sunwater

Irrigation pricing proposal

1 July 2025 to 30 June 2029

November 2023

Our First Nations Commitment Statement

Sunwater's First Nations Commitment Statement frames our recognition of Aboriginal and Torres Strait Islander peoples as the First Peoples of this country and the Traditional Custodians of the land and waters we rely on.

The statement articulates our commitment to the Aboriginal and Torres Strait Islander community, including those who work at Sunwater and those who Sunwater customers, that we recognise their sacred connection to culture and Country and our intention to work together to achieve mutually beneficial outcomes.

Sunwater acknowledges Aboriginal and Torres Strait Islander peoples as the first peoples of this country and Traditional Owners and Custodians of the land and water we rely on. We respect and value their continued sacred connection to Country, including the diverse rich traditions, languages and customs that are the longest living in the world. We acknowledge their resilience in the face of significant and ongoing historical, cultural and political change within Australia.

We recognise and value the importance of truth-telling today, and our role to listen and learn. Our vision for reconciliation is that we are a nation of unity and fairness for all; a nation that owns its history and acknowledges its First Nations peoples, their strength and their living culture.

Our goal is to work together to realise mutual benefits with First Nations peoples through authentic relationships and respect for cultural value; fostering a sense of belonging and pride in our people, community, customers and stakeholders. We can learn so much from Traditional Custodians, who have cared for Country for thousands of years, in the way we sustainably manage water and land. Going beyond compliance and embedding reconciliation into core business practices and decision making brings to life our purpose of Delivering Water for Prosperity through Valuing People, Working Together and Taking Responsibility.

An appropriate citation for this paper is:

Irrigation pricing proposal 2025-26 to 2028-29 (November 2023)

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Legal and financial

This pricing proposal has been prepared to meet the Queensland Government's Notice of Referral to the Queensland Competition Authority (QCA) and the QCA's Guidelines for Pricing Proposals.

Expenditure data is presented in nominal dollars, as at 30 September 2023 unless otherwise stated.

All statistical data is accurate as at 30 September 2023.

Glossary

Term	Definition
2020 Review	The Queensland Competition Authority (QCA) review of the pricing practices for monopoly business activities of Sunwater and distribution systems for the period 1 July 2020 to 30 June 2024.
Part A price	A fixed price per mega litre of entitlement, intended to recover the fixed costs associated with operating, maintaining, administering and renewing the bulk water supply schemes.
Part B price	A price per megalitre of annual usage, intended to recover the bulk variable costs associated with the actual delivery (usage) of water in relation to bulk water supply schemes.
Part C price	A fixed price per megalitre of entitlement, intended to recover all distribution system fixed costs
Part D prices	A price per megalitre of annual usage, intended to recover the distribution system variable costs associated with the actual delivery (usage) of water.
Part E prices	A fixed price per megalitre of entitlement, intended to recover all electricity fixed costs incurred by Sunwater in the previous quarter. This price only applies to customers under the proposed Electricity Cost Pass-Through (ECPT) mechanism.
Part F prices	A variable price per megalitre of quarterly usage, intended to recover all variable electricity costs incurred by Sunwater in the previous quarter. This price only applies to customers under the proposed Electricity Cost Pass-Through (ECPT) mechanism.
Access charge	This charge comprises an annual fixed amount per customer and recognises that some costs vary per customer, rather than by entitlements. Mareeba-Dimbulah is the only water supply scheme (scheme) with an annual access charge.
Announced Allocation	A water allocation (see also water access entitlement) is an authority that entitles a Sunwater customer to a percentage of the water in a water supply scheme's dams, weirs or barrages, depending on the water that is available. The percentage of water allocation available to a customer can be as high as 100 per cent or as low as zero per cent, depending on the level of water storages.
Annuity	Refer to renewals annuity.
Annuity contribution **(renewals annuity contribution)**	This is the annual revenue allowance to recover the forecast cost of asset renewal and rehabilitation calculated using the renewals annuity funding methodology. Typically (for Sunwater) calculated from a 30-year forecast of renewals expenditure.

Term	Definition
Building blocks/building blocks method	A method of determining the revenue a regulated business can earn for the services it provides. It is based on the costs to provide the services and a reasonable return on the investment required to provide those services. The "building blocks" currently used to calculate the revenue Sunwater should earn are reflective of the recovery of lower bound costs and comprise an operating expenditure (opex), and an annuity allowance (less any revenue offsets). It does not include any allowance for the cost of building the original scheme capital infrastructure (these allowances would be included in an upper bound context).
Bulk Water Supply Scheme	Supplies bulk water services that involve storing, and delivering raw water to, customers in accordance with their water access entitlements.
Customer and Stakeholder Project (CASPr)	The purpose of the project is to implement a new, integrated solution for customer and stakeholder relationship management, water accounting and billing.
Capex	Shorthand term for capital expenditure, which is defined as expenditures incurred in acquiring or maintaining capital assets, such as land, buildings, and equipment.
Capital returns	Capital returns are applicable to capital assets, such as land, buildings, and equipment, and comprise: • A return on assets - this is defined as the annual return to the owner of the assets to compensate for the opportunity cost of funds invested. • A return of assets – this is defined as return of the initial cost of the capital assets in the form of an annual depreciation allowance.
Charge	The price applied to a specific tariff component.
Community Service Obligation (CSO)	A payment from the Queensland Government to Sunwater to cover the shortfall in revenue recovery that arises when the prices paid by customers is less than the level required to recover the lower bound costs of regulated service provision.
Cost pass through mechanism	A regulatory pricing concept that allows specific actual costs incurred by the regulated business to be passed through to customers during the price path period, rather than through prices based on a forecast cost allowance determined by the Regulator as part of the irrigation pricing review.
Consumer Price Index	A measure of inflation produced by the Australian Bureau of Statistics (ABS) based on changes in the price of a fixed basket of goods and services acquired by households in the eight Australian States and Territories.
Customer Advisory Committee	This committee provides customers and stakeholders with a forum for collaboration and consultation on a range of strategic matters relating to Sunwater's innovation, management and maintenance of assets to ensure the reliable and efficient delivery of service.

Term	Definition
Declining block	The declining block refers to a tariff structure where the marginal price level declines as customers increase their usage or entitlement. Sunwater only applies this form of price structure to certain customers in the Mareeba-Dimbulah distribution system.
Depreciation	In regulatory terms, depreciation is the allowance a business receives from its customers (via prices) to pay off the principal component of its original capital investment. Typically calculated as the value of the original investment divided by the life of the asset.
Distribution service	Service provided to customers involving the operation, maintenance and renewal of assets (see distribution system) to convey water from a water storage or watercourse to a customer offtake.
Distribution system	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 water supply entitlements
Distribution losses	Losses of water incurred in the delivery of water in distribution systems. Many factors are responsible for distribution losses, including pipe leakage, evaporation, storage seepage, overflows and drainage for maintenance.
Direct costs	Costs which are directly attributable to either an asset or a service contract, e.g., maintenance or insurance of an asset or the electricity and other operations costs for a service contract.
Electricity cost pass through (ECPT) trial	Sunwater undertook a three-year trial to evaluate the merits of applying a cost pass-through mechanism to electricity costs.
Electricity cost pass through (ECPT) mechanism	A permanent mechanism designed to pass through to customers the actual (rather than forecast) electricity costs incurred by Sunwater during the price path period.
Existing assets	In a regulatory context are capital assets that exist at the beginning of the financial year for costing purposes.
Irrigator Advisory Committee (IAC)	The key purpose of these committees is to represent the interests of irrigation customers by providing advice and recommendations to Sunwater.
Irrigation customer	A holder of water access entitlement(s) that uses water supplied by Sunwater for the purpose of irrigation.
Irrigation price	In general, a reference to “price” in this document (and its associated supporting documents) is a reference to prices associated with an irrigation service. Irrigation prices can either be “cost reflective” prices or “transition” prices.

Term	Definition
Lower bound cost	Include efficient operational, maintenance and administration costs, and prudent and efficient expenditure on renewing existing assets. Note that under the Referral, the value of existing rural irrigation assets (as at 1 July 2000) and dam safety upgrade capital expenditure are excluded from the calculation of allowable costs. Refer to Referral.
Meter to cash system (M2C)	This system relates to the process of collecting revenues from customers, which typically involves core functions such meter reading, billing and bill payments.
Miscellaneous fees and charges	Sunwater applies miscellaneous fees and charges that relate to specific services such as drainage, drainage diversion and water harvesting. The forecast revenue from these services is deducted (offset) against the forecast revenue requirement from irrigated water charges to avoid double counting this revenue.
Opex	Shorthand term for operating expenditure which is all expenses required to run a business' operational activities. Opex is recovered from customer prices dollar for dollar in the year expended, compared with capex which is recovered over the life of the asset.
Price path period	The period over which prices are set by Government following a review and recommendations by the QCA. The price path period for this report is 1 July 2025 to 30 June 2029.
Queensland Competition Authority (QCA)	The economic regulator in Queensland tasked with ensuring monopoly businesses do not abuse their market power. They do this through price setting or monitoring roles across naturally monopolistic industries like water, rail, energy and ports, ensuring prices are competitive and access is fair.
QCA guidance	The formal guidance issued by the QCA that sets the parameters and expectations for a price proposal.
Referral	This is the referral notice issued by the Queensland Treasurer to the QCA under Section 23 and 24 of the *Queensland Competition Authority Act 1997* (Qld) for it to investigate irrigation pricing practices related to bulk water supply and water distribution undertaken by Sunwater and Seqwater.
Regulated asset base (RAB)	Represents the capital investment a business has made to provide a regulated service. It is different to the accounting asset base which represents the replacement costs of the assets – not what the assets owe the business over their life. Used as the basis for recovery of capital costs under a building block methodology.
Relift	A relift is a pump station and related infrastructure used to lift or divert water within a scheme or distribution system.
Renewals annuity	This is a funding method that recovers sufficient income (through prices) to fund the necessary asset renewal and rehabilitation works to maintain the serviceability and integrity of existing infrastructure assets. The annuity contribution recoveries will, over a long-term period, provide the cash requirements needed to renew a system of assets.

Term	Definition
Renewals expenditure	Costs associated with extending the life of long-term assets. It's usage, for the purposes of this proposal, has been extended to include preventative maintenance and/or the building of assets for purposes other than renewal.
Renewals funding methodology/renewals cost recovery	The method to calculate the way renewals costs are recovered from customers. Sunwater currently applies an annuity methodology and is proposing a regulated asset base (RAB) methodology for the price path period.
Revenue offset	This component of the revenue requirement calculation relates to the revenue forecast to be recovered from miscellaneous fees and charges. The revenue from these fees and charges is deducted from the building block costs used to set irrigation water charges to avoid double counting this revenue.
Ringfence	The accounting and functional separation of the provision of regulated services from the provision of other services by a regulated business or by their affiliated entities.
Service Contract	This is a contract between Sunwater and customers that imposes obligations on Sunwater, as owner of the service infrastructure, to release or divert water in accordance with a customer's water access entitlements, pursuant to the *Water Act 2000* (Qld). Sunwater has water supply and distribution service contracts within the 22 in-scope schemes.
Service and Performance Plan	Formerly known as a network service plan (NSP). Each year, Sunwater prepares a Service and Performance Plan for each Sunwater irrigation service contract. These plans detail a range of actual and forecast costs and activities. Performance against the QCA's recommendations is detailed in these reports for each irrigation service contract area.
Shareholding Ministers	Sunwater has two shareholding Ministers – currently they are The Honourable Cameron Dick MP, *Treasurer and Minister for Trade and Investment*, and The Honourable Glenn Butcher MP, *Minister for Regional Development and Manufacturing and Minister for Water.*
Smoothed target price or prices	Target prices that have been smoothed so that the annual price increase over the next price path aligns with forecast CPI.
Supply service	Service provided to customers involving the operation, maintenance and renewal of water supply scheme assets to capture, store and periodically release water from a water storage to a watercourse.
Support costs	Costs that are not directly attributable to an asset or a service contract. These costs are allocated to a service based on the extent to which they support activities in accordance with an accepted cost allocation methodology.
Supporting documentation	The key documents Sunwater will provide alongside the pricing proposal to support its positions.

Term	Definition
Taxation allowance	This is the annual revenue allowance to recover the forecast tax payable (if applicable) by the regulated business.
Tariffs	A tariff is typically structured to comprise the following tariff components: • The fixed tariff component is designed to recover fixed costs from customers based on water access entitlements. • The volumetric tariff component is designed to recover variable costs based on actual water usage of the customer.
Tariff group	A tariff arrangement where a subset of customers in a bulk water supply scheme or distribution system are assigned to a specific tariff or tariffs.
Target price or prices	The price applied to a tariff component consistent with lower bound cost reflectivity.
Transition price	Where an irrigation price is below the cost reflective price, it is referred to as a "transition price". Proposed transition prices are calculated in accordance with the pricing principles set out in the Notice of Referral. Both cost reflective and transition prices are shown for tariff groups where historical or proposed price increases trigger application of the pricing principles. Where the principles are not triggered irrigation prices are said to be cost reflective and no transition price applies.
Water access entitlements (WAE)/ entitlements	An authority to take water, and an entitlement to a share of the available water resource in a catchment. A water access entitlement has a title separate from a land title and can be bought and sold independently in a similar way to land. This enables entitlement holders to buy water to expand their operations or sell water they don't need. The priority assigned to an entitlement is a measure of the reliability of water that can be taken by the entitlement holder on a year-to-year basis. Medium priority water entitlements are less reliable than high priority entitlements and are typically used for irrigation use. Risk priority entitlements have the lowest level of reliability. Related to announced allocations which refer to the volume of water able to be taken each year in accordance with scheme operating rules.
Weighted average cost of capital (WACC)	A method of determining the rate of return a business should earn on its investments.
Water supply schemes (schemes)	A water supply scheme (scheme) is established by a Resource Operations Licence under the *Water Act 2000 (Qld)* and sits within a water plan area – Queensland has 23 water plan areas. Schemes have defined water infrastructure and provide the authority to interfere with the flow of water and to use watercourses to distribute water.

Abbreviations and acronyms

Term	Definition
ABS	Australian Bureau of Statistics
AER	Australian Energy Regulator
AMP	Asset Management Policy
ANCOLD	Australian National Committee of Large Dams.
ACSC	Australian Cyber Security Centre
BPIC	Best Practice Industry Conditions
BOM	Bureau of Meteorology
CAC	Customer Advisory Committee
Capex	Capital Expenditure
CPI	Consumer Price Index
CEO	Chief Executive Officer
COVID	Coronavirus disease
CRA	Critical Risk Assessment
CSO	Community Service Obligation
CSAT	Customer Satisfaction Score
DIP	Dam Improvement Program
DRDMW	Department of Regional Development, Manufacturing and Water
ECPT	Electricity Cost Pass Through
EBA	Enterprise Bargaining Agreement
ESM	Ethical Supplier Mandate
FTE	Full Time Equivalent
GIR	Government Index Rate
GST	Goods and services tax
HP	High priority
HUF	Headworks Utilisation Factor
ICT	Information and Communications Technology
IT	Information Technology

Term	Definition
KBR	Kellogg Brown and Root
kWh	Kilowatt hours
kW	kiloWatt
M2C	Meter to Cash system
ML	Megalitre
MP	Medium priority
NWGF	National Water Grid Fund
Opex	Operational expenditure
OT	Operational Technology
PMF	Probable Maximum Flood event
QCA	Queensland Competition Authority
QCA Act	*Queensland Competition Act 1997* (Qld)
QLD WPI	Wage Price Index in Queensland
QPP	Queensland Procurement Policy
RAB	Regulated Asset Base
RBA	Reserve Bank of Australia
SAMP	Strategic Asset Management Plan
SCADA	Supervisory Control and Data Acquisition
URA	Utilities Regulation Advisory
VCW	Variable Counter Weight
WACC	Weighted Average Cost of Capital
WAE	Water Access Entitlement
WSS	Water Supply Scheme

Executive summary

Lifting the bar

Irrigation services provided by Sunwater in 22 price-regulated water supply schemes (schemes) are independently reviewed by the Queensland Competition Authority under a Notice of Referral from the Queensland Government. In early 2023, the Queensland Government directed the QCA to recommend prices for irrigation services for the period, ***1 July 2025 to 30 June 2029****.*

Sunwater is proud to present our irrigation pricing proposal for the 2025-26 to 2028-29 regulatory period and extend our gratitude to the customers that attended engagement sessions, participated in online forums and provided feedback. This feedback has significantly shaped our proposal.

Sunwater has endeavoured to present a transparent and customer-focused pricing proposal.

Sunwater remains committed to delivering a prudent and efficient irrigation service that is valued by our customers. We have not always been good at sharing this part of our story or at applying this customer-focus to our irrigation pricing proposals.

Conscious of this, Sunwater has adopted a more customer-focused approach to the development of this proposal, addressing feedback from previous reviews and better balancing risk between Sunwater and our customers.

As part of its commitment to being customer focused, Sunwater has appropriately increased the transparency of our proposal development process, provided customers with meaningful opportunities to engage and influence our proposed costs and prices, and proactively adjusted our cost forecasts to ensure customers are not carrying excessive risk for future uncertainty.

We are confident our proposal represents a prudent and efficient outcome for customers, which will enable Sunwater to continue to deliver valued irrigation services now and into the future. It is also reflective of the feedback we received from customers.

This is a strong, customer-focused pricing proposal.

Challenges

Since the last irrigation pricing review, which concluded in January 2020 (2020 Review), there has been a marked change in our operating environment. The emergence of the COVID-19 pandemic, and international events such as the war in Ukraine have contributed to a significant increase in Sunwater's cost to serve.

Natural disasters such as bushfires and floods have also put considerable upward pressure on insurance premiums despite our best proactive management efforts, without which insurance costs would be even higher than we are forecasting.

The lasting effect of the pandemic and the ongoing situation in Ukraine (and other global supply side shocks such as oil prices) will be felt by Sunwater and our customers over the price path period in the form of higher input prices.

Customer engagement

Our customers are the irrigators, local governments and other businesses who enjoy the same high-quality services we have always provided.

The focus of this review is Sunwater's irrigation customers, who make up 87 per cent of our customer base (**Figure 1**) and account for 22 per cent of our revenue. We continue to engage appropriately with our urban and industrial customers in line with their contract review dates and service priorities.

Leveraging the strong foundations laid over the past four years, we engaged with our irrigation customers through a bespoke, three stage program that aimed to:

- better understand matters of importance to customers
- explore with customers how these issues might be addressed in a fair and sustainable manner
- identify and present opportunities for customers to influence our proposal
- increase the transparency of our proposal development process, providing opportunities to see and discuss proposed costs and initiatives.

Key approaches that underpinned our program:

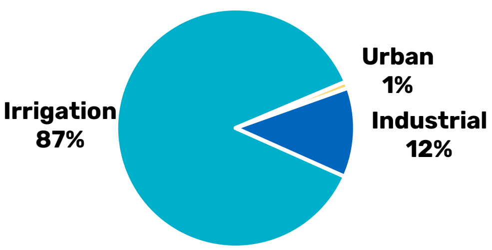
- Establishment of a Consultative Committee comprising representatives from the Queensland Farmers' Federation, Canegrowers Queensland, Cotton Australia and Queensland Fruit and Vegetable Growers.
- Providing multiple opportunities and channels for irrigation customers to engage with Sunwater as the proposal was developed.
- Early and ongoing engagement with customers in each scheme to outline the proposal development process and test engagement opportunities and channels.

The Consultative Committee played a co-design role in the development of the proposed electricity cost pass-through (ECPT) mechanism, reviewed and challenged our costs and forecasts, and helped to shape our engagement approach and materials throughout the process.

Our customer engagement journey is illustrated on the following pages.

Figure 1 – Sunwater's customers

Irrigation – from small-scale to broadacre farming including a wide range of horticulture and cropping



Urban – regional-based councils and communities

Industrial – mining and manufacturing companies, power stations, small industry, stock and domestic users

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Our customer engagement journey

Sunwater has taken strategic steps to place customers front of mind in our decision-making, particularly since the previous irrigation price review

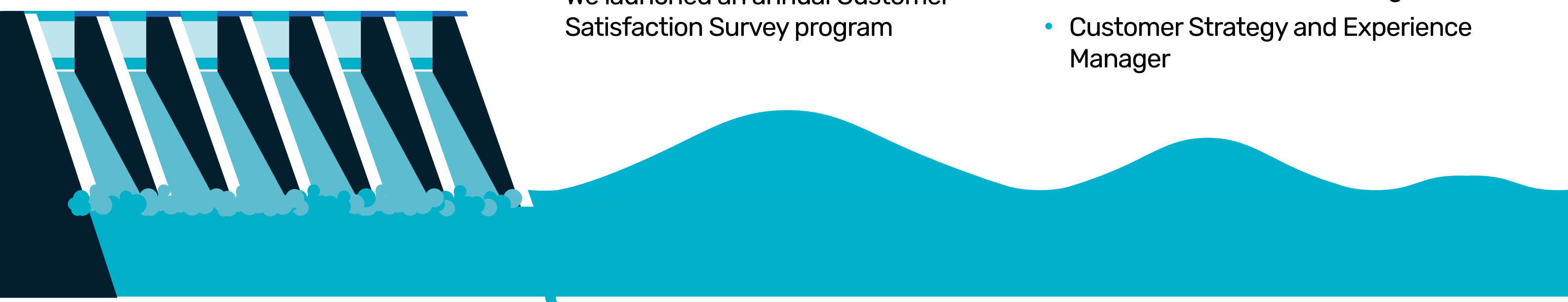
Corporate strategy
We committed to becoming a customer-centric organisation

Customer Charter
We published a pledge to customers

Customer feedback
We launched an annual Customer Satisfaction Survey program

Organisational structure
Senior roles were created to enhance customer focus, including:

- Executive General Manager, Customer and Stakeholder Relations
- Stakeholder Relations Manager
- Customer Strategy and Experience Manager



Enhancing engagement

- Launched Customer Advisory Committees in six schemes and continued to host Irrigator Advisory Committee meetings
- Established Community Reference and Working Groups for specific projects and scheme issues
- Launched the Customer Experience and Regional Tour Program to build deeper connections between employees and customers
- Undertook an irrigation customer segmentation project to identify the different ways customers want to be engaged
- Working with customers in energy intensive schemes, trialled an electricity cost pass-through mechanism

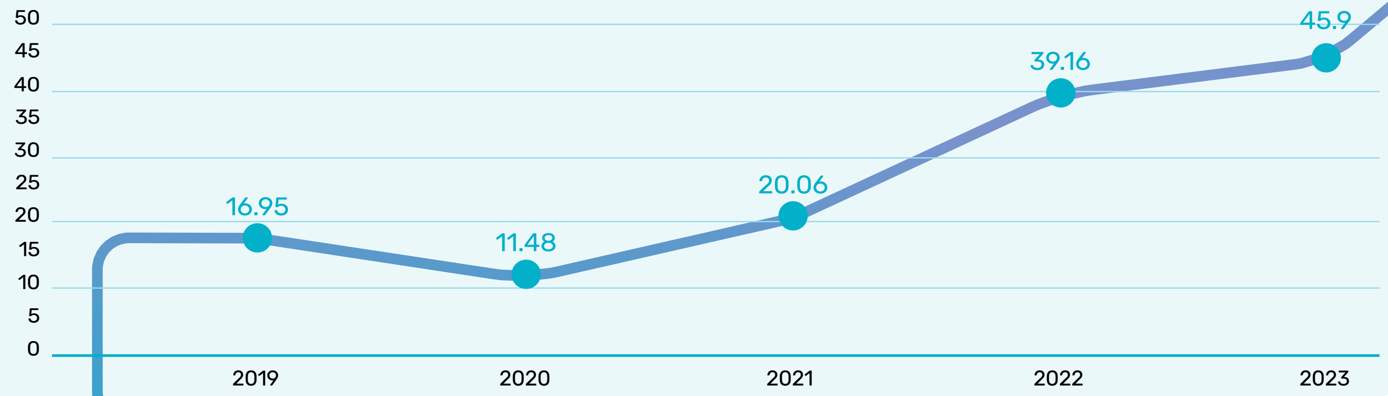
Establishing solid foundations

- Developed engagement principles, a Stakeholder Engagement Policy and a Customer Communication Procedure
- Embedded dedicated stakeholder management planning into operational and project work
- Established a customer compliments, complaints and feedback process
- Launched the Sunwater First Nations Commitment Statement framing the way we want to work with the Aboriginal and Torres Strait Islander community, including as customers

Improvement initiatives

- Launched Sunwater Online – convenient 24/7 digital transaction access to:
  - meter readings
  - out of allocation events
  - invoices
  - water orders
  - contact details
- Undertook a meter upgrade program
- Improved our customer communication templates including our end of water year newsletters and Service and Performance plans
- Committed to a billing system upgrade

Customer satisfaction score



Engaging on Irrigation Price Path 1 July 2025 – 30 June 2029

Stage 1 – March to May 2023

Learn how irrigation prices are set and how you can be involved

- Established a dedicated project website and email
- All Sunwater irrigation customers invited to price path forums
- 21 face-to-face scheme forums
- 1 all-schemes online forum
- 3 Consultative Committee meetings
- 25 scheme-specific factsheets
- 22 scheme-specific presentations*

To provide advice and assurance, Sunwater established a Consultative Committee with representatives from:

- Queensland Farmers' Federation
- Cotton Australia
- Canegrowers Queensland
- Queensland Fruit & Vegetable Growers

Stage 2 – June and July 2023

First look at Sunwater's proposed costs and irrigation prices for each scheme

Sunwater asked customers to consider the following proposals and provide feedback:

1. **Changes to Service and Performance Plans**
2. **Changes to the way renewals expenditure is recovered through irrigation prices**
3. **A permanent, symmetrical electricity cost pass-through (ECPT) mechanism in seven schemes**

- Interviewed on ABC Country Hour
- 17 face-to-face scheme forums
- 3 scheme-specific follow up online forums
- 1 all-schemes online forum
- 2 Consultative Committee meetings
- 25 scheme-specific factsheets
- 22 scheme-specific presentations*
- 3 proposal factsheets
- 5 scheme-specific ECPT factsheets

Calculator
Online tool allowed customers to calculate their prices under the current and proposed renewals recovery methodologies

GoVote
Independent platform allowed customers to provide direct, anonymous feedback about Sunwater's three proposals

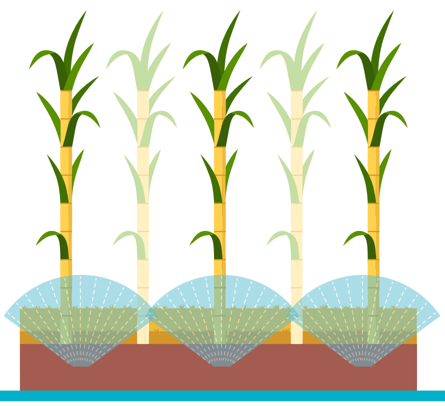
Through GoVote customers told us

- They are in favour of a Service and Performance Plan refresh
- They generally support shifting to a new approach to renewals recovery
- The relevant tariff groups within Bundaberg, Burdekin Haughton, Eton, Lower Mary and Mareeba Dimbulah Water Supply Schemes favour a permanent ECPT

Stage 3 – August to November 2023

Sunwater's final pricing proposal

- Customer feedback on prices and proposals considered
- 17 face-to-face scheme forums
- 1 all-schemes online forum
- 3 Consultative Committee meetings
- 22 scheme-specific presentations*
- 22 scheme-specific summaries
- Individual responses provided to all formal correspondence
- Customers reconsidered support of ECPT proposal



4372 Customers engaged

371 Attendees at forums

369 Customers provided feedback via GoVote about renewals and Service and Performance Plan proposals

178 Customers provided feedback via GoVote about ECPT proposal

77 Presentations produced

61 Forums held

58 Factsheets produced

8 Consultative Committee meetings held

*Including four distribution networks

Customer choices

Early in the process, Sunwater identified three key opportunities for customers to help shape our proposal. The proposals were:

- adoption of a RAB-based approach to renewals cost recovery
- introduction of a permanent ECPT mechanism for irrigation prices in up to seven schemes
- refreshed Service and Performance Plan (S&PP) report content.

We committed that we would only include these in our final proposal where they were supported by our customers.

Feedback

As one way of evaluating preferences for the three proposals, Sunwater activated an online voting system – GoVote – to capture de-identified, quantified customer feedback.

Following our Stage 2 engagement activity, which included publication of fact sheets explaining the proposals and scheme-based presentations demonstrating the impact of the proposals, Sunwater's irrigation customers were invited to express their preferences.

Hundreds of customers took the opportunity to engage in the GoVote system with:

- **369** customers providing feedback on the RAB-based approach and reporting refresh proposals
- **178** customers providing feedback on the ECPT mechanism specific to their scheme.

Overall, this reflected a **nine** per cent engagement rate. The response rate of nine per cent was considered excellent by the platform supplier (they consider above five per cent a sound response rate).

Sunwater also captured and responded to other feedback throughout the proposal development process. This included adapting our Stage 3 engagement activities and materials to provide greater insight into our expenditure proposals as well as taking on board new customer preference information in relation to the ECPT proposal.

Engagement materials from all three stages are available for download from www.sunwater.com.au/projects/price-path/

RAB-based cost recovery

Sunwater presented this proposal to customers outlining its benefits, how the methodology would be applied and its impact on prices in the scheme. We extended forecast to three, four-year pricing periods to provide insight into medium term impacts of the change following queries raised during engagement with the Consultative Committee.

On the basis that the customer turnout was strong and that customers were given ample opportunity to participate in this survey and/or make their feedback known, we propose to respect the support for this change and adopt a RAB methodology.

The RAB methodology was supported in 16 of our 22 schemes (three were neutral) and received a positive sentiment of 46 per cent from individual irrigators, with 20 per cent neutral and 34 per cent against.

Sunwater acknowledges the responses in the Bundaberg and Burdekin schemes (accounting for 84 per cent of the "strongly disagree" responses) and will continue to engage with irrigators in these schemes (and any other scheme) to understand and address concerns related to this proposed change.

ECPT mechanism

Customers in eligible tariff groups in the Barker Barambah, Bundaberg, Burdekin, Eton, Lower Mary, Mareeba and Upper Condamine schemes were asked if they would like to adopt a permanent ECPT mechanism. This proposal included the pass-through of electricity costs via quarterly (lagged) billing of actual electricity costs.

Prior to taking this proposal to customers Sunwater engaged with the Consultative Committee to co-design and test the proposed mechanism. We then engaged with customers outlining the reason for our proposal, its benefits, how the methodology would work, and its impact on prices in the scheme.

Sunwater notes that final prices presented in Stage 3 included indicative Part E (fixed electricity charges) and Part F (consumption-based electricity charges) alongside Part A/C and Part B/D charges. In some instances, presenting this material to customers led to concerns that adopting a pass-through would not be in their best interests, contrary to their earlier feedback.

Based on feedback received from customers prior to 30 November Sunwater is:

- **not** proposing an ECPT mechanism for Barker Barambah Redgate relift, Burdekin channel, Bundaberg channel, Lower Mary channel, Mareeba-Dimbulah – relift and Upper Condamine – North Branch (including Risk A) tariff groups
- proposing an ECPT mechanism for Eton (excluding Risk A) tariff groups, noting that support in this scheme may be qualified or change during the review phase
- noting that Bundaberg and Burdekin Haughton representative groups are working together on an alternate proposal in response to the proposed prices shown in Stage 3 engagement materials. Sunwater is committed to working with these customer groups and may seek to make a supplementary submission in due course.

Reporting refresh

Sunwater's S&PPs are an important accountability mechanism, providing an avenue for customers to see how we are performing in terms of cost and service between formal pricing reviews. Improving the content and timeliness of publication improves Sunwater's accountability to our customers and stakeholders.

On the basis that the customer turnout was strong and that customer feedback was overwhelmingly supportive (70 per cent responding "agree" or "strongly agree") of this change, we propose to refresh the content of our S&PPs.

Sunwater has developed and will publish (December 2023) a refreshed S&PP for each scheme addressing 2022-23 actuals (and otherwise aligned with the content of this pricing submission).

We remain open to further changes to the content/layout of this document in response to further customer feedback and are committed to the timely publication of meaningful scheme-level performance data and near-term investment priorities going forward.

Revenue requirement

Sunwater's proposed revenue requirement is presented in **Table 1**. Our aggregate four-year revenue requirement is $433.9 million.

The revenue requirement combines the building blocks of opex, the opex component of Sunwater's renewal forecast, capital returns, and a tax allowance placeholder (no schemes returned a positive tax allowance for this period).

Table 1 – Proposed revenue requirement – RAB-based approach ($'000s)

Building block (Units)	2025-26 ($)	2026-27 ($)	2027-28 ($)	2028-29 ($)	Aggregate ($)	Aggregate (%)
Price path related expenditure						
Opex	83,427	85,254	87,051	88,793	344,525	74.8
Renewals opex	10,742	18,698	17,630	15,117	62,186	13.5
Capital returns	8,252	11,003	12,731	13,756	45,742	9.9
Tax allowance	0	0	0	0	0	0.0
Sub-total	102,421	114,955	117,411	117,666	452,452	98.2
Revenue adjustments						
Revenue offsets	-1,821	-1,873	-1,925	-1,973	-7,593	-1.6
Insurance review	2,832	2,913	2,993	3,068	11,805	2.6
QCA Fee[1]	941	967	994	1,022	3,925	0.9
Sub-total	1,952	2,007	2,062	2,116	8,136	1.8
Total	104,373	116,961	119,473	119,782	460,589	100.0
Annuity Positive Balance Returns	-6,391	-6,574	-6,755	-6,923	-26,642	
Total (net of returns)	97,982	110,388	112,719	112,858	433,947	

Note 1: The QCA fee is apportioned to each scheme on the basis of irrigation entitlements

To this base revenue requirement, we have added revenue offsets, an insurance review event amount, and the QCA's fee.

We have also included the return of positive annuity balances to customers consistent with our proposal to shift to a RAB methodology.

Opex

Key features of Sunwater's opex forecast include:

- adjusted base year expenditure of $72.8 million following robust consideration of atypical expenditure in the 2022-23 base year
- inflation of base year costs in line with the *QCA's Final Position Paper – Inflation Forecasting*, deviating only to reflect contracted or known price increases
- a single step change commencing in 2025-26 arising from the renewal of our billing system
- an annual efficiency target of -0.5 per cent (compared with -0.2 per cent in the current period) applied to this target from 2023-24.

Table 2 shows our opex forecast.

Renewals

Our renewals portfolio of works is founded on a robust asset management framework and efficient works planning, scheduling, and delivery practices.

Current period

Sunwater's program of works at the time of the 2020 Review was a best estimate based on risk and condition information available at the time. Consistent with best asset management practice actual work undertaken by Sunwater continues to be determined annually based on the best available assessments of condition and risk.

During the current price path period (four years of actual plus two years of forecast) Sunwater expects to have invested $194 million, an uplift of $91 million against the QCA allowance for the same period.

Sunwater has delivered, or is delivering, 10 major projects that cumulatively represent $44.5 million of the investment delivered this price path period. Documentation for each of these projects has been provided (along with more than 60 other current period projects, across all schemes, asset types, classes and values).

Table 2 – Aggregate price path opex forecast ($000s)

Cost category	2025-26	2026-27	2027-28	2028-29
Insurance	12.29	12.58	12.86	13.12
Electricity	11.28	11.47	11.68	11.91
Operations and maintenance	29.25	29.95	30.59	31.20
Labour (direct)	*13.65*	*13.98*	*14.27*	*14.56*
Materials	*2.94*	*3.01*	*3.07*	*3.13*
Contractors	*4.84*	*4.96*	*5.06*	*5.17*
Other direct	*7.82*	*8.01*	*8.18*	*8.34*
Support costs	30.61	31.25	31.92	32.57
Total	**83.43**	**85.25**	**87.05**	**88.79**

This uplift is driven by:

- reactive activities in response to unplanned events or asset failures
- new projects arising from improved risk and condition data, and in particular, the outcomes of various dam safety management studies
- materially higher than forecast inflation that has affected both labour and materials.

Price path period

Figure 2 shows our investment plan for the price path period and includes:

- renewal of our legacy billing system via $40.9 million[1] in "build" costs allocated to in-scope schemes
- non-billing system investment ($147.0 million) is covered in 17 programs ($126.3 million) and via individual projects ($20.7 million).

Our proposal also includes a long term forecast to support an annuity-based recovery of renewals costs.

The balance of Sunwater's proposed renewals expenditure for the 2029-30 and 2057-58 period is $1.04 billion.

Prices

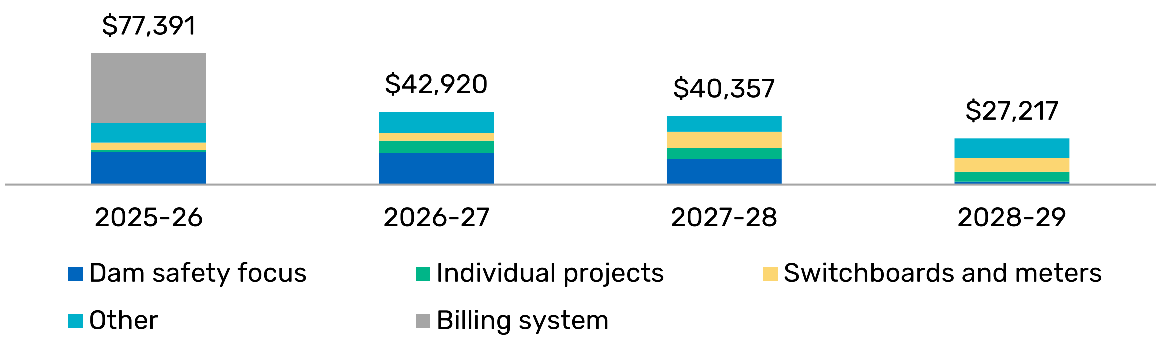
Sunwater is not proposing any changes to existing tariff groups as part of this proposal. There are, however, a number of current tariff groups that exist for historical pricing practice/policy reasons. Where prices in these tariff groups have reached parity by 1 July 2025 there is no longer an ongoing basis for their continued differentiation and Sunwater proposes they be replaced by a single tariff group going forward.

We have not changed allocation categories or percentages from the 2020 Review. In replacing the annuity contribution building block with renewals opex, capital returns, and taxation building blocks we have maintained the same approach to the allocation to tariffs.

Proposed cost reflective and transition prices were shared with customers during Stage 3 engagement and are set out in **Section 7** of this document.

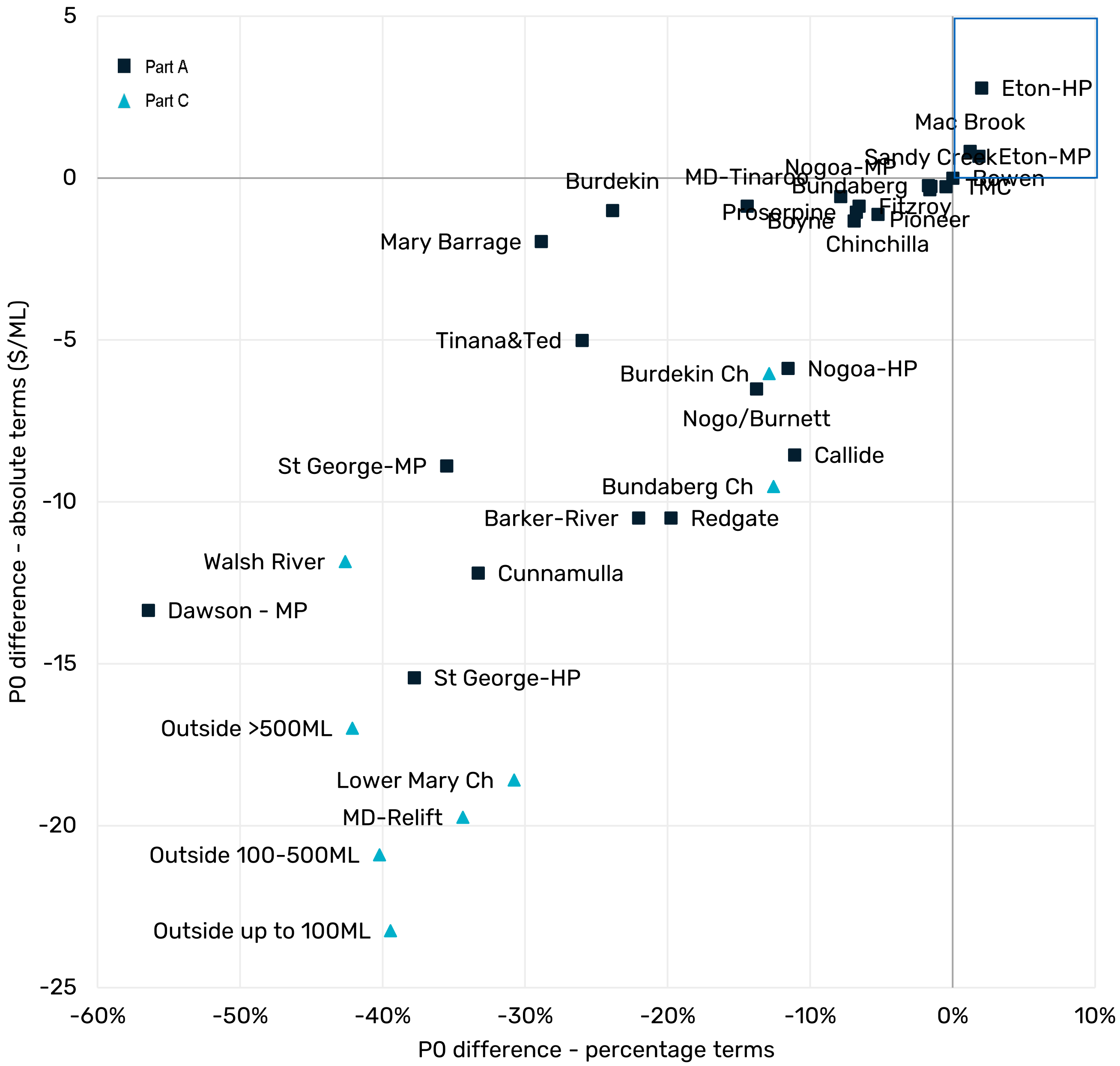
The shift to a RAB-based approach results in lower cost reflective prices for all irrigation tariff groups in all schemes except Eton, Macintyre Brook, and Maranoa as shown in **Figure 3**.

Figure 2 - Total year-by-year expenditure across the price path period ($000s)



[1] The approved $38.6 million build cost has been inflated to $42.4 million to account for a 1 July 2025 commissioning date. The value shown represents the that falls within the scope of this review.

Figure 3 - RAB-based approach impact on first year price change[1]



Note 1: Abbreviations have been used to improve readability. Scale has been selected to enhance readability, resulting in the omission of Maranoa (+12.4%; +$12.85/ML) and Dawson Valley – River (high priority) (-68.1%; -$84.21/ML) tariff groups. Tariff groups with common cost reflective prices have only been shown once (e.g., John Goleby Weir tariff group has the same change as Nogo/Burnett – only Nogo/Burnett is shown)

Of these three schemes, only Eton (high-B or medium priority tariff group) transition prices will be higher under a RAB-based approach, paying an extra 70 cents per megalitre in 2027-28 and 73 cents in 2028-29.

Transition prices in the other two schemes are well below cost reflective levels throughout the next period.

Irrigation pricing proposal

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1 Introduction

This section introduces Sunwater and the services we provide and establishes the context and scope for this irrigation pricing proposal.

1.1 About us

Sunwater is a Queensland Government-owned corporation that owns, operates and builds water infrastructure in regional Queensland. Sunwater supplies about 40 per cent of the water used commercially in the state, supporting more than 5,000 customers in the agriculture, local government, mining, power and industrial sectors. **Figure 1** provides a high-level snapshot of who we are and what we do.

Sunwater supplies its irrigation, urban and industrial customers across 23 water supply schemes, including the distribution of water via four irrigation channel (distribution) systems and 18 pipelines. This involves the safe and effective operation and maintenance of $13.9 billion of water infrastructure assets, including:

- 19 dams
- 64 weirs and barrages
- 595 kilometres of water channels
- 70 major pumping stations
- 1,951 kilometres of pipelines
- six water treatment plants.

Figure 2 shows that Sunwater's total customer base[1] (across regulated and non-regulated schemes) has declined from 7,144 in 2011-12 to 5,196 in 2022-23. Over this period, this equates to a three per cent year-on-year decline (compound annual rate) in the number of irrigation customers and 1.9 per cent year-on-year decline in non-irrigation customers. Sunwater's irrigation customers are consolidating, meaning average water access entitlement (entitlement) holdings are increasing. This aligns with a growing number of corporate owners of irrigation entitlements.

