure Review: Sunwater, August 2019, p. 82.

AECOM estimated that Sunwater's assets could be maintained in a state of good repair by extending the useful life uniformly by 10 per cent (Figure 26).

Figure 26 Weighted average condition rating by year of assets in the forward renewals program (under AECOM's assumptions)

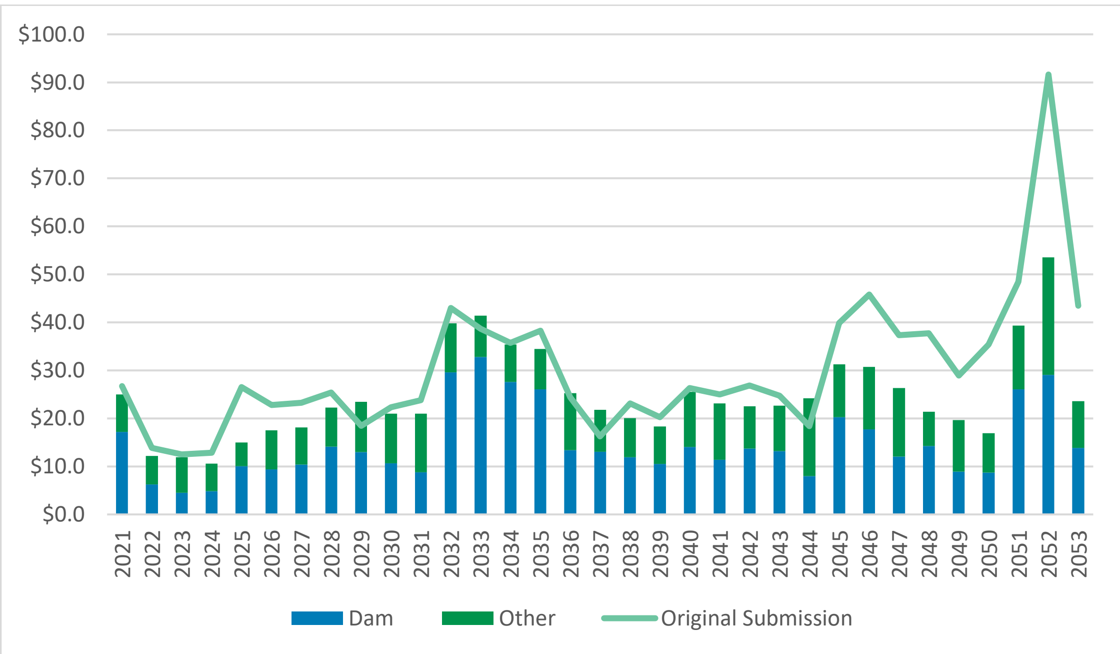


Note: Assumes that critical (high risk) assets are renewed at 73 per cent of useful life, important (medium risk) assets at 98 per cent and other (low risk) assets at 110 per cent of useful life.

Source: AECOM, Rural Irrigation Capital Expenditure Review: Sunwater, August 2019, p. 83.

This analysis results in a reduction of the renewals program from $997.9 million to $815.3 million in real terms (Figure 27).

Figure 27 Renewals profile assuming a 10 per cent increase in useful life ($2018–19, million)



Source: AECOM, Rural Irrigation Capital Expenditure Review: Sunwater, August 2019, p. 86.

We note that this analysis is indicative only and is likely to be conservative as there are a number of data gaps in Sunwater's whole of life maintenance strategy, including:

- instances where an asset condition assessment has not been recorded
- lack of clarity around the nature of work undertaken in some cases (e.g. some works have been recorded as replace/refurbish)
- instances where no useful life has been recorded against the relevant asset
- instances where no risk assessment data has been recorded
- instances where no frequencies have been specified for refurbishment works or no data on historical refurbishment works is available.
- Sunwater said in its November 2018 submission that it had been working on refining its longer-term forecasts for bulk water and further refining forecasts for distribution assets.[153] Sunwater said that, in developing its forecasts, it had been working closely with external consultants to ensure longer-term forecasts reflect its whole-of-life refurbishment and replacement strategy and that it was reviewing changes made in a number of service contract areas with a view to providing us with updated long-term forecasts well in advance of our draft decision.[154] In addition, it said that these refinements had improved, and would continue to improve, the robustness of its 30-year forecasts compared to 2012.

We encourage Sunwater to provide us with revised forecasts that better reflect its new strategy in response to this draft report.

Sample assessment

AECOM complemented the above analysis by assessing a sample of projects forecast to incur expenditure beyond the price path. AECOM identified a few projects with inefficiencies and recommended adjustments to these. As some of these inefficiencies were also systemic (including overestimation of project costs and budget overruns), AECOM recommended a further adjustment of 6.4 per cent to non-sampled projects. AECOM's assessment is summarised below.

Table 39 Recommended adjustments to the value of projects outside the price-path period ($2018–19, million)

Project	*Prudency assessment*	*Efficiency assessment*	*Submitted cost*	*Adjustment*	*QCA draft*	*Deduction*	
						Per cent	*Type*
Meter replacement (Dawson River Distribution)	Prudent	Partly efficient	2.5	(1.0)	1.5	39	Project specific
Repairs at Gattonvale Pump Station	Prudent	Partly efficient	0.5	(0.4)	0.1	91	Systemic (High Cost Estimate)
Dam repairs (Teemburra Dam)	Prudent	Partly efficient	0.3	(0.3)	–	100	Timing

[153] Sunwater, sub. 11, p. 60.
[154] Sunwater, sub. 11, p. 60.

Project	***Prudency assessment***	***Efficiency assessment***	***Submitted cost***	***Adjustment***	***QCA draft***	***Deduction***	
						Per cent	***Type***
Replace pipe at Cherry Creek	Not prudent	Not efficient	6.7	6.7	–	100	Timing
Refurbishment of channel in ISIS system	Not prudent (in timing)	Partly efficient	2.2	(1.4)	0.8	64	Systemic (High Cost Estimate)
Replace gearbox (Tom Fenwick Pump Station)	Not prudent	Not efficient	1.0	(0.5)	0.5	50	Timing
Replace pump (Tom Fenwick Pump Station)	Not prudent	Not efficient	1.9	(1.9)	–	100	Timing
Replace Pipe (ISIS system)	Not prudent	Not efficient	1.4	(1.4)	–	100	Timing
Replace Pipe (Clare system)	Not prudent	Not efficient	1.4	(1.4)	–	100	Timing
Replace concrete lining (Millaroo)	Prudent	Partly efficient	1.3	(0.8)	0.5	58	Timing
Replace earth drain (Arriga)	Not prudent	Not efficient	0.3	(0.3)	–	100	Timing
Refurbishment at West Barron	Prudent	Partly efficient	0.2	(0.1)	0.1	41	Systemic
Sampled projects with adjustments			**19.7**	**(16.2)**	**3.5**	**82.2**	
Sampled projects without adjustments			**22.3**	**–**	**22.3**		
All projects reviewed			**42**	**(15.7)[a]**	**26.3[a]**	**37.4**	
Project-specific adjustments			**2.5**	**(1)**	**1.5**	**2.3**	
Projects adjustments with systemic issues				**2.7**		**6.4**	

a *The timing of a switchboard replacement project at Owanyilla Pump Station has been adjusted resulting in $0.4 million in the planning period. This reduces the total adjustment by $0.4 million.*

Note: Totals may not sum due to rounding.

Source: AECOM, Rural Irrigation Capital Expenditure Review: Sunwater, August 2019, p. 71.

3.5.4 Summary

Our recommended profile of expenditure over the 30-year planning period is summarised in Table 40. We have applied a 6.4 per cent reduction to non-sampled projects as recommended by AECOM.

Table 40 QCA-recommended renewals expenditure over 30-year planning period ($ million, nominal)

Cost	*2023–33*	*2033–43*	*2043–53*	*Total*
Sunwater's original submission	305.4	444.8	956.7	**1,706.9**
Sunwater's revised submission	327.9	416.2	893.2	**1,637.2**
QCA draft	**277.1**	**370.5**	**537.4**	**1,185.0**

Note: 1. Excludes dam safety upgrade capital expenditure. 2. Excludes distribution systems that have transitioned to local management arrangements prior to the draft report (i.e. Emerald, St George and Theodore). 3. Totals may not sum due to rounding.

Sources: Sunwater, sub. 11; QCA analysis.

3.6 Dam safety upgrade capex

3.6.1 Overview of dam safety upgrade program

In its November 2018 submission, Sunwater submitted dam safety upgrade capex of $385.6 million over the price path period (Table 41).

Table 41 Sunwater's forecast dam safety upgrade capex ($ million, nominal)

WSS	*2020–21*	*2021–22*	*2022–23*	*2023–24*	*Total*
Barker Barambah	0.1	0.4	1.1	3.4	**5.0**
Bowen Broken Rivers	-	0.1	0.3	0.7	**1.1**
Bundaberg	0.8	1.4	0.0	–	**2.2**
Burdekin-Haughton	31.6	143.4	155.2	14.0	**344.3**
Macintyre Brook	0.7	1.7	0.4	–	**2.9**
Nogoa-Mackenzie	9.6	–	–	–	**9.6**
Pioneer River	3.9	0.4	–	–	**4.3**
Upper Burnett	0.1	0.4	1.1	2.8	**4.4**
Upper Condamine	11.2	0.8	–	–	**12.0**
Total	**58.0**	**148.6**	**158.1**	**20.9**	**385.7**

Note: 1. Capex is on an as-incurred basis. 2. Sunwater adjusted forecast expenditure for projects at a preliminary business case stage by submitting 50 per cent of the forecast expenditure for pricing purposes. 3. Totals may not sum due to rounding.

Source: Sunwater, sub. 11, p. 53.

The key driver of this expenditure is regulatory obligations (see Part A, Chapter 4). Specifically, Sunwater has reassessed its dam safety requirements in response to an improved understanding of extreme rainfall events and resultant floods, advances in knowledge about failure risks for dams, and increases in the consequences of failure at particular dams.

3.6.2 Other stakeholders' submissions

A number of stakeholders submitted that irrigators could not be expected to assess the need for, and costs of implementing dam safety upgrades in the absence of meaningful detail and costing on the proposal. They said that the QCA could not be expected to assess the need for, and efficient costs of, implementing dam safety upgrades in the absence of detailed justification and costings.[155]

BRIA said that Sunwater would need to:

- provide greater detail on the projects included in the dam improvement program for each scheme (including but not limited to an accurate breakdown of costs, timeframes and specification of works)
- engage with all parties likely to be affected by this proposed change and provide comprehensive information for each relevant scheme
- ensure these improvements are prudent/essential to meeting regulatory standards and costed and procured efficiently to ensure least cost.[156]

Central Downs Irrigators Ltd submitted that given that Leslie Dam has filled once in 15 years and in that time has had an average level of approximately 30 per cent, it seems overly cautious to spend $24 million when the dam rarely spills.[157]

Central Highlands Cotton Growers and Irrigators Association expressed concern about the budget overspends on the Fairbairn Dam.[158]

A number of stakeholders submitted that Sunwater needs to provide detailed information about the need for and cost of proposed works to enable the QCA to assess the prudency and efficiency of the proposed capex.[159]

3.6.3 QCA assessment

We have assessed the prudency and efficiency of Sunwater's proposed dam safety upgrade capex for the 2020–24 period. We discuss the set of prices to recover an allowance for dam safety capex, as required by the referral, in Chapter 7.

We consider that the dam safety cost upgrade category should only include prudent and efficient capex on dam upgrades that are required to meet the dam safety compliance obligations (Part A, Chapter 4). Capex required for other reasons should be allocated to other more appropriate cost categories, rather than the dam safety upgrade cost category (for example, capex required to repair dam infrastructure should be allocated to corrective maintenance or another appropriate cost category).

We consider capex to be prudent if the expenditure can be justified by reference to an identified need or cost driver, such as a legal or regulatory obligation. We consider capex to be efficient if it is the least cost option to deliver on an appropriately defined scope and standard of works.

[155] BRIA Irrigators, sub. 85, p. 15.
[156] BRIA Irrigators, sub. 85, p. 24.
[157] Central Downs Irrigators Ltd, sub. 98, p. 3.
[158] CHCGIA, sub. 99, p. 3.
[159] See for example, CHCGIA, sub. 99; CHRC, sub. 101; QFF, sub. 132; Lower Burdekin Water, sub. 118; MDIA Council, sub. 123.

We engaged AECOM to provide advice to assist with our assessment. AECOM's assessment involved:

- undertaking detailed project reviews against Sunwater's key drivers and obligations (including the range of alternatives considered and efficiency of proposed cost estimates)
- identifying any systemic issues from the project reviews and drawing on the assessment of Sunwater's governance, capital planning and asset management frameworks
- assessing trade-offs between capex and opex.

AECOM's review was based on Sunwater's November 2018 submission and involved reviewing a sample of projects (Table 42).

Table 42 Sample of dam safety upgrade projects reviewed by AECOM ($2018–19, million)

Project	*Scheme*	*Value[a]*
Burdekin Dam upgrade works	Burdekin-Haughton WSS	283.9
Fairbairn Dam upgrade works	Nogoa-Mackenzie WSS	21.0
Value of sampled projects		**304.9**
Total value of projects		**385.7**
Proportion sampled (% by value)		**79**

a Expenditure is that incurred within the price path period.

Note: Totals may not sum due to rounding.

Source: Sunwater response to AECOM RFI A25 and A27.

AECOM's assessment recommended no adjustments to Sunwater's proposed capex, and accepted updated capex estimates provided by Sunwater in June 2019.[160]

As AECOM did not find any inefficiencies in its review, we have accepted Sunwater's updated capex estimates. Table 43 shows Sunwater's revised dam safety upgrade capex for those projects forecast to be commissioned within the price path period.

Table 43 Sunwater's revised dam safety upgrade capex ($ million, nominal)

WSS	*2020–21*	*2021–22*	*2022–23*	*2023–24*	*Total*
Macintyre Brook	0.8	1.7	0.3	–	**2.8**
Nogoa-Mackenzie	21.9	–	–	–	**21.9**
Pioneer River	0.8	2.4	1.0	–	**4.3**
Upper Condamine	11.2	1.7	–	–	**12.9**
Total	**34.8**	**5.8**	**1.3**	**–**	**41.9**

Note: 1. Capex is on an as-incurred basis. 2. Sunwater adjusted forecast expenditure for projects at a preliminary business case stage by submitting 50 per cent of the forecast expenditure for pricing purposes. 3. Only includes projects that are commissioned prior to the end of the price path period. 3. Totals may not sum due to rounding.

Source: Sunwater response to QCA RFI 58.

160 Sunwater response to QCA RFI 58.

4 REVENUE REQUIREMENT

This chapter explains how we have calculated total prudent and efficient costs for each irrigation service contract, consisting of:

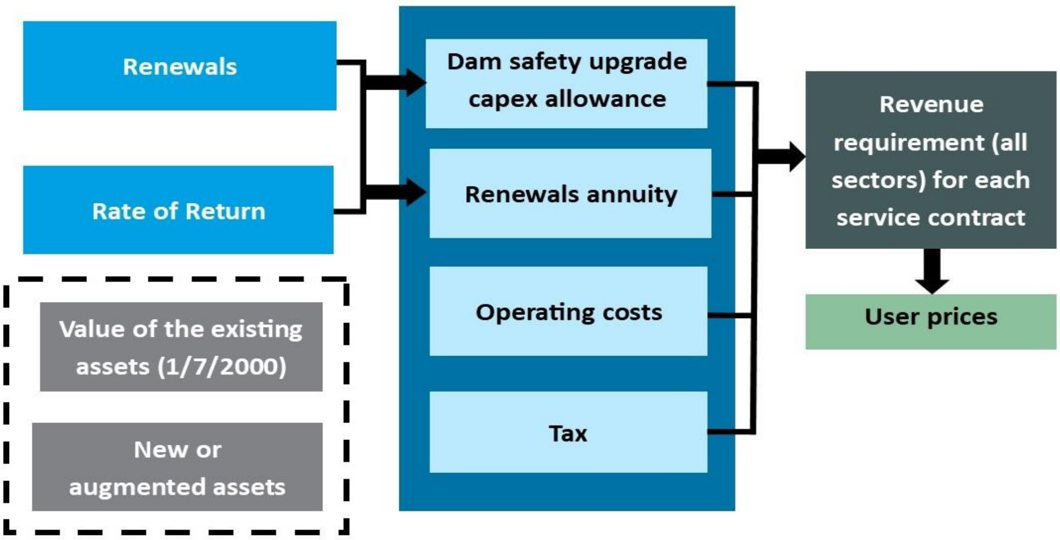
- *prudent and efficient operating costs*
- *an allowance for the prudent and efficient costs on renewing assets*
- *an allowance for prudent and efficient dam safety upgrade capex forecast to be incurred from 1 July 2020, to be applied in the set of prices where this allowance is included*
- *revenue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

4.1 Calculating the total revenue requirement

We have used a building block approach to calculate the total prudent and efficient costs for all sectors for each irrigation service contract by considering the following cost components:

- operating expenditure (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 WACC, we include an allowance for tax as part of total costs (section 4.6).

Figure 28 Calculating the revenue requirement for each irrigation service contract



Notes: 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.

Sunwater proposed the following total revenue requirement across its irrigation service contracts (Table 44).

Table 44 Total whole of scheme costs 2020–24 ($' millions, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*	*Total*
Operating costs	69.6	71.5	74.2	75.5	**290.8**
Renewals annuity	30.9	32.2	34.5	35.6	**133.3**
Revenue offsets	(1.7)	(1.7)	(1.7)	(1.8)	**(6.9)**
Tax	–	–	–	–	-
Total costs	**98.9**	**102.0**	**107.0**	**109.4**	**417.2**

Note:1. Excludes dam safety upgrade capital expenditure allowance. 2. Totals may not add due to rounding.
Source: Sunwater, sub. 45, November 2018. QCA analysis.

The referral requires us to recommend two sets of irrigation prices in relation to capital expenditure on dam safety upgrades:

- prices that exclude all dam safety upgrade capital expenditure
- prices that include an appropriate allowance for capital expenditure forecast to be incurred from 1 July 2020 onwards.

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

4.2 Renewals expenditure allowance

Prices need to recover costs including an appropriate allowance for prudent and efficient expenditure on renewing existing assets.

4.2.1 Approach

Previous investigation

In the 2012 review, we were directed to recommend a revenue stream to recover prudent and efficient expenditure on renewing existing assets through a renewals annuity approach.

We accepted the use of a rolling annual annuity that involved the calculation of a separate new annuity for each year of the price path, 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.

Sunwater's submission

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

Sunwater said that in principle, and if applied appropriately, a renewals annuity will achieve the same outcomes as the alternative approach—using a regulatory asset base (RAB) to calculate the revenue allowance.

Sunwater noted that most regulators have moved away from the renewals annuity approach and transitioned to a RAB-based approach, due to:

- the difficulties in accurately forecasting expenditure over the full asset cycle to achieve an appropriate renewals annuity
- increased intergenerational risks inherent in current users paying for services that deliver benefits for future users.

Sunwater said that the RAB option should remain open for future reviews, if the transition can be managed in a way that preserves the cash flows that Sunwater requires to maintain its financial viability and service delivery.

Other stakeholders' submissions

No other stakeholder provided comments on this issue.

Other jurisdictions

Economic regulators in Australia have used both annuity and RAB approaches for calculating the appropriate allowance for asset renewals for regulated businesses. However, a number of rural water businesses have transitioned from an annuity to a RAB approach in recent years.

Prior to 2006, IPART required WaterNSW (formerly State Water) to apply the annuity approach. However, in 2006 IPART accepted State Water's proposal to transition to a RAB based approach. IPART considered that the RAB approach was generally superior to the annuity approach in terms of economic efficiency and regulatory effectiveness. IPART determined the initial RAB value by capitalising the annuity that IPART approved in its 2001 determination using a capitalisation rate comprised of the applicable WACC plus a depreciation rate.[161]

The Essential Services Commission of Victoria (ESC) has adopted the RAB approach for all water industry assets constructed since 1 July 2006, although some regulated entities retained the annuity method for pre-1 July 2006 assets.[162] The ESC cited the reason for the change as the re-configuration of rural irrigation systems, which meant that it was unlikely that existing assets would be replaced with like assets.[163] The Minister for Water set an initial RAB of zero for rural water assets as at 1 July 2004 for Southern Rural Water, Lower Murray Water, GWMWater and Goulburn Murray Water. Capital expenditure from 1 July 2004 was incorporated in the RAB.

QCA assessment

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 building blocks approach.[164]

A key difference between the annuity and RAB approaches is the time profile of capital costs received by the regulated business.

Under the annuity approach, forecast renewals expenditure required to maintain assets is smoothed over the long term. This generally results in customers paying upfront for expenditure that is forecast to be incurred in future years. A water business that has built up an annuity

[161] IPART, *Bulk Water Prices for State Water Corporation and Water Administration Ministerial Corporation from 1 October 2006 to 30 June 2010*, final report, September 2006.
[162] In 2005, Goulburn-Murray Water ended its annuity approach (see IPART, *Bulk Water Prices for State Water Corporation and Water Administration Ministerial Corporation from 1 October 20016 to 30 June 2010*, final report, September 2006), while in 2013 Southern Rural Water decided to transition from the annuity approach to the RAB approach (Southern Rural Water, *Water Plan 2013 to 2018*, n.d.).
[163] ESC, *2008 Water Price Review Consultation—Framework and Approach*, December 2006.
[164] QCA, *Issues in the Application of Annuities*, information paper, 2014.

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 approach, renewals expenditure is smoothed so that the firm recovers a return on capital and a return of capital over the life of the renewal (starting from when the renewals 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 longest life asset in the RAB. Where the term for a renewals annuity is shorter than the term of the longest life asset in the RAB, 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.

However, we consider there are some potential issues with Sunwater's application of the renewals annuity approach, including:

- difficulties in accurately forecasting expenditure over a 20-year or 30-year planning period to achieve an appropriate renewals annuity allowance
- intergenerational equity, given that a 20-year or 30-year planning period does not cover the longest life asset in Sunwater's asset base.

A robust asset management plan is an essential requirement for determining the appropriate allowance under a renewals annuity approach. The calculation of renewals annuities requires high quality information about the total asset system, including about scheduled maintenance, refurbishment and the expected timing for replacement of each component asset of the system. Given the potential pricing impact of future asset renewals, a longer-term perspective is required in asset management plans. The plans should be based on sufficient detail to support long-term asset plans and facilitate customer scrutiny and input to this planning.

The primary focus of the current Sunwater NSPs involves customer scrutiny of near term expenditures that will generally have minimal pricing impacts. Customers generally do not receive enough information about large replacement expenditures later in the planning period that may have significant pricing impacts. Sunwater noted that several Irrigator Advisory Committees (IACs) were interested in seeing further detail on planned renewals projects towards the end of the 30-year planning period, and in response Sunwater provided a full list of future renewals projects (excluding costs).[165] We consider that the lack of detailed information provided to customers on these longer-term renewals project does not allow detailed customer scrutiny of the outcomes of Sunwater's asset management strategy.

We consider that there are benefits in transitioning to a RAB-based approach. Such an approach can be more transparent as it allows customer 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 Sunwater's NSPs—the NPS focus on renewals expenditure in over the short-term to the end of the next price path period.

However, there are a number of implications to consider in moving to a RAB-based approach.

If a RAB-based approach was adopted, an opening RAB would have to be established. Such an opening RAB would exclude the value of the asset base for Sunwater's existing assets (as at 1 July 2000), as it is the Government's pricing policy not to consider those assets for pricing purposes.

[165] Sunwater, sub. 12, p. 9.

The renewals annuity approach commenced for Sunwater in 2000. Under a RAB approach, only the value of the asset base for Sunwater's existing assets would be considered for inclusion in the initial asset base, and not any renewals expenditure since 1 July 2000 incorporated in the renewals annuity. Including this historical renewals expenditure would result in the return on the initial RAB recovering the costs already potentially funded by customers through the renewals annuity.

We would need to carefully consider the implications of a RAB-based approach before adopting it as an appropriate allowance for renewals expenditure. The appropriate approach for funding renewals expenditure on long-lived assets is an important issue. It is important to ensure that Sunwater has sufficient funds to adequately maintain and replace its infrastructure, as well as appropriate incentives to undertake this work cost effectively.

We accept Sunwater'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 Sunwater 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 Sunwater should investigate options with its customers and with the Government to move to a RAB-based approach prior to the next price review.

We will investigate this issue further prior to our final report. We welcome stakeholder views on the implications of moving to a RAB approach in response to this draft report.

Draft recommendation 8

We recommend that Sunwater should work with its customers and with the Government to move to RAB-based approach for future price reviews.

4.2.2 Opening annuity balance

The referral directs the QCA to recommend prices based on recovering an appropriate allowance for prudent and efficient expenditure on renewing existing assets, taking into account prudent and efficient renewals expenditure incurred in previous price path periods.

Under a rolling renewals annuity approach, the opening balance of the asset restoration reserve (also referred to as the annuity balance) at the beginning of the price path (1 July 2020) takes into account the accumulated under- and overrecovery of renewals expenditure over previous price path periods. We therefore need to be satisfied that the opening annuity balance only includes historical renewals expenditure that is prudent and efficient. This covers historical renewals expenditure since the beginning of the previous price path period (i.e. 1 July 2012) and any flood renewals costs incurred prior to this period but excluded from the annuity account in the 2012 review as the associated insurance claims had not been finalised.

Sunwater's submission

Sunwater proposed opening annuity balances for 2020–21 that were different to the 2019–20 closing balances calculated in its regulatory model. Sunwater said that these differences mainly reflected adjustments for any amendments to the originally reported estimates.[166] This included the following adjustments:

- adding back flood expenses which were removed by the QCA in the 2012 review due to outstanding insurance claims[167]
- adjusting for differences between forecast 2011-12 renewals expenditure (used in the 2012 review) and actual 2011-12 renewals expenditure
- adjusting for differences between reported 2011–12 annuity income and the prices that actually applied in 2011–12
- adjusting for 2011–12 Intersafe project management costs that were missed in original reporting for 2011–12
- adjusting for differences in financing/interest costs resulting from the above adjustments.[168]

QCA assessment

The referral asks us to recommend prices based on recovering costs including an appropriate allowance for prudent and efficient expenditure on renewing existing assets. An appropriate allowance should be adequate to maintain and replace existing assets.

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.[169] The annuity is calculated at the start of each year to achieve a zero closing annuity balance at the end of the term (20 or 30 years). 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.

Sunwater's 2012–13 opening annuity balances across all schemes are significantly different to our recommended 2012–13 opening annuity balances.[170]

As a starting point for our analysis, we have therefore reconciled the 2011–12 opening annuity balances for each scheme between those used in the 2012 review, and those underlying Sunwater's November 2018 submission. We note that in the 2012 review, the annuity account in 2011–12 reflected 2011–12 forecast renewals costs and excluded flood costs from the 2010–11 flood event for which the associated insurance claims process had not been finalised.

We have made the following adjustments to the established 2011–12 opening annuity balance to get a revised opening 2012–13 annuity balance for each scheme:

- including prudent and efficient 2011–12 flood renewals costs, adjusted for insurance claim recoveries[171]
- adjusting for differences between forecast 2011–12 renewals expenditure (used in the 2012 review) and our assessment of prudent and efficient 2011–12 renewals costs.

[166] Sunwater response to QCA RFI 3.
[167] Flood renewals costs were excluded from the annuity account in the 2012 review as the associated insurance claims had not been finalised.
[168] Sunwater response to QCA RFI 2.
[169] As mentioned above, the term of the annuity (or planning period) was 20 years in the 2012 review.
[170] See QCA, *SunWater Irrigation Price Review: 2012–17, final report*, May 2012, p. 135.
[171] Sunwater has advised that all insurance claims associated with the 2010–11 flood event have been finalised except for those associated with flood renewal costs in the Boyne River and Tarong WSS.

We note that the following adjustments that Sunwater made to its 2020–21 opening annuity balance reflected differences between Sunwater's NSP reporting and our 2012 review estimates:

- adjustments for differences between reported 2011–12 annuity income and the prices that actually applied in 2011–12
- adjustments for 2011–12 Intersafe project management costs that were missed in original reporting for 2011–12.

We note that these two adjustments were correctly incorporated in our 2012 review modelling, so we have not made these adjustments.

The difference between prudent and efficient renewals expenditure over previous price path periods (past renewals expenditure) and the renewals annuity received over the same period is an important determinant of opening annuity balances for 1 July 2020. We assessed the prudency and efficiency of historical renewals expenditure (from 2011–12 to 2019–20) in Chapter 3.

Consistent with our 2012 review approach we have excluded historical flood renewals costs with insurance claims that have not yet been finalised (see Chapter 3).

We have rolled forward our revised opening 2012–13 annuity balance for each scheme each year 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:

- adding the renewals annuity allowance from our 2012 review
- subtracting our recommended prudent and efficient renewals costs (see Chapter 3)
- adjusting for interest each year using the post-tax nominal WACC of 7.49 per cent from our 2012 review.

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

Our recommended opening 2020–21 annuity balances for bulk WSSs are shown in Table 45.

Table 45 The QCA's draft opening annuity balances for 1 July 2020, bulk WSSs ($'000, nominal)

WSS	*Sunwater (November 2018)*	*Sunwater (June 2019)*	*QCA draft*
Barker Barambah	(2,545)	(2,583)	(1,915)
Bowen Broken Rivers	(5,127)	(6,222)	(5,800)
Boyne River and Tarong	(48,162)	(48,110)	(2,971)
Bundaberg	(14,314)	(14,948)	(5,749)
Burdekin-Haughton	6,059	6,180	6,524
Callide Valley	(8,441)	(8,170)	(6,037)
Chinchilla Weir	(405)	(485)	(375)
Cunnamulla	(50)	(50)	(48)
Dawson Valley	828	911	1,167
Eton	(2,640)	(2,551)	(2,303)

WSS	*Sunwater (November 2018)*	*Sunwater (June 2019)*	*QCA draft*
Lower Fitzroy	(602)	(606)	(498)
Lower Mary	(2,465)	(2,416)	(2,297)
Macintyre Brook	(3,443)	(3,335)	(3,246)
Maranoa River	(162)	(29)	(24)
Mareeba-Dimbulah	(794)	(684)	(572)
Nogoa-Mackenzie	(5,894)	(6,797)	(6,243)
Pioneer River	(5,122)	(5,192)	(4,853)
Proserpine River	(2,123)	(1,080)	(995)
St George	(1,171)	(1,521)	(1,278)
Three Moon Creek	(1,755)	(2,133)	(1,394)
Upper Burnett	(4,320)	(4,123)	(2,097)
Upper Condamine	577	481	703
Total	(102,071)	(103,463)	(40,303)

Source: Sunwater, sub. 45, November 2018; Sunwater, sub. 153, June 2019; QCA analysis.

Our recommended opening 2020–21 annuity balances for distribution systems are shown in Table 46.

Table 46 The QCA's draft opening annuity balances for 1 July 2020, distribution systems ($'000, nominal)

Distribution system	*Sunwater (November 2018)*	*Sunwater (June 2019)*	*QCA draft*
Bundaberg	6,593	6,937	9,786
Burdekin-Haughton	5,079	4,929	6,077
Eton	19	(109)	88
Lower Mary	2,254	2,389	2,496
Mareeba-Dimbulah	11,809	12,062	12,360
Total	**25,753**	**26,208**	**30,808**

Source: Sunwater, sub. 45, November 2018; Sunwater, sub. 153, June 2019; QCA analysis.

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.

Previous investigation

In the 2012 review, Sunwater proposed to calculate the renewals annuity using a 20-year term based on 24 years of forecast renewals expenditure (the additional four years being required under the proposed annual rolling methodology). Sunwater provided the following rationale for adopting a 20-year term:

- It minimises uncertainties associated with estimating expenditures over longer periods.
- Although significant expenditure may be required after 20 years (but before 30 years), there is a high degree of uncertainty as to the precise need for and timing of this expenditure.
- A 20-year time period is consistent with the planning horizon adopted by the QCA for Gladstone Area Water Board (GAWB).

In the 2012 review, we concluded that we would normally recommend the adoption of a 30-year planning period; however, the review of key factors in determining the annuity length favoured the shorter 20-year planning period.

Table 47 QCA assessment of appropriate length for planning period, 2012 review

Factor	***QCA assessment in 2012 review***
Price volatility	Price volatility increases where renewals expenditures are lumpy and a relatively short planning period (relative to asset life) is adopted. A planning period of 30 years rather than 20 years would be preferred on the basis of price smoothing considerations.
Intergenerational equity	A rolling annuity approach will substantially recover the cost of long life assets within the term of the planning period. Problems of intergenerational equity arising from significant capital expenditure projects may be more apparent in shorter planning periods. Accordingly, a 30-year planning period was considered more appropriate to address intergenerational equity.
Uncertainty	In any forecasts, there is a degree of uncertainty. While such uncertainty favours a shorter period (20 years) over a longer planning period (30 years), if the expenditures are appropriately scoped and costed, this uncertainty can be managed.

While the underlying principles generally supported a 30-year approach, we decided to apply a 20-year approach. At the time, we were concerned that the 30-year period could result in increases in the renewal annuity payments that were based on projects with a high degree of cost uncertainty. We noted that the more appropriate response would be to improve the forecasting of costs in the outer years rather than shorten the annuity period. However, given the uncertainty of the project costs we determined a 20-year approach was appropriate.

Based on the reasoning above, we accepted Sunwater's proposal for a 20-year planning period in the 2012 review. We recommended that the length of the planning period should be reviewed in the event that intergenerational equity issues arose due to significant capital expenditure proposals.

Sunwater's submission

In its November 2018 submission, Sunwater proposed a rolling annuity approach with a 30-year planning period.[172]

Sunwater indicated that the majority of customer representatives supported a 30-year approach, although some support existed for retaining the 20-year approach. Sunwater indicated that support for the 30-year approach was formally endorsed by the Proserpine Irrigator Advisory Committee and the Mareeba-Dimbulah Irrigation Area Council.

Sunwater indicated that since the 2012 review, it has made improvements to forecasting the expenditure profiles in years beyond the first 20 years.

[172] Sunwater, sub. 11, p. 60.

Other stakeholders' submissions

Irrigation stakeholders in Barker Barambah WSS and Proserpine River WSS provided views on the appropriate planning period for the renewals annuity.

The Barker Barambah Irrigator Advisory Committee (IAC) indicated support for a 20-year renewals period.[173] The Barker Barambah IAC indicated that the 30-year period included a large spend for possible repair works for dam anchors when the assessment of the anchors will occur within the next five years. Weier Farming indicated its support for the submission by the Barker Barambah IAC.[174]

Silverleaf Farming Pty Ltd, S Nicholson and Hetherington Farming all indicated support for the retention of a 20-year planning period until the dam anchor assessments have occurred. [175]

Canegrowers Proserpine supported a 30-year annuity period indicating that the 30-year approach addressed the intergenerational issues associated with the 20-year approach.[176]

QCA assessment

In theory, a renewals annuity should be calculated over a term equivalent to the longest life asset in the RAB. Where the term for a renewals annuity is shorter than the term of the longest life asset in the RAB, 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.

We consider that both 20-year and 30-year planning periods may result in intergenerational equity issues, given that a 20-year or 30-year planning period does not cover the longest life asset in Sunwater's asset base.

In the 2012 review, our concerns regarding forecast renewals expenditure in the outer years resulted in us choosing a 20-year planning period. We noted that the appropriate response was for Sunwater to improve the reliability of the costs and scope of longer-term renewals projects, and recommended that Sunwater review its renewals planning processes. However, we were concerned that the 30-year period could result in increases in the renewal annuity payments that were based on projects with a high degree of cost uncertainty.

We note the assessment from our consultant AECOM for this review that while there have been some improvements made in Sunwater’s renewals planning approach, there is still significant room for improvement.

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 bulk WSSs, the total renewals annuity allowance is 1 per cent lower under a 30-year as compared to a 20-year planning period. Under the 30-year period, 12 of the 22 schemes have a lower annuity allowance, compared to 20-year planning period, with 5 of the remaining 10 schemes have a higher allowance by less than 10 per cent (Table 48).

[173] Barker Barambah IAC, sub. 83, p. 3.
[174] Weier Farming, sub. 145, p. 1.
[175] Silverleaf Farming Pty Ltd, sub. 137, p. 1; S Nicholson, sub. 126, p. 1; Hetherington Farming, sub. 107, p. 3.
[176] Canegrowers Proserpine, sub. 97, p. 1.

Table 48 Total renewals annuity allowance over 2020–24 period—20-year vs 30-year planning period, bulk WSSs ($'000, nominal)

WSS	*20-year planning period*	*30-year planning period*	*% difference*
Barker Barambah	3,014	5,249	**74.1**
Bowen Broken Rivers	3,496	3,445	**(1.5)**
Boyne River and Tarong	2,742	2,595	**(5.3)**
Bundaberg	15,141	12,545	**(17.1)**
Burdekin-Haughton	4,111	4,829	**17.5**
Callide Valley	12,358	10,629	**(14.0)**
Chinchilla Weir	790	713	**(9.8)**
Cunnamulla	131	172	**31.9**
Dawson Valley	3,298	3,593	**9.0**
Eton	3,181	3,175	**(0.2)**
Lower Fitzroy	682	555	**(18.6)**
Lower Mary	997	865	**(13.2)**
Macintyre Brook	2,571	2,538	**(1.3)**
Maranoa River	94	184	**94.4**
Mareeba-Dimbulah	2,561	2,661	**3.9**
Nogoa-Mackenzie	5,700	5,302	**(7.0)**
Pioneer River	4,020	4,302	**7.0**
Proserpine River	1,861	3,450	**85.4**
St George	2,538	2,551	**0.5**
Three Moon Creek	2,205	2,120	**(3.8)**
Upper Burnett	2,945	2,845	**(3.4)**
Upper Condamine	2,915	2,959	**1.5**
Total	**77,351**	**77,277**	**(0.1)**

Source: QCA analysis.

For distribution systems, the total renewals annuity allowance is 24 per cent higher under a 30-year, compared to a 20-year planning period, with all distribution systems having a higher annuity allowance under a 30-year planning period. However, we note that the annual annuity allowance under a 30-year planning period for all distribution systems is lower than the level we recommended in the 2012 review (Table 49).

Table 49 Total renewals annuity allowance over 2020–24 period—20-year vs 30-year planning period, distribution systems ($'000, nominal)

Distribution system	*20-year planning period*	*30-year planning period*	*% difference*
Bundaberg	4,585	6,049	**31.9**
Burdekin-Haughton	7,099	8,131	**14.5**
Eton	1,881	2,101	**11.7**
Lower Mary	776	879	**13.2**
Mareeba-Dimbulah	2,224	3,438	**54.6**
Total	**16,566**	**20,598**	**24.3**

Source: QCA analysis.

We consider that there are difficulties in accurately forecasting expenditure over a 20-year or 30-year planning period to achieve an appropriate renewals annuity allowance. While our preference under a renewals annuity approach would be a planning period of longer than 30-years, we consider that our concerns with accurately forecasting expenditure would be exacerbated over a longer period.

Our preference for this review is a 30-year rather than 20-year planning period. We consider that the pricing impacts of moving to a 30-year planning period are lessened with the adjustments that we have made to extend the timing of longer term renewals (section 3.5). The longer planning period also smooths the pricing impact of flood renewals projects, which may have a further impact on the negative annuity balances in many schemes once the insurance claim processes are finalised.

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 Sunwater's opportunity cost of funds.

Sunwater's submission

Sunwater has proposed the following assumptions in its proposed renewals annuity approach:

- calculating the renewals annuity in real terms using a real discount rate equivalent to its real post-tax WACC
- indexing the renewals annuity using an assumed inflation rate.[177]

Sunwater said that these assumptions are consistent with the QCA's recommended approach in the 2012 review.

Other stakeholders' submissions

Wide Bay Burnett Regional Organisation of Councils (WBBROC) submitted that the financing costs for negative annuity balances should be underwritten by the Government and calculated at the

[177] Sunwater, sub. 11, p. 57.

Commonwealth discount rate of interest or the Reserve Bank reference rate under a community service obligation (CSO) or transparent subsidy.[178]

QCA assessment

Sunwater has proposed to apply a discount rate equivalent to its real post-tax WACC for calculating the annuity. It has also proposed and an equivalent nominal post-tax WACC rate to apply to positive and negative annuity balances.

Consistent with the 2012 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 the Sunwater's opportunity cost of funds. On this basis, we accept Sunwater's proposed approach in principle, noting that it is consistent with our recommended approach in the 2012 review. However, we have recommended a different post-tax WACC than that proposed by Sunwater (see Part A, Appendix C).

In indexing the annuity, the present value of the indexed annuity should be equivalent to the present value of the forecast costs. Sunwater's proposed approach satisfies this requirement.

Sunwater has proposed to use a rolling annual annuity.

Based on the findings in this section, we have calculated recommended renewals annuities for each of Sunwater's schemes (Table 50 and Table 51).

Table 50 The QCA's draft recommended renewals annuities for 2020–24, bulk WSSs ($000, nominal)

WSS	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Barker Barambah	1,087	1,150	1,501	1,511
Bowen Broken Rivers	852	856	863	874
Boyne River and Tarong	638	640	643	674
Bundaberg	3,097	3,119	3,146	3,183
Burdekin-Haughton	1,121	1,154	1,229	1,324
Callide Valley	2,630	2,636	2,665	2,698
Chinchilla Weir	175	176	178	183
Cunnamulla	32	46	47	48
Dawson Valley	852	889	918	935
Eton	778	785	799	814
Lower Fitzroy	136	136	137	146
Lower Mary	213	216	217	219
Macintyre Brook	603	612	658	665
Maranoa River	46	46	46	46
Mareeba-Dimbulah	649	655	670	686
Nogoa-Mackenzie	1,268	1,299	1,339	1,396

[178] WBBROC, sub. 148, p. 8.

WSS	2020–21	2021–22	2022–23	2023–24
Pioneer River	982	1,060	1,118	1,141
Proserpine River	448	794	1,102	1,106
St George	607	612	661	671
Three Moon Creek	502	526	544	549
Upper Burnett	691	704	721	729
Upper Condamine	711	733	754	761
Total	**18,117**	**18,843**	**19,957**	**20,360**

Source: QCA analysis.

Table 51 The QCA's draft recommended renewals annuities for 2020–24, distribution systems ($000s, nominal)

Distribution system	2020–21	2021–22	2022–23	2023–24
Bundaberg	1,425	1,490	1,533	1,601
Burdekin-Haughton	1,944	2,010	2,068	2,109
Eton	501	511	542	548
Lower Mary	193	199	226	262
Mareeba-Dimbulah	779	853	880	926
Total	**4,841**	**5,063**	**5,249**	**5,446**

Source: QCA analysis.

Seqwater has, based on engagement with customers, proposed to reinvest surpluses from schemes with prices above the cost-reflective level into the annuity balance. While we have accepted this approach based on Seqwater's proposal, we note that Sunwater has not proposed a similar approach.

4.3 Dam safety upgrade capital expenditure allowance

Under the referral, we are required to provide an alternative pricing option that includes an apportionment of an appropriate allowance for dam safety upgrade capital expenditure. Our proposed approach for apportioning dam safety upgrade capital expenditure is outlined in Chapter 4 of Part A of the draft report. Our assessment of the prudency and efficiency of Sunwater's planned dam safety upgrade capital expenditure program over the price path period in set out in Chapter 3.

4.3.1 Sunwater's submission

Sunwater has proposed a RAB-based approach for calculating the allowance for dam safety upgrade capital expenditure. Sunwater said that it had proposed a RAB approach rather than the annuity approach it generally uses for renewals, as the magnitude of the dam safety costs would result in large price increases under a renewal approach.[179]

[179] Sunwater, sub. 11, p. 63.

Sunwater proposed to incorporate dam safety upgrade expenditure in the RAB on an as-incurred basis.[180] Sunwater said that it proposed an as-incurred basis for the following reasons:

- This approach provided greater cost transparency to stakeholders, since it assists stakeholders to gauge the potential cost impact over the 2020–21 to 2023–24 period.
- This approach allowed Sunwater to be compensated for any financial hardship experienced on constructing assets with long commissioning times (by providing a return on capital).
- Since dam safety upgrade capex is largely driven by regulatory compliance, the commissioning date is irrelevant to customer service delivery as no additional services are provided after the capex is commissioned.
- Since the referral notice indicated that dam safety upgrade capital expenditure incurred from 1 July 2020 onwards should be included this implies that an 'as-incurred' approach is an appropriate basis for recovery of costs.[181]

Sunwater has proposed using a pre-tax nominal WACC to determine the rate of return on the RAB.[182] Sunwater provided the following reasons for using a pre-tax WACC rather than post-tax WACC for dam safety upgrade capex:

- For regulatory purposes, Sunwater has assumed infinite lives (i.e. no regulatory depreciation) for dam safety upgrade capex. If the equivalent assumption was adopted for tax depreciation purposes, there should be no difference between regulatory outcomes under both pre-tax and post-tax WACC approaches.
- Different asset lives (for regulatory and tax depreciation purposes) would result in a material divergence in future regulatory and tax asset values and potential intergenerational equity issues between current and future customers.
- The estimation of tax liabilities on dam safety upgrade capex would require separation of notional tax liabilities between dam safety upgrade capex and other Sunwater assets.
- A pre-tax approach is simpler and easier for customers to understand.[183]

Sunwater has proposed no return of capital (regulatory depreciation) for the dam safety upgrade based on these assets being maintained in perpetuity.[184] That is, Sunwater has proposed an infinite regulatory asset life.

4.3.2 QCA assessment

As a regulatory compliance cost, dam safety upgrade capital expenditure 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.

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180 Sunwater, sub. 11, p. 53.
181 Sunwater response to RFI 14.
182 Sunwater, sub. 45.
183 Sunwater response to RFI 15.
184 Sunwater, sub. 11, p. 63

We also 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 capital expenditure. Under the renewals annuity approach, the recovery of dam safety upgrade capital expenditure 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 other investigations, we have assumed an asset life of 150 years for similar dam safety upgrades to those proposed by Sunwater.[185]

We accept Sunwater's proposal that a RAB-based approach is appropriate for calculating an appropriate allowance for the prudent and efficient capital expenditure on dam safety upgrades. However, in this case we consider that a RAB-based approach should recover only the return of and on the initial dam safety upgrade capital expenditures over the useful life of the asset, and not the return of and on any progressive capex outlays required to maintain the serviceability of the initial dam safety upgrade asset.

In our view, these progressive capex outlays would normally be included in Sunwater's renewals program. This is because, as a practical matter, it would be difficult in most cases to separate such works physically from other renewals activities associated with the particular dam of concern. Therefore, to avoid the double counting of these progressive capex outlays (that is, in both renewals and RAB-based allowances), it would be necessary for Sunwater to clearly identify the treatment of dam safety upgrade expenditures in its accounts so that only the return of the initial dam safety upgrade outlay through the depreciation allowance, and the return on its progressive depreciated amount, is recovered through RAB-based allowances.

Moving to a RAB-based approach for renewals expenditure (see section 4.2.1) would resolve this issue and provide for consistency with Sunwater's proposed approach for recovering irrigators' share of dam safety upgrade capex.

In previous investigations, we have generally recognised capital expenditure 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. We consider that dam safety upgrade capital expenditure is similar in nature to capital expenditure 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.

We consider it is appropriate to align the timing the incurrence of this capital expenditure when commissioned as is the usual practice, rather than based on preliminary estimates. Recognising capital expenditure in the RAB from the year it is incurred (i.e. on an as-incurred basis) would bring forward the cost recovery and impact on customers' prices prior to the benefit being delivered. While we note Sunwater's concerns in relation to compensation for any financial hardship experienced in constructing assets with long commissioning times, we note that the as-commissioned and as-incurred approaches will be net present value neutral over the life of the asset.

Under the existing regulatory framework for irrigation prices, an ex post review of actual capital expenditure would be undertaken if costs are higher than previously approved forecasts to ensure that only prudent and efficient costs are recovered in prices.

For existing major long-life assets capable of being maintained in perpetuity, we consider that it would be reasonable for a business to expect a return of capital over a defined period as there is

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

a need for commercial certainty about investment. We consider that an asset life of 150 years is appropriate for regulatory depreciation.

Table 52 Allowance for dam safety upgrade capital expenditure for 2020–24 ($'000, nominal)

WSS	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Macintyre Brook	–	–	54	111
Nogoa-Mackenzie	401	819	833	847
Pioneer River	–	–	82	167
Upper Condamine	–	246	503	511
Total allowance	**401**	**1,065**	**1,472**	**1,636**

Note: Totals may not add due to rounding. The allowances above are derived using dam safety upgrade capex incurred after 1 July 2020 and commissioned prior to the end of the price path period (30 June 2024).

Source: Sunwater response to QCA RFI 58; QCA analysis.

4.4 Working capital allowance

4.4.1 Sunwater's submission

Sunwater has not proposed a working capital allowance.[186]

4.4.2 QCA assessment

By far the largest portion of irrigators' payments to Sunwater relates to fixed (Part A and C) prices which are paid in advance. This means that, for irrigation activities, it is likely that average creditors exceeds average debtors, and Sunwater 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. This is consistent with our approach in the 2013 Seqwater irrigation price review, where we decided not to incorporate a working capital allowance.

4.5 Revenue offsets

4.5.1 Sunwater's submission

Sunwater submitted that it had reduced its cost building block by offsets that are recovered through other charges, notably drainage charges and access charges. Sunwater said that most of these amounts are immaterial in nature, with the annual revenue offset across all schemes totalling $2.1 million in 2020–21.

4.5.2 QCA assessment

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

[186] Sunwater, sub. 11, p. 55.

4.6 Tax allowance

Under the referral, we have been asked to provide Sunwater with an allowance for tax (if applicable).

In the 2012 review, we said that the QCA's efficient costs were equivalent to the definition of lower bound.[187] Given the definition of lower bound pricing excludes income tax, we did not calculate a separate tax allowance.

4.6.1 Sunwater's submission

While Sunwater used a post-tax nominal WACC to derive its renewals annuity allowance, it proposed to use a pre-tax WACC to derive the return on capital component of the dam safety upgrade capital expenditure allowance.[188] Sunwater said that the use of a pre-tax WACC meant that there was no requirement to estimate the tax component related to dam safety upgrade capital expenditure.

4.6.2 QCA assessment

For Sunwater's irrigation business, the referral directs the QCA to recommend prices that do not consider Sunwater's existing 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 excluded from the asset base and treated as 'operational'—i.e. deductible for tax purposes. As a result, there is no tax liability associated with renewing existing assets.

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

For the purpose of deriving an appropriate allowance for dam safety upgrade capital expenditure, we accepted Sunwater's proposal that prudent and efficient capital expenditure on dam safety upgrades be included in its asset base.

Sunwater said that under current tax rules, Sunwater is considered an irrigation water provider and applies Subdivision 40-F of the Income Tax Assessment Act 1997.[189] As an irrigation water provider, Sunwater fully deducts all capital costs for tax purposes in the year in which the capital cost is incurred.

As we apply a nominal post-tax WACC to calculate the renewals and dam safety allowances (see sections 4.2 and 4.3), our general approach is to include an explicit allowance for tax that reflects the benchmark tax liabilities of the regulated business. We calculate tax by applying a tax rate of 30 per cent (adjusted for the effects of dividend imputation) to taxable income.

We have calculated a tax allowance that treats Sunwater's dam safety upgrade capital expenditure as immediately deductible for tax purposes. The opportunity to immediately expense non-routine costs is an option available to Sunwater to reduce the present value of tax costs. We consider that an approach that reflects lower tax costs in irrigation prices is consistent with the notion of deriving benchmark tax liabilities.

[187] QCA 2012, p. 408.
[188] Sunwater, sub. 45, November 2018.
[189] Sunwater response to QCA RFI 46. Sunwater said that this rule applies to all QCA-regulated bulk water and distribution systems in Sunwater except Lower Fitzroy headworks, Bowen Broken headworks and Boyne River headworks.

Consistent with Sunwater's actual tax costs over the price path period for the irrigation service contracts, we consider that a zero tax allowance is appropriate for this investigation.

4.7 Total revenue requirement

Total scheme costs are presented in Table 53 below. These reflect the total costs across Sunwater's schemes that are the subject to our investigation, and will be allocated between irrigation and other scheme users in Chapter 7.

Table 53 Total whole of scheme costs 2020–24 ($' millions, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*	*QCA draft total*	*Sunwater total*
Operating costs	62.4	65.3	67.6	68.8	**264.0**	**290.8**
Renewals annuity	23.0	23.9	25.2	25.8	**97.9**	**133.3**
Revenue offsets	(1.7)	(1.7)	(1.7)	(1.8)	**(6.9)**	**(6.9)**
Tax	-	-	-	-	**-**	**-**
Total costs	**83.7**	**87.5**	**91.1**	**92.8**	**355.0**	**417.2**

Note: 1. Excludes dam safety upgrade capital expenditure allowance. 2. The Sunwater total is based on the November 2018 submission. Totals may not add due to rounding.

Source: Sunwater, sub. 45, November 2018; QCA analysis.

Table 54 below presents draft total costs by bulk WSS for 2020–21.

Table 54 Total costs for bulk WSSs, 2020–21 ($'000, nominal)

WSS	*Operating costs*	*Renewals annuity*	*Revenue offsets*	*Tax*	*Total*
Barker Barambah	1,026	1,087	(3)	-	**2,110**
Bowen Broken Rivers	1,248	852	-	-	**2,100**
Boyne River and Tarong	917	638	(1)	-	**1,553**
Bundaberg	1,579	3,097	(7)	-	**4,669**
Burdekin-Haughton	3,099	1,121	-	-	**4,220**
Callide Valley	1,624	2,630	(2)	-	**4,252**
Chinchilla Weir	112	175	(1)	-	**286**
Cunnamulla	45	32	-	-	**77**
Dawson Valley	967	852	(2)	-	**1,817**
Eton	1,709	778	-	-	**2,487**
Lower Fitzroy	223	136	-	-	**359**
Lower Mary	136	213	(2)	-	**348**
Macintyre Brook	1,123	603	(1)	-	**1,725**
Maranoa River	31	46	-	-	**77**

WSS	*Operating costs*	*Renewals annuity*	*Revenue offsets*	*Tax*	*Total*
Mareeba-Dimbulah	1,425	649	(95)	-	**1,979**
Nogoa-Mackenzie	2,090	1,268	-	-	**3,358**
Pioneer River	1,358	982	(1)	-	**2,339**
Proserpine River	1,196	448	-	-	**1,645**
St George	1,207	607	(5)	-	**1,808**
Three Moon Creek	610	502	(2)	-	**1,109**
Upper Burnett	958	691	(1)	-	**1,648**
Upper Condamine	1,374	711	(2)	-	**2,083**
Total	**24,056**	**18,117**	**(126)**	**-**	**42,047**

Note: Excludes dam safety upgrade capital expenditure allowance.

Source: QCA analysis.

Table 55 below presents draft total costs by distribution system for 2020–21.

Table 55 Total costs for distribution systems, 2020–21 ($'000, nominal)

WSS	*Operating costs*	*Renewals annuity*	*Revenue offsets*	*Tax*	*Total*
Bundaberg	10,891	1,425	(4)	–	**12,312**
Burdekin-Haughton	17,117	1,944	(847)	–	**18,214**
Eton	3,136	501	(2)	–	**3,634**
Lower Mary	1,060	193	–	–	**1,253**
Mareeba-Dimbulah	6,105	779	(675)	–	**6,208**
Total	**38,309**	**4,841**	**(1,529)**	**–**	**41,622**

Note: Excludes dam safety upgrade capital expenditure allowance.

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) charge is based on an assumed level of water use for the scheme as a whole.

In this chapter, we outline and explain our estimated WAEs and usage volumes, which are used to convert Sunwater's revenue requirement into prices for each tariff group.

For a given level of costs allocated to each tariff group or scheme, a lower (higher) volume of WAE/usage will lead to a higher (lower) fixed/volumetric price.

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. In addition to calculating prices, forecast WAEs are also used to allocate some fixed costs[190] between medium and high priority WAEs customers in each scheme.

5.1.1 Sunwater's submission

Sunwater said that its forecast water access entitlements were based on 2016–17 data that had been reconciled with information published on the Government's website (where available).[191]

Adjustments to WAE data

Sunwater proposed some adjustments to the 2016–17 data to reflect adjustments for costing and pricing purposes made in the 2012 review. Adjustments that are consistent with the previous review and proposed for the next price path are outlined in Table 56.

Table 56 Sunwater's adjustments to WAE consistent with 2012 review

Scheme	*Adjustment*
Burdekin-Haughton (distribution)	Removed 110,000 ML of medium priority WAE that Sunwater holds on behalf of the Townsville Thuringowa Water Supply Joint Board, consistent with the QCA's 2012 review approach of not allocating distribution costs to these entitlements.
Bundaberg (bulk)	Excluded WAE for Paradise Dam. Paradise Dam is owned and operated by Burnett Water Pty Ltd (a wholly owned Sunwater subsidiary). The referral for the 2012 review specifically excluded these services from the scope of the QCA's investigation (as is the case for the current review).
Bundaberg (distribution)	Included WAE and associated water deliveries for distribution services provided to customers with WAE for water delivered from Paradise Dam.
Eton (bulk & distribution)	Added 700 ML of High-A priority WAE (equivalent to high priority) to the industrial customer segment, relating to WAE in the Pioneer Valley WSS delivered through the Eton bulk and distribution system.

[190] Except for asset related headworks (bulk) costs, which are allocated between medium and high priority WAE customers using the headworks utilisation factor.

[191] Business Queensland, Current locations, https://www.business.qld.gov.au/industries/mining-energy-water/water/water-markets/current-locations.

Scheme	Adjustment
Lower Mary River (bulk)	Added 1,360 ML of high priority and 2,690 ML of medium priority WAE for Teddington Weir (owned by Wide Bay Water). Under the existing ROP, Sunwater must transfer water from the Lower Mary River WSS to the Teddington Weir WSS when certain conditions are met.
Upper Burnett	Excluded WAE associated with Kirar Weir (owned by Burnett Water Pty Ltd). The referral excludes these services from the scope of the QCA's investigation.

Source: Sunwater, sub. 49, pp. 12–13.

In addition to the 2012 review adjustments, Sunwater also excluded 504 ML of risk priority water entitlements from the Eton distribution WAEs. This relates to the Mirani diversion channel customers who do not use the distribution system.

Free water allocations

In the 2012 review, some WAE holders in the Barker Barambah and Burdekin-Haughton WSSs had pre-existing rights to free water (referred to as free water allocations). In the 2012 review, we said that these rights should be maintained where they continue as part of an existing agreement or as part of current legislative or Government policy. The costs of providing the free water allocations were shared across the other customers of the relevant scheme, including irrigation customers.

Table 57 outlines Sunwater's proposed adjustments for WAE treated as free water allocations in the 2012 review.

Table 57 Adjustments to the free water allocations in the 2012 review

Scheme	Adjustment
Barker Barambah	1,058 ML that was treated as free water allocations in the 2012 review (and therefore, scheme costs were recovered from all other customers including irrigators) is now assigned to high priority urban customers following changes in legislative requirements.
Burdekin-Haughton (bulk)	Sunwater said that 185,000 ML of bulk water supplied to Lower Burdekin water is covered under the CSO payment from the Queensland Government and is no longer covered by the Burdekin-Haughton water supply scheme

Source: Sunwater, sub. 49, p. 13.

5.1.2 Other stakeholders' submissions

Lower Burdekin water supports the allocation of the 185,000 ML of free water with the costs covered by the CSO. [192]

5.1.3 QCA assessment

We have reconciled Sunwater's proposed WAE forecasts at the scheme level with our forecasts in the 2012 review and with information published on the Government's website (where available).

We note that the treatment of the 185,000 ML of bulk water supplied to Lower Burdekin Water is consistent with the requirements of the referral. Specifically, paragraph G in Schedule 2 directs

[192] Lower Burdekin, sub. 118, p. 3.

us to recommend prices that do not recover the costs of Sunwater supplying 185,000 ML to Lower Burdekin Water from remaining water entitlements (including irrigators).

We are satisfied that Sunwater's proposed adjustments result in WAE forecasts that are an appropriate basis for deriving fixed prices.

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 2012 review, we sought to align our approach to estimating annual volumes for deriving volumetric prices with the 'typical year' basis upon which direct operations and maintenance costs were estimated. Sunwater based its forecasts of direct operations and maintenance costs on an average of historical costs, with adjustments for costs not considered to be representative such as those driven by severe drought and/or flood impacts.

In the 2012 review, data on eight years of historical water use was available for each WSS and distribution system. The eight-year period was found to include up to three years of very low water usage as a result of either severe drought or flood impacts.[193] We indicated that we would prefer data on 10 years or more to be available for all schemes for the calculation of the average water use. However, this information was not available for all sectors.

Given that Sunwater's eight-year average (eight years up to and including 2009–10) included up to three abnormally low water usage years, we recommended the removal of the three lowest water usage years and estimated average water year from the remaining five years of data. This created an estimated typical or average all sectors water use year for the exclusive purpose of recommending an all sectors volumetric tariff.

5.2.2 Sunwater's submission

Sunwater proposed to use a 15-year simple average forecast usage for each water scheme.

Sunwater proposed a 15-year average over the period 2002–03 to 2016–17 with no removal of individual water use years.[194] Sunwater submitted that a typical year that does not include drought or flood is not representative of their customers operating environment. Sunwater submitted that a 15–year simple averaging approach is consistent with IPART's 2017 decision for WaterNSW.

Sunwater's proposed water usage figures are compared to our forecasts from the 2012 review and actuals over the previous price period in Table 58 and Table 59.[195]

Table 58 Sunwater's submitted usage estimates in bulk WSSs (per cent of WAE)

WSS	*QCA 2012 review (forecast)*	*2012–17 average (actual)*	*Sunwater proposed (simple 15-year average)*
Barker Barambah	55%	50%	38%

[193] QCA, *SunWater Irrigation Price Review 2012–17,* Volume 1, final report, April 2012, p. 383.
[194] Sunwater, sub. 11, p. 72.
[195] Sunwater, sub. 49, p. 15.

WSS	*QCA 2012 review (forecast)*	*2012–17 average (actual)*	*Sunwater proposed (simple 15-year average)*
Bowen Broken Rivers	43%	38%	39%
Boyne River and Tarong	54%	58%	50%
Bundaberg	47%	58%	44%
Burdekin-Haughton	56%	61%	55%
Callide Valley	52%	68%	58%
Chinchilla Weir	61%	64%	54%
Cunnamulla	74%	58%	61%
Dawson Valley	71%	63%	57%
Eton	54%	40%	39%
Lower Fitzroy	70%	67%	66%
Lower Mary River	33%	39%	28%
Macintyre Brook	81%	52%	64%
Maranoa River	6%	2%	3%
Mareeba-Dimbulah	69%	72%	65%
Nogoa Mackenzie	83%	75%	70%
Pioneer River	44%	32%	34%
Proserpine River	62%	41%	43%
St George	94%	96%	84%
Three Moon Creek	51%	40%	38%
Upper Burnett	66%	53%	53%
Upper Condamine	54%	56%	45%

Source: Sunwater, sub. 45, November 2018.

Table 59 Sunwater's submitted usage estimates in distribution systems (per cent of WAE)

Distribution system	*QCA 2012 review (forecast)*	*2012–17 average (actual)*	*Sunwater proposed (simple 15-year average)*
Bundaberg	48%	61%	45%
Burdekin-Haughton	76%	73%	66%
Eton	54%	40%	39%
Lower Mary River	43%	39%	30%
Mareeba-Dimbulah	67%	73%	65%

Source: Sunwater, sub. 45, November 2018.

In June 2019, Sunwater provided updated estimates for 16-year average water use, covering the period 2002–03 to 2017–18.

5.2.3 Other stakeholders' submissions

Bundaberg Regional Irrigators Group (BRIG) requested that the QCA review the 15-year average and the application of distribution losses and the Burnett Water[196] adjustment to the Bundaberg water use.[197]

5.2.4 QCA assessment

An assumed level of water usage for each WSS and distribution system is required in this investigation for the purpose of calculating the recommended volumetric (Part B and Part D) tariffs in each tariff group. Consistent with the 2012 review, our estimate of scheme-level variable costs are divided by the assumed level of water usage to calculate the volumetric tariff.

As outlined in Chapter 2 (Part A), a tariff structure that aligns closely with the businesses' cost structure can mitigate revenue risk. By closely aligning the volumetric component of tariffs with variable costs, revenues collected from the volumetric tariff will adjust to reflect changes in customer demand.

The variable costs used to derive the Part B and Part D tariffs comprise a portion of the electricity costs and direct operations and maintenance costs in each WSS and distribution system.

For forecast operations and maintenance costs, Sunwater proposed a base-step-trend approach, which uses budget figures from its 2018–19 Statement of Corporate Intent as the base year. Our concerns with adopting a base year based on budget forecasts are noted in Chapter 2. While we are generally in agreement with the use of the base-step-trend approach, we have instead accepted the base year forecasts recommended by our consultant AECOM, based on historical averaging to address year-to-year variability in operations and maintenance activities at the individual scheme level.

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 variable costs.

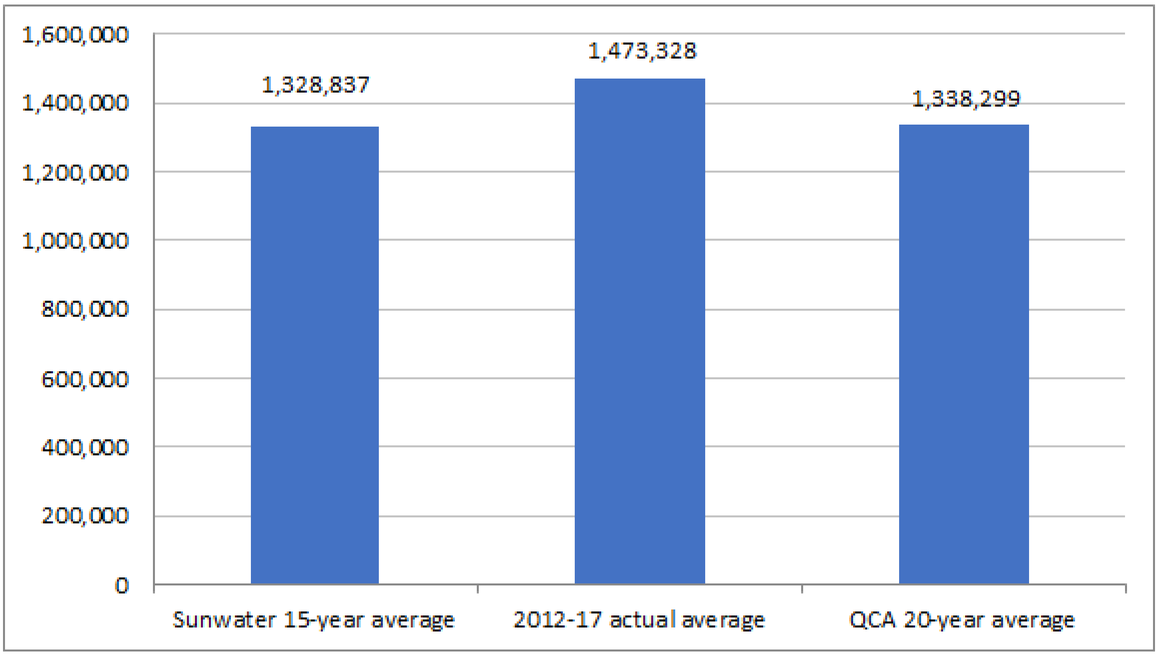
In the 2012 review we were concerned that the averaging period included up to three years of abnormally low water usage (reflecting severe drought and/or flood impacts mainly during the period up to and including 2010–11). However, we now have an additional seven years of usage data from 2011–12 to 2017–18 to use in an averaging approach.

Consistent with our approach for Seqwater, we have also made use of historical data to create an extended 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. A simple averaging approach results in revenue and pricing outcomes that are both simple and transparent to customers.

Figure 29 shows water use estimate derived using a 20-year averaging period, compared with actual water use over the previous price path period from 2012–13 to 2016–17.

[196] Burnett Water is a subsidiary of Sunwater that owns Paradise Dam. Under the referral, the QCA is not required to recommend prices for water services provided by Burnett Water. However, the WAE and usage estimates need to include Burnett Water allocations delivered through the Bundaberg distribution system.
[197] Bundaberg Regional Irrigators Group, sub. 87, p. 13.

Figure 29 Comparison of total water use, total bulk water (ML/year)



Notes: 1. This data includes water deliveries to Lower Burdekin Water in the Burdekin-Haughton WSS and includes water deliveries associated with natural flows in some schemes. 2. Also includes bulk water delivered to distribution system customers. Sunwater's 15-year average relates to the period from 2002–03 to 2016–17.3. Our 20-year average relates to the period from 1998–99 to 2017–18.

Source: Sunwater, sub. 45, November 2018.

We have derived water use estimates for each WSS and distribution system, covering both medium and high priority WAE customers. Sunwater advised that it cannot split water use by priority group, as it does not distinguish between different priorities of water used by customers that have a mix of medium and high priority WAE.

The variability in climatic conditions throughout Queensland makes accurately forecasting water usage at the scheme level over a multi-year period challenging. Climatic conditions involve extreme conditions that will influence water usage by irrigators. We consider that a 20-year averaging period appropriately covers a range of conditions.

Table 60 outlines our proposed water usage assumptions (as a percentage of WAE) for each bulk WSS.

Table 60 Proposed water usage (per cent of WAE) in bulk WSSs

WSS	*Sunwater proposed (simple 15-year average)*	*QCA draft (simple 20-year average)*
Barker Barambah	38%	42%
Bowen Broken Rivers	39%	37%
Boyne River and Tarong	50%	56%
Bundaberg	44%	45%
Burdekin-Haughton	55%	55%
Callide Valley	58%	61%
Chinchilla Weir	54%	56%
Cunnamulla	61%	59%

WSS	*Sunwater proposed (simple 15-year average)*	*QCA draft (simple 20-year average)*
Dawson Valley	57%	60%
Eton	39%	40%
Lower Fitzroy	66%	66%
Lower Mary	28%	28%
Macintyre Brook	64%	62%
Maranoa River	3%	3%
Mareeba-Dimbulah	65%	63%
Nogoa-Mackenzie	70%	73%
Pioneer River	34%	33%
Proserpine River	43%	40%
St George	84%	87%
Three Moon Creek	38%	42%
Upper Burnett	53%	58%
Upper Condamine	45%	48%

Source: Sunwater, sub. 45, November 2018; SunWater, 2000–01 Annual Report, 2001, pp. 42-43; SunWater, 2001–02 Annual Report, 2002, p. 54-55; DNR Annual Water Statistics 1999–2000; DNR Annual Water Statistics 1998-99; QCA analysis.

Table 61 outlines our proposed water usage assumptions (as a percentage of WAE) for each distribution system.

Table 61 Proposed water usage (per cent of WAE) in distribution systems

Scheme	*Sunwater proposed (simple 15-year average)*	*QCA draft (simple 20-year average)*
Bundaberg	45%	46%
Burdekin-Haughton	66%	64%
Eton	39%	41%
Lower Mary	30%	29%
Mareeba-Dimbulah	65%	63%

Source: Sunwater, sub. 45, November 2018; DNR Water Statistics (State Library) 1998–99 and 1999–20; SunWater, 2000–01 Annual Report, 2001, pp. 42-43X; SunWater, 2001–02 Annual Report, 2002, p. X54-55; QCA analysis.

To derive the distribution system volumetric (Part D) price, we have calculated the estimated water usage by applying these percentages to total distribution system WAE excluding all distribution losses.

We note BRIG's concern about the removal of excess distribution losses from total water use. However, consistent with our approach in the 2012 review, we have recommended that Sunwater bear the bulk holding (fixed) costs associated with excess distribution losses (see section 6.3).

6 PRICING FRAMEWORK ISSUES IN SUNWATER 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 specified 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 Sunwater's schemes that stakeholders raised, or that were identified for further consideration.

6.1 Background

In its submission, Sunwater said that specific irrigation pricing arrangements were a matter for the QCA and the government.[198] Sunwater's submission does not outline its proposed prices for some of the tariff groups that have complex, scheme-specific issues. Its submission describes its proposed approach to calculating cost-reflective fixed and volumetric prices, and derives indicative scheme-level prices in its published regulatory model.[199]

In the 2012 review, there were a number of pricing issues that we recommended Sunwater should investigate and consult with customers on prior to this price review. In many cases, Sunwater has not undertaken the required investigations (e.g. distribution losses), or consultation with customers has not occurred (e.g. Giru Benefited Area pricing).

Sunwater has proposed that we consult with customers on specific pricing issues including pricing and tariff structures[200], apportioning dam safety costs[201], drainage charges and drainage diversion charges[202].

We consider that Sunwater is better placed to engage with customers on these types of pricing issues, rather than the QCA. We consider that effective customer engagement provides opportunities for closer alignment of outcomes sought by Sunwater and its customers, and is more likely to produce a stronger and more accepted set of arrangements. Our assessment of Sunwater's customer engagement in the context of this review is in Chapter 10.

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

- the appropriate tariff structure and the appropriate allocation of costs between fixed and volumetric prices (section 6.2)
- the appropriate treatment of distribution loss WAEs held by Sunwater to manage losses that occur when diverting water to customers in the distribution system (section 6.3)
- the implementation of minimum access charges to cover the applicable costs (section 6.4)
- scheme-specific pricing issues, including tariff groups in Burdekin-Haughton, Mareeba-Dimbulah, Lower Mary and Bundaberg schemes (section 6.5)

[198] Sunwater, sub. 12, p. A-3.
[199] Sunwater, sub. 45.
[200] Sunwater, sub. 11, p. xiv.
[201] Sunwater, sub. 11, p. viii.
[202] Sunwater, sub. 11, p. 74.

- the review of certain tariff groups in certain specified water supply schemes, as required under the referral (section 6.6).

6.2 Tariff structure

In recommending prices, we need to determine the appropriate tariff structure and the appropriate allocation of costs between fixed and volumetric prices.

In doing so, consistent with the requirements of the referral notice, we also need to have regard to the fixed and variable nature of the underlying costs and to derive the fixed (Part A and Part C) prices independently of volumetric (Part B and Part D) prices. We also need to consider other matters, including efficient costs, efficient resource allocation, revenue sustainability, and other matters outlined in section 26 of the QCA Act.

6.2.1 Previous investigation

In the 2012 review, we concluded that customers should be allocated revenue risk and, accordingly, recommended rebalanced two-part tariff structures that better aligned prices with the underlying nature of the costs. We said that this tariff balance would also send efficient price signals.

Under our recommended two-part tariff structures, the fixed price components (Parts A and C) generally reflected fixed costs and the volumetric price components (Parts B and D) generally reflected variable costs (subject to the constraints of the Government's pricing principles).

6.2.2 Sunwater's submission

Sunwater said that the QCA’s pricing principles recognise that using variable costs as an allocator for the volumetric charge is a second-best solution to efficient pricing, which is necessary because of difficulties in calculating marginal costs for rural water supply.[203] Creating a level of complication to derive precise measurements of variable costs for each service contract and for each expenditure category seems inappropriate and costly, for no real tangible benefit to customers.

Sunwater said that it has proposed a simpler revenue allocation between fixed and volumetric prices based on a high-level estimate of variable costs that also considers some level of incentive for water efficiency. Sunwater said that its approach maintains the same relative proportions of fixed and volumetric allocations for all service contracts, but without the complexity in the calculation of the allocation method that occurred in the 2012 review.

6.2.3 Other stakeholders' submissions

Irrigator stakeholders were generally more concerned about the classification of costs as fixed or variable than they were about the approach of allocating fixed costs to the fixed component of prices and variable costs to the volumetric component of prices.

Some irrigator and local government stakeholders, particularly those in schemes with low reliability and/or drought conditions (for example, Barker Barambah WSS) also expressed concern

[203] Sunwater, sub. 49, p. 6.

about the high proportion of fixed costs in the current fixed/volumetric split and paying the fixed component of prices when there is no or little water supplied.[204]

Bundaberg Regional Council (BRC) said it has some concerns with the current fixed/volumetric tariff structure, in that the structure is heavily weighted to the Part A component.[205] This concern relates to paying a fixed fee when there is little water available. BRC would support a more flexible tariff structure, which could accommodate the diversity of users and the seasonal influences without unduly compromising Sunwater's charter.

The Wide Bay Burnett Regional Organisation of Councils supported a more flexible tariff structure to accommodate the diversity of users and seasons, without unduly compromising a general principle of cost reflectivity.[206] A full review of tariff structures should be undertaken, with a view to allowing customers to select more appropriate tariff structures.

6.2.4 QCA assessment

Tariff balance

We consider that the approach to tariff structures that we took in the 2012 and 2013 reviews are an appropriate starting point for the current review. It was based on a two-part tariff structure with a fixed component that generally aligns with the underlying fixed costs, and a volumetric component that generally aligns with the underlying variable costs.

This approach is consistent with the requirements of the referral, including the requirement to have regard to the fixed and variable nature of the underlying costs. It will also help to send signals regarding the efficient costs of providing water supply services to irrigation customers (although any price signals may be tempered to some degree by the Government's pricing principles), which in turn may promote higher-value production and efficient investment by active irrigators.

As the businesses' costs are largely fixed, aligning the tariff structure with the nature of the underlying costs is also consistent with our proposed allocation of volume risk. It will also help to address the revenue adequacy requirements in the referral notice.

In the 2012 review, we noted that Sunwater has 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.

Schemes impacted by drought

While we acknowledge the concerns raised by customers in schemes affected by drought (in particular, the Barker Barambah WSS), we consider that any relief from fixed (Part A) prices during a drought is a matter more appropriately determined by the Queensland Government. Drought assistance provided by the Queensland and Australian governments generally encompasses a range of measures and any relief from Part A charges needs to be considered in that context.

Adjusting the tariff structure would also potentially be inconsistent with the Government's pricing principles in the referral. The recommended fixed price faced by each irrigation customer under the referral is generally required to be no lower than the existing 2019–20 fixed price. This limits our ability to rebalance tariff structures.

[204] Mayne A and C, sub. 120; Barker Barambah IAC, sub. 83; Burnett Inland Economic Development Organisation, sub. 90; GKM Cooney Pty Ltd, sub. 106; Preema Partnership, sub. 129; S & J Reeves Enterprises Pty Ltd, sub. 134; Silverleaf Farming Pty Ltd, sub. 137; Nicholson, S, sub. 126.
[205] Bundaberg Regional Council, sub. 87.
[206] WBBROC, sub. 149.

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We recommend that the tariff structure should include**:**

- a volumetric price that covers variable costs associated with the delivery of water services
- a fixed price that reflects the balance of the revenue requirement allocated to the particular tariff group.

6.3 Distribution losses

To account for water losses incurred in the delivery of water in distribution systems, Sunwater owns distribution loss WAEs. These WAEs were granted to Sunwater under the Water Act 2000 when the associated schemes were included into a resource operation plan (ROP). These allocations are held by Sunwater to ensure that distribution system 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 distribution systems operated by Sunwater: Bundaberg, Burdekin-Haughton, Eton, Lower Mary and Mareeba-Dimbulah.

6.3.1 Previous investigation

In the 2012 review, we noted that in recent years for most distribution systems, actual distribution losses had been below the distribution loss WAEs held by Sunwater. We noted that this appeared to be due to two factors:

- the management of water releases under a system of announced allocations which leads to actual water use in distribution systems being lower than customer WAEs and, accordingly, water delivered to provide for losses being lower than distribution loss WAEs
- Sunwater's apparent excessive allocation of distribution loss WAEs in some distribution systems.

We noted that actual water use as a percentage of WAEs was (for most schemes) higher than delivered losses as a percentage of loss WAEs. Therefore, the announced allocation system only partially explained why actual distribution losses had been below distribution loss WAEs.

We therefore recommended that 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 costs associated with distribution loss WAEs in excess of what is required to meet actual loss releases required by Sunwater. Consequently, we recommended that any bulk holding (fixed) costs in excess of what is required to provide a reliable supply of water should be borne by Sunwater.

We recommended that Department of Natural Resources, Mines and Energy (DNRME), as the natural resource regulator, should review distribution loss WAEs to establish the efficient level Sunwater should hold before the next pricing review. We identified three avenues under the Water Act 2000 that would allow for such a review. These were amending the relevant resource operation plans (ROPs), providing a ministerial direction to Sunwater, or amending the water resource plans. Amending the relevant ROP to require a reconfiguration of Sunwater's distribution loss WAEs was considered to be the most effective option.

We said that Sunwater should consider making an application to DNRME to permanently change the purpose of the distribution loss WAEs prior to the completion of any DNRME review (in accordance with section 129A or 130 of the Water Act 2000). This could be demonstrated through operational changes, or evidence that the reduced distribution loss WAEs could still ensure the security of the WAEs held by distribution customers.

Once the purpose of the distribution loss WAEs had been changed to a tradable allocation, Sunwater could sell the newly available WAEs to customers. If the level of distribution loss WAEs in a particular year was insufficient to meet actual losses, we said that Sunwater had the ability to buy WAEs in the temporary trading market to make up the shortfall. We said that costs associated with temporary trading for this purpose could be recovered through an end-of-period adjustment.[207]

To establish the magnitude of these excess loss WAEs, we calculated the maximum per cent of distribution loss WAEs required for each priority group over the period 2002–03 to 2010–11, adjusted for usage. Consequently, if in one year all losses were required, costs associated with existing distribution loss WAEs would be fully recovered from distribution system customers.

6.3.2 Sunwater's submission

Sunwater proposed the following principles to apply to allocating bulk costs associated with distribution losses for this price path period:

- Where a distribution system is not transitioning to local management arrangements (LMA), the costs associated with distribution loss WAEs should be allocated using the same methodology adopted by the QCA in the 2012 review (updated for maximum actual distribution loss deliveries that would have been required over the 2002–03 to 2016–17 period).
- Where a distribution system is considering transitioning to LMA, customers should be allocated the bulk costs associated with the full distribution loss WAEs.
- Where a distribution system has transitioned to LMA (or transitions to LMA during the irrigation review process), distribution loss WAEs will become entitlements held by distribution system customers and will therefore bear an appropriate share.[208]

Sunwater said that once the outcomes of the LMA review process were known for all distribution systems, Sunwater would review their distribution loss WAEs and develop a strategy on their future treatment.

6.3.3 Other stakeholders' submissions

Canegrowers, Canegrowers Isis, Canegrowers Mackay, MDIAC and QFF all stated that Sunwater has the ability to seasonally trade unused distribution loss WAEs, or in some schemes carry them over from one water year to the next.[209]

Both BRC and MDIAC support methods to reduce distribution losses, including cost-effective strategies that address aging assets, and requiring Sunwater to review each scheme's distribution

[207] QCA, *SunWater Irrigation Price review: 2012–17*, final report, May 2012, pp. 75–86.
[208] Sunwater, sub. 11, pp. 71–72.
[209] Canegrowers, sub. 91, p. 3; Canegrowers Isis, sub. 93, pp. 5–6; Canegrowers Mackay, sub. 96, p. 5; MDIA Council, sub. 123, p. 3; QFF, sub. 132, p. 7.

losses to identify areas where losses can be reduced and projects put forward for external funding.[210]

BRIG expressed support for the QCA to review Sunwater's application of distribution losses.[211] However, BRIG was concerned about the removal of surplus distribution losses from total water use. BRIG considered that surplus distribution losses should continue to be included in water usage estimates for the purpose of calculating prices.

MDIAC proposed a new approach to allocating distribution loss WAEs, based on calculating an average distribution loss volume required to deliver water, where only the costs associated with that volume should be included in the distribution system costs.[212]

QFF, Canegrowers Mackay and BRIA all submitted that only the efficient requirement of distribution loss WAEs should be allocated to irrigators.[213] BRIA supported our 2012 review methodology based on updated distribution loss data from 2014–15 onwards, since Sunwater has improved the efficiency of the scheme as a result of LMA scrutiny.[214]

6.3.4 QCA assessment

We have considered stakeholder submissions and have reassessed the appropriateness of the 2012 review approach. We note that irrigation stakeholders showed general support for a methodology that allowed prudent and efficient costs associated with an efficient level of distribution loss WAE to be recovered from customers. We also note Sunwater has proposed to maintain the 2012 review approach for distribution systems not transitioning to LMA.

Since Sunwater provided its submission, the LMA assessment for the Burdekin-Haughton and Mareeba-Dimbulah distribution systems has shown that the most viable option for irrigators and customers at this time is for Sunwater to continue the operation of the schemes in partnership with the local community. Eton is expected to transition to LMA before the final report.[215] With this in mind, we consider that the recovery of costs associated with distribution loss WAEs for Burdekin-Haughton and Mareeba-Dimbulah distribution systems should be consistent with other distribution systems operated by Sunwater that are not transitioning to LMA.

In the 2012 review, we recommended that DNRME immediately review the efficient level of distribution loss WAEs allocated to Sunwater. We note that during our 2012 review, DNRME clarified that distribution loss WAEs, like all WAEs, were granted in perpetuity. There was no requirement for the Government to instruct owners of WAEs on how to manage their allocations. However, there was a mechanism in place that would allow Sunwater to change the purpose of distribution loss WAEs. Accordingly, any change to distribution loss WAEs should be instigated by Sunwater, and DNRME will assess the application according to the criteria.[216]

Distribution customers are unable to control the level of distribution loss WAEs. Sunwater, 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

[210] BRC, sub. 87, p. 3; MDIA Council, sub. 123, p. 3.
[211] BRIG, sub. 54, p. 13.
[212] MDIA Council, sub. 123, p. 3.
[213] QFF, sub. 132, p. 7; Canegrowers Mackay, sub. 96, p. 5; BRIA Irrigators, sub. 85, p. 5.
[214] BRIA Irrigators, sub. 85, p. 5.
[215] DNRME, Local management arrangements for Sunwater irrigation channels, https://www.dnrme.qld.gov.au/land-water/initiatives/lma-sunwater.
[216] Robertson, S, submission to the QCA from the Department of Environment and Resource Management, Queensland Government, *Sunwater Irrigation Price Review: 2012–17—draft report*, 13 February 2012.

only be allocated the bulk costs associated with the level of distribution loss WAEs required to meet actual losses. This is consistent with Sunwater's proposal to allocate losses according to the same methodology we applied in the 2012 review.

We consider that Sunwater is best placed to manage the risk of distribution loss WAE in excess of what is needed to ensure a reliable supply to distribution customers. The water planning framework does allow Sunwater to apply to change the purpose of distribution loss WAEs, which it could then sell to customers (see Box 3). Therefore, we consider that the appropriate incentives should be in place for Sunwater to minimise losses and maximise saleable WAEs.

Box 3—Water planning framework under the Water Act 2000

Since the 2012 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 apply 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.[217] 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 Sunwater must provide evidence that a sufficient volume of distribution loss WAEs is held to provide for actual losses in the system.

We requested updated data on actual distribution losses since the 2012 review from Sunwater.

Distribution loss WAEs are periodically announced in accordance with the level of water available in storages, as is the case for all types of WAE. This means that when announced allocations are less than 100 per cent, the water to provide for losses is lower than the distribution loss WAE. 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 water usage.

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

Sunwater submitted that in addition to usage, the level of distribution losses is also affected by:

- temperature and weather conditions
- timing of delivery requests
- logistics of transporting water to the delivery point

Sunwater also said it has a five-year water efficiency strategy, which is targeted at improving water use efficiency year-on-year in its distribution systems.[218] This should result in actual distribution losses decreasing in the future.

[217] *Water Act 2000* (Qld) (Water Act), s. 159.
[218] Sunwater response to QCA RFI 52.

The maximum actual distribution loss deliveries for Bundaberg, adjusted for the level of water use that year, has been less than 100 per cent for each of the years from 2012–13 onwards (see Table 62).

Table 62 Distribution loss WAEs used, Bundaberg distribution system

	2012–13	*2013–14*	*2014–15*	*2015–16*	*2016–17*	*2017–18*
High priority (HP) distribution loss WAE	16,080	16,080	16,080	16,080	16,080	16,080
Medium priority (MP) distribution loss WAE	25,440	25,440	25,440	25,440	25,440	25,440
Actual distribution losses (HP + MP)	15,856	33,236	18,614	16,927	24,551	16,981
HP distribution loss WAE used	15,856 (99%)	16,080 (100%)	16,080 (100%)	16,080 (100%)	16,080 (100%)	16,080 (100%)
MP distribution loss WAE used	–	17,156 (67%)	2,534 (10%)	847 (3%)	8,471 (33%)	901 (4%)
Distribution system water use as a percentage of WAE	45%	85%	53%	65%	70%	50%
MP distribution loss WAE used, adjusted for actual water use	–	80%	19%	5%	48%	7%

Source: Sunwater response to QCA RFI 29; QCA analysis.

Sunwater informed us that in 2013–14, releases were made through the Bundaberg distribution system into the Burnett Scheme. This was because releases could not be made from Paradise Dam due to severe flood damage.[219] We consider that Bundaberg distribution system customers should not bear the costs of abnormal events related to Paradise Dam, for which the costs of water services are not to be recovered from our recommended prices, and have omitted 2013–14 from the calculation of efficient distribution loss WAEs.

Consequently, we have calculated the efficient level of current distribution loss WAEs for Bundaberg to be 100 per cent high priority, and 48 per cent medium priority distribution loss WAEs. Based on available data from the 2012 review, we note that this level also reflects the maximum actual distribution loss deliveries for Bundaberg over the 15 years to 2017–18 (excluding 2013–14).

Table 63 shows the actual distribution loss deliveries for Burdekin-Haughton distribution system, adjusted for the level of water use that year, from 2012–13 onwards.

Table 63 Distribution loss WAEs used, Burdekin-Haughton distribution system

	2012–13	*2013–14*	*2014–15*	*2015–16*	*2016–17*	*2017–18*
High priority (HP) distribution loss WAE	16,260	16,260	16,260	16,260	16,260	16,260
Medium priority (MP) distribution loss WAE	190,477	190,477	190,477	190,477	190,477	190,477

[219] Sunwater response to QCA RFI 52.

	2012–13	*2013–14*	*2014–15*	*2015–16*	*2016–17*	*2017–18*
Actual distribution losses (HP + MP)	108,934	173,757	134,449	103,287	69,718	62,440
HP distribution loss WAE used	16,260 (100%)	16,260 (100%)	16,260 (100%)	16,260 (100%)	16,260 (100%)	16,260 (100%)
MP distribution loss WAE used	92,674 (49%)	157,497 (83%)	118,189 (62%)	87,027 (46%)	53,458 (28%)	46,180 (24%)
Distribution system water use as a percentage of WAE	60%	81%	103%	88%	78%	93%
MP distribution loss WAE used, adjusted for actual water use	81%	102%	60%	52%	36%	26%

Source: Sunwater response to QCA RFI 29; QCA analysis.

BRIA noted that Sunwater has improved the efficiency of the Burdekin-Haughton distribution system since 2014–15 as a result of scrutiny as part of the local management arrangements (LMA) review. BRIA said this included the appointment of a full-time metering officer in the Burdekin-Haughton system, and replacement of meters.[220] Sunwater has also said it has a five-year water efficiency strategy which is targeted at improving water use efficiency year-on-year in its distribution systems.[221]

Sunwater informed us that in 2013–14, it experienced significant water delivery challenges in the Burdekin-Haughton distribution system associated with excessive growth of aquatic weed. This caused the flow of water to slow down, resulting in a higher than normal level of distribution losses. Since 2014–15, Sunwater has adopted a more formalised shutdown and treatment schedule for aquatic weed.[222]

Therefore, we consider that data from 2014–15 onwards provides a better representation of distribution losses in the Burdekin-Haughton distribution system. After adjusting for distribution system water usage, the data shows that actual distribution losses have been lower than distribution loss WAEs.

Consequently, we have calculated the efficient level of current distribution loss WAE for Burdekin-Haughton to be 100 per cent high priority, and 60 per cent medium priority distribution loss WAEs. Based on the information from the 2012 review, we note that this maximum level remains higher than actual distribution loss deliveries over the preceding period from 2003–04 to 2010–11.

After adjusting for distribution system water usage in the Eton distribution system, it is apparent that all distribution loss WAEs are consistently utilised (see Table 64). Consequently, we have calculated the efficient level of current distribution loss WAE for Eton to be 100 per cent high priority, and 100 per cent medium priority distribution loss WAEs.

[220] BRIA Irrigators, sub. 85, p. 5.
[221] Sunwater response to QCA RFI 52.
[222] Sunwater response to QCA RFI 52.

Table 64 Distribution loss WAEs used, Eton distribution system

	2012–13	*2013–14*	*2014–15*	*2015–16*	*2016–17*	*2017–18*
High priority (HP) distribution loss WAE	3,089	3,089	3,089	3,089	3,089	3,089
Medium priority (MP) distribution loss WAE	6,295	6,295	6,295	6,295	6,295	6,295
Actual distribution losses (HP + MP)	9,384	2,272	8,188	8,574	4,475	7,615
HP distribution loss WAE used	3,089 (100%)	2,272 (74%)	3,089 (100%)	3,089 (100%)	3,089 (100%)	3,089 (100%)
MP distribution loss WAE used	6,295 (100%)	–	5,099 (81%)	5,485 (87%)	1,386 (22%)	4,526 (72%)
Distribution system water use as a percentage of WAE	29%	39%	38%	47%	24%	35%
MP distribution loss WAE used, adjusted for actual water use	348%	0%	212%	186%	91%	203%

Source: Sunwater response to QCA RFI 29; QCA analysis.

Table 65 shows the actual distribution loss deliveries for Lower Mary distribution system, adjusted for the level of water use that year, from 2012–13 onwards.

Table 65 Distribution loss WAEs used, Lower Mary distribution system

	2012–13	*2013–14*	*2014–15*	*2015–16*	*2016–17*	*2017–18*
High priority (HP) distribution loss WAE	324	324	324	324	324	324
Medium priority (MP) distribution loss WAE	4,588	4,588	4,588	4,588	4,588	4,588
Actual distribution losses (HP + MP)	3,784	4,177	1,247	1,474	3,065	1,520
HP distribution loss WAE used	324 (100%)	324 (100%)	324 (100%)	324 (100%)	324 (100%)	324 (100%)
MP distribution loss WAE used	3,460 (75%)	3,853 (84%)	923 (20%)	1,150 (25%)	2,741 (60%)	1,196 (26%)
Distribution system water use as a percentage of WAE	31%	58%	29%	48%	61%	24%
MP distribution loss WAE used, adjusted for actual water use	245%	144%	69%	52%	99%	107%

Source: Sunwater response to QCA RFI 29; QCA analysis.

Sunwater informed us that in 2013–14, diversions were made through the Lower Mary distribution system for Wide Bay Water.[223] These releases contributed to higher than normal

[223] Sunwater response to QCA RFI 52.

distribution losses. It is our understanding that as Wide Bay Water is a bulk customer, losses associated with bulk releases should not be included in the calculations for distribution losses. Therefore, we have omitted 2013–14 from our calculations of the efficient level of distribution loss WAEs.

However, the data shows that after adjusting for distribution system water usage, all distribution loss WAEs has been required in some years since 2012–13. Consequently, we have calculated the efficient level of current distribution loss WAEs for Lower Mary to be 100 per cent high priority, and 100 per cent medium priority distribution loss WAEs.

Table 66 Distribution loss WAEs used, Mareeba-Dimbulah distribution system

	2012–13	*2013–14*	*2014–15*	*2015–16*	*2016–17*	*2017–18*
High priority (HP) distribution loss WAE	8,000	8,000	8,000	8,000	8,000	8,000
Medium priority (MP) distribution loss WAE	37,000	37,000	37,000	37,000	37,000	37,000
Actual distribution losses (HP + MP)	34,150	22,245	31,113	30,607	25,248	24,584
HP distribution loss WAE used	8,000 (100%)	8,000 (100%)	8,000 (100%)	8,000 (100%)	8,000 (100%)	8,000 (100%)
MP distribution loss WAE used	26,150 (71%)	14,245 (39%)	23,113 (62%)	22,607 (61%)	17,248 (47%)	16,584 (45%)
Distribution system water use as a percentage of WAE	76%	68%	80%	84%	73%	59%
MP distribution loss WAE used, adjusted for actual water use	94%	57%	78%	72%	64%	75%

Source: Sunwater response to QCA RFI 29; QCA analysis

Sunwater informed us that, over a number of years, new customer meters are being installed across both the Burdekin-Haughton and Mareeba-Dimbulah distribution systems. This will contribute to greater accuracy in distribution loss calculations in future price reviews.[224] After adjusting for distribution system water usage in the Mareeba-Dimbulah distribution system, the data shows that actual distribution losses have been lower than distribution loss WAEs.

Consequently, the maximum actual distribution loss deliveries for Mareeba-Dimbulah is 100 per cent high priority and 94 per cent medium priority distribution loss WAEs. Based on the information from the 2012 review, we note that actual distribution loss deliveries (adjusted for water use) have been higher than distribution loss WAEs in some years over the preceding period from 2003–04 to 2010–11. We therefore consider that actual distribution loss deliveries for Mareeba-Dimbulah distribution system, adjusted for the level of water use that year, sometimes require the full use of distribution loss WAEs.

Where a distribution system has transitioned to LMA, we agree with Sunwater's proposal that distribution loss WAEs have transferred to entitlements held by distribution system customers.

[224] Sunwater response to QCA RFI 52.

The LMA scheme operators will face the same incentive as Sunwater to reduce losses in their respective distribution systems, in order to convert them into tradable WAEs.

Some stakeholder submissions stated that Sunwater should investigate areas where losses can be reduced and put forward projects for external funding. We note that this has recently been achieved for the Mareeba-Dimbulah distribution system, where capital works will improve operating efficiency and reduce water losses by up to 8,000 ML. Sunwater is funding these works by selling the converted distribution loss WAE to customers upon completion in June 2021, and by seeking support from the National Water Infrastructure Development Fund (NWIDF).[225] However, Sunwater does not expect any WAEs to be converted until the end of the new price path at the earliest.[226]

While we support Sunwater investigating projects that deliver positive outcomes for customers, this recapturing of distribution loss WAEs does not address any existing excessive holding of loss WAEs by Sunwater. Therefore, the remaining distribution loss WAEs may still be in excess of what is required to meet actual losses. We consider that, regardless of capital works to recapture distribution loss WAEs, distribution customers should still only pay for distribution loss WAEs required to meet actual losses.

Many irrigator stakeholders stated that Sunwater has the ability to seasonally trade unused distribution loss WAE, or in some schemes carry over from one water year to the next. However, it is our understanding that Sunwater's ability to temporarily trade unused distribution loss WAEs is restricted by rules identified in the relevant scheme operations manuals or ROPs. The relevant rules require the resource operations licence holder not to approve the seasonal water assignment of a water allocation with a purpose of distribution loss.

BRIG raised concerns about Sunwater's proposed removal of surplus distribution losses from total water use when deriving distribution system volumetric (Part D) prices. We note that our 2012 review approach only assigned bulk holding (fixed) costs of distribution loss WAE not required to service distribution system customers to Sunwater. We accept that Sunwater has not had the opportunity to address our recommendations from the 2012 review in relation to reviewing its distribution loss WAE due to the LMA review process. However, Sunwater said it would review its distribution loss WAEs for those distribution systems not transitioning to LMA and develop a strategy for their future treatment.[227] We have therefore maintained our 2012 review treatment of excess holdings of distribution loss WAEs in calculating our draft prices.

For the next price review process, we would expect to be assessing the reasonableness of Sunwater's proposed strategy for its holdings of distribution loss WAEs, including Sunwater'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 in the absence of Sunwater having a strategy for their treatment of its holdings of distribution loss WAEs.

Table 67 outlines our proposed efficient distribution loss for each of the relevant distribution systems compared to the 2012 review outcomes.

[225] Sunwater, *2017–18 Annual Report*, 2018, p. 21
[226] Sunwater response to QCA RFI 52.
[227] Sunwater, sub. 49, p. 12.

Table 67 Efficient distribution loss WAE in Sunwater schemes compared to 2012 review

Distribution system	*2012 review*		*2020–24 review*	
	High priority loss WAE	*Medium priority loss WAE*	*High priority loss WAE*	*Medium priority loss WAE*
Bundaberg	78%	–	100%	48%
Burdekin-Haughton	100%	59%	100%	60%
Eton	100%	100%	100%	100%
Lower Mary	100%	34%	100%	100%
Mareeba–Dimbulah	100%	100%	100%	100%

Note: Adjusted distribution loss WAE (%) has been round to the nearest integer.

Source: Sunwater response to QCA RFI 29; QCA analysis.

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We recommend that:

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

6.4 Minimum access charge

6.4.1 Previous investigation

Prior to the 2012–17 price path period, Sunwater imposed a minimum charge in many schemes to cover the customer cost of metering and/or billing for very small holdings of WAEs (for example, up to 5 ML). The minimum charge applied when the sum of all charges applied to a customer's account was less than the prescribed minimum charge. The minimum charge varied across different WSS and distribution systems.

In the 2012 review, Sunwater did not submit a detailed cost basis for its minimum charge and did not propose to impose the charge over the 2012–17 price path.

6.4.2 Sunwater's submission

In its November 2018 submission, Sunwater said that QFF had raised the possibility of a minimum access charge in all service contract areas to cover the fixed administration costs associated with maintaining each customer account and to ensure there is no cross-subsidisation between customers who hold a small number of water allocations and those who hold larger amounts.[228]

[228] Sunwater, sub. 11, p. 75.

Sunwater said that there may be some merit in this proposal that it would continue to investigate this further in conjunction with QFF. Sunwater said it would keep us informed of the outcome of this investigation.

Sunwater provided a late submission on fixed customer access charges on 5 July 2019. Sunwater said that since providing its November 2018 submission, it had worked closely with QFF to explore the possibility of an administratively simple access charge that supports cost-reflective pricing by:

- ensuring that all customers pay the fixed costs associated with their account and that there is no cross-subsidisation between customers
- incentivising customer behaviours that enable Sunwater to reduce those fixed costs (for example, paying bills on time).[229]

Sunwater said that as part of the proposal, revenues generated by the access charge would be offset by reductions in fixed (Part A) prices, and customers whose behaviours contribute to Sunwater reducing our customer administration costs would be entitled to a discount on the access charge.[230]

Sunwater said that the fixed administrative costs that could be recovered through a minimum access charge included:

- billing, water accounting, water sharing, call centre, ROL compliance, account management and water account management
- depreciation costs associated with Sunwater's water accounting systems (e.g. Orion, Bills).[231]

Sunwater supplied underlying costing information associated with customer management at a state-wide level, indicating a 2018–19 cos- reflective fixed access charge of $950. The possibility of a discount on the customer access charge if certain behavioural milestones occur was included in Sunwater's analysis.

Sunwater believed that it had demonstrated sufficient irrigation customer support for its access charge proposal to be favourably considered by us. Sunwater said that this proposal was a direct result of a six-month collaboration between Sunwater and QFF, and that additional consultation had included presentations to the Irrigation Customer Reference Group in April 2019 and the Lower Mary Advisory Board in May 2019.[232]

6.4.3 Other stakeholders' submissions

QFF indicated that current water charges[233] (fixed plus volumetric) do not recover the costs of providing supply for small users using 2 ML per year or less'.[234] QFF said that if introduced, the existing water charges should be offset so that the implementation is revenue neutral across all irrigation customers.

[229] Sunwater, sub. 154, p. 1.
[230] Sunwater, sub. 154, p. 1.
[231] Sunwater, sub. 154, A-1.
[232] Sunwater, sub. 154, A-1.
[233] Existing water charges for irrigation customers comprise a two-part tariff with a fixed (Part A + Part C, if applicable) price that applies to the volume of water access entitlements (WAE) held (i.e. $/ML WAE) and a volumetric (Part B + Part D, if applicable) price that applies to the quantity of water delivered (i.e. $/ML used).
[234] QFF, sub. 132, p. 9.

Cotton Australia strongly supported a minimum access charge that covers the account management costs associated with small customers.[235] Kinchant Dam Water Users Association submitted that Eton distribution should have an access charge and that the current pricing policy results in large customers subsidising smaller customers.[236]

6.4.4 QCA assessment

We welcome the water businesses working with their customers to reach agreement on issues of concern. We are generally receptive to recognising such agreements when we determine our recommended irrigation prices for the period 1 July 2020 to 30 June 2024, subject to any agreement being consistent with the requirements set out in the referral.

We have not undertaken a detailed consideration of this proposal, as the Sunwater submission on this proposal was provided too late for us to give all stakeholders an adequate opportunity to review and comment on the proposal prior to us forming a view on it in this report. We will include a detailed assessment of this proposal in our final report and we have released a short issues paper on this proposal for which we are seeking comment as part of the consultation process for this draft report. The results of this consultation will be taken into account for the final report.