Sunwater delivers on its purpose of delivering water for prosperity through five strategic goals (**Figure 3**). These guide the work we do and the way we do it – they are an integral part of this proposal.

1.2 Proposal structure

In preparing this pricing proposal, Sunwater has sought to clearly address the criteria set out in the Queensland Competition Authority's (QCA) guidelines.

In addition to the standard regulatory framework matters, key features of this proposal include:

- an insurance review event for current period insurance costs
- an electricity cost pass through (ECPT) mechanism in some schemes
- a regulated asset base (RAB)-based funding model for recovery of renewals expenditure.

[1] This number reflects a single customer per service type per water supply scheme, regardless of the number of accounts held. This excludes Sunwater or Queensland Government held accounts, as well as carryover and trade accounts where these customers do not hold another account type.

Figure 1 – Sunwater at a glance

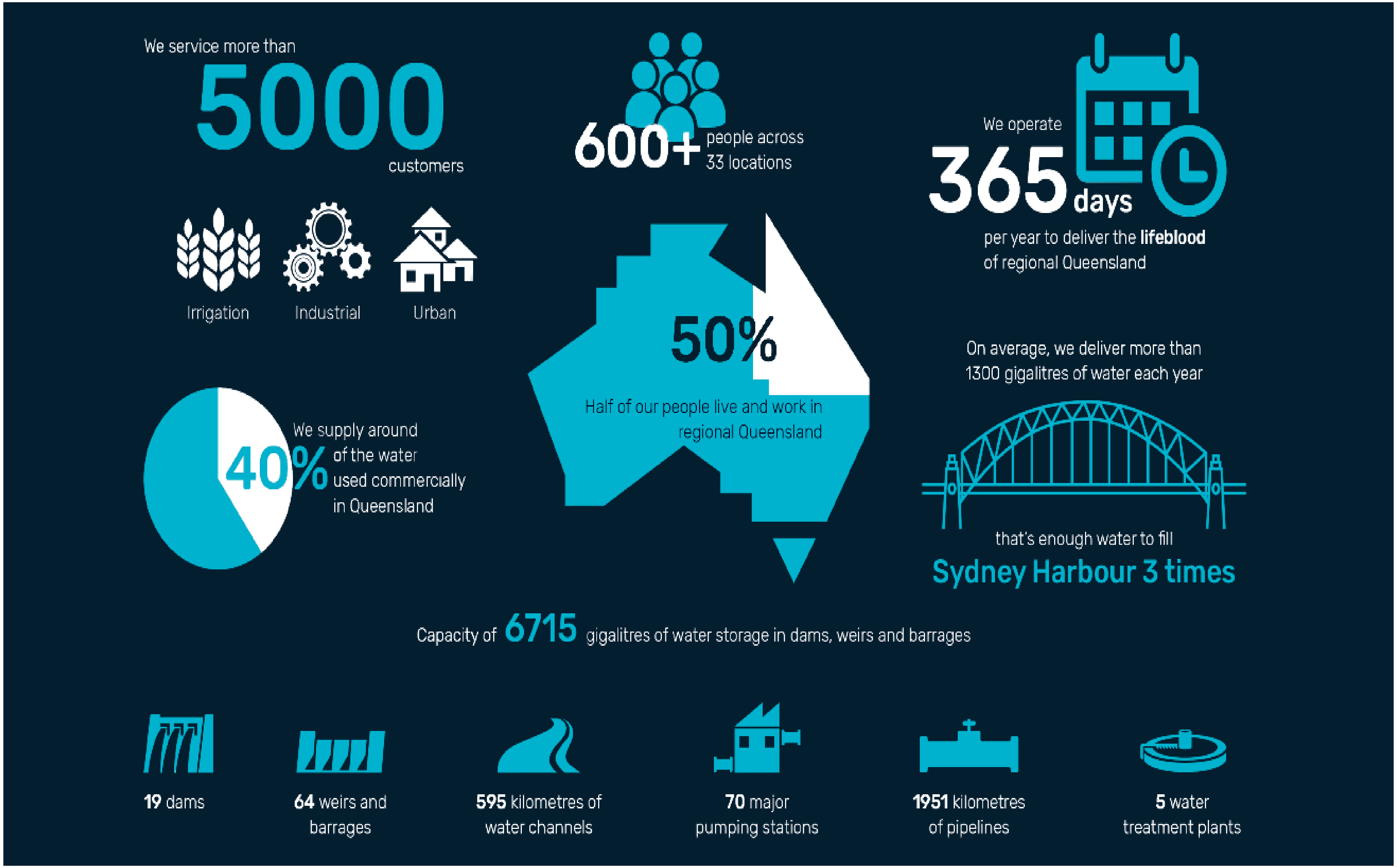


Figure 2 – Customer numbers over time (irrigation and non-irrigation services)

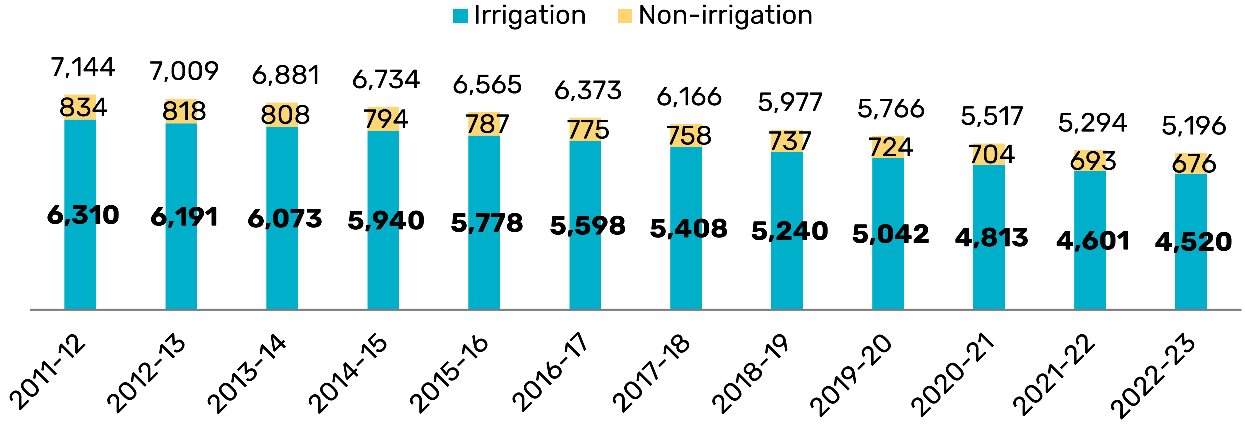


Figure 3 - Sunwater's strategic goals

Safe and engaged people	Building a culture that cares for and supports the health and wellbeing of our people and the communities in which we operate, to meet or exceed customer and stakeholder expectations and ensure everyone goes home safely each day.
A sustainable business	Remaining reliable, resilient and adaptable by effectively managing assets, reducing environmental impact and nurturing relationships to meet the changing demands of our customers, communities and business.
Stakeholder-centric business	Actively working with all stakeholders — including customers, shareholders, industry groups and traditional custodians — to minimise the impact of our operations and projects and create opportunities for best value outcomes that go beyond water delivery.
Operational excellence	Developing a skilled workforce along with contemporary systems, processes and technology to efficiently and safely manage and maintain our assets and ensure optimal service value to our customers.
Water infrastructure leader	Leveraging internal and external capabilities to successfully plan, design, construct and commission quality bulk water infrastructure solutions that drive economic growth and jobs in regional communities and make best use of our valuable water resource.

Table 1 sets out the location of these and other key issues relevant to Sunwater's pricing proposal for the 2025-26 to 2028-29 period (price path period).

1.3 Legal and regulatory framework

Sunwater was established on 1 October 2000 under the *Government Owned Corporations Act 1993* (Qld) (GOC Act), administered by Queensland Treasury.

Sunwater is a water service provider under the *Water Supply (Safety and Reliability) Act 2008* (Qld) (WSSR Act), and a resource operations licence holder under the *Water Act 2000* (Qld) (Water Act). Both acts are administered, and overseen by, the Queensland Department of Regional Development, Manufacturing and Water (DRDMW).

Table 1 – Pricing proposal overview

Section	Content
Introduction	Outlines the context and scope of this review, while setting out our goals and how we approached development of this proposal.
Customer engagement	Sunwater's approach to customer engagement is established here. It covers the ongoing focus we place on our customers (and other stakeholders) as well our efforts to engage effectively with customers as we prepared this pricing proposal between March and November 2023. This section introduces the two main price-influencing choices we presented to customers during our proposal development – a RAB-based approach to renewals expenditure recovery and an ECPT mechanism.
Pricing framework matters	This section introduces our approach to key inputs to the pricing proposal, including the treatment of inflation, cost review events and demand and distribution losses. It provides further detail on the proposals to introduce a RAB-based approach to renewals expenditure recovery and the ECPT mechanism.
Operating expenditure (opex)	The central revenue building block, Sunwater's opex forecasts are set out in this section, starting with an overview of our proposed base-step-trend approach to the development of our forecast. Whole of Sunwater forecasts are presented along with an explanation of key drivers of activity and cost.
Renewals expenditure	Sunwater's renewals expenditure in the current period is outlined here along with forecasts for the price path period and beyond (out to 2057-58).
Revenue requirement	This section sets out Sunwater's overall revenue requirement, detailing the key building blocks, including proposed revenue transfers and the treatment of positive annuity balances under the proposed RAB-based approach.
Proposed prices	Sunwater's approach to tariff reform and the calculation of prices is outlined along with cost reflective and transition prices for all relevant tariff groups. Prices presented reflect a RAB-based recovery of renewals costs. Alternate prices under the annuity-based approach are presented in **Appendix A**.
Scheme summaries	Scheme summaries have been prepared to summarise Sunwater's pricing proposal, as it affects individual schemes. These summaries contain important scheme level information and input parameters as well as scheme-specific customer feedback and pricing matters.

Sunwater operates under a legal and regulatory framework of more than 69 pieces of primary legislation, which sets out its roles, responsibilities, and obligations, including:

- Competition and Consumer Act 2010 (Cth) and Queensland Competition Authority Act 1997 (Qld)
- Right to Information Act 2009 (Qld)
- Crime and Corruption Act 2001 (Qld), Public Interest Disclosure Act 2010 (Qld) and Integrity Act 2009 (Qld)
- Human Rights Act 2019 (Qld)
- Financial Accountability Act 2009 (Qld)
- Environmental Protection Act 1994 (Qld)

- Work Health and Safety Act 2011 (Qld) and Electrical Safety Act 2002 (Qld)
- Security of Critical Infrastructure Act 2018 (Cth)
- Privacy Act 1988 (Cth) and Information Privacy Act 2009 (Qld)
- Planning Act 2016 (Qld), Land Act 1994 (Qld), Land Title Act 1994 (Qld), Property Law Act 1974 (Qld) and State Development and Public Works Organisation Act 1971 (Qld)
- Aboriginal Cultural Heritage Act 2003 (Qld), Native Title (Queensland) Act 1993 (Qld), Native Title Act 1993 (Cth)
- Fair Work Act 2009 (Cth)
- Queensland Government Sponsorship Policy
- Government-Owned Corporations Wages Policy 2021 (GOC Wages Policy).

Corporate governance practices and frameworks comply with legislative requirements, including the GOC Act, the *Financial Accountability Act 2009 (Qld)* and the Queensland Government's Corporate Governance Guidelines for Government Owned Corporations.

Sunwater is periodically reviewed by the QCA at the direction of the Queensland Treasurer. A Notice of Referral typically requests that the QCA examine Sunwater's proposed costs and revenue for upcoming price path periods, and recommend future irrigation prices to the Queensland Government.

1.4 Irrigation Pricing Review

Irrigation services provided by Sunwater in 22 price-regulated water supply schemes (schemes) are independently reviewed by the Queensland Competition Authority under a Notice of Referral from the Queensland Government.

In early 2023, the Queensland Government directed the QCA to recommend prices for *irrigation services* for the period, **1 July 2025 to 30 June 2029** for the water supply schemes and services outlined in **Table 2**. This excludes services provided by Burnett Water Pty Ltd in relation to Paradise Dam and Kirar Weir.

An *irrigation service* is defined as "*the supply of water or drainage services for irrigation of crops or pastures for commercial gain*". The term "irrigation customer" refers to a customer receiving an irrigation service from Sunwater.

Prices for non-irrigation services are agreed by contract.

Sunwater is committed to helping our customers thrive by:

- working with them to make the most of the available water supply
- ensuring our resources are geared towards timely and cost-efficient water delivery
- understanding their needs and adapting to changes in their environment.

Sunwater also provides a range of ancillary services consistent with the operating rules of each scheme. The nature of these services is outlined in **Table 3**.

Table 2 – Customers[1] receiving a price-regulated water service (30 June 2023) by scheme

Scheme	Service	Abbreviation	Customers	
			Sub-total	*Total*
Mareeba-Dimbulah	Water supply	MBM	133	1,106
	Distribution	MIM	973	
Bundaberg	Water supply	BBB	208	1,015
	Distribution	BIG	807	
Burdekin Haughton	Water supply	ABB	69	312
	Distribution	AIE	243	
Nogoa Mackenzie	Water supply	LBN		308
Eton	Water supply	KBE		302
St George	Water supply	IBS		175
Lower Mary	Water supply	BBL	86	160
	Distribution	BIC	74	
Barker Barambah	Water supply	BBR		150
Bowen Broken Rivers	Water supply	KBB		7
Boyne River and Tarong	Water supply	BBY		49
Callide	Water supply	LBC		127
Chinchilla Weir	Water supply	IBH		23
Cunnamulla	Water supply	IBN		22
Dawson	Water supply	LBD		94
Lower Fitzroy	Water supply	LBF		7
Macintyre Brook	Water supply	IBT		86
Maranoa	Water supply	IBM		4
Pioneer	Water supply	KBP		1
Proserpine	Water supply	ABP		83
Three Moon Creek	Water supply	LBT		88
Upper Burnett	Water supply	BBU		141
Upper Condamine	Water supply	IBU		112
Total				**4,372**

Note 1: Excludes Burnett Water Pty Ltd customers

Table 3 – Services provided within Sunwater's price-regulated water supply schemes

Service	Nature of service
Bulk water supply service (supply service)	• Bulk water supply schemes supplement natural water resources with dams and weirs to increase the yield and reliability of watercourses such as rivers and streams. Dams and weirs can also be used to recharge groundwater. • Sunwater's bulk water supply schemes store and deliver raw water to irrigation customers in accordance with their entitlements. DRDMW determines the entitlements available within a scheme, which are held by customers. Entitlements are a form of legal title that is held separate to land titles. Announced allocations (AA) specify the portion of a customer's entitlement available for use (by priority group).
Distribution service	• Customers in four regulated schemes receive a distribution service, providing them access to water via networks of Sunwater owned and operated channel (supported by pump and pipe infrastructure) distribution systems. • Sunwater's distribution systems support a greater geographical spread of irrigation away from the source rivers and can facilitate common infrastructure such as mills and processing facilities. • Distribution service customers are also supply service customers.
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 customer properties and dispose of it via a system of drains that Sunwater maintains.
Drainage diversion services	• Customers in the Burdekin Haughton distribution system can extract tail water, and rain and storm run-off from the drainage network (drainage diversion services). Customers supply their own pump and other infrastructure, such as sumps and weirs, to access this water.
Water harvesting	• In some schemes, such as Burdekin Haughton, customers also hold water harvesting entitlements. During naturally occurring high river flow events, Sunwater facilitates the extraction of additional river water to supplement the water available under the customer entitlements.

1.4.1 Scope of the review

Under the Notice of Referral, there are two costs that cannot be recovered from irrigation customers:

- Any capital expenditure incurred before 1 July 2000 to build existing assets.
- Any dam safety upgrade capital expenditure.

All costs, revenue and prices contained in this pricing proposal are exclusive of these items.

This means that Sunwater's cost reflective prices are set to recover a lower bound level of revenue.

Revenue Sunwater derives from cost reflective prices is set to cover the cost of operating, maintaining and renewing our assets in order to deliver services in line with legal, regulatory and customer service requirements. The customer service standards that apply to each scheme are set out in the scheme summaries that support this pricing proposal.

The cost of non-capital activities such as comprehensive risk assessments (CRAs), and any resulting activities that do not result in a capital project are "*allowable costs*" and have been included in our proposal.

The review process is a propose-respond methodology, where Sunwater proposes costs, key inputs, tariff groups and prices (both cost reflective and transition) for its irrigation services, and the QCA responds via an assessment of our proposal.

The QCA's recommendations at the end of the process will inform the Shareholding Ministers' decision-making in relation to the final prices to be adopted for the price path period.

1.4.2 Dam safety management

Capital projects are one possible outcome of Sunwater's robust Dam Safety Management Program. This section outlines clearly what is included under the banner of dam safety upgrade capital projects, as well as explaining the context for non-capital activities (such as the additional investigations outlined above).

Legislative context

Sunwater operates 23 referable structures (19 are dams) throughout Queensland, 22 of which we own as shown in **Table 4.** Paradise, Julius and Glenlyon dams are not shown as these assets are outside the scope of this review/proposal.

In Queensland, referable dams are subject to the WSSR Act. Under the WSSR Act, the Chief Executive (also known as the Regulator) is nominated as the party responsible for reviewing and making recommendations about standards and practices under the WSSR Act, and for monitoring compliance.

The Regulator has published a series of guidelines applicable to the management of dams. Sunwater as a dam owner must comply with the WSSR Act and the following guidelines:

- Dam Safety Management Guideline (DNRME, 2020).
- Emergency Action Plan for Referable Dam Guidelines (DNRME, 2021).
- Guidelines on Acceptable Flood Capacity for Water Dams (DNRME, 2019).
- Guideline for Failure Impact Assessment of Water Dams (DNRME, 2018).

The Dam Safety Management Guidelines (DNRME, 2020) prescribes the required elements of an owner's dam safety management program.

As a dam owner, Sunwater is also responsible for maintaining its dam assets under the Guidelines on Safety Assessments for Referable Dams (DRDMW, 2021). These guidelines specify the level of societal risk and individual risk tolerable to dams and provide a framework to judge current dam assets. Dam assets which exceed these guidelines are in breach of regulatory requirements and require dam improvement works.

Table 4 - Referrable structures operated and managed by Sunwater

Scheme	Structure
Mareeba-Dimbulah	Tinaroo Falls Dam
Bundaberg	Fred Haigh Dam Isis Balancing Storage Woongarra Balancing Storage
Burdekin Haughton	Burdekin Falls Dam
Nogoa Mackenzie	Fairbairn Dam
Eton	Kinchant Dam
St George	EJ Beardmore Dam
Barker Barambah	Bjelke-Petersen Dam
Bowen Broken Rivers	Eungella Dam
Boyne River and Tarong	Boondooma Dam
Callide	Callide Dam Kroombit Dam
Dawson	Moura Offstream Storage
Macintyre Brook	Coolmunda Dam
Pioneer	Teemburra Dam
Proserpine	Peter Faust Dam
Three Moon Creek	Cania Dam
Upper Burnett	Wuruma Dam
Upper Condamine	Leslie Dam

This work is aimed to ensure that the risk associated with dam assets are:

- below the pertinent limit of tolerability (LoT)
- eliminated or reduced to as low as reasonably practicable (ALARP)
- identified for critical review if the number of fatalities due to dam failure exceeds 1,000.

Sunwater context

Sunwater targets a level of risk deemed ALARP with reference to the most current version of the Australian National Committee on Large Dams (ANCOLD) *Guidelines on Risk Assessment 2022* with some differences required to be consistent with specific Queensland legislative purposes and decisions. The pursuit of ALARP safety risk aligns with Sunwater's commitment to delivering safe water assets for its employees and stakeholders.

Sunwater's dam assets include different structural designs and as such are managed with reference to specific guidelines.

Dams within Sunwater's portfolio are each exposed to different risks. Sunwater has historically measured the tolerable risk of its assets through completion of CRA's with a standard approach across the portfolio. The CRA's for individual dams are reviewed every five years, or more frequently where changes in inputs studies indicate that the risk profile of the dam may have changed or where current practice or guidance is updated.

CRA's are considered industry best practice and are delivered generally in accordance with ANCOLD Guidelines for Risk Assessment.

Within this context, Sunwater is mandated to ensure that all referrable dams meet the LoT and / or satisfy the ALARP principle by 2035. Sunwater's approach to the meeting this requirement is governed by its Dam Safety Management Framework (DSMF).

Dam Safety Management Framework

The DSMF sets out the process that Sunwater follows to determine what (if any) actions are necessary to meet these requirements. Actions can include non-capital activities such as further risks assessments, technical investigations and changes to operations, maintenance and asset management practice, as well as capital expenditure interventions.

Figure 4 shows key elements of the DSMF with an overlay of which elements are non-capital, capital renewal, and capital upgrade expenditure activities and therefore allowable or non-allowable costs under the Referral Notice.

Capital projects with a safety driver that are not related to a referrable structure, and where the safety driver is unrelated to the framework outlined above are **not** considered dam safety upgrade capital projects and are allowable costs.

1.5 A challenging delivery environment

Since the last QCA irrigation pricing review, which concluded in January 2020 (2020 Review), the operating environment has changed markedly. The emergence of the COVID-19 pandemic coincided with the conclusion of the last review, impacting Sunwater in a number of ways:

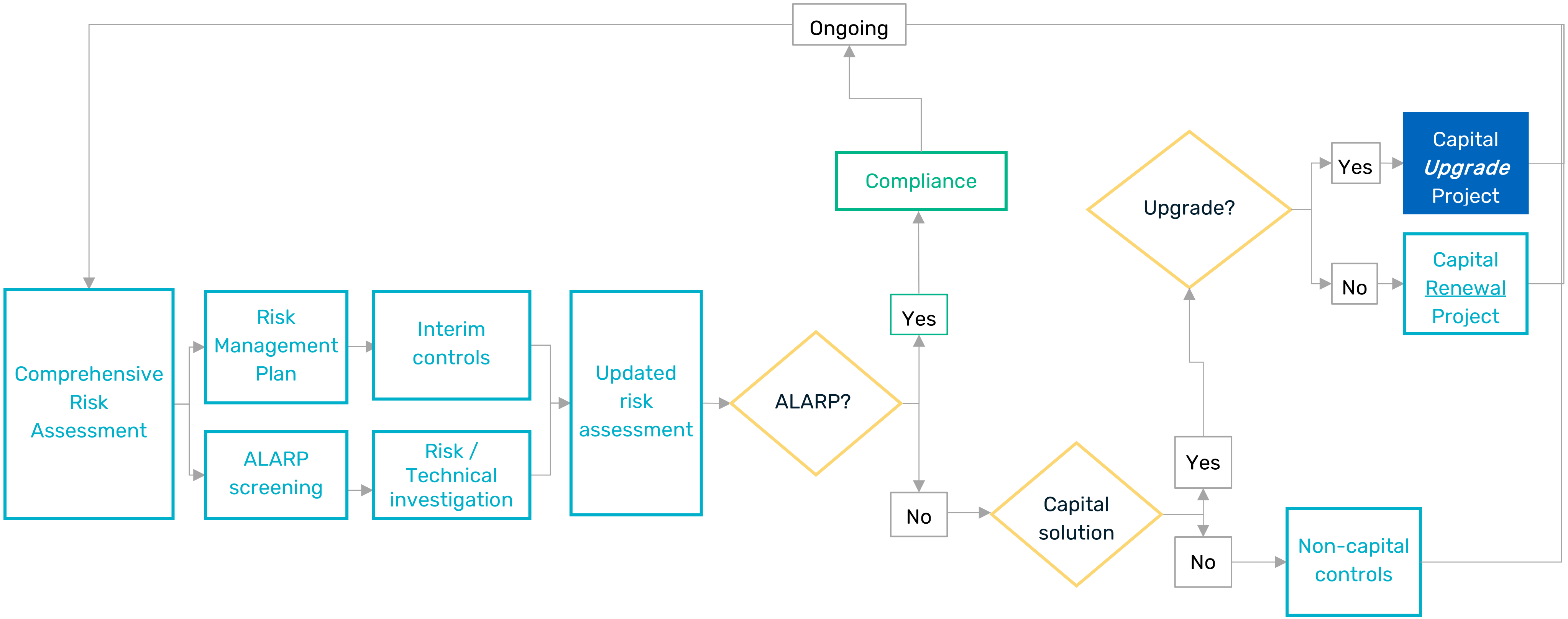
- It challenged us to keep our people and customers safe, while continuing to provide valued and vital water supply services.
- It raised the cost of many input goods and services and contributed to the current high inflation environment.
- It impeded our ability to obtain goods and services in a timely manner, necessitating innovative actions, including reprioritisation of activities.

The lasting effect of the pandemic and the ongoing situation in Ukraine (and other global supply side shocks such as oil prices) will be felt by Sunwater and our customers over the price path period in the form of higher input prices. Prices are higher than expected today as we prepare our pricing proposal, and they are expected to be higher throughout the period.

Figure 5 compares general inflation assumptions used in the 2020 Review for the setting of current period prices with actual inflation outcomes[2].

[2] Source: Australian Bureau of Statistics 6401.0 Consumer Price Index, Australia. March to March values.

Figure 4 – Dam Safety Management Framework – with irrigation pricing overlay



Current and future funding through lower bound prices – *included in scope of irrigation prices*

Dam safety ***upgrade*** capital expenditure – *out of scope of irrigation prices*

Capital ***upgrade*** projects are those driven by a change in the stage of knowledge or performance requirements for a referrable structure. Changes to hydrology, population-at-risk and/or regulatory standards are examples of such changes.

Figure 5 - How actual inflation has differed from 2020 Review assumptions

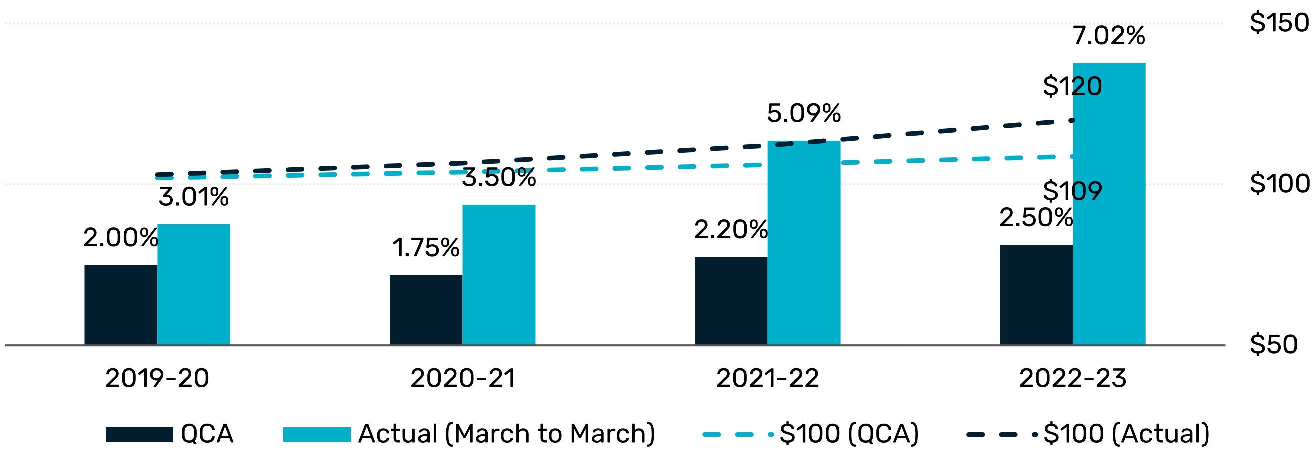


Figure 5 shows that a $100 allowance for the 2018-19 base year grew to $109 in 2022-23 using inflation forecasts from 2018-19. Using actual inflation however, the same $100 would be $120, approximately 10 per cent higher.

This analysis is presented to highlight the scale of the inflationary challenge Sunwater has faced during the current period. The impact of rising input costs is discussed in **Section 4 – Operating expenditure**. This includes a focus on insurance, which have been subject to considerable upward pressure throughout the price path period, largely because of global and national natural disaster events.

Key challenges (current and price path period) for Sunwater include:

- *Aging workforce* – while not a new issue, Sunwater's aging workforce has been a focus over the period, with a significant cohort approaching retirement, and a tight regional labour market making replacement of skills an ongoing challenge.
- *Safety focus* – Our shareholders, Board and customers all have high expectations when it comes to safety. Significant flooding events across the past decade, and the COVID-19 pandemic have impacted our work priorities and the way we operate, maintain and renew our assets in order to comply with rising regulatory expectations.
  - Dam safety has been given greater focus by shareholders and regulators and continues to drive renewals investment in this proposal.
  - A strong operational focus on keeping our people safe as we managed the challenges the COVID-19 pandemic presented continues, ensuring our people can do their work safely, as we right-size our teams and their capabilities, as well as reducing risks appropriately through operational and asset investment decisions. The Arc Flash program is a good example of this and is detailed in **Section 5 – renewals expenditure**.

- *Aging assets* – Sunwater's assets continue to age, with upward pressure on maintenance and renewal effort – most of Sunwater's regulated schemes were developed between 1950 and the mid 1980's. Some bulk water assets, for example in the Dawson Valley, are up to 100 years old. This means, a significant proportion of our assets are due to reach the end of their useful life in the next decade. Significant investment is required to renew these assets to maintain water security and safety.
- *Electricity costs* – increases wholesale market volatility and rising medium to long term costs expectations.

1.6 Meeting customer expectations

Customer service expectations have not changed materially over the past four years, however irrigation customers told Sunwater they are hurting as their input costs have also risen across the board.

Customers expect us to provide a reliable water supply, control our costs and keep prices as low as possible, while acknowledging that we must continue to comply with our legislative and regulatory obligations. Customers do not want our service levels to drop and continue to value our local presence and the ability to speak to an Australian-based contact centre.

We have listened to our customers and continue to prioritise cost control and the pursuit of opportunities to lower costs, while maintaining existing customer service standards.

This pricing proposal focuses on renewing infrastructure where necessary and controlling opex in a high-inflation environment (on multiple fronts) to maintain services for customers at the lowest price possible.

Customer service standards for each scheme are set out in the supporting Scheme Summaries. These were tested as part of Stage 2 of Sunwater's engagement program and validated in Stage 3. Sunwater's pricing proposal is built around delivering these levels of service for customers, within the legal and regulatory framework, at the lowest possible cost.

Key features of this proposal that attest to Sunwater's desire to continue to meet customer expectations include:

- The continuation of reliable irrigation services.
    - Investing $147 million in our assets over the four-year price path period to maintain the security, availability and reliability of services to irrigation customers.
- Personal customer services and ongoing engagement.
    - Investing $38.6 million[3] to replace an aged (no longer supported) customer billing and contact management system to ensure Sunwater can continue to provide the personalised service customers expect. This necessary investment is expected to help us deliver improvements to timeliness and accuracy of customer information.

[3] This value (in 2022-23 dollars) is based on the approved business case with inflation of internal labour costs reversed. The approved $38.6 million covers ALL schemes and has been inflated to $42.4 million allowing for a 1 July 2025 commissioning date.

    - Investing $2.9 million per annum and an additional 21 full-time equivalent roles in the customer engagement and stakeholder relations space since 2018 to ensure we can engage in a meaningful, timely and responsive way with customers.
    - This investment supports both regulated and non-regulated activities such as investigations into new water opportunities and growth projects such as Rookwood Weir in Central Queensland.
- Cost control.
    - Lifting our annual efficiency target from 0.2 per cent (embedded in current period prices) to 0.5 per cent and applied to opex from the base (2022-23) year.
    - By 30 June 2029, this amounts to more than $2.5 million in savings.
    - Lowering our 2022-23 base year by $2.2 million through robust identification and removal of non-recurrent expenditure.

1.7 Preparing a customer-focused proposal

This proposal plays a critical role in helping Sunwater "*deliver water for prosperity*". A poor-quality proposal has the potential to directly impact the sustainability of our business and our relationship with our stakeholders. These, in turn, may impede our ability to achieve our strategic goals relating to safe and engaged people, operational excellence and being a water infrastructure leader.

Recognising this, we set out to deliver a high-quality proposal that aligned with our purpose and strategic goals, both in the way we went about it and in its outcomes.

The formal Notice of Referral (issued in March 2023) set the terms and scope of the review. It established a nine-month window for Sunwater to identify matters pertinent to the terms of the review and engage with customers in the development of this pricing proposal.

After establishing a project team, steering committee and governance structure, Sunwater set some clear objectives for this proposal at a workshop attended by senior leaders and executives from across the business:

- Ensure customers are meaningfully engaged and able to influence the pricing proposal, aware of the process, and provided information and context to actively engage on matters of importance to them.
- Customers (and representative groups) are not surprised by the process or final proposal.
- Provide a robust, well supported, transparent, fair and reasonable pricing proposal to the QCA that requires little to no change.
- Demonstrate we are committed to continual improvement for our customers and other stakeholders, including through past feedback from the QCA is addressed.
- Deliver a pricing proposal that represents value for money for customers, in providing the services they want and need.

Delivering on these customer-centric objectives, we placed customers at the heart of our proposal development process. Building on our business-as-usual approach to ongoing engagement, we developed a bespoke program to tackle key regulatory and expenditure issues that would inform this pricing proposal.

This engagement program is discussed in **Section 2** and included:

- a multi-layered approach that sought to provide each irrigation customer with multiple opportunities to understand and engage with our proposal development process
- leveraging the skills and experience of key industry bodies in the form of a Consultative Committee that met monthly throughout 2023.

To deliver on our customer and quality ambitions, Sunwater stood-up a project team and governance structure that would continue to challenge and test the prudency and efficiency of the proposal as it developed.

Key features of the proposal development process included:

- Integrated customer engagement, business planning and regulatory processes.
- Executive leadership and Board oversight.
- A bespoke project steering committee and tactical working group with executive membership to provide regular and ongoing support and direction to the broader project team.
- A commitment to robust, external reviews of key elements of the pricing proposal that could impact the customer and quality outcomes – this included a review of project governance, the prudence and efficiency of early opex and renewals forecasts, the final proposal, and a quality assurance review to ensure accuracy and completeness.

1.7.1 A balanced risk approach

Sunwater recognises that risk, or uncertainty, is a key focus of the regulatory review process. In preparing this proposal, we sought to take a more proactive approach to appropriately balancing risk between customers and Sunwater.

In doing this, we have adopted the approach that Sunwater, not customers, is best placed to manage revenue and cost risk in most situations.

To ensure this proposal adequately reflected this position, Sunwater implemented the following principles and rules in its proposal development processes:

- Risk review and management in line with Sunwater's enterprise risk management framework.
- Risk to be borne and managed by Sunwater unless outside of our control.
- Expenditure forecasts must reflect Sunwater's approach to risk allocation and not be risk averse in nature.
- Quality management and audit processes will be utilised to monitor and manage risk during the price path period.
- Projects will be appropriately managed to prevent cost and timing risks.
- Strong governance will exist around all expenditure (monitoring and management).

Some of the key risks Sunwater considered are set out in **Table 5** including the way in which we propose to manage and allocate them.

Table 5 – Key risks relevant to this proposal

Risk	Risk mitigation strategy/allocation
COVID-19 pandemic Sunwater's ability to efficiently and prudently deliver bulk water services to irrigation customers may be impacted in the future by occasional outbreaks of COVID-19.	Sunwater proposes to retain the measures we put in place to protect its employees, customers and the community from illness and service disruption during the current price path period, which are recognised by QLD WorkSafe as being best practice. Sunwater has made no further opex allowances for managing the risks of COVID-19 going forward, considering the 2022-23 base year appropriate to reflect the way any residual pandemic risks will be managed in the next four-year price path period. Sunwater has no evidence that COVID-19 has materially impacted the demand for irrigation services.
Economic pressures, inflation and rising materials costs Sunwater's cost to serve, may continue to be adversely impacted by factors outside its control, such as COVID-19, war in Ukraine and other macroeconomic factors.	To mitigate these risks, Sunwater will continue to focus on delivering bulk water services to irrigation customers in the most efficient and prudent way possible. In terms of risk allocation, Sunwater has taken a fair, balanced approach to cost escalation assumptions which are set out in **Section 3.2**.
Uncertain capital projects/a renewals forecast that over forecasts expenditure Forecasting error associated with Sunwater's long-term renewal program used under an annuity approach to cost recovery.	To mitigate this risk, Sunwater proposes to change the recovery of renewals costs to a RAB-based approach, which only requires a forecast of renewals expenditure in the next price path period. In the event that the renewals annuity approach is retained, Sunwater has mitigated forecasting risk by engaging an independent consultant to review forecasts and accepting recommendations to adjust time and costs assumptions, resulting in a lower forecast across the annuity period.
Business resilience Delivery of services may be adversely impacted by business resilience issues associated with aging assets, an aging workforce and increasingly volatile climate events.	To mitigate this risk, Sunwater proposes to continue to develop the resilience of its business to ensure that it addresses challenges arising from its ageing workforce and the need to retire/replace aging assets in the most efficient and effective way possible.
Demand and distribution losses Customer prices do not reflect efficient levels of demand (variable tariffs) or distribution loss entitlements.	Consistent with the 2020 Review, an historical averages approach is used to calculate water demand. Distribution losses are discussed in detail in **Section 3**. Sunwater's approach is in line with the approach taken in the 2020 Review, except for a reduction in the volume of loss entitlements held in the Mareeba-Dimbulah scheme.
Changing compliance obligations Unanticipated changes in compliance obligations may result in unforeseen costs.	Sunwater proposes to bear the full cost risk associated with unanticipated changes in compliance obligations in the next price path period.

Risk	Risk mitigation strategy/allocation
Electricity There is a risk that actual electricity costs incurred by Sunwater in the delivery of bulk water to irrigation customers in accordance with its regulatory and legal obligations exceed the QCA forecast allowance for electricity costs.	Sunwater undertakes a range of activities to mitigate this risk during the price path period, such as: • Ensuring that pumps and related infrastructure are operated in an efficient and prudent manner. • Pumping station sites are assigned to the 'least cost' electricity retail tariff given the available tariff options and expectations of electricity usage at these sites. • Exploring opportunities to further reduce electricity costs by replacing ageing pumps, installing monitoring technology, investing in power factor correction and pursuing energy efficiency initiatives. Sunwater is seeking to retain the ex-post review mechanism under the existing regulatory framework that provides an opportunity to Sunwater to propose an end of period adjustment to address a material change in actual electricity costs. Sunwater is also proposing an ECPT mechanism for the largest electricity using schemes where there is clear evidence that customers are supportive of this approach and that Sunwater would be accountable to customers for continuing to deliver efficient electricity costs – this is discussed in **Section 3.6.2**.
Insurance Actual insurance costs materially exceed the QCA forecast allowance for insurance costs.	Sunwater undertakes a range of activities to mitigate this risk during the price path period, such as: • Ensuring that insurers have a sound understanding of Sunwater's bulk water infrastructure and the nature and extent of the insurable risk. • Exploring opportunities to self-insure where efficient and prudent to do so. • Ensuring that it has effective policies and procedures in place to limit the insurance exposure of emergency events. • Managing assets in a way that reduces the risk of asset failures. Sunwater is seeking to retain the ex-post review mechanism under the existing regulatory framework that provides an opportunity to propose an end of period adjustment to address a material change in actual insurance costs. Sunwater has absorbed considerable insurance cost risk during the current period. As outlined in **Section 3.3,** Sunwater proposes a review event to balance this risk between itself and customers.

2 Customer engagement

This section:

- *Demonstrates how Sunwater has, since 2020, implemented a strategy of regular, planned engagement activity to better understand and service our customers, and in doing so addressed elements of the 2020 Review feedback.*
- *Demonstrates the steps we took to ensure customers were fully informed of the price review process and given every opportunity to understand and influence Sunwater's pricing proposal.*
- *Presents the outcome of Sunwater's engagement efforts and how these have influenced our pricing proposal.*

Sunwater aims to be a stakeholder-centric organisation, through:

- building relationships with stakeholders based on trust
- actively working with customers, communities, Traditional Owners, shareholders, and industry groups
- minimising the impacts of our operations and projects
- creating opportunities for benefits beyond water delivery wherever possible.

To advance this strategic goal over the past four years, Sunwater has:

- stepped up activity aimed at building and strengthening relationships with customers
- become more targeted and considered in the way we engage, and more deliberate about utilising customer feedback and insights in decision-making.

Customers in this context includes existing customers, potential customers, communities, and industry groups, where relevant.

In doing so, we have also addressed recommendations contained in the 2020 Review Final Report, including where the QCA recommended that Sunwater:

- Engage with customers on an ongoing basis, to keep a strong focus on what is important to customers over the course of the price path period and to provide a better understanding of customer requirements prior to the next price review.
- Draw a clearer link for customers between proposed expenditure and both prices and service level outcomes for customers.
- Engage with customers prior to the next price review to develop a pricing proposal that incorporates proposed prices for all irrigation tariff groups.

Table 6 provides examples of where Sunwater has addressed the QCA's feedback from the last review.

Table 6 – How Sunwater has addressed feedback on engagement practices

Recommendation	Examples of actions taken
Engage with customers on an ongoing basis, to keep a strong focus on what is important to customers over the course of the price path period and to provide a better understanding of customer requirements prior to the next price review	• Introduced six Customer Advisory Committees (CAC) in the Burdekin Haughton, Chinchilla, Nogoa Mackenzie, Dawson Valley, Lower Mary and Upper Condamine schemes. • Continued Irrigation Advisory Committee (IAC) meetings. • Conducted annual and mid-year customer surveys and identified opportunities for improvement. • Implemented portal chat, a Sunwater app, and a Water Trading Board as tools to enhance customer experience. • Rolled out a Customer Experience and Regional Tour Program for employees to connect with customers.
Draw a clearer link for customers between proposed expenditure and both prices and service level outcomes for customers	• Delivered annual scheme-specific Service and Performance Plans (S&PPs) and notified all irrigation customers. • Discussed S&PPs at IAC meetings and CACs. • Planned for price path engagement – content included customer education on how prices are developed, operational and renewals expenditure inputs (and renewals cost recovery methodology) and value for money considerations.
Engage with customers prior to the next price review to develop a pricing proposal that incorporates its proposed prices for all its tariff groups with irrigation customers	• This pricing proposal (and the engagement activities that have informed it) address this recommendation – more detail is provided in **Section 2.2**.

2.1 Our improvement journey

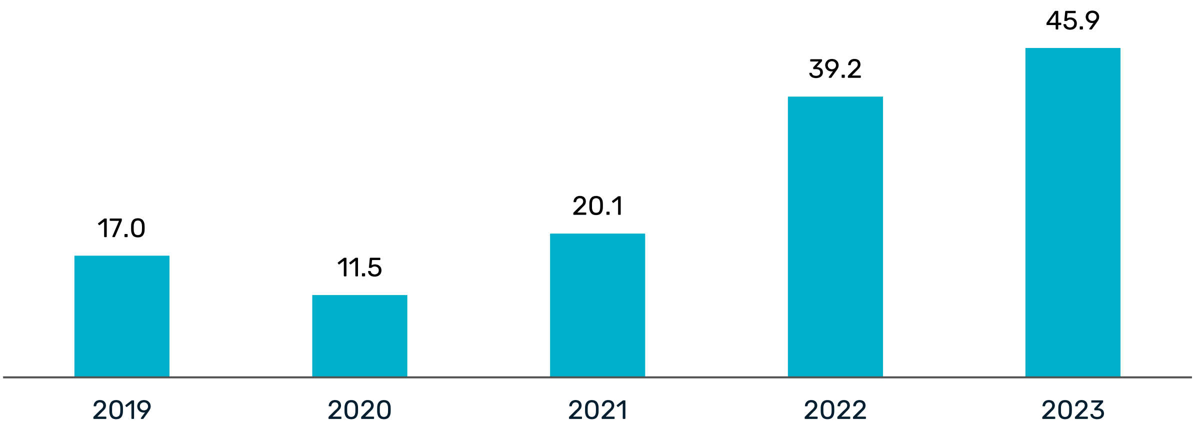
Sunwater has implemented a series of structured, strategic initiatives to close identified gaps, improve customer experience, and improve employee understanding of customer needs and expectations. These initiatives have worked to:

- embed an organisational culture that values excellence in customer experience
- ensure we have the right organisational structure, the right leadership and clear engagement principles in place
- build customer trust and achieve mutually beneficial outcomes.