6.5 Scheme-specific pricing issues

6.5.1 Bundaberg and Gin Gin main channel

Previous investigation

In the 2012 review, we said that as long as the ROP makes a provision for Gin Gin main channel to serve as a bulk water function, a relevant portion of the costs of the Gin Gin main channel (part of the Bundaberg distribution system) should be included in bulk water costs. This transfer of costs was based on the need to pump water from the Kolan sub-system (in the distribution system) to supplement supplies in the Burnett River (for supply to bulk customers).[237]

We concluded:

> Given the requirements of the ROP, it was clear that Gin Gin Channel serves a bulk water function and it is appropriate that a proportion be allocated to bulk. As long as the ROP makes such provision, a relevant portion of the Gin Gin Main Channel should be included in bulk water costs.[238]

Stakeholders' submissions

No submissions from Sunwater or other stakeholders were received on this issue.

QCA assessment

The rules that allow for releases from Fred Haigh Dam to the Burnett River are stated in schedule 9, part 3 of the Burnett Basin Water Plan 2014.

The water plan allows Sunwater to make releases from Fred Haigh Dam into the Gin Gin main channel, then releases at the end of the channel into Sheepstation Creek to supplement Bundaberg bulk water allocations that access water from the Burnett River (the water allocations

[235] Cotton Australia, sub. 102, p. 3.
[236] KDWUA, sub. 112, p. 7.
[237] QCA, *SunWater Irrigation Price Review: 2012–17*, Volume 2: Bundaberg Distribution System, final report, April 2012, p. 22.
[238] QCA, *SunWater Irrigation Price Review: 2012–17*, Volume 2: Bundaberg Distribution System, final report, April 2012, p. 24.

created after the construction of Paradise Dam). Up to 15 per cent of the full supply volume of Fred Haigh Dam is available to be released in this way.

We requested information from Sunwater on the transfer of costs between the Bundaberg distribution system and bulk system.

Sunwater said there had been minimal releases from Sheepstation Creek to the Burnett River since 2012–13. The only releases were from 31 October 2014 to 8 November 2014 (2,851 ML) due to issues with the outlet works at Paradise Dam.[239]

Sunwater said that since the relevant water plan provision had been rarely used since 2012, an allocation less than the current 8 per cent would be reasonable. Sunwater proposed a cost allocation of 5 per cent of operating and renewals costs associated with the Gin Gin main channel and Monduran pump station.

We consider that given the requirements of the water plan, Gin Gin main channel continues to serve a bulk water function and it is appropriate that a proportion of its costs be allocated to bulk. We consider that as long as the water plan makes such provision, a relevant portion of the Gin Gin main channel should be included in bulk water costs.

However, given the very low usage of the Gin Gin main channel as a bulk asset since 2012, we consider that 5 per cent is a reasonable cost allocation.

6.5.2 Burdekin-Haughton distribution system

There are currently three tariff groups for irrigation customers in the Burdekin-Haughton distribution system:

- Burdekin Channel (medium priority)
- Giru Benefited Area (medium priority)
- Glady's Lagoon (medium priority).

In the 2012 review, we approved a discounted price for the Giru Benefited Area (GBA) and Glady's Lagoon tariff groups, reflecting the lower cost Sunwater incurred for supplying the WAEs, since a proportion was supplied by natural yield.

Giru Benefited Area

The GBA is supplied through the Haughton Main Channel and Balancing Storage and consists of natural channels, relift pump stations and lagoons. The Haughton River is regulated by the Val Bird and Giru weirs, both of which are managed to maximise recharge to the groundwater area.

Previous investigation

In the 2012 review, we recommended that:

- the 2006–11 price path arrangements continue and that the charge be set to recover revenue equivalent to 51 per cent of the bulk charge and 51 per cent of the distribution system charge. We considered that this level of cost recovery reflected the cost incurred by Sunwater, as the remaining 49 per cent was supplied by natural yield
- for the future, Sunwater investigate the hydrological circumstances of the area to confirm the current cost allocation, or negotiate alternative arrangements with the irrigators.

[239] Sunwater response to QCA RFI 50.

Sunwater's submission

In its November 2018 submission, Sunwater said that specific pricing arrangements were a matter for the QCA and the government.

In 2017–18, Sunwater commissioned a report to assess the groundwater hydrology and the interaction of surface and groundwater in the GBA.[240] As part of the review, groundwater modelling and a yield assessment were completed to determine the natural yield being captured and utilised in the system. Scenario assessments (based on simulations in the model) indicated a sustainable, reliable supply of approximately 30 to 50 per cent of current demands, depending on the level of reliability sought.

Sunwater said that it may be appropriate for the QCA to review the 49 per cent discount currently provided to these customers. Sunwater said that any resultant price increases should be subject to a transition path to manage customer impacts.

Other stakeholders' submissions

Burdekin River Irrigators Association (BRIA) said that the GBA pricing structure requires resolution to provide certainty to all customers.[241] BRIA have proposed that we investigate three possible pricing structure options, with the cost of price transition covered by a CSO.

Some stakeholders were concerned with Sunwater's commissioned report on GBA[242], particularly that there may be deficiencies or inaccuracies in the reports and the level of emphasis and reliance that we may place on the reports. Stakeholders considered that there may be other items of an ecological and aquifer management nature that they have not yet identified but that they would like to raise for our consideration in their determinations. These stakeholders supported and recommended that we continue with the long-standing arrangements that were recommended in the 2012–17 price path reviews.

QCA assessment

Our proposed approach to cost allocation is that, given the regulatory framework[243] in place, irrigation customers should be allocated those costs that need to be incurred by Sunwater to supply irrigation customers in a specified tariff group.

We engaged a consultant (Water Solutions) to provide expert advice on the hydrological basis for a reasonable cost allocation for irrigators in the tariff groups.

Water Solutions identified a number of issues with the modelling in the report commissioned by Sunwater and as a result, it had significant concern about using the results of the modelling for pricing purposes. However, even with those issues, Water Solutions considered that the modelling indicated that the contribution of natural flows was very small. It also considered that while the model could be updated to address the issues, the revised model was unlikely to identify that natural flows provide a large contribution to the water security of irrigators in the GBA.[244]

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[240] Sunwater, sub. 51.
[241] BRIA Irrigators, sub. 85.
[242] Canegrowers Burdekin, sub. 92; Giru Benefited Area Sub Committee, sub. 60; Invicta Cane Growers Organisation, sub. 109.
[243] This includes regulatory obligations (including water sharing rules and other operational requirements) such as those specified in a water management protocol, resource operations plan or resource operations licence.
[244] Water Solutions, *Rural Irrigation Price Review 2020–24: Assessment of Hydrologic Factors*, prepared for the QCA, July 2019, p. 49.

Water Solutions also reviewed the supplemented releases and extractions presented in Sunwater's submission[245] and considered that this historical data indicated that irrigators in the GBA were receiving little contribution from natural flows in dry periods.

Water Solutions concluded that there did not appear to be a strong basis for differential pricing of medium priority users in the GBA on the basis of natural flows in the Haughton River. It recommended that Haughton Zone A (including the GBA) pay the same price as other customers in the distribution system.

Given that the Water Solutions hydrologic advice indicates that the natural yields in the GBA are immaterial, we consider that it is not appropriate to continue the 2006–11 price path arrangements in the 2020–24 pricing period as under those arrangements the level of cost recovery would not reflect the costs incurred by Sunwater to supply irrigation customers in the GBA tariff group.

As the costs of supplying the GBA tariff group customers are not materially different to the costs of supplying Burdekin Channel tariff group customers, we consider that the cost-reflective prices should be the same for both tariff groups. While this approach will result in a higher long-term cost-reflective price target for customers in the GBA tariff group, we note that this cost-reflective price target will be consistent with the long-term cost-reflective price target for Burdekin Channel tariff group customers. We also note that, as a result of the application of the pricing principles in the referral and our approach to bill moderation, the recommended prices for the GBA tariff group will transition very gradually to that cost-reflective price.

While there will still be a differential between our recommended prices for the GBA and Burdekin Channel tariff groups over the 2020–24 pricing period, we note that the difference between the revenue and costs of supply for GBA tariff group will not be recovered from other tariff groups and will instead be covered by the Government's CSO.

Glady's Lagoon

The Glady’s Lagoon irrigation section is a natural watercourse and lagoon located between the Haughton Main Channel and Ravenswood Road within the Burdekin-Haughton distribution system.

Previous investigation

In the 2012 review, Sunwater advised that the total WAE in Glady’s Lagoon is 1,752 ML, of which 360 ML is natural flows.

In the absence of more recent details related to hydrological assessments of natural yields at Glady’s Lagoon, we recognised the natural flows to Glady’s Lagoon for cost recovery purposes and recommended a zero price for the first 360 ML, as Sunwater did not incur costs in the supply of this volume. We determined that standard charges should apply after the first 360 ML. We determined that there was not a basis to differentiate the cost structure between the standard distribution system and Glady's Lagoon.

We recommended that Sunwater investigate the hydrological circumstance of Glady's Lagoon or negotiate alternative arrangements with irrigators.

[245] Sunwater, sub. 52, p. 18.

Sunwater's submission

Sunwater submitted that pending budget approval, the level of natural flow will be estimated as part of an investigation into Glady's Lagoon in 2019–20.[246]

Other stakeholders' submissions

BRIA submitted that the price structure for Glady's Lagoon requires resolution to provide long-term price certainty.[247] BRIA proposed that three different pricing proposals for Glady's Lagoon be considered and recommended that movement to full cost-reflective prices be gradual. [248]

The three pricing options suggested by BRIA are:

> Option 1: Glady's Lagoon customers be recognized as distribution system customers for pricing purposes, have the same entitlement security as channel customers and entitlement to Burdekin river flood harvesting, commencing at the start of the new price path.
>
> Option 2: SunWater install a bulk meter and float valve at the inlet structure into Glady's Lagoon and water delivered from the channel be charged at channel prices. Any additional water taken from Glady's Lagoon should be considered natural yield and attract no charge.
>
> Option 3: Retention of the current pricing arrangement in Glady's Lagoon should only be considered where any cross subsidy is identified, made fully transparent and paid by a CSO from Government. It is important for the QCA to confirm that when less than full cost reflective channel charges are allocated to Glady's Lagoon customers that this will not increase cost reflective prices for other channel customers (i.e. any cross subsidization of Glady's Lagoon customers by channel customers will be discontinued).

BRIA recommend options one and two.[249]

QCA assessment

In the absence of updated hydrological assessments of natural yields at Glady’s Lagoon, and the expectation that Sunwater will undertake a review of the hydrological circumstances of Glady's Lagoon in 2019–20, we have maintained the existing pricing arrangements on the basis of stability in pricing and consistency of approach.

We recommend that once the updated hydrological assessment of natural yields has been completed, Sunwater should engage with its customers and negotiate alternative arrangements with customers. This issue is best resolved between Sunwater and its customers rather than by us.

6.5.3 Mareeba-Dimbulah WSS

The Mareeba-Dimbulah WSS has two charging approaches that are unique to the scheme, an access charge and a three-part block tariff for customers in the 'channel outside a relift' section. In addition to these charges there is also a separate tariff group for Walsh River, a separate tariff group for the channel relift section, and apportionment of costs associated with the Barron Falls hydro-electric facility.

Customer access charge

Mareeba-Dimbulah is the only scheme with an annual fixed customer access charge. Historically, all customers in the Mareeba-Dimbulah WSS (including the distribution system) have paid a fixed

[246] Sunwater, sub. 14, p. 18.
[247] BRIA, sub. 85, p. 51.
[248] BRIA, sub. 85, p. 51.
[249] BRIA, sub. 85, p. 52.

annual access charge. This charge increased by actual inflation over the 2006–11 price path period, and increased by forecast inflation since the beginning of the 2012–17 price path period. The 2019–20 fixed customer access charge is $687.77.

Previous investigation

In the 2012 review, we recommended that the fixed annual access charge should be maintained in real terms. We acknowledged that some activities (and costs) were likely to vary per customer, rather than by WAE but was not provided with the data to determine the costs per customer. We decided to maintain the access charge in real terms.

Stakeholders' submissions

Sunwater said that it consulted with the Mareeba-Dimbulah Irrigation Area Council (MDIAC) on whether an access should continue to apply in the next price path period. Sunwater said that MDIAC supported continuation of the charge. As such, Sunwater did not propose and changes to the current pricing arrangements.[250]

MDIAC indicated that Sunwater should define the costs that the access charge covers and that any increase in the access charge should not exceed inflation.[251]

QCA assessment

We acknowledge that some activities (and costs) are likely to vary per customer, rather than by WAE. Such activities may include meter reading, billing and customer service.

Sunwater has not been able to provide us with sufficiently disaggregated cost data at the scheme level to allow us to determine the quantum of costs that vary per customer. In the absence of updated costing information that would support a change from the current charge, combined with customer support for its retention, we recommend that the Mareeba fixed access charge be maintained in real terms (Table 68).

Table 68 Annual fixed customer access charge ($ per customer)

	2019–20	***2020–21***	***2021–22***	***2022–23***	***2023–24***
Access charge ($ per customer)[a]	687.77	704.07	720.76	737.84	755.33
Annual increase (%)		2.37	2.37	2.37	2.37

a *The difference between the Sunwater-proposed price path and the QCA price path is that an inflation rate of 2.25% was applied to determine the 2018–19 and 2019–20 prices within the Sunwater regulatory model compared to the 2.5% that was applied to published prices.*

Source: QCA analysis.

Channel customers outside the relift section

There are currently five tariff groups for irrigation customers of the Mareeba-Dimbulah distribution system:

- Channel (outside a relift up to 100 ML WAE)
- Channel (outside a relift 100–500 ML WAE)
- Channel (outside a relift over 500 ML WAE)

[250] Sunwater, sub. 11, p. 75.
[251] MDIA Council, sub. 123, p. 5.

- River Supplemented Streams and Walsh River
- Channel (relift) (medium priority).

The three tariff groups in the outside relift section differ only in terms of their distribution system (Part C) fixed charge.

Table 69 Outside relift section tariff groups, 2019–20 prices ($/ML, nominal)

	0–100 ML	*100–500 ML*	*Over 500 ML*
Part A	3.45	3.45	3.45
Part B	0.59	0.59	0.59
Part C	51.82	45.27	34.33
Part D	8.27	8.27	8.27

Source: Sunwater, Fees & Charges Schedule 2019–20, Mareeba-Dimbulah WSS.

The three distinct tariff groupings for the 'outside a relift' areas of the distribution system 'is largely the result of historical pricing arrangements, which prior to 2000, were based mainly on crop type.'[252] The declining block tariff structure was to reflect that the dominant rice crop was more water-intensive than tobacco.

The differentiated tariff structure for customers outside a relift has been retained through multiple irrigation reviews.

Previous investigation

In the 2012 review, we concluded that there is sufficient evidence to suggest a material difference in fixed costs between the tariff groups[253] and recommended the retention of the different prices for the channel outside a relift customer groups.

Stakeholders' submissions

Sunwater did not comment on the tariff structure associated with the channel outside a relift in their regulatory submission. Sunwater said that specific pricing arrangements were a matter for the QCA and the government.

Mareeba Dimbulah Irrigation Area Council (MDIAC) submitted that the declining block tariff[254] should be maintained as this system ensures the long-term viability and the capacity to pay of the larger irrigators who hold the majority of the water allocation, which in turn ensures the long term viability of the scheme.[255]

The MDIAC said that approximately 4 per cent of large MP irrigators (over 500 ML WAE) hold 53 per cent of the medium priority WAE.

The MDIAC suggested:

[252] Sunwater, *Tariff Principles* and *Structures*, working paper no. 13, August 2005, p. 5.
[253] QCA, *SunWater Irrigation Price Review: 2012–17*, Volume 2: Mareeba-Dimbulah Distribution System, final report, April 2012, p. 16.
[254] While stakeholders in this scheme referred to these pricing arrangements as a declining block tariff, we note that the three tariff blocks reflect distinct tariff groupings. Each irrigation customer is assigned to one of these three groups based on their WAE, and the Part C charge for that block is applied to the full WAE held.
[255] MDIA Council, sub. 123, p. 1.

- It must be cheaper to deliver 77,208 ML of water to 38 MP customers than it is to deliver 66,434 ML of water to 919 MP customers.
- On a per unit of water basis, it is cheaper to administer one 500 ML allocation account than it is to administer ten 50 ML allocation accounts. The cost per unit of water on reading and maintaining water meters is also cheaper for one 500 ML allocation holder than for ten 50 ML allocation holders.
- The larger water users order large, constant volumes of water for extended periods of time in one order (i.e. repeat / standing orders). Not only is this an administration saving but it also means that the constant volume of water requires less gate adjustments for extended periods than is required for small irrigators whose water usage and frequency fluctuates.
- Larger water users place water orders, which reduces Sunwater's losses resulting from having to guess releases and subsequently releasing more water than is used.
- Larger water users are more flexible to the needs of Sunwater—that is, quite often the large irrigators will be asked by Sunwater to take water earlier or later than ordered, to help reduce losses and manage water delivery.

The MDIAC concluded that we do not have an economic argument for removing the declining block tariff and that this tariff grouping has the support of the irrigators.[256] The MDIAC requested that we undertake a detailed cost analysis to assess the relationship between Sunwater's time and resources servicing the scheme, and the unit cost of water supplied and serviced. MDIAC considered that this comparison would show that the unit costs of supplying larger users are lower.

Superior Production Co Pty Ltd supported the removal of the declining block tariff and indicated that the declining block tariff:

- is an impediment to the trading of water and allocation
- does not promote competition across industries
- does not consider economic and regional development issues.[257]

Superior Production Co Pty Ltd indicated that the combination of the access charge and tariff structure results in small users subsidising large users.

QCA assessment

Under the terms of the referral, the three blocks in the outside relift section are distinct tariff groups for which we are required to recommend a price. However, while we are required to recommend a price for each of these three tariff groups, the referral does not require the cost-reflective price to be different between these three tariff groups. The pricing principles in the referral, however, would provide a constraint in terms of moving away from the existing price differential immediately.

In the previous review, we concluded that there was sufficient evidence to suggest that a material difference existed in fixed costs between the three tariff groups (particularly given the unique diversity of customers in the scheme).

[256] MDIA Council, sub. 123, p. 1.
[257] Superior Production Co Pty Ltd, sub. 138, p. 2.

We note that the diverse characteristics of water users in the scheme remains in place. There are a large number of small-scale irrigators (459 customers have less than 100 ML of WAE) and a small number of large scale irrigators (38 customers have more than 500 ML of WAE) in the channel outside a customer relift area. Sunwater has 937 (bulk and distribution) customers in the scheme, accounting for around 20 per cent of its total scheme customer base.

We note that discounted charges for large customers occur in other instances for infrastructure pricing.

For Hunter Water, IPART accepted a proposal to apply a discounted charge to a small number of large customers over 50,000 kL per year.[258] This discount varied according to location, up to 25 per cent in some locations. IPART noted that if the discount was not applied, large customers may bypass the system and use alternative sources, such as artesian bores. Any decrease in consumption by these large customers would only see a small decline in Hunter Valley's costs, but a large fall in revenue would need to be recovered from other customers through higher prices.

In the UK, large user tariffs are applied by water companies for users taking more than a threshold volume, for example, 50 ML per year. These tariffs reflect lower costs due to a single off-take point being used for a large volume and not all of the delivery system being used.[259]

In response to our request for cost information underlying the three tariff groupings in the channel outside a relift area, Sunwater said that it does not have the detailed cost information required to support the existing differential between the tariffs in the channel outside a relift customer groups.[260]

In the absence of updated information on Sunwater's cost of supply to the three different customer groups, we are unable to update the pricing differential that exists for the Part C charge in the channel outside a relift area. We note that the differential is widely supported through the Mareeba-Dimbulah distribution system and has been in place for an extended period of operation.

Given the relatively smaller differential between the small (less than 100 ML WAE) and medium (100–500 ML WAE) tariff blocks, there may be opportunities to simplify this into a two (rather than three) tariff blocks.

Sunwater, in consultation with irrigator advisory committees and customers, is best placed to consider the interests of customers and provide greater transparency as to the costs underlying the three distinct tariff groups in the channel outside the relift section. This is particularly relevant for this tariff structure that has been developed (and refined) over time to deal with local circumstances.

Walsh River and supplemented streams

The Walsh River and supplemented streams are identified as a separate tariff grouping. The 2019–20 prices for this group lie below the other tariff groups in this distribution system.

[258] IPART, *Hunter Water Corporation's water, sewerage, stormwater drainage and other services, Review of prices from 1 July 2013 to 30 June 2017*, final report, June 2013.
[259] Ofwat, *Charging principles and guidelines: planned revisions*, September 2012.
[260] Sunwater response to QCA RFI 32.

The constructed channels in the Mareeba-Dimbulah distribution system are used to supplement a number of natural watercourses. The Mareeba-Dimbulah WSS ROL identifies 18 supplemented streams, including the Walsh River.

The Walsh River is regulated by the Collins, Bruce and Leafgold weirs, and is supplemented from the North Walsh and South Walsh main channels. The Solanum Weir is on Eureka Creek, a tributary of the Walsh River and one of the supplemented streams.

Historically, costs associated with the Walsh River and supplemented streams section were allocated on the assumption that, on average, 60 per cent of water taken by customers in this section was sourced from volume supplied by Sunwater's infrastructure (i.e. releases to supplement the natural watercourses including the Walsh River).

Previous investigation

In the 2012 review, we said that our preference was to base any assumption of natural flows on available hydrological assessments. Sunwater could not provide a recent hydrological assessment supporting the 40 per cent natural flows for the supplemented streams and Walsh River. We accepted the historical position and recommended that Sunwater further investigate the hydrology for the Walsh River.[261]

Stakeholders' submissions

Sunwater indicated that subject to budget approval, a hydrological assessment will be undertaken as part of the business case for Nullinga Dam.[262]

No other submissions were received on this issue.

QCA assessment

In the absence of updated hydrological assessments of natural flows in the Walsh River and supplemented streams, we accept the existing pricing arrangements in the supplemented stream and Walsh River scheme. In the absence of compelling new information, and the likelihood of a future hydrological study as part of the Nullinga Dam business case, we have maintained the 40 per cent on the basis of stability in pricing and consistency of approach.

In the event that an updated hydrological study is not undertaken as part of the business case for Nullinga Dam, we recommend that Sunwater should engage with its customers and negotiate an alternative arrangement. This issue is best resolved between Sunwater and its customers rather than by us.

Barron Falls Hydro-Electricity

The Tinaroo Falls Dam releases (unallocated) water to the Barron Falls Hydroelectric Power Station. While environmental releases to meet river flow requirements can be used to generate hydro-electricity, additional releases for hydro purposes may be made.

Previous investigation

In the 2012 review, we accepted that the headworks utilisation factor (HUF) approach takes account of the expected hydro volumes. However, costs allocated based on water allocations (i.e. variable operating costs and fixed operations costs) do not take into account these volumes.

[261] Sunwater response to QCA RFI 32.
[262] Sunwater, sub. 14, p. 19.

In the 2012 review, Sunwater estimated that 20 per cent was an average of the hydro releases as a proportion of total water taken under WAEs for the three years 2007–08 to 2009–10.

We agreed with Sunwater's approach of apportioning a share of operating expenses to the Barron Falls hydro-electric facility on the basis of average hydro releases. In the absence of any alternative information on a longer period, we accepted Sunwater's proposed 20 per cent allocation of variable operating costs and fixed operating costs not otherwise allocated by the HUF (i.e. 50 per cent of fixed operations costs) to the facility (i.e. this 20 per cent was removed from the irrigation cost base).

QCA assessment

We sought information from Sunwater in relation to the cost allocation for the Barron Falls hydro facility.

Sunwater proposed that 18 per cent of the operating expenditure for the Mareeba-Dimbulah bulk water supply scheme should be attributed to the Barron Falls hydro-electric facility. This was based on the average of the annual hydro releases from 2007–08 to 2017–18. Sunwater noted that the annual results are variable with a low of 2 per cent in 2016–17 and a high of 28 per cent in 2013–14.[263]

Consistent with the 2012 review, we consider that an average of the hydro releases as a proportion of total water taken under WAEs is an appropriate cost allocation approach. We accepted that 18 per cent of operating expenditure for the Mareeba-Dimbulah bulk water supply scheme should be attributed to the Barron Falls hydro-electric facility based on the most recent six-year average.

Sunwater proposed to continue the approach used in the 2012 review for the allocation of a portion of non-routine costs to the Barron Falls hydro-electric facility via the HUF.[264] We are satisfied with the continuation of this approach.

6.5.4 Lower Mary River WSS

There are currently two tariff groups for irrigation customers of the Lower Mary River WSS:

- Tinana Barrage and Teddington Weir
- Mary Barrage.

The 2019–20 prices for the Tinana Barrage and Teddington Weir tariff group recovers bulk water costs as well as a portion of distribution system costs, reflecting the use of distribution system infrastructure (Owanyilla pump station) to supply bulk water to customers in this group.

Previous investigation

In the 2012 review, Sunwater submitted that the Owanyilla pump station and main channel perform a bulk water function, as they supplement the Tinana Barrage and Teddington Weir; they also form part of the assets of the Lower Mary distribution system.

Sunwater submitted that hydrological modelling indicated that 27 per cent of water transported through the Owanyilla pump station and main channel related to bulk water for the Tinana Barrage and Teddington Weir. On this basis, Sunwater submitted that 27 per cent of the Owanyilla

[263] Sunwater response to QCA RFI 33.
[264] Sunwater response to QCA RFI 33.

pump station and main channel costs should be included in the Tinana Barrage and Teddington Weir bulk water costs and deducted from the cost base for the distribution system.

We accepted the 27 per cent allocation of Owanyilla pump station and main channel costs to the bulk tariff group for the Tinana Barrage and Teddington Weir.[265]

Stakeholders' submissions

No stakeholder submissions were received on this issue.

QCA assessment

We requested from Sunwater an updated figure for the costs associated with the Owanyilla pump station. Sunwater provided a six-year history (2012–13 to 2017–18) on the water diversions as volumes pumped, and operation and electricity costs that can be associated with Owanyilla channel.

Sunwater data showed that the diversions as a percentage of water pumped was between zero per cent and 16 per cent for three years and between 61 per cent and 73 per cent for the other three years. Sunwater noted that the variability is consistent with water usage throughout the scheme.

Sunwater proposed to use the average of the annual results, which is 40 per cent. The 40 per cent figure is used combined with the operations cost allocator (21 per cent) and electricity cost allocator (34 per cent) to determine a cost transfer amount of $107,000 for the base year.[266] This is 10 per cent of the base year.

For non-routine expenditure, Sunwater identified the non-routine projects associated with the Owanyilla pump station and main channel over the 30-year planning period. Sunwater proposed to transfer 40 per cent of these costs from the distribution system to the bulk water supply scheme for each year of the planning period.[267]

We consider that an average of the diversions as a proportion of water pumped is an appropriate cost allocation approach.

For non-routine expenditure, we propose to use Sunwater's proposed approach of using the 40 per cent cost allocation to determine the cost transfer.

6.6 Alternative tariff groups

Under the referral, we have been asked to recommend prices that adopt the current tariff groups except for those in specified WSSs. We are also required to provide two sets of recommended prices for the tariff groups we have been asked to review: one that maintains the existing tariff group(s), and one that applies the alternative tariff group(s).

For the tariff groups that we have been asked to review, the recommendations we make are not required to specify which set of prices are to apply.

[265] QCA, *Sunwater Irrigation Price Review: 2012–17*, Volume 2: Lower Mary River Water Supply Scheme, final report, April 2012, p. 19.
[266] Sunwater response to QCA RFI 41.
[267] Sunwater response to QCA RFI 41.

Table 70 Sunwater tariff groups to be reviewed

Water supply scheme	*Categories of prices*	*Existing tariff groups*
Dawson Valley	Fixed (Part A) Volumetric (Part B)	(1) Dawson River (2) Dawson River at Glebe Weir
St George	Fixed (Part A) Volumetric (Part B)	(1) River—Beardmore Dam/Balonne River (2) River—Thuraggi Watercourse
Three Moon Creek	Fixed (Part A) Volumetric (Part B)	(1) River (2) Groundwater

In developing alternative tariff groups for these schemes, we have considered the relevant matters under section 26 of the QCA Act and the referral—in particular, economic efficiency and balancing the legitimate commercial interests of Sunwater with the interests of its customers.

6.6.1 Dawson Valley WSS

There are currently two tariff groups for irrigation customers of the river segment of the Dawson Valley WSS:

- Dawson River
- Dawson River at Glebe Weir.

The Glebe Weir tariff group relates to irrigators upstream of Glebe Weir that source water directly from the Glebe Weir pondage area. Customers downstream pay the Dawson River charge.

Previous investigation

In the 2012 review, the referral specifically directed us to adopt the two existing tariff groups for this WSS.

In the 2012 review, Sunwater advised that the lower fixed (Part A) tariff for the Glebe Weir irrigators was a legacy arrangement whereby Glebe Weir customers paid slightly lower charges on the basis that water was often not available at their foot valves after releases from the weir for downstream users. We accepted that the level of service may differ between weir irrigators and those downstream; however, any differences were difficult to quantify and there were likely to be advantages or disadvantages in being a weir irrigator, depending on the water level of the weir.

We concluded that there was no basis to differentiate costs between the two tariff groups. However, given that existing prices for both tariff groups were above cost-reflective, under the terms of the referral, the fixed (Part A) price in each tariff group increased by inflation and maintained the existing price differential. We recommended the same volumetric (Part B) tariff for the tariff groups.

Stakeholders' submissions

No submissions from Sunwater or other stakeholders were received on this issue.

QCA assessment

In accordance with the referral, we are proposing the following alternative tariff groups for the Dawson Valley WSS:

- the existing tariff groups for Dawson River and Dawson River at Glebe Weir that reflect continuing legacy arrangements

- a new alternative Dawson River tariff group that combines the two existing tariff groups.

The price path for the fixed (Part A) price for the current and new bundled tariff group are shown in Table 71.

Table 71 Dawson Valley WSS current and alternate tariff groups: fixed (Part A) price ($/ML WAE)

	2019–20	***2020–21***	***2021–22***	***2022–23***	***2023–24***
Existing tariff groups					
Dawson River	18.04	20.69	21.18	21.69	22.20
Dawson River at Glebe Weir	16.18	18.94	21.18	21.69	22.20
Alternative tariff group					
Dawson Valley WSS	n.a.	20.69	21.18	21.69	22.20

The volumetric (Part B) price will remain the same across all scheme customers.

6.6.2 St George WSS

There are currently two tariff groups for irrigation customers in the river segment of the St George WSS:

- Beardmore Dam / Balonne River
- Thuraggi Watercourse.

Previous investigation

The referral for the 2012 review specifically required us to adopt the existing two tariff groups for this WSS.

Consistent with the 2006–11 price path, we considered that there was no basis to differentiate costs between these two tariff groups. Given existing prices were identical, we recommended identical prices for these two tariff groups.

Stakeholder submissions

No submissions from Sunwater or other stakeholders were received on this issue.

QCA assessment

We consider that an alternative tariff group should combine the multiple tariff groups into a single tariff group. As there has been no price differential between the two existing tariff groups, the alternative single price will be the same as the existing tariff groups.

The price path for the fixed (Part A) price for the current tariff groups and our proposed alternative tariff group are shown in Table 72.

Table 72 St George WSS current and alternative tariff groups: fixed (Part A) price ($/ML WAE)

Tariff group	*2019–20*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Existing tariff groups					
Beardmore Dam / Balonne River	21.91	21.91	21.91	21.91	21.91
Thuraggi Watercourse	21.91	21.91	21.91	21.91	21.91
Alternative tariff group					
St George WSS	n.a.	21.91	21.91	21.91	21.91

The volumetric (Part B) charge will remain the same across all scheme customers.

6.6.3 Three Moon Creek WSS

There are currently two tariff groups for irrigation customers in the Three Moon Creek WSS:

- River
- Groundwater.

The fixed (Part A) price differs between these two tariff groups, with the River tariff group having a fixed (Part A) price of $32.44/ML and the Groundwater tariff group having a fixed (Part A) price of $23.57/ML. The volumetric (Part B) price is the same for the two tariff groups.

Previous investigations

In the 2012 review, we concluded that there was no basis for differentiated costs between the two tariff groups. We noted that in other tariff groups, such as the Giru Benefited Area, there may be a hydrological basis for estimating natural flows, which could result in cost and price differentials between groundwater and river. We were unable to find any evidence in the 2012 review that the historic price discount reflected natural recharge into the groundwater area in the Three Moon Creek WSS.

Sunwater also advised during the 2012 review that no cost difference existed in the provision of the services to the irrigators.

Stakeholders' submissions

The Three Moon Creek Irrigator Advisory Committee (IAC) said that it understood that Sunwater did not incur any extra costs in supplying surface water as compared to groundwater WAEs. However, it noted that electricity costs for irrigators accessing surface water are lower than for those accessing groundwater.

Three Moon Creek IAC outlined five potential tariff group options for the scheme (Table 73).

Table 73 Tariff group options for Three Moon Creek WSS

Option	*Three Moon Creek IAC's comments*
1. Raise Groundwater fixed (Part A) price to the River fixed (Part A) price.	This option would result in an increase of around 36 per cent in fixed (Part A) prices for groundwater users. This option is unacceptable, as it will jeopardise affected irrigators' economic viability with consequent flow-on to the local economy.
2. Lower River fixed (Part A) price to the Groundwater fixed (Part A) price.	While this option would significantly benefit surface water users, irrigators recognise the difficulty in reducing Sunwater's revenue, given the current Government policy of moving schemes to cost-reflective prices over time.

Option	Three Moon Creek IAC's comments
3. Raise Groundwater fixed (Part A) and reduce River fixed (Part A) to achieve a neutral revenue outcome for Sunwater.	Groundwater irrigators would receive a modest cost increase that could be absorbed and surface water users would receive a price reduction. However, all users would benefit from overall increased efficiency in the scheme through reduced administration costs, compared to the existing situation where Sunwater manages two tariff groups across the scheme.
4. Fix fixed (Part A) River charges at current levels until the Groundwater fixed (Part A) incrementally reaches the same fixed (Part A) River charge.	This provides similar outcomes to option 3,except that the efficiency gains of moving to a single tariff will be delayed by 4 to 5 years.
5. No change	While this option is simplest to implement, it entrenches inefficiencies inherent in the current system.

Source: Three Moon Creek Irrigator Advisory Committee, sub. 141.

Out of the five approaches, the Three Moon Creek IAC nominated the third approach as the best option.[268]

Sunwater did not provide a submission on this issue.

QCA assessment

We have assessed the options in the submission from Three Moon Creek IAC. We welcome stakeholders working together to develop pricing options that consider efficiency implications and balance the legitimate commercial interests of Sunwater and the interests of its customers.

In the 2012 review we considered that there was no basis to differentiate costs between groundwater and river WAE. Given the constraints on prices transitioning, the legacy price differential has remained in place since the 2012 review.

Given there is no basis to differentiate costs, we consider that the alternative tariff group we are required to recommend should be a single tariff group for both groundwater and river customers. We note that option 4 and 5 proposed by Three Moon Creek IAC retain the two tariff groups, so are not options in our development of an alternative tariff group.

We consider that option 3 that Three Moon Creek IAC proposed balances the legitimate commercial interests of Sunwater with the interests of its customers, by maintaining Sunwater's existing level of revenue and moderating bill impacts for all customer groups in the scheme.

The price path for the fixed (Part A) price for the current tariff group and our proposed alternative tariff groups are shown in Table 74.

[268] Three Moon Creek Irrigator Advisory Committee, sub. 142, pp. 1–2.

Table 74 Three Moon Creek WSS current and alternative tariff groups: Part A tariff ($/ML)

Tariff group	*2019–20*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Existing tariff groups					
River	32.43	35.58	38.86	42.27	45.83
Groundwater	23.58	26.52	29.58	32.78	36.11
Alternative tariff group					
Option 3 (weighted average)—QCA-recommended	n.a.	27.75	30.84	34.07	37.43

The volumetric (Part B) will remain the same across all scheme customers.

7 DRAFT RECOMMENDED PRICES

In this chapter, we present our draft recommendations on irrigation prices for the period 1 July 2020 to 30 June 2024, as well as indicative bill impacts.

The prices we recommend in the final report may differ from the prices in this draft report. We also note that the government will determine prices after considering whether to accept our final recommendations.

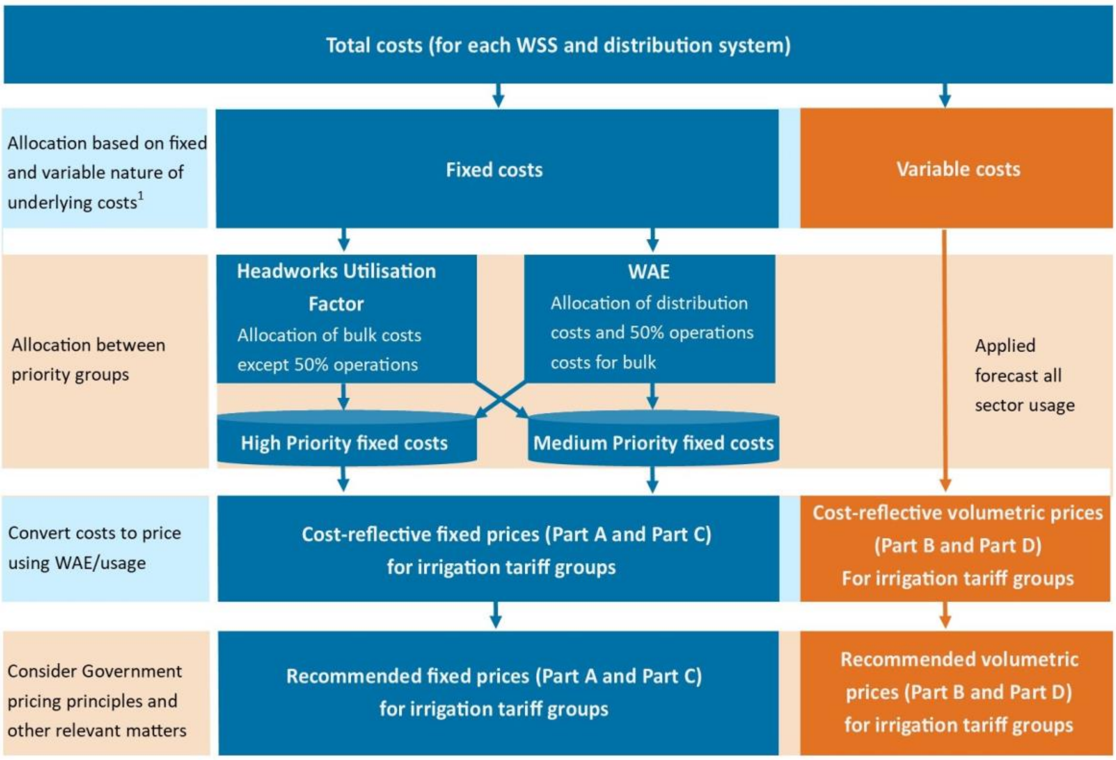
7.1 Background

Our approach to deriving recommended irrigation prices (Figure 30) is largely consistent with the approach adopted in the 2012 review. Some differences can be found in the application of government pricing principles (schedule 2 of the referral).

The main steps in converting the revenue requirement (Chapter 4) to prices are the following:

- Allocate costs to be recovered from the fixed (Part A and Part C, if applicable) prices and volumetric (Part B and Part D, if applicable) prices based on the fixed and variable nature of underlying costs (see section 7.2).
- Allocate fixed costs between medium and high priority WAE customers (see section 7.3).
- Convert costs to a fixed and volumetric price that reflects the costs allowable under the referral (referred to in the referral as the 'cost reflective' price in each tariff group) (see section 7.4).
- Consider matters in the referral (including the Government's pricing principles) and in section 26 of the QCA Act when calculating recommended prices (section 7.5).

Figure 30 Approach to deriving recommended irrigation prices



7.2 Fixed and variable costs

The referral requires us to have regard for the fixed and variable nature of the underlying costs in recommending prices.

We consider that the tariff structure should include a volumetric price that covers variable costs associated with the delivery of water services (section 6.2.4). The fixed price should reflect the balance of the revenue requirement allocated to the particular tariff group.

7.2.1 Previous investigation

Current irrigation prices reflect the allocation of costs between fixed and variable costs based on advice provided by Indec as part of the 2012 review.[269] Indec considered whether a causal relationship could exist between costs and water usage over a five-year period, undertook a statistical analysis of past costs, and considered the most appropriate management approach to deliver services. The analysis was undertaken on a scheme-wide basis (that is, other customer sectors were included, as well as irrigation).

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[270] in relation to variations in customer water use. We accepted Indec's findings for operating costs but recommended that renewals costs should be fixed in relation to water use.

Table 75 presents the findings for operating costs for both bulk and distribution systems.

Table 75 Variable operating costs by activity—2012 review (per cent)

Activity	*Variable in bulk*	*Variable in distribution*
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, Qualitative Framework and Assessment of Fixed and Variable Cost Drivers, December 2011; QCA analysis.

The application of these proportions resulted in the following:

- For bulk water supply schemes, the volumetric price was recommended to recover between 4 and 11 per cent of the total revenue requirement.
- For distribution systems, the volumetric price was recommended to recover between 30 and 37 per cent of the total revenue requirement.

7.2.2 Sunwater's submission

Sunwater proposed a simpler revenue allocation between fixed and volumetric charges based on a high-level estimate of variable costs that also considers some level of incentive for water

[269] Indec, *Qualitative Framework and Assessment of Fixed and Variable Cost Drivers*, final report, prepared for the QCA, December 2011.

[270] 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).

efficiency. Sunwater said that its approach maintains the same relative proportions of fixed and volumetric allocations for all service contracts, and avoids the complexity of the allocation method used in the 2012 review.

Sunwater has proposed the allocation of 10 per cent of total operating costs (excluding electricity and insurance, but including non-direct costs), and 100 per cent of electricity cost to variable costs.[271]

Table 76 Variable operating costs by activity—Sunwater's proposed approach (per cent)

Activity	*Variable (%)*
Direct operations and maintenance[a]	10
Electricity pumping costs	100
Other electricity costs	100
Non-direct costs	10
Renewals annuity	—
Dam safety upgrade capex	—

a *Excludes electricity and insurance costs.*

Source: Sunwater, sub. 49, p. 8.

Sunwater said that of all cost categories, electricity costs are most likely to be driven by water use and therefore should be 100 per cent allocated to usage charges.[272] However, in responding to our query on how base year electricity costs had been calculated, Sunwater identified that electricity costs in most schemes were not usage-related.[273]

7.2.3 Other stakeholders' submissions

Irrigator stakeholders were generally more concerned about the classification of costs as fixed or variable than they were about the approach of allocating fixed costs to the fixed component of prices and variable costs to the volumetric component of prices. The classification of electricity costs was a particular concern, with irrigator stakeholders generally advocating that a higher proportion of these costs should be classified as fixed.

Some irrigation stakeholders said that the QCA should investigate the underlying fixed and variable nature of electricity costs.[274] In particular, BRIA and BRIG considered that QCA should investigate whether access charges ($ per day) and demand charges for electricity should be re-assigned as fixed costs. BRIG provided a proposed electricity cost pass-through mechanism (see Part A, Chapter 3), and suggested that demand charges should be assigned to volumetric charges if this type of mechanism was adopted; otherwise demand charges should be assigned to fixed charges.

Kinchant Dam Water Users Association (KDWUA) said that given the nature of operations in the Eton bulk WSS, all pumping (electricity) costs in this scheme should be fully assigned to fixed cost (consistent with the 2012 review).[275]

[271] Sunwater, sub. 49, p. 8.
[272] Sunwater, sub. 49, p. 8.
[273] Sunwater response to QCA RFI 23.
[274] QFF, sub. 132; BRIA Irrigators, sub. 85; BRIG, sub. 88; KDWUA, sub. 112.
[275] KDWUA, sub. 112.

7.2.4 QCA assessment

Electricity costs

Sunwater's electricity costs comprise a significant component of its overall operating costs, due to the cost of pumping water, predominantly in distribution systems. However, there is also some relatively minor electricity use in bulk WSSs that require pumping to supplement stream flows (Barker Barambah—Redgate Relift and Upper Condamine WSS—North Branch).

We have treated a significant component of electricity costs as variable with water usage in these two bulk WSS tariff groups and the five distribution systems (section 2.5). In these schemes, we have assigned our calculated 2019–20 base year electricity costs between fixed and variable costs based on the fixed and variable nature of the underlying electricity tariff components.

We consider that our proposed approach of assigning some electricity costs to fixed costs based on the underlying nature of the electricity tariffs better meets the requirements set out in the referral notice, which requires us to have regard to the underlying fixed and variable nature of costs in setting prices.

Table 77 shows our proposed split between fixed and variable costs for those schemes with variable electricity costs, as identified above.

Table 77 The QCA's draft 2019–20 base-year electricity costs for selected schemes

Tariff group	*Variable cost ($/ML)*	*Water usage forecast (ML)*	*Total variable cost ($'000)*	*Total fixed cost ($'000)*	*Total base year cost ($'000)*
Barker Barambah—Redgate relift	46.91	686	32	8	40
Upper Condamine—North Branch	12.57	7,082	89	1	90
Bundaberg distribution	51.60	72,040	3,717	590	4,307
Burdekin-Haughton distribution	16.86	229,160	3,864	1310	5,174
Eton distribution	24.60	21,725	535	5	540
Lower Mary distribution	52.34	4,706	246	36	282
Mareeba-Dimbulah distribution—relift	66.24	5,042	334	133	467

Notes: For Barker Barambah WSS (Redgate Relift) and Upper Condamine (North Branch), as outlined in Chapter 2 we have accepted Sunwater's proposed base year costs. We have derived fixed costs based on the costs of the connection sites that are not pump stations plus the fixed component of the electricity tariffs for the pump stations.

Sources: AECOM, Rural Irrigation Operating Expenditure Review: Sunwater, August 2019, p. 68; QCA analysis.

Tariff balance

We consider that the fixed/variable splits recommended by Indec as part of the 2012 review are an appropriate starting point for the current review. Sunwater has advised that it has not made any significant changes to operational and maintenance processes since 2012 that would materially affect the level of variable costs.[276]

The allocation of costs between the fixed and variable components of prices involves a degree of subjectivity and judgement. We accept Sunwater's concern that the 2012 review approach was overly complex, with scheme-specific fixed/variable splits for the activity-level categories (direct operations, preventative maintenance and corrective maintenance) in Sunwater's distribution systems that differed across systems by increments of 5 or 10 per cent.[277] For this review, the referral directs us to ensure, where possible, that revenue and pricing outcomes are both simple and transparent to customers.

We have considered Sunwater's proposed allocation of 10 per cent of operations and maintenance costs (including direct and non-direct costs) to variable costs. In the 2012 review, we allocated 20 per cent of direct operations and maintenance costs to variable costs for bulk WSS costs, and 20–35 per cent of each of direct operations, preventative maintenance and corrective maintenance costs for distribution system costs. We note that Sunwater's proposed allocation of 10 per cent of total operations and maintenance costs (including direct and non-direct costs) is broadly similar to the 2012 review (given that around half of operations and maintenance costs were direct costs in the 2012 review). However, Sunwater's proposed costs in this review reflect a higher non-direct share of scheme costs as compared to the 2012 review.

We are proposing to allocate 20 per cent of direct operations and maintenance costs to variable costs for bulk WSS and distribution systems in this investigation. We consider that this approach is appropriate, with a view to balancing complexity, cost and transparency. This is consistent with the approach we applied in the 2012 review for bulk WSSs and reflects the lower end of the range of the cost category level proportions we applied for distribution system costs. Table 78 presents our proposed fixed/cost allocations for operating costs.

Table 78 Variable operating costs by activity—QCA's proposed approach (per cent)

Activity	*Sunwater's proposed*	*QCA draft*
Direct operations and maintenance[a]	10	20
Electricity pumping costs	100	Scheme-specific
Other electricity costs	100	—
Non-direct costs	10	—
Renewal annuity	—	—
Dam safety upgrade capex	—	—

a Excludes electricity and insurance costs.

Source: Indec, Qualitative Framework and Assessment of Fixed and Variable Cost Drivers, December 2011; QCA analysis.

We note that the proposed approach is generally consistent with IPART's most recent WaterNSW price determination. 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 promoted the economically efficient use of water infrastructure assets.

[276] Sunwater response to QCA RFI 37.

[277] In each distribution system, the costs allocated to variable costs were either 20, 25, 30 or 35 per cent for each of the operations, preventative maintenance and corrective maintenance categories.

Given that WaterNSW's costs were largely fixed, it considered that an 80:20 fixed to variable 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, contingent on the use of a risk management product that would result in WaterNSW receiving revenues that aligned with its preferred 80:20 split.[278]

Table 79 shows the proportion of revenue allocated to the fixed and variable charges for each bulk WSS, prior to the application of the Government's pricing principles in the referral.

Table 79 The QCA's draft fixed and variable cost apportionment for bulk WSSs, 2020–24

WSS	*2012 review*		*2020–24 review*	
	Fixed	*Variable*	*Fixed*	*Variable*
Barker Barambah	90%	10%	95%	5%
Bowen Broken Rivers	93%	7%	96%	4%
Boyne River and Tarong	91%	9%	97%	3%
Bundaberg	93%	7%	97%	3%
Burdekin-Haughton	93%	7%	95%	5%
Callide Valley	92%	8%	98%	2%
Chinchilla Weir	90%	10%	97%	3%
Cunnamulla	91%	9%	97%	3%
Dawson Valley	92%	8%	97%	3%
Eton	93%	7%	96%	4%
Lower Fitzroy	92%	8%	95%	5%
Lower Mary	92%	8%	97%	3%
Macintyre Brook	94%	6%	96%	4%
Maranoa River	91%	9%	97%	3%
Mareeba-Dimbulah	90%	10%	95%	5%
Nogoa-Mackenzie	92%	8%	96%	4%
Pioneer River	94%	6%	96%	4%
Proserpine River	89%	11%	95%	5%
St George	95%	5%	95%	5%
Three Moon Creek	93%	7%	97%	3%
Upper Burnett	93%	7%	96%	4%
Upper Condamine	91%	9%	91%	9%
Bulk supply average	**93%**	**7%**	**96%**	**4%**

Note: Whole of scheme costs.

Source: QCA, SunWater Irrigation Price Review: 2012–17, final report, May 2012; QCA analysis.

278 IPART, *WaterNSW—Review of prices for rural bulk water services from 1 July 2017 to 30 June 2021*, final report 2017, Chapter 11.

Table 80 shows the proportion of revenue allocated to the fixed (Part C) and variable (Part D) charges for each of the distribution systems operated by Sunwater, prior to the application of the Government pricing principles in the referral.

Table 80 The QCA's draft fixed and variable cost apportionment for distribution systems, 2020–24

Distribution system	***2012 review***		***2020–24 review***	
	Fixed	***Variable***	***Fixed***	***Variable***
Bundaberg	59%	41%	72%	28%
Burdekin-Haughton	60%	40%	73%	27%
Eton	72%	28%	80%	20%
Lower Mary	78%	22%	74%	26%
Mareeba-Dimbulah	83%	17%	85%	15%
Distribution system average	**67%**	**33%**	**75%**	**25%**

Source: QCA, SunWater Irrigation Price Review: 2012–17, final report, May 2012; QCA analysis.

7.3 Allocating costs between medium and high priority users

Sunwater's customers hold water access entitlements (WAEs) specifying the reliability of 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).

A high priority WAE does not provide a 100 per cent guarantee that the holder will always get access to water. Rather, high priority means that the holder can expect to be given higher priority when available water supplies are being shared between customers of all priorities. 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.

7.3.1 Previous investigation

In the 2012 review, variable costs were allocated between medium and high priority WAEs according to water use.

To recover variable costs, we derived a volumetric price for each irrigation service contract (Part B and Part D, if applicable) that increased by inflation over the price path period. The cost-reflective volumetric price aligned the total variable costs for each service contract for all sectors (including but not limited to irrigation) with an assumed level of all sectors water usage particular to each service contract. This approach effectively assumed the same volumetric price for medium and high priority customers.

Our recommended approach for allocating fixed costs between medium and high priority WAEs used the headworks utilisation factor (HUF) for asset-related costs in bulk WSS, and WAEs for service-related costs in bulk WSSs and for all costs in distribution systems. This approach is summarised in Table 81.

Table 81 Fixed cost allocation between medium and high priority WAE in the 2012 review

Cost component	*Fixed cost allocation methodology*	
	Bulk WSSs	*Distribution systems*
Operations	50% by HUF, 50% by WAE	WAE (excluding distribution losses)
Corrective maintenance	HUF	WAE (excluding distribution losses)
Preventative maintenance	HUF	WAE (excluding distribution losses)
Renewals annuity	HUF	WAE (excluding distribution losses)

7.3.2 Sunwater's submission

For bulk WSSs, Sunwater has proposed allocating fixed asset-related costs[279] between medium and high priority WAEs (including among urban, industrial and irrigation customers) using the HUF methodology. Sunwater's submission described the methodology as reflecting the benefit or level of service from bulk water assets attributable to each WAE priority group.[280]

Sunwater has recently revised the HUF in some WSSs for the latest hydrological assessments and water supply arrangements, including revisions to water plans, since the 2012 review.

7.3.3 Other stakeholders' submissions

Central Highlands Regional Council, QFF and Superior Production Co Pty Ltd said that the QCA should review the cost allocation approach for IGEM costs.[281] Superior Production Co Pty Ltd said that if the costs are to be allocated to water users, this should be done through the HUF.[282]

QFF, Canegrowers and Theodore Water recommended that a detailed review of insurance costs be completed to establish the correct allocation of the costs as well as the prudence and efficiency of the costs being proposed by Sunwater.[283]

QFF said that changes to the HUFs are contributing to price increases for medium priority customers, particularly in some distribution systems. QFF said that distribution customers also pay for the costs of distribution losses, which are determined by high priority distribution losses.

Some stakeholders provided comments on the revised HUFs proposed by Sunwater in its November 2018 submission:

- Barker Barambah Irrigator Advisory Committee (IAC) requested the QCA reduce the HUF to 68 per cent in order to reflect the reliability reduction from 40 per cent down to 36 per cent for medium priority water users over the last 15 years.[284]
- Fraser Coast Regional Council's (FCRC) said that the Mary Barrage provided no superior access or security for high priority allocation and the suitability of the HUF on the Lower Mary River Water Supply Scheme should be reviewed.[285]

[279] Except for 50% of fixed operations costs (relating to service provision costs) which were allocated based on current nominal WAE, consistent with the last price review.
[280] Sunwater, sub. 50, p. A-3.
[281] CHRC, sub. 101; QFF, sub. 132, p. 5; Superior Production Co Pty Ltd, sub. 138.
[282] Superior Production Co Pty Ltd, sub. 138.
[283] QFF, sub. 132, p. 5.
[284] Barker Barambah IAC, sub. 83.
[285] FCRC, sub. 105.

- Superior Production Co Pty Ltd said that changes to the HUF in the Nogoa-Mackenzie scheme were having a substantial impact on the prices for high priority customers and the QCA should review the HUF for this scheme.[286]
- Central Highlands Regional Council did not support Sunwater's proposed HUF methodology, and recommended that the QCA review the HUF methodology used to allocate costs in the Nogoa Mackenzie system (increase from 55% to 72% allocation to high priority customers).[287]
- Pioneer Valley Water Co-operative Limited said that changes to the HUF need to look at yield and reliability.[288]

7.3.4 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 category of water entitlement is the cost driver for the purpose of cost allocation. It indicates that storage-related infrastructure costs, associated with each ML of high priority WAE, are greater than the storage costs for each ML 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 WAEs.

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

We have also reviewed the underlying input data, assumptions and calculations used to obtain the Sunwater's proposed HUF values that have materially changed since the 2012 review.

Costs allocated to priority groups using the HUF

Asset renewals and maintenance expenditure

In the 2012 review, we recommended that renewals expenditure, fixed preventative maintenance and fixed corrective maintenance costs in bulk WSSs be allocated to medium and high priority customers using HUFs. We consider that allocating these headworks-related costs using the HUF remains appropriate for this review.

Dam safety costs

In the 2012 review, we recommended that those components of fixed operations costs that are asset-related, including dam safety costs, should be allocated to medium and high priority

[286] Superior Production Co Pty Ltd, sub. 138.
[287] CHRC, sub. 101.
[288] Pioneer Valley Water Co-operative Limited, sub. 130.

customers using HUFs, as this cost allocation factor takes into account the cost differentials related to servicing different priority groups.[289]

As outlined in Sunwater's submission, Sunwater's obligations in relation to dam safety include:

- having an effective dam safety management program to minimise the risk of dams failing, and protect life and property, in accordance with the Queensland Dam Safety Management Guidelines[290]
- complying with the national guidelines of the Australian National Committee on Large Dams
- having an approved emergency action plan (EAP) in place for each referable dam[291]
- meeting requirements relating to acceptable flood capacity in the Guideline on Acceptable Flood Capacity for Water Dams[292]
- complying with IGEM Review recommendations, including Sunwater being directed by its shareholding Ministers to improve the EAPs and implement an emergency event program.[293]

We consider that dam safety compliance costs constitute a normal cost of managing and operating dams and consequentially should be allocated to direct users of the bulk water supply service. Sunwater needs to incur these compliance costs as part of managing and operating dams to deliver bulk water services to medium and high priority customers. Our preferred approach is for beneficiaries of the dam to meet these compliance costs. The HUF is an appropriate cost allocation approach, as it takes into account the differential in benefits received by priority groups.

In relation to bulk WSSs, we therefore recommend that dam safety upgrade capex and IGEM costs should be allocated to medium and high priority customers using HUFs.

Insurance costs

In the 2012 review, we allocated insurance costs in bulk WSSs between medium and high priority customers on the basis of 50 per cent HUFs and 50 per cent nominal WAE.

For this review, Sunwater has proposed to recover historical flood damage costs through the renewals annuity. Sunwater said that the QCA accepted this approach in the 2012 review, albeit flood damage costs were excluded at the time of the 2012 review since the associated insurance claims had not been finalised.[294] We have accepted recovering flood damage costs through the annuity if the associated insurance claims have been finalised (see Chapter 3).

Sunwater has proposed that insurance proceeds received are used to offset annuity spend to lower the renewals annuity allowance to be paid by irrigation customers.[295] We consider it appropriate that the prudent and efficient costs of Sunwater's insurance and risk arrangements associated with water supply services and assets should be recovered from customers. This would comprise prudent and efficient insurance costs and the prudent and efficient costs arising from the risk such as flood damage costs, net of insurance claim recoveries.

[289] QCA, *SunWater Irrigation Price Review 2012–17*, Volume 1, final report, May 2012, p. 308.
[290] DNRM, Queensland Dam Safety Management Guidelines, February 2002.
[291] Water Supply (Safety and Reliability) Act 2008, ss. 352E and 352T.
[292] DEWS, Guidelines on Acceptable Flood Capacity for Water Dams, July 2017.
[293] Sunwater, sub. 13, pp. 14–15.
[294] Sunwater response to QCA RFI 8.
[295] Sunwater response to QCA RFI 4.

Over the 2012–13 to 2017–18 period, Sunwater reported that it had received insurance claim recoveries of $15.0 million across its 22 bulk water schemes with irrigation customers. There are also ongoing insurance claims relating to the 2013 flood event, which may result in additional insurance claim recoveries. For this review, Sunwater has proposed that flood damage costs (net of insurance claim recoveries) are recovered through the renewals annuity.

In contrast to the 2012 review approach that allocates insurance costs between medium and high priority customers based on 50 per cent HUF and 50 per cent WAE, the benefit received from insurance claims recoveries will be allocated between medium and high priority customers using the HUF. Given that HUFs provide a higher share to high priority customers to recognise the higher benefits received from headworks, irrigation customers are currently paying a higher share of insurance costs as compared to the share of benefits they receive.

We note that Sunwater holds a range of insurance policies including Industrial and Special Risks (ISR) (around 80 per cent of insurance costs), combined general liability (around 15 per cent) and contracts work and construction liability. Insurance premium costs for these insurance programs are generally allocated to irrigation schemes based on declared asset values. All other insurance programs held by Sunwater are part of overheads that are separately allocated with other overheads to irrigation schemes.

Since the 2012 review, Sunwater's insurance premium costs for its ISR coverage (asset related) have more than doubled from 2010–11 to 2018–19, due to the 2011 and 2013 flood events and an increase in declared asset values.[296] The relatively smaller liability coverage has increased by less than 10 per cent over this period. As mentioned above, Sunwater's ISR coverage now comprises around 80 per cent of total insurance costs.

We consider that liability coverage is also likely to be more asset-related than service- related. In this regard, we note that this coverage is a necessary cost of providing water supply services as it relates to risks associated with water supply services and assets. Since for bulk WSSs this cost will largely relate to the management and operation of headworks, we preferthat the beneficiaries of the dam meet this cost. We consider that the HUF is the appropriate cost allocation approach as it takes into account the differential in benefits received by priority groups.

In relation to bulk WSSs, we therefore recommend that insurance costs should be allocated to medium and high priority customers using HUFs.

For distribution systems, we have allocated insurance costs to medium and high priority customers using nominal WAEs, consistent with the allocation approach for all other scheme costs.

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.

Table 82 summarises the HUF methodology that we accepted in the 2012 review.

[296] Sunwater, sub. 43, p. 4.

Table 82 HUF methodology adopted in 2012 review

Step	*Description*
1. Identify the water entitlement groupings	For each WSS, establish the highest (high priority or HP) and second highest (typically medium priority or MP) water entitlement groups.
2. Determine the volumes of the identified water entitlement groupings	Determine the total WAE associated with each group. Where the ROP permits the conversion of high priority entitlements to medium priority (or vice versa), the maximum volume of HP WAE (HPmax) that can exist and corresponding MP WAE (MPmin) must be determined.
3. Determine the extent to which water sharing rules and other operational requirements give the different WAE priority groups exclusive or shared access to components of storage capacity	Using the water sharing rules and other operational requirements set out in the ROP, partition the total storage of the WSS as follows: (a) the bottom horizontal storage layer reserved for exclusively supplying HP WAE (HP1) – the 'bottom' level (b) the middle horizontal storage layer available for exclusive use by MP WAE (MP1) – the 'middle' level (c) the top horizontal storage layer to be shared between MP and HP WAEs – the 'top' level. The 'top' level is apportioned between MP (MP2) and HP (HP2) WAEs according to the ratio of MP and HP nominal volumes.
4. Assess the hydrologic performance of each component of headworks storage	Hydrologic models (based on Integrated Quantity Quality Models or IQQMs) are used to derive the probabilities of each component of headworks storage in step 3 being accessible to the relevant WAE priority group during the driest 15-year period. The critical 15-year period reflects the proportion of storage capacity actually dedicated to HP WAE given that this capacity is driven by worst-case inflow scenarios.
5. Determine the HUF	Using the parameters established and derived in steps 1 to 4 above, the percentage of headworks storage capacity that MP customers have access to during the critical 15-year period is calculated for each WSS.

Source: QCA, SunWater Irrigation Price Review: 2012–17, final report, May 2012, pp. 183–192.

We engaged Water Solutions to undertake an independent quality assurance of Sunwater's proposed headworks utilisation factors (HUF) in specified WSSs to assess whether the underlying data, assumptions and calculations result in appropriate calculations for HUF factors.

We selected schemes with material changes in the HUF since the 2012 review:

- Barker Barambah (reduction in medium priority HUF from 76 per cent in 2012 review, to 72 per cent)
- Callide Valley (increase in medium priority HUF from 10 per cent to 27 per cent)
- Lower Mary (increase in medium priority HUF from 42 per cent to 48 per cent)
- Nogoa-Mackenzie (reduction in medium priority HUF from 45 per cent to 28 per cent, with offsetting increase for irrigation customers with high priority WAE)
- Pioneer River (reduction in medium priority HUF from 44 per cent to 38 per cent)
- Upper Burnett (increase in medium priority HUF from 18 per cent to 64 per cent).

In summary, Water Solutions said that its quality assurance audit concluded that Sunwater's underlying data, assumptions and calculations resulted in appropriate calculations for HUFs in the schemes that it examined. While Water Solutions noted some calculation errors, these only had a modest impact on the calculated HUF, differing less than one per cent from the values proposed by Sunwater.

Our responses to stakeholders' comments are summarised in Table 83.

Table 83 Stakeholders' submissions on Sunwater's proposed HUF

WSS	*Stakeholder comment*	*QCA response*
Barker Barambah	Barker Barambah Irrigator Advisory Committee (IAC) requested the QCA reduce the HUF to 68% in order to reflect the reliability reduction from 40% down to 36% for medium priority water users over the last 15 years.[a]	The HUF approach takes into account changes to water sharing rules and operational requirements.[b] Sunwater has amended the HUF in this scheme from 76% to 72%, reflecting changes to water sharing rules. Water Solutions have reviewed this estimate, and has determined it has been appropriately calculated.
Lower Mary	Fraser Coast Regional Council's (FCRC) said that the Mary Barrage provided no superior access or security for high priority allocation and the suitability of the HUF on the Lower Mary River Water Supply Scheme should be reviewed.[c]	DNRME is responsible for determining the volume and reliability of medium and high priority WAE. The HUF approach then takes into account the water planning framework (including water sharing rules and other operational requirements) determined by DNRME in estimating the relative benefits of bulk water assets attributable to medium and high priority customers. Water Solutions have reviewed the proposed HUF for this scheme and determined that it has been appropriately calculated.
Nogoa-Mackenzie	Superior Production Co Pty Ltd said that changes to the HUF in the Nogoa-Mackenzie scheme were having a substantial impact on the prices for high priority customers and the QCA should review the HUF for this scheme.[d] Central Highlands Regional Council (CHRC) recommended that the QCA review the HUF methodology used to allocate costs in this scheme. CHRC said that if the removal of the Bedform Weir fabridam is having such a large impact on the HUF, the weir needs to be upgraded to the previous capacity.[e]	Sunwater has confirmed that its HUF calculation has been done with the Bedford Weir fabridam removed. Water Solutions have reviewed the proposed HUF for this scheme and determined that the changes noted for the scheme have been appropriately accounted for.
Pioneer River	Pioneer Valley Water Co-operative Limited said that changes to the HUF need to look at yield and reliability.[f]	Water Solutions have reviewed the proposed HUF for this scheme and determined that it has been appropriately calculated.

a *Barker Barambah IAC, sub. 82, March 2019.* ***b*** *This includes regulatory obligations specified in a water management protocol, resource operations plan or resource operations licence.* ***c*** *FCRC, sub. 104, March 2019.* ***d*** *Superior Production Co Pty Ltd, sub. 137, March 2019.* ***e*** *Central Highlands Regional Council, sub. 100, March 2019.* ***f*** *Pioneer Valley Water Co-operative Limited, sub. 129, March 2019.*

Based on the above assessment, we therefore recommend that Sunwater's proposed HUFs be adopted. Table 84 compares our proposed HUFs with those used in the 2012 review.

Table 84 The QCA's draft HUF allocation to medium priority (%)

WSS	*2012 review*	*Sunwater's proposed*	*QCA draft*
Barker Barambah	76	72	72
Bowen Broken Rivers	–	–	–
Boyne River and Tarong	10	4	4

WSS	2012 review	Sunwater's proposed	QCA draft
Bundaberg	82	62	62
Burdekin-Haughton	79	79	79
Callide Valley	10	27	27
Chinchilla Weir	12	12	12
Cunnamulla	100	100	100
Dawson Valley	70	61	61
Eton	79	79	79
Lower Fitzroy	10	10	10
Lower Mary	42	48	48
Macintyre Brook	87	87	87
Maranoa River	100	100	100
Mareeba-Dimbulah	47	47	47
Nogoa-Mackenzie	45	28	28
Pioneer River	44	38	38
Proserpine River	29	29	29
St George	94	94	94
Three Moon Creek	60	61	61
Upper Burnett	17	64	64
Upper Condamine	11	8	8

Source: QCA, SunWater Irrigation Price Review: 2012–17, final report, May 2012; Sunwater, sub. 45, November 2018; QCA analysis.

Proposed approach to allocating fixed costs to priority group

Table 85 summarises our proposed approach to allocating fixed costs between high and medium priority WAE.

Table 85 Fixed cost allocation between high and medium priority WAE

Cost component	Fixed cost allocation methodology	
	Bulk WSSs	Distribution systems
Operations (excluding electricity, insurance and IGEM)	50% by HUF, 50% by WAE[a]	WAE (excluding distribution losses)
Electricity	HUF	WAE (excluding distribution losses)
Insurance	HUF	WAE (excluding distribution losses)
IGEM costs	HUF	WAE (excluding distribution losses)
Corrective maintenance	HUF	WAE (excluding distribution losses)
Preventative maintenance	HUF	WAE (excluding distribution losses)
Renewals annuity	HUF	WAE (excluding distribution losses)
Dam safety upgrade capex	HUF	WAE (excluding distribution losses)

a *Includes distribution losses.*

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We recommend that:

- dam safety upgrade capex and IGEM costs should be allocated to medium and high priority customers using HUFs for bulk WSSs, and using nominal WAEs for distribution systems
- insurance costs should be allocated to medium and high priority customers using HUFs for bulk WSSs, and using nominal WAEs for distribution systems.

7.4 Cost-reflective prices

To establish recommended prices, we first need to derive cost-reflective prices that incorporate efficient costs allowable under the referral and increase by our measure of inflation over the price path period.

As outlined in section 7.1 above, the revenue requirements (in Chapter 4) are converted to cost-reflective prices by applying the following steps:

- Allocate costs to be recovered from the fixed (Part A and Part C, if applicable) and volumetric (Part B and Part D, if applicable) prices based on the fixed and variable nature of underlying costs (section 7.2).
- Allocate fixed costs between medium and high priority WAE customers (section 7.3).
- Convert costs to a fixed and volumetric price that reflects the costs allowable under the referral (referred to in the referral as the 'cost reflective' price in each tariff group).

For schemes with multiple tariff groups, total scheme costs are generally allocated between tariff groups using WAE for fixed costs and usage for variable costs. Table 86 summarises those schemes with scheme-specific approaches to cost allocation between tariff groups.

Table 86 Summary of scheme-specific pricing issues

Scheme/system	*Tariff group*	*QCA assessment*
1. Bulk WSSs		
Barker Barambah WSS	Redgate relift	Higher volumetric tariff than the rest of the scheme reflecting the recovery from these customers of relift pumping costs.
Bundaberg (bulk WSS and distribution system)	River Channel	In the 2012 review, we said that the Gin Gin main channel (distribution system asset) served a bulk water function. For this review, we accepted Sunwater's proposed reallocation of 5 per cent of the costs associated with this asset from the distribution system to the bulk tariff group (see section 6.5.1).
Lower Mary WSS	Tinana Barrage & Teddington Weir	In the 2012 review, Sunwater submitted that the Owanyilla Pump Station and Main Channel (distribution system assets) perform a bulk water function, as they supplement the Tinana Barrage and Teddington Weir. For this review, we accepted Sunwater's proposed reallocation of 40 per cent of the costs associated with these assets from the distribution system to this tariff group (see section 6.5.4).
Upper Condamine WSS	North Branch North Branch—Risk A	Higher volumetric tariff for these two tariff groups than the rest of the scheme reflecting the recovery from these customers of relift pumping costs.

Scheme/system	*Tariff group*	*QCA assessment*
		In the 2012 review, Sunwater submitted that the North Branch – Risk A WAE has a lower priority than medium priority as it has similar characteristics to water harvesting as opposed to the provision of supplemented supply. We accepted a lower fixed (Part A) price reflecting no recovery of renewals costs. For this review, we have maintained our 2012 review approach.
2. Distribution systems		
Burdekin-Haughton distribution system	Giru Groundwater Area	In the 2012 review, the fixed (Part A + Part C) and variable (Part B + Part D) cost-reflective prices were set to recover 51 per cent of the bundled bulk and distribution system charge. As outlined in section 6.5.2, based on the findings of our consultant Water Solutions, we consider that there is no material cost difference between this tariff group and the tariff group for other distribution system customers. For this review, we have removed the 49 per cent discount when deriving cost-reflective prices.
Mareeba-Dimbulah distribution system	Outside a relift section	Under the terms of the referral, the three blocks in the outside relift section are distinct tariff groups for which we are required to recommend a price. In the 2012 review, the QCA concluded that there was sufficient evidence to suggest that a material difference existed in fixed costs between the three tariff groups (particularly given the unique diversity of customers in the scheme). For this review, we have maintained our 2012 review approach (see section 6.5.3).
	Walsh River and Supplemented Streams	In the 2012 review, the fixed (Part A + Part C) and variable (Part B + Part D) cost-reflective prices were set to recover 60 per cent of the bundled bulk and distribution system charge. We considered that this level of cost recovery reflected the cost incurred by Sunwater, with the remaining 40 per cent supplied by natural yield. For this review, we have maintained our 2012 review approach (see section 6.5.3).
	Channel relift	Higher volumetric tariff than the rest of the scheme reflecting the recovery from these customers of relift pumping costs.

7.4.1 Fixed prices

The fixed (Part A and Part C) prices are based on WAE in each tariff grouping. Our draft cost-reflective fixed prices for bulk WSSs are compared to current prices in Table 87.

Table 87 Cost-reflective fixed (Part A) prices by tariff grouping, compared to 2019–20 current prices—bulk WSS ($/ML, nominal)

Tariff group	*2019–20*	*2020–21*	*% change*
Barker Barambah—River	25.93	50.68	95
Barker Barambah—Redgate Relift	25.93	50.93	96
Bowen Broken Rivers	12.50	6.52	(48)
Boyne River and Tarong	28.58	10.10	(65)
Bundaberg	13.06	13.89	6

Tariff group	***2019–20***	***2020–21***	***% change***
Burdekin-Haughton	12.71	3.62	(71)
Callide—Callide and Kroombit Creek	18.50	87.33	372
Callide—Benefited Groundwater Area	18.50	87.33	372
Chinchilla Weir	30.17	19.06	(37)
Cunnamulla	31.75	32.03	1
Dawson Valley—River (MP river customers) (pricing option 1)	18.04	20.69	15
Dawson Valley—River at Glebe Weir (pricing option 1)	16.18	20.69	28
Dawson Valley—Alternate tariff group (pricing option 2)	n.a	20.69	n.a
Dawson Valley—River (MP local management supply)	13.98	20.69	48
Dawson Valley—River (HP local management supply)	42.77	108.51	154
Eton (medium priority)	31.36	32.65	4
Eton (high priority local management supply)	117.49	122.22	4
Lower Fitzroy	13.55	11.50	(15)
Lower Mary—Mary Barrage	15.10	5.86	(61)
Lower Mary—Tinana & Teddington	24.83	12.57	(49)
Macintyre Brook (pricing option 1)	48.62	60.29	24
Macintyre Brook including dam safety (pricing option 2)	48.62	61.63	27
Maranoa River	53.17	90.83	71
Mareeba-Dimbulah—River Tinaroo/Barron	15.87	5.30	(67)
Nogoa-Mackenzie (MP) (pricing option 1)	12.22	6.37	(48)
Nogoa-Mackenzie (MP) including dam safety (pricing option 2)	12.22	7.42	(39)
Nogoa-Mackenzie (HP) (pricing option 1)	28.88	44.69	55
Nogoa-Mackenzie (HP) including dam safety (pricing option 2)	28.88	55.51	92
Nogoa-Mackenzie (MP local management supply) (pricing option 1)	8.84	6.37	(28)
Nogoa-Mackenzie (MP local management supply) including dam safety (pricing option 2)	8.84	7.42	(16)
Nogoa-Mackenzie (HP local management supply) (pricing option 1)	28.88	44.69	55
Nogoa-Mackenzie (HP local management supply) including dam safety (pricing option 2)	28.88	55.51	92
Pioneer River (pricing option 1)	14.81	19.55	32
Pioneer River including dam safety (pricing option 2)	14.81	20.01	35

Tariff group	*2019–20*	*2020–21*	*% change*
Proserpine River	13.26	16.36	23
Proserpine River—Kelsey Creek Water Board	12.14	16.36	35
St George—Beardmore Dam or Balonne River (MP river customers) (pricing option 1)	21.91	20.08	(8)
St George—Thuraggi Watercourse (MP river customers) (pricing option 1)	21.91	20.08	(8)
St George—Alternate tariff group (pricing option 2)	n.a	20.08	n.a
St George (MP local management supply)	20.86	20.08	(4)
St George (HP local management supply)	29.04	32.50	12
Three Moon Creek—River (pricing option 1)	32.43	47.63	47
Three Moon Creek—Groundwater (pricing option 1)	23.58	47.63	102
Three Moon Creek—Alternate tariff group (pricing option 2)	n.a	47.63	n.a
Upper Burnett—Regulated Section of the Nogo/Burnett River	30.58	40.30	32
Upper Burnett—John Goleby Weir	28.96	40.30	39
Upper Condamine—Sandy Creek or Condamine River (pricing option 1)	34.03	16.27	(52)
Upper Condamine—Sandy Creek or Condamine River including dam safety (pricing option 2)	34.03	17.04	(50)
Upper Condamine—North Branch (pricing option 1)	47.64	16.34	(66)
Upper Condamine—North Branch including dam safety (pricing option 2)	47.64	17.11	(64)
Upper Condamine—North Branch - Risk A (pricing option 1)	13.44	13.88	3
Upper Condamine—North Branch - Risk A including dam safety (pricing option 2)	13.44	14.65	9

a *The Mareeba-Dimbulah access charge is a fixed charge applied on a 'per customer' basis to all bulk and distribution system customers.*

Notes: For bulk WSSs, the fixed price is the Part A price, and the volumetric price is the Part B price. Tariff groups are medium priority (MP) WAE, unless otherwise stated as high priority (HP) WAE.

Our draft cost-reflective fixed prices for distribution systems are compared to current prices in Table 88.

Table 88 Cost-reflective fixed (Part A + Part C) prices by tariff grouping, compared to 2019–20 current prices—distribution systems (bundled $/ML, nominal)

Tariff group	*2019–20*	*2020–21*	*% change*
Bundaberg channel	52.62	82.10	56
Burdekin channel	42.59	45.08	6
Burdekin—Giru Groundwater	21.35	45.08	111

Tariff group	*2019–20*	*2020–21*	*% change*
Burdekin—Glady's Lagoon (other than Natural Yield)	42.59	45.08	6
Eton	69.76	99.83	43
Lower Mary channel	54.31	68.30	26
Mareeba-Dimbulah—outside a relift up to 100 ML	55.27	56.27	2
Mareeba-Dimbulah—outside a relift 100 ML to 500 ML	48.72	50.19	3
Mareeba-Dimbulah—outside a relift over 500 ML	37.78	40.03	6
Mareeba-Dimbulah—river supplemented streams & Walsh River	26.85	29.49	10
Mareeba-Dimbulah—relift	42.78	58.21	36

Note: These are 'bundled' prices comprising bulk (Part A) and distribution system (Part C) fixed prices. Tariff groups are medium priority (MP) WAE, unless otherwise stated as high priority (HP) WAE.

7.4.2 Volumetric prices

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 draft cost-reflective volumetric prices for bulk WSSs are compared to current prices in Table 89.

Table 89 Cost-reflective volumetric (Part B) prices by tariff grouping, compared to 2019–20 current prices—bulk WSS ($/ML, nominal)

Tariff group	*2019–20*	*2020–21*	*% change*
Barker Barambah—River	4.60	4.25	(8)
Barker Barambah—Redgate Relift	22.56	52.73	134
Bowen Broken Rivers	6.95	6.41	(8)
Boyne River and Tarong	1.77	2.14	21
Bundaberg	1.31	1.19	(9)
Burdekin-Haughton	0.54	0.31	(42)
Callide—Callide and Kroombit Creek	8.84	7.57	(14)
Callide—Benefited Groundwater Area	8.84	7.57	(14)
Chinchilla	3.45	3.81	10
Cunnamulla Weir	3.58	1.89	(47)
Dawson Valley—River (MP river customers) (pricing option 1)	2.01	1.59	(21)
Dawson—River at Glebe Weir (pricing option 1)	2.01	1.59	(21)
Dawson Valley—Alternate tariff group (pricing option 2)	n.a	1.59	n.a
Dawson Valley—River (MP local management supply)	2.01	1.59	(21)
Dawson Valley—River (HP local management supply)	2.01	1.59	(21)
Eton (medium priority)	4.05	4.09	1

Tariff group	*2019–20*	*2020–21*	*% change*
Eton (high priority local management supply)	4.05	4.09	1
Lower Fitzroy	1.41	0.97	(31)
Lower Mary—Mary Barrage	1.98	1.01	(49)
Lower Mary—Tinana & Teddington	9.51	23.80	150
Macintyre Brook (pricing option 1)	4.54	4.23	(7)
Macintyre Brook including dam safety (pricing option 2)	4.54	4.23	(7)
Maranoa River	65.01	75.42	16
Mareeba-Dimbulah—River Tinaroo/Barron	0.59	0.64	8
Nogoa-Mackenzie (MP) (pricing option 1)	1.32	0.82	(38)
Nogoa-Mackenzie (MP) including dam safety (pricing option 2)	1.32	0.82	(38)
Nogoa-Mackenzie (HP) (pricing option 1)	1.32	0.82	(38)
Nogoa-Mackenzie (HP) including dam safety (pricing option 2)	1.32	0.82	(38)
Nogoa-Mackenzie (MP local management supply) (pricing option 1)	1.32	0.82	(38)
Nogoa-Mackenzie (MP local management supply) including dam safety (pricing option 2)	1.32	0.82	(38)
Nogoa-Mackenzie (HP local management supply) (pricing option 1)	1.32	0.82	(38)
Nogoa-Mackenzie (HP local management supply) including dam safety (pricing option 2)	1.32	0.82	(38)
Pioneer River (pricing option 1)	3.13	3.78	21
Pioneer River including dam safety (pricing option 2)	3.13	3.78	21
Proserpine River	3.02	3.63	20
Proserpine River—Kelsey Creek Water Board	3.02	3.63	20
St George—Beardmore Dam or Balonne River (MP river customers) (pricing option 1)	1.38	1.11	(20)
St George—Thuraggi Watercourse (MP river customers) (pricing option 1)	1.38	1.11	(20)
St George—Alternate tariff group (pricing option 2)	n.a	1.11	n.a
St George (MP local management supply)	1.38	1.11	(20)
St George (HP local management supply)	1.38	1.11	(20)
Three Moon Creek—River (pricing option 1)	4.78	5.90	23
Three Moon Creek—Groundwater (pricing option 1)	4.78	5.90	23
Three Moon Creek—Alternate tariff group (pricing option 2)	n.a	5.90	n.a

Tariff group	2019–20	2020–21	% change
Upper Burnett—Regulated Section of the Nogo/Burnett River	4.08	4.30	5
Upper Burnett—John Goleby Weir	4.08	4.30	5
Upper Condamine—Sandy Creek or Condamine River (pricing option 1)	5.57	5.45	(2)
Upper Condamine—Sandy Creek or Condamine River including dam safety (pricing option 2)	5.57	5.45	(2)
Upper Condamine—North Branch (pricing option 1)	15.19	18.04	19
Upper Condamine—North Branch including dam safety (pricing option 2)	15.19	18.04	19
Upper Condamine—North Branch - Risk A (pricing option 1)	15.19	18.04	19
Upper Condamine—North Branch - Risk A including dam safety (pricing option 2)	15.19	18.04	19

Notes: Tariff groups are medium priority (MP) WAE, unless otherwise stated as high priority (HP) WAE. ***a*** *The Mareeba-Dimbulah access charge is a fixed charge applied on a 'per customer' basis to all bulk and distribution system customers.*

Our draft cost-reflective volumetric prices for distribution systems are compared to current prices in Table 90.

Table 90 Cost-reflective volumetric (Part B + Part D) prices by tariff grouping, compared to 2019–20 current prices—distribution systems (bundled $/ML, nominal)

Tariff group	2019–20	2020–21	% change
Bundaberg channel	60.25	52.19	(13)
Burdekin channel	30.14	22.34	(26)
Burdekin—Giru Groundwater	15.36	22.34	45
Burdekin—Glady's Lagoon (other than Natural Yield)	30.14	22.34	(26)
Eton	37.68	38.47	2
Lower Mary channel	72.25	72.15	(0)
Mareeba-Dimbulah—outside a relift up to 100 ML	8.86	6.52	(26)
Mareeba-Dimbulah—outside a relift 100 ML to 500 ML	8.86	6.52	(26)
Mareeba-Dimbulah—outside a relift over 500 ML	8.86	6.52	(26)
Mareeba-Dimbulah—river supplemented streams & Walsh River	5.32	4.17	(22)
Mareeba-Dimbulah—relift	86.81	86.51	(0)

Note: These are 'bundled' prices comprising bulk (Part B) and distribution system (Part D) volumetric charges. Tariff groups are medium priority (MP) WAE, unless otherwise stated as high priority (HP) WAE.

For most tariff groups, our estimates of cost-reflective fixed prices are higher in real terms than our cost-reflective tariffs in the 2012 review. This is due to:

- higher operating expenditure, including indirect and overhead costs, compared to the 2012 review

- higher renewals annuity costs, reflecting higher actual renewals costs and higher forecast renewals costs over the planning period.

In the distribution systems, the generally lower cost-reflective volumetric tariff in real terms is due to the rebalancing of standard electricity tariffs from variable to fixed costs.

7.5 Government pricing principles

In 2000, the Government established a lower bound cost recovery target for irrigation prices in existing irrigation schemes that it considered was the minimum level of cost recovery for a water business to be viable.[297] As noted in Part A (Chapter 2) of our draft report, this target remains Government policy and prices are expected to transition to it over time.

The pricing principles in the referral give effect to this longer-term Government policy objective and include:

- recommending prices that are based on all tariff groups transitioning to cost-reflective prices that incorporate efficient costs allowable under the referral and increase by the QCA's measure of inflation
- in considering tariff structures, having regard to the fixed and variable nature of the underlying costs
- deriving the fixed (Part A and Part C) prices independently of volumetric (Part B and Part D) prices.

Under the terms of this referral, key differences from the previous relate to our ability to adjust the fixed component of prices. In recommending fixed (Part A and Part C) prices, the pricing principles in schedule 2 of the referral require that:

- fixed prices are to be derived independently of the volumetric prices, whereas in the previous review the fixed prices at the start of the price path period were adjusted to offset changes in volumetric prices.
- at the start of the new price path, the fixed bulk (Part A) price for distribution system customers[298] is to be no more than the cost-reflective fixed price, whereas in the previous review the fixed (Part A) price was the same for bulk and distribution system customers and, in some cases, was higher than the cost-reflective fixed price[299].

The principles in schedule 2 of the referral require us to apply the following general rule[300] to the bulk fixed price (Part A) and to the total fixed price (Part A + Part C) for each tariff group:

- If the prevailing (2019–20) fixed price is below the initial (2020–21) cost reflective fixed price, then the prevailing fixed price is increased annually by inflation plus $2.38 (from 2020–21, increasing by inflation each year) until the cost-reflective fixed price is reached.
- If the prevailing (2019–20) fixed price is above the initial (2020–21) cost-reflective fixed price, then the prevailing fixed price should remain unchanged until the cost-reflective fixed price is reached, with the exception of the bulk fixed (Part A) price that applies to customers

[297] Queensland Treasury and Department of Energy and Water Supply, submission to the Australian Competition and Consumer Commission, *Review of Water Charge Rules, draft advice*, March 2016, p. 6.
[298] This includes customers of distribution systems operated by a local-customer-owned company or cooperative and customers of distribution systems operated by Sunwater or Seqwater.
[299] In each of these cases, the total fixed price (Part A + Part C) was no more than the total cost-reflective price.
[300] Subject to paragraph H of Schedule 2 of the referral (for the Central Brisbane River WSS).

of a distribution system[301] which should be reduced to the cost-reflective fixed (Part A) price (with this reduction fully offset by an increase in the distribution fixed (Part C) price).

The referral requires that in recommending volumetric prices (Part B and Part D), we should have regard to moving to cost-reflective prices immediately. Paragraph C(1.4) of the referral directs us to consider less than cost-reflective volumetric prices which are necessary to moderate bill impacts for customers.

7.5.1 Sunwater's submission

Sunwater said that the structure and setting of irrigation prices was largely a matter for the Government to determine, on advice from the QCA as part of this irrigation price review.[302] Sunwater said that their submission detailed the services they provided to irrigation customers and the associated costs of providing these services. Sunwater's regulatory model calculated scheme level cost reflective prices and side constrained prices, the latter applied the Government's pricing principles outlined in the referral.[303]

Sunwater said that its customer engagement showed that pricing was a major concern for its customers. However, Sunwater's response was confined to noting the concern.[304]

In addition, Sunwater did not provide any proposals in regard to the treatment of schemes where revenues were above lower bound costs.

7.5.2 Other stakeholders' submissions

Many irrigation stakeholders raised concerns about the Government's pricing principles (in particular, the requirement for prices for all tariff groups to transition over time to the Governments's definition of cost-reflective prices, also referred to as lower bound costs[305]) and the impact that higher prices may have on individual irrigators and/or the longer term viability of some water supply schemes and distribution systems.[306] The QFF also recommended that we review the implications of long-term transition pricing and high fixed charges, and questioned whether the cost reflective target was appropriate for schemes with significant water availability problems or very high costs relative to the customer base.[307]

Isis Canegrowers considered this underlying premise was 'flawed as the scheme was never intended to be a stand-alone commercial venture and would not have been constructed if the current pricing methodology was in place'. It also considered that 'modify bill impacts' translated to capacity to pay over the price period, and considered that its consultant's report showed that irrigators did not have the capacity to absorb further price increases.

Pioneer Valley Water Co-operative Limited indicated that the Teemburra Dam project only proceeded after the Government provided indicative subsidised pricing that encouraged

[301] This includes customers of distribution systems operated by a local customer owned company or co-operative and customers of distribution systems operated by Sunwater or Seqwater.
[302] Sunwater, sub. 11, p. 67.
[303] Sunwater, sub. 45. Note that this model did not provide prices at the individual tariff group level for those schemes with multiple tariff groups.
[304] Sunwater, sub. 12, pp. A-2–A-3.
[305] Pioneer Valley Water Co-operative Limited, sub. 129; Werner J, sub. 145; Isis Canegrowers, sub. 92.
[306] Invicta Cane Growers Organisation, sub. 109; Kookaburra Farms, sub. 114; BRIG, sub. 88; WBBROC, sub. 149; Bundaberg Fruit and Vegetable Growers, sub. 86; KDWUA, sub. 112; Scocan Holdings Pty Ltd, sub. 135; CHCGIA, sub. 99; Nogoa-Mackenzie IAC, sub. 127; Fairbairn Irrigation Network, sub. 104; Three Moon Creek IAC, sub. 142.
[307] QFF, sub. 132.

irrigators to take up allocations and make significant investments in on-farm irrigation infrastructure. It considered that irrigators had a reasonable expectation that the subsidised pricing would continue and the move to the Government-defined level of cost recovery conflicted with those expectations and with the original design premise of the Teemburra Dam.

Some stakeholders considered that the price caps contained in the pricing principles should be adjusted. Canegrowers and Mareeba Dimbulah Irrigation Area Council (MDIAC) proposed that the annual price cap of $2.38 per megalitre plus CPI should apply to the combined fixed and volumetric water price increases (parts A & B combined for bulk customers and parts A, B, C & D combined for distribution system customers).[308] Burdekin River Irrigators Association (BRIA) indicated that the application of the annual price cap of $2.38 per megalitre would have an adverse impact on irrigator viability. It proposed that the annual increases in the combined fixed and volumetric water prices should be no more than CPI during the next price path.

7.5.3 QCA assessment

As outlined in Part A (Chapter 2) of our draft report, we acknowledge that rising costs and the transition over time to prices that recover lower bound costs (i.e. the Government's definition of cost-reflective prices)[309] are key concerns for many stakeholders. We also acknowledge that some stakeholders are concerned about the appropriateness of transitioning to prices that reflect lower bound costs given that some of the specified schemes/systems may not have been built with cost-reflective prices in mind.

However, the lower bound cost target is a key tenet of the Government's water pricing policy and this principle underpins the pricing framework for our investigation. As we noted in Part A (Chapter 2) of our draft report, the Government has indicated that, in setting the lower bound cost target for irrigation water prices and establishing a gradual transition path to that target, it has considered a range of matters including:

- customers' capacity to pay
- the historical regional development driver for many of the schemes
- the benefits/costs arising from a subsidy targeting a particular sector or purpose.[310]

As such, we consider that our recommended prices must be consistent with that principle and the pricing principles outlined in the referral more generally. By recommending prices consistent with that principle and the pricing principles outlined in the referral more generally, we consider that we have taken into account relevant Section 26 matters in the QCA Act including the social welfare and equity considerations, and economic and regional development matters.

In recommending prices, our ability to adjust the fixed component of prices is limited by the pricing principles in Schedule 2 of the referral. Our recommended fixed prices reflect the

[308] Canegrowers, sub. 91.
[309] Paragraph C(1.1) of the referral (with further clarification in paragraphs C(1.3) and C(1.7)) outlines the scope of costs that are to be recovered over the price path period for each irrigation tariff group, subject to the Government's pricing principles in Schedule 2 of the referral.
[310] Queensland Treasury and Department of Energy and Water Supply, submission to the ACCC, *Review of Water Charge Rules*, *draft advice*, March 2016, pp. 5–7; Queensland Government, submission to the Productivity Commission, *National Water Reform*, *issues paper*, March 2017, p. 7; Queensland Government, Seqwater and Sunwater irrigation pricing overview, accessed 4 July 2019, https://www.business.qld.gov.au/industries/mining-energy-water/water/industry-infrastructure/pricing/irrigation.

transitional path to cost-reflective fixed prices that is outlined in the referral. However, we note that the referral does provide us with scope to consider less than cost reflective volumetric prices where necessary to moderate bill impacts.

Specifically, the referral requires that in recommending volumetric prices (Part B and Part D), we should have regard to moving to cost-reflective prices immediately. The referral also directs us to consider less than cost-reflective volumetric prices which are necessary to moderate bill impacts for customers. As outlined in Chapter 2 (Part A), we consider that 'moderating bill impacts' involves transitioning any volumetric price increases required to move to cost-reflective prices (and meet the lower bound cost objective) in a staged manner that allows users sufficient time to adjust.

Draft recommended prices excluding dam safety upgrade capex allowance

Consistent with the lower bound cost target as the key tenet of the Government's water pricing policy, the key pricing principle in the referral is to transition existing irrigation prices to prices that reflect the costs allowable under the terms of the referral. As a result, we have separated our assessment of irrigation prices into 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 costs allowable under the terms of the referral.
- Below lower bound costs—those tariff groups with existing prices that are not yet sufficient to recover the costs allowable under the terms of the referral.

Tariff groups with existing prices above lower bound costs

For those tariff groups with existing prices above lower bound costs, we have sought to transition to prices that reflect the lower bound cost base by maintaining fixed prices in nominal terms until this cost base is reached. Of these tariff groups, we have applied the following approach in recommending volumetric prices:

- Where existing volumetric prices are above cost-reflective volumetric prices, we have reduced the existing volumetric price to the cost-reflective price immediately.
- Where volumetric prices are below cost-reflective volumetric prices, we have maintained the existing volumetric price in real terms over the price path period until the cost-reflective revenue is reached.

Table 91 below shows bulk WSS tariff groups with existing prices that are more than sufficient to recover lower bound costs, with existing levels of both fixed and volumetric prices above cost-reflective fixed and volumetric prices.

Table 91 Tariff groups with existing fixed and volumetric prices above cost-reflective prices—bulk WSS ($/ML, nominal)

Tariff group	*2019–20 current prices*		*2020–21 cost-reflective prices*	
	Fixed ($/ML)	*Volumetric ($/ML)*	*Fixed ($/ML)*	*Volumetric ($/ML)*
Bowen Broken Rivers	12.50	6.95	6.52	6.41
Burdekin-Haughton	12.71	0.54	3.62	0.31
Lower Fitzroy	13.55	1.41	11.50	0.97
Lower Mary—Mary Barrage	15.10	1.98	5.86	1.01

Tariff group	2019–20 current prices		2020–21 cost-reflective prices	
	Fixed ($/ML)	Volumetric ($/ML)	Fixed ($/ML)	Volumetric ($/ML)
Nogoa-Mackenzie (medium priority)	12.22	1.32	6.37	0.82
Nogoa-Mackenzie (medium priority local management supply)	8.84	1.32	6.37	0.82
St George—Beardmore Dam or Balonne River (MP river customers)	21.91	1.38	20.08	1.11
St George—Thuraggi Watercourse (MP river customers)	21.91	1.38	20.08	1.11
St George (medium priority local management supply)	20.86	1.38	20.08	1.11
Upper Condamine—Sandy Creek or Condamine River	34.03	5.57	16.27	5.45

Notes: 1. The fixed price is the Part A charge, and the volumetric price is the Part B charge. 2. Tariff groups are medium priority (MP) WAE, unless otherwise stated as high priority (HP) WAE.

There are no distribution system tariff groups with both existing fixed and volumetric above the respective fixed and volumetric cost-reflective prices.

Table 92 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 92 Tariff groups with existing fixed prices above cost-reflective, and volumetric prices below cost-reflective—bulk WSS ($/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)
Boyne River and Tarong	28.58	1.77	270	10.10	2.14	103
Chinchilla Weir	30.17	3.45	81	19.06	3.81	54
Lower Mary—Tinana & Teddington	24.83	9.51	207	12.57	23.80	145
Mareeba-Dimbulah—River Tinaroo/Barron	15.87	0.59	2,456	5.30	0.64	863
Upper Condamine—North Branch	47.64	15.19	433	16.34	18.04	189

Notes: 1. The fixed price is the Part A charge, and the volumetric price is the Part B charge.2. Tariff groups are medium priority (MP) WAE, unless otherwise stated as high priority (HP) WAE. 3. Revenue has been derived by applying irrigation WAE to the fixed price, and our proposed water usage (percent of WAE) from section 5.2.4 to the volumetric price.

The existing fixed and volumetric prices for these tariff groups are more than sufficient to recover the costs allowable under the referral (i.e. cost-reflective revenues). Given that the key pricing principle in the referral is to transition existing irrigation prices to prices that reflect the costs allowable under the terms of the referral, we have maintained volumetric prices in real terms over the price path period for these tariff groups.

While this results in volumetric prices that are lower than cost-reflective, we do not consider that the difference is significant. As the businesses' costs are largely fixed, the tariff balance in existing prices is consistent with our proposed allocation of volume risk (Part A, Chapter 3) and is consistent with the revenue adequacy requirements in the referral notice. We consider that a lower than cost-reflective volumetric price will not have material implications on signalling the efficient costs of providing water supply services to irrigation customers, noting that any price signals may also be tempered to some degree by the Government's pricing principles.

There are no distribution system tariff groups with existing fixed prices above cost-reflective fixed prices and volumetric prices below cost-reflective volumetric prices.

Tariff groups with existing prices below lower bound costs

For those tariff groups with existing prices below lower bound costs, we have followed the prescribed transitional approach for fixed prices. Of these tariff groups, we have applied the following approach in recommending volumetric price:

- Where existing volumetric prices are above cost-reflective volumetric prices, we have reduced the existing volumetric price to the cost-reflective price immediately.
- Where volumetric prices are below cost-reflective volumetric prices, we have assessed the transitional path for volumetric prices based on the requirements of the referral and the section 26 matters we are required to have regard for under the QCA Act.

Tables 93 (for bulk WSS) and 94 (for distribution systems) below show tariff groups with existing prices that are less than those required to recover lower bound costs, with the fixed price below cost-reflective and the volumetric prices above cost-reflective.

Table 93 Tariff groups with existing fixed price below cost-reflective and existing volumetric prices above cost-reflective—bulk WSS ($/ML, nominal)

Tariff group	*2019–20 current prices*		*2020–21 cost-reflective prices*	
	Fixed ($/ML)	*Volumetric ($/ML)*	*Fixed ($/ML)*	*Volumetric ($/ML)*
Barker Barambah—River	25.93	4.60	50.68	4.25
Bundaberg	13.06	1.31	13.89	1.19
Callide Valley—Callide and Kroombit Creek	18.50	8.84	87.33	7.57
Callide Valley—Benefited Groundwater Area	18.50	8.84	87.33	7.57
Cunnamulla	31.75	3.58	32.03	1.89
Dawson Valley—River (medium priority river customers)	18.04	2.01	20.69	1.59
Dawson Valley—River (medium priority local management supply)	13.98	2.01	20.69	1.59
Dawson Valley—River (high priority local management supply)	42.77	2.01	108.51	1.59
Dawson Valley—River at Glebe Weir	16.18	2.01	20.69	1.59

Tariff group	2019–20 current prices		2020–21 cost-reflective prices	
	Fixed ($/ML)	Volumetric ($/ML)	Fixed ($/ML)	Volumetric ($/ML)
Macintyre Brook	48.62	4.54	60.29	4.23
Nogoa-Mackenzie (high priority)	28.88	1.32	44.69	0.82
Nogoa-Mackenzie (high priority local management supply)	28.88	1.32	44.69	0.82
St George (high priority local management supply)	29.04	1.38	32.50	1.11

Notes: 1. The fixed price is the Part A charge, and the volumetric price is the Part B charge. 2. Tariff groups are medium priority (MP) WAE, unless otherwise stated as high priority (HP) WAE.

Table 94 Tariff groups with existing fixed price below cost-reflective and existing volumetric prices above cost-reflective—distribution systems ($/ML, nominal)

Tariff group	2019–20 current prices		2020–21 cost-reflective prices	
	Fixed ($/ML)	Volumetric ($/ML)	Fixed ($/ML)	Volumetric ($/ML)
Bundaberg channel	52.62	60.25	82.10	52.19
Burdekin-Haughton channel	42.59	30.14	45.08	22.34
Burdekin-Haughton—Glady's Lagoon (other than Natural Yield)	42.59	30.14	45.08	22.34
Lower Mary channel	54.31	72.25	68.30	72.15
Mareeba-Dimbulah—outside a relift up to 100 ML	55.27	8.86	56.27	6.52
Mareeba-Dimbulah—outside a relift 100 ML to 500 ML	48.72	8.86	50.19	6.52
Mareeba-Dimbulah—outside a relift over 500 ML	37.78	8.86	40.03	6.52
Mareeba-Dimbulah—river supplemented streams & Walsh River	26.85	5.32	29.49	4.17
Mareeba-Dimbulah—relift	42.78	86.81	58.21	86.51

Notes: 1. These are 'bundled' prices, with the fixed price comprising bulk (Part A) and distribution system (Part C) fixed prices, and the volumetric price comprising bulk (Part B) and distribution system (Part D) volumetric prices 2. Tariff groups are medium priority (MP) WAE, unless otherwise stated as high priority (HP) WAE.

For these tariff groups, we have recommended 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.

Tables 95 (for bulk WSS) and 96 (for distribution systems) below show tariff groups with existing prices that are less than those required to recover lower bound costs, with existing levels of both fixed and volumetric prices below cost-reflective fixed and volumetric prices.

Table 95 Tariff groups with existing fixed and volumetric prices below cost-reflective—bulk WSS ($/ML, nominal)

Tariff group	*2019–20 current prices*		*2020–21 cost-reflective prices*	
	Fixed ($/ML)	*Volumetric ($/ML)*	*Fixed ($/ML)*	*Volumetric ($/ML)*
Barker Barambah—Redgate Relift	25.93	22.56	50.93	52.73
Eton (medium priority)	31.36	4.05	32.65	4.09
Eton (high priority local management supply)	117.49	4.05	122.22	4.09
Maranoa River	53.17	65.01	90.83	75.42
Pioneer River	14.81	3.13	19.55	3.78
Proserpine River	13.26	3.02	16.36	3.63
Proserpine River—Kelsey Creek Water Board	12.14	3.02	16.36	3.63
Three Moon Creek—River	32.43	4.78	47.63	5.90
Three Moon Creek—Groundwater	23.58	4.78	47.63	5.90
Upper Burnett—Regulated Section of the Nogo/Burnett River	30.58	4.08	40.30	4.30
Upper Burnett—John Goleby Weir	28.96	4.08	40.30	4.30
Upper Condamine—North Branch— Risk A	13.44	15.19	13.88	18.04

Notes: 1. The fixed price is the Part A charge, and the volumetric price is the Part B charge. 2. Tariff groups are medium priority (MP) WAE, unless otherwise stated as high priority (HP) WAE.