These changes have resulted in Sunwater:

- developing a better understanding of customer needs
- focusing engagement on matters that customers value and can influence
- ensuring ongoing engagement occurs within timeframes to influence decision-making
- ensuring engagement informs business planning and decision making
- improving hands-on customer service and customer experience
- achieving year-on-year improvements in customer satisfaction (**Figure 6**) and other key indicators.

Figure 6 – Sunwater's Customer Satisfaction (CSAT) scores 2019-2023



Sunwater's broad customer engagement improvement journey since the 2020 Review is paying dividends. Our targeted approach to improving customer experience has seen CSAT scores trend upwards over the past four years.

Overall, customers feel that Sunwater is very responsive to their questions and concerns and understands their business, and they hold Sunwater's operational team in high regard. The survey also revealed some key areas where customers think we perform well, as well as areas to improve. These included providing helpful customer service, and effective billing and payment processes.

Sunwater's 2022 annual survey of customers revealed:

- 75 per cent of irrigation customers believe Sunwater understands their business somewhat to extremely well
- 90 per cent of irrigation customers feel Sunwater is somewhat, to extremely responsive and provides great customer service.

Relevant to this pricing proposal is the feedback that customers continue to feel the service they receive is too expensive and/or feel frustrated about having to pay for fixed costs even if water cannot be delivered.

In response to this, Sunwater ensured engagement activities for this pricing proposal included an education component for customers to learn more about how prices are developed including key inputs into a prudent and efficient cost base.

Feedback from CAC members remains positive, reflecting that these forums:

- "*create a better connection*" between customers, regional and corporate teams
- "create trust"
- "give customers a platform to feel their voices are heard"
- "improve knowledge"
- help to "identify and work toward solutions that deliver real value".

Sunwater's 2023 customer survey recorded the highest satisfaction score to date, with over 81 per cent of irrigation customers believing Sunwater understands their business somewhat to extremely well. Through the ongoing engagement and survey programs Sunwater has been able to gain a detailed understanding of what irrigation customers value, and how they like to engage with Sunwater.

Our employee culture around customer experience has also shifted in line with these external results. In 2022, 81 per cent of Sunwater employees were clear about how their roles connected to delivery for customers. One of the activities that has helped foster this connection is our customer experience program, which takes employees out of the office to meet customers in a region. Participants reported their understanding of how their role contributes to a positive customer experience has "somewhat" or "greatly" improved.

Sunwater's deeper understanding of our customers directly influenced the development of our engagement activities for this pricing proposal.

2.2 Proposal engagement strategy

Leveraging strong foundations laid over the past four years, Sunwater engaged with customers through a bespoke, three stage program that aimed to:

- better understand matters of importance to customers
- discuss and explore these matters with customers
- identify and present opportunities for customers to influence our proposal
- increase the transparency of our proposal development process, providing opportunities to see and discuss the costs and initiatives proposed.

We knew that to successfully implement this program we needed to effectively apply the customer feedback and insights we had already gathered, which told us that our customers value:

- proactive communication
- openness and transparency
- engaging on the bigger picture
- facilitating genuine two-way engagement
- face-to-face communication
- a responsive Sunwater.

More detail about these principles of engagement is outlined in **Figure 7**.

Sunwater's pricing proposal engagement strategy is set out in **Table 7**.

2.2.1 Clear customer choices

Early in the proposal development process, Sunwater identified three key opportunities (other than on cost inputs) for customer feedback. In presenting these choices to customers, we made it clear that we would not be including these in our final proposal without evidence of support for the proposed changes.

The three proposals were changes to the way Sunwater:

- recovers renewals expenditure through irrigation prices – from an annuity to a RAB-based approach
- recovers electricity through irrigation prices – from electricity costs embedded in irrigation prices, to an ECPT mechanism for irrigation prices in up to seven schemes
- reports to irrigation customers on its performance against operating and renewals expenditure allowances, revenue, prices, and service standards.

These choices were presented to customers during Stage 2 (see **Section 2.2.5**) and feedback captured and incorporated into Sunwater's decision-making.

Figure 7 - Sunwater overarching principles of engagement

Proactive	We are proactive and visible in managing Sunwater's corporate footprint. We engage early and maintain contact with our stakeholders, even during periods of limited activity.
Open and transparent	Our engagement is based on what can be achieved and opportunities to improve outcomes. Open communication means our stakeholders can provide informed comment. Transparency means we accurately evaluate and report on our activities.
The big picture	We engage with stakeholders in a way that considers the social environment in which we operate. We work towards understanding the interconnections between our communities and our activities.
Two-way communication	We listen to all our stakeholders and validate their ideas and look for ways to collaborate to find solutions.
Responsive	We continually track our stakeholders' needs and expectations and ensure their insights inform our actions. All of our contact has purpose, and we act on the feedback we receive and deliver on the commitments we make.

Table 7 – Sunwater's pricing proposal engagement strategy

Goal	Demonstrate Sunwater is an organisation that respects our customers, understands our business, and involves stakeholders to achieve sustainable, commercial outcomes. Understand what Sunwater can do to deliver on customer's key values through its pricing proposal. Deliver on those commitments for our customers.		
Key strategies	Provide multiple opportunities and channels for irrigation customers to engage with Sunwater as the irrigation pricing proposal is developed.	Early engagement with customers to outline the proposal development process and test engagement opportunities and channels (three stage engagement strategy).	The formation of a committee with representatives from key organisations (Terms of Reference found in Appendix B Customer Engagement Report).
Objectives	• Raise and sustain awareness of the review and its impacts. • Ensure customers understand Sunwater's proposal and can give feedback. • Promote understanding of the approach Sunwater has adopted to specific feedback. • Foster agreement between Sunwater and customers, where possible. • Protect long term relationships.		
Desired outcomes	• Price path activities complement and build on business-as-usual and project engagement. • Customers agree that Sunwater's process provided the opportunity to give direct feedback and that feedback was responded to. • Customers and other stakeholders are not surprised by the content of Sunwater's proposal.		

2.2.2 Multiple channels, multiple opportunities

We knew from feedback already gathered that our irrigation customers generally prefer face-to-face engagement. We also sought advice from a Consultative Committee (see **Section 2.2.3**) and chairs of groups such as IACs as we designed our engagement approach.

This anchored our thinking as we designed our approach and was validated by customers in our engagement sessions. For example, one customer in Barker Barambah voiced appreciation for Sunwater engaging in person, face-to-face. Similar feedback was received verbally in Three Moon Creek, St George, Bundaberg, and Upper Condamine.

Recognising that the times chosen for face-to-face sessions may not suit all customers, we included online sessions in our engagement activities.

Throughout the process Sunwater ensured customers were notified of all opportunities to engage directly with us, whether face-to-face or online.

In Stage 1, Sunwater set up dedicated project webpages and emailed customers to advise them of upcoming engagement activities. Customers were also advised that the Sunwater website would be the hub for all available materials during the process, accessible for ongoing reference.

Sunwater prepared 25 scheme-specific fact sheets and 22 scheme-specific presentations (combining water supply and distribution service information for customers so they could engage in one session) for each stage of engagement. Fact sheets were available in hardcopy at face-to-face meetings.

Sunwater visited 19 schemes for face-to-face in-scheme customer forums and held one online forum for all-schemes during Stage 1, noting the following:

- We did not offer face-to-face forums for Pioneer, Maranoa and Cunnamulla because they have a small number of customers who we were able to contact directly about the process and opportunities to provide feedback. They were included in invitations to all online forums; notified of the GoVote process; and were sent scheme level summaries in Stage 3.
    - Note that Maranoa scheme customers neither receive nor pay for an irrigation service due to long-standing issues with the condition of the scheme's weir.
- No customers attended the face-to-face forums for Lower Fitzroy and Bowen Broken in Stage 1. Given the small number of customers in these two schemes, Sunwater attempted to contact each customer individually prior to the Stage 1 meetings to encourage them to attend. While some interest was noted during these conversations, no customers attended. As a result, Sunwater made the decision to only offer online meetings for Stage 2 and 3 for these schemes. Customers were subsequently invited to the online forums going forward; notified of the GoVote process; and were sent Stage 3 Scheme Summaries.
- A total of 21 face-to-face forums were held in Stage 1 as a second forum was offered in two schemes.

During Stage 2, three additional fact sheets were developed and provided to customers in sessions and online about the changes being proposed.

As one way of evaluating preferences for the three proposals, Sunwater activated an online voting system – GoVote – to capture de-identified, quantitative customer feedback.

All Sunwater irrigation customers were invited to lodge preferences about the renewals recovery and Service and Performance Plan proposals; and customers within eligible tariff groups (in the seven schemes where an ECPT mechanism was proposed) were invited to lodge their preference about that proposal. Hundreds of customers took the opportunity to engage in the GoVote system with:

- **369** customers providing feedback on the RAB-based approach and reporting refresh proposals
- **178** customers providing feedback on the ECPT mechanism specific to their scheme.

Overall, this reflected a **nine** per cent engagement rate. The response rate of nine per cent was considered excellent by the platform supplier (they consider above five per cent a sound response rate).

Further, Sunwater did not receive complaints or feedback from customers that they had wanted to engage with GoVote but either could not access the platform or did not know the process was occurring. Given the response rate and evidence that the process was sound, Sunwater feels confident that GoVote was a robust measurement of customer preferences.

Sunwater visited 17 schemes visited for face-to-face in-scheme customer forums and held one online forum for all-schemes during Stage 2, noting:

- we did not schedule in-scheme meetings for Lower Fitzroy and Bowen Broken based on feedback received from customers contacted in Stage 1.

During Stage 3, scheme summaries and supporting presentations were developed and provided to customers in sessions and online.

Sunwater visited 17 schemes for face-to-face in-scheme customer forums and held one online forum for all-schemes during Stage 3 continuing to reflect demand and the pattern of participation.

In total, over the three stages, 58 fact sheets and 77 presentations were prepared and delivered; 4,372 customers were informed; and 371 customers attended Sunwater forums.

2.2.3 Consultative Committee

In March 2023, Sunwater, in conjunction with the Queensland Farmers' Federation, established a Consultative Committee comprising representatives from the Queensland Farmers' Federation, Canegrowers Queensland, Cotton Australia and Queensland Fruit and Vegetable Growers.

One of the first things we did with the Consultative Committee was test our thinking around the planned three stages of engagement. The committee continued to meet throughout the engagement program – a total of eight times – in an advisory and assurance role.

The Consultative Committee played a co-design role in the development of the proposed ECPT mechanism, reviewed and challenged our costs and forecasts and helped to shape our engagement approach and materials throughout the process.

2.2.4 Stage 1 - Summary

Stage 1 engagement commenced in March and concluded in May 2023 with a final online forum.

The objective of Stage 1 was to educate and inform customers on the price review process and how we would be developing our pricing proposal. Customers were introduced to key dates and the process that Sunwater would be following to identify issues, present material and seek customer views. Stage 1 also provided an overview of the role of the QCA.

Supporting material prepared for the stage included fact sheets and presentations, which provided details on current tariffs and a flowchart showing how prices are calculated.

2.2.5 Stage 2 - Summary

Stage 2 engagement occurred over June and July 2023. Engagement was supported by updated fact sheets and presentation materials.

This stage included engagement on:

- what customers value in their irrigation service
- service standards by scheme
- initial operating and renewals expenditure costs
- preliminary cost reflective and transition prices for each scheme
- three proposals for customer consideration and feedback:
    - changes to S&PPs
    - changes to the way renewals expenditure is recovered through irrigation prices
    - in seven schemes, a permanent, symmetrical ECPT mechanism.

We explained the challenging operating environment; cost impacts – inflation (higher than QCA expected when it set allowances that underpin current prices), labour (to meet emerging risks and obligations) and insurance; the cost allocation process; operating expense forecasts methodology; indirect costs; and renewals expenditure forecasts. We outlined Sunwater's approach to minimising costs and how, at scheme level, customer service standards drive the work we do and influence our operations and maintenance costs.

An innovative tool Sunwater introduced during Stage 2 was an online customer bill calculator (Irrigation Price Path - Irrigation Customer Invoice Calculator - Sunwater). Using the calculator (which is still online and has been updated for our final proposal), a customer can enter their entitlement holding and expected usage and see their annual bill under both a RAB- and an annuity-based approach.

This was important for customers to understand the expected pricing impact of moving to a RAB-based approach. The tool was downloaded more than 1,000 times during its first month live on the Sunwater website, and customer feedback was overwhelmingly positive.

An online voting process (GoVote) was activated in Stage 2 and provided a key data point for Sunwater's consideration of whether customers supported the proposals.

Scheme level feedback received during Stage 2 (and how we responded) is outlined in the Scheme Summary documents. Common themes raised by customers (via face-to-face sessions and written correspondence) included:

- general comfort with existing service levels and Sunwater's understanding of what customers value about their irrigation service:
  1. price, affordability and value for money
  2. trust that Sunwater is managing the business responsibly on their behalf, controlling costs, managing assets responsibly and keeping prices as low as possible for them
  3. water security and availability
  4. service reliability and minimal interruptions
  5. water quality and fit-for-purpose services
  6. sustainability for the future
  7. personal customer service – not automated, not computerised but actual people to talk to when customers need something.
- a desire for more detailed scheme-specific information on operational and renewal expenditure, indirect support costs and controls
- an understanding of how to provide feedback on the pricing proposal
- appreciation of Sunwater's transparency on costs and investment priorities
- concerns around rising (general) prices.

These themes align with Sunwater's understanding from business-as-usual engagement activities and the work we do to deliver our services daily.

Sunwater responded by including more scheme-specific detail in Stage 3 engagement materials and by reiterating the many channels available for the provision of feedback. We also emphasised the prudency and efficiency review work we were undertaking to help keep downward pressure on our costs.

2.2.6 Stage 3 - Summary

Stage 3 engagement commenced in August and concluded in late November 2023. During this stage, Sunwater committed to continuing to capture and respond to customer feedback on its pricing proposal.

Our engagement materials included a Draft Final Scheme Summary document – our intention was that these reflected the final proposal we put to each scheme, pending receipt of any material Stage 3 feedback.

A presentation was also prepared that talked through the process Sunwater followed to adjust and finalise our Stage 2 cost estimates for Stage 3, as well as talk through the feedback received from customers at the end of Stage 2.

Responding to Stage 2 feedback we presented more granular views of both our opex and renewals forecasts. Our renewals forecasts included both the four-year price path period (relevant to a RAB-based approach) and an additional 29-year period (relevant to an annuity-based approach).

Scheme level revenue requirements and prices were presented reflecting a RAB-based recovery of renewals expenditure in line with Stage 2 feedback.

For schemes eligible to participate in the ECPT mechanism, customers were also presented with a final view of prices where electricity was treated as a pass-through.

Final prices presented in Stage 3 included indicative Part E (fixed electricity charges) and Part F (consumption-based electricity charges) alongside Part A/C and Part B/D charges. In some instances, presenting this material to customers led to them raising concerns that adopting a pass-through would not be in their best interests, contrary to their earlier feedback.

This was most apparent in schemes with a service on a transition price. The removal of electricity from the base price in these circumstances tended to show customers would pay a higher overall bill for their irrigation service under this proposal.

As a result of our Stage 3 engagement activities customers in the Upper Condamine, Mareeba-Dimbulah, Lower Mary, Bundaberg and Burdekin Haughton either wrote to Sunwater (correspondence has been appended to the Scheme Summaries) or provided verbal indications that they no longer supported the ECPT proposal.

Bundaberg and Burdekin Haughton customers suggested they were supportive of an ECPT concept but may put forward an alternative proposal during the review phase.

Sunwater has committed to work with customers in Bundaberg and Burdekin Haughton and will keep the QCA informed of developments. Consistent with our position throughout our engagement with customers, Sunwater does not wish to pursue an ECPT mechanism in the absence of customer support.

2.3 Engagement outcomes

Throughout the process, customer feedback was continuously captured in our online engagement database to provide a record of activity and commentary.

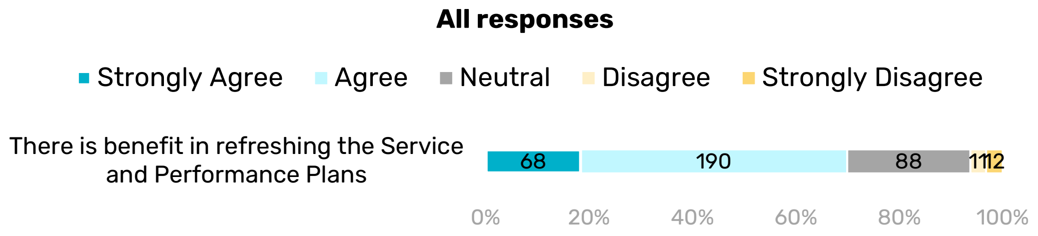
We responded to customer and peak body feedback throughout all three stages of the engagement program and redesigned and adapted our approach accordingly before the next stage was rolled out. All activity is described in the Customer Engagement Report (**Appendix B**).

As a result of our pricing proposal engagement process customers have:

- been afforded every opportunity to participate in, and respond, to Sunwater's pricing proposal
- had time to review and inform the service standards, opex, renewals expenditure, and pricing for to their scheme
- elected to support changes to the way Sunwater does things that relate to them and their scheme (such as a transition to a RAB-based renewals cost recovery approach, and an update to S&PPs)
    - **Table 8** summarises the proposal to refresh the S&PPs
    - Sunwater's final positions on our RAB and ECPT proposals are discussed in detail in **Section 3.6**.
- a better understanding of the emphasis Sunwater has placed on ensuring its cost forecasts represent only prudent and efficient spend in order to address customer concerns about rising prices – refer to **Section 4** and **Section 5** for an overview of the key actions we took to keep our costs as low as possible.

Sunwater is proud of the engagement process we have undertaken in the development of this proposal. We have sought to lift the bar in terms of transparency and trust and are heartened by the feedback we have received from customers on this journey.

Table 8 – Proposal to refresh Service and Performance Plan (S&PP) content

Proposal	Future S&PP content to have a greater focus on comparison of actuals against QCA allowances with earlier (pre-Christmas) publication as a key performance indicator.
Scope	All schemes – a whole-of-Sunwater change
Informed customers	Prior to taking this proposal to customers, Sunwater engaged with the Consultative Committee to test and refine its engagement material. We then presented material to customers outlining the reason for our proposal, its benefits, how the methodology would work / be applied and its impact on timing of publication. Presentation materials were also uploaded to our project website. Prior to casting preferences, customers also needed to view a short video about the proposal.
Customer feedback	 Customers were overwhelmingly supportive of this proposal, with 70 per cent responding "agree" or "strongly agree".
Sunwater's position	GoVote platform administrators suggest a response rate above five per cent is good for surveys of this nature. On the basis that the customer turnout was strong, and that customer feedback was overwhelmingly supportive of this change, Sunwater proposes to refresh the content of its S&PPs. Sunwater has developed and published a refreshed S&PP for each scheme addressing 2022-23 actuals (and otherwise aligned with the content of this pricing submission). We remain open to further changes to the content / layout of this document in response to further customer feedback. We remain committed to the timely publication of meaningful scheme-level performance data and near-term investment priorities going forward.
Source materials	Materials from all three engagement stages are available for download from www.sunwater.com.au/projects/price-path/

3 Pricing framework

This section deals with a range of important inputs to the regulatory framework and revenue and pricing process. It:

- *Outlines the way Sunwater allocates costs to each scheme.*
- *Describes how Sunwater has escalated costs across the price path period.*
- *Includes a proposal to trigger a cost review event mechanism relating to material changes in insurance premiums.*
- *Outlines our approach to demand forecasting and distribution losses.*
- *Details two customer proposals that affect prices.*

3.1 Allocation of costs to schemes

Sunwater allocates costs to its business activities, including major projects, regulated and non-regulated service contracts using a documented cost allocation methodology which has been the subject of multiple reviews (discussed below).

Sunwater's cost allocation methodology:

- Charges costs directly to services and projects where practical. We do this for:
  - electricity
  - insurance (charged based on the proportion of Declared Asset Value)
  - materials
  - contractors
  - direct labour (where a direct link to a service contract or project exists).
- Charges support costs to the service or project, based on the proportion of direct labour to reflect effort.

Sunwater's cost allocation methodology reflects the agreed outcomes of the 2012 and 2020 Reviews.

At the 2020 Review Sunwater foreshadowed a reallocation of motor vehicle and fleet costs from non-direct to direct charging to schemes. This change has been adopted and is reflected in this proposal and the Scheme Summaries.

3.2 Inflation

In line with the regulatory framework set by the QCA, Sunwater applies expected cost escalation factors across major opex categories to inflate its regulated opex forecast from real (using a 2022-23 base year) to nominal dollars.

For this price review, Sunwater adopted the same major cost categories as the 2020 Review and applied the QCA's cost escalation methodology set out in the *QCA Final Position Paper – Inflation Forecasting*[4] (Inflation Paper). We deviated from the Inflation Paper where contract cost increases are already known (or, in the case of insurance, highly likely).

[4] QCA, Final Position Paper – Inflation Forecasting, Oct 2021

All adopted methodologies are described with supporting data and evidence in the Cost Escalation Paper provided (**Appendix C**).

Key features of Sunwater's approach to cost escalation include use of:

- Contracted (known) price escalation factors where contracts extend beyond the base year (such as labour), and respected industry forecasts for 2023-24 for insurance.
- RBA short-term inflation forecasts[5] for 2023-24 and 2024-25 where no other forecast exists.
- A year five anchor point (coinciding with the 2027-28 year).
- The midpoint of the RBA's target range (2.5 percent) for 2028-29 for **all** cost categories.
- Queensland Treasury forecasts for labour.

Where possible, Sunwater has sought to align with good regulatory practice and not pass on unreasonable price risk to customers.

Sunwater has sought to simplify the overall cost escalation approach, noting that the current inflationary environment is significantly different to the one that existed at the time of the 2020 Review.

Sunwater's cost escalation indexes as applied to opex categories are built on base input indexes for general inflation, insurance and labour.

3.2.1 Labour

Sunwater is bound by the GOC Wages Policy and is required to gain approval of a bargaining framework from the Queensland Government before commencing negotiations relating to any Enterprise Agreement (EA). This includes justification of how productivity gains will be achieved to offset, or self-fund through savings, at least half of any wage increase agreed and within the wage increase cap.

Crucially, this offsetting requirement is **not** tied to Sunwater's labour cost category.

Sunwater gained approval of the bargaining framework for the EA 2022-25 in September 2021. During negotiations, on 9 November 2022, an addendum to the GOC Wages Policy was received to provide a rise in the wage increase cap and an increase in superannuation with productivity gains again to offsets half the wage increase.

Sunwater provides regular updates and reporting to all relevant stakeholders, including Shareholding Ministers throughout the life of an EA.

Productivity commitment

Sunwater committed to achieve productivity offsets of 2.25 per cent (year 1), 2.25 per cent (year 2) and 1.75 per cent (year 3).

During the prior EA period, Sunwater delivered on similar commitments via the Value Improvement Program (VIP), a dedicated program focused on continuous improvement and innovation across all domains (financial and non-financial).

[5] Reserve Bank of Australia (2023) August Statement of Monetary Policy, [Forecast table – August 2023 | RBA], 22 August 2023

The VIP sets improvement targets across key areas of opex, capex and revenue growth. Over the course of the new EA, employees will continue to participate in and contribute to this program with the necessary support, mentoring and recognition to identify initiatives that generate real cash value to Sunwater. These initiatives are currently centrally monitored and reported on to ensure sufficient rigour and consistency.

Sunwater continues to identify, implement and achieve savings managed through the VIP. The program is delivering on a range of initiatives:

- energy efficiency
- more favourable insurance costs
- finding better ways to balance customer and stakeholder expectations on engagement
- improving our systems to better support the business in meeting engagement expectations.

The current efficiency program is targeting higher cost savings per annum, as part of a broader drive that encompasses employee-led productivity initiatives. The business has a high level of confidence in its ability to find ways to incrementally improve performance.

The following principles apply to our productivity initiatives:

- Genuine organisational improvements and/or changes to business practices and operations that deliver benefits to the business.
- All parties are committed to implementing these initiatives.
- Savings from the initiatives will be sufficient to fund at least half of the minimum salary rate increases to be paid over the term of this EA.

Sunwater's EA was approved by the Fair Work Commission on 9 October 2023.

Sunwater's EA process and outcome (inclusive of the commitment to self-fund half of the wage uplift) is an efficient labour cost outcome that has been delivered within Sunwater's regulatory framework.

Self-funding during the price path

As outlined above, Sunwater's productivity commitments associated with the EA are **not** tied to labour.

So that customers receive the benefit of this commitment, Sunwater has increased the general efficiency factor (**Section 4.5**which is applied under its base-step-trend opex forecast (**Section 4**).

The efficiency factor uplift described in **Section 4.5** *includes* the realisation of the productivity commitments that accompany the EA. Importantly, it does so without artificially lowering Sunwater's labour cost base for future years.

3.2.2 Base cost inflation

The derivation of the general inflation index adopts the methodology set out in the *QCA Inflation Paper* as outlined in **Table 9**.

Table 9 - Derivation of general inflation index

2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
RBA forecast ↓	RBA forecast ↓	Glidepath ↓		Anchor year ↓	RBA mid-point ↓
3.60%	3.10%	2.98%	2.87%	2.75%	2.5%

Sunwater has applied RBA forecasts[6] for June 2024 and June 2025 on the basis that these represent the best available forecasts for the full year effect of general inflation for the first two years of our base-step-trend forecast.

The derivation of the insurance and labour indices are in strong alignment with the methodology set out in the *QCA Inflation Paper*, and past regulatory practice, and are outlined in **Table 10** and **Table 11**.

The application of contracted (via its agreed and approved EA 2022-23 to 2024-25) labour price increases is consistent with the accepted approach for other non-labour cost categories such as insurance and electricity.

It is accepted that throughout the review process (prior to issuing its final report in January 2025), the QCA will continue to monitor actual and forecast inflation expectations and adjust forecasts for forward years accordingly.

3.2.3 Inflation of costs

Cost escalation factors applied to Sunwater's component cost categories is set out in **Table 12**.

An example of Sunwater's choice to balance price risk in favour of customers is the decision to apply only a general index to contracted services costs. Sunwater notes that these services include significant labour elements (particularly in the operations space) and that labour costs will be subject to the same wage pressures.

The approach adopted for the 2020 Review, to create a composite index (comprising general inflation and labour inflation components) for contracted services, remains sound and we may seek to re-introduce a composite index in future reviews.

Cost forecasts for contracted services have adopted a general inflation index only across the entirety of Sunwater's contracted services portfolio.

3.2.4 Inflation for revenue and price setting

The *Inflation Paper* sets out the preferred approach to the setting of inflation for the purposes of calculating interest / returns on capital (under either an annuity or a RAB-based approach) as well as price smoothing.

Table 13 shows how we have derived our forecast for expected inflation for capital returns under a RAB-based approach and price smoothing (four-year geometric mean) and capital returns under an annuity approach (ten-year geometric mean).

Table 10 - Derivation of insurance index

2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
Contract ↓	Industry forecast ↓	Revert to general index (see **Table 9** above) ↓			
21.00%	10.73%	2.98%	2.87%	2.75%	2.5%

[6] Reserve Bank of Australia (2023) August Statement of Monetary Policy, Forecast table – August 2023 | RBA, 22 August 2023

Table 11 - Derivation of labour index

2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
Sunwater EA ↓		Queensland Treasury / RBA forecast ↓	Glidepath ↓	10-year simple average for Queensland WPI all sectors ↓	
4.50%	3.50%	3.50%	2.98%	2.47%	2.47%

Table 12 – Proposed cost escalation factors by cost category

Cost category	Basis	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
Electricity (default)	1 July 2023 price changes and General inflation index	*Known price increases*	3.10%	2.98%	2.87%	2.75%	2.50%
Electricity (seven schemes)	Bespoke scheme-by-scheme forecasts	*Refer to electricity model and technical appendix*					
Insurance	Insurance index	21.00%	10.73%	2.98%	2.87%	2.75%	2.50%
Operations and maintenance	Weighted average of labour and general inflation indices	*Calculated separately for operations, preventative maintenance, and corrective maintenance according to the respective proportions of labour and non-labour costs*					
Labour	Labour index	4.50%	3.50%	3.50%	2.98%	2.47%	2.47%
Contracted services	General inflation index	3.60%	3.10%	2.98%	2.85%	2.75%	2.50%
Materials							
Other							
Support costs	50:50 labour and general inflation index	4.05%	3.30%	3.24%	2.93%	2.61%	2.49%
Renewals	Applied renewals expenditure cost components (labour, contracted services, materials, other non-labour, plant) in line with the above labour cost escalator for the labour costs and general inflation for materials, contracted services, other non-labour and plant						

Table 13 - Derivation of expected inflation for capital returns and price smoothing

2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
RBA forecast ↓	RBA forecast ↓	Glidepath ↓		Anchor year ↓	RBA mid-point ↓
3.60%	3.10%	2.98%	2.87%	2.75%	2.5%[A]
Four-year geometric mean		2.77%	2.77%	2.77%	2.77%
Ten-year geometric mean		2.60%	2.60%	2.60%	2.60%

Note: A 2.5 per cent is assumed beyond 2028-29 – relevant to calculation of ten-year geometric mean

3.3 Review events

During the 2020 Review, the QCA established review events that would give rise to Sunwater recovering revenue not allowed for in their recommended prices.

These were:

- material changes in electricity prices during the price path period
- material changes in insurance premiums during the price path period
- material changes in regulatory requirements
- other unforeseen events.

Sunwater proposes maintaining these review events for the upcoming price path period.

Despite Sunwater's best management efforts to keep insurance costs down during the current price path period, insurance costs have been materially higher than forecast. At the same time, Sunwater has incurred materially lower electricity costs as a result of procurement decisions to place a number of eligible sites on a whole-of-government tariff.

Sunwater has not identified any other material changes in regulatory requirements.

Where they have been incurred, unforeseen costs related to extreme weather events are proposed to be addressed via the ex-post review of prudent and efficient costs.

3.3.1 Material changes in electricity costs

Sunwater does not propose that a review event be applied to the materially *lower* electricity costs on the basis that it has already returned these savings to customers via the three year electricity cost pass-through trial that commenced in 2020-21 (**Table 14**).

3.3.2 Material changes in insurance premiums

Sunwater has incurred insurance costs above QCA allowances over the past three years and expects that to continue in 2023-24 and 2024-25 based on current market conditions. Sunwater expects total insurance cost to be $7.9 million (real, $2022-23) above the allowances for the 2020-21 to 2024-25 extended price path period (**Table 15**).

Table 14 – Total monies returned to irrigation customers during the trial ($'000s)

Scheme	Tariff group(s)	2020-21	2021-22	2022-23
Barker Barambah	Redgate relift	-	-	7.1
Bundaberg	Bundaberg Channel	1,913.4	695.2	732.2
Burdekin-Haughton	Burdekin Channel Glady's Lagoon – Other than natural yield Giru Groundwater Area	1,140.3	2,636.7	1,506.1
Lower Mary River	Lower Mary Channel	46.8	-	2.0
Mareeba-Dimbulah	Channel – relift	38.3	91.2	-
Upper Condamine	North Branch – Medium priority North Branch – Risk A	24.0	6.8	18.2
Total		**3,162.8**	**3,429.9**	**2,265.7**

Table 15 – Insurance cost comparison 2019-20 to 2024-25 (actual and forecast), real $2023

Financial Year	Whole-of-Sunwater		Regulated service contracts only		
	Declared Asset Value ($b)	**Total Insurance Cost ($m)**	**Insurance Cost ($m)**	**QCA 2019 ($m)**	**Under-recovery by year ($m)**
2020-21 (actual)	13.1	13.2	9.2	7.6	1.6
2021-22 (actual)	11.8	13.2	8.3	7.6	0.6
2022-23 (actual)	12.6	14.4	9.2	7.7	1.5
2023-24 (forecast)	14.3	16.6	9.1	7.4	1.8
2024-25 (forecast)	14.3	17.9	9.8	7.4	2.4
Total		**75.3**	**45.6**	**37.7**	**7.9**

How Sunwater has sought to control these costs for customers is explained in **Section 4** along with efficient forecasts for the next price path period. Our insurance strategies have saved an additional $2.24 million over the period that would have been incurred if we were not acting to constrain these costs.

We are confident that we are managing insurance costs as effectively as possible for customers in the current environment. We propose that the under-recovered amounts be included as a revenue adjustment as part of this pricing proposal.

The insurance revenue adjustment of $7.9 million (real, $2022-23) is allocated based on each schemes' asset value (consistent with the 2020 Review). This adjustment is reflected in Sunwater's proposed revenue requirement (**Section 6.5**).

Sunwater also proposes the mechanism be retained for future price reviews on the basis that it represents a fair sharing of risk between Sunwater and customers and prevents inefficient upfront costs to customers through risk-adverse cost forecasting.

3.4 Demand and losses

3.4.1 Entitlements and usage

In addition to their use in calculating prices, entitlements are also used to allocate some fixed costs between medium and high priority tariff groups in each scheme.

Consistent with previous reviews, Sunwater has sourced entitlement data from our system (30 June 2023) and reconciled these, where possible, with information published on the Queensland Government's website[7].

[7] www.business.qld.gov.au/industries/mining-energy-water/water/water-markets/current-locations

Sunwater has maintained adjustments for costing and pricing purposes that were adopted in the previous QCA Review except for:

- a new adjustment for risk priority entitlements held in Eton (refer to Eton Scheme Summary and **Section 7.1**)
- conversion of 11,508 ML of entitlements from "loss" to "any" purpose in Mareeba-Dimbulah (refer **Section 3.4.2** for further detail on this change).

Scheme Summary documents include a detailed breakdown of total scheme entitlements and any adjustments for cost or pricing purposes. Adjustments (other than losses which are discussed in **Section 3.4.2**) are set out in **Table 16** and final entitlements adopted for this review are contained in **Table 17**.

Sunwater proposes to apply long-term (20-year) averages to forecast demand consistent with the 2020 Review. Proposed values are presented in **Table 17** including a comparison of changes to the usage percentage since the 2020 Review.

Historical water use for each scheme is set out in the demand report provided as **Appendix D**. This report has been prepared independently by Kellogg Brown and Root (KBR) using the same method applied by the QCA in the last review (a 20-year average).

3.4.2 Distribution losses

Sunwater holds distribution loss entitlements across several schemes. These are entitlements that cannot be used for any purpose other than accounting for losses. Distribution loss entitlements are established in schemes in recognition of the higher volumes of water that need to be stored and released to account for water that is lost to the environment as it is transferred via distribution (channel or pipeline) systems.

Only the Bundaberg, Burdekin-Haughton, Lower Mary, and Mareeba-Dimbulah schemes hold losses relevant to this review. Other losses held by Sunwater relate to water supplied via pipelines to non-irrigation customers.

As distribution service customers are the ultimate beneficiaries of losses, the water supply costs associated with distribution loss entitlements are transferred from the water supply to distribution customers. That is, an equal share of water supply service costs are applied to all entitlements, including loss entitlements, with loss entitlement costs then transferred to distribution service customers.

During the 2020 Review, the QCA recommended that:

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

We have commenced a process to analyse the volumes of distribution loss entitlements historically utilised across water years in each scheme to confirm the total volume required to run our distribution systems in the long term.

Table 16 – Adjustments to Entitlements

Scheme	Service	System Type
Burdekin-Haughton	Distribution	Removed 110,000 ML of medium priority entitlements that Sunwater holds on behalf of the Townsville Thuringowa Water Supply Joint Board, consistent with previous review approaches of not allocating distribution costs to these entitlements.
Bundaberg	Water supply	Excluded entitlements 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 our investigation (as is the case for the current review).
Bundaberg	Distribution	Included entitlements and associated water deliveries for distribution services provided to customers with entitlements for Paradise Dam.
Eton	Water supply	Added 700 ML of high-A priority entitlements (equivalent to high priority) to the non-irrigation customer segment, relating to entitlements in the Pioneer River scheme delivered through the Eton scheme. **[new]** Removed 504 ML of risk priority entitlements related to the operation of the Mirani Diversion Channel.
Lower Mary River	Water supply	Added 1,360 ML of high priority and 2,690 ML of medium priority entitlements for Teddington Weir (owned by Wide Bay Water). Under the existing Operations Manual, Sunwater must transfer water from the Lower Mary River scheme to the Teddington Weir scheme when certain conditions are met.
Mareeba-Dimbulah	Water supply Distribution	**[new]** Converted 11,508 ML of medium priority loss entitlements to use entitlements following application to DRDMW, upon successful delivery of efficiency works in the scheme.
Upper Burnett	Water supply	Excluded entitlements associated with Kirar Weir (owned by Burnett Water Pty Ltd). The referral excludes these services from the scope of our investigation.

Table 17 – Entitlements and Irrigation water demand (20-year average) by scheme

Scheme	Service	Total entitlements (ML)	20-year average usage as a percentage of total entitlements	
			2025 Review (%)	*2020 Review (%)*
Barker Barambah	Water supply	34,315	32.5	42.0
Bowen Broken	Water supply	38,930	40.0	37.2
Boyne River	Water supply	43,405	50.3	55.8
Bundaberg	Water supply	236,329	48.0	47.1
	Distribution	151,284	48.0	48.0
Burdekin Haughton	Water supply	1,079,592	53.1	54.9
	Distribution	335,000	62.2	65.0
Callide	Water supply	19,449	63.1	62.4
Chinchilla	Water supply	4,049	55.9	57.5
Cunnamulla	Water supply	2,612	60.7	58.7
Dawson Valley	Water supply	61,737	61.0	61.6
Eton	Water supply	62,759	35.9	42.1
Lower Fitzroy	Water supply	28,621	65.0	66.4
Lower Mary River	Water supply	34,449	25.8	33.1
	Distribution	15,262	29.8	31.2
Macintyre Brook	Water supply	24,997	53.6	63.0
Maranoa River	Water supply	805	2.8	3.3
Mareeba-Dimbulah	Water supply	204,424	62.0	64.7
	Distribution	146,954	62.6	63.0
Nogoa Mackenzie	Water supply	231,859	63.5	72.7
Pioneer River	Water supply	78,110	30.1	34.0
Proserpine	Water supply	62,876	38.5	42.1
St George	Water supply	84,575	85.8	88.6
Three Moon Creek	Water supply	15,028	39.9	41.8
Upper Burnett	Water supply	28,740	54.9	56.7
Upper Condamine	Water supply	33,960	41.0	45.0

The methodology examines historical data to create a correlation between the volumes of entitlements utilised by customers against the volume of entitlements consumed to enable its distribution. Sunwater's expectation (which is supported by the data) is that the ratio of distribution loss entitlements consumed versus volumes of water delivered to customers decreases, as total volumes of water supplied increases.

We are seeking to confirm two key parameters for each scheme from this analysis:

1. The total volume of distribution loss required to deliver all entitlements under the worst-case circumstances, for example dry years where demand is high and evaporation losses are greater. Sunwater would seek to convert (to tradable entitlements) any volumes of distribution loss entitlements held above these worst-case scenario volumes for subsequent sale in the market.
   - This analysis will need to consider times when a low medium priority announced allocation is in play with a large volume of carry-over, as Sunwater still needs loss volume to deliver carryover water.
2. The volumes of excess announced allocations derived from the distribution loss entitlements that Sunwater holds in any given water year that could be traded on the temporary market. Confirmation of the relationship between losses and demand will assist Sunwater in making judgements early in the water year regarding the volumes of announced allocation that could be safely released to the temporary market. Care will always be required to ensure that Sunwater retains sufficient announced allocations to cover realised losses.

Sunwater has initiated discussions with DRDMW to amend appropriate Water Plan rules to allow the temporary trade or permanent sale of distribution loss entitlements.

The volume of necessary distribution loss entitlements has been calculated for each distribution system (below). Application of the previously applied method continues to conclude the Lower Mary and Mareeba–Dimbulah systems do not have an excess. However, some channel efficiency work has been completed in Mareeba-Dimbulah, which is discussed below.

Mareeba-Dimbulah

In our 2020 pricing proposal, we highlighted some of the work done to deliver better services to customers highlighting plans to address issues of high seepage and water losses in the Mareeba-Dimbulah distribution system.

We stated that we would achieve significant savings through investment in modernisation works in Mareeba-Dimbulah which improve control of water flows, facilitate different customer irrigation practices, and minimise losses. We have now delivered on that promise through the Mareeba-Dimbulah Efficiency Improvement Project, which was funded in part by Sunwater to the value of $32.5 million. We are currently (at 30 November 2023) in the process of converting 11,508 ML of loss entitlements (savings) into usable irrigation entitlements.

Ahead of the formalisation of this process, Sunwater has made a regulatory adjustment to these entitlements, shifting them from "loss" to use entitlements, reducing distribution costs for irrigation customers. This is clearly set out in the Mareeba-Dimbulah Scheme Summary document and **Section 3.4.1**.

Bundaberg

Sunwater's current position is to not trade or sell any of our own entitlements within the Bundaberg scheme until the Paradise Dam Improvement Project and associated works have been completed. Therefore, Sunwater will bear the costs of the 7,632 ML of excess distribution losses for this price period.

Burdekin Haughton

Consistent with the 2020 Review findings, distribution losses have not exceeded the amount recorded prior to 2014-15. The finding from the previous review can therefore be retained. This means that the costs of 40 per cent of medium priority distribution loss WAE should be borne by Sunwater. This equates to approximately 75,730 ML.

Sunwater owns a large volume of unsold medium and high priority entitlements within the Burdekin Haughton scheme, and notes there is limited demand for this on the temporary trade market due to an excess of available supply within the scheme more generally. There is also a moratorium on selling additional water into the Lower Burdekin Groundwater Management Area (that encapsulates most of the distribution network) until DRDMW finalises the Lower Burdekin Groundwater Management Strategy. This means that there will be limited opportunities to sell any distribution loss entitlements that have been converted.

Sunwater has however, received and used National Water Grid Fund funding to prepare and submit a Burdekin Haughton Modernisation Detailed Business Case (DBC) that identifies opportunities to increase the efficiency of existing channels in the scheme.

Lower Mary

Lower Mary was not considered to hold excess losses at the 2020 Review.

3.5 Headworks utilisation factor

Sunwater's pricing approach seeks to follow economically efficient, user-pays pricing principles. As high priority entitlements receive a higher level of reliability (standard of service), it is appropriate that they incur a greater percentage of fixed costs. Water sharing rules (generally) provide a high priority water entitlement with superior access to the volume specified.

The headworks utilisation factor (HUF) is a way of quantifying this superior access. Sunwater is not proposing any change to the way it was calculated or applied in the 2020 Review. For this price path period, we reviewed 2020 data inputs and considered the nature and materiality of changes to:

1. water entitlement groupings (high and medium priority entitlements)
2. usage/sharing rules
3. hydrological performance (simulation period).

A copy of the review is provided as **Appendix E**. This review identified three schemes which required a recalculation of the HUF. The rationale for each HUF review is presented in **Table 18** along with adopted 2025 review values for all schemes.

The impact of the HUF review differs for each scheme:

1. Chinchilla Weir – a change in HUF percentage will increase costs assigned to medium priority entitlements
2. Mareeba-Dimbulah – a change in HUF percentage will decrease costs assigned to medium priority entitlements
3. The updated HUF calculations for Upper Condamine resulted in a less than one per cent change to previous values – no change was made.

Table 18 – Headworks utilisation factors adopted for price path

Scheme	2025 values		Prior values		Reason for review of HUF calculations
	High	*Medium*	*High*	*Medium*	
Input changes necessitated a HUF review					
Chinchilla Weir	84%	16%	88%	12%	• Model simulation period has changed • New medium priority water sharing rules • New eWater Source hydrologic model
Mareeba-Dimbulah	66%	34%	53%	47%	• New eWater Source hydrologic model • Model simulation period has changed
Upper Condamine	92%	8%	92%	8%	• Model simulation period has changed • New medium priority water sharing rules • New eWater Source hydrologic model
Unchanged from 2020 Review					
Barker Barambah	28%	72%			
Bowen Broken Rivers	100%	0%			
Boyne River and Tarong	96%	4%			
Bundaberg	38%	62%			
Burdekin Haughton	21%	79%			
Callide	73%	27%			
Cunnamulla	0%	100%			
Dawson Valley	39%	61%			
Eton	21%	79%			
Lower Fitzroy	90%	10%			
Lower Mary	52%	48%			
Macintyre Brook	13%	87%			
Maranoa	0%	100%			
Nogoa Mackenzie	72%	28%			
Pioneer River	62%	38%			
Proserpine	71%	29%			
St George	6%	94%			
Three Moon Creek	39%	61%			
Upper Burnett	36%	64%			

3.6 Price-sensitive customer-supported proposals

3.6.1 Changing the renewals cost recovery method

This proposal includes a shift in the recovery of renewals costs from an annuity-based approach to a RAB-based approach, noting that Sunwater has applied an annuity-based approach to the recovery of renewals costs at the past two reviews.