Table 96 Tariff groups with existing fixed and volumetric prices below cost-reflective—distribution systems ($/ML, nominal)

Tariff group	*2019–20 current prices*		*2020–21 cost-reflective prices*	
	Fixed ($/ML)	*Volumetric ($/ML)*	*Fixed ($/ML)*	*Volumetric ($/ML)*
Burdekin—Giru Groundwater	21.35	15.36	45.08	22.34
Eton	69.76	37.68	99.83	38.47

Notes: 1. These are 'bundled' prices, with the fixed price comprising bulk (Part A) and distribution system (Part C) fixed prices, and the volumetric price comprising bulk (Part B) and distribution system (Part D) volumetric prices 2. Tariff groups are medium priority (MP) WAE, unless otherwise stated as high priority (HP) WAE.

We consider the price paths with an annual increase of $2.38 per ML of WAE (plus inflation) reflect the maximum level of increases that have occurred over the previous two price path periods that have allowed prices to transition to lower bound costs in a staged manner that allows users sufficient time to adjust.

Where possible, we have sought to recommend volumetric prices that fully recover cost-reflective volumetric prices. The volumetric component generally aligns with the underlying variable costs, which help to send signals regarding the efficient costs of providing water supply services to irrigation customers (noting that any price signals may be tempered to some degree by the Government's pricing principles), which in turn may promote higher value production and efficient investment by active irrigators.

However, the following tariff groups have existing volumetric prices that are well below the cost-reflective volumetric price:

- Barker Barambah WSS—Redgate Relift
- Burdekin distribution system—Giru Benefitted Area (GBA)
- Maranoa River WSS.

For GBA customers in the Burdekin distribution system, our calculated fixed and variable prices are significantly higher than the existing fixed and volumetric prices due to a change in our approach to allocating costs to this tariff group in this review. In this case it is a change in approach, rather than change in underlying costs, that is driving this large difference. We consider it appropriate to stage this change in approach over reasonable timeframes. We have therefore recommended that volumetric (Part B + Part D) prices increase by our estimate of inflation over the price path period.

In its submission, Sunwater noted that there were no services currently being provided through the Maranoa River WSS.[311] However, for consistency with other schemes with large differences between existing and cost-reflective prices, we have also recommended that volumetric (Part B) prices increase by our estimate of inflation over the price path period.

While this results in volumetric prices that are lower than cost-reflective, we do not consider that the difference is significant. As the businesses' costs are largely fixed, the tariff balance in existing prices is consistent with our proposed allocation of volume risk (Part A, Chapter 3) and is consistent with the revenue adequacy requirements in the referral notice. We consider that a lower than cost-reflective volumetric price will not have material implications on signalling the efficient costs of providing water supply services to irrigation customers, noting that any price signals may also be tempered to some degree by the Government's pricing principles.

Inclusion of dam safety upgrade capex allowance

The referral requires that our recommendations should include a second pricing option where an appropriate allowance for dam safety upgrade capex is included.

We have derived (non-zero) dam safety upgrade capex allowances over the price path period (see section 4.3) for the following schemes with dam safety upgrade projects forecast to be commissioned during the price path period:

- Macintyre Brook WSS
- Nogoa-Mackenzie WSS
- Pioneer River WSS
- Upper Condamine WSS.

Within these four schemes, our application of the government pricing principles in the referral resulted in the following tariff groups have different recommended prices to those derived excluding a dam safety upgrade capex allowance (Table 97).

[311] Sunwater, sub. 11, p. 4.

Table 97 Draft recommended prices including dam safety upgrade capex allowance ($/ML, nominal)

Bulk WSS	*Price*	*2019–20 existing*	*2020–21 lower bound*	*2020–21 QCA draft*	*2021–22 QCA draft*	*2022–23 QCA draft*	*2023–24 QCA draft*
Nogoa-Mackenzie (MP local management supply)	Part A	8.84	7.42	7.42	7.60	7.78	7.96
	Part B	1.32	0.82	0.82	0.84	0.86	0.88
Pioneer River	Part A	14.81	20.01	17.54	20.39	20.97	21.46
	Part B	3.13	3.78	3.78	3.87	3.96	4.05
Upper Condamine—North Branch—Risk A	Part A	13.44	14.65	14.65	15.00	15.35	15.72
	Part B	15.19	18.04	18.04	18.46	18.90	19.35

Notes: 1. These are 'bundled' prices, with the fixed price comprising bulk (Part A) and distribution system (Part C) fixed prices, and the volumetric price comprising bulk (Part B) and distribution system (Part D) volumetric prices 2. Tariff groups are medium priority (MP) WAE, unless otherwise stated as high priority (HP) WAE.

In the remaining tariff groups in these schemes, our application of the government pricing principles in the referral resulted in no change to our recommended prices to those derived excluding a dam safety upgrade capex allowance (Table 98).

Table 98 Draft recommended prices including dam safety upgrade capex allowance ($/ML, nominal)

Bulk WSS	*Price*	*2019–20 existing*	*2020–21 lower bound*	*2020–21 QCA draft*	*2021–22 QCA draft*	*2022–23 QCA draft*	*2023–24 QCA draft*
Macintyre Brook	Part A	48.62	61.63	52.15	55.82	59.64	63.61
	Part B	4.54	4.23	4.23	4.33	4.43	4.54
Nogoa-Mackenzie (medium priority)	Part A	12.22	7.42	12.22	12.22	12.22	12.22
	Part B	1.32	0.82	0.82	0.84	0.86	0.88
Nogoa-Mackenzie (high priority)	Part A	28.88	55.51	31.94	35.14	38.46	41.93
	Part B	1.32	0.82	0.82	0.84	0.86	0.88
Nogoa-Mackenzie (HP local management supply)	Part A	28.88	55.51	31.94	35.14	38.46	41.93
	Part B	1.32	0.82	0.82	0.84	0.86	0.88
Upper Condamine—Sandy Creek or Condamine River	Part A	34.03	17.04	34.03	34.03	34.03	34.03
	Part B	5.57	5.45	5.45	5.58	5.71	5.84
Upper Condamine—North Branch	Part A	47.64	17.11	47.64	47.64	47.64	47.64
	Part B	15.19	18.04	15.55	15.92	16.30	16.68

Notes: 1. These are 'bundled' prices, with the fixed price comprising bulk (Part A) and distribution system (Part C) fixed prices, and the volumetric price comprising bulk (Part B) and distribution system (Part D) volumetric prices 2. Tariff groups are medium priority (MP) WAE, unless otherwise stated as high priority (HP) WAE.

Summary of draft recommended prices

Our draft recommended prices for Sunwater's WSSs and distribution systems are presented in Appendix B.

Draft recommendation 12

We recommend that prices for irrigation customers for each water supply scheme and distribution system should be set according to the prices presented in Appendix B. This includes pricing options for certain tariff groups.

8 MISCELLANEOUS CHARGES

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

In this chapter, we present our recommendations on these types of prices.

8.1 Termination fees

Termination fees are applicable in Sunwater distribution schemes when distribution system water access entitlements (WAE) is permanently transferred to a different section of the scheme, generally the river or in some instances other scheme sub-systems.

Termination fees also apply in Lower Mary bulk water supply scheme when WAE is transferred from the Lower Mary River (Tinana Barrage and Teddington Weir) tariff group to the Lower Mary River (Mary Barrage) tariff.

The termination fee is intended to allow Sunwater to recover fixed costs associated with the permanently transferred WAE. This protects remaining customers from any price increases to ensure Sunwater's revenue adequacy.

8.1.1 Previous investigation

In the 2012 review, we considered that a termination fee should be calculated as up to 11 times (including GST) the relevant fixed cost-reflective tariff. This was based on the ACCC 2008 termination fee rules for the Murray-Darling Basin, which applied to the St George distribution system. The ACCC recommended that termination fees should be calculated as up to 10 times the relevant cost reflective fixed tariff.[312] The ACCC released amended guidelines in 2011 that allowed for the inclusion of GST into the multiplier where applicable.[313]

For the purposes of administrative simplicity and consistency, we considered this approach should apply to all relevant Sunwater schemes.[314]

8.1.2 Sunwater's submission

Sunwater did not propose any changes to the way termination fees are calculated.[315]

8.1.3 Other stakeholders' submissions

Wide Bay Burnett Regional Organisation of Councils Inc (WBBROC) submitted that 11 times the relevant fixed charge is excessive, and the scale and application of all fees should be assessed for prudency and efficiency.[316]

Canegrowers Isis submitted that irrigators do not have any negotiating power due to the high termination fees. When deemed service contracts were first established the fixed/variable charge

[312] ACCC, *Water Charge (Termination Fees) Rules*, final advice, December 2008.
[313] ACCC, *ACCC final advice on an amendment to the Water Charge (Termination Fees) Rules 2009*, June 2010.
[314] QCA 2012, pp. 65–70.
[315] Sunwater, sub. 11, pp. 73–74.
[316] WBBROC, sub. 149, pp. 6–7.

split was different, with no consideration of the impact on termination fees of recent changes to the fixed/variable split.[317]

The Nogoa-Mackenzie Irrigator Advisory Committee and Central Highlands Cotton Growers and Irrigators Association both submitted that consideration needs to be given to how the revenue from termination fees is utilised. Termination fees must be used for investing in ways to reduce the ongoing costs to remaining water users rather than being absorbed in general revenue. In addition, Central Highlands Cotton Growers and Irrigators Association were concerned that exit fees are deterring industrial customers from trading water back into the irrigation market.[318]

8.1.4 QCA assessment

We have considered stakeholder submissions and has reassessed the appropriateness of the 2012 review approach. We note that Sunwater has proposed no changes to the way termination fees are calculated. We also note that stakeholders are concerned with the current multiplier used to calculate termination fees, and how the revenue collected is utilised.

Since the 2012 review there has been no change to the ACCC Water Charge (Termination Fees) Rules 2009. The rules determined that termination fees in the Murray-Darling Basin should be calculated as up to 10 times the relevant cost reflective fixed tariff.[319] As Sunwater is subject to GST payment on termination revenue it receives, the ACCC multiplier of up to 10 adjusted for GST results in a multiplier of up to 11.[320]

In setting a termination fee, the ACCC rules sought to balance the financial cost to a water business or remaining customers against providing an incentive to the water business to rationalise or reduce costs in a network.[321] We consider that a termination fee applied as 11 times the cost-reflective distribution fixed (Part C) price balances the interests of Sunwater and its customers with providing appropriate incentives for Sunwater to supply only those services required by their customers.

In response to submissions stating that a multiplier of 11 times the cost reflective fixed charge is too high and does not give irrigators negotiating power, we note that the termination fee multiplier is set to a level of up to 11 times the relevant cost reflective fixed tariff (including GST). A lower multiple could be applied at Sunwater's discretion, should it be consistent with Sunwater's commercial interests (e.g. in the interests of more efficient system management).

We also note that customers do have the option of permanently trading their water entitlements to other distribution system users, which does not incur a termination fee. Alternatively, customers can choose to retain ownership of their distribution system WAE and engage in temporary trading.

In considering tariff structures, the referral requires us to have regard to the fixed and variable nature of the underlying costs. This means that the cost reflective fixed tariff will recover the associated prudent and efficient fixed costs of that system. Consequently, as the purpose of the termination fee is to provide revenue adequacy for Sunwater, it is appropriate that it should be based on the underlying prudent and efficient fixed costs.

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[317] Canegrowers Isis, sub. 93, p. 4.
[318] Nogoa-Mackenzie IAC, sub. 127, p.3; CHCGIA, sub. 99, p. 4.
[319] ACCC, *Water Charge (Termination Fees) Rules*, final advice, 2008.
[320] ACCC, *ACCC final advice on an amendment to the Water Charge (Termination Fees) Rules 2009*, final report, 2010.
[321] ACCC*, Water Charge (Termination Fees) Rules*, final report, 2009, p. 49.

With regard to how Sunwater uses the revenue from termination fees, we note that our recommended approach ensures that the shortfall should not be recovered from remaining customers as result of other customers terminating. Sunwater should, therefore, have the appropriate incentive to either find a new customer or use the termination revenue to invest in better scheme operations to reduce scheme costs. If they do not, Sunwater will bear the revenue risk if they are not able to sell the terminated WAE once the termination revenue has been exhausted.

The table below shows the maximum termination fee for each tariff group, based on the cost-reflective prices calculated in Chapter 7.

Table 99 Maximum termination fees per tariff group ($/ML WAE, nominal)

Tariff group	*2020–21*	*2021–22*	*2022–23)*	*2023–24*
Bundaberg channel	750.26	768.04	786.25	804.88
Burdekin channel	456.00	466.81	477.87	489.20
Burdekin—Giru Groundwater	456.00	466.81	477.87	489.20
Burdekin—Glady's Lagoon (other than Natural Yield)	456.00	466.81	477.87	489.20
Eton	739.02	756.54	774.47	792.82
Lower Mary channel	686.91	703.19	719.85	736.91
Mareeba-Dimbulah—outside a relift up to 100 ML	560.71	575.35	590.34	605.68
Mareeba-Dimbulah—outside a relift 100 ML to 500 ML	493.78	506.83	520.20	533.88
Mareeba-Dimbulah—outside a relift over 500 ML	381.99	392.40	403.05	413.95
Mareeba-Dimbulah—river supplemented streams & Walsh River	266.09	272.40	278.85	285.46
Mareeba-Dimbulah—relift	582.00	595.80	609.92	624.37

Source: QCA analysis.

Draft recommendation 13

We recommend that:

- termination fees should be calculated as up to 11 times (including GST) the relevant cost-reflective fixed tariff
- Sunwater can apply a lower multiple to the relevant cost reflective fixed tariff if it is in their commercial interests to do so
- Sunwater should never recover any revenue shortfall from remaining customers upon exit of the scheme by another customer.

8.2 Drainage charges

Sunwater provides drainage services to remove water as a result of farm run-off and stormwater from irrigated properties. This involves customers diverting water from their farms through a drain inlet into a drainage channel. Drainage charges apply to the Burdekin-Haughton distribution system, while the cost of drainage services are recovered in the distribution fixed (Part C) price in the Mareeba-Dimbulah distribution system. Current charges are the result of legacy pricing arrangements, where prices were set in consultation with customers, and not on the basis of cost.

8.2.1 Previous investigation

Prior to the 2012 review, the Burdekin-Haughton drainage price had been set on a basis of $ per hectare of irrigable land, with the revenue shortfall recovered through an increase to the Channel Part A price.[322] On the other hand, Mareeba-Dimbulah recovered all costs associated with drainage through the Channel Part A price.

In the 2012 review, we considered that the drainage price should represent the costs associated with providing drainage services. With a fixed charge recovering fixed drainage costs to ensure Sunwater does not face volume and revenue risk.

We noted that in some schemes, compliance requirements to minimise off-farm impacts had resulted in changes to farming practices. This included trapping farm run-off, stubble retention, and modified irrigation practices. Consequently, some customers no longer required drainage services. For this reason, we said that a cost reflective drainage fee structure could include an appropriate drainage system termination fee reflecting future lost revenue to Sunwater if a customer were to exit from the drainage system.

However, Sunwater was unable to provide sufficiently robust data to enable the calculation of a cost reflective drainage price. Therefore, we proposed that current drainage charges be maintained in real terms. As distribution charges reflect the total cost of running the distribution system including the drainage network, and drainage costs could not be accurately estimated, revenues from the drainage charges should be treated as revenue offsets.

We recommended that Sunwater put processes in place to record drainage costs from 1 July 2012 to enable a cost reflective price to be established in the next price review. [323]

8.2.2 Sunwater's submission

Sunwater carried out work to separately identify drainage costs to support the determination of cost-reflective drainage tariffs during 2013 and 2014, and provided this information to the QCA. In addition, Sunwater has put processes in place which now allow drainage costs to be allocated to drainage profit centres within its financial system.

However, Sunwater identified that there are still issues in correctly separating drainage related direct costs (primarily in relation to operations labour) from other direct costs. Consequently, Sunwater does not believe an accurate bottom up estimate of costs to determine cost-reflective drainage charges is available at this stage, and the additional costs to establish a more precise charge may be greater than the benefit.

Sunwater proposed that the QCA consult with customers on whether existing drainage charges should be increased in line with labour escalation rates determined for the irrigation pricing model, with revenues from these charges continued to be treated as revenue offsets.[324]

[322] Prior to the 2012 review, there was no Part C or Part D charge—for distribution systems there was a Channel Part A (which recovered bulk and distribution costs) and Channel Part B (which recovered bulk and distribution costs).
[323] QCA, *SunWater Irrigation Price Review: 2012–17*, final report, May 2012, pp. 93–97.
[324] Sunwater, sub. 11, p. 74.

8.2.3 Other stakeholders' submissions

BRIA submitted that there should be no increase in drainage charges in real terms, as current drain maintenance does not reflect the drainage charge revenue received by Sunwater. BRIA also recommends that Sunwater should provide full transparency on drainage maintenance expenditure in the future.[325]

8.2.4 QCA assessment

We have considered stakeholder submissions and has reassessed the appropriateness of the 2012 review approach. We note that Sunwater proposes we consult with customers on whether to increase current drainage charges in line with labour escalation rates. We also note that BRIA proposes that there should be no real increase to current charges.

In response to the 2012 review recommendations, Sunwater provided their implementation plan in 2013 which identified the steps required for improved identification of drainage charges. Sunwater also provided drainage cost data over the 2013 and 2014 period for our consideration in July 2014.

The implementation plan highlighted difficulties involved with separating drainage costs, in particular drainage operational costs. That is, the interrelationship between the distribution and drainage infrastructure has resulted in operators viewing the assets as one, rather than two distinct entities. This has meant operators have not been costing their time and other direct costs separately to distribution channels and drainage channels. The interrelationship also means that activities such as inspections or maintenance are likely to be performed on both assets by the same operator at the same time, typically resulting in costs being recorded against the distribution assets. As such, Sunwater does not believe the drainage cost data represents an accurate bottom up estimate of costs to determine cost-reflective drainage charges.

Given these circumstances, Sunwater stated in the implementation plan that they believe the best way to separate drainage costs from distribution costs is to apply a standard allocator. However, Sunwater identified that continuing significant costs would be involved in developing and reviewing allocators, and separately identifying, reporting, and budgeting drainage costs.

We recognise that there are significant costs and complexities involved with establishing an appropriate methodology for separating drainage costs. In order to calculate cost reflective drainage charges, renewals annuities would have to be unbundled and a new annuity for drainage established. This would be difficult, given inaccurate historical drainage cost data.

Considering the difficulties of separating drainage costs, it is most likely that the costs associated with establishing a cost reflective drainage charge will outweigh the benefits to customers.

For these reasons, and considering BRIA's submission, we propose that current drainage charges for Burdekin-Haughton distribution system should be increased each year in line with the QCA's measure of inflation. Drainage revenues should continue to be treated as a revenue offset, with any revenue shortfalls being recovered from the Part C tariff. As no submissions were received in relation to the Mareeba-Dimbulah distribution system, drainage costs associated with this system should continue to be recovered from the Part C tariff.

[325] BRIA Irrigators, sub. 85, p. 54.

> **Draft recommendation 14**
>
> We recommend that:
>
> - current drainage charges for the Burdekin-Haughton distribution scheme be increased each year by our measure of inflation.
> - drainage costs associated with the Mareeba-Dimbulah distribution system continue to be recovered from the Part C tariff.

8.3 Drainage diversion charges

In the Burdekin-Haughton distribution system, Sunwater allows customers to use water from the drainage network. Customers provide their own pump and any other required infrastructure to extract water from the drains. The level of water use is generally not metered, and there is no service standard, as there is no guarantee water will be available. Current charges are a result of legacy pricing arrangements, where prices were set in consultation with customers, and not based on cost.

8.3.1 Previous investigation

In the 2012 review, we considered that Sunwater should be able to recover prudent and efficient costs associated with drainage diversion. Drainage diversion charges should be set at the cost-reflective level, and charged only to customers who use the service.

However, data provided by Sunwater did not allow drainage diversion costs to be isolated. This was because many of the costs associated with drainage diversion were shared with operating and maintaining the drainage network. Sunwater also said that separating the costs for drainage and drainage diversion services would not be practical or cost-effective, given the immaterial size of the expenditure.

Consequently, we were not able to calculate a cost-reflective drainage diversion charge. Therefore, we recommended that as the current charges were a result of customer consultation and were not significant, drainage charges be maintained in real terms. In addition, as drainage costs and drainage diversion costs could not be separated, it was proposed that revenues from the drainage diversion charges also be treated as a revenue offset.[326]

8.3.2 Sunwater's submission

Sunwater submitted that they have not progressed any work to separate drainage diversion costs from drainage costs. Sunwater said that the costs of establishing a framework and processes to correctly establish revenue allocation on a fully cost reflective basis exceed the benefits for customers. Many of the activities undertaken on the drainage network are required to both maintain the drainage network and to allow customer diversions. The expenditure for drainage diversion is also relatively immaterial compared to other costs.

Sunwater proposed that the QCA consult with customers on whether existing drainage diversion charges should be increased in line with the labour escalation rates determined for the irrigation pricing model, with revenues from these charges continued to be treated as revenue offsets.[327]

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[326] QCA, *SunWater Irrigation Price Review: 2012–17,* final report, May 2012, pp. 97–99.
[327] Sunwater, sub. 11, p. 74.

8.3.3 QCA assessment

We have considered Sunwater's submission and has reassessed the appropriateness of the 2012 review approach. We note that Sunwater proposes we consult with customers on whether to increase current drainage diversion charges in line with labour escalation rates.

We understand that due to the interrelationship between drainage and drainage diversion services, many costs for these services are shared. In order to establish cost reflective drainage diversion charges, all costs associated with drainage diversion need to be isolated. However, as Sunwater has not progressed any work to separate drainage diversion costs from drainage costs, we are unable to calculate cost reflective drainage diversion charges.

Sunwater has said that expenditure for drainage diversion is relatively immaterial compared to other costs. Furthermore, we are aware that since the 2012 review, drainage diversion charges only apply to the Burdekin-Haughton distribution system due to local management arrangements (LMA) outcomes.

Considering the immateriality of drainage diversion costs, the difficulties involved in separating drainage diversion costs and a reduced customer base, it is most likely that the costs associated with establishing a cost-reflective drainage diversion charge will outweigh the benefits to customers.

For these reasons, and as current charges were a result of customer consultation, we recommend that current charges should increase each year by our measure of inflation. Drainage diversion charge revenues should continue to be treated as a revenue offset.

Draft recommendation 15

We recommend that current drainage diversion charges be increased each year by our measure of inflation.

8.4 Water harvesting charges

Distribution system water harvesting is where customers are able to access water from a channel or pipeline during authorised or announced high flow periods, such as flood events. This allows customers to take water in excess of their holding of WAE. Water harvesting is an event-based product and, as such, has no guarantee of availability. Sunwater currently holds distribution system water harvesting WAEs for the Burdekin-Haughton distribution system.

8.4.1 Previous investigation

In the 2012 review, we identified that distribution system water harvesting charges could consist of three components:

- DNRME's water harvesting charge per megalitre used
- a distribution system charge per megalitre used
- a Sunwater lease fee.

We noted that DNRME's water harvesting charge was a straight pass-through from Sunwater to customers. This was considered appropriate, as DNRME's water harvesting fee for the un-supplemented water represented a direct cost to Sunwater in providing water harvesting services to customers.

For the distribution system charge, we considered that the charge for distribution system water harvesting should reflect the cost of delivery, which was equal to the Part D charge.

The Sunwater lease fee is a fixed charge representing the cost to Sunwater of holding water harvesting WAE. Water harvesting WAEs held by Sunwater are traded to customers within the water trading market; consequently, the lease fees are determined within the market setting. We considered that the lease fee should continue to be set in this way.[328]

However, as the Water Regulation 2000[329] did not stipulate that the DNRME water harvesting fee was payable in the Burdekin-Haughton distribution scheme, this fee was not charged to customers. In addition, Sunwater had not introduced a lease fee for Burdekin-Haughton distribution scheme. If it became clear Sunwater was exerting market power in the water market, we considered it could be a matter for subsequent investigation by a relevant agency.[330]

8.4.2 Sunwater's submission

Sunwater proposed no change to the current pricing arrangements for distribution system water harvesting charges.[331]

8.4.3 QCA assessment

We have considered Sunwater's submission and have reassessed the appropriateness of the 2012 review approach. We note that Sunwater proposed no changes to pricing arrangements.

Distribution system water harvesting charges can still consist of up to three charges:

- DNRME's water harvesting charge per megalitre used
- a distribution system charge per megalitre used
- a Sunwater lease fee

Schedule 14 of the Water Regulation 2016 sets out DNRME's water harvesting charges that are applicable to Sunwater schemes.[332] As these charges are a direct cost to Sunwater for providing water harvesting services, we believe these should continue to be treated as a straight pass-through to distribution system customers. However, as these charges are still not applicable to the Burdekin-Haughton distribution system, customer charges will not include a DNRME fee.

Sunwater incurs a cost for diverting water through distribution channels for the purpose of water harvesting. We consider that the charge for distribution system water harvesting should reflect cost of delivery. This is represented by the Part D charge, which we calculate based on prudent and efficient distribution system costs.

The Sunwater lease fee is an unregulated fixed charge set by Sunwater for providing water harvesting services. Water harvesting WAEs held by Sunwater are traded to customers within the water trading market, consequently the lease fees are determined within the market setting. We consider that Sunwater should have an appropriate incentive to sell its excess WAEs to customers, maximising water available for irrigation purposes. Therefore, we propose no changes should be

[328] QCA, *SunWater Irrigation Price Review: 2012–17,* final report, May 2012, pp. 99–101.
[329] The Water Regulation 2000 has since been replaced by the Water Regulation 2016.
[330] QCA, *SunWater Irrigation Price Review: 2012–17,* Volume 2 Burdekin-Haughton Distribution System, final report, April 2012, pp. 20–21.
[331] Sunwater, sub. 11, p. 74.
[332] Water Regulation 2016, s. 133, schedule 14.

made to current arrangements, and the lease fee should continue to apply and be set in this way. Currently, Sunwater has not set a lease fee for the Burdekin-Haughton distribution system.

Based on our assessment, we consider that the 2012 review approach is appropriate and should continue to apply.

Draft recommendation 16

We recommend that distribution system water harvesting charges should comprise any applicable DNRME water harvesting charges, the Part D charge we recommend, and a Sunwater lease fee if relevant.

9 IMPACTS ON CUSTOMER BILLS

The referral directs the QCA to consider and analyse how its recommended appropriate prices might be reflected in customer bills for each irrigation tariff group.

This chapter outlines the impact of our pricing recommendations on Seqwater's irrigation customers.

We have been directed to provide estimated customer bills as part of our recommendations. These can be found for each irrigation tariff group in Appendix C and in the relevant scheme information sheets. The scheme information sheets also provide indicative customer bill impacts for varying levels of usage.

The Treasurer has only referred certain aspects of the monopoly business activities of Sunwater and Seqwater (the water businesses) to us for an investigation about the pricing practices relating to those activities (i.e. those activities undertaken for an irrigation service).[333] Consequently, our investigation and recommendations are confined to pricing for irrigation customers in the specified schemes and systems.

The customer bill impacts are presented in nominal dollar values. This means that prices **include forecast inflation**. We have forecast inflation over the regulatory period to be 2.37 per cent (see Chapter 2). 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 and estimated customer bills presented in this chapter are indicative only. An irrigator's unique water use profile will determine the change to individual irrigation water bills.

9.1 Customer bill impacts excluding dam safety upgrade costs

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

For bulk WSS prices, the bill estimates (in $/ML) 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 tariffs, this represents 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 change in $/ML has been calculated from current 2019–20 irrigation prices to the first year of the new price path (2020–21). The change in $/ML has also been calculated over the new price path period.

Indicative bill impacts are shown on a $/ML basis for existing tariff groups after bill moderation (see Chapter 6 for details on how we have moderated bill impacts).

Table 100 shows the indicative customer bill impacts for Sunwater irrigation tariff groups.

[333] An 'irrigation service' is defined in Schedule 4 of the Water Act 2000 as 'the supply of water or drainage services for irrigation of crops or pastures for commercial gain'.

Table 100 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) (%)*
Barker Barambah—River	36%	27.60	30.47	40.34	10	46
Barker Barambah—Redgate Relift	36%	34.10	37.29	47.67	9	40
Bowen Broken Rivers	13%	13.39	13.32	13.38	(1)	(0)
Boyne River and Tarong	41%	29.30	29.31	29.37	0	0
Bundaberg	46%	13.67	14.44	15.50	6	13
Bundaberg channel	49%	82.43	82.07	95.71	(0)	16
Burdekin-Haughton	66%	13.06	12.91	12.93	(1)	(1)
Burdekin Channel	77%	65.76	62.25	66.79	(5)	2
Burdekin—Giru Groundwater	77%	33.16	36.33	46.63	10	41
Burdekin—Glady's Lagoon	77%	65.76	62.25	66.79	(5)	2
Callide—Callide & Kroombit Creek	55%	23.36	25.48	34.99	9	50
Callide– Benefited Groundwater	55%	23.36	25.48	34.99	9	50
Chinchilla	64%	32.37	32.42	32.58	0	1
Cunnamulla Weir	65%	34.07	33.26	35.68	(2)	5
Dawson Valley—River (MP river)	50%	19.05	21.49	23.06	13	21
Dawson Valley—River (MP LMA)	50%	14.99	17.49	23.06	17	54
Dawson Valley—River (HP LMA)	50%	43.78	46.96	58.04	7	33
Dawson—River at Glebe Weir	50%	17.19	19.74	23.06	15	34
Eton MP	32%	32.65	33.95	36.42	4	12
Eton (HP LMA)	32%	118.78	123.52	132.51	4	12
Eton Channel	32%	81.97	86.26	100.20	5	22
Lower Mary—Mary Barrage	41%	15.91	15.51	15.54	(2)	(2)
Lower Mary—Tinana & Teddington	41%	28.72	28.81	29.10	0	1
Lower Mary Channel	50%	90.41	94.03	108.53	4	20
Lower Fitzroy	3%	13.60	13.58	13.59	(0)	(0)
Macintyre Brook	70%	51.82	55.13	66.81	6	29
Maranoa River	3%	55.39	59.09	71.05	7	28
Mareeba-Dimbulah—River	64%	16.25	16.26	16.28	0	0

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) (%)*
Mareeba-Dimbulah– up to 100 ML	65%	61.02	60.50	65.29	(1)	7
Mareeba–Dimbulah—100 ML to 500 ML	65%	54.47	54.42	58.76	(0)	8
Mareeba-Dimbulah—over 500 ML	65%	43.53	44.26	47.86	2	10
Mareeba-Dimbulah– Walsh River	65%	30.30	32.19	34.54	6	14
Mareeba-Dimbulah– Relift	65%	99.12	102.32	117.42	3	18
Nogoa Mackenzie MP	77%	13.24	12.86	12.90	(3)	(3)
Nogoa Mackenzie HP	77%	29.90	32.58	42.61	9	43
Nogoa Mackenzie (MP LMA)	77%	9.86	7.01	7.52	(29)	(24)
Nogoa Mackenzie (HP LMA)	77%	29.90	32.58	42.61	9	43
Pioneer River	23%	15.52	18.40	21.89	19	41
Proserpine River	48%	14.71	17.70	19.42	20	32
Proserpine River: KCWB	48%	13.59	16.56	19.42	22	43
St George– Beardmore Dam or Balonne River (MP River)	85%	23.09	22.86	22.93	(1)	(1)
St George—Thuraggi Watercourse	85%	23.09	22.86	22.93	(1)	(1)
St George (MP LMA)	85%	22.04	21.02	22.55	(5)	2
St George (HP LMA)	85%	30.22	33.06	35.88	9	19
Three Moon Creek—River	38%	34.24	37.82	48.23	10	41
Three Moon Creek—Groundwater	38%	25.39	28.76	38.51	13	52
Upper Burnett—Regulated Section	51%	32.68	35.90	45.61	10	40
Upper Burnett—John Goleby Weir	51%	31.06	34.24	44.39	10	43
Upper Condamine—Sandy Creek or Condamine River	45%	36.52	36.46	36.64	(0)	0
Upper Condamine—North Branch	45%	54.42	54.58	55.09	0	1
Upper Condamine—North Branch, Risk A	45%	20.22	21.93	23.53	8	16

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Further analysis for each tariff group is provided below.

9.1.1 Barker Barambah

Table 101 shows the indicative customer bill impacts for Barker Barambah tariff groups.

Table 101 Indicative bill impacts compared to current prices ($/ML nominal)—Barker Barambah

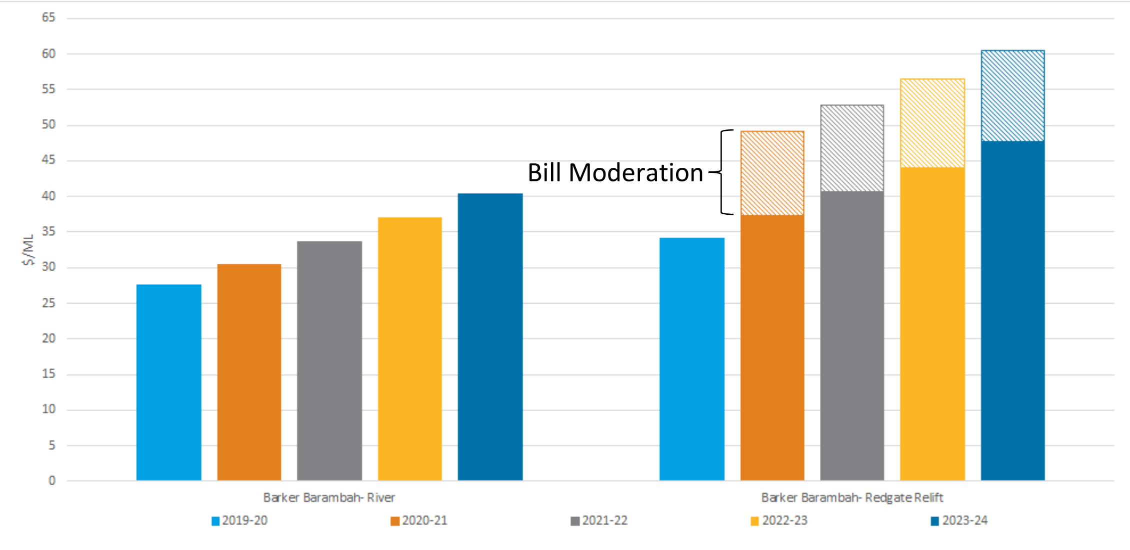
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Barker Barambah—River	36%	27.60	30.47	40.34	10	46
Barker Barambah—Redgate Relift	36%	34.10	37.29	47.67	9	40

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 31 shows the indicative bill impacts on a $/ML basis for Barker Barambah tariff groups.

Figure 31 Indicative bill impacts compared to current prices ($/ML nominal)—Barker Barambah



Notes: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price. The dashed area of the graph represents the reduction in the Part B tariff for bill moderation purposes. The indicative bill impact based on our recommended prices is represented by the solid fill area of the graph.

Source: Sunwater, sub. 11; QCA analysis.

9.1.2 Bowen Broken Rivers

Table 102 shows the indicative customer bill impacts for the Bowen Broken Rivers tariff group.

Table 102 Indicative bill impacts compared to current prices ($/ML nominal)—Bowen Broken Rivers

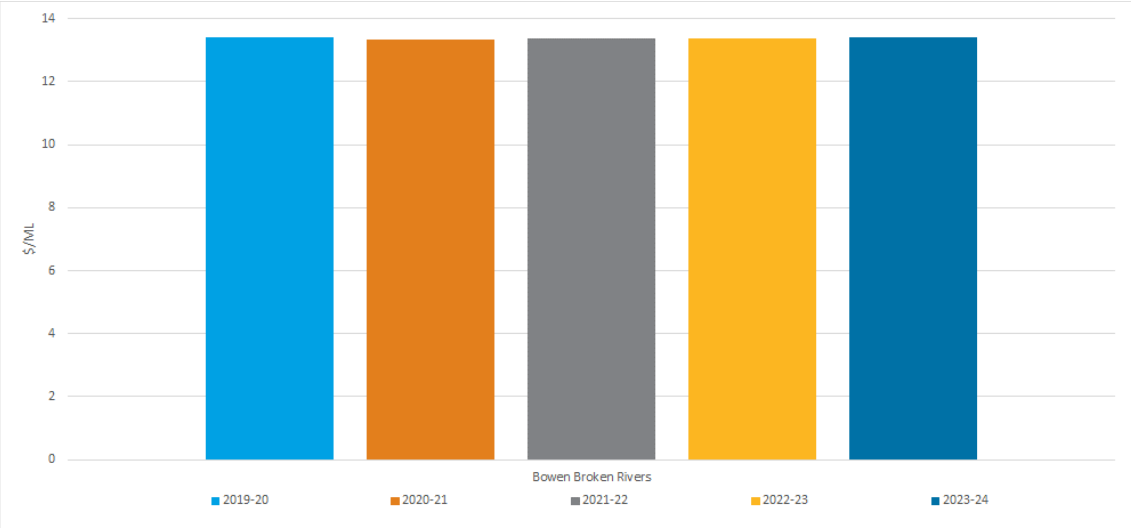
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Bowen Broken Rivers	13%	13.39	13.32	13.38	(1)	(0)

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 32 shows the indicative bill impacts on a $/ML basis for the Bowen Broken Rivers tariff group.

Figure 32 Indicative bill impacts compared to current prices ($/ML nominal)—Bowen Broken Rivers



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.3 Boyne River and Tarong

Table 103 shows the indicative customer bill impacts for the Boyne River and Tarong tariff group.

Table 103 Indicative bill impacts compared to current prices ($/ML nominal)—Boyne River and Tarong

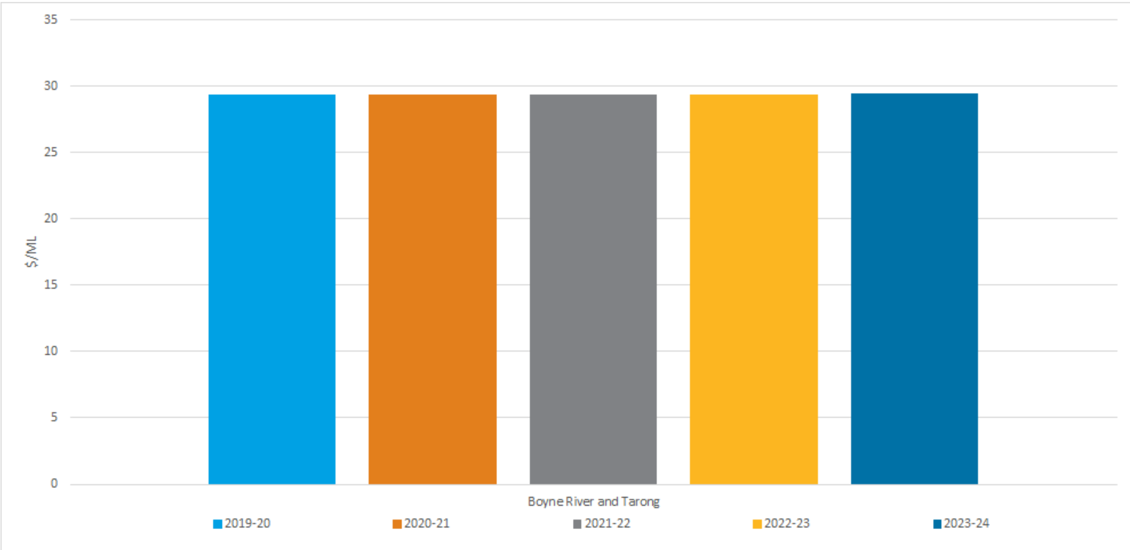
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Boyne River and Tarong	41%	29.30	29.31	29.37	0	0

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 33 shows the indicative bill impacts on a $/ML basis for the Boyne River and Tarong tariff group.

Figure 33 Indicative bill impacts compared to current prices ($/ML nominal)—Boyne River and Tarong



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.4 Bundaberg

Table 104 shows the indicative customer bill impacts for Bundaberg tariff groups.

Table 104 Indicative bill impacts compared to current prices ($/ML nominal)—Bundaberg

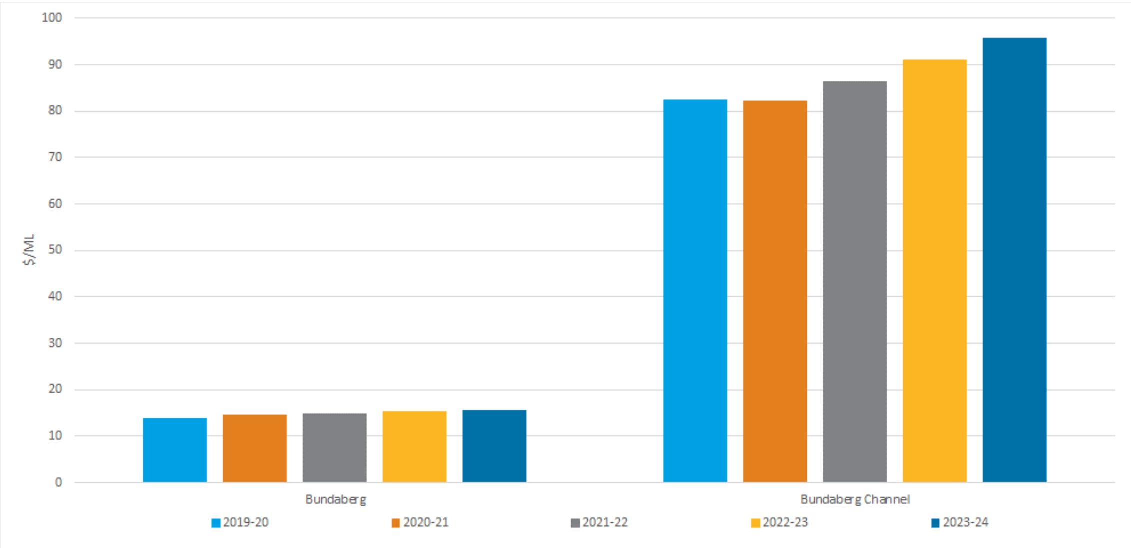
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Bundaberg	46%	13.67	14.44	15.50	6	13
Bundaberg Channel	49%	82.43	82.07	95.71	(0)	16

Note: Bill estimates for bulk tariffs (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price. Bill estimates for distribution tariffs (in $/ML) are derived using the fixed (Part A + Part C) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B + Part D) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 34 shows the indicative bill impacts on a $/ML basis for Bundaberg tariff groups.

Figure 34 Indicative bill impacts compared to current prices ($/ML nominal)—Bundaberg



Note: Bill estimates for bulk tariffs (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price. Bill estimates for distribution tariffs (in $/ML) are derived using the fixed (Part A + Part C) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B + Part D) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.5 Burdekin-Haughton

Table 105 shows the indicative customer bill impacts for Burdekin-Haughton tariff groups.

Table 105 Indicative bill impacts compared to current prices ($/ML nominal)—Burdekin-Haughton

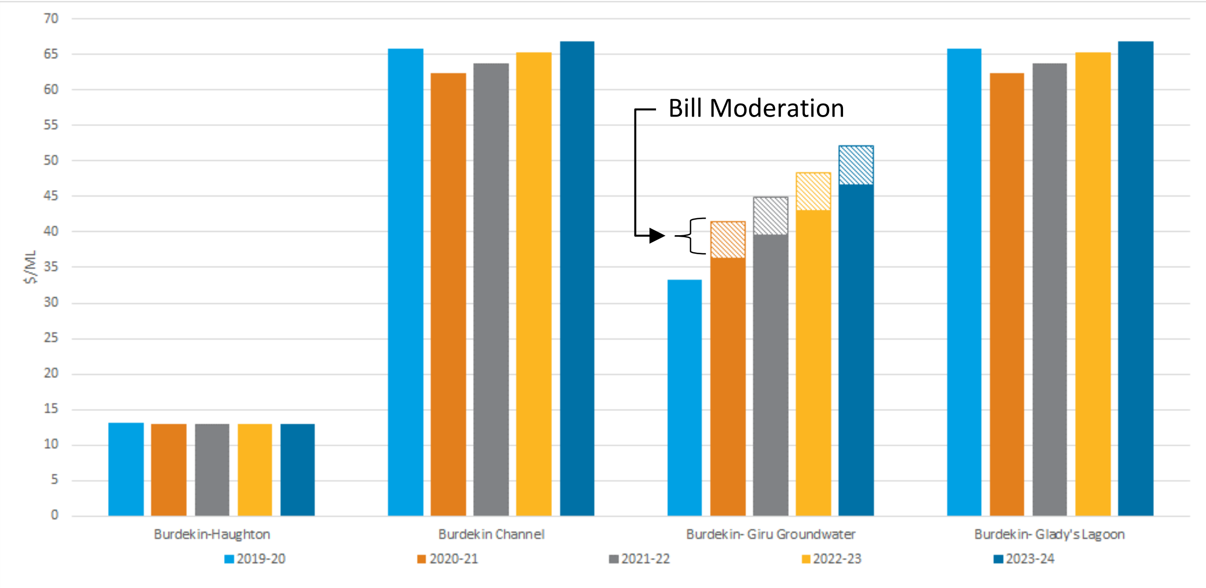
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Burdekin-Haughton	66%	13.06	12.91	12.93	(1)	(1)
Burdekin Channel	77%	65.76	62.25	66.79	(5)	2
Burdekin—Giru Groundwater	77%	33.16	36.33	46.63	10	41
Burdekin—Glady's Lagoon	77%	65.76	62.25	66.79	(5)	2

Note: Bill estimates for bulk tariffs (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price. Bill estimates for distribution tariffs (in $/ML) are derived using the fixed (Part A + Part C) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B + Part D) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 35 shows the indicative bill impacts on a $/ML basis for Burdekin–Haughton tariff groups.

Figure 35 Indicative bill impacts compared to current prices ($/ML nominal)—Burdekin-Haughton



Note: Bill estimates for bulk tariffs (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price. Bill estimates for distribution tariffs (in $/ML) are derived using the fixed (Part A + Part C) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B + Part D) price.

The dashed area of the graph represents the reduction in the Part D tariff for bill moderation purposes. The indicative bill impact based on our recommended prices is represented by the solid fill area of the graph.

Source: Sunwater, sub. 11; QCA analysis.

9.1.6 Callide Valley

Table 106 shows the indicative customer bill impacts for Callide Valley tariff groups.

Table 106 Indicative bill impacts compared to current prices ($/ML nominal)—Callide Valley

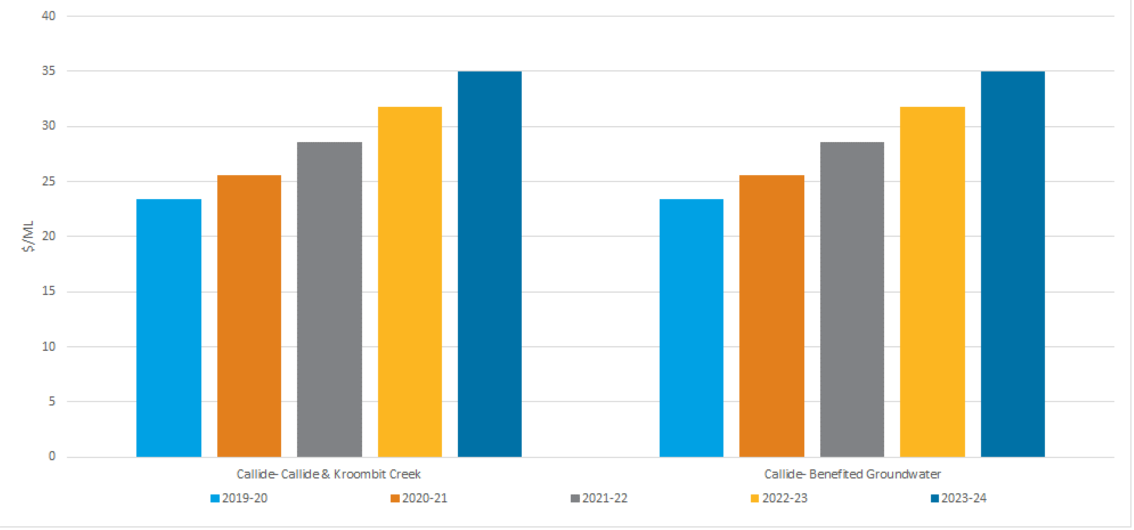
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Callide—Callide & Kroombit Creek	55%	23.36	25.48	34.99	9	50
Callide—Benefited Groundwater	55%	23.36	25.48	34.99	9	50

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 36 shows the indicative bill impacts on a $/ML basis for Callide Valley tariff groups.

Figure 36 Indicative bill impacts compared to current prices ($/ML nominal)—Callide Valley



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.7 Chinchilla Weir

Table 107 shows the indicative customer bill impacts for Chinchilla Weir tariff groups.

Table 107 Indicative bill impacts compared to current prices ($/ML nominal)—Chinchilla Weir

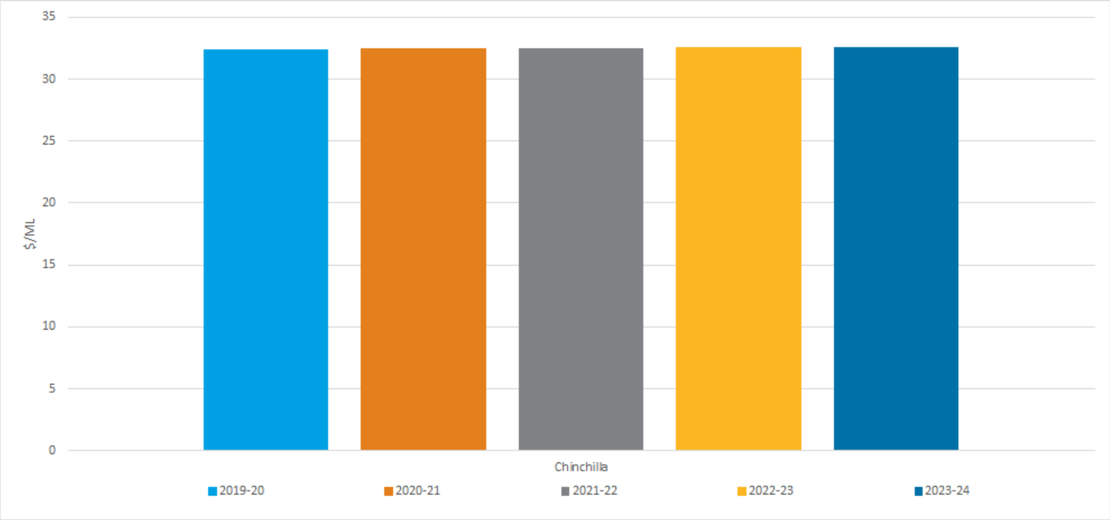
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Chinchilla	64%	32.37	32.42	32.58	0	1

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 37 shows the indicative bill impacts on a $/ML basis for Chinchilla Weir tariff groups.

Figure 37 Indicative bill impacts compared to current prices ($/ML nominal)—Chinchilla Weir



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.8 Cunnamulla

Table 108 shows the indicative customer bill impacts for the Cunnamulla tariff group.

Table 108 Indicative bill impacts compared to current prices ($/ML nominal)—Cunnamulla

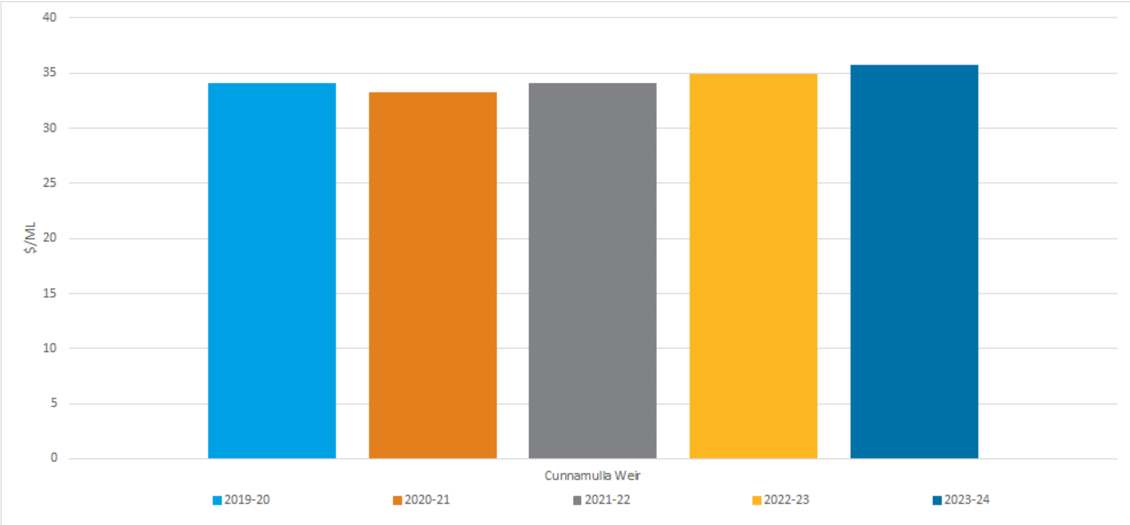
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Cunnamulla Weir	65%	34.07	33.26	35.68	(2)	5

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 38 shows the indicative bill impacts on a $/ML basis for the Cunnamulla tariff group.