This shift forms part of Sunwater's proposal on the basis that:

- irrigation customers are either broadly supportive of, or agnostic to, the change, and they:
  - have been afforded ample opportunity to engage with the proposal and raise concerns
  - will be better (or no worse) off under the RAB-based approach (Eton high-B (medium) priority is the only tariff group with higher transition prices during the price path period) – *further discussion provided below*
- cost reflective prices in most schemes will be lower under the RAB-based approach, placing downward pressure on the community service obligation (CSO) payment provided by the Queensland Government to Sunwater
- the RAB-based approach is best regulatory practice and delivers improvements in efficiency, equity and transparency
- it has been designed appropriately, with key design features having been part of Sunwater's customer engagement.

Customer support

Following confirmation of review scope via the Notice of Referral, Sunwater completed a tailored internal-decision making process before engaging actively with customers and our Consultative Committee on the rationale for proposing a RAB-based approach to renewals cost recovery.

Sunwater's focus in seeking support for this proposal was to ensure that customers were afforded every opportunity to be involved and provide feedback.

Sunwater is confident that every irrigator who wanted to understand elements of the proposal or its underlying concepts, and/or provide their views had every opportunity to do so.

Key elements of Sunwater's engagement approach for the proposed shift to RAB-based recovery of renewals costs included:

- the concept being introduced to the Consultative Committee at a meeting held 2 May 2023 (Meeting 2)
- a full walk-through of Stage 2 engagement materials relating to the proposal with the Consultative Committee on 28 June (Meeting 4)
- facilitating opportunities for the Consultative Committee to engage with QCA officers to discuss the concept of a RAB-based approach to renewals expenditure.
- Stage 2 engagement materials featuring a dedicated fact sheet and thirteen slides explaining the concept and Sunwater's reason for seeking customer support for this proposal – typically between half and two thirds of each in-scheme forum was spent presenting these slides and responding to customer questions and feedback from the floor.

- Slides and discussion included:
  - how annuity and RAB-based approaches work
  - reasons for considering a change
  - regulatory precedents and trends
  - introduction to key terms
  - proposed approach to annuity closing / RAB opening balances
  - forecast prices (cost reflective and transition) across three, four-year price path periods to show how the change might impact prices from period to period
- all materials being made available via the dedicated project website
- publishing an online calculator allowing customers to input individual data to see their prices under a RAB-based approach compared to an annuity approach
- providing multiple channels through which customers could raise queries (refer **Section 2.2.2**)
- activating a week-long online platform (GoVote - see **Section 2.2.5**), where customers were required to view a short explanatory video prior to expressing their preference
- Stage 3 engagement materials setting out the nature of the feedback received by Sunwater and our intention to include a change to a RAB-based approach in our proposal
  - revised 12-year price forecasts were included in the Bundaberg and Burdekin Haughton materials following feedback from customer representatives on the Consultative Committee that long-term price impacts were a factor in negative sentiment in these schemes.

Based on the feedback received from customers and their representatives during our engagement process Sunwater believes there is sufficient evidence of customer support to move away from the annuity-based approach to a RAB-based approach to renewal cost recovery. Perhaps more significantly, there is no evidence of broad support for the retention of the annuity-based approach.

Sunwater's proposal to adopt a RAB-based approach offers benefits to customers, Sunwater and the Queensland Government in the next price path period and beyond.

Improved efficiency, equity and transparency

This proposal brings Sunwater into alignment with other jurisdictions, including New South Wales and Victoria, where the Independent Pricing and Regulatory Tribunal and Essential Services Commission respectively have supported moves to a RAB-based approach for the rural water businesses they regulate.

Sunwater believes that the advantages of a RAB-based approach are compelling when compared to the annuity-based approach for the following key reasons:

1. **Increased efficiency via reduced uncertainty, and optimised effort**
   - An annuity relies on long term capital forecasts (currently 30 years) which diminish in accuracy and certainty with time. This creates inherent risk that those forecasts are wrong, driving pricing variations.
   - A RAB-based approach is less reliant on long term forecasts and is more closely aligned with actual expenditure outcomes.

- Actual funding is based on what is happening in the short term not on what is expected to happen in the long term. Under a RAB-based approach, only the actual capex is rolled into the RAB and recovered through prices.
- Sunwater also diverts time and resources to the development and justification of our 30-year forecasts on an annual basis, as well as ahead of periodic irrigation pricing reviews. One outcome of this approach is that Sunwater revisits the prudency and efficiency of projects multiple times before they fall within the near-term four-year planning and pricing window.
- This effort is diverted from other activities and is effectively "wasted" as it does not impact the key planning and delivery activities that only occur within that four-year window.
- A RAB-based approach also provides Sunwater with greater flexibility to re-prioritise expenditure and pursue least cost opportunities. The associated efficiencies will ensure Sunwater continues to offer value for money services to irrigation customers.

2. **Increased flexibility (dynamic efficiency)**
    - Managing funding through an annuity can become complicated when there is material investment in service improvement. At the heart of an annuity-based approach is the assumption that the network being renewed will not change over time.
    - The adoption of annuity funding for renewals effectively locks in a predefined outcome for service provision. Under a RAB-based approach we will have greater flexibility to respond to service improvements.

3. **Improved intergenerational equity and with user pays principle**
    - Under a RAB-based approach, expenditure is recovered over the course of an asset's useful life through depreciation. This means that at any given time customers are only paying for the proportion of the asset they have used. A RAB-based approach allows Sunwater to adopt depreciation that reflects the useful lives of long-lived assets which will lower prices in the short-term and make them more cost reflective.
    - Under the annuity-based approach, assets with useful lives that extend beyond 30 years (typically more expensive assets such as pipelines, channels and other civil structures) are recovered via a 30-year annuity, where there is very little alignment with the user pays principle, and higher prices than would exist under a RAB-based approach.

4. **Increased transparency**
    - The RAB-based approach is less complex to administer and easier to explain to customers. It is also more transparent as customers can see the pricing impacts of near-term expenditures. Projects in the four-year pricing window also have a far greater level of certainty and detail facilitating improved understanding and scrutiny from customers.

Lower prices

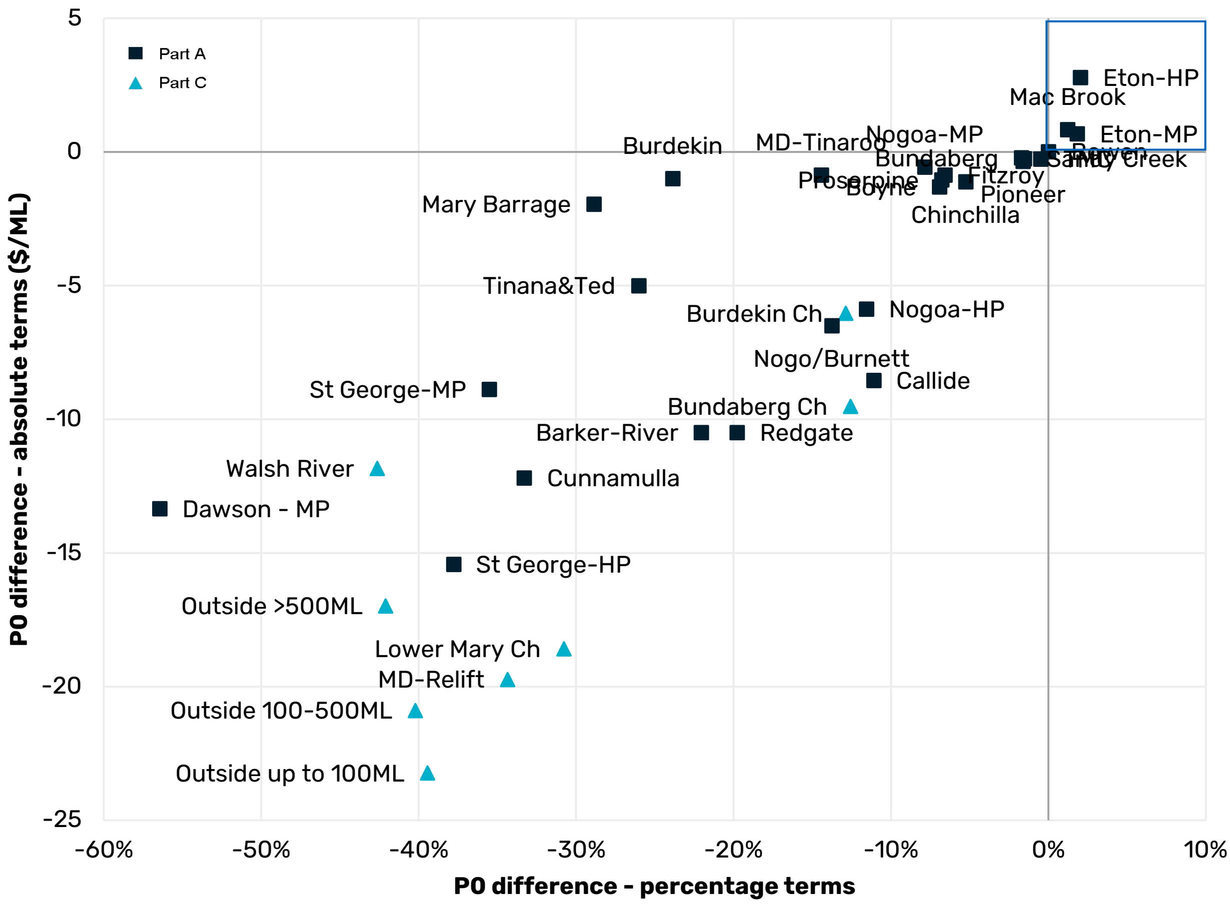
Sunwater's proposal lowers its underlying (excluding return of positive annuity balances) aggregate revenue requirement by some $25 million across the price path period (refer **Section 6.5** and **Section 6.6** for revenue requirements under each approach). This is *prior* to considering the return of $26.6 million in positive annuity balance funds.

This lower revenue requirement translates to lower cost reflective prices for all irrigation tariff groups in all schemes, except Eton, Macintyre Brook and Maranoa as shown in **Figure 8**.

Within these three schemes, only the Eton high-B (or medium) priority tariff group transition prices will be higher under a RAB-based approach, paying an extra 70 cents per megalitre in 2027-28 and 73 cents in 2028-29. Transition prices in the other two schemes (and for Eton high-A (or high) priority) are below cost reflective levels throughout the next period.

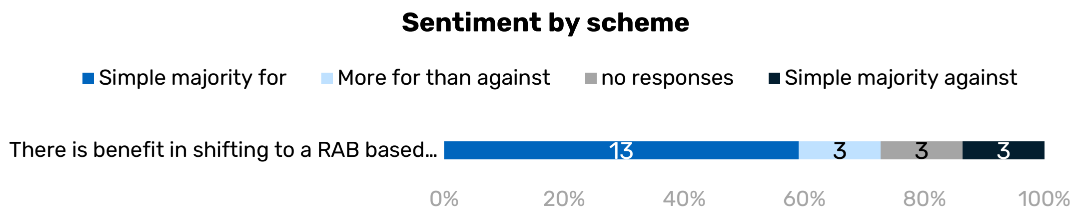
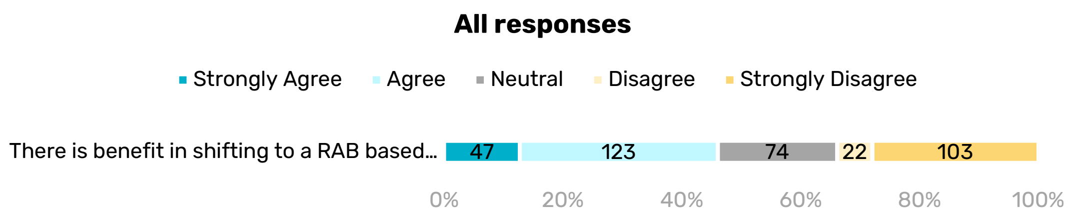
This proposal is summarised in **Figure 8**.

Figure 8 - Impact of shift to RAB-based prices on first year price change[1]



Note 1: Abbreviations have been used and scale has been selected to enhance readability, resulting in the omission of Maranoa (+12.4%; +$12.85/ML) and Dawson Valley – River (high priority) (-68.1%; -$84.21/ML) tariff groups. Tariff groups with common cost reflective prices have only been shown once (e.g., John Goleby Weir tariff group has the same change as Nogo/Burnett – only Nogo/Burnett is shown).

Table 19 - RAB-based recovery of renewals expenditure – proposal summary

Scope	All schemes –proposed as a whole-of-Sunwater change.
Informed customers	Prior to taking this proposal to customers, Sunwater engaged with the Consultative Committee to test and refine engagement material. We then presented material to customers outlining the reason for our proposal, its benefits, how the methodology would work/be applied and its impact on prices in the scheme. We extended the forecast to three, four-year pricing periods to provide insight into medium term impacts of the change following queries raised during engagement with the Consultative Committee. Considerable time was devoted to discussing this proposal with customers at in-scheme forums, with Sunwater enabling discussion with customers seeking further understanding beyond the defined engagement timeframes (after forums ended). A dedicated fact sheet and presentation materials were uploaded to our project website for ongoing access. Prior to casting preferences, customers also needed to view a short video about the proposal.
Customer feedback	  The RAB-based approach was supported in 16 schemes and was received positively by 46 per cent of respondents, with 20 per cent neutral and 34 per cent against.
Sunwater's position	Sunwater received responses from 9.1 per cent of eligible customers through the GoVote platform, noting that the platform's administrators suggest that a five per cent participation rate is a good result for surveys of this nature. Proserpine Canegrowers and Central Downs Irrigators wrote to us on several topics and included commentary that was supportive of the RAB-based cost recovery proposal. On the basis that customers were given ample opportunity to participate in this survey and/or make their feedback known throughout the engagement process, we propose to respect the support for this change and adopt a RAB-based approach. Sunwater acknowledges the responses in the Bundaberg and Burdekin Haughton schemes (accounting for 84 per cent of the "strongly disagree" responses) and will continue to engage with irrigators in these schemes (and any other scheme) to understand and address concerns.
Source materials	Materials presented to the Consultative Committee and schemes form part of our Customer Engagement Report. Engagement materials from all three stages are available for download from the Sunwater website www.sunwater.com.au/projects/price-path/

3.6.2 Changing the method of electricity cost recovery

Sunwater proposes to introduce an ECPT mechanism in the next price path period in eligible schemes where there is sufficient evidence of broad and informed customer support for doing so.

Table 20 provides an overview of the scope, engagement and final proposal in relation to the ECPT mechanism. Key elements of the proposal are then discussed, and further detail is provided in **Appendix F**.

Customer support for the pass-through mechanism is based on the belief that it will deliver a better outcome than the current approach where the forecast of electricity costs is bundled into existing charges by:

- ensuring that customers pay no more or less than the actual electricity cost incurred by Sunwater to provide the services that our customers want
- providing customers with improved transparency over the actual electricity costs incurred to provide the services that our customers want and how these costs are reflected in the prices charged to customers
- providing customers with an effective means to raise concerns over electricity costs on a timely basis via the proposed review and dispute resolution process.

Sunwater worked closely with customer representatives from the eligible schemes to co-design this pass-through mechanism. It has also been shaped by:

- Sunwater's supplementary submission to the 2020 Review[8], which was informed by customer feedback at the time[9,10]
- the learnings and insights obtained from the trial Sunwater undertook with customers in selected schemes (**Section 3.3.1**) during the current price path period[11]
- the feedback received from customers and customer representatives during the consultation and engagement process for this pricing proposal.

The proposed ECPT mechanism should be assessed against the backdrop of a growing level of knowledge and trust that customers have in Sunwater's approach to managing electricity costs, derived from the trial that concluded in 2023.

The design of our proposed ECPT mechanism for the next price path period also reflects a genuine effort by Sunwater to address matters raised by the QCA in the 2020 Review, particularly regarding obtaining empirical evidence of broad-based customer support and addressing efficiency and equity concerns through improved design features and more robust reporting and review processes. The key design features of our proposed ECPT mechanism are shown in **Table 21**. The rationale and justification for each of the proposed design features are discussed below.

[8] supplementary-submission-electricity-cost-pass-through-mechanism-1.pdf (qca.org.au)

[9] qff-letter-of-support.pdf (qca.org.au)

[10] 34348_Bundaberg-Regional-Irrigators-Group-Dec-18.pdf (qca.org.au)

[11] Electricity Cost Pass-through Trial - Sunwater

Table 20 - ECPT mechanism – proposal summary

Scope	Adoption of an ECPT mechanism via quarterly (lagged) billing of actual electricity costs in schemes that opt-in to this mechanism. This proposal builds on the customer-led trial which ran from 2020-21 to 2022-23. Sunwater proposed this change as a scheme-by-scheme opt-in proposal in the Barker Barambah, Bundaberg, Burdekin Haughton, Eton, Lower Mary, Mareeba-Dimbulah and Upper Condamine schemes.
Informed customers	Prior to taking this proposal to customers, Sunwater engaged with the Consultative Committee to test and co-design the proposed pass-through mechanism and refine our engagement material. We then presented material to customers outlining the reason for our proposal, its benefits, how the methodology would work and its impact on prices in the scheme. We presented an updated pricing view in our Stage 3 materials. Prior to casting preferences, customers also needed to view a short video about the proposal.
Customer feedback	The GoVote process attracted 9.1% of eligible customers. GoVote platform administrators suggest that a five per cent participation rate is a reasonable threshold for surveys of this nature. Response rates in eligible tariff groups ranged from five per cent (Eton) to 89 per cent (Barker Barambah – Redgate relift) through the GoVote platform. Barker Barambah customers clearly did not support the adoption of a pass-through mechanism. Respondents from the other six schemes were clearly in favour. Scheme level responses are presented in the Scheme Summary documents. Following Stage 3 engagement, five of the six previously supportive schemes provided feedback to Sunwater which suggested customer support for the proposal had changed. This feedback has been reflected in the **Scheme Summaries** and informs our final position on this proposal.
Sunwater's position	*Stage three engagement feedback* Sunwater notes that final prices presented in Stage 3 included indicative Part E (fixed electricity charges) and Part F (consumption-based electricity charges) alongside Part A/C and Part B/D charges. In some instances, presenting this material to customers led to concerns that adopting a pass-through would not be in their best interests, contrary to their earlier feedback. Sunwater will continue to gather and respond to customer feedback and will keep the QCA informed of any further change to customer support for this proposal. Consistent with our position throughout our engagement with customers, Sunwater does not wish to pursue an ECPT mechanism in the absence of customer support. Based on feedback received from customers prior to 30 November 2023, Sunwater is: • **not** proposing an ECPT mechanism for the Barker Barambah, Bundaberg, Burdekin Haughton, Lower Mary, Mareeba-Dimbulah and Upper Condamine schemes • proposing an ECPT mechanism for the Eton scheme, noting that support in this scheme may be qualified or change during the review phase. Sunwater attempted to clarify the position Eton prior to finalising this submission, but as no further feedback was received, is progressing as stated.
Source materials	Materials presented to the Consultative Committee and schemes form part of our Customer Engagement Report. Engagement materials from all three stages are available for download from the Sunwater website www.sunwater.com.au/projects/price-path/

Table 21 - Key design features of ECPT mechanism proposal

Design feature	Description
Fully symmetrical pass-through	The mechanism is symmetrical in design, which means that increases (and decreases) in actual electricity costs are reflected in an increase (and decrease) in the charges paid by irrigation customers.
Opt-in at scheme level	The mechanism is to apply only to eligible schemes where Sunwater has obtained sufficient evidence of broad and informed customer support. We were clear with throughout the proposal development process that would not pursue an ECPT mechanism in the absence of customer support.
All electricity costs in scope	The calculation of Part E and Part F charges under the mechanism would be based on total electricity costs, inclusive of administration costs.
Pass-through at regular intervals	Pass-through of changes in electricity costs are implemented in a timely manner via quarterly price setting.
Clear performance reporting and review pathways	An agreed review mechanism with a potential trigger for review. Adverse findings could trigger an asymmetric pass-through outcome.

Symmetrical exposure to cost risk

Sunwater believes that it is appropriate for the mechanism to expose customers to total price and volume related risks associated with electricity costs during the price path period. Designing the mechanism in this way ensures that Part E and Part F charges are reflective of electricity costs. It also ensures that our customers pay no more or less than the actual electricity costs incurred by Sunwater to deliver the regulated services that they want.

The efficiency of Sunwater's electricity costs is addressed by the review mechanism and a customer base that has strong knowledge of electricity matters.

Opt-in at a scheme level

Sunwater adopted an opt-in at scheme level approach due to the significance of electricity to some tariff groups and the variability of this significance across schemes. The limited number of schemes that consume material amounts of electricity also means a whole of Sunwater approach is not necessary from an internal efficiency and effectiveness perspective.

Full coverage of electricity costs

The mechanism is based on total electricity costs incurred to provide the service to irrigation customers at desired standards of service. This approach ensures that the Part E and Part F charges under the mechanism are as cost reflective as possible.

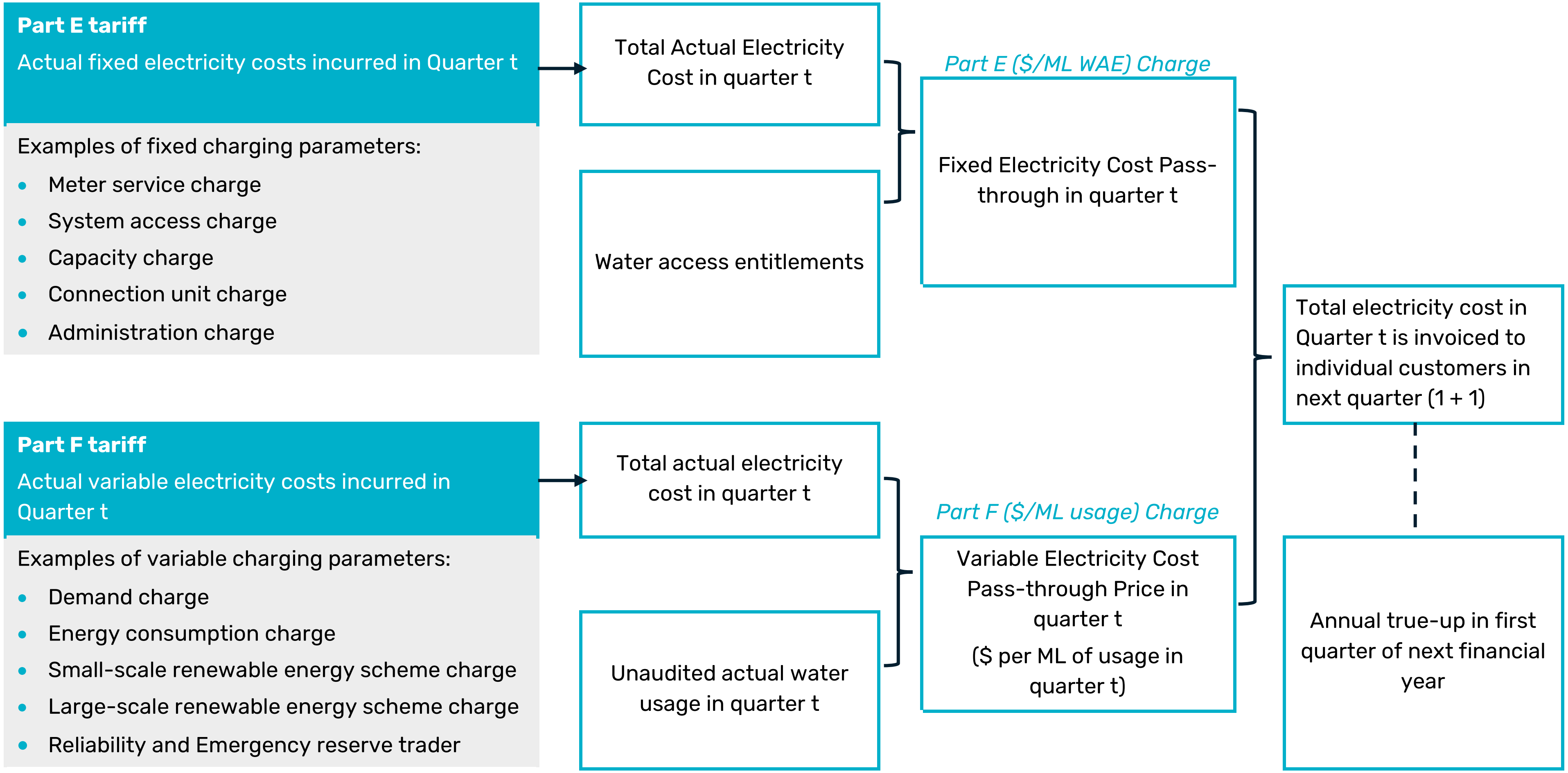
Sunwater also proposes to pass-through incremental management costs associated with the pass-through methodology. These will be quantifiable when the number of participating schemes is known.

Price setting at regular intervals – Part E and Part F charges

A key design feature of Sunwater's proposed mechanism is the introduction of Part E and Part F charges in the next price path period.

The proposed methodology for calculating Part E and Part F charges is set out in **Figure 9**, and is designed to ensure that these charges are as cost reflective as possible. That is, the Part E charge is reflective of fixed electricity costs and the Part F charge is reflective of variable electricity costs.

Figure 9 - Proposed methodology for setting Part E and Part F charges



A central feature of the ECPT mechanism is that Part E and Part F charges will be set on a quarterly basis. This approach was co-designed with Bundaberg, Burdekin Haughton, Mareeba-Dimbulah and Upper Condamine representatives on the Consultative Committee to address concerns relating to potential 'bill shock' associated with an annual billing approach.

Reporting and review process

A critical customer-protection feature of Sunwater's proposed mechanism is the reporting and review process. The proposed steps in this process are discussed in **Table 22.**

Table 22 – Key design features of reporting and review process under the ECPT proposal

Key steps	Description
Step 1 Publish annual electricity pass-through report	Sunwater publishes an annual report to provide customers and their representatives with the information they require to assess whether the actual electricity costs passed through in the previous financial year is reasonable and in accordance with the price-setting methodology. The information in this annual report would include the following: • The pass-through amount and true-up amount (if any) for the review year and the underlying calculations. • A comparison of electricity prices with prior year prices • An overview of Sunwater's tariff strategy and upcoming price changes relevant to selected tariffs. • A comparison of the annual water and electricity usage against previous years. • Additional information as necessary to explain high usage or irregular water and electricity usage relationships.
Step 2 Customer review	Customers and their representatives review the annual report and raise any concerns relating to inefficient or imprudent costs.
Step 3 Sunwater response	Sunwater provides a response to customer concerns (if any). These responses may include additional information and analysis, or adjustment to the electricity charges.
Step 4 Review/dispute resolution	If customers remain concerned over the efficiency and prudency of the actual electricity costs incurred by Sunwater, then they have the option of initiating a formal dispute resolution and review process. • Reporting would be presented to IAC/CAC groups in the first instance. • Irrigator-nominated customer representatives responsible for decision-making ask Sunwater for a formal response and/or to move to dispute resolution. • To initiate a dispute resolution process, the scheme needs to formally write to Sunwater that a review is necessary and material – in deciding to initiate the process the scheme may elected to commission independent advice (e.g., from a peak body or other) at their own cost. The potential outcomes of this process could be: • no change to invoices or future costs • an adjustment to customer invoices (backdated) • an adjustment to future costs.

4 Operating expenditure (opex)

This section describes the approach taken to develop, test and finalise Sunwater's opex forecast. It sets out:

- *our commitment to keeping costs as low as possible through innovation and a commitment to efficiency*
- *our base-step-trend methodology adopted using 2022-23 actuals for base year forecast development*
- *how Sunwater has escalated costs across the price path period and the significance of the inflation challenge.*

4.1 Strategic priorities

Since the 2020 Review, Sunwater's annual corporate and strategic planning processes have delivered a change in strategic priorities/focus to better align our operational activities with our purpose and strategic goals.

The strategic goals of safe and engaged people, sustainable business and operational excellence led to a refresh of our approach to strategic workforce planning (**Figure 10**).

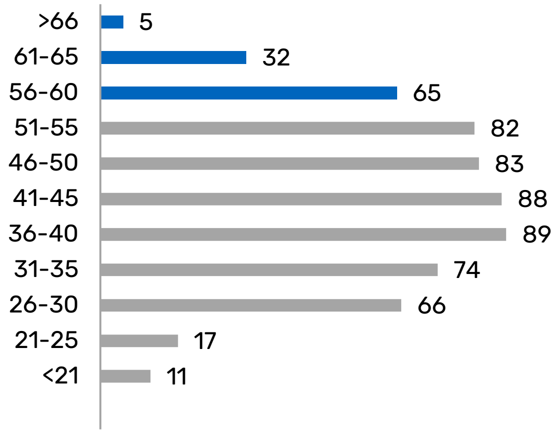
We have recognised risks within our workforce plan and are actively looking at critical areas of the business with a view to identifying critical skills needed to deliver services consistently to customers.

This strategy included a focus on areas such as formal succession planning (new for Sunwater) to future-proof the workforce and protect customer services from the loss of critical staff and knowledge. This is particularly pertinent in the context of an aging operational workforce.

Figure 11 shows 58 per cent of Sunwater's workforce is 41 years old or over, with 30 per cent over 50. Functionally, the majority of Sunwater's older workers (over 55 years of age) are found in Operations (60 individuals).

Figure 10 - Strategic Workforce Planning strategy

Figure 11 – Workforce age profile



4.1.1 Improvements

In the 2020 Review, the QCA's consultant (AECOM) noted that while Sunwater's maintenance regimes, work scheduling and delivery processes were prudent and efficient, we could explore some areas to further efficiency in operations and maintenance activities. These included:

- investigating the upgrade of communications networks to remove constraints for remote control and data collection for critical assets via the Supervisory Control and Data Acquisition (SCADA) network
- formalising and optimising spares management to further leverage efficiencies in work scheduling that may be present when critical spares are needed and not available.

As a result, we are currently investing in upgrades to regional communications and network systems (as an enabler for SCADA and other technologies) that are, or will, deliver the following benefits:

- improved remote control and data collection for critical assets
- ability to video conference from site with specialist engineers and business support to improve timeliness of communication, assessment and resolution of issues
- ability to use new mobile measuring point apps that transfer data to SAP faster than manual data entry (this was part of the 'DEBS' project discussed during the 2020 Review – 'DEBS' is now business-as-usual work for the ICT Delivery function)
- digitisation of work instructions in SAP (FAMS) to reduce the time it takes for staff to receive work orders and removing the manual data entry of work activities upon completion
- improved access to documentation and records onsite for maintenance and customer service, including digital manuals on iPad
- introduction of enhanced security monitoring equipment as part of the cyber program, keeping Sunwater staff, the community and assets safer
- safety improvements by providing Wi-Fi in remote and confined spaces such as dam galleries which will also enable back-to-base telemetry devices to improve data timeliness and accuracy (legislative requirements for manual checks remain)
- less outages and improved site uptime due to real time monitoring and increased responsiveness

These improvements will ultimately assist us in maintaining or improving the current utilisation rate, ensuring the workforce is actively engaged and performing efficiently for customers.

A critical spares project is also underway. Decreased availability of spares and extension of procurement lead times was further highlighted during the COVID-19 pandemic. To address this and ensure Sunwater can continue to meet customer service standards, we have:

- developed and published a critical spares methodology document
- assessed assets that have a spares requirement for criticality
- uploaded the asset criticality score to SAP for approximately 50,000 assets
- developed and validated a risk-ranked list of 329 critical spares across all four operational regions
- determined minimum/maximum holding quantities or catalogue for each of the 329 critical spares.

Further due diligence and implementation is planned for the price path period.

Sunwater expects the critical spares methodology will allow for optimisation work to be done onsite at every scheduled visit by ensuring that everything needed for the planned work is available, and that related work at a site can be grouped for delivery where possible during single visits. This will be an improvement to our work scheduling and delivery processes, and demonstrates our commitment to continuous improvement.

4.2 Opex forecasting approach

To develop a prudent and efficient opex forecast for this pricing proposal, Sunwater employed the standard regulatory practice of base-step-trend forecasting. This process is set out in **Table 23**.

Fees associated with the irrigation pricing review process (the QCA issues Sunwater with an invoice for its review activities) have been applied as a revenue adjustment in the pricing model in line with the approach taken for the 2020 Review (**Section 6.4.4**).

Table 23 - Sunwater's base-step-trend forecasting process

Key step	Description
Establish base year	Most recent year of actuals (2022-23)
Ringfence regulated costs	Using established cost allocation methodology and exclusion of recreational facilities expenditure
Remove non-recurrent, add recurrent	Review base year for any expenditure that would / would not be incurred in a normal year, followed by • Removal of non-recurrent expenditure • Addition of recurrent expenditure not incurred in the base year
Extrapolate base year into baseline	Applying cost escalation factors, including allowances for inflation, non-price growth and efficiency
Material step changes	Step changes to pass materiality threshold and relate to new service / expenditure obligation (e.g. new opex supporting new capex coming online, new obligations, changes in service levels)
Final forecast	Final opex forecast incorporates recurrent opex, step changes and escalation factors

4.3 Defining the efficient base year

Sunwater selected 2022-23 as the base year because it is the most recently concluded full financial year at the time of this proposal. Sunwater's efficient base year commenced with the collation of actual (unadjusted) expenditure of $73.7 million for the 26 in-scope service contracts.

We completed a robust review, including the utilisation of external consultants to identify opportunities to adjust our actuals to ensure they reflect prudent and efficient expenditure under a typical operating year.

The results of this review process are shown on **Figure 12**, and include:

- An upward adjustment of $1.2 million, as a result of below average electricity use in 2022-23 – this uplift is described further in **Section 4.3.1**
- $2.2 million being removed from the base year across multiple categories – these adjustments are described further in **Section 4.3.2**

The final adjusted base year expenditure of $72.8 million was then used to generate forecasts across the price path period via the application of inflation, an efficiency factor and one step change.

4.3.1 Electricity adjustment

Detailed actual data, forecasts and modelling (further explained in **Appendix F**) shows that electricity costs in the 2022-23 base year were representative for fixed but not variable (pumping driven) costs. This was due to customer water demand, and associated Sunwater pump usage being well down on long-term averages.

This reduction in customer water demand is evident during both 2021-22 and 2022-23 and is linked to above average rainfall across Queensland. The Bureau of Meteorology stated that the 2022-23 North Queensland wet season was "the sixth-wettest season on record (since 1900–01)"[12], while 2021-22 also had close to record amounts of rain across Queensland[13].

To illustrate this point, **Table 24** shows whole of Sunwater electricity consumption and volume pumped for the past two years are well below the average for the most recent six-year period.

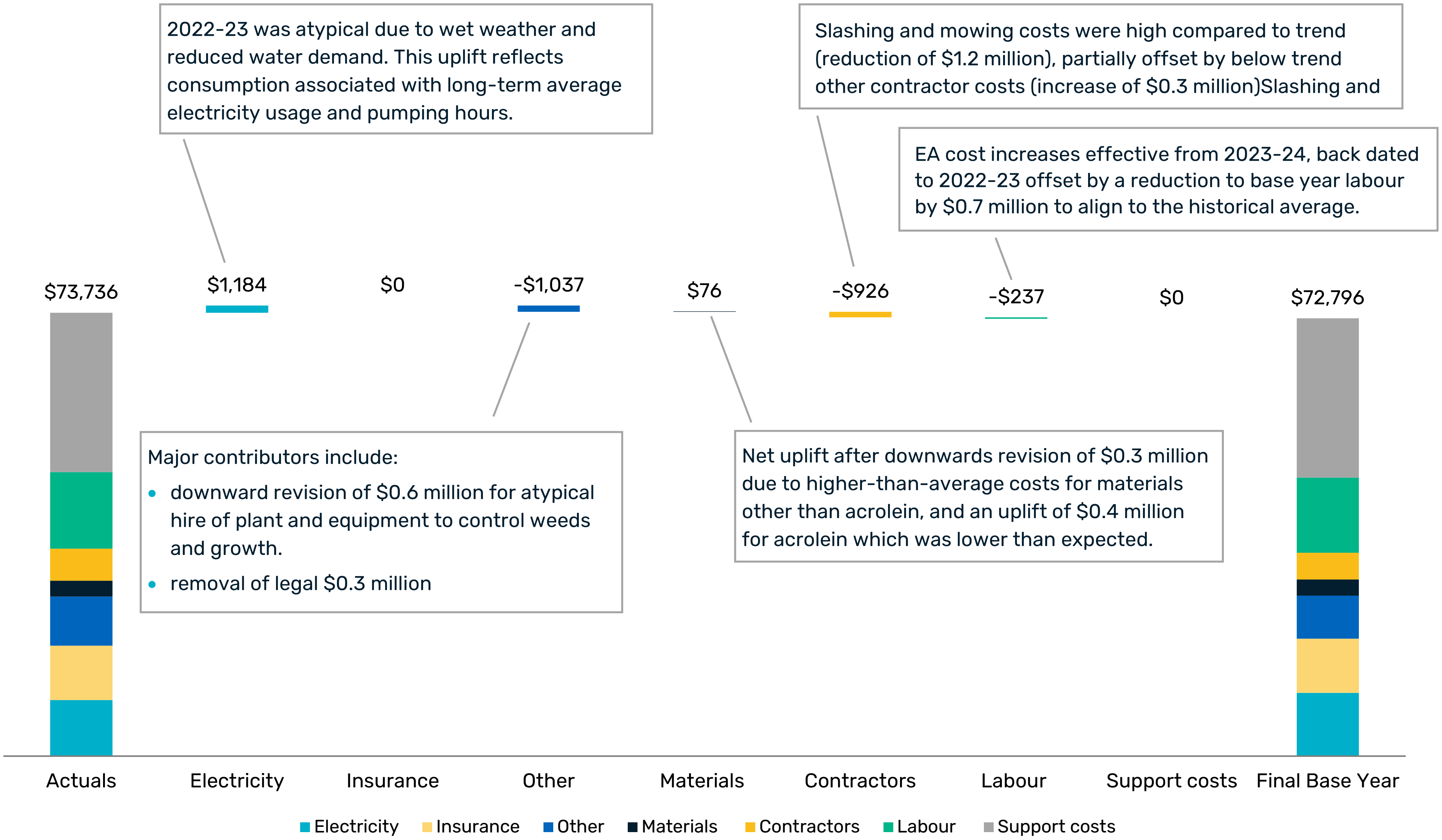
Table 24 – Consumption (MWh) and volume pumped (ML) (large electricity using schemes)

Parameter	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	Avg
MWh	52,911	61,596	79,498	62,718	42,733	39,287	56,457
ML pumped	588,238	627,407	777,791	630,107	470,935	370,271	577,458

[12] 2022–23 northern wet season (bom.gov.au) - Accessed 6 June 2023

[13] Annual Statement 2022 (bom.gov.au) – Issued 8 Feb 2023

Figure 12 – Base year adjusted for recurrent / non-recurrent spend ('000s)



To derive a "typical year" and calculate a suitable scheme-by-scheme adjustment to the base year, Sunwater sought to derive a long-term kilowatt-hour (kWh) average using 16 years of available pumping data (kilowatt-hours). **Table 25** compares base year consumption with the long-term average and shows the variance from the historical average in 2022-23.

Based on the kWh variances shown in **Table 25** and known electricity consumption costs ($/kWh) for each scheme, Sunwater proposes an adjustment to the base year of $1.2 million. The detailed calculations that sit behind this table are provided in **Appendix F**.

4.3.2 Other adjustments

A full discussion of each cost category is provided in **Section 4.8**. **Table 26** sets out the primary adjustments made to the non-electricity cost categories.

4.4 Inflation

Sunwater's approach to inflation of costs is outlined in **Section 3.2**. The majority of the costs are inflated at a general inflation rate across the price path period.

Prior to the price path period (i.e. the 2023-24 and 2024-25 periods), we have inflated insurance, labour and electricity at known contract rates. These rates represent efficient market-tested (or equivalent in the case of regulated electricity) contract costs.

4.5 Efficiency

Higher than expected inflation and an appropriate uplift in the focus on safety and compliance has led to Sunwater absorbing considerable costs on behalf of customers during the current period. Except for insurance, Sunwater is not seeking to recover these costs from customers during the price path period via a review event.

Table 25 – Electricity consumption by (large use) scheme 2022-23

Scheme (service)	*Base year (kWh)*	*16-year avg (kWh)*	*Variance (kWh)*
Barker Barambah	629	41,358	-40,729
Bowen Broken Rivers	321,605	514,100	-192,495
Bundaberg (distribution)	17,063,472	21,659,379	-4,595,907
Burdekin-Haughton (distribution)	19,288,318	23,191,665	-3,903,347
Eton Supply	36,519	1,270,791	-1,234,272
Dawson Valley	29,033	189,778	-160,745
Lower Mary (distribution)	305,354	989,753	-684,399
Mareeba-Dimbulah (distribution)	1,786,150	1,898,182	-112,032
Upper Condamine	456,021	355,331	100,690
Total	**39,287,100**	**50,110,337**	**-10,823,237**

Table 26 - Other base year cost adjustments by category

Category	Discussion
Other	Actual 2022-23 spend for this category was $8.192 million. This directly charged cost category includes rental and hire equipment, land taxes, rates and legal fees. Sunwater has made total downward revisions to the base year in this cost category of $1.037 million (12.7 per cent) with the main components of this revision being: • A downward adjustment of $0.64 million reflecting atypical levels of rental and hire equipment costs in 2022-23. This higher level of activity was the result of a one-off effort to bring drain channels and access road areas up to standard. These areas of civil works have seen significant cost growth over the last few years. It is expected that these costs will fall to more historic levels across the price path period as activity returns to normal levels. • The removal of $0.3 million in legal fees related to a settlement activity.
Materials	Actual 2022-23 expenditure on materials was $2.616 million. Sunwater has made an upward adjustment of $0.076 million (2.9 per cent) following analysis of long-term usage of key materials, including acrolein. This adjustment is discussed further in **Section 4.8.4**.
Contractors	Actual 2022-23 expenditure on contractors was $5.36 million. Non-chemical weed control (slashing and mowing) is a significant contributor to contracted services costs and in 2022-23 was higher than usual due to favourable non-aquatic weed growing conditions. Sunwater has made total downward revisions to the base year of $0.926 million (17.3 per cent) with the main components of this revision being: • downward revision of $1.21 million for non-chemical weed control (slashing and mowing) activities (the Burdekin Haughton distribution service accounts for $0.478 million) • Upward revision of $0.29 million for other contractor categories which were below historical averages
Labour	A $0.237 million (1.9 per cent) downward revision to 2022-23 actuals arising from: • downward revision to areas where labour was well above historical averages • an uplift to the base rate for labour in line with the back-dated EA increases.

Current price path period

For the 2020 Review, Sunwater proposed (and the QCA accepted) a 0.2 per cent efficiency factor across controllable opex. Sunwater has delivered (and is continuing to deliver) several efficiency and productivity improvements in pursuit of this target (**Table 27**).

Sunwater's savings this period total $21 million to date, with further savings projected in 2023-24 (the majority of these projected saving will be the energy efficiencies embedded in the base year).

Setting an appropriate efficiency factor for the price path period

Recognising the challenging cost (and compliance) environment (both during the current period and forecast), and responding to customer expectations that we do everything we can to keep costs down, we have challenged ourselves to deliver a higher level of efficiency for this price path period.

Sunwater has applied an annualised efficiency target of -0.5 per cent for the next price path period (discussed below) and has also applied that target *from* the 2023-24 year to continue to drive these initiatives. As stated earlier, this factor *includes* the realisation of the productivity commitments that accompany our EA for the 2022-23 to 2024-25 period.

This not only more than doubles the applied 2020 Review factor from -0.2 per cent to -0.5 per cent per annum, it also places Sunwater well above most of its peers when it comes to efforts to reduce costs as shown in Table 28 - Efficiency factor benchmarks.

Importantly, we have applied this factor to controllable and non-controllable opex categories.

Applying this factor reduces our aggregate opex from $352 million to $344.5 million across the price path period, a reduction of $7.5 million or 2.1 per cent.

4.6 Step changes

Sunwater proposes only one material controllable step change in cost for the next price path period – the implementation of the Customer and Stakeholder Project (CASPr).

Table 27 – Realised savings 2019-20 to 2022-23 ($ million, real $2023)

Initiative (whole-of-business)	Realised savings ($million)
Electricity initiatives	15.90
Renegotiation of telecommunications contract	0.72
Insurance initiatives (including WorkCover)	2.45
Sale of a redundant plant and realignment of operational staff	0.32
Other minor initiatives	1.88
Total	**21.27**

Table 28 - Efficiency factor benchmarks

Utility	When	Factor
Sunwater	**2023**	**-0.50%**
Seqwater	2022	-0.20%
Yarra Valley Water	2023	-0.26%
Barwon Water	2023	-0.10%
Greater Western Water[1]	2024	-0.20%
Gippsland Water	2023	+0.50%
South East Water	2023	-0.87%
Southern Rural Water	2023	-1.00%
Melbourne Water	2021	-0.20%

Note 1: Proposed by Greater Western Water, not yet accepted by the Essential Services Commission

4.6.1 Billing system renewal

CASPr is focused on maintaining our ability to deliver and comply with customer and regulatory requirements around customer experience, people capability, technology, processes, and reporting in the areas of customer and stakeholder management, water accounting, billing and accounts receivable. The current meter-to-cash (M2C) system is at the end of its useful life and has been withdrawn from the market by the vendor, removing the option to continue with or upgrade the existing solution.

Limitations of the current solution have led to several disparate spreadsheets and offline processes. This fragmentation of process and solutions on applications that lack the appropriate controls has created audit, compliance, and security risks reducing Sunwater's ability to assure that it is complying with relevant legislative and regulatory requirements.

CASPr is required to:

- address the vulnerability of a business-critical application
- address identified technical and cyber risks, currently being managed, mitigated, and monitored by the ICT Operations team (and expected to increase over time)
- address audit and compliance risk
- maintain access to real time account and water balance information
- provide access to online, real time, water use information, water ordering and water products (in conjunction with other initiatives)
- improve operational efficiency and reduce risk
  - mitigating compliance risks and needing to replicate data across multiple applications to execute business processes, water accounting and M2C operations are excessively manual. This also increases the effort and risk of error.

The estimated total build cost of the new system is $38.6 million. A 'Software-as-a Service' solution has been selected which carries an ongoing annual operating cost of $1.7 million per annum to run the solution, in addition to the build costs.

Before committing to CASPr, Sunwater undertook a benchmarking activity through a combination of one-on-one interviews, round table discussions and reviewing publicly available information to understand the cost of M2C systems implementations within the Australian water utilities industry. The benchmarking activity found:

- Sunwater's needs were substantially different to that of a standard value chain for an urban water utility
- there was additional complexity in the implementation of the CASPr solution as it required functionality above other M2C solutions for urban water utilities
- despite these two findings, the projected costs of CASPr aligned to comparable projects by other Australian water utilities.

As the solution impacts all water customers (irrigation customers, standard and non-standard commercial customers and urban customers) Sunwater has allocated the capital and operating costs of the project to all customers on a cost per customer basis.

Sunwater proposes to recover CASPr build costs over the expected useful life of the asset (a 20-year period) consistent with the treatment of other capital assets under a RAB-based approach. This is an appropriate way to recover these costs from customers.

Annual operating expenses have been treated as opex (consistent with their accounting classification).

A detailed business case and cost recovery workbook calculations form part of Sunwater's supporting documentation.

Scheme-by-scheme CASPr opex and capex allowances were communicated to customers via our Stage 3 engagement materials – **Scheme Summaries** and associated presentations.

4.7 Opex forecasts (2025-26 to 2028-29)

The base-step-trend methodology outlined above results in a four-year aggregate opex forecast of $344.5 million as shown in **Table 29**.

4.8 Review of the cost inputs

After inflation effects, the 2022-23 base year is $3.2 million above the (adjusted[14]) QCA allowance (**Figure 13**), but $0.61 million below the five year historical average which reflects more closely the current operating environment and cost pressures Sunwater has faced since the last price review.

While Sunwater has been able to reduce electricity and materials costs for customers, and keep insurance costs from rising too rapidly, other costs have proved a challenge in the current operating environment.

[14] Sunwater calculated each cost escalator in line with the QCA methodologies using actual inflation data.

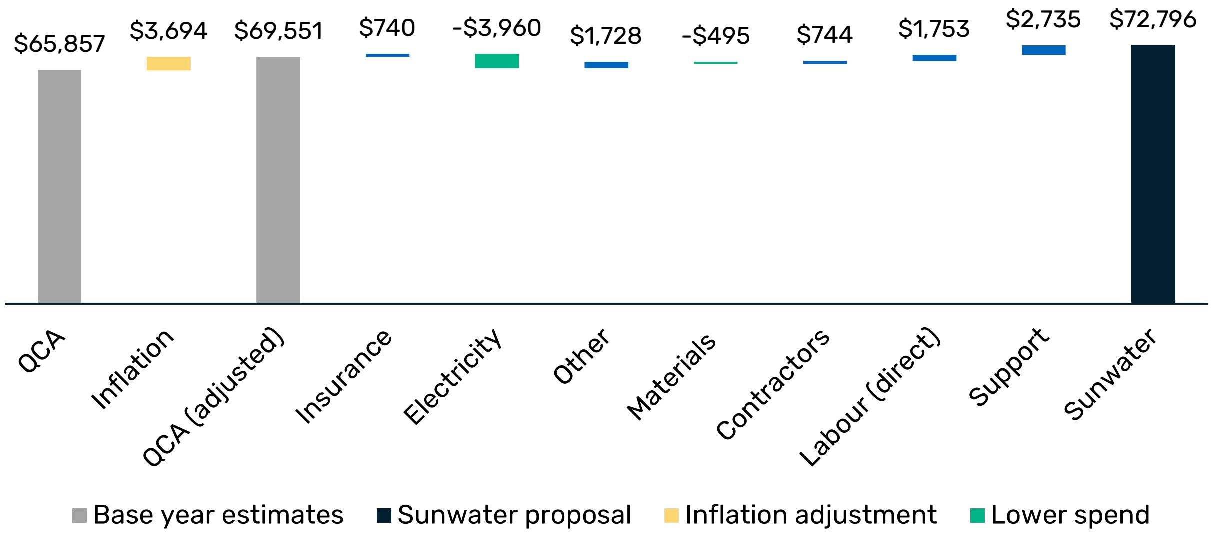
Table 29 – Base-step-trend forecast ($ millions)

Numbers may not add due to rounding	**Base**	**Current**	**Interim**	**Regulatory Period**				*Aggregate*
	2022-23	*2023-24*	*2024-25*	*2025-26*	*2026-27*	*2027-28*	*2028-29*	
Total opex (excluding depreciation)	**469.06**							
Non-regulated service contracts	87.84							
Major projects and other activities	267.40							
Regulated service contracts	113.82							
Renewals related expenditure	37.12							
Recreational facilities	2.96							
Total regulated opex	**73.74**							
Base year adjustments	-0.94							
Adjusted controllable opex	72.80	72.80	76.90	79.76	81.81	83.69	85.45	330.71
Efficiency adjustment (-0.5% efficiency factor)		-0.36	-0.38	-0.40	-0.41	-0.42	-0.43	-1.65
Cost escalation adjustment		4.47	3.24	2.44	2.29	2.17	2.13	9.04
Controllable opex - adjusted	**72.80**	**76.90**	**79.76**	**81.81**	**83.69**	**85.45**	**87.15**	338.09
Step change additions to efficient base year				1.62	1.56	1.60	1.64	6.43
Total regulatory opex				83.43	85.25	87.05	88.79	344.52

Breakdown by major cost category

	2025-26	2026-27	2027-28	2028-29	Aggregate
Insurance	12.29	12.58	12.86	13.12	50.85
Electricity	11.28	11.47	11.68	11.91	46.34
Operations and maintenance	29.25	29.95	30.59	31.20	120.99
Labour (direct)	*13.65*	*13.98*	*14.27*	*14.56*	56.45
Materials	*2.94*	*3.01*	*3.07*	*3.13*	12.15
Contractors	*4.84*	*4.96*	*5.06*	*5.17*	20.03
Other direct	*7.82*	*8.01*	*8.18*	*8.34*	32.35
Support costs	30.61	31.25	31.92	32.57	126.35

Figure 13 – Base year analysis (2022-23) – Drivers of difference by cost category ($'000)



Areas putting upward pressure on costs include:

- a genuine need for increased direct (direct labour) and support roles in order to better manage risk, and ensure Sunwater is able to meet customer service standards now and into the future
- an increase in 'other direct costs' due to the need for additional hire equipment, increase to compulsory land taxes
- increased investment in information technology – as an enabler and also as a risk management strategy particularly in relation to cyber security risks
- increased compliance requirements (cyber security, procurement)
- increased focus on safety – both Sunwater and contracted staff – placing upward pressure on internal (increased procurement effort, new standards) and external (increased compliance) costs.

A review of each cost input is discussed below setting out the basis for our base year expenditure and management actions Sunwater takes to appropriately manage costs in each category.

4.8.1 Insurance

The insurance category accounts for $9.0 million (12.4 per cent) of Sunwater's proposed base year opex.

Sunwater's actual insurance costs for the period are outlined in **Section 3.3.2** as part of our discussion of an insurance review event proposal. Sunwater has worked extremely hard during the period to keep insurance premiums to a minimum and continues to keep a strong focus on this cost category.

Context

The insurance landscape continued to change this price path period and became additionally risk-adverse given the COVID-19 pandemic and economic impacts.

Market movements and extreme weather events causing flood damage were key drivers in higher premiums, with 2021 and 2022 (calendar years) being significant in terms of size and subsequent damage to infrastructure.

For context **Figure 14** shows global market losses (and causes) that occurred in 2021 and 2022 placing pressure on profit margins for insurers with flow on effects for premiums worldwide.

It is very difficult to predict premiums into the future when there are many external national and international risk factors which influence premium pricing. While Sunwater cannot control these, it has been actively managing insurance premium costs to ensure its coverage is appropriate, reflective of the risks faced by the business and as low as possible.

Management of costs

In seeking to minimise insurance premium costs Sunwater uses an insurance broker (Marsh) to procure insurance competitively. It also self-insures where it is more cost effective to do so (business interruption and cyber security breaches). Sunwater has previous investigated self-insurance for some distribution assets and other key risks, however there was little premium benefit in doing so.

Sunwater has effectively managed insurance costs through:

- insurance premium cost controls, including regular engagement with brokers and insurers to ensure they understand the context within which Sunwater operates
- proactive asset maintenance programs
- a maturing asset management framework
- a focused dam safety management program
- robust emergency action plans
- a proactive education program to minimize the risk to public safety from Sunwater assets.

Through these strategies Sunwater saved customers $2.24 million in insurance costs that would otherwise have been incurred.

Each of these is discussed further below.

Insurance premium cost controls

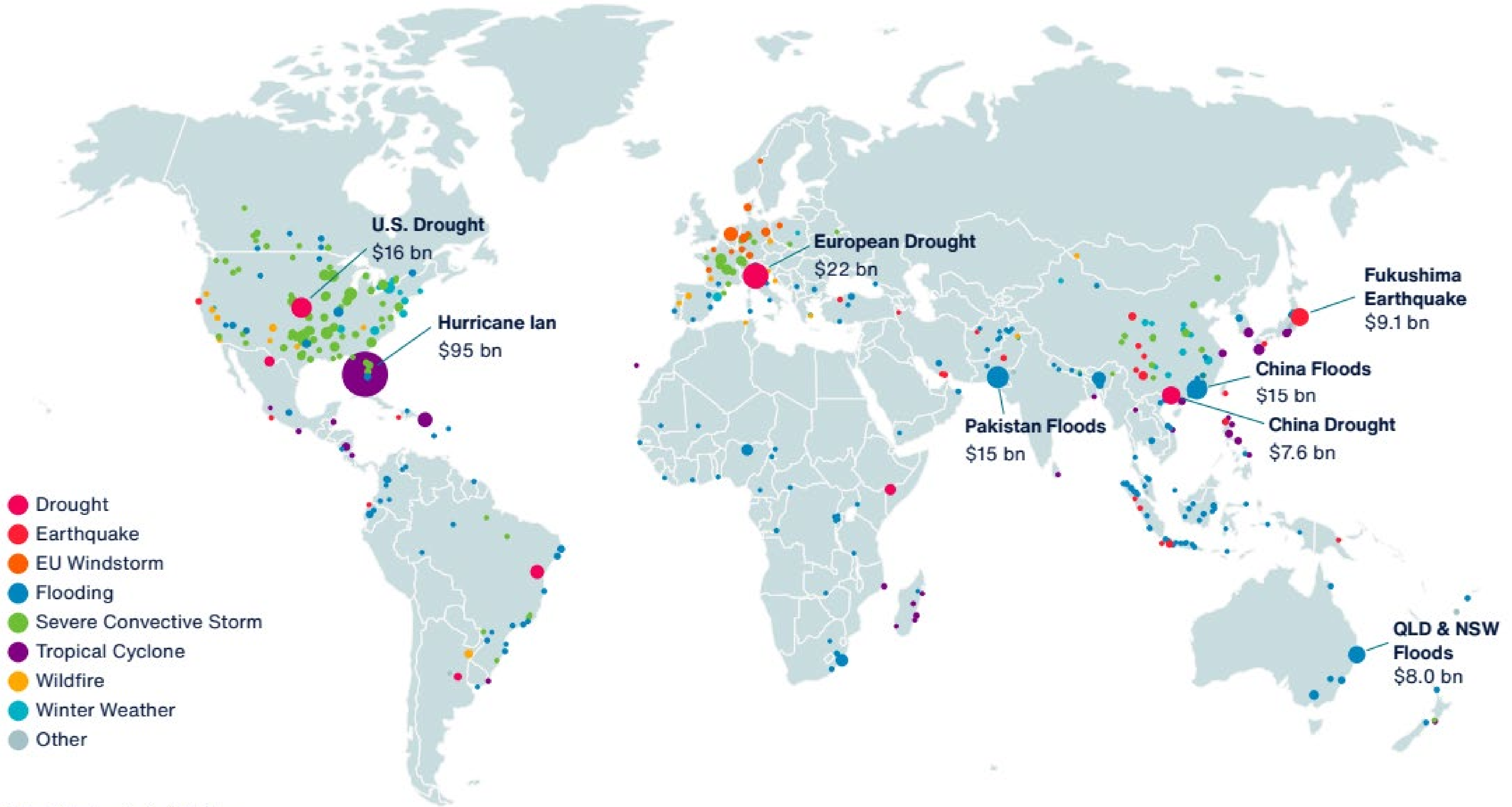
Sunwater actively manages premium costs by reviewing risk profile, identifying, and removing possible overlaps in coverage and reviewing policy specifications (including deductibles). This results in the most practical insurance coverage available in the market and identifies where a risk could be self-insured. It also examines options to improve premium expenditure efficiencies by testing deductible limits to assess premium benefits.

Sunwater undertook a full revaluation of its assets in 2021 resulting in a reduction in asset values from $13.5 billion to $11.7 billion (a 13.3 per cent reduction) and a flow on reduction in insurance premiums of approximately $0.8 million. Periodic revaluations such as this are part of Sunwater's approach to prudent and efficient management of insurance costs.

Sunwater engages with insurers "often and early" to maximise knowledge of the risk profile of our assets and services. Engagement includes:

- Presenting to insurers to enhance their knowledge of our business and reduce additional premiums that would come from bundling Sunwater with higher risk businesses.

Figure 14 - Market losses 2021-22 (globally)



Data: Catastrophe Insight, Aon

- Detailed and regular presentations and workshops to outline Sunwater's approach to risk management, including:
  - internal risk controls (such as emergency action plans and incident response procedures),
  - a Sunwater's proactive approach to community engagement, comprehensive asset management and maintenance program (e.g., CRAs)
  - sharing the "good news stories" (such as no claim from Sunwater during the January 2022 flood events in South East Queensland).
- Taking insurers on infrastructure tours to enhance understanding of Sunwater's day-to-day operations and practical approach to asset and risk management.
- Highlighting Sunwater's very low claim rate across its insurance portfolio.

Robust maintenance program

Sunwater undertakes scheme-based asset risk assessments so it can prioritise expenditure for the asset management program.

It also undertakes safety and environmental risk assessments at any time when a hazard has been identified or following the implementation of risk mitigation measures.

Dam safety

Sunwater adopts a portfolio risk assessment approach supplementing regulated dam safety inspections with a 'CRA' process. CRAs are updated when key input studies are revised, for example due to recalibration of flood models following significant rainfall events, in order to ensure Sunwater's processes are continually up to date and accurately identifying and quantifying portfolio risks.

This ongoing process provides a consistent risk view across the Sunwater dam portfolio.

Management of assets to reduce risk

Sunwater's asset management strategy is designed to limit risk exposure to Sunwater and its customers. In doing so, it reduces insurance risk through:

- A focus on whole of lifecycle value that includes ongoing asset condition, performance and risk assessments which informs the lifetime maintenance and eventual replacement of assets to avoid asset failures and risks to Sunwater staff, assets and the community. This occurs at both asset and portfolio level.
- Implementing corrective solutions that focus on resilience and reducing the likelihood of future asset failure. For example, following flood damage to a Mary River pipeline in 2021, Sunwater looked at a range of options and the potential for future damage (and cost) and designed out the risk of future flood damage by reinstalling the pipeline under the river.

Robust emergency action planning to limit impact during emergencies

Sunwater has a robust emergency action planning framework to ensure it responds appropriately and in a timely manner when emergencies occur. This is to limit the impact to Sunwater personnel, customers, infrastructure and the community. In doing so, these action plans seek to limit insurance exposure of emergency events.

Customer and community education to limit risk to Sunwater assets

Sunwater also seeks to limit insurance risk through customer and community education programs. Active education programs at present include:

- emergency preparedness
- wet season awareness
- safe interaction with Sunwater assets.

4.8.2 Electricity

The electricity category accounts for $10.5 million (14.4 per cent) of Sunwater's proposed base year opex.

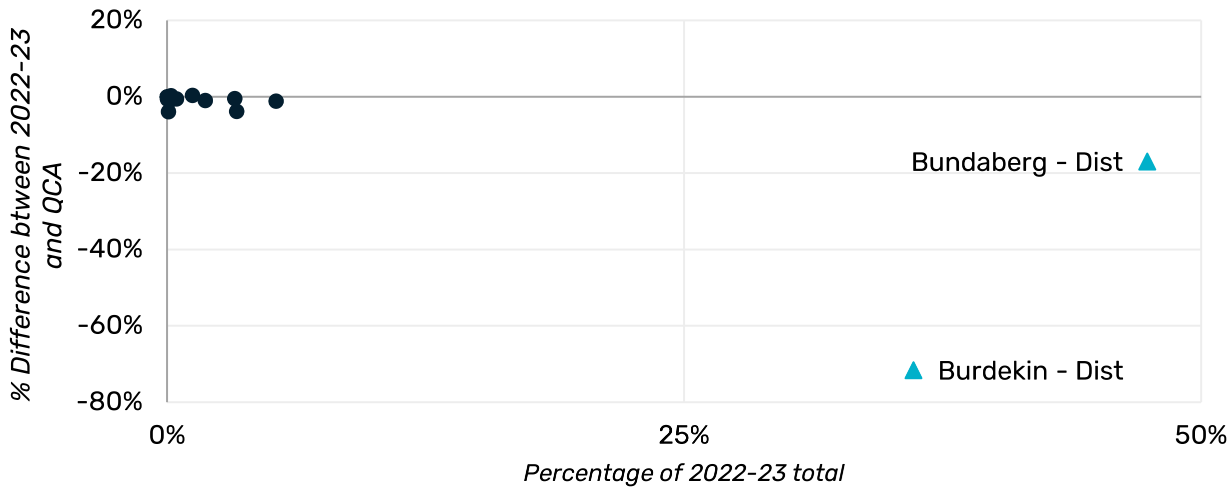
Figure 15 shows that the distribution service within the Bundaberg and Burdekin Haughton schemes account for 84 per cent of Sunwater's total electricity costs. They are also the primary source of lower-than-expected electricity costs when compared to the QCA's forecast for the 2022-23 year (adjusted for inflation).

Sunwater commenced the implementation of its current *Energy Strategy* at the beginning of the current price path period. The strategy focuses on managing energy price and cost risks, sustainable energy management and efficient energy use.

A key initiative was investigating alternate procurement options which included wholesale electricity market contract arrangements. During this process Sunwater became aware of a whole-of-Government electricity contract established by the Queensland Government Procurement Office in 2018. During 2019, Sunwater conducted due diligence in terms of market testing and alternate procurement approaches to validate the value of the whole of Government contract. The evaluation found the whole of Government contract was the most competitive and offered significant savings over other pricing arrangements at the time.

This contract came into effect on 1 January 2020 and has delivered $8.5 million of savings against the QCA allowances for this current price path period to date.

Figure 15 - Service level view of electricity costs



Sunwater continues to investigate and analyse possible ways to deliver further savings to customers by:

- continuing to review electricity arrangements (annually to ensure sites are subject to the optimal tariff or if there is financial benefit transfer to the contestable market)
- continuing to review alternate generation opportunities
- reviewing operational optimisation on a regular basis to manage costs as well as asset efficiency.

These savings have generally been passed on to irrigation customers via the electricity cost pass-through mechanism which is discussed in **Section 3.3.1**.

4.8.3 Labour (direct)

The labour (direct) category accounts for $12.5 million (17.1 per cent) of Sunwater's proposed base year opex.

More than half (52 per cent) is incurred in Sunwater's three largest distribution services (Burdekin Haughton, Bundaberg and Mareeba-Dimbulah) as shown in **Figure 16**. The three next largest schemes (by direct labour) take this cumulative total to 65 per cent.

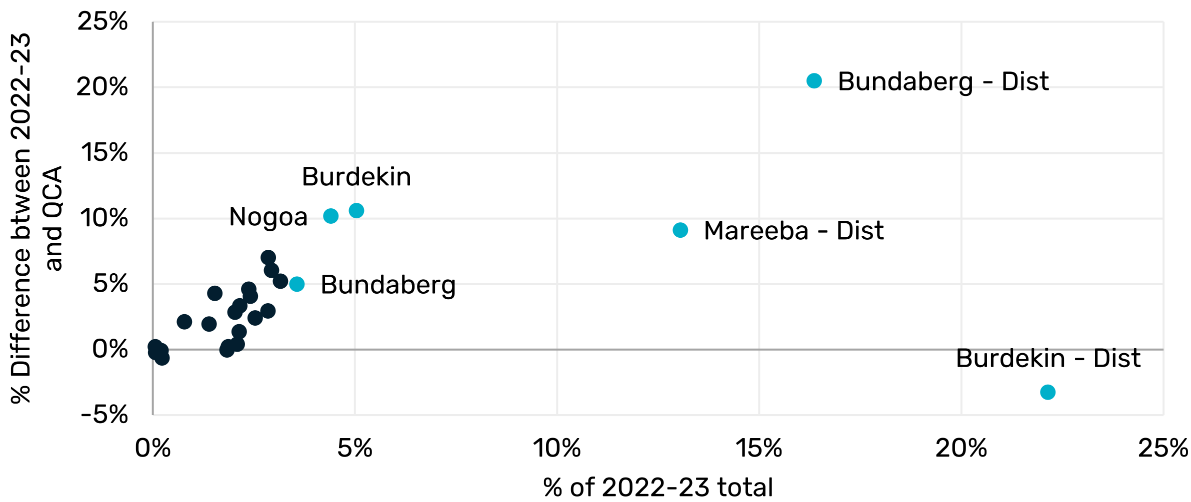
Sunwater's direct labour costs are $1.8 million higher in the 2022-23 base year than the adjusted QCA allowance.

Sunwater's direct labour costs (operating and maintenance labour costs) have increased since the last review because:

- We have invested in additional full-time equivalent (FTE) roles to meet business needs and address risks to service (discussed below).
- Average hourly rates have increased (discussed below) due to:
  - the need for additional hours at higher levels to supervise and train cadets, apprentices and trainees
  - costs increasing higher than the labour index due to the demand for similar resources across industry particularly trades skilled labour in regional areas as well as the need to procure additional resources in a tight labour market where candidates are attracting higher rates.

The analysis presented below shows that while we have increased FTEs in direct labour we have maintained a high utilisation rate which AECOM considered at the upper end of industry best practice.

Figure 16 – Service level view of labour (direct) costs



AECOM also reviewed Sunwater's maintenance regimes, work scheduling practices and delivery methods and found our practices across all three areas to be prudent and efficient.

Sunwater has maintained (or improved) our approach to each of these areas and is confident that its practices and resourcing levels remain prudent and efficient.

Implementation of workforce strategy – uplift in FTE

Implementing the new strategic direction and risk management has increased Sunwater's focus on the following, both in direct labour and support labour:

- the safety of its people, customers and the community
- business resilience which led to the development of a workforce planning strategy to ensure Sunwater was appropriately managing the risk of our ageing workforce on its operations and services to customers (succession planning)
- improving internal functions to meet new and emerging regulatory and customer service expectations (procurement, legal, insurance, customer and stakeholder relations, information technology)
- recognition that lean rostering resulted in excessive leave balances and or overtime accrual, fatigue related safety risks, and some attrition due to workload.

The Operations and Maintenance area has the largest percentage of employees over 55 in the business. Sixty of the 242 FTEs in this group are over 55 years of age.

This age profile created a need for ongoing investment in graduates, cadets and apprentices to ensure sufficient operational staff and knowledge as employees retire. This led to 15 additional graduates, cadets and apprentices and an additional electrician in operations and maintenance (shared across regulated and non-regulated business activities) to ensure the resilience of Sunwater irrigation services as the average age of operations and maintenance staff increases.

To address other business resilience and operational risks Sunwater also employed:

- six regionally-based project managers to deliver an increasing number of renewals projects as our assets age
- planning managers, planners and coordinators (shared across the regulated and non-regulated business) to ensure work is planned and carried out safely, effectively and efficiently and to deliver reliable assets that meet the needs of our customers
- additional trades staff and apprentices (four) have been sourced for as part of the insourcing strategy at the Bundaberg workshop (to address skills issues and availability of contractors to refurbish large pump sets, valve trains and actuators)
  - this strategy has addressed the risk of unavailability and poor-quality outcomes that Sunwater has experienced in this space prior to the insourcing strategy (largely as a result of market changes during and post COVID) – these resources and costs are shared across regulated and non-regulated services
  - this is **not** a one-off or short-term investment – costs associated with addressing this risk are expected to be ongoing for at least the term of this price path period

- a net increase of four FTEs in the asset management function at Sunwater to improve skills and expertise, and therefore the efficacy and efficiency of the function
  - skills include, asset planning, electrical, mechanical, civil, high voltage, condition assessment, metering, asset systems and administration

These actions have contributed to an increase of 31 FTEs in Sunwater's operations and maintenance teams since 2018-19 (**Table 30**).

Utilisation

Table 31 shows that in 2022-23, 80 per cent of the hours worked by Sunwater's 242 operations and maintenance staff were allocated to direct charging activities. The remaining hours were spent on necessary management, training, safety and administration activities.

A system change in 2020-21 means data for that year is not available in an accurate or usable format.

Rates in 2020-21 and 2021-22 were also impacted by COVID-19 which changed the way in which we were able to work. An increased focus on safety also means an increase in hours assigned to safety training and risk assessment / management.

During the 2020 price review AECOM reviewed Sunwater's utilisation rates and found that Sunwater's utilisation rate of 87.8 per cent in 2018-19 was "excellent compared to best practice"[15]. The year-to-date data for 2023-24 shows a return to previous utilisation rates post COVID-19 which represents an improvement in utilisation given Sunwater's sustained focus on safety which is not a direct chargeable activity.

Continued strong utilisation rates (excluding COVID years) demonstrates Sunwater has a genuine need for our current workforce of 242 FTE.

Implementation of strategy – uplift in $/FTE

Increased FTEs has led to both an increase in hours being charged to schemes but also a change to the average cost of an FTE (mix of hourly rates).

Figure 17 and **Figure 18** below show examples of the hours by employment band changing over time in the Nogoa and Burdekin Haughton supply schemes.

These examples show that the number of hours charged to schemes at higher rates has increased from 2018 to 2023. This is due to an increased level of seniority and skill aligned with Sunwater's strategic direction to build business resilience and succession planning requiring additional supervisory and training hours with more senior resources.

Table 30 – Operations and maintenance FTEs 2019-20 to 2022-23

2018-19	2019-20	2020-21	2021-22	2022-23
211	210	204	228	242

Temporary decrease in 2019-20 and 2020-21 influenced by the need to comply with State and Federal health requirements related to the pandemic.

[15] AECOM, Rural Irrigation Operational Expenditure Review, Sunwater, 30 August 2019, p. 41

Table 31 – Sunwater's historic utilisation rates

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24[b]
North	82.9%	83.0%	83.2%	88.1%	89.5%	N/A	73.0%	80.0%	89.0%
Central	77.9%	78.8%	82.7%	88.9%	89.7%	N/A	80.0%	77.0%	91.0%
Bundaberg[a]	83.6%	83.5%	85.6%	87.7%	91.1%	N/A	82.0%	81.0%	89.0%
South	81.8%	86.5%	87.0%	78.6%	90.2%	N/A	76.0%	73.0%	85.0%
Total	**81.8%**	**82.0%**	**84.1%**	**87.8%**	**90.1%**	N/A	**77.8%**	**80.0%**	**87.0%**

Note a: Bundaberg – Lower Mary region; Note b: 2023-24 year to date November 2023

Figure 17 – Change in rate mix over time - Nogoa Mackenzie supply

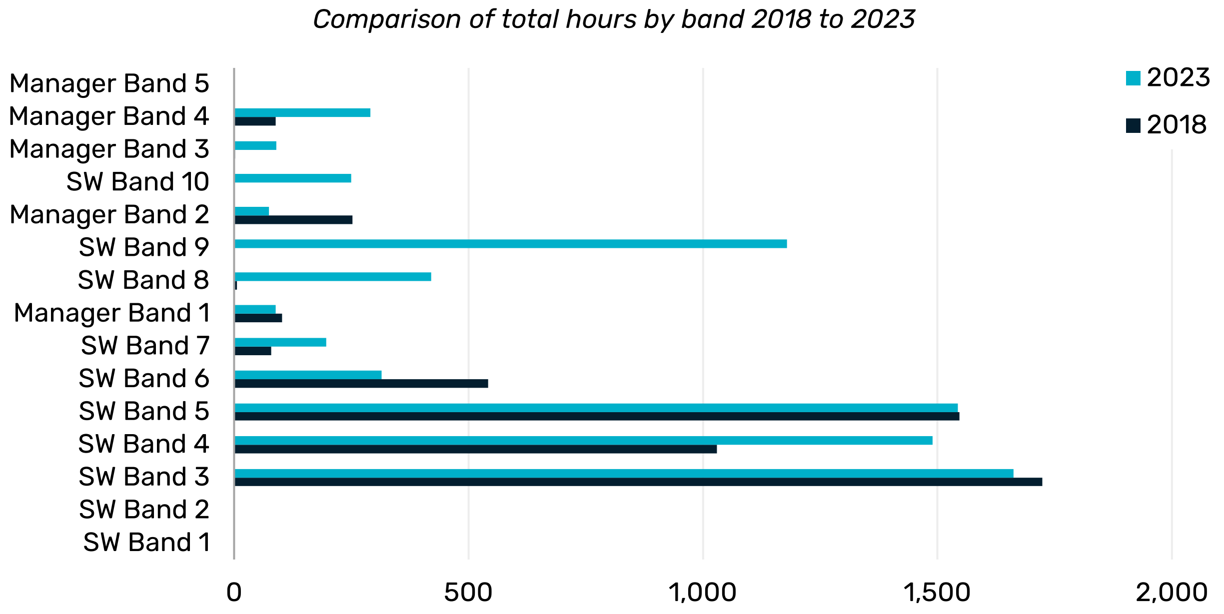
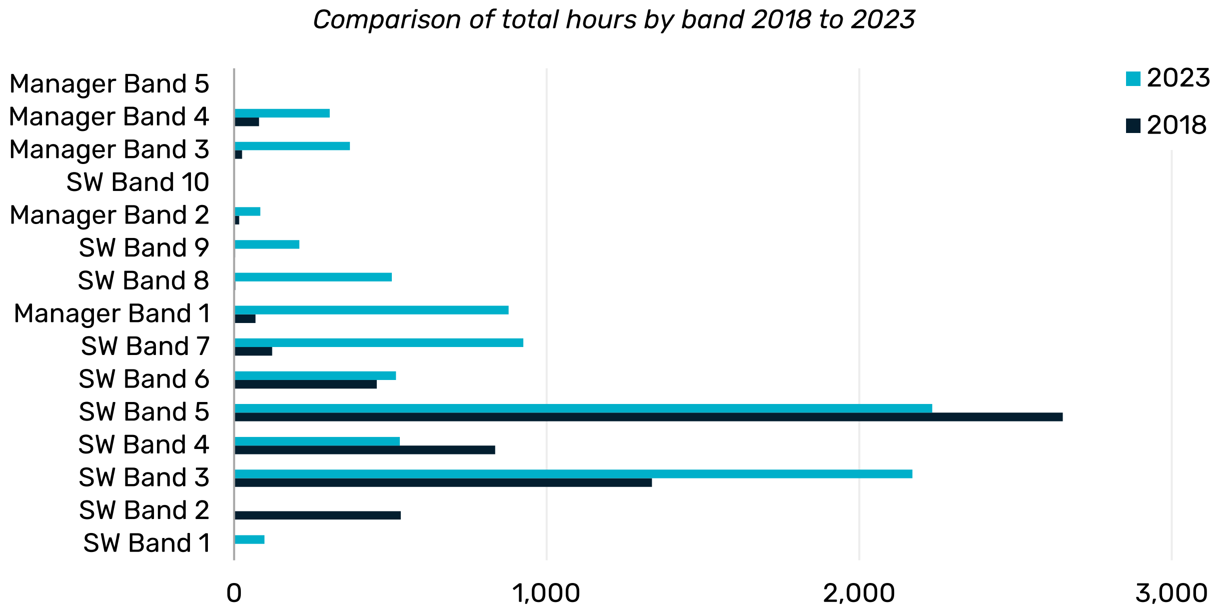


Figure 18 – Change in the rate mix over time - Burdekin Haughton supply service



It also represents the higher labour cost resources procured in recent years. Labour costs have risen, particularly as a result of the pandemic and a tight labour market. Higher unit costs of labour come from both a rising wage index but also market conditions.

Along with the procurement of 31 additional FTEs, Sunwater has also had to replace staff from time to time, and each time it replaces a position, or creates a new one, it must pay the prevailing market rate for that resource – for a number of senior operational positions this has often meant recalibrating rates to a higher level to deliver the desired strategic or service outcome. This is particularly evident for regional positions.

Table 32 below shows the change in hourly rate from 2018 to 2023 as an absolute percentage and year-on-year growth (compound annual growth rate) for the schemes that incur the greatest labour effort in the irrigation business.

Year-on-year increases range from four to nine per cent which is above the wage price index for the same period.

Sunwater has no plans to drastically increase FTE in this function in the near term so does not expect to be subjected to ongoing higher costs to procure resources. The base year is therefore considered appropriate as a base for the forecast for the next price path period.

4.8.4 Materials

The materials category accounts for $2.7 million (3.7 per cent) of Sunwater's proposed base year opex. **Figure 19** shows that 88 per cent of this spend is related to the distribution service activities within the Bundaberg, Burdekin Haughton and Mareeba-Dimbulah schemes.

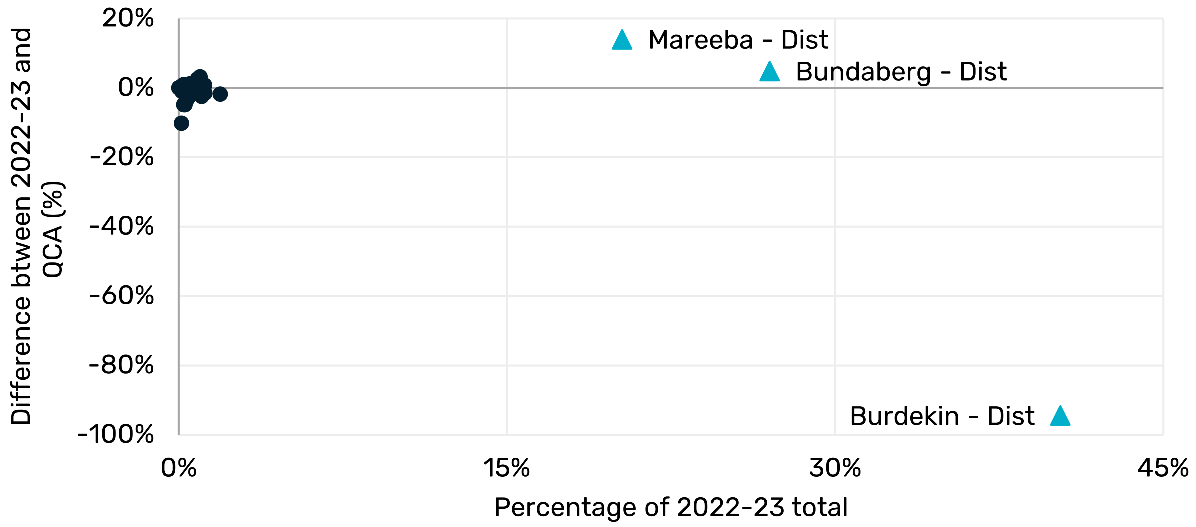
Sunwater's materials category base year expenditure is some $0.5 million lower than the adjusted QCA allowance for the period, driven almost exclusively by lower costs in the Burdekin Haughton distribution service (**Figure 19**). This is after adjustments made for:

- Downwards revision of $0.3 million due to higher-than-average costs for materials other than acrolein
- An upward revision to acrolein, which was $0.4 million lower than the long-term average.

Table 32 – Change in hours and hourly rates across sample schemes between 2018 and 2023

Scheme	Service	2018 ($/hour)	2023 ($/hour)	Change ($/hour)	Absolute (%)	CAGR (%)
Bundaberg	Distribution	51	68	17	33	6
	Water supply	57	68	11	19	4
Burdekin Haughton	Distribution	52	67	15	29	5
	Water supply	55	83	28	51	9
Nogoa Mackenzie	Water supply	57	85	28	49	8

Figure 19 – Service level view of materials costs



Acrolein

Acrolein is a herbicide used to control the growth of aquatic weeds.

Sunwater's acrolein use was reduced in 2022-23 (and in the prior year) due to increased turbidity (caused by wet conditions) which hampers aquatic weed growth.

It is expected with the advent of more normal climate conditions or a move to drier climate conditions, the use of acrolein will return to pre-2023 levels. An upwards increase has been applied to the base year to allow for normal use of acrolein going forward.

Sunwater has also had to factor in the higher unit rates we are now incurring for this chemical – there are no Australian manufacturers of this chemical and limited suppliers internationally. The average unit cost of the product has increased from $7,980 per unit in 2021 to $8,958 per unit in 2023.

Sunwater continues to explore opportunities to reduce chemical costs, engaging with potential alternative suppliers, other bulk water utilities and universities to trial alternative products.

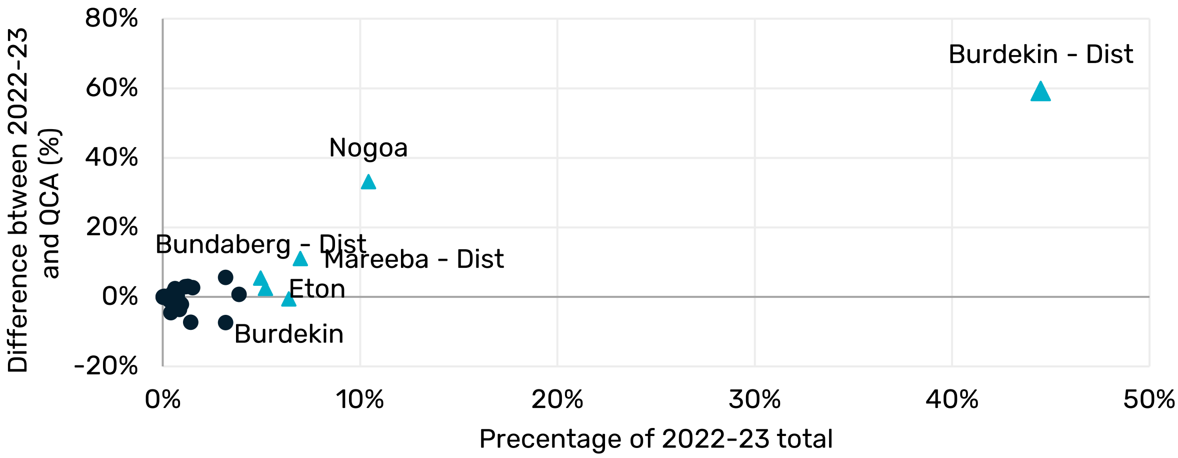
A trial of alternative chemicals in the Burdekin Haughton concluded that acrolein is the most physically effective and cost-effective control at present.

4.8.5 Contractors

The contractors category accounts for $4.4 million (6.1 per cent) of Sunwater's proposed base year opex. This is after the *downward* base year adjustment of $0.93 million outlined in **Section 4.3.2**. The Burdekin Haughton distribution service accounts for 45 per cent (**Figure 20**) of total contractor costs, with Bundaberg and Mareeba-Dimbulah distribution services accounting for a further 12 per cent. Nogoa accounts for 10 per cent.

Weed control activities, such as slashing and mowing, account for a significant portion of total contractor costs. These activities occur primarily in schemes with distribution services where weed control is an ongoing focus to maintain service standards for customers and reduce losses. Heavy weed growth limits the ability of operators to safely complete thorough inspections and can result in additional plant and equipment damage. It also presents an enhanced safety and fire risk to adjoining properties and the public.

Figure 20 – Service level view of contractor costs



While Sunwater has made a downward adjustment to account for the unusually strong non-aquatic weed growing conditions during the base year, the cost of engaging contractors has increased.

One major contractor in the Burdekin Haughton scheme delivers most slashing services. Rates for this contract were set in September 2022, revising a November 2016 contract which did not have an escalation clause. Prices in 2022-23 were therefore subject to a rate uplift of 32 per cent for general spraying activities, and 20 per cent for slashing activities. Fixed fees for slashing in the Burdekin Haughton channel area ranged from a 16 per cent uplift to a 47 per cent uplift, with an average of 24 per cent.

4.8.6 Other direct costs

The other direct category accounts for $7.2 million (9.8 per cent) of Sunwater's proposed base year opex.

Other direct costs in the base year for operations and maintenance are $1.7 million above the QCA (adjusted) allowance for 2022-23 (**Figure 13**). Costs in this category are shown in **Table 33**.

Over 70 per cent ($5.0 million) of other direct costs are assigned to the Burdekin Haughton (supply and distribution), Bundaberg and Mareeba-Dimbulah distribution services and Nogoa scheme as shown on **Figure 21**.

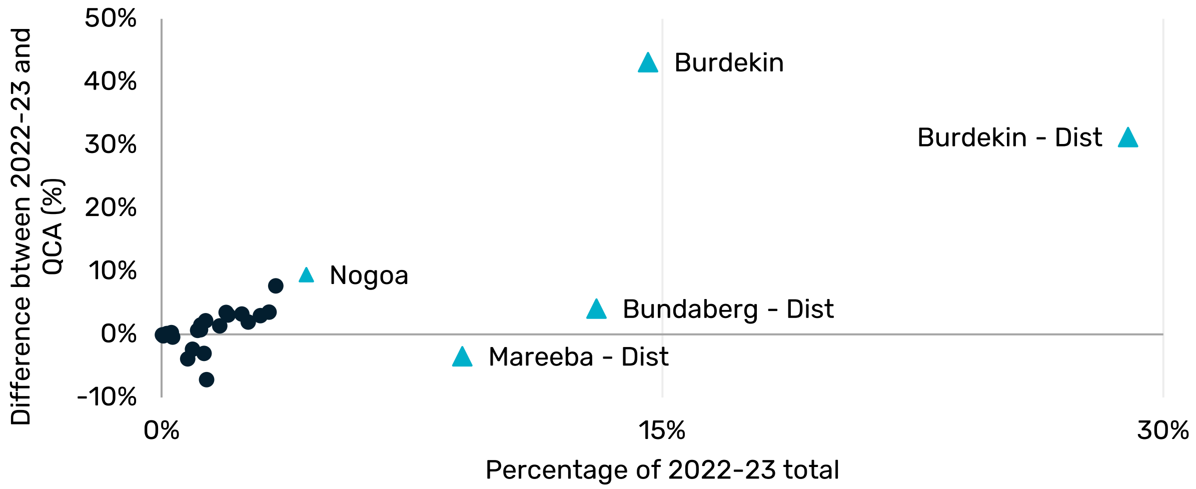
The most significant areas of spend within these five schemes includes:

- $2.4 million in plant, vehicle and equipment hire (73 per cent of the Sunwater total on this area)
- $1.6 million in local authority rates (80 per cent of the total for this area)
    - Burdekin Haughton (supply and distribution) alone accounts for 65 per cent of total Sunwater local authority rates)
    - an increase in uncontrollable local authority rates (Burdekin Haughton scheme) of 61 per cent from 2021-22 to 2022-23 added $0.22 million to the Burdekin Haughton supply service alone.