Figure 38 Indicative bill impacts compared to current prices ($/ML nominal)—Cunnamulla



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.9 Dawson Valley

Table 109 shows the indicative customer bill impacts for Dawson Valley tariff groups.

Table 109 Indicative bill impacts compared to current prices ($/ML nominal)—Dawson Valley

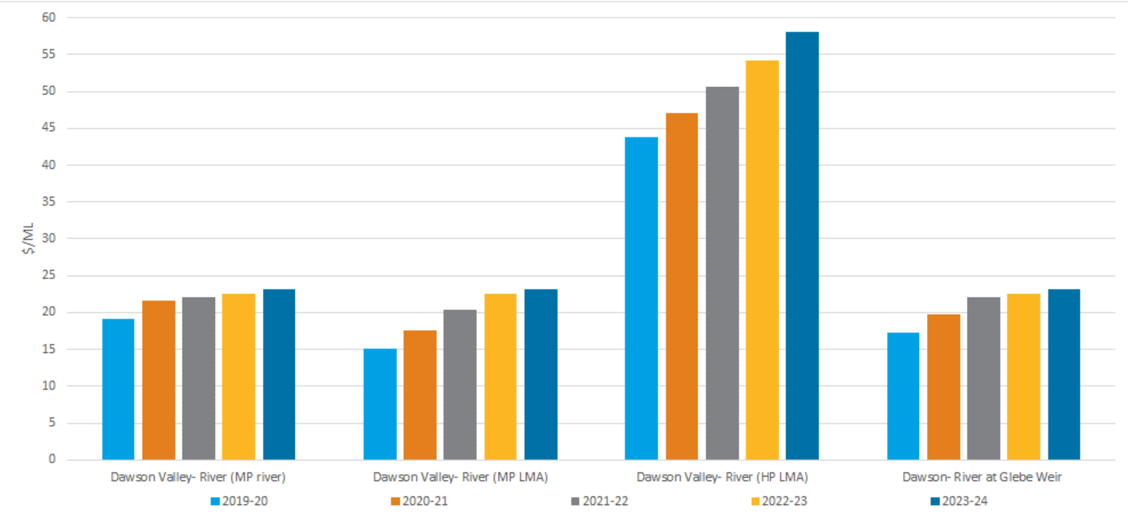
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Dawson Valley—River (MP river)	50%	19.05	21.49	23.06	13	21
Dawson Valley—River (MP LMA)	50%	14.99	17.49	23.06	17	54
Dawson Valley—River (HP LMA)	50%	43.78	46.96	58.04	7	33
Dawson- River at Glebe Weir	50%	17.19	19.74	23.06	15	34

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 39 shows the indicative bill impacts on a $/ML basis for Dawson Valley tariff groups.

Figure 39 Indicative bill impacts compared to current prices ($/ML nominal)—Dawson Valley



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.10 Eton

Table 110 shows the indicative customer bill impacts for Eton tariff groups.

Table 110 Indicative bill impacts compared to current prices ($/ML nominal)—Eton

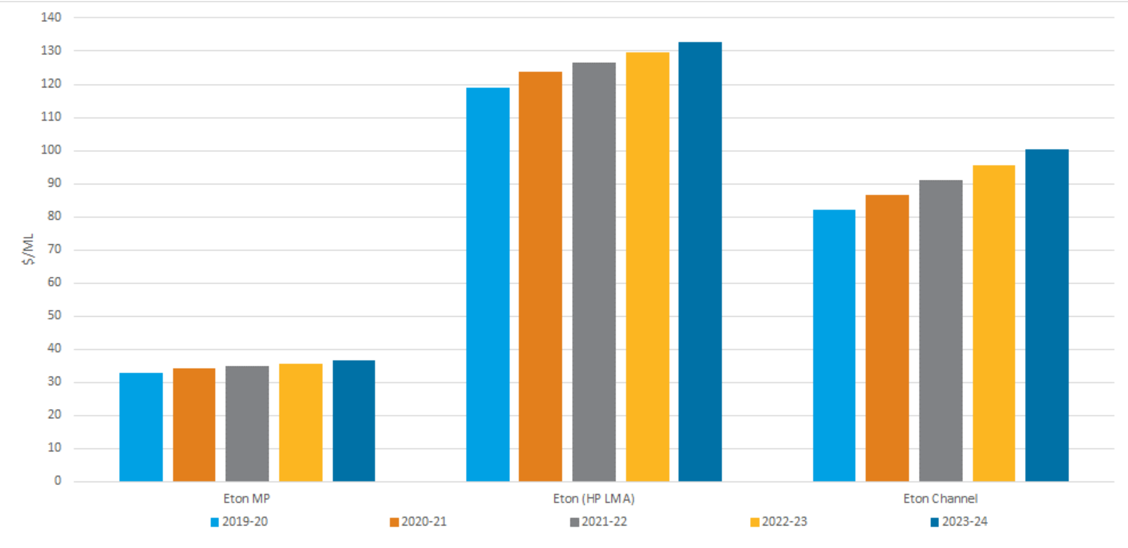
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Eton MP	32%	32.65	33.95	36.42	4	12
Eton (HP LMA)	32%	118.78	123.52	132.51	4	12
Eton Channel	32%	81.97	86.26	100.20	5	22

Note: Bill estimates for bulk tariffs (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price. Bill estimates for distribution tariffs (in $/ML) are derived using the fixed (Part A + Part C) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B + Part D) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 40 shows the indicative bill impacts on a $/ML basis for Eton tariff groups.

Figure 40 Indicative bill impacts compared to current prices ($/ML nominal)—Eton



Note: Bill estimates for bulk tariffs (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price. Bill estimates for distribution tariffs (in $/ML) are derived using the fixed (Part A + Part C) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B + Part D) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.11 Lower Mary

Table 111 shows the indicative customer bill impacts for Lower Mary tariff groups.

Table 111 Indicative bill impacts compared to current prices ($/ML nominal)—Lower Mary

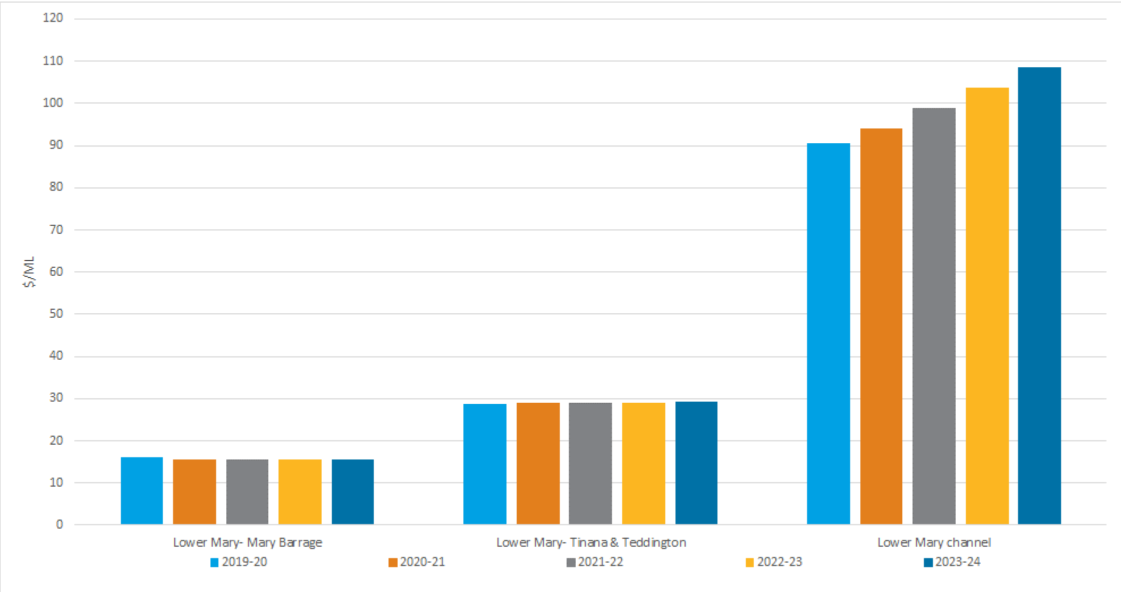
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Lower Mary—Mary Barrage	41%	15.91	15.51	15.54	(2)	(2)
Lower Mary—Tinana & Teddington	41%	28.72	28.81	29.10	0	1
Lower Mary Channel	50%	90.41	94.03	108.53	4	20

Note: Bill estimates for bulk tariffs (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price. Bill estimates for distribution tariffs (in $/ML) are derived using the fixed (Part A + Part C) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B + Part D) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 41 shows the indicative bill impacts on a $/ML basis for Lower Mary tariff groups.

Figure 41 Indicative bill impacts compared to current prices ($/ML nominal)—Lower Mary



Note: Bill estimates for bulk tariffs (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price. Bill estimates for distribution tariffs (in $/ML) are derived using the fixed (Part A + Part C) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B + Part D) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.12 Lower Fitzroy

Table 112 shows the indicative customer bill impacts for the Lower Fitzroy tariff group.

Table 112 Indicative bill impacts compared to current prices ($/ML nominal)—Lower Fitzroy

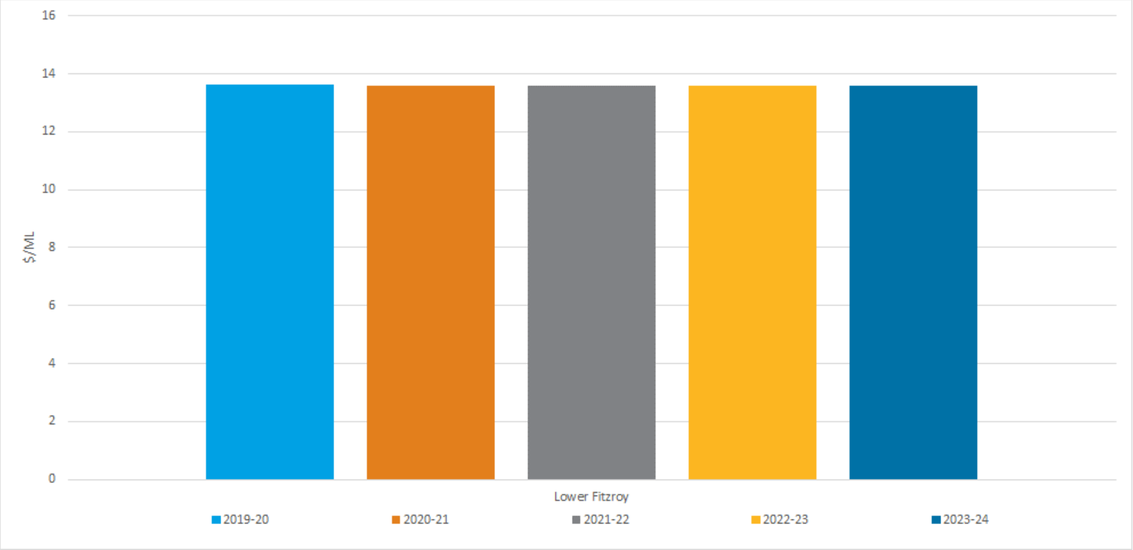
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Lower Fitzroy	3%	13.60	13.58	13.59	(0)	(0)

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 42 shows the indicative bill impacts on a $/ML basis for the Lower Fitzroy tariff group.

Figure 42 Indicative bill impacts compared to current prices ($/ML nominal)—Lower Fitzroy



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.13 Macintyre Brook

Table 113 shows the indicative customer bill impacts for the Macintyre Brook tariff group.

Table 113 Indicative bill impacts compared to current prices ($/ML nominal)—Macintyre Brook

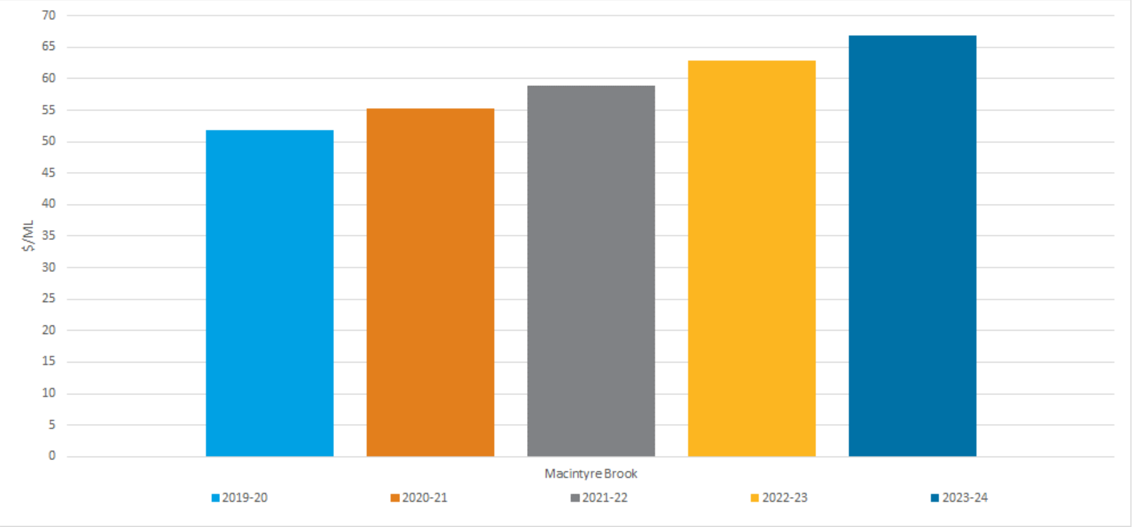
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Macintyre Brook	70%	51.82	55.13	66.81	6	29

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 43 shows the indicative bill impacts on a $/ML basis for the Macintyre Brook tariff group.

Figure 43 Indicative bill impacts compared to current prices ($/ML nominal)—Macintyre Brook



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.14 Maranoa River

Table 114 shows the indicative customer bill impacts for the Maranoa River tariff group.

Table 114 Indicative bill impacts compared to current prices ($/ML nominal)—Maranoa River

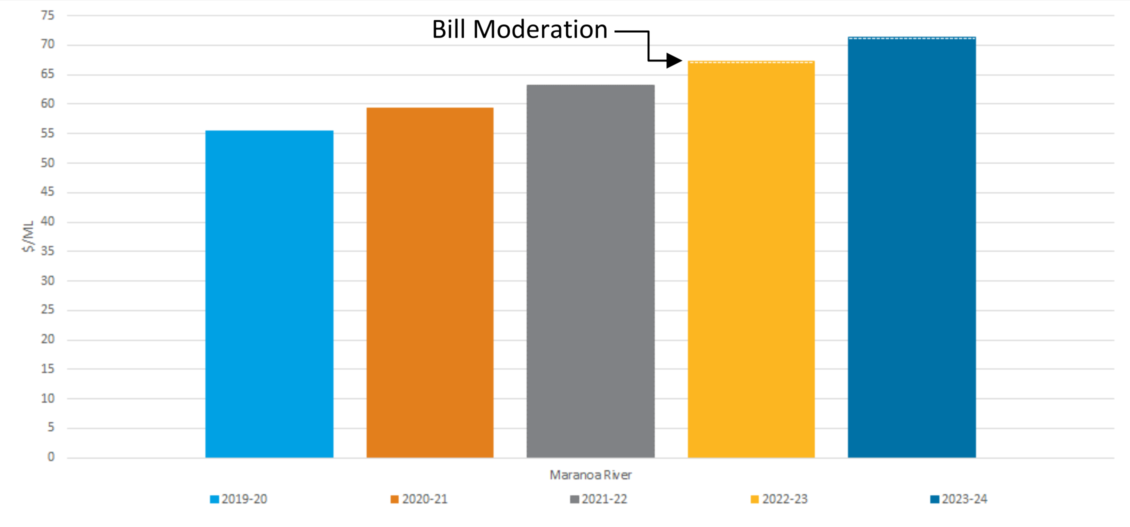
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Maranoa River	3%	55.39	59.09	71.05	7	28

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 44 shows the indicative bill impacts on a $/ML basis for the Maranoa River tariff group.

Figure 44 Indicative bill impacts compared to current prices ($/ML nominal)—Maranoa River



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

The dashed area of the graph represents the reduction in the Part B tariff for bill moderation purposes. The indicative bill impact based on our recommended prices is represented by the solid fill area of the graph.

Source: Sunwater, sub. 11; QCA analysis.

9.1.15 Mareeba–Dimbulah

Table 115 shows the indicative customer bill impacts for Mareeba–Dimbulah tariff groups.

Table 115 Indicative bill impacts compared to current prices ($/ML nominal)—Mareeba–Dimbulah

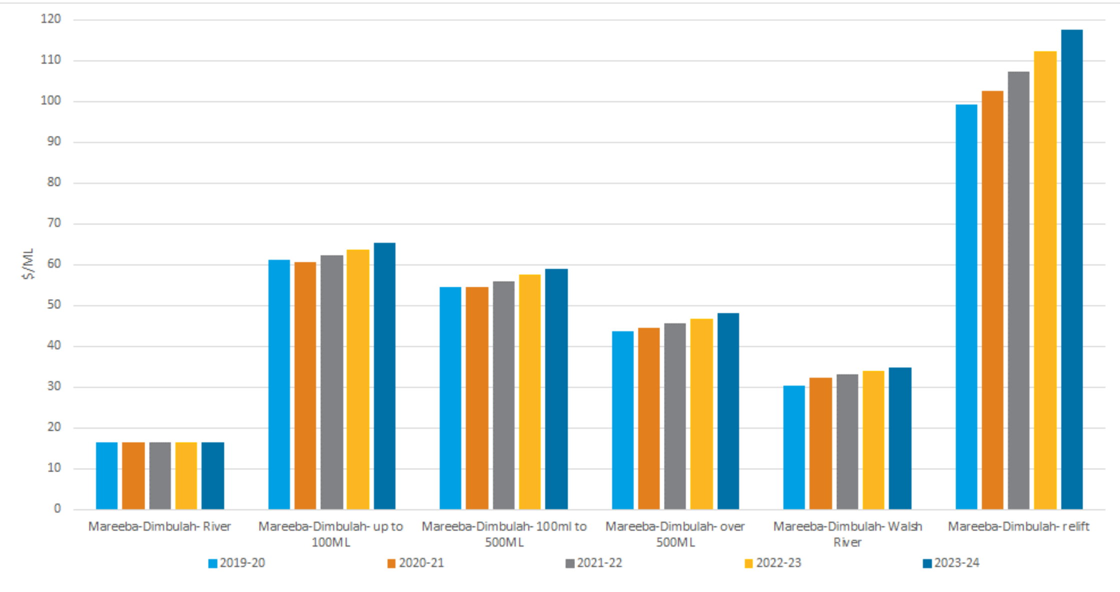
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Mareeba-Dimbulah—River	64%	16.25	16.26	16.28	0	0
Mareeba-Dimbulah– up to 100 ML	65%	61.02	60.50	65.29	(1)	7
Mareeba-Dimbulah—100 ML to 500 ML	65%	54.47	54.42	58.76	(0)	8
Mareeba-Dimbulah—over 500 ML	65%	43.53	44.26	47.86	2	10
Mareeba-Dimbulah—Walsh River	65%	30.30	32.19	34.54	6	14
Mareeba-Dimbulah—Relift	65%	99.12	102.32	117.42	3	18

Note: Bill estimates for bulk tariffs (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price. Bill estimates for distribution tariffs (in $/ML) are derived using the fixed (Part A + Part C) price and applying average irrigaton water use (at the scheme level) to the volumetric (Part B + Part D) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 45 shows the indicative bill impacts on a $/ML basis for Mareeba-Dimbulah tariff groups.

Figure 45 Indicative bill impacts compared to current prices ($/ML nominal)—Mareeba-Dimbulah



Note: Bill estimates for bulk tariffs (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price. Bill estimates for distribution tariffs (in $/ML) are derived using the fixed (Part A + Part C) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B + Part D) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.16 Nogoa-Mackenzie

Table 116 shows the indicative customer bill impacts for Nogoa-Mackenzie tariff groups.

Table 116 Indicative bill impacts compared to current prices ($/ML nominal)—Nogoa-Mackenzie

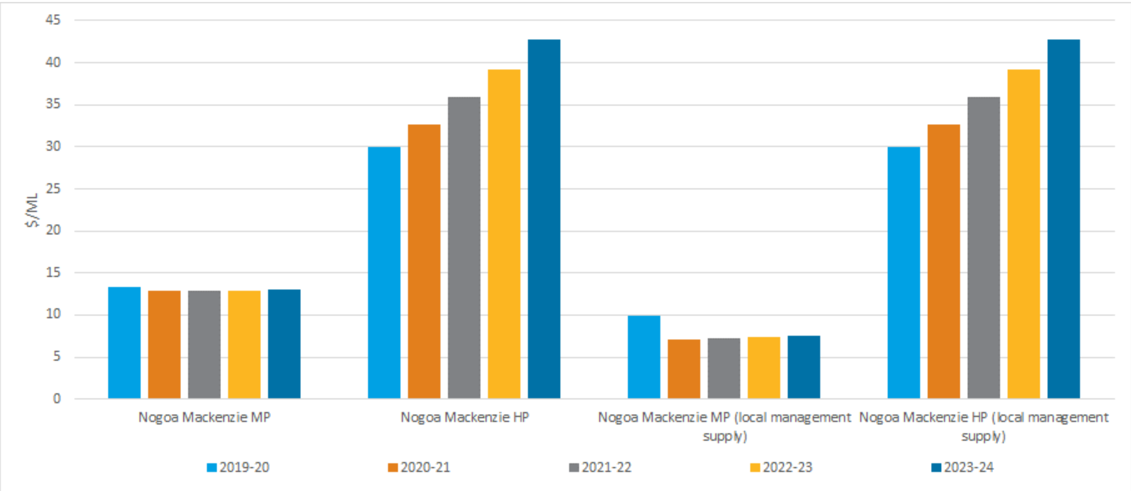
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Nogoa Mackenzie MP	77%	13.24	12.86	12.90	(3)	(3)
Nogoa Mackenzie HP	77%	29.90	32.58	42.61	9	43
Nogoa Mackenzie MP LMA	77%	9.86	7.01	7.52	(29)	(24)
Nogoa Mackenzie HP LMA	77%	29.90	32.58	42.61	9	43

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 46 shows the indicative bill impacts on a $/ML basis for Nogoa-Mackenzie tariff groups.

Figure 46 Indicative bill impacts compared to current prices ($/ML nominal)—Nogoa–Mackenzie



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.17 Pioneer River

Table 117 shows the indicative customer bill impacts for the Pioneer River tariff group.

Table 117 Indicative bill impacts compared to current prices ($/ML nominal)—Pioneer River

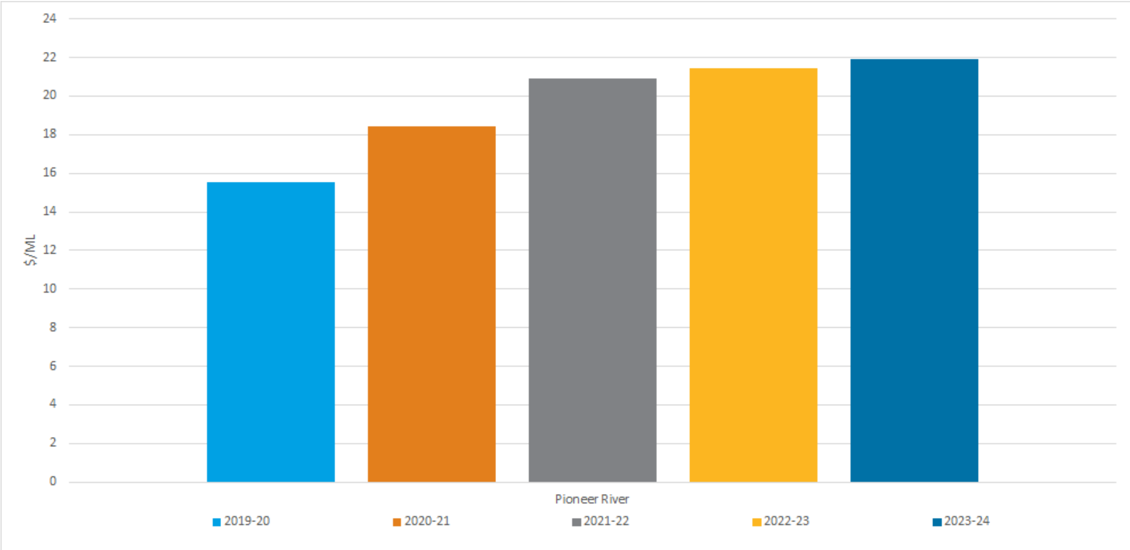
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Pioneer River	23%	15.52	18.40	21.90	19	41

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 47 shows the indicative bill impacts on a $/ML basis for the Pioneer River tariff group.

Figure 47 Indicative bill impacts compared to current prices ($/ML nominal)—Pioneer River



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.18 Proserpine River

Table 118 shows the indicative customer bill impacts for Proserpine River tariff groups.

Table 118 Indicative bill impacts compared to current prices ($/ML nominal)—Proserpine River

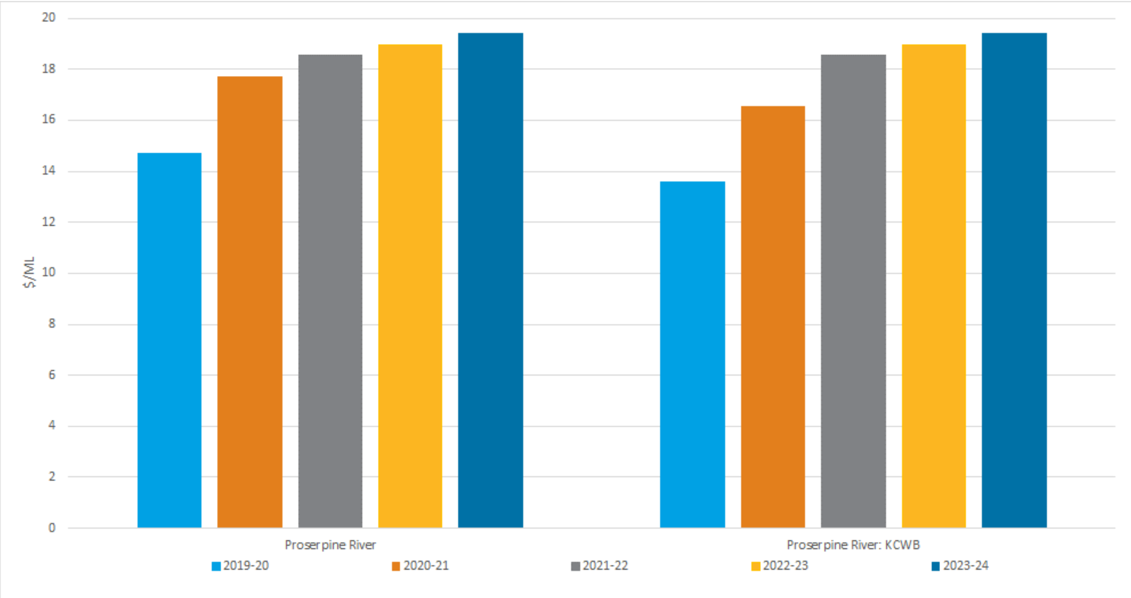
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Proserpine River	48%	14.71	17.70	19.42	20	32
Proserpine River: KCWB	48%	13.59	16.56	19.42	22	43

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 48 shows the indicative bill impacts on a $/ML basis for Proserpine River tariff groups.

Figure 48 Indicative bill impacts compared to current prices ($/ML nominal)—Proserpine River



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.19 St George

Table 119 shows the indicative customer bill impacts for St George tariff groups.

Table 119 Indicative bill impacts compared to current prices ($/ML nominal)—St George

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) (%)*
St George—Beardmore Dam or Balonne River (MP river)	85%	23.09	22.86	22.93	(1)	(1)
St George—Thuraggi Watercourse	85%	23.09	22.86	22.93	(1)	(1)
St George (MP LMA)	85%	22.04	21.02	22.55	(5)	2
St George (HP LMA)	85%	30.22	33.06	35.88	9	19

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 49 shows the indicative bill impacts on a $/ML basis for St George tariff groups.

Figure 49 Indicative bill impacts compared to current prices ($/ML nominal)—St George

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.20 Three Moon Creek

Table 120 shows the indicative customer bill impacts for Three Moon Creek tariff groups.

Table 120 Indicative bill impacts compared to current prices ($/ML nominal)—Three Moon Creek

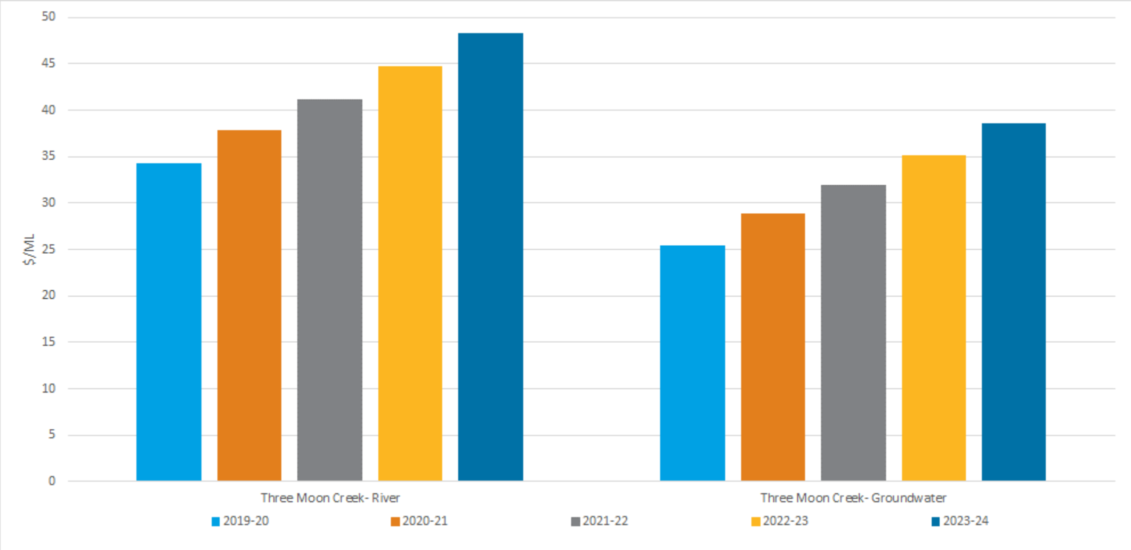
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Three Moon Creek—River	38%	34.24	37.82	48.23	10	41
Three Moon Creek—Groundwater	38%	25.39	28.76	38.51	13	52

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 50 shows the indicative bill impacts on a $/ML basis for Three Moon Creek tariff groups.

Figure 50 Indicative bill impacts compared to current prices ($/ML nominal)—Three Moon Creek



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.21 Upper Burnett

Table 121 shows the indicative customer bill impacts for Upper Burnett tariff groups.

Table 121 Indicative bill impacts compared to current prices ($/ML nominal)—Upper Burnett

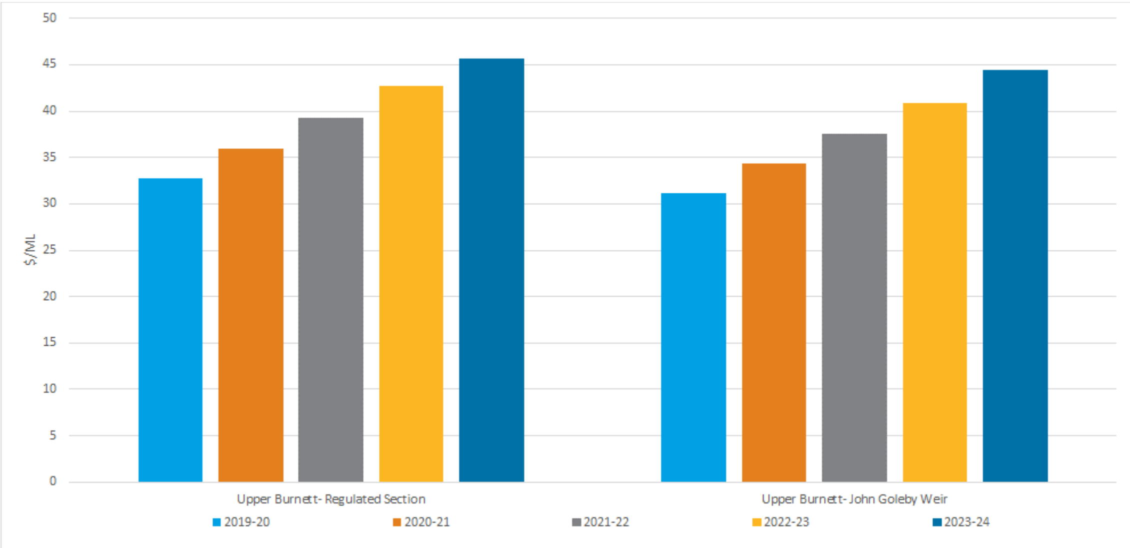
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Upper Burnett—Regulated Section	51%	32.68	35.90	45.61	10	40
Upper Burnett—John Goleby Weir	51%	31.06	34.24	44.39	10	43

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 51 shows the indicative bill impacts on a $/ML basis for Upper Burnett tariff groups.

Figure 51 Indicative bill impacts compared to current prices ($/ML nominal)—Upper Burnett



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.1.22 Upper Condamine

Table 122 shows the indicative customer bill impacts for Upper Condamine tariff groups.

Table 122 Indicative bill impacts compared to current prices ($/ML nominal)—Upper Condamine

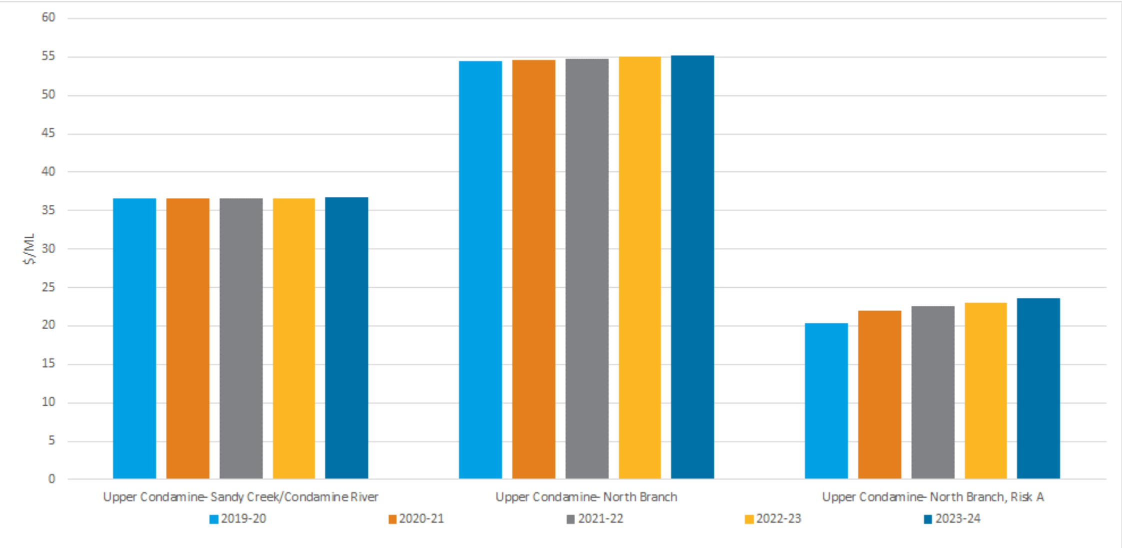
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Upper Condamine—Sandy Creek or Condamine River	45%	36.52	36.46	36.64	(0)	0
Upper Condamine– North Branch	45%	54.42	54.58	55.09	0	1
Upper Condamine– North Branch, Risk A	45%	20.22	21.93	23.53	8	16

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 52 shows the indicative bill impacts on a $/ML basis for Upper Condamine tariff groups.

Figure 52 Indicative bill impacts compared to current prices ($/ML nominal)—Upper Condamine



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.2 Customer bill impacts for alternative tariff groups

The table displays indicative bill impacts on a $/ML basis for existing tariff groups transitioning to our recommended alternative tariff groups after bill moderation. See Chapter 6 for details on how we have derived alternative tariff groups.

Table 123 shows the indicative customer bill impacts for alternative tariff groups.

Table 123 Indicative bill impacts compared to current prices ($/ML nominal)—Alternative tariff groups

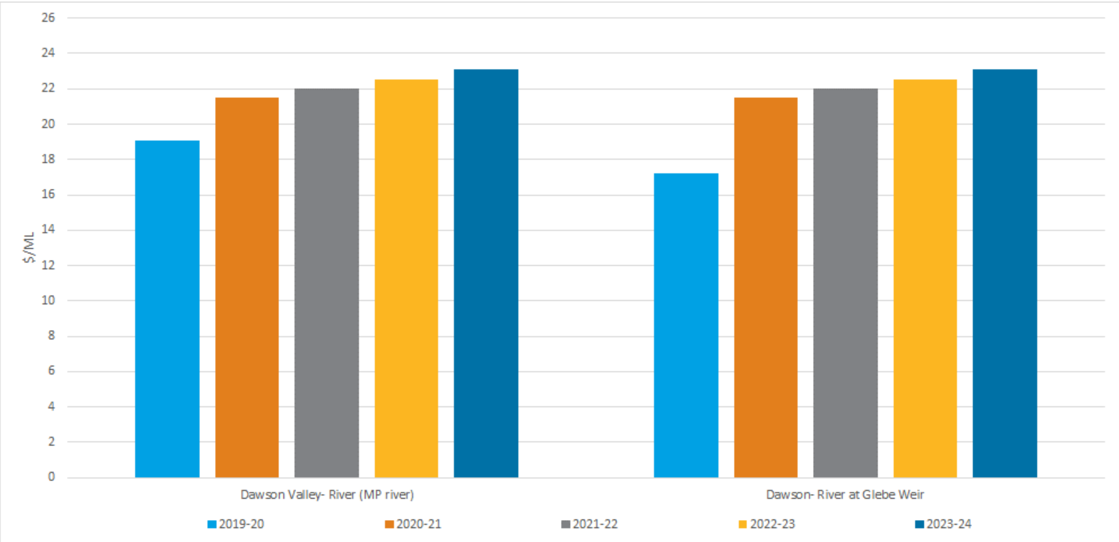
Tariff group	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Dawson Valley—River (MP river)	50%	19.05	21.49	23.06	13	21
Dawson—River at Glebe Weir	50%	17.19	21.49	23.06	25	34
St George– Beardmore Dam or Balonne River (MP river)	85%	23.09	22.86	22.93	(1)	(1)
St George– Thuraggi Watercourse	85%	23.09	22.86	22.93	(1)	(1)
Three Moon Creek—River	38%	34.24	29.99	39.83	(12)	16
Three Moon Creek—Groundwater	38%	25.39	29.99	39.83	18	57

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

The figures below shows the indicative bill impacts on a $/ML basis for existing tariff groups adopting our recommended alternative tariff groups.

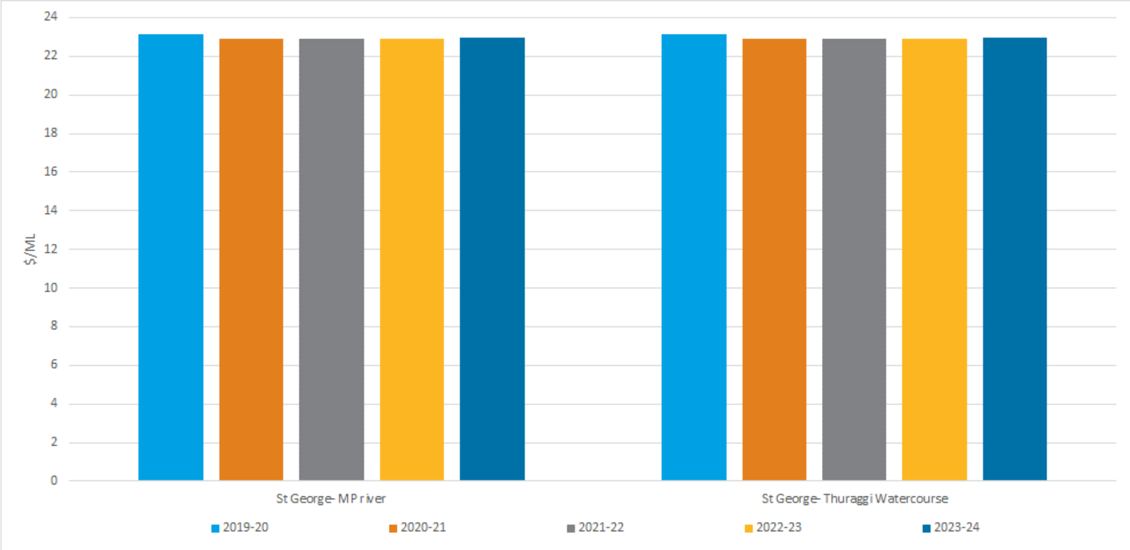
Figure 53 Indicative bill impacts for alternative tariff groups compared to current prices ($/ML nominal)—Dawson Valley WSS



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

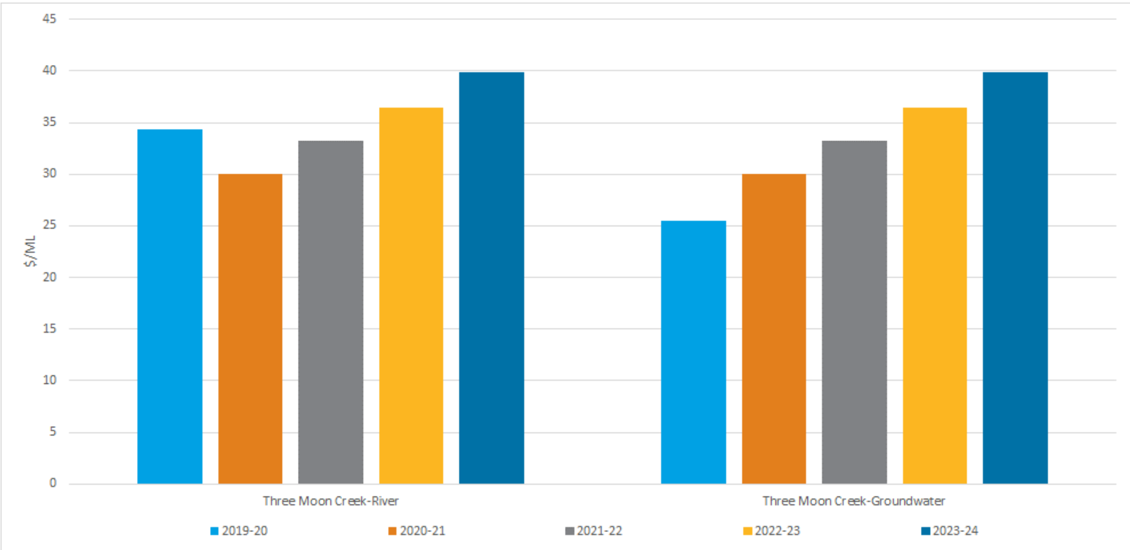
Figure 54 Indicative bill impacts for alternative tariff groups compared to current prices ($/ML nominal)—St George WSS



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 55 Indicative bill impacts for alternative tariff groups compared to current prices ($/ML nominal)—Three Moon Creek WSS



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

9.3 Customer bill impacts including dam safety upgrade costs

The table below displays indicative bill impacts on a $/ML basis for tariff groups with dam safety upgrade expenditure after bill moderation. Only tariff groups where dam safety upgrade expenditure impacts our recommended prices within the price path period have been included. All other dam safety upgrade expenditure either falls outside of this period or has no impact on recommended prices. See Chapter 4 of the Part A report for details on how we have apportioned dam safety expenditure.

Table 124 Indicative bill impacts compared to current prices ($ nominal)—Tariff groups with dam safety upgrade expenditure

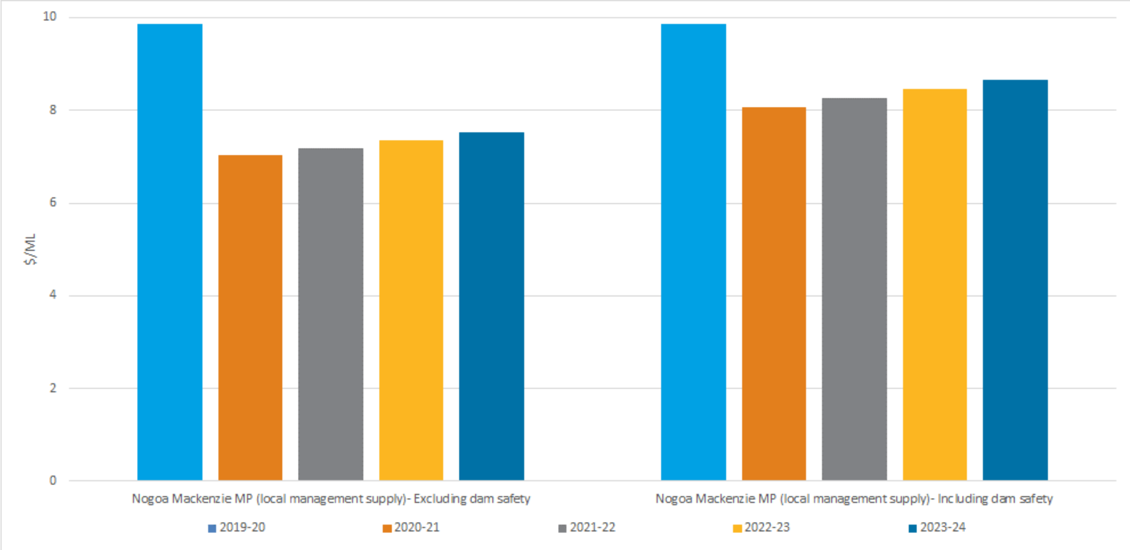
Tariff groups with dam safety upgrade expenditure	*Average usage (%)*	*2019–20 ($/ML) (a)*	*2020–21 ($/ML) (b)*	*2023–24 ($/ML) (c)*	*Change from (a) to (b) (%)*	*Change from (a) to (c) (%)*
Nogoa Mackenzie MP (local management supply)—excluding dam safety	77%	9.86	7.01	7.52	(29)	(24)
Nogoa Mackenzie MP (local management supply)—including dam safety	77%	9.86	8.06	8.64	(18)	(12)
Pioneer River—excluding dam safety	23%	15.52	18.40	21.89	19	41
Pioneer River—including dam safety	23%	15.52	18.40	22.38	19	44
Upper Condamine—North Branch, Risk A—excluding dam safety	45%	20.22	21.93	23.53	8	16
Upper Condamine—North Branch, Risk A—including dam safety	45%	20.22	22.70	24.36	12	20

Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

The figures below shows the indicative bill impacts on a $/ML basis for tariff groups including dam safety upgrade expenditure, with and without any bill moderation.

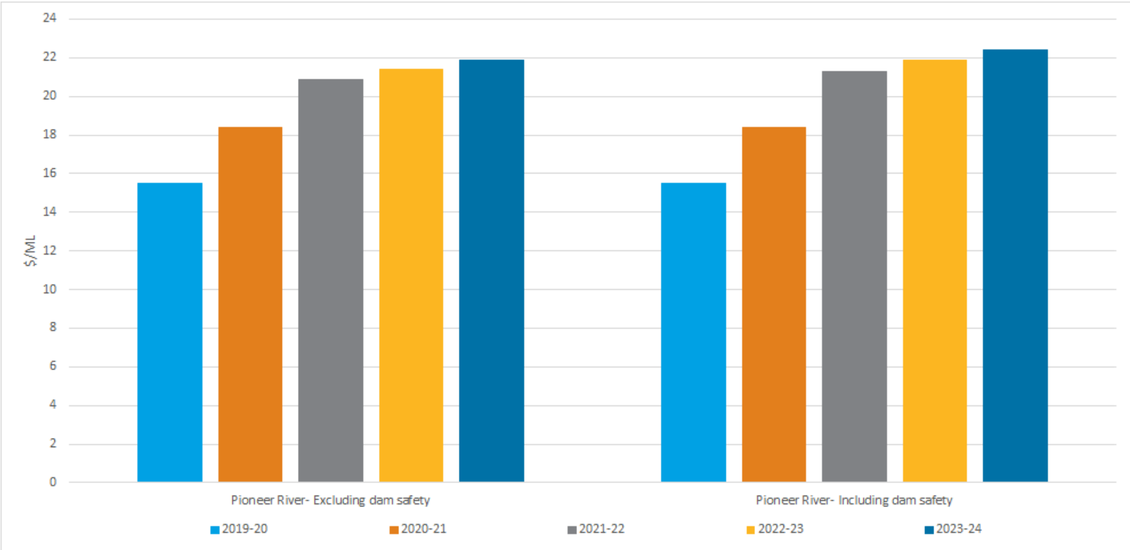
Figure 56 Indicative bill impacts with dam safety expenditure compared to current prices ($ nominal)—Nogoa–Mackenzie MP (local management supply)



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

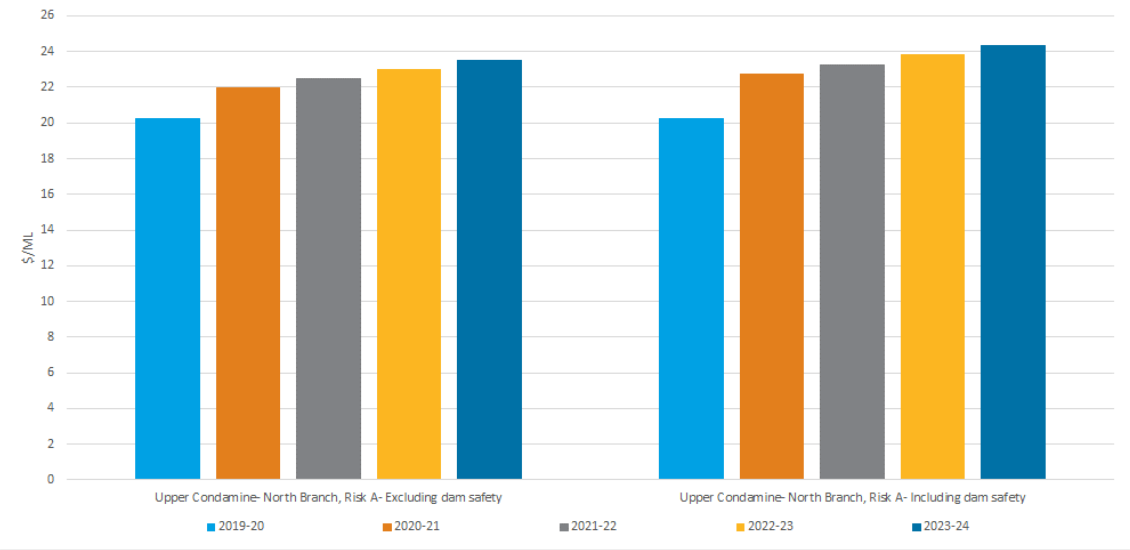
Figure 57 Indicative bill impacts with dam safety expenditure compared to current prices ($ nominal)—Pioneer River



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

Figure 58 Indicative bill impacts with dam safety expenditure compared to current prices ($ nominal)—Upper Condamine–North Branch, Risk A



Note: Bill estimates (in $/ML) are derived using the fixed (Part A) price and applying average irrigation water use (at the scheme level) to the volumetric (Part B) price.

Source: Sunwater, sub. 11; QCA analysis.

10 CUSTOMER ENGAGEMENT

In the 2012 review, we made recommendations relating to Sunwater 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 Sunwater 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.

As part of their submissions provided to the QCA in November 2018, Sunwater and Seqwater provided information on their customer engagement activities including:

- their customer engagement strategy
- the key issues raised by customers 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 Sunwater's submission

Sunwater said that its primary engagement channel for the irrigation price review process was via Irrigator Advisory Committees (IACs).[334]

IACs consists of a group of Sunwater customers either within an individual scheme or a group of schemes that are representative of the broader irrigation customer base. The purpose of the committee is to:

- represent the interests of the broader irrigator base
- provide a mechanism by which Sunwater and customers raise and discuss matters of mutual interest
- provide advice and recommendations to Sunwater regarding scheme operational issues.