Table 33 – Breakdown of base year other direct costs category ('000s)

Account category	Nature of costs	Total
Plant, equipment & vehicles	Rental and hire equipment (including contractor costs where personnel are required to operate the equipment) Motor vehicle leases (formerly centrally charged as local overhead costs but now recorded as direct costs)	3,225.6
Local authority rates	Local government fee levied upon land holdings	1,997.2
Telephone and occupancy	Building and facilities, telephone and occupancy costs	592.9
Land tax	State fee levied upon land holdings	436.6
Travel and accommodation	Domestic travel	322.4
Administration	Information technology and facilities management	216.1
Other assets	Small office assets	182.7
Other (licence fees)		181.6

Figure 21 – Service level view of other costs



The increase above historical averages in this category is primarily driven by a decision to allocate motor vehicle lease costs to other direct costs (previously considered a support cost) and uncontrollable increases in rates and land taxes.

This shift followed feedback from customers during the Local Management due diligence process that they would prefer vehicles involved in operating the schemes to be captured as a direct cost.

4.8.7 Support costs

The support costs category accounts for $26.5 million (36.4 per cent) of Sunwater's proposed base year opex. As a business grows in operational needs, its support needs also increase. Since 2018 Sunwater has invested in additional capacity and functionality to:

- improve business resilience
- improve safety outcomes for its people, its customers and the community
- meet growing compliance obligations (particularly around procurement and cyber security)
- drive better business and customer outcomes (particularly around digital enablement and customer and stakeholder relations).

Support costs are allocated via a multiplier applied to direct labour hours. This multiplier, and how it has changed since the 2020 Review are set out in **Table 34**.

Sunwater's support cost multiplier has only grown by 0.11 on average across the schemes despite the additional investment required to support the business and a $2 million growth in direct labour hours.

Variability across schemes is driven by the cost allocation methodology which allocates support costs to schemes by factors that can vary significantly from scheme to scheme and period to period:

- **Risk** – the risk profile of assets impacts the way costs are allocated. For examples schemes with dams and bulk water infrastructure are responsible for water planning and flood room operations costs. Schemes without this infrastructure do not bear these costs through the cost allocation methodology.
- **Direct labour** – aside from risk, direct labour is the primary allocator of most support costs. This means the schemes with more direct labour required to run them will attract a higher proportion of support costs than other schemes.
- **Renewals** – when significant projects are occurring in certain areas they will not only attract additional direct labour (and the overheads that come with it) but some more significant projects will attract direct charged labour of support functions like stakeholder and customer relations and corporate communications.

The nature of the cost allocation mentioned above, and the type of work that impacts it, is variable in location and timing which makes these three categories incomparable across periods.

For this reason, Sunwater's discussion refers to 'support costs' only. We monitor and manage support costs at the top level to ensure we are not overspending or over-recovering from customers.

During the current price path period, Sunwater's support costs have grown by 0.11 on average (from a base that has been corrected for costs that were inadvertently unallocated in the 2020 Review) across all schemes while adding capability necessary for compliance with new regulatory requirements, improved customer service and business representing sound cost management and improved performance in this cost category.

Table 34 - Sunwater's overall support cost recovery rate in 2017-28 vs 2022-23[16]

Scheme	Service	2017-18[17]	2022-23	Change
Barker Barambah	*Supply*	2.27	2.37	0.11
Bowen Broken Rivers	*Supply*	2.12	2.22	0.10
Boyne River and Tarong	*Supply*	2.26	2.30	0.05
Bundaberg	*Supply*	1.83	1.94	0.11
	Distribution	2.17	2.17	0.00
Burdekin Haughton	*Supply*	1.82	1.96	0.14
	Distribution	2.27	2.16	-0.10
Callide	*Supply*	2.40	2.51	0.12
Chinchilla Weir	*Supply*	1.98	1.99	0.01
Cunnamulla Weir	*Supply*	1.96	2.03	0.07
Dawson Valley	*Supply*	2.16	2.23	0.07
Eton	*Supply*	2.26	2.37	0.11
Lower Fitzroy	*Supply*	1.96	2.06	0.10
Lower Mary	*Supply*	1.77	1.95	0.18
	Distribution	1.95	2.09	0.14
Macintyre Brook	*Supply*	2.17	2.22	0.05
Maranoa	*Supply*	2.08	2.05	-0.03
Mareeba-Dimbulah	*Supply*	1.79	1.97	0.17
	Distribution	2.15	2.26	0.10
Nogoa Mackenzie	*Supply*	2.20	2.18	-0.02
Pioneer	*Supply*	2.20	2.26	0.06
Proserpine	*Supply*	2.31	2.32	0.01
St George	*Supply*	2.22	2.22	0.00
Three Moon Creek	*Supply*	2.22	2.28	0.06
Upper Burnett	*Supply*	2.07	2.21	0.14
Upper Condamine	*Supply*	2.15	2.22	0.07
Simple average of loading rate		**1.98**	**2.09**	**0.11**

[16] Values may not add due to rounding.

[17] These values vary from 2020 Review values because Sunwater has corrected some errors found in the previously provided data that under-allocated support costs to schemes.

5 Renewals expenditure

This section describes Sunwater's approach to developing, testing and finalising our renewals forecast. It sets out:

- *our forecast investment in assets to meet customer service standards, legal and regulatory obligations*
- *what we have delivered in the current period to meet these requirements*
- *what Sunwater proposes to deliver in the next price path period to continue to meet these requirements*

Sunwater operates and maintains our assets to meet customer service requirements (set out in the **Scheme Summaries**) and legal and regulatory obligations. Our systems and processes are designed to ensure the work we do meets these obligations efficiently and effectively.

This section addresses all expenditure currently funded via the annuity contribution and includes:

1. planned and reactive (unplanned) capital expenditure to ensure our assets continue to comply with regulatory and customer service standards
2. periodic (or non-routine) maintenance costs to ensure assets can continue to comply with regulatory and customer service standards
3. planned capital expenditure to ensure out assets are compliant with new or emerging regulatory requirements
4. planned capital expenditure to deliver new services or service standards with explicit customer endorsement (Sunwater does not have any actual or proposed expenditure in this category in this review).

Sunwater is proposing a transition to a RAB-based renewals expenditure recovery model which requires a four-year renewals expenditure forecast.

We have also presented a full 33-year forecast (a 30-year forecast for each of the four years of the price path period) that would underpin the continuation of the annuity-based renewals expenditure recovery approach.

This section is structured to talk about our asset management framework and planning methodologies, followed by an overview of our actual (and expected) expenditure for the current price path period (2020-21 to 2024-25) and finishing with an explanation of our forecast for the price path period.

5.1 Compliant, service ready, safe assets

Sunwater's asset management approach is linked to our corporate strategy delivering water for prosperity. Aligned to the Financial and Performance Management Standard and consistent with good practice, it considers the 'whole-of-life' implications of acquiring, operating, maintaining and disposing of our assets to meet legislative / regulatory requirements as well as customer service targets.

Sunwater's long-term 'whole-of-life' approach means that assets are maintained consistent with specific standards of service, with assets refurbished throughout their service lives as much as is economically feasible, and progressively replaced at the end of their service lives to maintain the relevant service standards.

Operating and capital expenditure components are jointly considered as part of the life cycle of our assets, with monitoring and inspection activities continually feeding back into our asset management planning cycle.

Sunwater's asset management life cycle is represents a value-for-money process for customers. Strategies are established as assets are built, and whole-of-life-cycle asset management processes then guide the operation, maintenance, refurbishment and ultimately replace of assets using a total expenditure optimisation approach.

Further detail can be found in our Strategic Asset Management Plan (**Appendix G**).

Sunwater's asset management approach is governed by the hierarchy of documentation set out in **Figure 22**, all of which have been provided in support of this pricing proposal. This documentation has been separated into three categories:

Strategic	High level guiding documents which set the overall direction.
Tactical	Documentation which guides development of the renewals program and activities associated with this.
Operational	Documentation which provides guidance on how to undertake regular activities such as risk assessments and condition assessments.

Consistent with good practice and in alignment with International Organisation for Standardisation (ISO) 55000 asset management standards, Sunwater has created a business-wide Strategic Asset Management Plan (SAMP) and separate Asset Management Plans (AMP) for water supply and distribution services within each of our schemes.

5.1.1 Strategic level

The AMP and SAMP are the primary strategy-level documents.

The AMP sets:

- Sunwater's overall approach to asset management to ensure we achieve our commitment to delivering water for prosperity. The AMP sets the principles by which assets are created and managed.
- The expectation that Sunwater's assets, and those it manages for others, are managed in a sustainable and commercially focused manner, which safeguards asset integrity and ensures alignment to customer values, quality of service, compliance with regulatory requirements, service continuity, efficiency and affordability.

Figure 22 - Asset Management Document Hierarchy

Strategic	Asset Management Policy AM 01 P1	
	Strategic Asset Management Plan	Service contract specific Asset Management Plans
Tactical	PCM Development Process	Planning flowchart – non-routine maintenance
	PCM Program Delivery Guideline	PCM Program Delivery Procedure
	Maintenance Strategy & Object codes	
	Options Analysis AM11	AM11 G04 Guidelines Regulatory Period
	PCM Development Process AM40	AM40 G34 PCM Tier Definitions AM40 G35 Initiation Documents Guideline
Operational	Methodology for Risk Assessment AM20	
	Condition Assessment of Assets AM21	P01 Asset Condition User's Manual G1 User's Manual for Assessing Electrical assets G2 User's Manual for Assessing Mechanical assets P01 Use's Manual for Assessing Civil assets P01 Use's Manual for Assessing Headworks assets

The SAMP:

- aims to provide asset management objectives, aligned with Sunwater's strategic goals over the strategic planning horizons, and a framework for asset management in the form of an Asset Management System used to achieve these objectives
- operationalises the AMP by defining the overarching strategy and process to provide asset management objectives, aligned with Sunwater's strategic goals over the strategic planning horizons
- sets an asset planning methodology based on maintaining service standards at minimal cost in a safe and environmentally responsible manner, through:
  - strategies to extend asset life in a way that minimises the risk of assets failing
  - use of reliability centred maintenance techniques to routinely maintain, periodically refurbish or run assets to fail depending on the nature and type of the asset
  - asset strategies that apply to groups of similar asset types.

In its current form the SAMP applies to assets used directly for the provision of water services and does not apply to non-water assets such as land, office space, plant and equipment, vehicles and housing.

5.1.2 Tactical level

Asset management and planning is done regionally at a portfolio (programs and individual projects) level and five-year plans form a 'rolling' outlook of future years. The strategic documents shown above guide regional asset planning management activities which plan and deliver:

- inspection, condition and risk assessment activities
- fit for purpose renewals programs at scheme level
- individual renewals projects.

Project works for the current year are prioritised and initiated based on an understanding of the assets condition, performance, risk and criticality. It also takes into consideration assets' service lives as well as the latest information on the operating environment, customer requirements and commercial conditions. This triangulation of data and expertise allows Sunwater to refurbish or renew assets at the optimal economic time.

Sunwater maintains a long term (beyond 30-years) forecast for long-term corporate planning and price setting activities.

Cost estimating is also a critical component of Sunwater's asset management. It involves a robust process of options analysis, scoping and internal cost estimating and/or market testing. For smaller or less complex projects, cost estimates are based on the cost of previous projects of the same or similar nature (given that much of what Sunwater does in the renewals space is repetitive in nature) which have been market tested in many instances.

Sunwater prepares options analyses for renewals projects within the planning period based on the rules outlined in Sunwater's '*AM11 G4 Options Analysis Guidelines Regulatory Period*'. These are where:

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

For less complex (more routine) renewals projects with fewer practical outcomes, Sunwater uses customer, operator and engineering consultation and experience to determine the optimum solution.

This ensures that effort applied to the development of an options analysis is appropriate to the nature of the project. Approximately 40 per cent of renewals projects annually are routine and/or non-complex projects such as pump changeovers, valve replacements and customer meter replacements where complex optioneering and options analysis would incur additional expense for customers without any additional benefit.

Sunwater notes that while formal, documented options analyses are not undertaken for smaller projects, informal option discussions are held during planning review meetings and at earlier stages of project execution. For example, once a pump or motor has been removed, and the internal condition assessed, a decision is made on refurbishment or replacement based on the level of deterioration evident.

Customers are also involved in Sunwater's asset planning and project processes through their annual review of the S&PPs and the related consultation process.

5.1.3 Operational level

Appropriate assessment of risk and condition lies at the heart of the operational level of the hierarchy.

Risk assessment

The outcomes of risk assessments are used to influence the timing for replacement or refurbishment of an asset. The higher the risk score (or criticality) of the asset, the more important it is to maintain operability of the asset. The SAMP prioritises these assets to prevent failure and impacts on supply.

Condition assessment

Sunwater's asset management approach is designed to benefit from ongoing asset monitoring and inspection activities performed by the teams directly responsible for, and in touch with, these assets on a daily basis. These are informed by *AM21 – Condition Assessment of Assets*.

Daily operational activities feed updated asset condition, performance and risk data back into our data management system (SAP) which continually updates Sunwater's renewals program. The regional operations teams are also involved in the annual forecast review process to overlay onsite asset condition, performance and customer impact knowledge.

5.2 Renewals costs for this pricing proposal

Sunwater's pricing proposal is founded on the asset management framework and activities outlined above.

5.2.1 Risk

During the 2012 and 2020 reviews the QCA recommended that Sunwater improve the way we forecast renewals expenditure as our standard asset management practices tended to lead to apportionment of too much cost risk to customers via forecasts that were:

- earlier than necessary, and therefore not prudent
- higher than current market replacement values and therefore not efficient.

It recommended that Sunwater make improvements to predictive maintenance and asset condition reporting (including via asset class-specific decay curves) to better inform the timing of asset replacement and to cost estimation processes to ensure asset replacement values generated by SAP represent current market replacement values.

While these risks were apparent across the whole of the long-term forecast (33-years for the annuity approach in 2020) they were more problematic in the years beyond the price path (i.e. the outer 29-years).

We accept that this is problematic under an annuity approach for price setting and have adopted the following mitigations to address this risk:

1. engaged with customers to test and propose a shift from an annuity to a RAB-based approach to recovery of renewals expenditure – this is discussed in **Section 3.6.1** and removes the bulk of the risk as the forecast window is limited to the price path period (4-years)
2. commissioned KBR to complete an independent prudency and efficiency review of our unadjusted renewals forecast – covering the 2024-25 through 2057-58 period

3. adopted their recommendations in full, making the cost and timing adjustments presented in **Table 35**, reducing the renewals program by:
   a. **$13 million** for the 2024-25 year (a 30 per cent reduction)
   b. **$17 million** for the 2025-26 to 2028-29 period (a 17 per cent reduction)
   c. **$531 million** for the 2029-30 to 2057-58 period (a 34 per cent reduction)
4. initiated a project to develop asset class-specific decay curves to inform future forecast development (project initiated in 2023).

Table 35 - Recommended adjustments by program ('000s)

Program	Recommended adjustment[1]		Aggregate 33-year forecast		
	Timing (years)	*Cost (%)*	Unadjusted ($)	Adjusted ($)	Adjustment ($)
Switchboard and control renewal	1	13.4	90,474	79,582	-10,892
Meters	0	-1.3	118,264	107,530	-10,734
Instrumentation	0	-0.6	10,595	9,798	-798
Valve renewal and replacement	5	-7.3	48,536	35,696	-12,840
Dam-related works	0	-2.8	95,998	86,329	-9,669
Safety / security assets	0	-22.3	57,005	40,409	-16,596
Pump and motors	0	-3.8	128,852	112,127	-16,725
Gates	6	-15.2	118,740	93,425	-25,315
SCADA	0	-32.5	33,466	23,795	-9,671
Pipeline refurb / replacement	15	-7.3	277,635	11,023	-266,612
Channel re-lining and re-shaping	0	2.0	44,241	41,684	-2,558
Civil and roads (inlet / outlet towers)	1	-2.3	55,735	50,116	-5,619
Mechanical / minor works	0	0	111,371	93,295	-18,075
Individual projects	2	-5.70	483,625	341,848	-141,777

Note 1: Recommended adjustment' values are findings applied to non-reviewed expenditure only, and are not a measure of the total resulting change.

5.2.2 Efficiency

Sunwater’s schemes are independent and geographically dispersed, with expenditure profiles that vary significantly depending on the nature of the assets in each. This means that there are limited opportunities for economies of scale and scope across the whole of Sunwater’s business.

Efficiency opportunities are therefore generally focused at the scheme level and fall into delivery and procurement categories. Sunwater applies a continuous improvement approach, that seeks to capture learnings and knowledge from completed projects, across procurement and delivery activities.

To deliver projects and programs efficiently and to manage price volatility, resource shortages and general construction risks, our procurement and delivery strategies consider:

- a range of procurement and delivery models
- bundling of similar projects to achieve scope efficiencies
- utilisation of standardised designs (wherever possible) to avoid duplication of design costs.

A range of procurement and delivery methods are assessed for each project and program to determine the most appropriate methodology to mitigate risks. This includes market scans and indicators that predict which model may be most successful in delivering value or additional benefit to us. For example, new technologies being used successfully or new contract models delivering cost and time benefits.

The procurement process is determined by the value and risk of the contract, in line with Sunwater's Procurement Policy.

To ensure that appropriate service providers are available when required, Sunwater establishes (through competitive tender processes) panels of service providers with a range of knowledge and technical skills that can be provided at short notice. This ensures that Sunwater has appropriate rates for these skills across a contract period.

Key performance indicators are built into significant contracts and for all projects progress is monitored monthly to ensure they are delivered on time, to the right quality and safely.

From a delivery (and scoping) perspective Sunwater explores opportunities to optimise:

- scheduling (activities that require doing in the same year are undertaken concurrently)
- scope (packaging of similarly disciplined jobs for procuring one contractor).

In some instances Sunwater will also look to replace rather than simply refurbish an asset where cost and service benefits exist in doing so.

Optimisation of schedule is an ongoing process, and is a significant focus at Sunwater’s annual renewals planning workshops where planners and project delivery managers collaborate to bring forward or defer items to align with particular shutdown opportunities. For example, if Sunwater is going to remove a pump and the motor was also due for refurbishment within a couple of years, both activities would be completed together to reduce customer impact, and reduce time involved in isolation, removal, reinstallation, and commissioning.

Efficiency in delivery example

A recent example of optimised scheduling, scope and replacement over refurbishment is the Bullyard pump station suction valves.

Four suction valves were originally staged for refurbishment over a 4-year period – one per year. The nature of a scheme and site dictates the shutdown requirements, and in this case, the balancing storage would need to be nearly emptied each time to allow the refurbishment to occur.

This is a significant operation with both cost and customer service implications. Sunwater explored aligning all four valves into the one year to minimise the effort and cost of multiple dewatering events. However all four valves could not be done at the same time as this would be an unacceptably long outage for customers.

The next option considered was to do two valves at a time (in the same year) which still required a total of three outages – one to remove the first two valves and refurbish, a second to replace the first two and remove the final two for refurbishment, then a third to replace the final two.

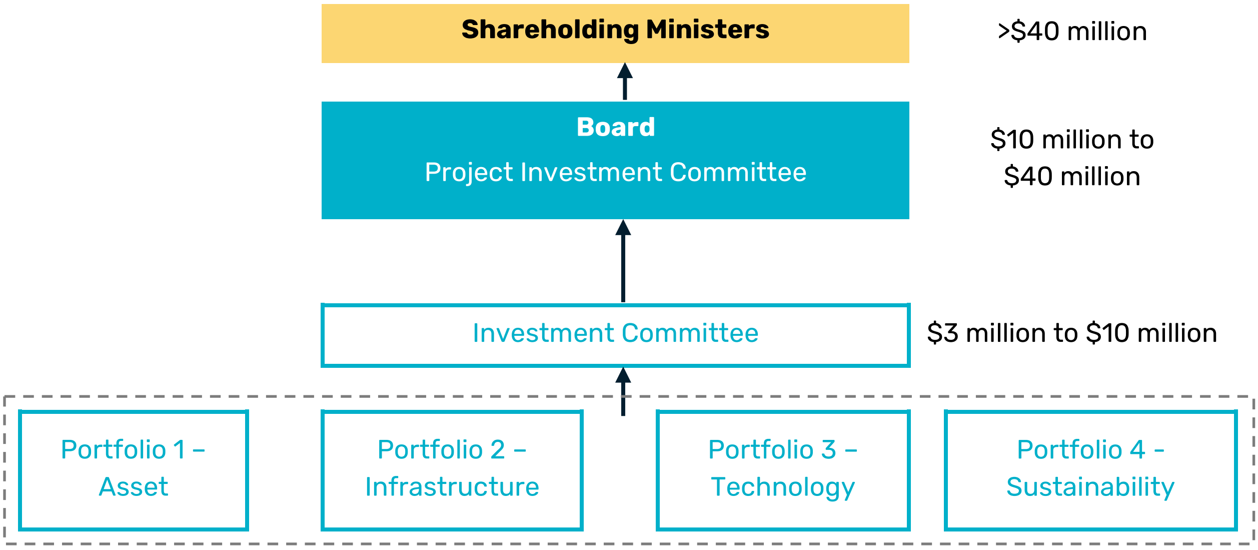
This is led to an option to replace, rather than refurbish, eliminating the need for more than one shutdown. Replacement valve installation will be planned to allow for the ordering lead times. Procurement efficiencies will be sought via a batch of four valves of the same specification (rather than one at a time at a future date). Removal and replacement in a single shutdown will minimise customer impact, with the site works completed within a single week.

Progress of each project and program are monitored monthly on a dynamic basis by both project managers and overseen at the appropriate level of Sunwater's governance framework. Most Sunwater renewals projects and activities are less than $3 million and are managed at portfolio level as shown in **Figure 23**.

The Asset Portfolio Committee oversees the management of the projects and programs. The committee is responsible for the optimisation (value and efficiency) of the portfolio of works. The role of the committee includes:

- enhance transparency, accountability and responsibility and performance to plan for Projects and Programs of work
- monitor and manage the portfolio performance to plan (planning and delivery) to include cost, quality and schedule of 'in scope' P3MF projects and region based PCM performance
- review and approve gate submissions including business cases
- review and approve variation submissions (including selection of preferred option) and provide guidance into preparation of variation requests if required
- track and address dependencies between projects
- maintain visibility of high and extreme project and portfolio risks
- review priorities across the portfolio and reallocate resources if required
- act as a consultation forum for significant design decisions that are pending.

Figure 23 – Sunwater's project governance framework



This provides early visibility where works are either being delayed or are beginning to overrun on cost. This pro-active early oversight of each line of the capital plan allows for the development of early intervention strategies to mitigate against either non-delivery of the plan or significant cost overruns.

5.2.3 Compliance and dam safety focused programs

In addition to the continuation of renewals programs that have been presented at past reviews Sunwater has developed (and provided) business cases and forecasts for four new programs of work which are required to meet emerging legal, regulatory or technological issues:

1. Arc flash
2. Dam instrumentation
3. Smart meters
4. Dam safety management

Each of these represents an extension of obligations Sunwater already has to ensure the safety, reliability and efficiency of its assets and the safety of its people and customers. They are discussed further in **Section 5.4.1**.

5.2.4 Improved presentation

KBR also assisted Sunwater in the development of a consolidated program-based view of forecast expenditure – the programs are shown in **Table 35**. This allows us to present our forecast in a way that improves our ability to communicate our plans with customers and is aligned with the way we manage our assets.

The existing renewals program is shown in fifteen programs of work and a business case has been prepared for each, highlighting the rationale (need) for work within the program as well as the basis for cost forecasts. The program-based view dramatically simplifies the overall work program and provides an improved level of insight into the work we undertake to maintain our assets and deliver our services. The programs are defined in **Section 5.4.1** and include activities such as meter renewal and switchboard and control renewal.

Projects that do not fit naturally within one of these fifteen programs have been presented as program sixteen – individual projects. Projects in this category have drivers and characteristics that preclude their inclusion in a program and have individual business case documentation.

Sunwater's presentation and supporting material (provided separately) provided customers with a comprehensive view of our renewals program. As outlined in **Section 2.2**, our Stage 3 engagement material responded to requests to provide further levels of detail on key projects and programs to our customers.

5.2.5 Billing system renewal – build costs

Sunwater has also included the build cost for its billing system renewal as a capital asset for pricing purposes. Current accounting rules classify build costs under a SaaS arrangement to be an expense rather than a capital item. Adopting this approach for the purpose of pricing would mean that the entire build cost would be recovered within a four year-pricing period and not across the serviceable life of the new system. We have therefore elected to treat these costs as a capital item with a life of 20 years consistent with assets of a similar nature. These costs are included in the following discussion.

Our Stage 3 engagement materials set out how the build costs have been apportioned to schemes to facilitate customer review and feedback. The total build cost applied to the in-scope schemes and services is set out in **Section 5.4**.

5.3 Roll-forward period (2019-20 to 2024-25)

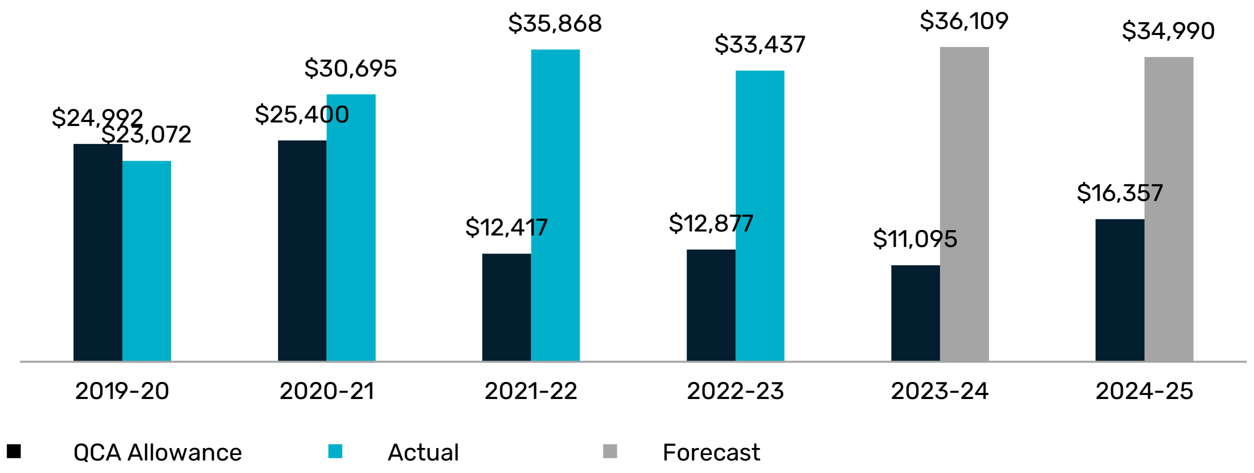
5.3.1 Actual and forecast expenditure

Sunwater's program of works at the time of the 2020 Review was an estimate based on the best available risk and condition information. As was the case at previous reviews the actual work undertaken by Sunwater continues to be determined annually based on the best available assessments of condition and risk.

A portion of Sunwater's renewals effort includes reactive activities in response to unplanned events or asset failures. Wherever possible, Sunwater tries to meet the needs of unplanned non-routine expenditure within existing allowances by re-prioritising the upcoming non-routine program.

This period Sunwater has had to contend with the COVID pandemic, flooding and inflation materially higher than that forecast by the QCA in its previous price review (**Figure 24**). This affected both labour and materials and has affected the costs we incurred to deliver our renewals program during the current period.

Figure 24 – Comparison of actuals (and budget) against QCA allowances ($'000s)



As a result, during the current price path period Sunwater expects to have invested (four years of actual plus two years of forecast) $194 million, an uplift of $91 million against the QCA allowances for the same period.

Figure 25 presents a scheme-by-scheme comparison of the base six-year allowance (from 2019-20 to 2024-25 showing QCA allowance on the x-axis and Sunwater's expected spend (four years of actual plus two years of forecast) on the y-axis. The larger the distance from the scheme to the parity line, the larger the gap between expected spend and the QCA allowance.

Larger schemes (by spend) are further to the right and require a far greater absolute spend to deviate from the QCA allowance than schemes to the left. For example, the Cunnamulla scheme recorded an 800 per cent uplift against a relatively small QCA base allowance of $0.94 million. The major projects section that follows discusses some of the significant projects during the period that have contributed to the uplift from the QCA allowance over the period.

Further detail relating to scheme level expenditure (and comparison with QCA allowances) is presented in the **Scheme Summary** documents.

5.3.2 Flood repair works

Extreme weather events and flood damage are unpredictable and do not form part of Sunwater's forecast for pricing or corporate planning purposes. Expenditure related to repairs and renewals following a flood event is recovered as part of the ex-post review at each pricing review.

During 2019-20 and the current price path period, Sunwater spent a total of $3.71 million on flooding related renewals as shown in **Table 36**.

5.3.3 Major projects during the roll-forward period

Sunwater has delivered, or is in the process of delivering, 10 major projects which cumulatively represent $44.5 million, or 23 per cent of the $194 million investment during the roll-forward period.

Documentation for each of these projects has been provided (along with more than 60 other current period projects, across all schemes, asset types, classes and values) that clearly and succinctly addresses the regulatory tests of prudence and efficiency.

Figure 25 - Renewals expenditure 2019-20 to 2024-25 against QCA allowance ($'000s)

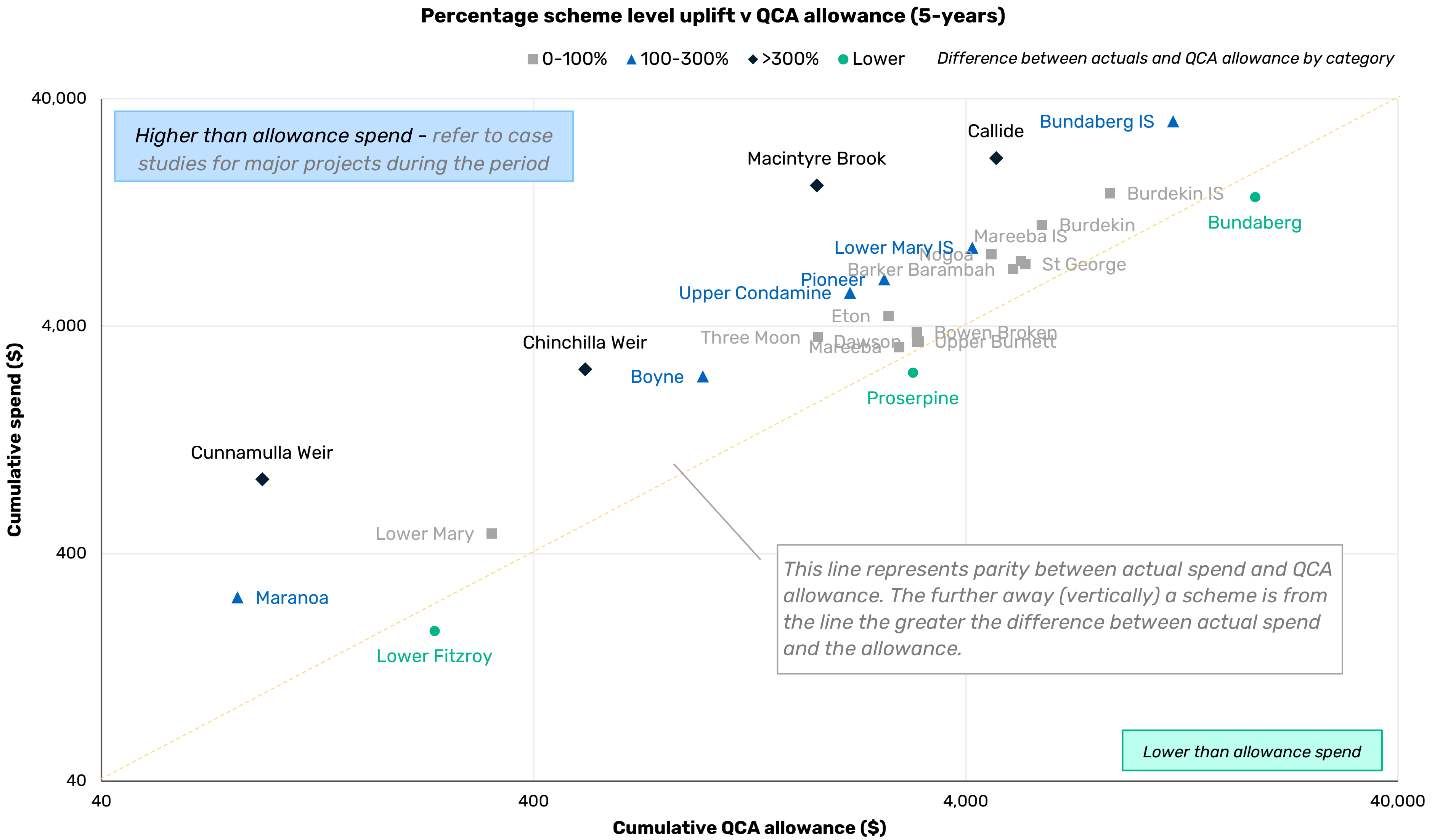


Table 36 – Projects driven by response to extreme weather events ($ '000)

Service	Project summary	Total
Bundaberg Supply 20BUN17 FD01	Significant damage was caused by floods passing through the lined and unlined spillway during 2010-11, 2013 and 2017-18. An option study into the need for, and scope of, repairs determined that the scour has increased over time and has been observed encroaching upon the foundations of the Monduran pumpstation and moving upstream towards the spillway structure and toe of the dam. Flood risk to the pumpstation and dam was assessed as above the limit of tolerability. Remedial works were divided into two stages and options assessed to provide short- and long-term risk reduction. Stage 1 is complete and reflected in the costs shown. Stage 2 is ongoing.	2,652
Lower Mary – Distribution FD01 (JAN) FD Repairs	The right bank of the Mary River was badly scoured during the 2022 flood causing the pipeline to fail. Sunwater completed repairs adjacent to the Walker Point pumpstation, and reinstated the failed section of C1 pipeline that provides water to customers near Copenhagen Bend pumpstation. Options to reinstate it were considered, including a no reinstatement and customer entitlement purchase option. Customers were not supportive of this option and insisted upon reinstatement. The final solution was to bore beneath the riverbed and pull a pipeline through the casing to prevent future pipeline failures. This was completed in late 2022 and early 2023.	237
Bowen Broken Rivers Supply 19BBR12 FD01 (2019) - FNQ Flood Event - 19BBR13 FD02 (2019) - FNQ Monsoon - Jan/ 19BBR14 FD02 (2019) - FNQ Monsoon - Jan/ 17BBR02 FD01 (2017) Flood Damage Repairs	Flood events in 2017 and 2019 impacted Bowen Broken – only costs relevant to the roll-forward period are included here. During a monsoon event 2019 the Bowen River Weir was damaged by flood waters. Covers and rock protection were damaged and, in some places, completely washed away. Replacement items were designed and reinstated. The gatic cover over the penstock was replaced by a webforge walkway. Damaged infrastructure was removed and earthworks were reinstated. New rock filled gabions and mattresses were keyed into the existing works. During cyclone Debbie in 2017 the Gattonvale Storage was damaged by high winds which induced wave action causing erosion on the inside batters. A project was commissioned to rectify the damage. Stage 2 of this project was completed in 2019. A 1500mm high, 1400m long section of layered rock in differing sizes was extended to the final design height of 3000mm.	823
Total		**3,712**

Project 1 Callide Dam gates project, Callide Scheme

$14.8 million to refurbish the Callide Dam gates to ensure their safety and reliability	
Context / background	Callide Dam is located on Callide Creek in the Dawson River catchment of the Fitzroy Basin and has a capacity of 136,300 ML. Near Biloela, the dam was commissioned in 1965 and features a concrete crest spillway. In 1988 the dam was upgraded (capacity increased from 55,385 ML to current) with the installation of concrete piers and six large radial gates. The gates were designed for automatic operation with a manual redundancy, and operate in pairs.
Issue	The spillway gates have experienced unexplained vibration issues during spillway events at various times over the last few years. Various possible causes were investigated. An extreme vibration event occurred in 2013 where the spillway piers swayed laterally in the order of +/-200mm and walkway beam hold-down bolts failed. On this occasion, one variable counterweight derailed, and the associated gate was temporarily jammed in a partially open position. Another brief vibration event was recorded in 2015 and in 2017 the gates again vibrated uncontrollably, and was captured on a handheld iPhone. Analysis confirmed that the observed vibration was at the gate's critical vibration mode of 4.3 Hertz. Sunwater has obligations to ensure all dams meet the relevant safety guidelines. A project was initiated in February 2021 to remove the gates from service mitigating the risk of a gate failure should they need to operate in the coming wet season. The primary benefit of the project was to limit future damage and possible failure of the gates during an event reducing the risk of dam failure to an acceptable level as soon as reasonably practical.
Solution	The *Radial Gate Investigation Stage 1* project was undertaken between 2019-20 and 2022-23. A competitive tender process was undertaken for a suitably qualified contractor for an investigation and options assessment to "Remove the Gates from Service", followed by the detailed planning methodology to achieve the delivery of the selected option to minimize future damage to the gates. At the completion of the investigation phase, the scope of works was finalised and costs estimated. A total final budget of $13.3 million was approved in May 2021 to cover all works required to meet the project objectives. Competitive tender processes were followed in the delivery of this work.
Status	The project has been fully commissioned with the final control systems commissioning completed in May 2023. The project is now complete with the development of the "as Constructed" document package and the mandatory reports for the Dam Safety Regulator developed. Sunwater has prepared a summary document setting out further details on the need for this project and its costs in support of this pricing proposal. This document has been provided to the QCA along with this pricing proposal.
Doc Ref #	RX110 – Callide Dam - Radial Gate Investigation Stage 1

Project 2 Coolmunda Dam variable counterweight project, Macintyre Brook Scheme

$6.7 million to address reliability issues with Coolmunda Dam gates	
Context / background	Located in the Macintyre Brook Scheme, and built in 1968, Coolmunda Dam has a capacity of 69,000 ML and is equipped with seven radial gates which operate independently. These gates feature fixed counterweights and two variable counterweights (VCW) each – a total of 14 VCWs. The gates have not undergone any significant overhauls since 1968. The VCW components, such as seals and guide rollers, are deteriorating with age and refurbishment is required to maintain compliance with dam safety standards and ensure asset and service reliability. The specialised nature of the works required the engagement of a mechanical contractor experienced in dam gate refurbishment.
Issue	In 2020, GHD was engaged to conduct a gate reliability review which revealed several issues with the guide rail systems and VCW components: • Slime observed at the base of four VCW units, indicating water ingress into the float buoyant foam region • Serviceability issues identified in the guide wheels of many VCW units, although these issues did not impact gate reliability or normal operations. Regular physical testing of the gates every three months ensures functionality • Leaking drain valves in the base of each VCW chamber
Solution	A project was established to complete inspection and testing on the VCW to determine the condition and the nature and timing of necessary refurbishment or replacement works. During the establishment of the project the dam filled from 16% to over 100% and regularly spilled requiring an alternative approach to delivering the project. In an environment where components could not be inspected, the modified approach was to fabricate four new VCWs to replace the three in expected worst condition and one in expected good condition meaning that the VCW could be replaced in a short duration of time and the removed VCW could be dismantled, and condition assessed. The results of the VCW condition assessment would inform the decision and timing for replacement of the remaining ten VCW.
Status	Work on the project commenced in 2020 and the project is expected to be delivered by the end of 2023.
Doc Ref #	RX111 – Coolmunda Dam Variable Counterweight Improvement

Project 3 Silverleaf Weir refurbishment, Barker Barambah Scheme

$4.4 million to refurbish the weir at Silverleaf	
Context / background	As part of its regime of periodic inspections and maintenance deterioration of the Silverleaf Weir's structural timber and minor slumping of the left abutment observed. Following the recording of these assessments, Sunwater engaged (in September 2018) external advisor Wood Research and Development to conduct a visual and invasive structural assessment of the weir timber.
Issue	The Wood Research and Development report found that the weir's condition had deteriorated to a condition score of 4 (poor) necessitating replacement or refurbishment of the weir.
Solution	A '*Condition Assessment Report and Refurbishment Plan – Stage 1*' report was completed by Wood Research and Development in 2018 reviewed four options, being: • Option 1 - Do Nothing • Option 2 - Replace or Refurbish the Entire Weir • Options 3 & 4 - Refurbish or Replace the Weir for the Short Term or the Long Term. The preferred option from this study was to undertake the Option 2 repair works. Full restoration of the structure will prevent continued decay. This proactive approach with restoration or replacement of the deteriorated elements will prolong the useful life of the spillway to 40+ years pending proper maintenance.
Status	Complete
Doc Ref #	RX112 – 20BBA03 Silverleaf Weir Refurbishment

Project 4 Teemburra Dam CRA, Pioneer River Scheme

$4.1 million to carry out a CRA at Teemburra Dam	
Context / background	The Sunwater Board has a legal obligation to ensure that the risk assessments are undertaken in line with current dam engineering guidelines which at the time of project delivery was as outlined by ANCOLD Guidelines on Risk Assessment (ANCOLD, 2003) (now ANCOLD (2022)) and the Queensland Department of Natural Resources and Mines (DNRM) Dam Safety Management Guidelines (2003) (now Department of Regional Development, Mines and Water -DRDMW 2020). The latter standard (DRDMW, 2020) is more risk averse and generally drives higher expenditure to ensure community safety – compliance is a regulatory necessity. A CRA for Teemburra Dam was undertaken by Sunwater in 2009 (eDocs #785404) and Five-Yearly Comprehensive Dam Safety Inspections (CDSIs) were undertaken by Sunwater in 2005, 2010 and 2015. In addition, a 20 Year Dam Safety Review (DSR) was undertaken on Teemburra Dam and was planned to be finalized in November 2017 (finalized in January 2018 – eDocs #2325959). Relevant to the Teemburra Dam Safety Improvement Project (TDSIP) that was planned to initiate was four (4) recommendations from the CRA (Sunwater, 2009) and two (2) recommendations from the DSR (Sunwater, 2018) including: 1. CRA: Teemburra Dam Upgrade should be given a high priority. 2. CRA: The main dam parapet wall should be raised by 0.7 m. 3. CRA: The crest elevations of Saddle Dam Nos. 1 and 2 should be raised 1.0 m and 0.7 m respectively. 4. CRA: The saddle dam filters should be extended up to crest level. 5. DSR: In order to safety pass the PMF event a required upgrade including the raising of the parapet wall at the Main Dam by 0.4 m, the raising of the crest of SD2 by 0.4 m and the raising of Saddle Dam 1 by 0.7 m and the raising of the filter zones in both saddle dams to crest level is required. 6. DSR: Carry out physical modelling of the spillway in order to confirm the spillway rating. A model case without the flow splitters should be included since the structural check of the flow splitters indicates they cannot withstand a log impact load.
Issue	The Sunwater Revised Portfolio Risk Assessment 2017 (Rev 6) (eDocs #2221906) placed Teemburra in a dam safety action (DSAC) Class 3. The societal risk at this point plotted above the ANCOLD Limit of Tolerability line – requiring the potential need for a dam safety upgrade or other risk reduction measure. Between 2009 and 2017, while the risk at Teemburra Dam plotted high, it was classed lower than other dams (such as Burdekin Falls Dam, Paradise Dam or Tinaroo Falls Dam). DSIPs were required to be completed at higher priority dams within the portfolio before Teemburra Dam could be addressed (in part constrained by the resources across the years).
Solution	Sunwater had the legal responsibility to investigate the need for a physical improvement to the dam which was undertaken in the form of a lengthy and comprehensive CRA.
Status	Complete
Doc Ref #	RX113 – 18PI010 Teemburra Comprehensive Risk Assessment

Project 5 Clare Weir works, Burdekin Haughton Scheme – Distribution Service

$4.1 million for renewal works at the Clare Weir	
Context / background	Clare Weir is situated on the Burdekin River approximately 7.7 km south of Clare. The primary functions of the weir are to provide a pumping pool for the Tom Fenwick, Elliot and Clare B Pump Stations, and to release water to downstream riparian customers including the North and South Burdekin Water Boards. Construction of the weir was completed in 1978 with one third of the weir reconstructed in 1979 after suffering extensive flood damage. The weir is a mass concrete structure comprising 29 spillway and abutment monoliths. The weir is 425 m in length, stands 7 m above the river-bed and stores 15,900 ML at full supply level. The weir crest is fitted with 150 hydraulically operated stainless steel flap gates, its outlet works on the right bank comprise two 900 millimeter diameter and two 1050 millimeter diameter outlets controlled by hydraulically operated upstream slide gates. A fish lock is located against the right abutment of the weir. Safety inspections are undertaken every year in accordance with *AM43 Weir Engineering Inspection Guidelines*. Inspections and are aligned with *the Queensland Dam Safety Management Guidelines – Appendix F Table 23 (DNRME)*. The most recent Clare Weir inspection was completed in June 2022. The weir's energy dissipators (flip bucket) units are engaged (though not captive) with the downstream face of the spillway monoliths. They are designed to dissipate overflow turbulence and protect the downstream toe of the weir from erosion.
Issue	A routine inspection in September 2021 found the downstream toe of units 18 and 19 was undermined and lacking foundation support. The requirement for this project is due to condition (obvious defect) and risk (potentially significant loss of infrastructure and subsequent impact on service).
Solution	The objective of the project was to: • Identify the extent of downstream erosion and undermining • Confirm the erosion mechanism • Design and implement temporary measures to secure the structure • Design and implement a permanent protection solution
Status	In progress. Forecast to complete during 2023-24.
Doc Ref #	RX114 – Clare Weir Works

Project 6 Replacement of Ben Anderson Barrage shutters, Bundaberg Scheme

$3.7 million to replace barrage shutters to address safety and asset failure risks	
Context / background	This project resulted from age and adverse environment related degradation of the 110 collapsible shutters atop the concrete crest of Ben Anderson Barrage. The shutters boost the freshwater storage capacity. They were designed to progressively collapse to safely pass flood flows and later be lifted back into place to re-establish full storage capacity. They were originally manufactured in mild steel from the early 1980s. Due to the saline environment immediately downstream of the barrage, and damage from intermittent flooding, the shutters had required continual maintenance to reduce the risk of uncontrolled failure. This had been via an established rotation plan, with refurbishment of blocks of 10 shutters undertaken by a local company and a set of 10 previously refurbished spares reinstalled each year. A 2017 Business Case (eDocs #2242651) was approved for the refurbishment approach to be superseded by a replacement approach using an improved design. The strategy was for the replacement of 10 shutters per year until all 110 had been completed. In late 2022 a condition assessment found the shutters had deteriorated to the point that the replacement program would not have been sufficient to maintain asset integrity, presenting an unacceptable risk to the operation of the barrage and the supply of future year water allocations.
Issue	Safety and asset failure risk – replacement of shutters required prior to failure
Solution	Sunwater expedited the shutter manufacture and changeout process to ensure the existing shutters are replaced before failures occur, with the manufacture of all remaining steel shutters to be completed over the next two financial years. It was also advantageous to maximise the number of shutters to be installed if/when site access becomes available during the Paradise Dam major construction works from FY 2026 or earlier.
Status	In progress. The current program for the project is: • Manufacture 32 new shutters including 64 pivot arms in 2023-24. • Manufacture 32 new shutters including 64 pivot arms in 2024-25. • Develop Installation Strategy into timing of all site works, including shutter installation process. • Remove existing and install new shutters in 2025-26. (Proposed only. Commencement may vary subject to Installation Strategy and/or if opportunities arise e.g., within a dry weather event.)
Doc Ref #	RX117 – 22BU01 - Replace Ben Anderson Barrage Shutters

Project 7 Thuraggi Diversion Channel works, St George Scheme

$2.8 million to ensure stability of the embankment and reduce safety risks	
Context / background	Beardmore Dam is the major storage for the St George Water Supply Scheme and is located 21 km upstream of the town of St George. The dam supplies water to meet allocation demands by regulating releases in the Balonne River and to the St George Irrigation area via the Thuraggi Diversion Channel. The dam also has minor flood mitigation ability. The construction of the dam commenced in April 1968 and was completed in March 1972. The scheme was built to supply water to the developing irrigation sector, in particular the cotton industry. Flow of water to Thuraggi Diversion Channel is controlled by an outlet structure. Moolabah and Buckinbah Weirs which are located on Thuraggi Channel help control the delivery of water to irrigation customers. In July 2014, work was carried out to address sand boils immediately downstream and beside the Thuraggi channel outlet structure. This led to a geotechnical investigation of the area to determine the source of seepage and whether this seepage was a stability issue for the embankment. In July 2015, the outlet to Thuraggi Channel was dewatered and an inspection was undertaken. Damage to the rock mattresses was identified, sand boils had formed, and seepage on the outlet right bank training wall. A short-term solution was necessary to reduce the hydraulic gradient on the outlet structure, while a long term solution was developed. The rock mattresses were repaired in FY2016, a temporary coffer dam was installed. Temporary works continued to be carried out to meet service levels and protect the channel. The condition of the channel was determined to be a safety and operational risk that could put Sunwater in breach of their regulatory requirement under the St George Bulk Scheme. If seepage was allowed to continue with consequent loss of material near the channel bed the stability of the embankment becomes compromised. Works were required to maintain strategic alignment with Sunwater's Corporate Plan and Statement of Corporate Intent which is to, "Operate and maintain Sunwater's existing water infrastructure assets to ensure continued delivery of water to customers and communities in line with shareholder expectations." Ultimately seepage leading to instability of the dam embankment is a dam safety issue that needs to be addressed.
Issue	To reduce the risk of embankment failure due to seepage
Solution	Options analysis determined the optimal solution to be extending the width of the existing embankment by placing earthfill in the channel downstream of the existing structure. This would increase the flow path length reducing the seepage gradient in the foundation and reduce the potential for backward erosion piping below the structure.
Status	The project was completed in September 2019 (eDocs #2520408). The Project Closure Report (eDocs #2512372) prepared in April 2020 identifies a final project cost of $7.5 million (including $4 million incurred in prior years (i.e. pre 2019-20)). Consistent with the 2020 Review findings, the full cost of this project has not been passed through to customers.
Doc Ref #	RX115 – 16BAL12 - Install a Filter Zone between Thuraggi Inlet and Outlet - Beardmore Dam

Project 8 Owanyilla Pump Station switchboard upgrade, Lower Mary River Scheme

$2.6 million to address safety risks and upgrade ageing infrastructure	
Context / background	For both the Owanyilla and Main Road pump stations, Sunwater had determined that upgrades were required to address Arc Flash Incident Energy related issues associated with the switchboards, based on the internationally recognised methodology described in standard IEEE 1584:2018. The standard had been updated to incorporate revised methods which produce more accurate results based on the characteristics of a particular switchboard and electrical system. To adequately manage its risks, Sunwater has been undertaking new detailed Arc Flash Studies and calculations for each site to accurately determine the Incident Energies to apply adequate risk controls. The incident energy levels taken from the Sunwater Interim Arc Flash PPE Site Specific Assessment (eDocs #2527273) for both pump station sites.
Issue	• Address arc flash risks • Upgrade assets based on condition and risk, addressing age related deterioration • Timely modernization of SCADA funcionality
Solution	**Owanyilla Pump Station** This component of the project involved replacement of the Common Controls and Low Voltage (LV) and High Voltage (HV) Switchboards at the Owanyilla Pump station. The pump station supplies water for irrigation customers and is used to supplement the water supply to Maryborough. Interruption to the operation of this pump station for even relatively short periods therefore carries significant reputational risk. The project was to address the risks associated with reaching the 'End of Life' stage for the three major components and the unaddressed Arc Flash exposure, in addition to rectifying the lack of a SCADA platform which was constraining operational effectiveness. **Main Road Pump Station** This component of the project involved replacement of the Low Voltage (LV) Main Switchboard and Control System at the Main Road Pump station. The pump station is required to lift water from the Owanyilla Diversion Channel into a clay-lined banked balancing storage, supplying farms in the Glenorchy area via a gravity main. The LV Main Switchboard and Control Panel at Main Road Pump station had been in service since 1989 and was becoming unreliable, with various switchboard components failing and requiring replacement with equivalent components. There were also safety concerns with the dated switchboard design, where live parts were exposed with the switchboard doors open, after isolation of the pump feeders. With the switchboard components operating near the ends of their notional service lives, the project was therefore to replace the assets and bring the whole installation up to modern standards.
Status	The project is currently in progress with the contractor at the 60% design stage with completion expected in November 2024.
Doc Ref #	RX116 – Owanyilla Pump Station - Switchboard 2 and Main Roads Pump Station - LV Switchboard

Project 9 Woongarra Pump Station electrical upgrade, Bundaberg Scheme

$2.1 million to replace electrical equipment at the Woongarra Pump Station	
Context / background	The Woongarra Pump Station is a wet-well river-lift pump station located on the southern bank of the Burnett River, within the Bundaberg scheme. The station was constructed, and the pumps and motors were installed, in 1980. It consists of five single stage vertical mixed flow diffuser type pumps each with a duty of 850 L/sec @ 35 m head, powered by 375 kW electric motors. The pump station delivers water from the river via five separate buried rising mains to the Woongarra balancing storage on the river bank. Water from the balancing storage then flows into the Woongarra and Alloway main channel systems. Faults in electrical and ancillary systems of the station have caused pump downtime and a loss of pumping hours. As the station normally operates only during off-peak tariff times to meet demand, this downtime has on occasion required pumping outside these hours, incurring extra peak tariff power costs in addition to the costs of rectifying the faults themselves. A 2009 audit recommended both boards (HV and common control) be planned for future replacement based on 'age of the switchboard and the availability of spare components'. Condition assessments in SAP from 2016 rate the age of the switchboards as '5' (Major deterioration).
Issue	Risk to service presented by age and condition of asset and availability of spare parts
Solution	Retention of existing pumps and replacement of electrical equipment.
Status	The project was completed in June 2021.
Doc Ref #	RX118 – Upgrade - Electrical System - Woongarra Pump Station

Project 10 Coolmunda Dam CRA, Macintyre Brook

$1.9 million to complete a CRA	
Context / background	Sunwater has a legal obligation to ensure that risk assessments are undertaken in line with current dam engineering guidelines. At the time of delivery this included ANCOLD Guidelines on Risk Assessment (now ANCOLD (2022)) and the Queensland Department of Regional Development, Manufacturing and Water (DRDMW). The Coolmunda Dam CRA completed in 2012 identified that the dam life safety risk was above the ANCOLD Limit of Tolerability.
Issue	Comply with obligations in relation to dam safety and responsible dam management
Solution	This project was established in response to the findings and recommendations in the 2009 CRA and 2012 CRA addendum. The objective was to reduce dam risks (life safety) to an acceptable level – reducing current risks to ensure the dam is below the ANCOLD Limit of Tolerability, considering ALARP principles, and in accordance with Sunwater's Dam Safety Policy and ANCOLD and State Dam Safety Guidelines. The scope of this project was to undertake a detailed review and assessment of existing dam risks, evaluate and recommend improvement options to concept design level, and define the project and subsequent works in a preliminary business case.
Status	Complete
Doc Ref #	RX119 – 20MAB01 Coolmunda Dam Comprehensive Risk Assessment

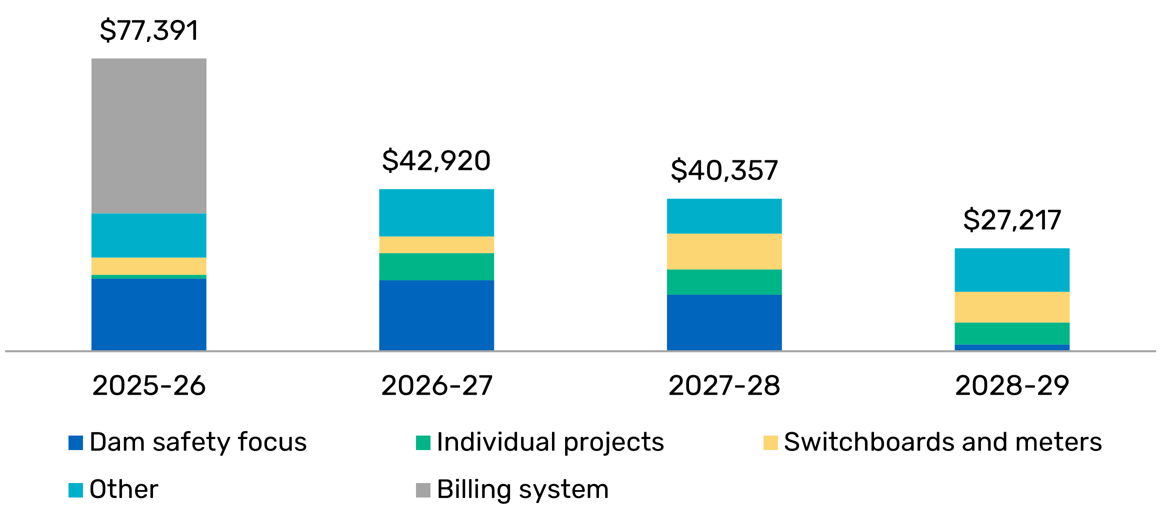
5.4 Price path forecast (2025-26 to 2028-29)

This section sets out our investment priorities for the next four years by program. A year-by-year breakdown is shown on **Figure 26** and an aggregate view is presented via **Figure 27**. **Figure 27** also shows the split between capital and opex within the renewals expenditure forecast. This split is important for the revenue requirement calculations discussed in **Section 4**.

Key features of our investment plan include:

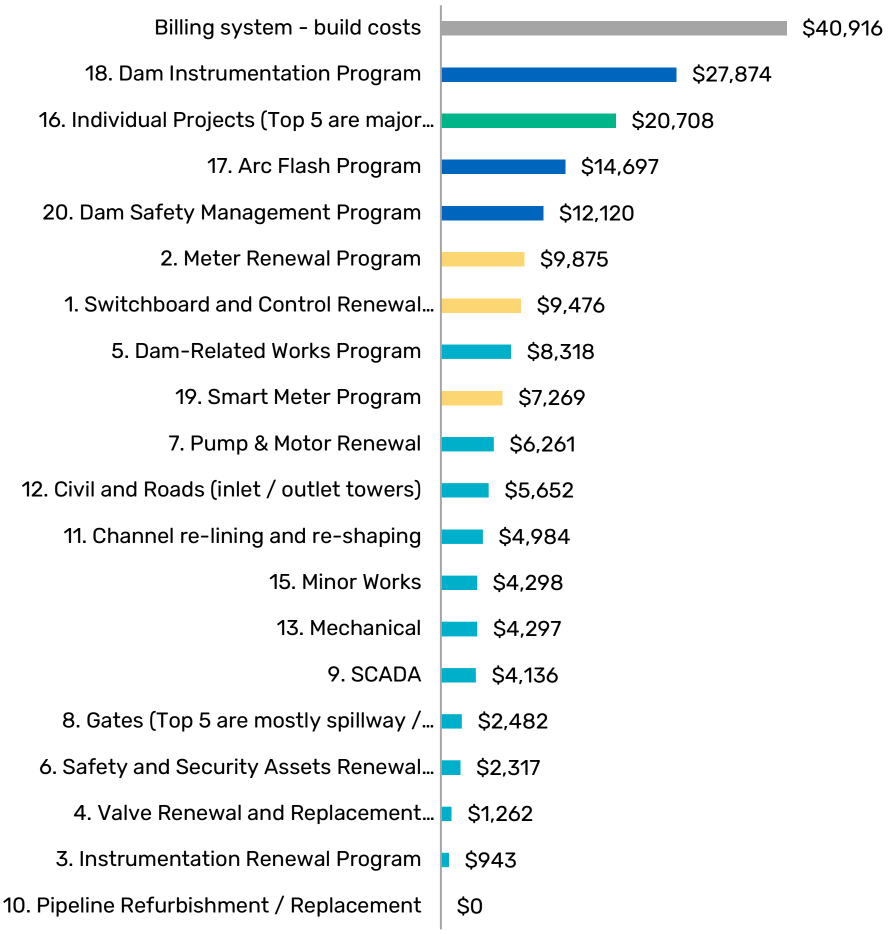
- billing system renewal via $40.9 million[18] in "build" costs allocated
    - this represents the largest single project planned for the period, with costs allocated to the 2025-26 commissioning year
- non-billing system investment ($147.0 million) is covered in 17 programs ($126.3 million) and via individual projects ($20.7 million)
- within the 17 programs – discussed further in **Section 5.4.1:**
    - 37 percent continues our focus on ensuring our dams and related assets are compliant with regulations and safe for our people via Dam Instrumentation ($27.9 million), Arc Flash ($14.7 million) and Dam Safety Management ($12.1 million) programs
    - 18 per cent continues our renewal of switchboard, control panels and meters ($26.6 million)
    - the remaining 31 per cent ($45.0 million) is spread across 11 smaller programs that range between $8.3 million and $0.9 million within the period.
    - no investment is planned for the pipelines program within this period
- major projects (including the billing system renewal) are discussed further in Section **5.4.2**.

Figure 26 - Total year-by-year expenditure across the price path period ($000s)



[18] The approved $38.6 million build cost has been inflated to $42.4 million to account for a 1 July 2025 commissioning date. The value shown represents the that falls within the scope of this review.

Figure 27 - Renewal and compliance expenditure (2025-26 to 2028-29) ($'000s)



Cumulative %	Capital $
22	$40,916
37	$27,874
48	$3,901
56	$14,697
62	$12,120
67	$8,961
72	$2,516
77	$608
81	$7,269
84	$2,123
87	$144
90	$0
92	$802
94	$0
96	$3,607
98	$0
99	$63
100	$0
100	$100
100	$0

Excluding the once-in-a-generation billing system renewal Sunwater's expenditure forecast for the first three years fluctuates around an average of $39.9 million before an apparent decline in 2028-29. This final year drop is reflective of our approach to exclude projects which are uncertain, rather than an expectation that actual expenditure will drop by 25 per cent in the final year of the period. As we continue with our routine inspections, investigations and condition assessments our actual work program will adapt and (as has occurred in the current period) we expect that additional expenditure will be required in 2028-29.

Sunwater's proposed expenditure across the four-year period is discussed in more detail below and supported by 19 program and over 70 project business cases provided as supporting documents.

5.4.1 Programs

As outlined above 86 per cent ($126.3 million) of Sunwater's non-billing system renewals expenditure is driven by 17 overarching programs of work. The ten largest programs (which account for 84 per cent of this total) are introduced in **Table 37**. Supporting documentation has been provided for all 17 programs.

Table 37 – Program overview – 10 largest programs by value

Program	Purpose (service / compliance need)	Doc ref #
18 Dam instrumentation	Installing automated dam instrumentation to reduce workplace hazards and improve knowledge of real-time risks to the integrity of referrable structures.	RX097
17 Arc flash	Risk assessments and installation of arc flash mechanisms to high-risk electrical switchboards to address an intolerable risk to human safety – related to the switchboards and control renewal. Sunwater has been careful to avoid duplication of costs under this program.	RX096
20 Dam safety management program	Sunwater is required to operate dams in compliance with modern engineering design standards and safety requirements set out by the regulator. Tasks include ALARP screening and confirmatory studies, risk investigations and management plan reviews implementing CRA recommendations.	RX099
2 Meters	Sunwater has an ongoing program to replace existing customer meters when they fail. This business-as-usual program is designed to measure customers water use, whereas the Smart Meter Program (separately described) also allows Sunwater to better manage river flows to meet customer demand (and other benefits). Replacement of customer and system meters to ensure accurate billing data and responsible resource management.	RX082
19 Smart meters	Allows Sunwater and customers to access real time flow and take data to better manage river flows to meet customer demand, optimise losses and reduce staff kilometres travelled.	RX098
1 Switchboard and Control Renewal	Replacement of switchboards and controls to ensure Sunwater can continue to provide reliable and timely irrigation services to customers in a way that is safe for Sunwater's employees, contractors, customers and the community.	RX081
5 Dam-Related Works	This program is to renew and replace existing dam related assets.	RX085
7 Pump & Motor renewal	Replacement of pumps and motors to ensure Sunwater can transport bulk irrigation water from one place to the next, reliably and on time.	RX087
12 Civil and roads (inlet/outlet towers)	Construction or replacement of civil works and roads to ensure Sunwater assets are safe, accessible and do not pose risks to staff, customers or the community.	RX092
11. Channel re-lining and re-shaping	This program is to replace and renew linings of existing channels in accordance with standard assets lives.	RX091

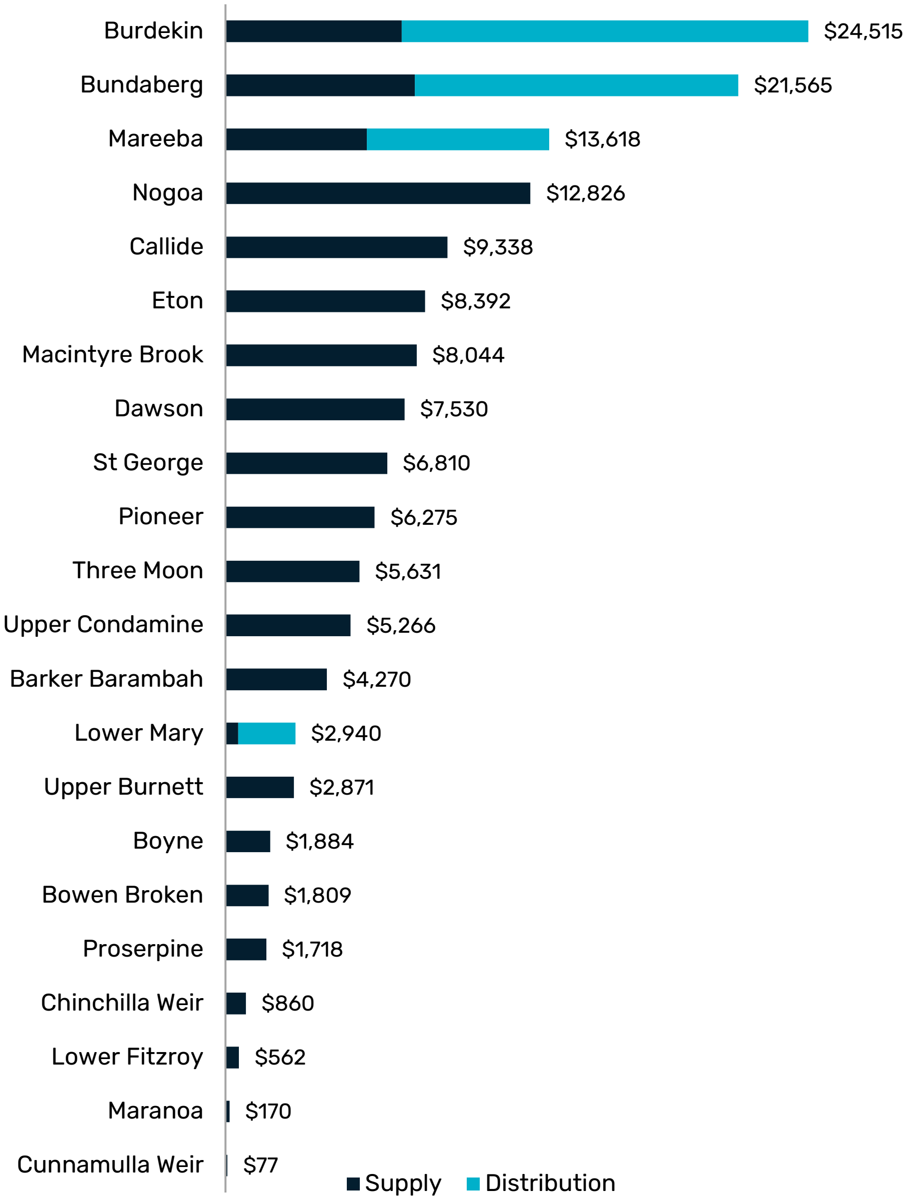
No expenditure is proposed within the period under the pipeline refurbishment / replacement program (Program 10).

5.4.2 Scheme level overview

Renewal expenditure is presented by scheme (including distribution services within schemes) on **Figure 28**.

It shows that the three largest schemes with distribution services (Burdekin, Bundaberg and Mareeba-Dimbulah) account for 40.6 per cent of total renewals expenditure. At the other end of the spectrum, seven schemes with less than $2 million in proposed expenditure account for less than 5 per cent of Sunwater's total renewals spend.

Figure 28 - Renewal and compliance expenditure (2025-26 to 2028-29) by service ($'000s)



Cumulative %	Capital $
16.7%	$7,543
31.4%	$11,991
40.6%	$7,875
49.3%	$7,608
55.7%	$7,335
61.4%	$4,516
66.9%	$4,250
72.0%	$6,081
76.6%	$6,439
80.9%	$3,486
84.7%	$3,709
88.3%	$2,932
91.2%	$3,796
93.2%	$1,837
95.2%	$1,847
96.5%	$1,466
97.7%	$748
98.9%	$668
99.4%	$416
99.8%	$241
99.9%	$0
100.0%	$0

5.4.3 Major projects

All projects delivered by Sunwater are supported by levels of documentation suitable for the size and complexity of the project. Supporting its pricing proposal Sunwater has collated and included as part of its submission package, supporting documentation for the billing system renewal project as well as two significant projects in each scheme.

Scheme Summary documents (and accompanying presentation materials) identify major projects for the price path period.

As well as being the largest single project affecting the pricing period, the billing system renewal project is also Sunwater's only inter-scheme project. **Table 38** shows the build cost that have been apportioned to each in-scope scheme (for recovery via Part A charges) based on total scheme customers.

Table 38 - Allocation of build costs by scheme – billing system renewal

Scheme	Allocation breakdown		
	$	%	Cumulative %
Bundaberg	8,856	21.6	21.6
Mareeba-Dimbulah	8,736	21.4	43.0
Nogoa Mackenzie	3,569	8.7	51.7
Burdekin Haughton	3,371	8.2	60.0
Eton	2,703	6.6	66.6
St George	1,502	3.7	70.2
Dawson Valley	1,407	3.4	73.7
Lower Mary River	1,399	3.4	77.1
Boyne River and Tarong	1,343	3.3	80.4
Barker Barambah	1,335	3.3	83.6
Upper Burnett	1,248	3.1	86.7
Callide Valley	1,081	2.6	89.3
Upper Condamine	779	1.9	91.2
Macintyre Brook	747	1.8	93.1
Three Moon Creek	731	1.8	94.9
Proserpine River	707	1.7	96.6
Bowen Broken Rivers	413	1.0	97.6
Chinchilla Weir	310	0.8	98.3
Lower Fitzroy	246	0.6	99.0
Pioneer River	199	0.5	99.4
Cunnamulla	191	0.5	99.9
Maranoa River	40	0.1	100.0
Total[1]	**40,916**	**100**	

*Note 1: This value is the capital cost inflated to 1 July 2025 when the project is due to be commissioned and is being applied to customer prices. The actual expected build cost is $38.6 million as outlined in **Section 4.6.1***

5.5 Outside the price path (2029-30 to 2057-58)

Sunwater proposes to use a RAB-based approach to renewals expenditure recovery from the next price path period but acknowledges that this is a proposal for assessment and approval.

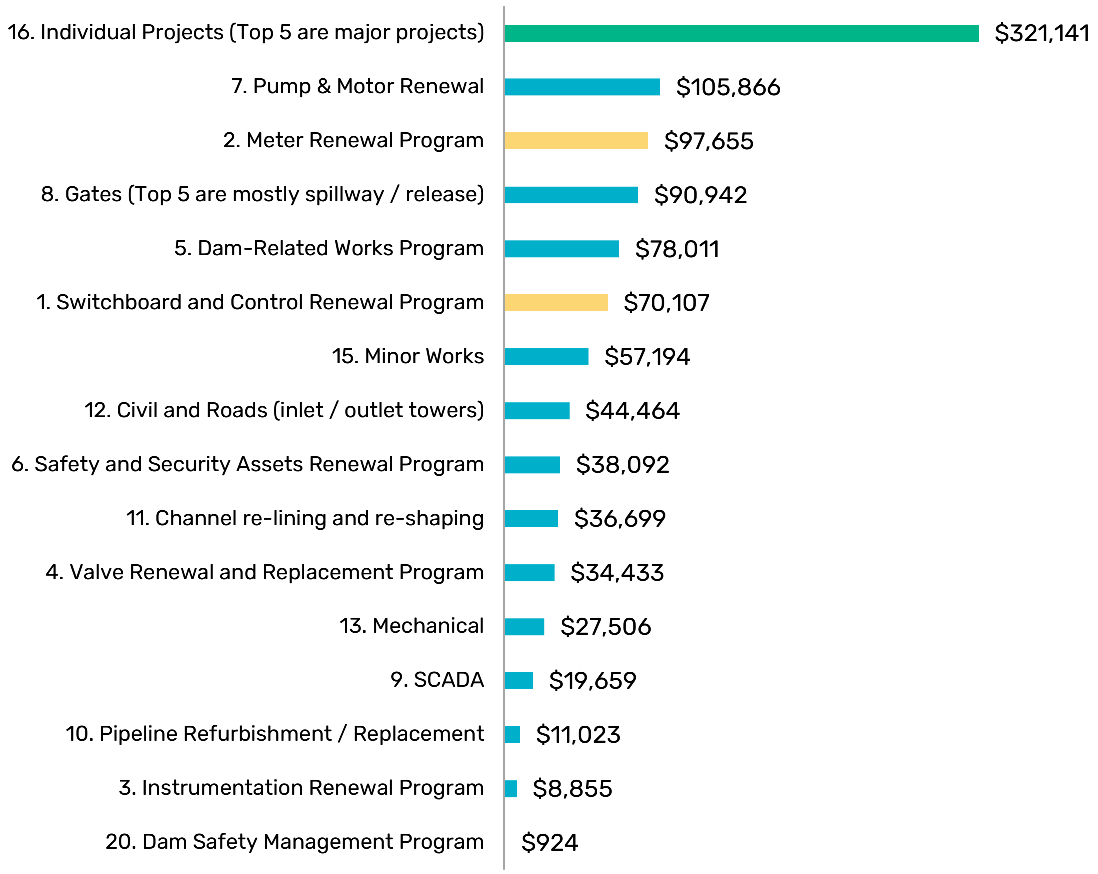
The balance of the necessary 33-year forecast for an annuity-based renewals expenditure recovery methodology is presented below. Scheme Summary documents identify year-to-year expenditure across this period identifying major programs and projects relevant to each scheme.

Scheme Summary documents (and accompanying presentation materials) identify major projects for the price path period as well as the year-to-year forecast.

5.5.1 Programs

The balance of Sunwater's proposed adjusted renewals expenditure for the remainder the 33-year forecast required is presented by program in **Figure 29**. The cumulative forecast of $1.04 billion between 2029-30 and 2057-58 is likely a significant under-estimate of the actual expenditure required across this period, however the challenges of developing a robust long-term forecast are one of the primary reasons for the proposed shift to a RAB-based approach.

Figure 29 - Renewal and compliance expenditure (2029-30 to 2057-58) ($'000s)



Cumulative %
31
41
50
59
67
73
79
83
87
90
93
96
98
99
100
100

This long-term forecast does not currently include renewal of major support systems like the billing system.

Scheme Summary documents identify major projects for the price path period.

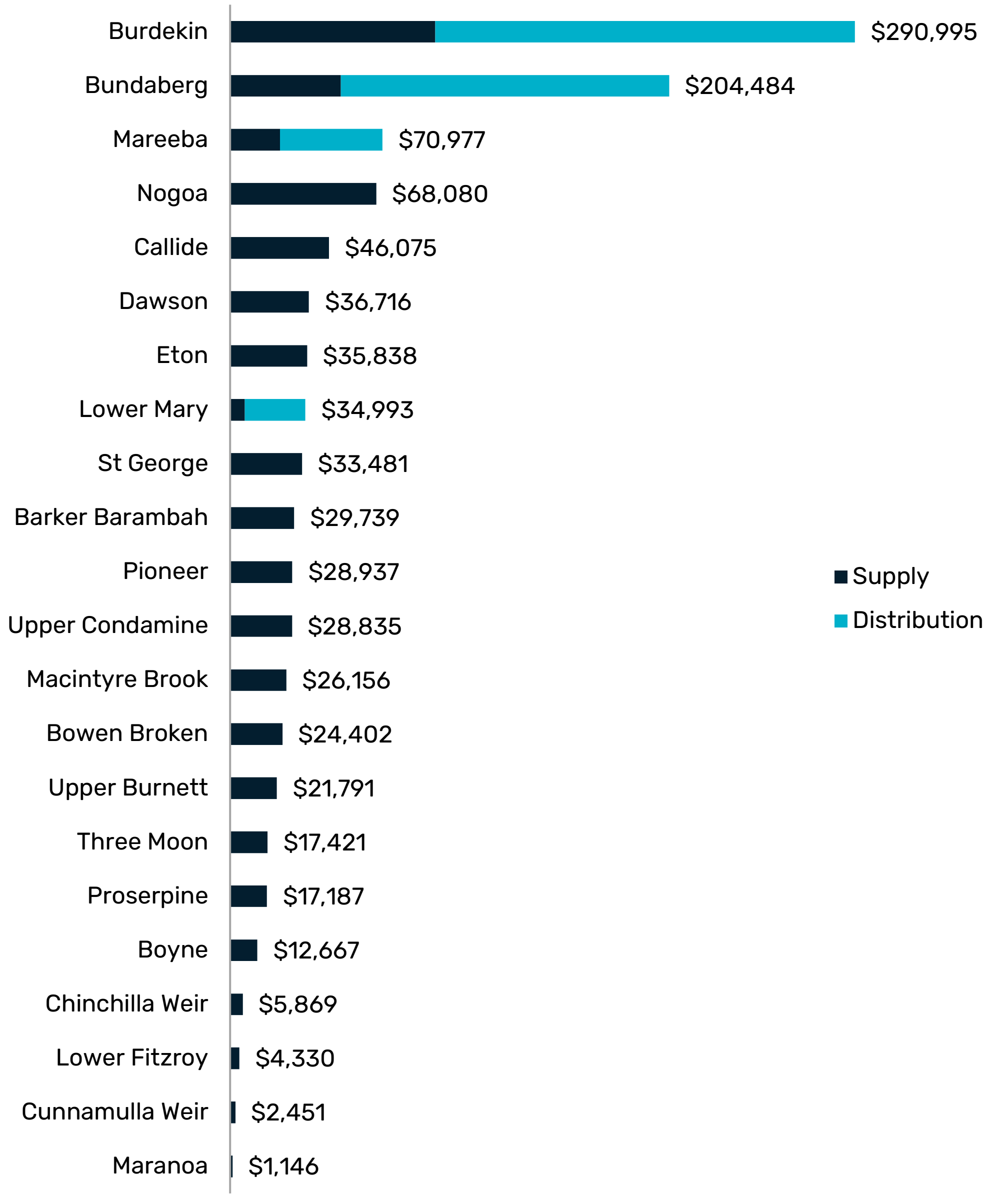
5.5.2 Scheme level overview

Renewal expenditure is presented by scheme (including distribution services within schemes) on **Figure 30**.

It shows that the two largest schemes with distribution services (Burdekin Haughton, Bundaberg and Mareeba-Dimbulah) schemes account for 47.5 per cent of total renewals expenditure. At the other end of the spectrum, seven schemes with less than $18 million in proposed expenditure account for less than six per cent of total renewals spend across the period.

Year-on-year expenditure profiles are presented in the **Scheme Summaries**.

Figure 30 - Renewal and compliance expenditure (2029-30 to 2057-58) by service ($'000s)



Cumulative %
27.9
47.5
54.3
60.9
65.3
68.8
72.2
75.6
78.8
81.7
84.4
87.2
89.7
92.1
94.1
95.8
97.5
98.7
99.2
99.7
99.9
100.0

6 Revenue requirement

This section describes Sunwater's overall and scheme-level revenue requirement setting out:

- *The RAB-based building block methodology we propose to apply to the establishment of a revenue requirement*
- *An alternative annuity-based building block methodology to apply in the event that Sunwater's preferred approach is not supported*
- *Proposed transfers of costs to better align the final revenue requirement with the service provided within a scheme (and ring fencing of costs recovered elsewhere)*
- *Key regulatory inputs and approaches required to calculate building block elements*
- *A final proposed (and alternate) revenue requirement*

6.1 Building block approach

Consistent with the QCA's previous price reviews, Sunwater has adopted a 'building block' approach to calculating the revenue it requires to provide irrigation services over the next price path period, meeting legal and regulatory obligations[19] and service levels agreed with customers.[20]

The relevant costs to be included under the building block approach for Sunwater are those allowable under the Referral[21] and contribute to the development of a lower bound price. Excluded from allowable costs under the referral are allowances for capital expenditure incurred before 1 July 2000 to build existing assets and capital expenditure on dam safety.

The building block approach was used by the QCA in Sunwater's previous price reviews[22] and is widely used by Australian regulators in water, transport and energy sectors.

As introduced in **Section 2.2.5** Sunwater worked with customers on a proposal to change the building block methodology it applies to the recovery of renewals expenditure. Following consideration of feedback received and the relative merits of both approaches, Sunwater is proposing to adopt a RAB-based building block approach.

Table 39 compares the key building block elements for a RAB-based approach and an annuity-based approach. Our approach to the calculation of an annuity contribution (under the alternate annuity approach) reflects the approach adopted at the 2020 Review.

Sunwater's proposed approaches to the calculation of the capital returns (return on, and return of) and tax allowance building blocks are presented in **Section 6.1.1** and **Section 6.3**.

[19] Including regulatory and legislative obligations, such as those relating to water planning and dam safety, imposed by government and other regulatory bodies.

[20] Including customer service standards.

[21] referral-notice.pdf (qca.org.au)

[22] http://www.qca.org.au/project/rural-water/

Table 39 - Building block elements under proposed and alternate methodologies

Allowable costs	Discussion	Applicable building blocks	
		Proposed (RAB)	*Alternate* (Annuity)
Core building blocks			
Opex (**Section 4**)	Opex is recovered in the year in which it is incurred under either approach.	Opex allowance	Opex allowance
Renewals expenditure (**Section 5**)	Sunwater's renewals expenditure includes both opex and capital expenditure. Under a RAB the opex is added to the opex allowance and recovered in the year in which it is incurred. A 33-year forecast is required to set annuity contributions for a 4-year price path, while only a 4-year forecast is required to set the RAB building block components for the same period.	Opex allowance (renewals opex) Return on capital Return of capital (depreciation)	Annuity contribution
Taxes or tax equivalent payments	Under an annuity renewals expenditure is treated as 'operational'—that is, deductible for tax purposes. As a result, there is no tax liability associated with renewing existing assets.	Tax allowance	*Not applicable*
Revenue earned from other fees and charges	Revenue Sunwater recovers from other charges such as drainage charges and access charges is deducted from the revenue requirement. This ensures that Sunwater does not over-recover (or recover twice) revenue across all its tariffs, fees and charges.	Revenue offset	Revenue offset
Discussion provided for completeness			
Working capital	Working capital allowances form part of some regulatory building block frameworks where a business may suffer economic loss arising from timing difference between receivables and payables.	*Not proposed*	*Not proposed*

6.1.1 Inflation adjustments

The return investors receive on their assets should reflect the risks of their investment. These risks include the prospect of inflation eroding the investor's purchasing power. The inclusion of an allowance for expected inflation provides compensation for this risk.

There are three main ways to provide compensation for inflation:

- *Real rate of return approach* – This approach combines a real rate of return (which is lower than a nominal rate of return by the degree of expected inflation) with an indexed RAB. Compensation for inflation is provided only through the indexation of the RAB.

- *AER approach* – This approach combines a nominal rate of return with an indexed RAB, and a negative revenue adjustment. Because compensation for inflation is provided through both the RAB and rate of return, the negative revenue adjustment is needed to prevent double compensation for inflation.
- *Nominal rate of return approach* – This approach combines a nominal rate of return with an unindexed RAB. Compensation for inflation is provided only through the rate of return.

Consistent with QCA guidance (and the 2020 Review approach for dam improvement program capital), the proposed approach combines a nominal rate of return with an indexed RAB, and a negative revenue adjustment – the *AER approach*. Compensation for inflation is provided through both the RAB and rate of return, with the negative revenue adjustment needed to prevent double compensation for inflation.[23] We make this revenue adjustment through the depreciation component of our calculations.

Our approach produces an identical revenue outcome to the real rate of return approach.

6.2 Capital returns

Calculation of the capital returns building blocks for the price path period require the following inputs:

1. Proposed capital expenditure (refer to **Section 1.1**)
2. Opening RAB balance
3. Weighted average cost of capital
4. Asset life assumptions

Under a RAB approach, Sunwater's revenue comprises an annual return on existing and new renewal capital expenditures and recovery of prudent and efficient opex in the year incurred, through prices. The capital return earned under the RAB approach is calculated using the WACC, as shown in **Figure 31**.

The following sections explain in detail the individual elements of Sunwater's proposed RAB approach.

6.2.1 Opening RAB balances

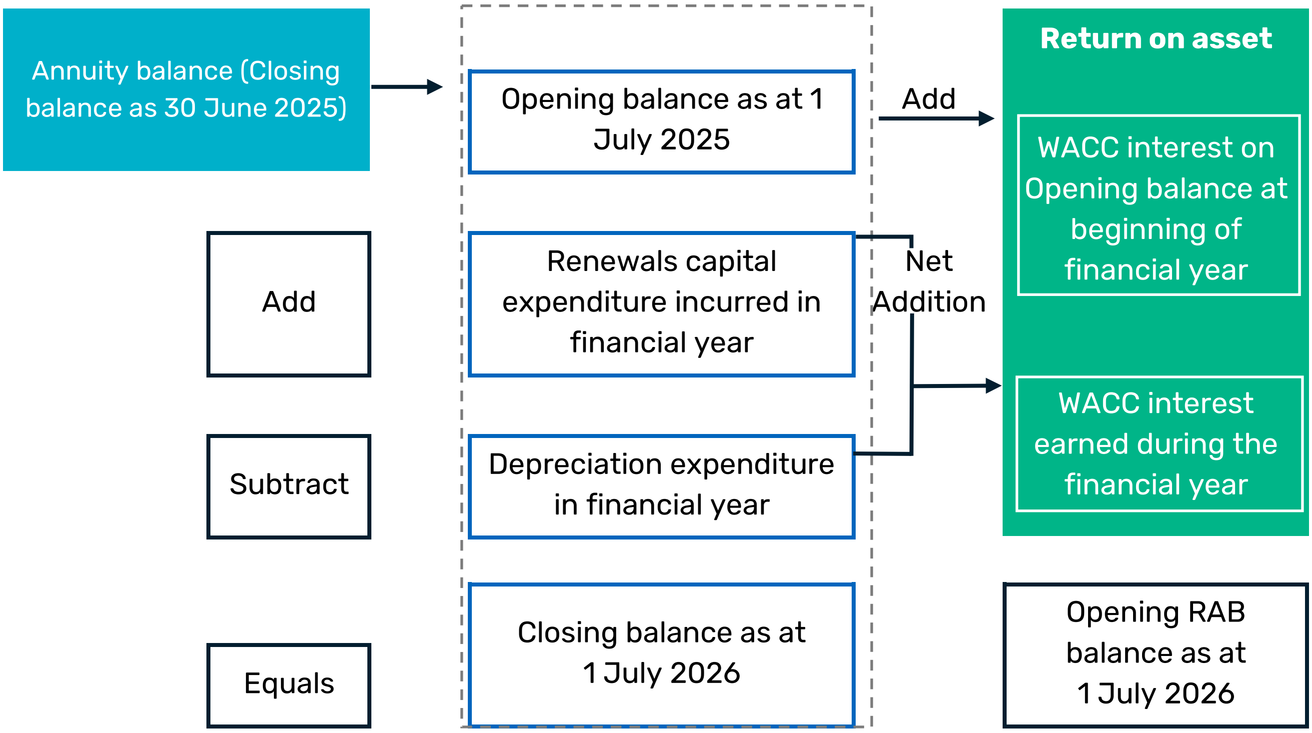
An important element of Sunwater's proposed RAB approach is the establishment of the opening RAB value in the first year (2025-26) of the price path period. The approach Sunwater has adopted is in line with the discussion provided by the QCA in its Final Report to the 2020 Review and is based on the expected annuity balance at the end of the current price path period 30 June 2025).