Other engagement channels used by Sunwater to engage with customers include:

[334] Sunwater, sub. 12, p. 2.

- Irrigation Customer Reference Group (ICRG)—consists of a cross-section of irrigation customers. During the price review process the ICRG were engaged on high-level strategic issues relevant to all customers.
- Peak industry bodies—engagement with peak industry groups on rural water pricing matters and specific policy issues.
- Customer surveys—to provide feedback on Sunwater's service and customer interaction, with the results used to identify key customer objectives.
- Website—to provide general information to customers and engage with them on specific matters, such as the draft Network Service Plans (NSPs).
- Email and SMS notification—used for general communication with customers, seek feedback on the draft NSP and to notify irrigation customers about the commencement of the price review process.[335]

Customers were engaged across three phases from late 2017 to October 2018 during the development of the price submission. This included:

- Phase 1
  - August 2017—customer survey (5.5 per cent response rate) to provide insights on what customers wanted and help guide initial objectives for the price submission around cost efficiency, transparency and preferences for the format and content of the NSPs.
  - November to December 2017—presentation to the IACs and ICRG to gain preliminary feedback on customer information needs.
- Phase 2
  - February to March 2018—consultation with the ICRG and IACs to review NSP template, draft infographics and cost drivers and confirm Sunwater's interpretation of the customer objectives were accurate.
- Phase 3
  - May to October 2018—meeting with IACs and customers to review draft NSPs. Sunwater also made efforts to reach a broader range of irrigation customers via publishing the draft NSPs on its website and inviting feedback. However, Sunwater did not receive any feedback in response.[336]

Key messages about what customers wanted emerged from Sunwater's first phase of consultation included:

- Efficiency—customers were concerned about price and wanted more cost-effective services and better value for money.
- Simplicity and transparency—many customers found it hard to meaningfully comment on prices and costs because they did not understand how they were derived.
- Improve NSPs—customers wanted more information on corporate overheads, shorter NSPs and no pictures without purpose

[335] Sunwater, sub. 12, p. 3.
[336] Sunwater, sub. 12, pp. 6–8.

- Asset management and non-routine projects—customers wanted more consultation on upcoming non-routine projects.[337]

In its submission, Sunwater said that specific irrigation pricing arrangements were a matter for the QCA and the government.[338] Sunwater's submission does not outline its proposed prices for some of the tariff groups that have complex, scheme-specific issues. Its submission describes its proposed approach to calculating cost-reflective fixed and volumetric charges, and derives indicative scheme-level prices in its published regulatory model.[339]

Sunwater proposed that we consult with customers on specific pricing issues including pricing and tariff structures[340], apportioning dam safety costs[341], drainage charges and drainage diversion charges[342].

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

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 meets 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.

[337] Sunwater, sub. 12, p. 7.
[338] Sunwater, sub. 12, p. A-3 .
[339] Sunwater, sub. 45, November 2018.
[340] Sunwater, sub. 11, p. xiv.
[341] Sunwater, sub. 11, p. viii.
[342] Sunwater, sub. 11, p. 74.

- 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.[343]

Face-to-face engagement described above 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 on-line 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
- prices and affordability
- tariff structures including the mix of fixed and variable charges in residential customer bills.

WaterNSW

In the lead-up to the 2017 price review, WaterNSW engaged in face-to-face meetings with customers where they presented information and sought direct feedback from customers. These included conversations with key stakeholders including WaterNSW Customer Service Committees (CSCs), the Fish River Customer Council, the NSW Irrigators Council, the NSW Office of Environment & Heritage, Commonwealth Environmental Water Office and other large customers.[344]

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 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.

[343] SRW, *2018 Water price review*, 2017.
[344] 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*, 2016.

WaterNSW engages with its customers on an ongoing basis. However WaterNSW engaged in a more targeted consultation program for the purposes of the 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.

SA Water

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

- 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 6 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 Sunwater's engagement with customers, based on the information provided in its submission to the QCA:

- structure—this element refers to the form or structure of the engagement, and covers the formal arrangements used and the stated purpose of each of these arrangements
- timing—this element refers to the timing or scheduling of consultation, including during the development of the price submission and on an ongoing basis
- scope—this element refers to the scope of issues covered in the engagement.

10.4.1 Structure

The primary engagement channels used during the price review process were the IACs, the ICRG and the customer survey. Similar processes are common across water businesses and form a foundation for good practice engagement. However, other businesses typically supplement these with additional processes. A broader approach to consultation improves customer representation and is necessary in avoiding any issues associated with capture. There are opportunities for Sunwater to broaden its engagement by adopting other engagement channels.

The low participation rates in the IACs for phase 2 and phase 3 of Sunwater's engagement and the low response rate for the customer survey raises concern regarding the level of broader customer representation in the engagement. Low participation can also be an indicator of ineffective approaches to direct communication between Sunwater and its customers.

Sunwater could consider other options to facilitate broader engagement. For example, during its price review process, Southern Rural Water used industry field days or regional focus groups in addition to its engagement with the Customer Consultative Committees.

10.4.2 Timing

Sunwater appears to have given customers a reasonable amount of time to provide input on the development of the NSPs. Sunwater began approximately a year before submission of its proposal and this is consistent with practice in the other jurisdictions.

There is a lack of clarity in Sunwater's submission regarding the ongoing nature of engagement, including how Sunwater intends to maintain engagement beyond our pricing investigation.

Sunwater should ensure that customers are engaged on an ongoing basis to support and confirm insights provided during the development of the submission to the QCA. This will also help facilitate a more targeted approach to engagement that focuses on the matters that are important to customers particularly in relation to service delivery and price/bill impacts.

10.4.3 Scope

The primary concerns of customers are pricing and service related. This observation is logically consistent with the relationship between customers and service providers and has been clearly evidenced in the recent PREMO and SA Water price reviews. It follows that prices and service levels are an essential element of any effective engagement with customers.

Pricing issues were a major concern for customers however customers were not given the opportunity to provide input on pricing related issues. Sunwater considered this a matter for QCA and the Government. Pricing is an important issue that should form part of a business’s engagement program. Other rural businesses have engaged customers on pricing related issues.

In the 2012 review, there were a number of pricing issues that we recommended Sunwater should investigate and consult with customers on prior to this price review. In many cases, Sunwater has not provided evidence that engagement with customers on these pricing issues has occurred (e.g. Giru Benefited Area pricing and Walsh River and supplemented streams pricing).

We consider that Sunwater is better placed to engage with customers on these types of pricing issues, rather than the QCA. We consider that effective customer engagement provides opportunities for closer alignment of outcomes sought by Sunwater and its customers, and is more likely to produce a stronger and more accepted set of arrangements.

Meaningful consultation relies on drawing a clear link between proposed expenditure and both 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. In terms of Sunwater's engagement, there is no clear link between the proposed costs and pricing outcomes for customers. It is clear from the customer engagement that pricing is a major concern. Sunwater’s response was confined to noting the concern.

There is no clear link between the proposed costs and service level outcomes for customers. There is also no clear identification of the billing and service level outcomes customer want.

At the outset Sunwater has not developed a targeted approach to engagement that focuses on what customers’ value in relation to service delivery and price/bill impacts. Sunwater’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, we note that there is a material amount of customer feedback that appears to be either highly technical in nature or alternatively not typically topics that customers would be engaged on. Sunwater's customers have provided input on a variety of issues which:

- Sunwater has limited control over such as the QCA regulatory review process

- should be internal business decisions such as the WACC, the annuity balance and the format of the NSPs.

While these topics are important they are not overly informative of the customer's ultimate pricing and service preferences.

10.4.4 Summary

Based on our findings above, we consider that Sunwater should refine the structure, timing and scope of its customer engagement.

Draft recommendation 17

We recommend that Sunwater improve its engagement with customers by:

- **ensuring that customers are engaged on an ongoing basis to provide more 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**
- **ensuring that its consultation draws a clearer link between proposed expenditure and both prices and service level outcomes for customers**
- **engaging with its customers prior to the next price review to develop a pricing proposal that incorporates its proposed prices for all of its tariff groups with irrigation customers.**

APPENDIX A: REFERRAL

Deputy Premier
Treasurer
Minister for Aboriginal and Torres Strait Islander Partnerships

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ABN 90 856 020 239

Our Ref: 01852-2018

29 OCT 2018

Professor Flavio Menezes
Chair
Queensland Competition Authority
GPO Box 2257
BRISBANE QLD 4001

Dear ~~Professor Menezes~~ Flavio,

Please find enclosed a referral notice issued under section 23 of the *Queensland Competition Authority Act 1997*, referring the relevant monopoly business activities of SunWater and Seqwater to the Queensland Competition Authority (the Authority) for an investigation about pricing practices in relation to rural irrigation prices to apply from 1 July 2020 to 30 June 2024.

I appreciate the Authority's continued involvement in ensuring rural irrigation prices have effective regulatory oversight.

I am advised that officers from Queensland Treasury have consulted with the Authority in the preparation of this referral notice. SunWater and Seqwater have also been advised of this investigation and have been encouraged to work closely with the Authority to ensure the reporting timeframes for the review are met.

Should you have any queries regarding this matter, please contact Mr Dennis Molloy, Assistant Under Treasurer, Shareholder and Structural Policy Division on (07) 3035 1988.

Yours sincerely

JACKIE TRAD MP
DEPUTY PREMIER
Treasurer
Minister for Aboriginal and Torres Strait Islander Partnerships

Encl.

Cc: The Honourable Dr Anthony Lynham MP,
Minister for Natural Resources, Mines and Energy

QUEENSLAND COMPETITION AUTHORITY ACT 1997
Section 23 and Section 24

REFERRAL AND DIRECTION NOTICE

A Section 23 – Referral

(1.1) As the Treasurer of Queensland, under section 23 of the Queensland Competition Authority Act 1997 (the Act), I refer the monopoly business activities of SunWater and the Queensland Bulk Water Supply Authority (trading as Seqwater) (the businesses) described in paragraph A(1.2) to the Queensland Competition Authority (the Authority) for an investigation about pricing practices relating to those activities.

(1.2) The monopoly business activities are:

- the bulk water storage and water distribution undertaken by SunWater; and
- the bulk water supply undertaken by Seqwater,

to the extent those activities are:

- undertaken for an irrigation service as defined in the *Water Act 2000*[1]; and
- in the water supply schemes and distribution systems (WSS) set out in Schedule 1 excluding water services provided by Burnett Water Pty Ltd in relation to Paradise Dam and Kirar Weir, consistent with the Authority's Final Report SunWater Irrigation Price Review: 2012-17 Volume 1.

B Section 24 – Directions

(1.1) Under section 24 of the Act, I direct the Authority to make recommendations about the following matters:

(a) appropriate prices (including drainage prices, water harvesting prices and termination fees for relevant WSS) to be charged by the businesses for the period of 1 July 2020 to 30 June 2024 (the price path period) in relation to the monopoly business activities specified in paragraph A(1.2), subject to paragraph C(1.7); and
(b) appropriate price review triggers and other mechanisms, to manage the risks associated with material changes in the allowable costs identified in paragraph C(1.2) outside the control of the businesses.

[1] For clarity, an irrigation service is defined in Schedule 4 of the *Water Act 2000* as the supply of water or drainage services for irrigation of crops or pastures for commercial gain.

(1.2) The recommendations made by the Authority under B(1.1) should include two sets of appropriate prices in relation to prudent and efficient capital expenditure associated with dam safety upgrades, one set where all dam safety upgrade capital expenditure is excluded and one set where an appropriate allowance for capital expenditure forecast to be incurred from 1 July 2020 onwards is included. The recommendations made by the Authority are not required to specify which set of prices are to apply.

(1.3) In making its recommendations under B(1.2), the Authority is to develop and apply an appropriate approach for apportioning dam safety upgrade capital expenditure and explain this approach and its application as part of its recommendations.

(1.4) The recommendations made by the Authority under B(1.1) should adopt the current tariff groups for all WSS, other than where the Authority develops alternative tariff groups for the categories of prices listed in Schedule 3 as required under paragraph B(1.5).

(1.5) The Authority is to review the tariff groups for the categories of prices listed in Schedule 3 and develop alternative tariff groups. The recommendations made by the Authority should include two sets of appropriate prices, one set which maintains the current tariff groups and one set based on the alternative tariff groups. The recommendations made by the Authority are not required to specify which set of prices are to apply.

(1.6) Under section 24 of the Act, I direct the Authority to consider the stated matters listed as "Matters for consideration in making recommendations" in paragraph C when conducting the investigation and making the recommendations under paragraph B.

C Matters for consideration in making recommendations

(1.1) The Authority is to apply the Principles in Schedule 2 in recommending appropriate prices under this Notice. However, where the Authority is recommending appropriate prices that include dam safety upgrade capital expenditure under paragraph B(1.2) or for alternative tariff groups under paragraph B(1.5), the Authority may apply the Principles in Schedule 2 as it considers appropriate.

(1.2) The Authority is to consider the following matters in relation to costs and in recommending appropriate prices under this Notice:

(a) Subject to paragraphs C(1.1), C(1.3) and C(1.7) the following costs are to be recovered over the price path period,:

i. prudent and efficient operational, maintenance and administrative costs[2] (for clarity, this may include an end-of-period adjustment relating to historical costs that were unforeseen and unable to be managed, on the basis of changing market conditions for inputs or the result of regulatory imposts, and in accordance with the Authority's recommendations from its May 2012[3] and April 2013[4] reports); and

ii. an appropriate allowance for prudent and efficient expenditure on renewing existing assets[5] (for clarity, this allowance should also account for prudent and efficient renewals expenditure incurred in the previous price path periods).

(b) For the avoidance of doubt, costs recovered under paragraph C(1.2)(a) are to include the following:

i. costs incurred by the businesses to implement the 2015 recommendations made by the Inspector-General Emergency Management;

ii. costs that are required to meet regulatory obligations or deliver agreed service levels, where costs to deliver agreed service levels are not materially higher than the costs of like-for-like replacement or modern equivalent replacement; and

iii. regulatory fees charged by the Authority to the businesses to make the recommendations under this Notice up to $2.5 million. For clarity, the Authority should detail the total cost incurred by the Authority in making the recommendations under this Notice.

(c) for clarity, the value of the asset base for existing assets (as at 1 July 2000) should not be considered.

(1.3) Costs associated with the provision of recreation facilities that are incurred by the businesses from 1 July 2020 onwards that would not otherwise be incurred to supply water, are not to be included, unless the Authority is satisfied that there is customer support for these costs to remain included.

(1.4) Subject to paragraphs C(1.1) and C(1.2) (above), the Authority should have regard to:

(a) balancing the legitimate commercial interests of the businesses with the interests of their customers, including considering less than cost reflective volumetric prices which are necessary to moderate bill impacts for customers, and

(b) ensuring, where possible, that revenue and pricing outcomes are both simple and transparent for customers.

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[2] Including an allowance for tax (where applicable).

[3] Final Report, SunWater Irrigation Price Review 2012-17, Volume 1.

[4] Final Report, Seqwater Irrigation Price Review 2013-17, Volume 1.

[5] Existing assets are assets commissioned prior to 1 July 2000. Expenditure on renewing assets should not include costs associated with augmentation of existing assets or new assets, subject to paragraph C(1.7).

(1.5) Where the Authority considers that it has been demonstrated that customers have agreed to the costs and/or prices proposed by the businesses and the Authority considers that the proposed prices are in line with the requirements of this Notice, the Authority must have regard to these agreements in recommending appropriate prices.

(1.6) Where relevant, the findings of the Authority's investigation of Seqwater's bulk water prices for the 2018-21 period should be taken into account in recommending appropriate prices.

(1.7) For the purposes of this Notice, the recommended appropriate prices should not recover costs associated with augmentation of existing assets, new assets[6] or any capital expenditure which is not like-for-like or modern equivalent replacement or does not reflect a regulatory requirement unless the Authority is satisfied that the costs will generate net positive benefits for existing customers and customers have been consulted. Where the Authority is not so satisfied, prices to recover these costs are a commercial matter for the businesses to negotiate with customers.

(1.8) The Authority should consider and analyse how its recommended appropriate prices might be reflected in customer bills for each tariff group in all WSS (excluding drainage prices, water harvesting prices and termination fees) and provide this analysis and estimated customer bills as part of its recommendations.

D. Consultation

The Authority must undertake an open consultation process with all relevant parties, as required by section 25 of the Act, and consider submissions within the timetable for the delivery of the Final Report to the Treasurer detailed in paragraph E. All reports and submissions must be made publicly available, including on the Authority's website.

E. Timing

(1.1) The notice given and published by the Authority under section 25 of the Act on receipt of this Referral and Direction Notice, must require submissions on proposed costs (and supporting information) to be made to the Authority by the businesses by no later than 30 November 2018.

(1.2) The Authority must provide to the Treasurer and the Minister for Natural Resources, Mines and Energy the:
(a) Draft Report by no later than 31 August 2019; and
(b) Final Report and recommended price paths by no later than 31 January 2020.

(1.3) The Final Report will inform the Treasurer's and Minister for Natural Resources, Mines and Energy's deliberations in determining price paths to apply for the period from 1 July 2020 to 30 June 2024 by direction under section 999 of the *Water Act 2000* in relation to SunWater and under section 1013D of the *Water Act 2000* in relation to Seqwater.

[6] New assets are assets commissioned after 1 July 2000.

F. Other matters

(1.1) For the avoidance of doubt, nothing in this Notice prevents the businesses from negotiating full commercial prices to supply water other than for the monopoly business activities described in paragraph A(1.2).

(1.2) The Authority may exercise all the powers under Part 6 of the *Queensland Competition Authority Act 1997* in undertaking the investigation under this Notice.

HON. JACKIE TRAD MP
DEPUTY PREMIER
Treasurer
Minister for Aboriginal and Torres Strait Islander Partnerships

Schedule 1

Water Supply Schemes operated by SunWater

Barker Barambah
Bowen Broken Rivers
Boyne River and Tarong
Bundaberg
Burdekin-Haughton
Callide Valley
Chinchilla Weir
Cunnamulla
Dawson Valley
Eton
Lower Mary
Lower Fitzroy
Macintyre Brook
Maranoa River
Mareeba-Dimbulah
Nogoa-Mackenzie
Pioneer River
Proserpine River
St George
Three Moon Creek
Upper Burnett
Upper Condamine

Distribution Systems operated by SunWater
Bundaberg
Burdekin-Haughton
Eton
Emerald
Lower Mary
Mareeba-Dimbulah
Theodore

Water Supply Schemes operated by Seqwater
Cedar Pocket
Central Brisbane River
Central Lockyer Valley
Logan River
Lower Lockyer Valley
Mary Valley
Warrill Valley

Distribution Systems operated by Seqwater
Morton Vale Pipeline
Pie Creek

Note: Where the Authority is advised before publication of its Draft Report that final agreement has been reached on the terms to transfer operation of a distribution system owned by SunWater to a local customer owned company or co-operative, then the Authority is not to provide prices to recover the cost of the infrastructure for this distribution system.

Schedule 2

Principles

A. Prices are to be based on all tariff groups transitioning to cost-reflective prices. Cost-reflective prices reflect the costs in paragraph C(1.2) and increase by the Authority's measure of inflation over the price path period.

B. In considering tariff structures, regard should be had to the fixed and variable nature of the underlying costs.

C. Fixed (Part A and Part C) prices are to be derived independently of Volumetric (Part B and Part D) prices.

D. For water supply schemes where the only fixed price applicable is the Fixed (Part A) price:
   i. if the prevailing[7] Fixed (Part A) price is above the initial[8] cost-reflective Fixed (Part A) price, the prevailing Fixed (Part A) price should be maintained in nominal terms over the price path period until the cost-reflective Fixed (Part A) price is reached, with the exception of Fixed (Part A) prices which apply to customers of a distribution system operated by a local customer owned company or co-operative, in which case the Fixed (Part A) price should be reduced to the cost-reflective Fixed (Part A) price.
   ii. if the prevailing Fixed (Part A) price is less than the initial cost-reflective Fixed (Part A) price, the prevailing Fixed (Part A) price should increase each year by the Authority's measure of inflation plus an additional component of $2.38 per mega litre (from 2020-21, increasing by the Authority's measure of inflation each year) until the cost-reflective Fixed (Part A) price is reached[9].

E. For distribution systems where Fixed (Part A) and Fixed (Part C) prices are applicable:
   i. if the prevailing Fixed (Part A) price is above the initial cost-reflective Fixed (Part A) price, the prevailing Fixed (Part A) price should be reduced to the cost-reflective Fixed (Part A) price.
   ii. if the prevailing Fixed (Part A) price is less than the initial cost-reflective Fixed (Part A) price, the prevailing Fixed (Part A) price should increase each year by the Authority's measure of inflation plus an additional component of $2.38 per mega litre (from 2020-21, increasing by the Authority's measure of inflation each year) until the cost-reflective Fixed (Part A) price is reached[10].
   iii. if the prevailing total Fixed (Part A + Part C) price is above the initial total cost-reflective Fixed (Part A + Part C) price, the prevailing total Fixed (Part A + Part C) price should be maintained in nominal terms over the price path period until the total cost-reflective Fixed (Part A + Part C) price is reached.

[7] The prevailing price for a particular tariff group is the price that relates to the 2019-20 period.
[8] The initial cost-reflective price for a particular tariff group is the price that relates to the 2020-21 period.
[9] The additional component may be less than specified in paragraph Dii in order for the price not to exceed the cost-reflective Fixed (Part A) price.
[10] The additional component may be less than specified in paragraph Eii in order for the price not to exceed the cost-reflective Fixed (Part A) price.

iv. if the prevailing total Fixed (Part A + Part C) price is less than the initial total cost-reflective Fixed (Part A + Part C) price, the prevailing total Fixed (Part A + Part C) price should increase each year by the Authority's measure of inflation plus an additional component of $2.38 per mega litre (from 2020-21, increasing by the Authority's measure of inflation each year) until the total cost-reflective Fixed (Part A + Part C) price is reached[11].

F. Volumetric prices (Part B and Part D) should have regard to moving to cost-reflective Volumetric prices (Part B and Part D) immediately.

G. For the Burdekin-Haughton WSS, the costs of SunWater supplying 185,000 ML to Lower Burdekin Water are not to be recovered from the prices applying to the remaining water entitlements.

H. For the Central Brisbane River WSS, where cost allocations are reapportioned as anticipated in the Final Report, Seqwater Irrigation Price Review 2013-17, Volume 2, Central Brisbane River Water Supply Scheme, or as an outcome of wider cost allocation investigations with customers, the Fixed (Part A) price for the commencement of the price path period may be less than the prevailing Fixed (Part A) price.

Schedule 3 – Categories of prices to be reviewed

Part A and Part B prices for the Dawson Valley WSS
Part A and Part B prices for the Three Moon Creek WSS
Part A and Part B prices for the St George WSS

[11] The additional component may be less than specified in paragraph Eiv in order for the price not to exceed the cost-reflective Fixed (Part A + Part C) price.

APPENDIX B: DRAFT RECOMMENDED PRICES

Table 125 below summarises the existing 2019–20 price, the 2020–21 cost-reflective price (consistent with the Government's lower bound target), and our draft recommended prices for Sunwater's bulk WSSs. Prices are excluding dam safety upgrade unless otherwise stated.

Table 125 Draft recommended prices—bulk WSSs ($/ML, nominal)

Bulk WSS	*Price*	*2019–20 existing*	*2020–21 lower bound*	*2020–21 QCA draft*	*2021–22 QCA draft*	*2022–23 QCA draft*	*2023–24 QCA draft*
Barker Barambah - River	Part A	25.93	50.68	28.92	32.05	35.30	38.69
	Part B	4.60	4.25	4.25	4.35	4.46	4.56
Barker Barambah - Redgate Relift	Part A	25.93	50.93	28.92	32.05	35.30	38.69
	Part B	22.56	52.73	23.09	23.64	24.20	24.78
Bowen Broken Rivers	Part A	12.50	6.52	12.50	12.50	12.50	12.50
	Part B	6.95	6.41	6.41	6.56	6.72	6.87
Boyne River and Tarong	Part A	28.58	10.10	28.58	28.58	28.58	28.58
	Part B	1.77	2.14	1.81	1.85	1.90	1.94
Bundaberg	Part A	13.06	13.89	13.89	14.22	14.56	14.90
	Part B	1.31	1.19	1.19	1.22	1.25	1.28
Burdekin - Haughton	Part A	12.71	3.623	12.71	12.71	12.71	12.71
	Part B	0.54	0.31	0.31	0.32	0.33	0.33
Callide - Callide and Kroombit Creek	Part A	18.50	87.33	21.32	24.26	27.33	30.53
	Part B	8.84	7.57	7.57	7.75	7.93	8.12
Callide - Benefited Groundwater Area	Part A	18.50	87.33	21.32	24.26	27.33	30.53
	Part B	8.84	7.57	7.57	7.75	7.93	8.12
Chinchilla Weir	Part A	30.17	19.06	30.17	30.17	30.17	30.17
	Part B	3.45	3.81	3.53	3.62	3.70	3.79
Cunnamulla Weir	Part A	31.75	32.03	32.03	32.79	33.57	34.36
	Part B	3.58	1.89	1.89	1.94	1.98	2.03
Dawson Valley - River (medium priority river customers) (pricing option 1)	Part A	18.04	20.69	20.69	21.18	21.69	22.20
	Part B	2.01	1.59	1.59	1.63	1.67	1.71
Dawson Valley - River at Glebe Weir (pricing option 1)	Part A	16.18	20.69	18.94	21.18	21.69	22.20
	Part B	2.01	1.59	1.59	1.63	1.67	1.71
Dawson Valley - Alternate tariff group (pricing option 2)	Part A	n.a.	20.69	20.69	21.18	21.69	22.20
	Part B	n.a.	1.59	1.59	1.63	1.67	1.71

Bulk WSS	***Price***	***2019–20 existing***	***2020–21 lower bound***	***2020–21 QCA draft***	***2021–22 QCA draft***	***2022–23 QCA draft***	***2023–24 QCA draft***
Dawson Valley - River (medium priority local management supply)	Part A	13.98	20.69	16.69	19.52	21.69	22.20
	Part B	2.01	1.59	1.59	1.63	1.67	1.71
Dawson Valley - River (high priority local management supply)	Part A	42.77	108.51	46.16	49.69	53.37	57.18
	Part B	2.01	1.59	1.59	1.63	1.67	1.71
Eton (medium priority)	Part A	31.36	32.65	32.65	33.42	34.21	35.02
	Part B	4.05	4.09	4.09	4.18	4.28	4.39
Eton (high priority local management supply)	Part A	117.49	122.22	122.22	125.11	128.08	131.11
	Part B	4.05	4.09	4.09	4.18	4.28	4.39
Lower Fitzroy	Part A	13.55	11.50	13.55	13.55	13.55	13.55
	Part B	1.41	0.97	0.97	0.99	1.01	1.04
Lower Mary - Mary Barrage	Part A	15.10	5.86	15.10	15.10	15.10	15.10
	Part B	1.98	1.01	1.01	1.04	1.06	1.09
Lower Mary - Tinana & Teddington	Part A	24.83	12.57	24.83	24.83	24.83	24.83
	Part B	9.51	23.80	9.74	9.97	10.20	10.44
Macintyre Brook (pricing option 1)	Part A	48.62	60.29	52.15	55.82	59.64	63.61
	Part B	4.54	4.23	4.23	4.33	4.43	4.54
Macintyre Brook including dam safety (pricing option 2)	Part A	48.62	61.63	52.15	55.82	59.64	63.61
	Part B	4.54	4.23	4.23	4.33	4.43	4.54
Maranoa River	Part A	53.17	90.83	56.81	60.59	64.52	68.61
	Part B	65.01	75.42	66.55	68.13	69.74	71.40
Mareeba - Dimbulah - River Tinaroo/Barron	Part A	15.87	5.30	15.87	15.87	15.87	15.87
	Part B	0.59	0.64	0.60	0.62	0.63	0.65
Nogoa Mackenzie (medium priority) (pricing option 1)	Part A	12.22	6.37	12.22	12.22	12.22	12.22
	Part B	1.32	0.82	0.82	0.84	0.86	0.88
Nogoa Mackenzie (medium priority) including dam safety (pricing option 2)	Part A	12.22	7.42	12.22	12.22	12.22	12.22
	Part B	1.32	0.82	0.82	0.84	0.86	0.88
Nogoa Mackenzie (high priority) (pricing option 1)	Part A	28.88	44.69	31.94	35.14	38.46	41.93
	Part B	1.32	0.82	0.82	0.84	0.86	0.88
Nogoa Mackenzie (high priority) including dam safety (pricing option 2)	Part A	28.88	55.51	31.94	35.14	38.46	41.93
	Part B	1.32	0.82	0.82	0.84	0.86	0.88
	Part A	8.84	6.37	6.37	6.53	6.68	6.84

Bulk WSS	*Price*	*2019–20 existing*	*2020–21 lower bound*	*2020–21 QCA draft*	*2021–22 QCA draft*	*2022–23 QCA draft*	*2023–24 QCA draft*
Nogoa Mackenzie (medium priority local management supply) (pricing option 1)	Part B	1.32	0.82	0.82	0.84	0.86	0.88
Nogoa Mackenzie (medium priority local management supply) including dam safety (pricing option 2)	Part A	8.84	7.42	7.42	7.60	7.78	7.96
	Part B	1.32	0.82	0.82	0.84	0.86	0.88
Nogoa Mackenzie (high priority local management supply) (pricing option 1)	Part A	28.88	44.69	31.94	35.14	38.46	41.93
	Part B	1.32	0.82	0.82	0.84	0.86	0.88
Nogoa Mackenzie (high priority local management supply) including dam safety (pricing option 2)	Part A	28.88	55.51	31.94	35.14	38.46	41.93
	Part B	1.32	0.82	0.82	0.84	0.86	0.88
Pioneer River (pricing option 1)	Part A	14.81	19.55	17.54	20.02	20.49	20.98
	Part B	3.13	3.78	3.78	3.87	3.96	4.05
Pioneer River including dam safety (pricing option 2)	Part A	14.81	20.01	17.54	20.39	20.97	21.46
	Part B	3.13	3.78	3.78	3.87	3.96	4.05
Proserpine River	Part A	13.26	16.36	15.95	16.74	17.14	17.55
	Part B	3.02	3.63	3.63	3.72	3.81	3.90
Proserpine River: Kelsey Creek Water Board	Part A	12.14	16.36	14.81	16.74	17.14	17.55
	Part B	3.02	3.63	3.63	3.72	3.81	3.90
St George - Beardmore Dam or Balonne River (medium priority river customers) (pricing option 1)	Part A	21.91	20.08	21.91	21.91	21.91	21.91
	Part B	1.38	1.11	1.11	1.14	1.16	1.19
St George - Thuraggi Watercourse (medium priority river customers) (pricing option 1)	Part A	21.91	20.08	21.91	21.91	21.91	21.91
	Part B	1.38	1.11	1.11	1.14	1.16	1.19
St George - Alternate tariff group (pricing option 2)	Part A	n.a.	20.08	21.91	21.91	21.91	21.91
	Part B	n.a.	1.11	1.11	1.14	1.16	1.19
St George (medium priority local management supply)	Part A	20.86	20.08	20.08	20.55	21.04	21.54
	Part B	1.38	1.11	1.11	1.14	1.16	1.19
	Part A	29.04	32.50	32.11	33.27	34.06	34.86

Bulk WSS	***Price***	***2019–20 existing***	***2020–21 lower bound***	***2020–21 QCA draft***	***2021–22 QCA draft***	***2022–23 QCA draft***	***2023–24 QCA draft***
St George (high priority local management supply)	Part B	1.38	1.11	1.11	1.14	1.16	1.19
Three Moon Creek - River (pricing option 1)	Part A	32.43	47.63	35.58	38.86	42.27	45.83
	Part B	4.78	5.90	5.90	6.04	6.18	6.33
Three Moon Creek - Groundwater (pricing option 1)	Part A	23.58	47.63	26.52	29.58	32.78	36.11
	Part B	4.78	5.90	5.90	6.04	6.18	6.33
Three Moon Creek - Alternate tariff group (pricing option 2)	Part A	n.a.	47.63	27.75	30.84	34.07	37.43
	Part B	n.a.	5.90	5.90	6.04	6.18	6.33
Upper Burnett - Regulated Section of the Nogo/Burnett River	Part A	30.58	40.30	33.68	36.92	40.29	43.23
	Part B	4.08	4.30	4.30	4.41	4.51	4.62
Upper Burnett - John Goleby Weir	Part A	28.96	40.30	32.03	35.22	38.55	42.02
	Part B	4.08	4.30	4.30	4.41	4.51	4.62
Upper Condamine - Sandy Creek or Condamine River (pricing option 1)	Part A	34.03	16.27	34.03	34.03	34.03	34.03
	Part B	5.57	5.45	5.45	5.58	5.71	5.84
Upper Condamine - Sandy Creek or Condamine River including dam safety (pricing option 2)	Part A	34.03	17.04	34.03	34.03	34.03	34.03
	Part B	5.57	5.45	5.45	5.58	5.71	5.84
Upper Condamine - North Branch (pricing option 1)	Part A	47.64	16.34	47.64	47.64	47.64	47.64
	Part B	15.19	18.04	15.55	15.92	16.30	16.68
Upper Condamine - North Branch including dam safety (pricing option 2)	Part A	47.64	17.11	47.64	47.64	47.64	47.64
	Part B	15.19	18.04	15.55	15.92	16.30	16.68
Upper Condamine - North Branch - Risk A (pricing option 1)	Part A	13.44	13.88	13.88	14.21	14.55	14.90
	Part B	15.19	18.04	18.04	18.46	18.90	19.35
Upper Condamine - North Branch - Risk A including dam safety (pricing option 2)	Part A	13.44	14.65	14.65	15.00	15.36	15.72
	Part B	15.19	18.04	18.04	18.46	18.90	19.35

Source: QCA analysis. Notes: The fixed price is the Part A charge, and the volumetric price is the Part B charge. Tariff groups are medium priority (MP) WAE.

Table 126 summarises the existing 2019–20 price, the 2020–21 cost-reflective price (consistent with the Government's lower bound target), and our draft recommended prices for Sunwater's distribution systems.

Table 126 Draft recommended prices—distribution systems($/ML, nominal)

Distribution system	*Price*	*2019–20 existing*	*2020–21 lower bound*	*2020–21 QCA draft*	*2021–22 QCA draft*	*2022–23 QCA draft*	*2023–24 QCA draft*
Bundaberg channel	Part A	7.54	13.89	10.10	12.77	14.56	14.90
	Part B	1.31	1.19	1.19	1.22	1.25	1.28
	Part C	45.08	68.21	46.15	47.24	49.37	53.10
	Part D	58.94	51.00	51.00	52.21	53.45	54.71
	Total fixed	**52.62**	**82.10**	**56.25**	**60.02**	**63.93**	**68.00**
	Volumetric	**60.25**	**52.19**	**52.19**	**53.43**	**54.70**	**55.99**
Burdekin channel	Part A	3.49	3.62	3.62	3.71	3.80	3.89
	Part B	0.54	0.31	0.31	0.32	0.33	0.33
	Part C	39.10	41.45	41.45	42.44	43.44	44.47
	Part D	29.60	22.02	22.02	22.55	23.08	23.63
	Total fixed	**42.59**	**45.08**	**45.08**	**46.15**	**47.24**	**48.36**
	Volumetric	**30.14**	**22.34**	**22.34**	**22.86**	**23.41**	**23.96**
Burdekin - Giru Groundwater	Part A	3.49	3.62	3.62	3.71	3.80	3.89
	Part B	0.54	0.31	0.31	0.32	0.33	0.33
	Part C	17.86	41.45	20.61	23.54	26.59	29.77
	Part D	14.82	22.02	15.41	15.78	16.15	16.54
	Total fixed	**21.35**	**45.08**	**24.24**	**27.25**	**30.39**	**33.66**
	Volumetric	**15.36**	**22.34**	**15.72**	**16.10**	**16.48**	**16.87**
Burdekin - Glady's Lagoon (other than Natural Yield)	Part A	3.49	3.62	3.62	3.71	3.80	3.89
	Part B	0.54	0.31	0.31	0.32	0.33	0.33
	Part C	39.10	41.45	41.45	42.44	43.44	44.47
	Part D	29.60	22.02	22.02	22.55	23.08	23.63
	Total fixed	**42.59**	**45.08**	**45.08**	**46.15**	**47.24**	**48.36**
	Volumetric	**30.14**	**22.34**	**22.34**	**22.86**	**23.41**	**23.96**
Eton	Part A	31.36	32.65	32.65	33.42	34.21	35.02
	Part B	4.05	4.09	4.09	4.18	4.28	4.39
	Part C	38.40	67.18	41.15	44.56	48.11	51.80
	Part D	33.63	34.38	34.38	35.20	36.03	36.89
	Total fixed	**69.76**	**99.83**	**73.79**	**77.98**	**82.32**	**86.83**
	Volumetric	**37.68**	**38.47**	**38.47**	**39.38**	**40.32**	**41.27**

Distribution system	*Price*	*2019–20 existing*	*2020–21 lower bound*	*2020–21 QCA draft*	*2021–22 QCA draft*	*2022–23 QCA draft*	*2023–24 QCA draft*
Lower Mary channel	Part A	7.31	5.86	5.86	6.00	6.14	6.29
	Part B	1.98	1.01	1.01	1.04	1.06	1.09
	Part C	47.00	62.45	52.12	55.79	59.61	63.57
	Part D	70.27	71.13	71.13	72.82	74.55	76.31
	Total fixed	**54.31**	**68.30**	**57.98**	**61.79**	**65.75**	**69.86**
	Volumetric	**72.25**	**72.15**	**72.15**	**73.86**	**75.61**	**77.40**
Mareeba-Dimbulah - outside a relift up to 100ML	Part A	3.45	5.30	5.30	5.43	5.55	5.69
	Part B	0.59	0.64	0.64	0.65	0.67	0.69
	Part C	51.82	50.97	50.97	52.30	53.67	55.06
	Part D	8.27	5.88	5.88	6.02	6.16	6.31
	Total fixed	**55.27**	**56.27**	**56.27**	**57.73**	**59.22**	**60.75**
	Volumetric	**8.86**	**6.52**	**6.52**	**6.67**	**6.83**	**6.99**
Mareeba-Dimbulah - outside a relift 100ML to 500ML	Part A	3.45	5.30	5.30	5.43	5.55	5.69
	Part B	0.59	0.64	0.64	0.65	0.67	0.69
	Part C	45.27	44.89	44.89	46.08	47.29	48.53
	Part D	8.27	5.88	5.88	6.02	6.16	6.31
	Total fixed	**48.72**	**50.19**	**50.19**	**51.50**	**52.85**	**54.22**
	Volumetric	**8.86**	**6.52**	**6.52**	**6.67**	**6.83**	**6.99**
Mareeba-Dimbulah - outside a relift over 500ML	Part A	3.45	5.30	5.30	5.43	5.55	5.69
	Part B	0.59	0.64	0.64	0.65	0.67	0.69
	Part C	34.33	34.73	34.73	35.67	36.64	37.63
	Part D	8.27	5.88	5.88	6.02	6.16	6.31
	Total fixed	**37.78**	**40.03**	**40.03**	**41.10**	**42.20**	**43.32**
	Volumetric	**8.86**	**6.52**	**6.52**	**6.67**	**6.83**	**6.99**
Mareeba-Dimbulah - river sup. Streams & Walsh River	Part A	3.45	5.30	5.30	5.43	5.55	5.69
	Part B	0.59	0.64	0.64	0.65	0.67	0.69
	Part C	23.40	24.19	24.19	24.76	25.35	25.95
	Part D	4.73	3.53	3.53	3.61	3.70	3.78
	Total fixed	**26.85**	**29.49**	**29.49**	**30.19**	**30.91**	**31.64**
	Volumetric	**5.32**	**4.17**	**4.17**	**4.26**	**4.37**	**4.47**

Distribution system	***Price***	***2019–20 existing***	***2020–21 lower bound***	***2020–21 QCA draft***	***2021–22 QCA draft***	***2022–23 QCA draft***	***2023–24 QCA draft***
Mareeba-Dimbulah - relift	Part A	3.45	5.30	5.30	5.43	5.55	5.69
	Part B	0.59	0.64	0.64	0.65	0.67	0.69
	Part C	39.33	52.91	40.87	44.28	47.82	51.51
	Part D	86.22	85.87	85.87	87.90	89.99	92.12
	Total fixed	42.78	58.21	46.17	49.70	53.38	57.20
	Volumetric	86.81	86.51	86.51	88.56	90.66	92.81

Source: QCA analysis. Notes: The fixed prices are the Part A and Part C charges, and the volumetric prices are the Part B and Part D charges. Tariff groups are medium priority (MP) WAE.

APPENDIX C: REVENUE REQUIREMENT BY SCHEME/SYSTEM

Barker Barambah WSS

Table 127 Total whole of scheme costs, Barker Barambah WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	247.4	252.9	259.0	265.5
Operations—non-direct	277.4	283.6	290.3	297.4
Electricity	38.5	42.1	45.7	45.4
Insurance	233.6	238.7	243.9	249.2
IGEM costs	91.4	93.4	95.6	98.0
Maintenance—direct	57.6	58.9	60.3	61.8
Maintenance—non-direct	66.6	68.0	69.6	71.4
Renewals annuity	1,087.0	1,150.1	1,500.9	1,510.7
Revenue offsets	(3.1)	(3.2)	(3.3)	(3.4)
QCA regulatory fee	14.0	14.3	14.6	15.0
Total costs	**2,110.2**	**2,198.8**	**2,576.8**	**2,611.0**

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

Table 128 Draft recommended prices for irrigation customers, Barker Barambah WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
1. Redgate Relift					
Fixed (Part A)	25.93	28.92	32.05	35.30	38.69
Volumetric (Part B)	22.56	23.09	23.64	24.20	24.78
2. Regulated					
Fixed (Part A)	25.93	28.92	32.05	35.30	38.69
Volumetric (Part B)	4.60	4.25	4.35	4.46	4.56

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 129 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1. Redgate Relift					
100 ML WAE	3,410	3,729	4,767	9	40
500 ML WAE	17,051	18,645	23,833	9	40
1,000 ML WAE	34,102	37,291	47,665	9	40

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
2. Regulated					
100 ML WAE	2,760	3,047	4,034	10	46
500 ML WAE	13,798	15,233	20,171	10	46
1,000 ML WAE	27,596	30,465	40,343	10	46

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 130 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
1. Redgate Relift		
0	11.5	49.2
25	9.9	42.2
50	8.8	37.3
75	7.9	33.7
100	7.3	30.9
2. Regulated		
0	11.5	49.2
25	10.7	47.1
50	10.0	45.1
75	9.3	43.3
100	8.7	41.7

Bowen Broken Rivers WSS

Table 131 Total whole of scheme costs, Bowen Broken Rivers WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	264.1	270.0	276.5	283.3
Operations—non-direct	262.4	268.3	274.6	281.4
Electricity	176.9	255.9	278.2	276.0
Insurance	164.3	167.8	171.5	175.2
IGEM costs	79.5	81.3	83.2	85.2
Maintenance—direct	192.3	196.5	201.1	205.9
Maintenance—non-direct	105.7	108.1	110.6	113.4
Renewals annuity	851.8	856.0	863.0	874.2
Revenue offsets	-	-	-	-
QCA regulatory fee	2.5	2.6	2.6	2.7
Total costs	2,099.5	2,206.6	2,261.4	2,297.3

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

Table 132 Draft recommended prices for irrigation customers, Bowen Broken WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Fixed (Part A)	12.50	12.50	12.50	12.50	12.50
Volumetric (Part B)	6.95	6.41	6.56	6.72	6.87

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 133 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
100 ML WAE	1,339	1,332	1,338	(1)	(0)
500 ML WAE	6,695	6,660	6,690	(1)	(0)
1,000 ML WAE	13,390	13,320	13,380	(1)	(0)

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 134 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
0	-	-
25	(1.0)	(0.1)
50	(1.7)	(0.2)
75	(2.3)	(0.3)
100	(2.8)	(0.4)

Boyne River and Tarong WSS

Table 135 Total whole of scheme costs, Boyne River and Tarong WSS ($ '000s, nominal)

Cost	2020–21	2021–22	2022–23	2023–24
Operations—direct	214.2	219.0	224.2	229.7
Operations—non-direct	191.0	195.3	199.9	204.8
Electricity	-	-	-	-
Insurance	351.1	358.7	366.5	374.5
IGEM costs	72.8	74.5	76.2	78.1
Maintenance—direct	44.7	45.7	46.8	48.0
Maintenance—non-direct	38.8	39.7	40.6	41.6
Renewals annuity	637.7	640.5	642.8	674.2
Revenue offsets	(1.0)	(1.1)	(1.1)	(1.1)
QCA regulatory fee	4.1	4.2	4.3	4.4
Total costs	**1,553.4**	**1,576.5**	**1,600.3**	**1,654.1**

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

Table 136 Draft recommended irrigation prices, Boyne River and Tarong WSS ($/ML, nominal)

Tariff group	2019–20 (current)	2020–21	2021–22	2022–23	2023–24
Fixed (Part A)	28.58	28.58	28.58	28.58	28.58
Volumetric (Part B)	1.77	1.81	1.85	1.90	1.94

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 137 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	2019–20 (current)	2020–21	2023–24	Change 2019–20 to 2020–21 (%)	Change 2019–20 to 2023–24 (%)
100 ML WAE	2,930	2,931	2,937	0	0
500 ML WAE	14,649	14,657	14,684	0	0
1,000 ML WAE	29,298	29,315	29,368	0	0

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 138 Change in water bill (%)

Water use as portion of entitlement held (%)	Water bill change from 2019–20 to 2020–21	Water bill change from 2019–20 to 2023–24
0	-	-
25	0.0	0.1
50	0.1	0.3
75	0.1	0.4
100	0.1	0.6

Bundaberg WSS

Table 139 Total whole of scheme costs, Bundaberg ($ '000s, nominal)

Cost	2020–21	2021–22	2022–23	2023–24
Operations—direct	352.9	360.9	369.7	379.1
Operations—non-direct	433.0	442.7	453.1	464.2
Electricity	8.8	9.1	9.9	9.8
Insurance	290.2	296.5	302.9	309.5
IGEM costs	78.3	80.1	82.0	84.0
Maintenance—direct	158.0	161.6	165.5	169.6
Maintenance—non-direct	175.6	179.5	183.8	188.3
Renewals annuity	3,097.1	3,119.1	3,146.1	3,182.6
Revenue offsets	(7.3)	(7.5)	(7.7)	(7.8)
QCA regulatory fee	82.5	84.5	86.5	88.5
Total costs	**4,669.2**	**4,726.4**	**4,791.6**	**4,867.9**
Costs transferred from Bundaberg distribution system	45.6	49.7	52.3	52.8
Total costs to be allocated to tariff groups	**4,714.8**	**4,776.1**	**4,844.0**	**4,920.5**

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

Table 140 Draft recommended prices for irrigation customers, Bundaberg WSS ($/ML, nominal)

Tariff group	2019–20 (current)	2020–21	2021–22	2022–23	2023–24
Fixed (Part A)	13.06	13.89	14.22	14.56	14.90
Volumetric (Part B)	1.31	1.19	1.22	1.25	1.28

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 141 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	2019–20 (current)	2020–21	2023–24	Change 2019–20 to 2020–21 (%)	Change 2019–20 to 2023–24 (%)
100 ML WAE	1,367	1,444	1,550	6	13
500 ML WAE	6,833	7,222	7,748	6	13
1,000 ML WAE	13,666	14,444	15,496	6	13

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 142 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
0	6.4	14.1
25	6.0	13.7
50	5.6	13.3
75	5.3	13.0
100	5.0	12.6

Burdekin-Haughton WSS

Table 143 Total whole of scheme costs, Burdekin¬Haughton WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	536.1	548.1	561.2	575.1
Operations—non-direct	616.6	630.4	645.2	661.0
Electricity	122.9	111.3	121.0	120.0
Insurance	878.4	897.4	916.9	936.8
IGEM costs	109.7	112.1	114.8	117.6
Maintenance—direct	384.6	393.1	402.3	411.9
Maintenance—non-direct	250.9	256.5	262.5	269.0
Renewals annuity	1,121.1	1,154.1	1,229.1	1,324.3
Revenue offsets	-	-	-	-
QCA regulatory fee	200.3	205.0	209.9	214.8
Total costs	4,220.5	4,308.0	4,462.8	4,630.5

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

Table 144 Draft recommended prices for irrigation customers, Burdekin¬Haughton ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Fixed (Part A)	12.71	12.71	12.71	12.71	12.71
Volumetric (Part B)	0.54	0.31	0.32	0.33	0.33

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 145 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
100 ML WAE	1,306	1,291	1,293	(1)	(1)
500 ML WAE	6,532	6,457	6,464	(1)	(1)
1,000 ML WAE	13,064	12,914	12,929	(1)	(1)

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 146 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
0	-	-
25	(0.4)	(0.4)
50	(0.9)	(0.8)
75	(1.3)	(1.2)
100	(1.7)	(1.6)

Callide Valley WSS

Table 147 Total whole of scheme costs, Callide Valley WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	273.2	279.3	286.0	293.2
Operations—non-direct	304.3	311.1	318.5	326.3
Electricity	4.4	4.6	5.0	4.9
Insurance	366.2	374.2	382.3	390.6
IGEM costs	279.0	285.2	292.0	299.1
Maintenance—direct	176.8	180.8	185.2	189.9
Maintenance—non-direct	214.2	219.0	224.1	229.6
Renewals annuity	2,629.5	2,635.9	2,665.0	2,698.1
Revenue offsets	(2.1)	(2.1)	(2.2)	(2.2)
QCA regulatory fee	6.0	6.1	6.3	6.4
Total costs	**4,251.6**	**4,294.2**	**4,362.1**	**4,435.9**

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

Table 148 Draft recommended prices for irrigation customers, Callide Valley WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
1. Callide and Kroombit Creek					
Fixed (Part A)	18.50	21.32	24.26	27.33	30.53
Volumetric (Part B)	8.84	7.57	7.75	7.93	8.12
2. Benefited Groundwater Area					
Fixed (Part A)	18.50	21.32	24.26	27.33	30.53
Volumetric (Part B)	8.84	7.57	7.75	7.93	8.12

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 149 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1. Callide and Kroombit Creek					
100 ML WAE	2,336	2,548	3,499	9	50
500 ML WAE	11,681	12,740	17,497	9	50
1,000 ML WAE	23,362	25,480	34,994	9	50
2. Benefited Groundwater Area					
100 ML WAE	2,336	2,548	3,499	9	50
500 ML WAE	11,681	12,740	17,497	9	50
1,000 ML WAE	23,362	25,480	34,994	9	50

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 150 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
1. Callide and Kroombit Creek		
0	15.2	65.0
25	12.1	57.2
50	9.5	50.9
75	7.4	45.7
100	5.6	41.4
2. Benefited Groundwater Area		
0	15.2	65.0
25	12.1	57.2
50	9.5	50.9
75	7.4	45.7
100	5.6	41.4

Chinchilla Weir WSS

Table 151 Total whole of scheme costs, Chinchilla Weir WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	36.2	37.0	37.9	38.9
Operations—non-direct	42.8	43.8	44.8	45.9
Electricity	-	-	-	-
Insurance	15.2	15.5	15.9	16.2
IGEM costs	-	-	-	-
Maintenance—direct	6.8	7.0	7.2	7.3
Maintenance—non-direct	9.4	9.6	9.8	10.1
Renewals annuity	175.1	176.1	177.9	183.5
Revenue offsets	(1.0)	(1.1)	(1.1)	(1.1)
QCA regulatory fee	1.1	1.2	1.2	1.2
Total costs	**285.7**	**289.2**	**293.6**	**302.0**

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

Table 152 Draft recommended prices for irrigation customers, Chinchilla Weir WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Fixed (Part A)	30.17	30.17	30.17	30.17	30.17
Volumetric (Part B)	3.45	3.53	3.62	3.70	3.79

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 153 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
100 ML WAE	3,237	3,242	3,258	0	1
500 ML WAE	16,183	16,209	16,291	0	1
1,000 ML WAE	32,366	32,418	32,581	0	1

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 154 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
0	-	-
25	0.1	0.3
50	0.1	0.5
75	0.2	0.8
100	0.2	1.0

Cunnamulla

Table 155 Total whole of scheme costs, Cunnamulla WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	12.6	12.9	13.2	13.5
Operations—non-direct	21.2	21.6	22.1	22.7
Electricity	-	-	-	-
Insurance	5.5	5.6	5.7	5.9
IGEM costs	-	-	-	-
Maintenance—direct	1.9	1.9	2.0	2.0
Maintenance—non-direct	3.0	3.0	3.1	3.2
Renewals annuity	31.8	46.2	46.6	47.6
Revenue offsets	-	-	-	-
QCA regulatory fee	1.1	1.1	1.1	1.2
Total costs	**76.9**	**92.4**	**93.9**	**96.0**

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

Table 156 Draft recommended prices for irrigation customers, Cunnamulla WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Fixed (Part A)	31.75	32.03	32.79	33.57	34.36
Volumetric (Part B)	3.58	1.89	1.94	1.98	2.03

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 157 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
100 ML WAE	3,407	3,326	3,568	(2)	5
500 ML WAE	17,035	16,629	17,839	(2)	5
1,000 ML WAE	34,071	33,257	35,678	(2)	5

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 158 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
0	0.9	8.2
25	(0.4)	6.8
50	(1.7)	5.5
75	(2.9)	4.2
100	(4.0)	3.0

Dawson Valley WSS

Table 159 Total whole of scheme costs, Dawson Valley WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	210.9	215.6	220.9	226.6
Operations—non-direct	292.1	298.6	305.6	313.1
Electricity	49.6	51.5	55.9	55.5
Insurance	136.4	139.4	142.4	145.5
IGEM costs	71.2	72.8	74.5	76.3
Maintenance—direct	83.7	85.6	87.7	89.9
Maintenance—non-direct	98.5	100.7	103.1	105.6
Renewals annuity	851.8	888.9	917.6	934.8
Revenue offsets	(2.1)	(2.1)	(2.2)	(2.2)
QCA regulatory fee	24.6	25.2	25.8	26.4
Total costs	**1,816.8**	**1,876.2**	**1,931.4**	**1,971.6**

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

Table 160 Draft recommended prices for irrigation customers, Dawson Valley WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
1. Dawson Valley - River (medium priority river customers)					
Fixed (Part A)	18.04	20.69	21.18	21.69	22.20
Volumetric (Part B)	2.01	1.59	1.63	1.67	1.71
2. Dawson Valley - River (medium priority local management supply					
Fixed (Part A)	13.98	16.69	19.52	21.69	22.20
Volumetric (Part B)	2.01	1.59	1.63	1.67	1.71
3. Dawson Valley - River (high priority local management supply)					
Fixed (Part A)	42.77	46.16	49.69	53.37	57.18
Volumetric (Part B)	2.01	1.59	1.63	1.67	1.71
4. Dawson - River at Glebe Weir					
Fixed (Part A)	16.18	18.94	21.18	21.69	22.20
Volumetric (Part B)	2.01	1.59	1.63	1.67	1.71
5. Dawson – alternate tariff group					
Fixed (Part A)	n.a	20.69	21.18	21.69	22.20
Volumetric (Part B)	n.a	1.59	1.63	1.67	1.71

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 161 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1. Dawson Valley - River (medium priority river customers)					
100 ML WAE	1,905	2,149	2,306	13	21
500 ML WAE	9,523	10,746	11,528	13	21
1,000 ML WAE	19,046	21,492	23,056	13	21
2. Dawson Valley - River (medium priority local management supply					
100 ML WAE	1,499	1,749	2,306	17	54
500 ML WAE	7,493	8,745	11,528	17	54
1,000 ML WAE	14,986	17,489	23,056	17	54
3. Dawson Valley - River (high priority local management supply)					
100 ML WAE	4,378	4,696	5,804	7	33
500 ML WAE	21,888	23,481	29,020	7	33
1,000 ML WAE	43,776	46,961	58,040	7	33
4. Dawson - River at Glebe Weir					
100 ML WAE	1,719	1,974	2,306	15	34
500 ML WAE	8,593	9,871	11,528	15	34
1,000 ML WAE	17,186	19,741	23,056	15	34
5. Dawson – alternate tariff group from Dawson Valley - River (medium priority river customers)					
100 ML WAE	1,905	2,149	2,306	13	21
500 ML WAE	9,523	10,746	11,528	13	21
1,000 ML WAE	19,046	21,492	23,056	13	21
6. Dawson – alternate tariff group from Dawson - River at Glebe Weir					
100 ML WAE	1,719	2,149	2,306	25	34
500 ML WAE	8,593	10,746	11,528	25	34
1,000 ML WAE	17,186	21,492	23,056	25	34

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 162 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
1. Dawson Valley - River (medium priority river customers)		
0	14.7	23.1
25	13.8	22.0
50	12.8	21.1
75	12.0	20.1

100	11.2	19.3
2. Dawson Valley - River (medium priority local management supply		
0	19.4	58.8
25	18.0	56.2
50	16.7	53.9
75	15.5	51.6
100	14.4	49.5
3. Dawson Valley - River (high priority local management supply)		
0	7.9	33.7
25	7.6	33.1
50	7.3	32.6
75	7.0	32.0
100	6.7	31.5
4. Dawson - River at Glebe Weir		
0	17.1	37.2
25	15.9	35.6
50	14.9	34.2
75	13.9	32.8
100	12.9	31.4
5. Dawson – alternate tariff group from Dawson Valley - River (medium priority river customers)		
0	14.7	23.1
25	13.8	22.0
50	12.8	21.1
75	12.0	20.1
100	11.2	19.3
6. Dawson – alternate tariff group from Dawson - River at Glebe Weir		
0	27.9	37.2
25	26.4	35.6
50	25.1	34.2
75	23.8	32.8
100	22.5	31.4

Eton WSS

Table 163 Total whole of scheme costs, Eton WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	273.2	279.3	286.0	293.0
Operations—non-direct	266.3	272.3	278.7	285.5
Electricity	389.2	430.8	468.3	464.7
Insurance	216.1	220.8	225.6	230.5
IGEM costs	123.9	126.7	129.7	132.8
Maintenance—direct	250.5	256.1	262.1	268.4
Maintenance—non-direct	165.8	169.5	173.5	177.7
Renewals annuity	778.0	784.6	798.8	814.0
Revenue offsets	-	-	-	-
QCA regulatory fee	23.5	24.1	24.6	25.2
Total costs	2,486.6	2,564.1	2,647.3	2,692.0

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

Table 164 Draft recommended prices for irrigation customers, Eton WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
1. Eton (medium priority)					
Fixed (Part A)	31.36	32.65	33.42	34.21	35.02
Volumetric (Part B)	4.05	4.09	4.18	4.28	4.39
2. Eton (high priority local management supply)					
Fixed (Part A)	117.49	122.22	125.11	128.08	131.11
Volumetric (Part B)	4.05	4.09	4.18	4.28	4.39

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 165 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1. Eton (medium priority)					
100 ML WAE	3,265	3,395	3,642	4	12
500 ML WAE	16,324	16,974	18,210	4	12
1,000 ML WAE	32,649	33,948	36,419	4	12
2. Eton (high priority local management supply)					
100 ML WAE	11,878	12,352	13,251	4	12
500 ML WAE	59,389	61,759	66,254	4	12
1,000 ML WAE	118,779	123,517	132,509	4	12

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 166 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
1. Eton (medium priority)		
0	4.1	11.7
25	4.0	11.6
50	3.9	11.5
75	3.8	11.4
100	3.7	11.3
2. Eton (high priority local management supply)		
0	4.0	11.6
25	4.0	11.6
50	4.0	11.5
75	3.9	11.5
100	3.9	11.5

Lower Fitzroy WSS

Table 167 Total whole of scheme costs, Lower Fitzroy WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	73.2	74.8	76.6	78.5
Operations—non-direct	79.9	81.7	83.6	85.6
Electricity	1.8	1.8	2.0	2.0
Insurance	25.3	25.9	26.4	27.0
IGEM costs	-	-	-	-
Maintenance—direct	18.9	19.3	19.8	20.3
Maintenance—non-direct	22.6	23.1	23.6	24.2
Renewals annuity	135.7	135.8	137.3	146.1
Revenue offsets	-	-	-	-
QCA regulatory fee	1.4	1.4	1.4	1.5
Total costs	**358.7**	**363.8**	**370.8**	**385.3**

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

Table 168 Draft recommended prices for irrigation customers, Lower Fitzroy WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Fixed (Part A)	13.55	13.55	13.55	13.55	13.55
Volumetric (Part B)	1.41	0.97	0.99	1.01	1.04

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 169 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
100 ML WAE	1,360	1,358	1,359	(0)	(0)
500 ML WAE	6,799	6,792	6,793	(0)	(0)
1,000 ML WAE	13,599	13,584	13,586	(0)	(0)

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 170 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
0	-	-
25	(0.8)	(0.7)
50	(1.5)	(1.3)
75	(2.3)	(1.9)
100	(3.0)	(2.5)

Lower Mary WSS

Table 171 Total whole of scheme costs, Lower Mary WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	43.7	44.7	45.7	46.9
Operations—non-direct	59.4	60.8	62.2	63.7
Electricity	-	-	-	-
Insurance	11.2	11.4	11.7	11.9
IGEM costs	-	-	-	-
Maintenance—direct	5.6	5.7	5.8	6.0
Maintenance—non-direct	6.5	6.7	6.8	7.0
Renewals annuity	213.3	215.5	217.4	219.0
Revenue offsets	(2.1)	(2.1)	(2.2)	(2.2)
QCA regulatory fee	10.1	10.3	10.6	10.8
Total costs	**347.7**	**352.9**	**358.1**	**363.2**
Costs transferred from Lower Mary distribution system	**143.6**	**172.1**	**186.6**	**187.7**
Total costs to be allocated to tariff groups	**491.3**	**525.0**	**544.7**	**551.0**

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

Table 172 Draft recommended prices for irrigation customers, Lower Mary WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
1. Lower Mary - Mary Barrage					
Fixed (Part A)	15.10	15.10	15.10	15.10	15.10
Volumetric (Part B)	1.98	1.01	1.04	1.06	1.09
2. Lower Mary - Tinana and Teddington					
Fixed (Part A)	24.83	24.83	24.83	24.83	24.83
Volumetric (Part B)	9.51	9.74	9.97	10.20	10.44

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 173 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1. Lower Mary - Mary Barrage					
100 ML WAE	1,591	1,551	1,554	(2)	(2)
500 ML WAE	7,955	7,757	7,772	(2)	(2)
1,000 ML WAE	15,910	15,514	15,544	(2)	(2)

Tariff group	***2019–20 (current)***	***2020–21***	***2023–24***	***Change 2019–20 to 2020–21 (%)***	***Change 2019–20 to 2023–24 (%)***
2. Lower Mary - Tinana and Teddington					
100 ML WAE	2,872	2,881	2,910	0	1
500 ML WAE	14,360	14,406	14,551	0	1
1,000 ML WAE	28,720	28,812	29,102	0	1

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 174 Change in water bill (%)

Water use as portion of entitlement held (%)	***Water bill change from 2019–20 to 2020–21***	***Water bill change from 2019–20 to 2023–24***
1. Lower Mary - Mary Barrage		
0	–	–
25	(1.6)	(1.4)
50	(3.0)	(2.8)
75	(4.4)	(4.0)
100	(5.7)	(5.2)
2. Lower Mary - Tinana and Teddington		
0	–	–
25	0.2	0.9
50	0.4	1.6
75	0.5	2.2
100	0.7	2.7

Macintyre Brook WSS

Table 175 Total whole of scheme costs, Macintyre Brook WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	186.1	190.3	194.9	199.9
Operations—non-direct	254.7	260.4	266.6	273.1
Electricity	3.5	3.6	4.0	3.9
Insurance	190.2	194.4	198.6	202.9
IGEM costs	146.6	149.9	153.4	157.2
Maintenance—direct	139.4	142.6	146.0	149.8
Maintenance—non-direct	195.0	199.3	204.0	209.0
Renewals annuity	602.8	612.2	657.7	664.8
Revenue offsets	(1.0)	(1.1)	(1.1)	(1.1)
QCA regulatory fee	7.6	7.8	8.0	8.2
Total costs excluding dam safety	**1,725.0**	**1,759.5**	**1,832.2**	**1,867.7**
Dam safety	-	-	54.3	110.8
Total costs including dam safety	**1,725.0**	**1,759.5**	**1,886.4**	**1,978.5**

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

Table 176 Draft recommended prices for irrigation customers, Macintyre Brook WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Fixed (Part A)	48.62	52.15	55.82	59.64	63.61
Volumetric (Part B)	4.54	4.23	4.33	4.43	4.54

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage. Dam safety upgrade expenditure does not impact our recommended prices within the price path period.

Table 177 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
100 ML WAE	5,182	5,513	6,681	6	29
500 ML WAE	25,909	27,566	33,403	6	29
1,000 ML WAE	51,818	55,132	66,805	6	29

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 178 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
0	7.3	30.8
25	6.9	30.1
50	6.6	29.5
75	6.3	28.8
100	6.1	28.2

Maranoa River WSS

Table 179 Total whole of scheme costs, Maranoa River WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	9.3	9.5	9.7	9.9
Operations—non-direct	6.0	6.1	6.2	6.4
Electricity	-	-	-	-
Insurance	13.2	13.5	13.7	14.0
IGEM costs	-	-	-	-
Maintenance—direct	0.7	0.8	0.8	0.8
Maintenance—non-direct	1.3	1.3	1.4	1.4
Renewals annuity	45.7	45.7	46.1	46.1
Revenue offsets	-	-	-	-
QCA regulatory fee	0.4	0.4	0.4	0.4
Total costs	**76.5**	**77.2**	**78.3**	**79.1**

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

Table 180 Draft recommended prices for irrigation customers, Maranoa River WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Fixed (Part A)	53.17	56.81	60.59	64.52	68.61
Volumetric (Part B)	65.01	66.55	68.13	69.74	71.40

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 181 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
100 ML WAE	5,539	5,909	7,105	7	28
500 ML WAE	27,696	29,543	35,523	7	28
1,000 ML WAE	55,393	59,086	71,047	7	28

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 182 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
0	6.8	29.0
25	5.8	24.5
50	5.1	21.7
75	4.7	19.8
100	4.4	18.5

Mareeba-Dimbulah WSS

Table 183 Total whole of scheme costs, Mareeba-Dimbulah WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	344.0	351.7	360.0	368.8
Operations—non-direct	346.6	354.4	362.7	371.6
Electricity	0.9	0.9	1.0	1.0
Insurance	176.5	180.3	184.2	188.2
IGEM costs	140.8	144.0	147.4	151.0
Maintenance—direct	161.4	165.0	169.0	173.2
Maintenance—non-direct	187.1	191.3	195.8	200.6
Renewals annuity	648.8	655.4	670.5	686.5
Revenue offsets	(94.6)	(96.9)	(99.2)	(101.5)
QCA regulatory fee	67.3	68.9	70.5	72.2
Total costs	1,978.8	2,014.9	2,061.9	2,111.4

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

Table 184 Draft recommended prices for irrigation customers, Mareeba-Dimbulah WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Fixed (Part A)	15.87	15.87	15.87	15.87	15.87
Volumetric (Part B)	0.59	0.60	0.62	0.63	0.65

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 185 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
100 ML WAE	1,625	1,626	1,628	0	0
500 ML WAE	8,124	8,128	8,142	0	0
1,000 ML WAE	16,248	16,257	16,285	0	0

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 186 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
0	-	-
25	0.0	0.1
50	0.0	0.2
75	0.1	0.3
100	0.1	0.4

Nogoa-Mackenzie WSS

Table 187 Total whole of scheme costs, Nogoa-Mackenzie WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	500.7	512.0	524.1	537.0
Operations—non-direct	450.1	460.2	471.0	482.6
Electricity	17.5	18.1	19.7	19.5
Insurance	557.2	569.3	581.6	594.2
IGEM costs	100.8	103.0	105.4	108.0
Maintenance—direct	193.9	198.2	202.9	208.0
Maintenance—non-direct	184.6	188.7	193.2	197.9
Renewals annuity	1,267.8	1,298.6	1,339.5	1,395.9
Revenue offsets	-	-	-	-
QCA regulatory fee	85.3	87.3	89.4	91.5
Total costs excluding dam safety	**3,357.9**	**3,435.4**	**3,526.9**	**3,634.6**
Dam safety	401.2	819.2	833.0	847.0
Total costs including dam safety	**3,759.1**	**4,254.6**	**4,359.8**	**4,481.6**

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

Table 188 Draft recommended prices for irrigation customers, Nogoa-Mackenzie WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
1. Nogoa Mackenzie (medium priority)					
Fixed (Part A)	12.22	12.22	12.22	12.22	12.22
Volumetric (Part B)	1.32	0.82	0.84	0.86	0.88
2. Nogoa Mackenzie (high priority)					
Fixed (Part A)	28.88	31.94	35.14	38.46	41.93
Volumetric (Part B)	1.32	0.82	0.84	0.86	0.88
3. Nogoa Mackenzie (medium priority local management supply)					
Fixed (Part A)	8.84	6.37	6.53	6.68	6.84
Volumetric (Part B)	1.32	0.82	0.84	0.86	0.88
4. Nogoa Mackenzie (high priority local management supply)					
Fixed (Part A)	28.88	31.94	35.14	38.46	41.93
Volumetric (Part B)	1.32	0.82	0.84	0.86	0.88

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 189 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1. Nogoa Mackenzie (medium priority)					
100 ML WAE	1,324	1,286	1,290	(3)	(3)
500 ML WAE	6,621	6,429	6,452	(3)	(3)
1,000 ML WAE	13,242	12,857	12,904	(3)	(3)
2. Nogoa Mackenzie (high priority)					
100 ML WAE	2,990	3,258	4,261	9	43
500 ML WAE	14,951	16,291	21,307	9	43
1,000 ML WAE	29,902	32,582	42,614	9	43
3. Nogoa Mackenzie (medium priority local management supply)					
100 ML WAE	986	701	752	(29)	(24)
500 ML WAE	4,931	3,506	3,761	(29)	(24)
1,000 ML WAE	9,862	7,012	7,522	(29)	(24)
4. Nogoa Mackenzie (high priority local management supply)					
100 ML WAE	2,990	3,258	4,261	9	43
500 ML WAE	14,951	16,291	21,307	9	43
1,000 ML WAE	29,902	32,582	42,614	9	43

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 190 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
1. Nogoa Mackenzie (medium priority)		
0	-	-
25	(1.0)	(0.9)
50	(1.9)	(1.7)
75	(2.8)	(2.5)
100	(3.7)	(3.2)
2. Nogoa Mackenzie (high priority)		
0	10.6	45.2
25	10.1	44.3
50	9.5	43.4
75	9.0	42.6
100	8.5	41.8

3. Nogoa Mackenzie (medium priority local management supply)		
0	(27.9)	(22.6)
25	(28.2)	(26.5)
50	(28.6)	(26.9)
75	(28.9)	(27.2)
100	(29.2)	(27.5)
4. Nogoa Mackenzie (high priority local management supply)		
0	10.6	45.2
25	10.1	44.3
50	9.5	43.4
75	9.0	42.6
100	8.5	41.8

Table 191 Draft recommended prices including dam safety for irrigation customers, Nogoa-Mackenzie WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Nogoa Mackenzie (medium priority local management supply)					
Fixed (Part A)	8.84	7.42	7.60	7.78	7.96
Volumetric (Part B)	1.32	0.82	0.84	0.86	0.88

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage. Only tariff groups where dam safety upgrade expenditure impacts our recommended prices within the price path period have been included.

Table 192 Bill impacts compared to current prices including dam safety —average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
Nogoa Mackenzie (medium priority local management supply)					
100 ML WAE	986	806	864	(18)	(12)
500 ML WAE	4,931	4,028	4,322	(18)	(12)
1,000 ML WAE	9,862	8,057	8,643	(18)	(12)

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme. Only tariff groups where dam safety upgrade expenditure impacts our recommended prices within the price path period have been included.

Table 193 Change in water bill including dam safety (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
Nogoa Mackenzie (medium priority local management supply)		
0	(16.1)	(10.0)
25	(16.8)	(14.9)
50	(17.6)	(15.6)
75	(18.2)	(16.3)
100	(18.9)	(17.0)

Note: Only tariff groups where dam safety upgrade expenditure impacts our recommended prices within the price path period have been included.

Pioneer River WSS

Table 194 Total whole of scheme costs, Pioneer River WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	224.5	229.6	234.9	240.6
Operations—non-direct	184.1	188.3	192.7	197.4
Electricity	4.7	6.0	6.6	6.5
Insurance	374.0	382.1	390.4	398.9
IGEM costs	76.3	78.0	79.8	81.7
Maintenance—direct	265.2	271.1	277.5	284.3
Maintenance—non-direct	207.8	212.5	217.5	222.8
Renewals annuity	982.5	1,059.9	1,118.3	1,141.5
Revenue offsets	(1.0)	(1.1)	(1.1)	(1.1)
QCA regulatory fee	21.1	21.6	22.1	22.6
Total costs excluding dam safety	2,339.2	2,447.9	2,538.7	2,595.2
Dam safety	-	-	81.6	166.7
Total costs including dam safety	2,339.2	2,447.9	2,620.3	2,761.9

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

Table 195 Draft recommended prices for irrigation customers, Pioneer River WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Fixed (Part A)	14.81	17.54	20.02	20.49	20.98
Volumetric (Part B)	3.13	3.78	3.87	3.96	4.05

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 196 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
100 ML WAE	1,552	1,840	2,189	19	41
500 ML WAE	7,759	9,198	10,947	19	41
1,000 ML WAE	15,519	18,397	21,893	19	41

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 197 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
0	18.4	41.6
25	18.6	41.1
50	18.7	40.5
75	18.8	40.0
100	18.8	39.5

Table 198 Draft recommended prices including dam safety for irrigation customers, Pioneer River WSS WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Fixed (Part A)	14.81	17.54	20.39	20.97	21.46
Volumetric (Part B)	3.13	3.78	3.87	3.96	4.05

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 199 Bill impacts compared to current prices including dam safety —average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
100 ML WAE	1,552	1,840	2,238	19	44
500 ML WAE	7,759	9,198	11,191	19	44
1,000 ML WAE	15,519	18,397	22,382	19	44

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 200 Change in water bill including dam safety (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
0	18.4	44.9
25	18.6	44.2
50	18.7	43.5
75	18.8	42.8
100	18.8	42.2

Proserpine River WSS

Table 201 Total whole of scheme costs, Proserpine River WSS ($ $ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	322.9	330.1	337.8	345.9
Operations—non-direct	285.4	291.8	298.7	306.0
Electricity	7.5	7.7	8.4	8.3
Insurance	201.6	206.0	210.5	215.0
IGEM costs	97.3	99.5	101.9	104.3
Maintenance—direct	138.2	141.3	144.7	148.2
Maintenance—non-direct	124.9	127.7	130.7	133.9
Renewals annuity	448.5	793.9	1,102.0	1,106.0
Revenue offsets	-	-	-	-
QCA regulatory fee	18.2	18.6	19.0	19.5
Total costs	**1,644.5**	**2,016.6**	**2,353.7**	**2,387.3**

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

Table 202 Draft recommended prices for irrigation customers, Proserpine River WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
1. Proserpine River					
Fixed (Part A)	13.26	15.95	16.74	17.14	17.55
Volumetric (Part B)	3.02	3.63	3.72	3.81	3.90
2. Proserpine River: Kelsey Creek Water Board					
Fixed (Part A)	12.14	14.81	16.74	17.14	17.55
Volumetric (Part B)	3.02	3.63	3.72	3.81	3.90

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 203 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1. Proserpine River					
100 ML WAE	1,471	1,770	1,942	20	32
500 ML WAE	7,357	8,851	9,710	20	32
1,000 ML WAE	14,714	17,702	19,421	20	32
2. Proserpine River: Kelsey Creek Water Board					
100 ML WAE	1,359	1,656	1,942	22	43
500 ML WAE	6,797	8,278	9,710	22	43
1,000 ML WAE	13,594	16,555	19,421	22	43

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 204 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
1. Proserpine River		
0	20.3	32.3
25	20.3	32.1
50	20.3	32.0
75	20.3	31.8
100	20.3	31.7
2. Proserpine River: Kelsey Creek Water Board		
0	22.0	44.5
25	21.9	43.6
50	21.8	42.8
75	21.7	42.1
100	21.6	41.4

St George WSS

Table 205 Total whole of scheme costs, St George WSS ($ $ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	242.7	248.2	254.1	260.4
Operations—non-direct	275.6	281.7	288.4	295.4
Electricity	6.0	6.2	6.8	6.7
Insurance	125.7	128.5	131.2	134.1
IGEM costs	127.5	130.3	133.4	136.7
Maintenance—direct	166.7	170.4	174.6	179.0
Maintenance—non-direct	226.3	231.4	236.9	242.6
Renewals annuity	606.7	612.4	660.7	671.2
Revenue offsets	(5.2)	(5.4)	(5.5)	(5.6)
QCA regulatory fee	36.2	37.1	38.0	38.9
Total costs	**1,808.2**	**1,840.9**	**1,918.5**	**1,959.5**

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

Table 206 Draft recommended prices for irrigation customers, St George WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
1. St George - Beardmore Dam or Balonne River (medium priority river customers)					
Fixed (Part A)	21.91	21.91	21.91	21.91	21.91
Volumetric (Part B)	1.38	1.11	1.14	1.16	1.19
2. St George - Thuraggi Watercourse (medium priority river customers)					
Fixed (Part A)	21.91	21.91	21.91	21.91	21.91
Volumetric (Part B)	1.38	1.11	1.14	1.16	1.19
3. St George (medium priority local management supply)					
Fixed (Part A)	20.86	20.08	20.55	21.04	21.54
Volumetric (Part B)	1.38	1.11	1.14	1.16	1.19
4. St George (high priority local management supply)					
Fixed (Part A)	29.04	32.11	33.27	34.06	34.86
Volumetric (Part B)	1.38	1.11	1.14	1.16	1.19
5. St George – alternate tariff group					
Fixed (Part A)	n.a	21.91	21.91	21.91	21.91
Volumetric (Part B)	n.a	1.11	1.14	1.16	1.19

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 207 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1. St George - Beardmore Dam or Balonne River (medium priority river customers)					
100 ML WAE	2,309	2,286	2,293	(1)	(1)
500 ML WAE	11,543	11,428	11,463	(1)	(1)
1,000 ML WAE	23,086	22,857	22,926	(1)	(1)
2. St George - Thuraggi Watercourse (medium priority river customers)					
100 ML WAE	2,309	2,286	2,293	(1)	(1)
500 ML WAE	11,543	11,428	11,463	(1)	(1)
1,000 ML WAE	23,086	22,857	22,926	(1)	(1)
3. St George (medium priority local management supply)					
100 ML WAE	2,204	2,102	2,255	(5)	2
500 ML WAE	11,018	10,511	11,277	(5)	2
1,000 ML WAE	22,036	21,023	22,553	(5)	2
4. St George (high priority local management supply)					
100 ML WAE	3,022	3,306	3,588	9	19
500 ML WAE	15,108	16,528	17,940	9	19
1,000 ML WAE	30,216	33,055	35,880	9	19
5. St George – alternate tariff group from St George - Beardmore Dam or Balonne River (medium priority river customers)					
100 ML WAE	2,309	2,286	2,293	(1)	(1)
500 ML WAE	11,543	11,428	11,463	(1)	(1)
1,000 ML WAE	23,086	22,857	22,926	(1)	(1)
6. St George – alternate tariff group from St George - Thuraggi Watercourse (medium priority river customers)					
100 ML WAE	2,309	2,286	2,293	(1)	(1)
500 ML WAE	11,543	11,428	11,463	(1)	(1)
1,000 ML WAE	23,086	22,857	22,926	(1)	(1)

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 208 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
1. St George - Beardmore Dam or Balonne River (medium priority river customers)		
0	-	-
25	(0.3)	(0.2)
50	(0.6)	(0.4)

75	(0.9)	(0.6)
100	(1.2)	(0.8)
2. St George - Thuraggi Watercourse (medium priority river customers)		
0	-	-
25	(0.3)	(0.2)
50	(0.6)	(0.4)
75	(0.9)	(0.6)
100	(1.2)	(0.8)
3. St George (medium priority local management supply)		
0	(3.8)	3.2
25	(4.0)	3.0
50	(4.3)	2.7
75	(4.5)	2.4
100	(4.7)	2.2
4. St George (high priority local management supply)		
0	10.6	20.1
25	10.2	19.6
50	9.9	19.2
75	9.5	18.8
100	9.2	18.4

Three Moon Creek WSS

Table 209 Total whole of scheme costs, Three Moon Creek WSS ($ $ '000s nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	109.0	111.5	114.1	117.0
Operations—non-direct	107.2	109.6	112.1	114.9
Electricity	19.4	20.0	21.8	21.6
Insurance	122.7	125.4	128.1	130.9
IGEM costs	78.8	80.5	82.4	84.5
Maintenance—direct	76.2	77.9	79.8	81.9
Maintenance—non-direct	90.2	92.2	94.4	96.7
Renewals annuity	501.5	525.5	544.1	549.0
Revenue offsets	(2.1)	(2.1)	(2.2)	(2.2)
QCA regulatory fee	6.3	6.4	6.6	6.7
Total costs	**1,109.2**	**1,147.0**	**1,181.4**	**1,200.9**

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

Table 210 Draft recommended prices for irrigation customers, Three Moon Creek WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
1. River					
Fixed (Part A)	32.43	35.58	38.86	42.27	45.83
Volumetric (Part B)	4.78	5.90	6.04	6.18	6.33
2. Groundwater					
Fixed (Part A)	23.58	26.52	29.58	32.78	36.11
Volumetric (Part B)	4.78	5.90	6.04	6.18	6.33
3. Three Moon Creek – alternate tariff group					
Fixed (Part A)	n.a	27.75	30.84	34.07	37.43
Volumetric (Part B)	n.a	5.90	6.04	6.18	6.33

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 211 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1. River					
100 ML WAE	3,424	3,782	4,823	10	41
500 ML WAE	17,122	18,909	24,116	10	41
1,000 ML WAE	34,245	37,818	48,231	10	41

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
2. Groundwater					
100 ML WAE	2,539	2,876	3,851	13	52
500 ML WAE	12,697	14,379	19,256	13	52
1,000 ML WAE	25,395	28,759	38,512	13	52
3. Three Moon Creek – alternate tariff group from Three Moon Creek - River					
100 ML WAE	3,424	2,999	3,983	(12)	16
500 ML WAE	17,122	14,995	19,916	(12)	16
1,000 ML WAE	34,245	29,989	39,832	(12)	16
4. Three Moon Creek – alternate tariff group from Three Moon Creek - Groundwater					
100 ML WAE	2,539	2,999	3,983	18	57
500 ML WAE	12,697	14,995	19,916	18	57
1,000 ML WAE	25,395	29,989	39,832	18	57

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 212 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
1. River		
0	9.7	41.3
25	10.2	41.0
50	10.6	40.7
75	11.1	40.4
100	11.5	40.2
2. Groundwater		
0	12.5	53.1
25	13.0	52.1
50	13.5	51.2
75	13.9	50.4
100	14.3	49.6
3. Three Moon Creek – alternate tariff group from Three Moon Creek - River		
0	(14.4)	41.3
25	(13.1)	41.0
50	(11.8)	40.7
75	(10.7)	40.4
100	(9.6)	40.2

4. Three Moon Creek – alternate tariff group from Three Moon Creek - Groundwater		
0	17.7	53.1
25	18.0	52.1
50	18.2	51.2
75	18.4	50.4
100	18.6	49.6

Upper Burnett WSS

Table 213 Total whole of scheme costs, Upper Burnett WSS ($ $ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	276.9	283.1	289.9	297.1
Operations—non-direct	295.0	301.6	308.7	316.3
Electricity	5.3	5.5	5.9	5.9
Insurance	117.0	119.5	122.1	124.8
IGEM costs	75.2	76.9	78.7	80.6
Maintenance—direct	81.3	83.2	85.2	87.3
Maintenance—non-direct	95.3	97.4	99.7	102.2
Renewals annuity	691.4	703.9	721.2	728.6
Revenue offsets	(1.0)	(1.1)	(1.1)	(1.1)
QCA regulatory fee	11.8	12.1	12.4	12.7
Total costs	**1,648.2**	**1,682.2**	**1,722.8**	**1,754.4**

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

Table 214 Draft recommended prices for irrigation customers, Upper Burnett WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
1. Regulated Section of the Nogo/Burnett River					
Fixed (Part A)	30.58	33.68	36.92	40.29	43.23
Volumetric (Part B)	4.08	4.30	4.41	4.51	4.62
2. John Goleby Weir					
Fixed (Part A)	28.96	32.03	35.22	38.55	42.02
Volumetric (Part B)	4.08	4.30	4.41	4.51	4.62

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 215 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1. Regulated Section of the Nogo/Burnett River					
100 ML WAE	3,268	3,590	4,561	10	40
500 ML WAE	16,339	17,949	22,804	10	40
1,000 ML WAE	32,678	35,898	45,609	10	40
2. John Goleby Weir					
100 ML WAE	3,106	3,424	4,439	10	43
500 ML WAE	15,529	17,120	22,196	10	43
1,000 ML WAE	31,058	34,240	44,392	10	43

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 216 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
1. Regulated Section of the Nogo/Burnett River		
0	10.2	41.4
25	10.0	40.5
50	9.9	39.6
75	9.7	38.8
100	9.6	38.1
2. John Goleby Weir		
0	10.6	45.1
25	10.4	44.0
50	10.3	43.0
75	10.1	42.0
100	10.0	41.1

Upper Condamine WSS

Table 217 Total whole of scheme costs, Upper Condamine WSS ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	316.3	323.4	331.2	339.6
Operations—non-direct	420.1	429.5	439.6	450.4
Electricity	87.6	90.5	98.4	97.6
Insurance	147.6	150.8	154.1	157.5
IGEM costs	100.0	102.2	104.7	107.2
Maintenance—direct	124.2	127.0	130.1	133.4
Maintenance—non-direct	164.5	168.1	172.1	176.3
Renewals annuity	710.9	732.7	754.4	761.2
Revenue offsets	(2.1)	(2.1)	(2.2)	(2.2)
QCA regulatory fee	13.5	13.8	14.2	14.5
Total costs excluding dam safety	2,082.6	2,136.0	2,196.6	2,235.4
Dam safety	-	246.3	503.0	511.4
Total costs including dam safety	2,082.6	2,382.3	2,699.6	2,746.9

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

Table 218 Draft recommended prices for irrigation customers, Upper Condamine WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
1. Sandy Creek or Condamine River					
Fixed (Part A)	34.03	34.03	34.03	34.03	34.03
Volumetric (Part B)	5.57	5.45	5.58	5.71	5.84
2. North Branch					
Fixed (Part A)	47.64	47.64	47.64	47.64	47.64
Volumetric (Part B)	15.19	15.55	15.92	16.30	16.68
3. North Branch - Risk A					
Fixed (Part A)	13.44	13.88	14.21	14.55	14.89
Volumetric (Part B)	15.19	18.04	18.46	18.90	19.35

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 219 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1. Sandy Creek or Condamine River					
100 ML WAE	3,652	3,646	3,664	(0)	0
500 ML WAE	18,258	18,231	18,320	(0)	0

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1,000 ML WAE	36,517	36,462	36,639	(0)	0
2. North Branch					
100 ML WAE	5,442	5,458	5,509	0	1
500 ML WAE	27,211	27,291	27,544	0	1
1,000 ML WAE	54,422	54,583	55,088	0	1
3. North Branch - Risk A					
100 ML WAE	2,022	2,193	2,353	8	16
500 ML WAE	10,111	10,967	11,765	8	16
1,000 ML WAE	20,222	21,934	23,530	8	16

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 220 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
1. Sandy Creek or Condamine River		
0	-	-
25	(0.1)	0.2
50	(0.2)	0.4
75	(0.2)	0.5
100	(0.3)	0.7
2. North Branch		
0	-	-
25	0.2	0.7
50	0.3	1.4
75	0.5	1.9
100	0.6	2.4
3. North Branch - Risk A		
0	3.3	10.8
25	6.7	14.5
50	8.9	16.8
75	10.4	18.4
100	11.5	19.6

Table 221 Draft recommended prices including dam safety for irrigation customers, Upper Condamine WSS ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
North Branch - Risk A					
Fixed (Part A)	13.44	14.65	15.00	15.35	15.72
Volumetric (Part B)	15.19	18.04	18.46	18.90	19.35

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage. Only tariff groups where dam safety upgrade expenditure impacts our recommended prices within the price path period have been included.

Table 222 Bill impacts including dam safety compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
North Branch - Risk A					
100 ML WAE	2,022	2,270	2,436	12	20
500 ML WAE	10,111	11,352	12,179	12	20
1,000 ML WAE	20,222	22,704	24,357	12	20

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme. Only tariff groups where dam safety upgrade expenditure impacts our recommended prices within the price path period have been included.

Table 223 Change in water bill including dam safety (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
North Branch - Risk A		
0	9.0	16.9
25	11.2	19.2
50	12.5	20.7
75	13.5	21.7
100	14.2	22.5

Note: Only tariff groups where dam safety upgrade expenditure impacts our recommended prices within the price path period have been included.

Bundaberg distribution system

Table 224 Total whole of scheme costs, Bundaberg distribution system ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	1,300.3	1,329.4	1,361.1	1,394.9
Operations—non-direct	1,181.6	1,208.0	1,236.5	1,266.7
Electricity	4,202.8	5,389.4	5,858.5	5,813.3
Insurance	861.9	880.6	899.7	919.2
IGEM costs	130.2	133.1	136.3	139.6
Maintenance—direct	1,836.2	1,877.1	1,921.3	1,968.0
Maintenance—non-direct	1,378.4	1,409.2	1,442.5	1,477.7
Renewals annuity	1,424.6	1,490.1	1,533.0	1,601.5
Revenue offsets	(4.2)	(4.3)	(4.4)	(4.5)
QCA regulatory fee	-	-	-	-
Total costs	**12,311.7**	**13,712.7**	**14,384.4**	**14,576.5**
Costs transferred to Bundaberg WSS	(45.6)	(49.7)	(52.3)	(52.8)
Total costs to be allocated to tariff groups	**12,266.1**	**13,663.0**	**14,332.1**	**14,523.6**

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

Table 225 Draft recommended prices for irrigation customers, Bundaberg distribution system ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Fixed (Part A)	7.54	10.10	12.77	14.56	14.90
Volumetric (Part B)	1.31	1.19	1.22	1.25	1.28
Fixed (Part C)	45.08	46.15	47.24	49.37	53.10
Volumetric (Part D)	58.94	51.00	52.21	53.45	54.71
Total Fixed	**52.62**	**56.25**	**60.02**	**63.93**	**68.00**
Total Volumetric	**60.25**	52.19	53.43	54.70	55.99

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 226 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
100 ML WAE	8,243	8,207	9,571	(0)	16
500 ML WAE	41,217	41,037	47,854	(0)	16
1,000 ML WAE	82,434	82,074	95,708	(0)	16

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 227 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
0	6.9	29.2
25	2.4	21.2
50	(0.5)	16.0
75	(2.5)	12.5
100	(3.9)	9.9

Burdekin-Haughton distribution system

Table 228 Total whole of scheme costs, Burdekin-Haughton distribution system ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	2,552.5	2,609.8	2,671.9	2,738.1
Operations—non-direct	2,719.3	2,780.0	2,845.7	2,915.2
Electricity	5,048.9	5,143.9	5,531.7	5,488.9
Insurance	556.5	568.6	580.9	593.5
IGEM costs	-	-	-	-
Maintenance—direct	3,961.9	4,049.7	4,143.2	4,241.4
Maintenance—non-direct	2,278.2	2,329.1	2,384.1	2,442.4
Renewals annuity	1,944.2	2,009.7	2,068.2	2,108.8
Revenue offsets	(847.3)	(867.4)	(887.9)	(909.0)
QCA regulatory fee	-	-	-	-
Total costs	18,214.2	18,623.4	19,337.7	19,619.5

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

Table 229 Draft recommended prices for irrigation customers, Burdekin-Haughton distribution system ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
1. Burdekin channel					
Fixed (Part A)	3.49	3.62	3.71	3.80	3.89
Volumetric (Part B)	0.54	0.31	0.32	0.33	0.33
Fixed (Part C)	39.10	41.45	42.44	43.44	44.47
Volumetric (Part D)	29.60	22.02	22.55	23.08	23.63
Total Fixed	**42.59**	45.08	46.15	47.24	48.36
Total Volumetric	**30.14**	22.34	22.86	23.41	23.96
2. Burdekin - Giru Groundwater					
Fixed (Part A)	3.49	3.62	3.71	3.80	3.89
Volumetric (Part B)	0.54	0.31	0.32	0.33	0.33
Fixed (Part C)	17.86	20.61	23.54	26.59	29.77
Volumetric (Part D)	14.82	15.41	15.78	16.15	16.54
Total Fixed	**21.35**	**24.24**	**27.25**	**30.39**	**33.66**
Total Volumetric	**15.36**	**15.72**	**16.10**	**16.48**	**16.87**
3. Burdekin - Glady's Lagoon (other than Natural Yield)					
Fixed (Part A)	3.49	3.62	3.71	3.80	3.89

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Volumetric (Part B)	0.54	0.31	0.32	0.33	0.33
Fixed (Part C)	39.10	41.45	42.44	43.44	44.47
Volumetric (Part D)	29.60	22.02	22.55	23.08	23.63
Total Fixed	**42.59**	45.08	46.15	47.24	48.36
Total Volumetric	**30.14**	22.34	22.86	23.41	23.96

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 230 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1. Burdekin channel					
100 ML WAE	6,576	6,225	6,679	(5)	2
500 ML WAE	32,882	31,127	33,393	(5)	2
1,000 ML WAE	65,764	62,253	66,785	(5)	2
2. Burdekin - Giru Groundwater					
100 ML WAE	3,316	3,633	4,663	10	41
500 ML WAE	16,580	18,163	23,315	10	41
1,000 ML WAE	33,160	36,326	46,630	10	41
3. Burdekin - Glady's Lagoon (other than Natural Yield)					
100 ML WAE	6,576	6,225	6,679	(5)	2
500 ML WAE	32,882	31,127	33,393	(5)	2
1,000 ML WAE	65,764	62,253	66,785	(5)	2

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 231 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
1. Burdekin channel		
0	5.8	13.6
25	1.1	8.4
50	(2.4)	4.7
75	(5.2)	1.7
100	(7.3)	(0.6)
2. Burdekin - Giru Groundwater		
0	13.5	57.7
25	11.8	50.4

50	10.6	45.0
75	9.6	40.9
100	8.9	37.6
3. Burdekin - Glady's Lagoon (other than Natural Yield)		
0	5.8	13.6
25	1.1	8.4
50	(2.4)	4.7
75	(5.2)	1.7
100	(7.3)	(0.6)

Eton distribution system

Table 232 Total whole of scheme costs, Eton distribution system ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	504.9	516.3	528.8	542.2
Operations—non-direct	560.6	573.1	586.6	601.0
Electricity	526.5	656.7	713.9	708.4
Insurance	233.6	238.7	243.9	249.2
IGEM costs	-	-	-	-
Maintenance—direct	853.4	872.3	892.4	913.6
Maintenance—non-direct	456.6	466.9	477.9	489.6
Renewals annuity	500.8	510.8	542.2	547.7
Revenue offsets	(2.1)	(2.1)	(2.2)	(2.2)
QCA regulatory fee	-	-	-	-
Total costs	**3,634.4**	**3,832.7**	**3,983.5**	**4,049.4**

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

Table 233 Draft recommended prices for irrigation customers, Eton distribution system ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Fixed (Part A)	31.36	32.65	33.42	34.21	35.02
Volumetric (Part B)	4.05	4.09	4.18	4.28	4.39
Fixed (Part C)	38.40	41.15	44.56	48.11	51.80
Volumetric (Part D)	33.63	34.38	35.20	36.03	36.89
Total Fixed	**69.76**	**73.79**	**77.98**	**82.32**	**86.83**
Total Volumetric	**37.68**	38.47	39.38	40.32	41.27

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 234 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
100 ML WAE	8,197	8,626	10,020	5	22
500 ML WAE	40,984	43,128	50,098	5	22
1,000 ML WAE	81,967	86,257	100,196	5	22

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 235 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
0	5.8	24.5
25	5.3	22.7
50	5.0	21.3
75	4.7	20.2
100	4.5	19.2

Lower Mary distribution system

Table 236 Total whole of scheme costs, Lower Mary distribution system ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	163.6	167.3	171.4	175.7
Operations—non-direct	175.1	179.1	183.3	187.8
Electricity	275.4	473.1	514.3	510.3
Insurance	64.5	65.9	67.3	68.8
IGEM costs	-	-	-	-
Maintenance—direct	189.6	193.9	198.6	203.6
Maintenance—non-direct	192.0	196.3	200.9	205.8
Renewals annuity	192.9	199.0	225.6	261.5
Revenue offsets	-	-	-	-
QCA regulatory fee	-	-	-	-
Total costs	**1,253.1**	**1,474.5**	**1,561.3**	**1,613.8**
Costs transferred to Lower Mary WSS	(143.6)	(172.1)	(186.6)	(187.7)
Total costs to be allocated to tariff groups	**1,109.6**	**1,302.4**	**1,374.7**	**1,425.7**

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

Table 237 Draft recommended prices for irrigation customers, Lower Mary distribution system ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Fixed (Part A)	7.31	5.86	6.00	6.14	6.29
Volumetric (Part B)	1.98	1.01	1.04	1.06	1.09
Fixed (Part C)	47.00	52.12	55.79	59.61	63.57
Volumetric (Part D)	70.27	71.13	72.82	74.55	76.31
Total Fixed	**54.31**	**57.98**	**61.79**	**65.75**	**69.86**
Total Volumetric	**72.25**	72.15	73.86	75.61	77.40

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 238 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
100 ML WAE	9,041	9,403	10,853	4	20
500 ML WAE	45,207	47,015	54,267	4	20
1,000 ML WAE	90,414	94,030	108,535	4	20

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 239 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
0	6.8	28.6
25	5.0	23.3
50	4.0	20.0
75	3.3	17.9
100	2.8	16.4

Mareeba-Dimbulah distribution system

Table 240 Total whole of scheme costs, Mareeba-Dimbulah distribution system ($ '000s, nominal)

Cost	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Operations—direct	1,235.1	1,262.8	1,292.7	1,324.5
Operations—non-direct	1,254.3	1,282.3	1,312.6	1,344.7
Electricity	456.1	515.9	560.8	556.4
Insurance	418.9	428.0	437.3	446.8
IGEM costs	-	-	-	-
Maintenance—direct	1,392.4	1,423.6	1,457.3	1,493.2
Maintenance—non-direct	1,347.8	1,377.9	1,410.4	1,444.9
Renewals annuity	778.6	853.0	879.9	926.4
Revenue offsets	(675.1)	(691.1)	(707.5)	(724.3)
QCA regulatory fee	-	-	-	-
Total costs	6,208.0	6,452.3	6,643.5	6,812.7

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

Table 241 Draft recommended prices for irrigation customers, Mareeba-Dimbulah distribution system ($/ML, nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
1. Outside a relift up to 100 ML					
Fixed (Part A)	3.45	5.30	5.43	5.55	5.69
Volumetric (Part B)	0.59	0.64	0.65	0.67	0.69
Fixed (Part C)	51.82	50.97	52.30	53.67	55.06
Volumetric (Part D)	8.27	5.88	6.02	6.16	6.31
Total Fixed	**55.27**	56.27	57.73	59.22	60.75
Total Volumetric	**8.86**	**6.52**	**6.67**	**6.83**	**6.99**
2. Outside a relift 100 ML to 500 ML					
Fixed (Part A)	3.45	5.30	5.43	5.55	5.69
Volumetric (Part B)	0.59	0.64	0.65	0.67	0.69
Fixed (Part C)	45.27	44.89	46.08	47.29	48.53
Volumetric (Part D)	8.27	5.88	6.02	6.16	6.31
Total Fixed	**48.72**	50.19	51.50	52.85	54.22
Total Volumetric	**8.86**	**6.52**	**6.67**	**6.83**	**6.99**
3. Outside a relift over 500 ML					
Fixed (Part A)	3.45	5.30	5.43	5.55	5.69

Tariff group	*2019–20 (current)*	*2020–21*	*2021–22*	*2022–23*	*2023–24*
Volumetric (Part B)	0.59	0.64	0.65	0.67	0.69
Fixed (Part C)	34.33	34.73	35.67	36.64	37.63
Volumetric (Part D)	8.27	5.88	6.02	6.16	6.31
Total Fixed	**37.78**	40.03	41.10	42.20	43.32
Total Volumetric	**8.86**	**6.52**	**6.67**	**6.83**	**6.99**
4. River sup. Streams & Walsh River					
Fixed (Part A)	3.45	5.30	5.43	5.55	5.69
Volumetric (Part B)	0.59	0.64	0.65	0.67	0.69
Fixed (Part C)	23.40	24.19	24.76	25.35	25.95
Volumetric (Part D)	4.73	3.53	3.61	3.70	3.78
Total Fixed	**26.85**	29.49	30.19	30.91	31.64
Total Volumetric	**5.32**	**4.17**	**4.26**	**4.37**	**4.47**
5. Relift					
Fixed (Part A)	3.45	5.30	5.43	5.55	5.69
Volumetric (Part B)	0.59	0.64	0.65	0.67	0.69
Fixed (Part C)	39.33	40.87	44.28	47.82	51.51
Volumetric (Part D)	86.22	85.87	87.90	89.99	92.12
Total Fixed	**42.78**	**46.17**	**49.70**	**53.38**	**57.20**
Total Volumetric	**86.81**	**86.51**	**88.56**	**90.66**	**92.81**

Note: Fixed (Part A) prices are charged on a $/ML WAE basis, and volumetric (Part B) prices are charged on $/ML usage.

Table 242 Bill impacts compared to current prices—average usage ($ nominal)

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1. Outside a relift up to 100 ML					
100 ML WAE	6,102	6,050	6,529	(1)	7
500 ML WAE	30,510	30,251	32,643	(1)	7
1,000 ML WAE	61,020	60,503	65,285	(1)	7
2. Outside a relift 100 ML to 500 ML					
100 ML WAE	5,447	5,442	5,876	(0)	8
500 ML WAE	27,235	27,209	29,379	(0)	8
1,000 ML WAE	54,470	54,418	58,758	(0)	8
3. Outside a relift over 500 ML					
100 ML WAE	4,353	4,426	4,786	2	10
500 ML WAE	21,765	22,128	23,928	2	10

Tariff group	*2019–20 (current)*	*2020–21*	*2023–24*	*Change 2019–20 to 2020–21 (%)*	*Change 2019–20 to 2023–24 (%)*
1,000 ML WAE	43,530	44,256	47,855	2	10
4. River sup. Streams & Walsh River					
100 ML WAE	3,030	3,219	3,454	6	14
500 ML WAE	15,151	16,097	17,269	6	14
1,000 ML WAE	30,303	32,194	34,538	6	14
5. Relift					
100 ML WAE	9,912	10,232	11,742	3	18
500 ML WAE	49,559	51,158	58,712	3	18
1,000 ML WAE	99,118	102,316	117,424	3	18

Note: Bill impacts analysis is based on the 15-year average usage by irrigation customers in this scheme.

Table 243 Change in water bill (%)

Water use as portion of entitlement held (%)	*Water bill change from 2019–20 to 2020–21*	*Water bill change from 2019–20 to 2023–24*
1. Outside a relift up to 100 ML		
0	1.8	9.9
25	0.7	8.7
50	(0.3)	7.6
75	(1.2)	6.6
100	(2.1)	5.6
2. Outside a relift 100 ML to 500 ML		
0	3.0	11.3
25	1.7	9.9
50	0.6	8.6
75	(0.5)	7.4
100	(1.5)	6.3
3. Outside a relift over 500 ML		
0	5.9	14.7
25	4.2	12.7
50	2.5	10.9
75	1.1	9.3
100	(0.2)	7.9
4. River sup. Streams & Walsh River		
0	9.8	17.8
25	8.3	16.2

50	7.0	14.8
75	5.8	13.5
100	4.6	12.2
5. Relift		
0	7.9	33.7
25	5.1	24.7
50	3.8	20.2
75	2.9	17.5
100	2.4	15.8