Most annuity balances are forecast to be negative – reflecting Sunwater having invested more to date than customers have paid via the annuity contribution component of their prices, while five are forecast to be positive – reflecting Sunwater receiving more from customers, via prices, than it has spent to date on renewals activities.

We engaged with customers (and our consultative committee) around the starting proposal that positive balances would be returned to customers via a revenue adjustment applied evenly across the four-year price path, while negative balances would be converted to an opening (1 July 2025) RAB balance.

[23] QCA 2023, Guideline for pricing proposals, Rural irrigation price review 2025-29, March, Page 23

Figure 31 - Illustrative representation of the RAB-based funding methodology



Direct customer feedback on this element of the proposal was limited but was supportive of the notion of returning positive balances and respectful of the need to recover funds already spent on behalf of customers. There was a general desire that the opening RAB balance not be recovered too quickly, which has informed the setting of our assumed life for the opening balance (**Section 6.2.1**).

Opening RAB balances and the annuity roll-forward process used to calculate them are presented in the Scheme Summaries and were presented to customers as part of our Stage 3 engagement as shown in **Figure 32**. Sunwater applied a standard regulatory roll-forward approach consistent with the 2020 Review. Closing balance (2018-19) values were taken from the 2020 irrigation pricing review.

Opening RAB balances by scheme and service are presented in Error! Reference source not found..

Figure 32 - Example of roll-forward calculation presentation from Eton Scheme Summary

	2018-19	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**
	Actual	Actual	Actual	Actual	Actual	Forecast	Forecast
Opening balance		-$1,172.6	-$959.1	-$573.9	-$489.1	-$249.7	-$595.6
Expenditure		-$406.2	-$328.1	-$651.6	-$515.2	-$1,126.7	-$1,408.0
Annuity Contribution		$670.9	$755.2	$761.5	$776.1	$791.6	$809.4
Interest		-$51.3	-$41.9	-$25.1	-$21.4	-$10.9	-$26.0
Closing balance[1]	**-$1,172.6**	**-$959.1**	**-$573.9**	**-$489.1**	**-$249.7**	**-$595.6**	**-$1,220.3**

Table 40 - Proposed Opening RAB values ($'000) by water supply Schemes

Scheme	Service	1 July 2025 balance	Funds to be returned
Mareeba-Dimbulah	Water supply	141.9	
	Distribution	0.0	13,111.3
Bundaberg	Water supply	17,210.3	
	Distribution	11,113.9	
Burdekin Haughton	Water supply	0.0	4,588.9
	Distribution	0.0	4,012.0
Nogoa Mackenzie	Water supply	6,871.8	
Eton	Water supply	1,220.3	
St George	Water supply	6,593.3	
Lower Mary	Water supply	2,312.6	
	Distribution	4,869.9	
Barker Barambah	Water supply	4,030.7	
Bowen Broken Rivers	Water supply	3,984.4	
Boyne River and Tarong	Water supply	20,569.0	
Callide	Water supply	24,789.8	
Chinchilla Weir	Water supply	1,821.8	
Cunnamulla	Water supply	726.4	
Dawson Valley	Water supply	0.0	3,094.1
Lower Fitzroy	Water supply	96.6	
Macintyre Brook	Water supply	18,104.1	
Maranoa	Water supply	0.0	15.4
Pioneer	Water supply	6,038.8	
Proserpine	Water supply	519.5	
Three Moon Creek	Water supply	2,433.4	
Upper Burnett	Water supply	2,926.3	
Upper Condamine	Water supply	674.5	
Total		**137,050.0**	**24,821.6**

6.2.2 Weighted average cost of capital (WACC)

The weighted average cost of capital (WACC) is an important element of both a RAB approach and a renewals annuity approach. Where work is done by a business *prior* to being recovered from customers via prices, it must borrow to fund this expenditure. This is fundamental to the RAB methodology and important to the annuity methodology where negative annuity balances exist.

The WACC is a measure of what it would cost a "typical", or "benchmark" business to borrow funds from the market. It assumes a benchmark business would sources funds from a mixture of debt and equity, creating a weighted average of returns required from these sources.

Sunwater engaged a consultant to inform its proposed WACC for the next price path[24]. This estimate was developed in accordance with the approach set out in the QCA's *Rate of return review* (Version 2 July 2023) and took into consideration recent regulatory decisions made by the QCA and other jurisdictional regulators in Australia.

Sunwater believes that its proposed WACC for the next price path period is consistent with the concept of what a 'reasonable' overall rate of return is for Sunwater given its exposure to regulatory and commercial risks within its regulatory framework and the market within which it operates.

[24] KBR 2023,Weighted Average Cost of Capital Sunwater, prepared for Sunwater, 7 September 2023.

Table 41 sets out Sunwater's proposed post-tax WACC and its associated inputs.

The consultant's report supporting Sunwater's proposal WACC for the price path period is presented in **Appendix G**.

Table 41 - Sunwater's proposed Nominal WACC

Parameter	Proposal
End date	1-Sep-23
Risk-free rate	4.27%
Market risk premium	6.50%
Asset beta	0.393
Equity beta	0.725
Cost of equity	8.98%
Credit rating	BBB
Debt margin	0.1%
Cost of debt	4.95%
Capital structure	60%
Gamma	0.484
Nominal post-tax WACC	**6.56%**

6.2.3 Asset lives and regulatory depreciation

The treatment of depreciation is an important element of Sunwater's proposed RAB approach. Depreciation influences the return earned on renewal assets as regulatory depreciation is deducted from the RAB each year to ensure that a return on the underlying renewals assets is commensurate with its value over time. Depreciation is also one of the allowances under the building block cost methodology underlying the calculation of Sunwater's revenue requirement.

Consistent with the guidance provided by the QCA[25], Sunwater propose to adopt a straight-line depreciation methodology for calculating the annual depreciation expense under the RAB approach.

Sunwater's depreciation capital return includes a component for the RAB opening balance as well as components for any new capital commissioned during the price path period. Both of these allowances require assumptions around the rate at which the capital should be recovered.

- Consistent with the dam improvement program approach adopted at the 2020 Review (and standard regulatory practice) Sunwater proposes to adopt a straight-line approach to depreciation.
- For the opening RAB balances Sunwater has adopted a 75-year asset life. This pragmatic approach has been applied across each scheme considering:
    - Shifting from an annuity to a RAB approach requires consideration of Sunwater's ability to carry its cumulative annuity debt ($137.0 million at 1 July 2025)
    - A shorter asset life pushes up prices relative to a longer one
    - While the renewals annuity approach assumes a theoretical maintenance of the scheme in perpetuity, in practical terms the maximum life of a scheme is considered to be 150 years consistent with the QCA's consideration of dam improvement program expenditure at the 2020 Review
    - Undertaking an historical review of individual component assets (and determining the extent to which they are represented in the annuity closing balance is considered prohibitively complex and time consuming
    - The majority of Sunwater's capitalisable assets have lives between 20 and 60 years (**Table 42**) – the weighted average life of assets expected to be capitalised in the next 12 years is less than 25 years
- New capital is depreciated using a standard asset life for each asset type - standard asset lives for our most common asset types are shown in **Table 42** (civil), **Table 43** (mechanical) and **Table 44** (electrical and meters).

For simplicity of modelling across multiple schemes Sunwater has applied a simple weighted average useful life for the purposes of calculating straight-line depreciation allowances in the next price path period. This approach is appropriate given the resource costs of a more detailed bottom-up approach is not expected to result in a materially different depreciation outcome over the useful life of the assets.

6.3 Tax allowance

Sunwater and other Government-owned businesses are required to make tax equivalent payments as participants in the National Tax Equivalent Regime, consistent with Queensland Government's obligations under the *Competition Principles Agreement*.[26] Tax liabilities, including tax equivalent payment liabilities, are legitimate costs that should be recovered through regulated charges.

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[25] QCA 2023, Guideline for pricing proposals, Rural irrigation price review 2025-29, March, Page 23

[26] Council of Australian Governments, Competition Principles Agreement, 11 April 1995 (as amended to 13 April 2007), cl. 3. To meet competitive neutrality principles, the regime notionally applies the tax laws to government-owned businesses as though they were subject to federal income tax (see Australian Taxation Office, Manual for the National Tax Equivalent Regime, January 2022).

Table 42 - Standard asset lives – civil assets (predominant asset types only)

Asset type (Sub-type)	Standard life (years)	By material type						
		T	*P*	*F/S*	*R*	*M*	*C*	*E*
Access ways	50-150	50				60	80	150
Balancing storage	30-150			30	50	60	80	150
Barrage	100							
Bridges	50-80	50				60	80	
Buildings	50-80	50					80	
Channels/Drains	80-150			20			80	150
Channel structure	30	Footbridges / Walkways / Trash Racks						
	80	Culverts / Access Crossings / Control Structures / Siphons						
Cone dissipator	100							
Grids / Weed deflectors	50-60							
Pipelines	20-80		50	20		60[A]	80[B]	
Valve / flow meter pit	80							
Water tanks	30-80		30	30		60	80	
Weirs	50-125	50				75[C]	125	100

Note A includes mild steel / asbestos cement; Note B includes ductile iron; Note C includes sheet pile

T Timber F/S Fibreglass / synthetic R Rockfill M Metal C Concrete E Earth

P Plastic, including polyethylene, high density polyethylene and related materials

Table 43 - Standard asset lives – mechanical assets (predominant asset types only)

Asset type (Sub-type)		Standard life (years)
Cranes (including winches)		30
Crane Lifts		50
Filters / strainers / air conditioners		10
Wire ropes / gearboxes / couplings, brakes		25
Hydraulic systems / pressure vessels / cooling and dewatering systems		60
Gate and sluice		40
Gates (regulating – channel, knife)		50
Gates (headworks)		100
Valves	Pressure reducing, relieve, non-return, needle	30
	Butterfly	80
Pumps	Vacuum	20
	Chemical, submersible, small centrifugal	30
	Large centrifugal, hydraulic and concrete volute	60
Motors (electrical / hydraulic)		60
Motors (diesel)		30

Table 44 - Standard asset lives – electrical assets and meters (predominant asset types only)

Asset type (Sub-type)		Standard life (years)
Actuators / Alarms / Antenna / Aux. Power / Battery Chargers / Radios / Data Loggers /Sensors		15
UPS / Load Banks / Motor Starters / Interface & Control Units		20
Circuit Breakers / Capacitors / Power Supplies		30
Cables & Switchboards (HV & LV)		35
Cable trays / ways		60
Cable pits		80
Substation / Power Poles / Lightening Arrestors		60
Meters	Propellor Actuated / Paddle Wheel / Ultrasonic / Electromagnetic	20
	Dethridge wheel / Differential Pressure / Gate	50
	Meter structure / unmetered outlet	60

As set out in **Table 39** the QCA did not include a tax allowance in Sunwater's revenue requirement under an annuity approach to the recovery of renewals expenditure because this expenditure is considered 'operational' rather than capital and is deductible for tax purposes. As a result, there is no tax liability associated with renewing existing assets under this approach.

As part of its proposed RAB-based building block methodology, Sunwater proposes to include an annual tax allowance building block. The QCA acknowledged a tax allowance may be applicable if a RAB approach is used in deriving the capital expenditure allowance.[27]

Sunwater's proposed approach to forecast tax allowances in the next price path period is based on a standard tax calculation taking into account forecasts of taxable revenue, tax expenses (such as depreciation, interest, opex) and the statutory corporate income tax rate of 30 per cent.

Table 45 below shows how Sunwater's proposed tax allowances have been calculated for the price path period. Sunwater believes that these proposed allowances are consistent with the efficient costs of a firm meeting its tax obligations, based on the proposed revenue and costs.

Under current tax rules, Sunwater is considered an irrigation water provider and applies subdivision 40-F of the *Income Tax Assessment Act 1997* and fully deducts all capital costs for tax purposes in the year in which the capital cost is incurred.

This applies to capital expenditure during the price path only as the expenditure which is embodied in the opening RAB balance was not considered capital under the annuity methodology.

[27] QCA, Guideline for pricing proposals, Rural irrigation price review 2025-29, March 2023, page 27

Table 45 - Tax Allowance worked example using illustrative data ('000s)

Inputs, profit and loss, and taxable income calculations		**2025-26** ($)	**2026-27** ($)	**2027-28** ($)	**2028-29** ($)
Inputs					
Opex		1,688.7	1,667.0	1,738.6	2,064.8
RAB RoA		2,278.9	2,446.7	2,603.1	2,695.0
Debt for interest calculations					
RAB opening balance	*(A)*	46,224.0	48,471.9	49,275.4	50,640.0
Capex (new)	*(B)*	1,518.3	144.2	792.9	354.4
Funded by debt	*C = (A+B)*60%*	28,645.4	29,169.6	30,041.0	30,596.7
Profit and loss					
Income					
Customer revenue (excluding tax allowance)		3,967.6	4,113.7	4,341.7	4,759.8
Government grants / customer contributions		0	0	0	0
Total income		3,967.6	4,113.7	4,341.7	4,759.8
Expenses					
Operating & maintenance expenditure		-1,688.7	-1,667.0	-1,738.6	-2,064.8
Tax depreciation		-1,518.3	-144.2	-792.9	-354.4
Interest		-1,394.4	-1,441.0	-1,474.4	-1,508.4
Total expenses		-4,601.4	-3,252.2	-4,005.9	-3,927.6
Taxable income and tax payable					
Taxable income (before deduction for prior losses)		-633.8	861.5	335.8	832.2
Deduction – tax losses brought forward		0.0	-633.8	0.0	0.0
Taxable income (excluding endogenous tax)		-633.8	227.8	335.8	832.2
Tax payable (effective tax rate 18.3%) *Assumes statutory tax rate of 30% and gamma of 0.484*		**0.0**	**41.7**	**61.5**	**152.4**

The scheme in the illustrative example is forecast to have a tax allowance due to having a relatively high opening RAB value, which results in the return on assets under the RAB funding method being the largest component of the annual revenue requirement.

Unlike other revenue components, such as opex that are tax neutral, the return on assets only impacts taxable income. This results in the hypothetical scheme forecast to incur income tax due to the absence of offsetting expenses in the form of tax losses (through depreciation) brought forward and new capital expenditures.

Using the calculation approach described above, Sunwater is forecasting that none of its schemes will have a tax allowance building block under the RAB funding method in the next price path period.

6.4 Revenue transfers and adjustments

Sunwater makes a number of revenue transfers and adjustments to ensure that prices within a scheme reflect the user-pays principle and the operational rules within each scheme.

6.4.1 Distribution loss transfers

Distribution losses are discussed in **Section 3.4.2**, including establishing that each loss entitlement is allocated an equal share of costs associated with the water supply service, with those costs intended to be borne by users of those losses – namely, customers using the distribution service within a scheme.

The only schemes with distribution losses relevant to the setting of irrigation prices are those with associated distribution services – Bundaberg, Burdekin Haughton, Lower Mary and Mareeba-Dimbulah. Actual (and pricing adjusted) distribution losses that exist in each scheme are set out in the **Scheme Summaries**.

The **Scheme Summaries** also contain a detailed flow chart showing how revenue building blocks (at their lowest sub-component level) flow through to prices, including the treatment of revenue assigned to loss entitlements.

Distribution loss revenue "removed" from the water supply service and the calculation of Part A and Part B prices and is "added" to the revenue requirement for the distribution service. In this way customers using the distribution service and benefiting from the scheme's distribution loss entitlements, pay the cost of these entitlements through their Part C and Part D charges.

Sunwater is not proposing any change to the way in which distribution loss revenue is managed.

6.4.2 Non-loss transfers

Revenue transfers (or exclusions) are also made in the three schemes set out in **Table 46**. In Bundaberg and Lower Mary this reflects assets that serve a dual water supply and distribution service purpose, while in Mareeba-Dimbulah a portion of opex is allocated to the Barron Falls Hydroelectric Power Station.

6.4.3 Revenue offsets

Sunwater also recovers revenue from miscellaneous fees and charges, notably access and drainage charges. These account for less than two per cent of Sunwater's total (pre revenue adjustments) revenue requirement.

Revenue from these charges is derived from services that are wholly or significantly enabled by Sunwater's core services. Consistent with good regulatory practice revenue earned from these sources is treated as a revenue offset and is deducted from the overall revenue requirement for each scheme and sub-service.

Table 46 - Non-loss revenue transfers by scheme ('000s)

<table>
<tr><th>Scheme</th><th>Basis of transfer</th><th>Transfer</th></tr>
<tr><td>Bundaberg</td><td> The Gin Gin main channel primarily supports the Bundaberg distribution service. It also performs (via provision in the water plan) a water supply function allowing Sunwater to transfer releases from Fred Haigh Dam via the Gin Gin main channel into Sheepstation Creek to supplement entitlements that access a water supply service from the Burnett River. At the 2020 Review a portion of the total revenue requirement (opex and annuity contribution building blocks) derived from these assets was transferred from the distribution service to the water supply service. Sunwater proposed (and the QCA accepted) a cost allocation of five per cent since there had been minimal releases since 2012–13. On the basis that this situation has not materially changed since the 2020 Review Sunwater has adopted a five percent allocation for this review. </td><td>$233.7</td></tr>
<tr><td>Lower Mary</td><td> The Owanyilla pump station and main channel primarily support the Lower Mary distribution service, however they also perform a water supply function, as they supplement the Tinana Barrage and Teddington Weir. At the 2020 Review a portion of the total revenue requirement (opex and annuity contribution building blocks) derived from these assets was transferred from the distribution service to the water supply service (where it is applied only to the Tinana and Teddington tariff group). Sunwater has adopted the same approach for the development of this proposal and calculated the transfer amount as a function of: 53 per cent of the water pumped by the Owanyilla pump station supports Tinana Barrage and Teddington Weir customers (down from 59 per cent at the 2020 Review).
21 per cent of non-electricity opex allocated to the Lower Mary distribution service are attributable to the Owanyilla pump station (36 per cent at the 2020 Review).
41 per cent of electricity costs allocated to the Lower Mary distribution service are attributable to the Owanyilla pump station
Renewals revenue (both capital returns and renewals opex) has been transferred using the 53 per cent volumetric factor.</td><td>$1,539.9</td></tr>
<tr><td>Mareeba-Dimbulah</td><td> 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. At the 2020 Review the QCA confirmed that the HUF incorporates expected volumes to be released to the power station. It reiterated that a portion opex that is not allocated via the HUF should be allocated to the power station. The basis of this cost allocation was the most recent six years of actual annual water releases to the Barron Falls Hydroelectric Power Station. Sunwater proposes to adopt the same approach in relation to the Barron Falls Hydro power station for the price path period extending the averaging period to include more recent data and resulting in a transfer of 24 per cent of relevant operating costs. </td><td>$734.6</td></tr>
</table>

Sunwater notes that the QCA's forecast revenue offset in the current price path period, which was based on an inflation-based escalation of revenue from the prior price path period, is not materially different from the actual revenue earned by Sunwater from miscellaneous fees and charges, adjusting for inflation.

Sunwater proposes to continue to maintain in real terms – applying a general inflation escalation - the existing allowance for miscellaneous revenue offsets in the price path period, as shown in **Table 47** below.

6.4.4 QCA fees

Irrigation customers cover the cost of the QCA's review activities via their prices. This is opex incurred by Sunwater but these costs do not form part of the scheme level revenue requirement as they are recovered only from irrigation customer entitlements.

The QCA has indicated that Sunwater's share of its fees (capped by the Notice of Referral) for the 2025-26 to 2028-29 irrigation price review cannot exceed $3.35 million. Sunwater has adopted this value for price modelling and apportioned it to each scheme on the basis of irrigation entitlements as shown in **Table 48**.

Sunwater has included this amount in the pricing model adjusted for the time value of money consistent with the approach applied in the 2020 Review. These non-controllable fees are not included in the base year and are not subject to the efficiency factor.

The QCA's fees have been applied as a revenue adjustment in the pricing model in line with the approach taken for the 2020 Review.

6.5 Proposed (RAB) revenue requirement

Sunwater's proposed revenue requirement is set out in **Table 49**. This table replicates the scheme level revenue requirement tables published in each of our Scheme Summary documents and shared with irrigation customers as part of our Stage 3 engagement activities. It is based on a RAB methodology for the recovery of renewals expenditure and includes the upper limit of the QCA's fees for the conduct of this review.

Table 47 - Forecast annual revenue offsets 2025-26 to 2028-29 – Nominal - $ 000s

Type	Scheme	2025-26	2026-27	2027-28	2028-29
Drainage services	Burdekin Haughton distribution	-929	-956	-982	-1,007
Access charges	Mareeba-Dimbulah	-700	-720	-740	-758
Termination fees	Multiple	-105	-108	-111	-114
Land leases	Multiple	-51	-52	-54	-55
Other fees and charges	Multiple	-30	-31	-32	-33
Drainage diversion charges	Burdekin Haughton distribution Nogoa	-4	-4	-4	-4
Eton Risk A tariff revenue	Eton	-2	-2	-2	-2
Total		**-1,821**	**-1,873**	**-1,925**	**-1,973**

Note: Other fees and charges includes expected revenue from Eton Risk priority charges

Table 48 - QCA fees apportioned to scheme level for recovery via Part A irrigation tariffs

Scheme	Total irrigation entitlements	Irrigation entitlements as a percentage total	Fee apportioned to scheme
	(ML)	(%)	($'000s)
Barker Barambah	31,277	1.9	74.3
Bowen Broken	5,676	0.3	13.5
Boyne River	9,134	0.6	21.7
Bundaberg	185,478	11.2	440.4
Burdekin Haughton	646,581	39.1	1,535.4
Callide	13,437	0.8	31.9
Chinchilla	2,533	0.2	6.0
Cunnamulla	2,412	0.1	5.7
Dawson Valley	54,534	3.3	129.5
Eton	61,512	3.7	146.1
Lower Fitzroy	3,101	0.2	7.4
Lower Mary River	22,577	1.4	53.6
Macintyre Brook	17,902	1.1	42.5
Maranoa River	800	0.0	1.9
Mareeba-Dimbulah	162,347	9.8	385.5
Nogoa Mackenzie	192,362	11.6	456.8
Pioneer River	47,390	2.9	112.5
Proserpine	40,817	2.5	96.9
St George	81,334	4.9	193.1
Three Moon Creek	14,239	0.9	33.8
Upper Burnett	27,062	1.6	64.3
Upper Condamine	30,362	1.8	72.1
Total			**3,924.9**

Table 49 – Proposed revenue requirement – RAB-based approach ($'000s)

Building block (Units)	2025-26 ($)	2026-27 ($)	2027-28 ($)	2028-29 ($)	Aggregate ($)	Aggregate (%)
Price path related expenditure						
Opex	83,427	85,254	87,051	88,793	344,525	74.8
Renewals opex	10,742	18,698	17,630	15,117	62,186	13.5
Capital returns	8,252	11,003	12,731	13,756	45,742	9.9
Tax allowance	0	0	0	0	0	0.0
Sub-total	*102,421*	*114,955*	*117,411*	*117,666*	*452,452*	*98.2*
Revenue adjustments						
Revenue offsets	-1,821	-1,873	-1,925	-1,973	-7,593	-1.6
Insurance review	2,832	2,913	2,993	3,068	11,805	2.6
QCA Fee[1]	941	967	994	1,022	3,925	0.9
Sub-total	*1,952*	*2,007*	*2,062*	*2,116*	*8,136*	*1.8*
Total	**104,373**	**116,961**	**119,473**	**119,782**	**460,589**	**100.0**
Annuity Positive Balance Returns	-6,391	-6,574	-6,755	-6,923	-26,642	
Total (net of returns)	**97,982**	**110,388**	**112,719**	**112,858**	**433,947**	

Note 1: The QCA fee is apportioned to each scheme on the basis of irrigation entitlements

Sunwater's proposed total revenue requirement for the four-year price path is $433.9 million inclusive of the return of $26.6 million to customers in schemes with a positive annuity balance.

For more information on the price impact of the RAB proposal at an individual scheme level, refer to the scheme summaries.

The pricing benefits (and costs) of the RAB approach to customers and the State (via the CSO payment they make to Sunwater on behalf of irrigation customers on a transition price) are discussed in **Section 7**.

6.6 Alternate (annuity) revenue requirement

Table 50 shows the proposed revenue requirement under an annuity-based recovery of renewals expenditure. The aggregate four-year revenue requirement under this approach is $52 million higher than the proposed RAB approach (**Table 49**) inclusive of positive annuity balance returns.

Table 50 - Alternate (annuity based) revenue requirement ($'000s)

Building block (Units)	**2025-26** ($)	**2026-27** ($)	**2027-28** ($)	**2028-29** ($)	**Aggregate** ($)	(%)
Price path related expenditure						
Opex	83,427	85,254	87,051	88,793	344,525	70.9
Annuity contribution	32,121	32,833	33,660	34,442	133,056	27.4
Sub-total	*115,548*	*118,087*	*120,711*	*123,235*	*477,581*	*98.3*
Revenue adjustments						
Revenue offsets	-1,821	-1,873	-1,925	-1,973	-7,593	-1.6
Insurance review	2,832	2,913	2,993	3,068	11,805	2.4
QCA Fee[1]	941	967	994	1,022	3,925	0.8
Sub-total	*1,952*	*2,007*	*2,062*	*2,116*	*8,137*	*1.7*
Total	**117,500**	**120,093**	**122,773**	**125,351**	**485,717**	**100.0**

Note 1: The QCA fee is apportioned to each scheme on the basis of irrigation entitlements

7 Proposed prices

This section describes the cost reflective, and transition prices that arise from Sunwater's proposed costs and RAB-based building block approach.

It also sets out our approach to tariff reform generally and for the price path period.

Our online customer bill calculator has been available since late October to help irrigation customers understand the impact of our proposal on their business, enabling them to enter their actual entitlements and expected usage to see their annual bill under both the proposed (RAB) and alternate (annuity) building block methodologies.

7.1 Tariff reform

Clause 1 of the Referral includes the following statement in its definition of "Price Target":

> "*Where new tariff groups are to be considered, the Authority is to avoid shifting costs from one customer or group of customers to another within a [scheme], in the absence of [Sunwater] having significant commercial interest in the change, and in the absence of agreement from customers*".

Sunwater acknowledges this policy direction / intent and has adopted the view that it is reasonable to apply this to reforms associated with pre-existing tariff groups. That is, changes to the sharing of costs between already existing tariff groups should not be pursued in the absence of a compelling commercial reason on Sunwater's part, and customer support or acceptance of the need for a change.

This has implications for tariff groups identified by the QCA as being targets for future review / consideration at the 2020 Review and tariff groups where customer groups express a desire to revert to historical (pre-2020 Review) pricing practices / policies.

Since the conclusion of the 2020 Review Sunwater's engagement with customers has not identified any customer-led desires for tariff reform that would meet this requirement. From a strategic and operational perspective our priorities have been managing the business through the COVID pandemic and continuing to deliver our purpose and strategic goals. Sunwater has not identified (with the exception of the Risk A priority tariff group in the Eton scheme) any tariff reforms for discussion with customers as part of this pricing proposal.

Issues raised by the QCA at the 2020 Review and customer groups during our ongoing engagement activities and Sunwater's position at this review are set out in **Table 51**.

Table 51 - Tariff reform queries and Sunwater's position at this review

Scheme	Tariff group	Issue for discussion / consideration	Sunwater's position
Mareeba-Dimbulah	Access charge	The cost-reflectivity of the access charge has been questioned at previous price reviews. In 2024-25 the access charge is set at $751.5/customer.	Sunwater does not propose any changes to the tariff groups or cost allocators for these tariff groups at this review. Sunwater's priorities in the Mareeba-Dimbulah scheme during the period have included the continuation of service during the COVID pandemic and the delivery of the Mareeba-Dimbulah Water Supply Scheme Efficiency Improvement Project and a reduction in distribution losses. This priority benefits all customers in the distribution service via downward pressure on prices. Customer engagement has not identified a strong desire for tariff reform, however Sunwater will continue to engage and may explore these issues further at a future review.
	Channel – outside a relift	The cost-reflectivity of the three-part declining block tariff for customers has been questioned at previous price reviews.	
	River Supplemented Streams & Walsh's River	The QCA recommended Sunwater explore the appropriate basis for the apportionment of costs to this tariff group and engage with customers if there are grounds for a change from the current 60 per cent allocator.	
Eton	Risk A	Risk A priority entitlement holders taking water from the Mirani Diversion Channel have engaged with Sunwater over the reform of their tariff given past practice included reference to Part C and Part D price elements associated with Sunwater's former management of the distribution service in this scheme. Sunwater has identified a structural under-recovery that has arising from the practice of assigning fixed costs to the 504 ML in entitlements held by this group, the 100 per cent volumetric tariff applied, and the typically low usage in this group.	Sunwater's proposal addresses both customer concerns, and the structural under-recovery via: • the calculation of the Risk A tariff using only Part A and Part B components, and the continuation of a 100 per cent volumetric tariff • removal of the 504 ML in Risk A priority entitlements from the price calculation process to address the structural under-recovery of fixed costs • treatment of any revenue earned from Risk A priority entitlements as a revenue offset This proposal formed part of our engagement material with Eton customers. No concerns have been raised.

Scheme	Tariff group	Issue for discussion / consideration	Sunwater's position
Burdekin Haughton	Burdekin Channel Burdekin Channel – Glady's Lagoon (other than natural yield) Burdekin Channel – Giru Groundwater	Customers in the Burdekin Channel – Giru Groundwater (Giru customers) continue to raise concerns with the alignment of their cost reflective price with the other two tariff groups in the distribution service. Giru customers are seeking a lower target price on the basis of one or both of lower cost to serve and lower standards of service. Reference continues to be made to matters that are no longer relevant under the current version of the water plan.	Sunwater does not propose any changes to the way in which costs are assigned and cost-reflective prices are calculated for the Burdekin Haughton distribution service. Sunwater's view is that current pricing practices reflect an appropriate pricing response to the policy settings contained in the *Water Plan (Burdekin Basin) 2007*. Sunwater does not have any information that would support the QCA rescinding the findings it made at the 2020 Review in relation to cost-to-serve and service levels. There is clear disagreement from customers in the Giru and non-Giru tariff groups around the nature of the issues and any proposed pricing solutions. Sunwater's preference is for the continuation of current cost allocation and pricing practices in this scheme, and notes that any holistic review of cost allocation would require considerable time (at least two years) given the competing customer positions, and may lead to unexpected outcomes including the creation of more than two effective tariff groups within the distribution service.

7.2 Proposed tariff groups

Consistent with our approach to tariff reform set out in **Section 7.1**, Sunwater is not proposing any changes to existing tariff groups as part of this proposal. There are, however, a number of current tariff groups that exist for historical pricing practice / policy reasons. Where prices in these tariff groups have reached parity by 1 July 2025 there is no longer an ongoing basis for their continued differentiation. Sunwater proposes they be replaced by a single tariff group going forward. These are identified (along with current tariff groups) in **Table 52**.

For more information on the tariff groups that apply to each individual scheme, refer to the Scheme Summaries.

7.3 Price calculation process

Sunwater has adopted the 2020 Review approach to the calculation of cost reflective lower bound prices for the next price path period, as described in **Figure 33**.

This flowchart formed the basis for engagement material shared with customers throughout our engagement for this proposal. It was designed to help increase customer understanding of the process followed by Sunwater in calculating its proposed prices.

We have not changed allocation categories or percentages from the 2020 Review. In replacing the annuity contribution building block with renewals opex, capital returns, and taxation building blocks we have maintained the same approach to the allocation to tariffs. All of the revenue from these building blocks is allocated to fixed charges and all of it has been allocated via the HUF allocator.

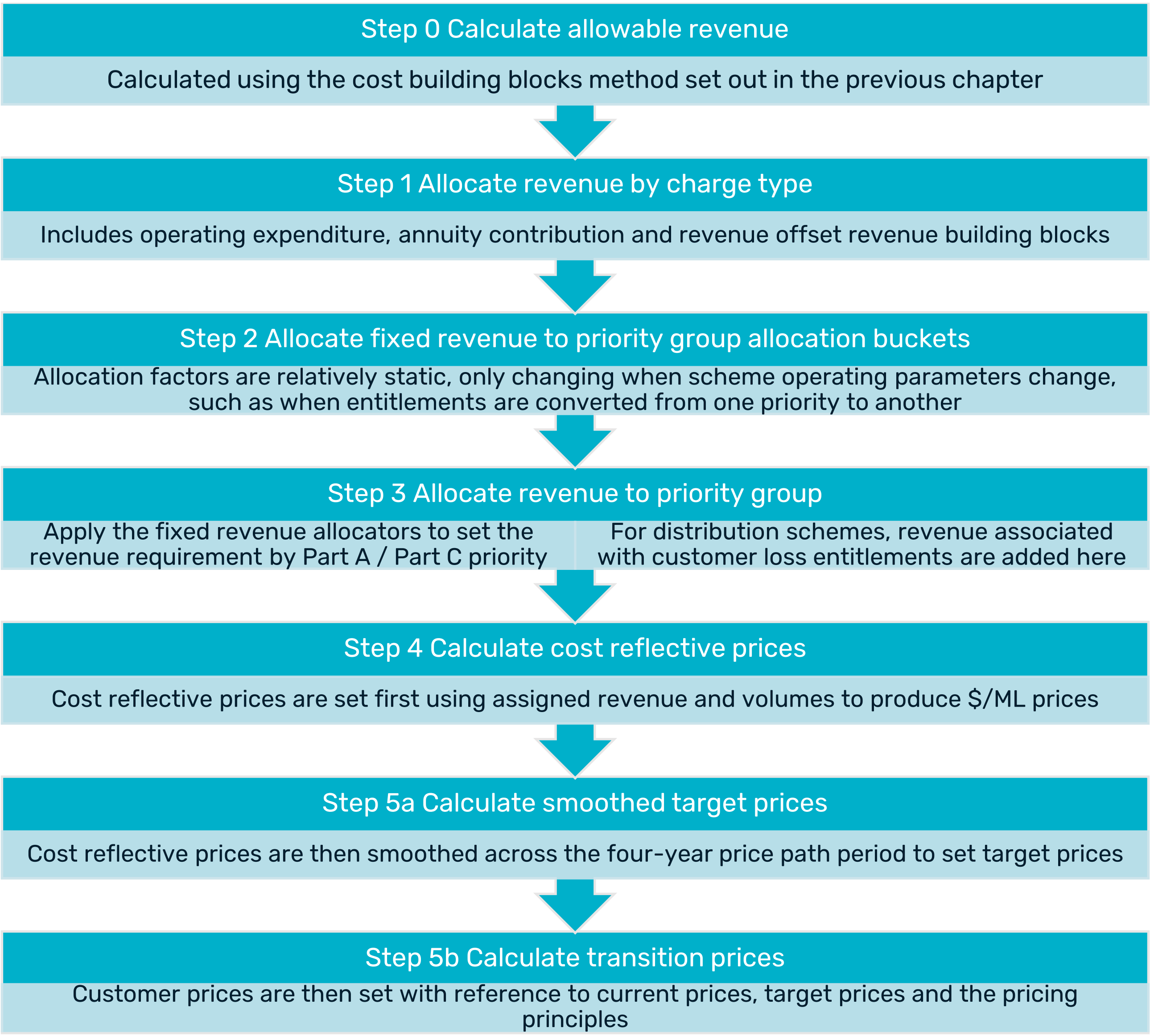
Table 52 - Irrigation tariff groups by scheme and service

<table>
<tr><th>Scheme</th><th>Service</th><th colspan="2">Tariff group</th><th>Review</th></tr>
<tr><td rowspan="7">Mareeba-Dimbulah</td><td>Access charge</td><td colspan="2">Access charge</td><td>✗</td></tr>
<tr><td>Water supply</td><td colspan="2">River Tinaroo/Barron</td><td>✗</td></tr>
<tr><td rowspan="5">Distribution</td><td colspan="2">River supplemented streams and Walsh River</td><td>✗</td></tr>
<tr><td colspan="2">Mareeba-Dimbulah – relift</td><td>✗</td></tr>
<tr><td rowspan="3">Mareeba-Dimbulah – outside a relift</td><td>Up to 100ML</td><td>✗</td></tr>
<tr><td>100ML to 500ML</td><td>✗</td></tr>
<tr><td>Over 500ML</td><td>✗</td></tr>
<tr><td rowspan="2">Bundaberg</td><td>Water supply</td><td colspan="2">Bundaberg</td><td>✗</td></tr>
<tr><td>Distribution</td><td colspan="2">Bundaberg Channel</td><td>✗</td></tr>
<tr><td rowspan="4">Burdekin Haughton</td><td>Water supply</td><td colspan="2">Burdekin Haughton</td><td>✗</td></tr>
<tr><td rowspan="3">Distribution</td><td colspan="2">Burdekin Channel</td><td rowspan="2">=</td></tr>
<tr><td colspan="2">Burdekin Channel – Glady's Lagoon</td></tr>
<tr><td colspan="2">Burdekin Channel – Giru Groundwater</td><td>✗</td></tr>
</table>

Table 54 - Irrigation tariff groups by scheme and service (continued)

Scheme	Service	Tariff group	*Review*
Nogoa Mackenzie	Water supply	Nogoa Mackenzie (high priority LMS)	=
		Nogoa Mackenzie (high priority)	
		Nogoa Mackenzie (medium priority LMS)	✗
		Nogoa Mackenzie (medium priority)	✗
Eton	Water supply	Eton (high A priority LMS)	✗
		Eton (high B priority LMS)	=
		Eton (high B priority)	
		Eton (Risk A priority) [new]	✗
St George	Water supply	St George (high priority LMS)	✗
		St George (medium priority LMS)	=
		St George (medium priority)	
Lower Mary	Water supply	Mary Barrage	✗
		Tinana & Teddington	✗
	Distribution	Lower Mary Channel	✗
Barker Barambah	Water supply	Barker Barambah - River	✗
		Barker Barambah – Redgate relift	✗
Bowen Broken Rivers	Water supply	Bowen Broken Rivers	✗
Boyne River and Tarong	Water supply	Boyne River and Tarong	✗
Callide	Water supply	Callide – Callide and Kroombit Creek	=
		Callide – Benefited Groundwater Area	
Chinchilla Weir	Water supply	Chinchilla Weir	✗
Cunnamulla	Water supply	Cunnamulla	✗
Dawson Valley	Water supply	Dawson Valley – River (high priority LMS)	=
		Dawson Valley – River (high priority)	
		Dawson Valley – River (medium priority LMS)	=
		Dawson Valley – River (medium priority)	
Lower Fitzroy	Water supply	Lower Fitzroy	✗
Macintyre Brook	Water supply	Macintyre Brook	✗
Maranoa	Water supply	Maranoa River	✗
Pioneer	Water supply	Pioneer River	✗
Proserpine	Water supply	Proserpine River	=
		Proserpine River – Kelsey Creek Water Board	
Three Moon Creek	Water supply	Three Moon Creek	
Upper Burnett	Water supply	Regulated Section of the Nogo/Burnett River	✗
		John Goleby Weir	✗
Upper Condamine	Water supply	Sandy Creek or Condamine River	✗
		North Branch	✗
		North Branch – Risk A	✗

Figure 33 - Step-by-step process for calculating prices



7.4 Proposed prices (RAB methodology)

The price calculation process described above results in proposed smoothed lower bound cost reflective prices for each year of the next price path period. Transition prices have also been calculated according to the methodology set out in the Notice of Referral.

For schemes where an electricity cost pass-through is proposed Sunwater has included cost reflective indicative Part E and Part F charges in its Scheme Summary documents. During the design of the proposed mechanism were clear with customers that we did not believe the calculation of a quarter-by-quarter price could be implemented in conjunction with the Pricing Principles contained in Schedule 2 of the Notice of Referral. For this reason there is no transition price proposed for the electricity cost pass through tariffs.

Proposed cost reflective and transition prices are shown for each irrigation tariff group in the following tables. These prices are also contained in the Scheme Summaries and the online customer bill calculator.

In the tables below cost reflective (or target) prices are shown against a ⦿ symbol, while transition prices are shown against a ➚ symbol.

For transparency and completeness, Sunwater has also produced prices for the next price path period under the alternate (annuity) building block methodology.

These are presented in **Appendix A.**

Table 53 - Proposed Cost Reflective Prices by tariff group – Mareeba-Dimbulah

Tariff group			Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Access charge ($/connection)				751.50	772.31	793.70	815.67	838.26
Part A ($/ML entitlements)	River Tinaroo/Barron		⊙	6.03	6.43	6.61	6.79	6.98
			↗	6.03	6.43	6.61	6.79	6.98
	River supplemented streams and Walsh River		⊙	6.03	6.43	6.61	6.79	6.98
			↗	5.90	6.43	6.61	6.79	6.98
	Mareeba-Dimbulah – relift		⊙	6.03	6.43	6.61	6.79	6.98
			↗	5.90	6.43	6.61	6.79	6.98
	Mareeba-Dimbulah – outside a relift	Up to 100ML	⊙	6.03	6.43	6.61	6.79	6.98
			↗	5.90	6.43	6.61	6.79	6.98
		100ML to 500ML	⊙	6.03	6.43	6.61	6.79	6.98
			↗	5.90	6.43	6.61	6.79	6.98
		Over 500ML	⊙	6.03	6.43	6.61	6.79	6.98
			↗	5.90	6.43	6.61	6.79	6.98
Part B ($/ML usage)	River Tinaroo/Barron		⊙	0.70	0.60	0.62	0.64	0.65
			↗	0.70	0.60	0.62	0.64	0.65
	River supplemented streams and Walsh River		⊙	0.70	0.60	0.62	0.64	0.65
			↗	0.68	0.60	0.62	0.64	0.65
	Mareeba-Dimbulah – relift		⊙	0.70	0.60	0.62	0.64	0.65
			↗	0.64	0.60	0.62	0.64	0.65
	Mareeba-Dimbulah – outside a relift	Up to 100ML	⊙	0.70	0.60	0.62	0.64	0.65
			↗	0.68	0.60	0.62	0.64	0.65
		100ML to 500ML	⊙	0.70	0.60	0.62	0.64	0.65
			↗	0.68	0.60	0.62	0.64	0.65
		Over 500ML	⊙	0.70	0.60	0.62	0.64	0.65
			↗	0.68	0.60	0.62	0.64	0.65
Part C ($/ML entitlements)	River supplemented streams and Walsh River		⊙	27.77	20.58	21.15	21.73	22.33
			↗	27.16	20.58	21.15	21.73	22.33
	Mareeba-Dimbulah – relift		⊙	57.44	42.66	43.84	45.06	46.31
			↗	51.02	42.66	43.84	45.06	46.31
	Mareeba-Dimbulah – outside a relift	Up to 100ML	⊙	58.92	47.33	48.75	50.21	51.71
			↗	57.63	47.33	48.75	50.21	51.71
		100ML to 500ML	⊙	51.96	42.15	43.43	44.74	46.09
			↗	50.82	42.15	43.43	44.74	46.09
		Over 500ML	⊙	40.34	33.52	34.56	35.62	36.72
			↗	39.46	33.52	34.56	35.62	36.72
Part D ($/ML usage)	River supplemented streams and Walsh River		⊙	3.87	4.50	4.63	4.75	4.89
			↗	3.79	3.99	4.63	4.75	4.89
	Mareeba-Dimbulah – relift		⊙	97.31	127.02	130.54	134.15	137.87
			↗	94.21	108.82	114.44	120.29	126.38
	Mareeba-Dimbulah – outside a relift	Up to 100ML	⊙	6.45	7.50	7.71	7.92	8.14
			↗	6.31	6.58	7.71	7.92	8.14
		100ML to 500ML	⊙	6.45	7.50	7.71	7.92	8.14
			↗	6.31	6.58	7.71	7.92	8.14
		Over 500ML	⊙	6.45	7.50	7.71	7.92	8.14
			↗	6.31	6.58	7.71	7.92	8.14

Table 54 - Proposed Cost Reflective Prices by tariff group – Bundaberg

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Bundaberg	⦿	13.43	17.63	18.12	18.62	19.13
	↗	13.13	16.03	18.12	18.62	19.13
Bundaberg Channel	⦿	13.43	17.63	18.12	18.62	19.13
	↗	13.13	16.03	18.12	18.62	19.13
Part B ($/ML usage)						
Bundaberg	⦿	1.11	1.50	1.55	1.59	1.63
	↗	1.08	1.11	1.55	1.59	1.63
Bundaberg Channel	⦿	1.11	1.50	1.55	1.59	1.63
	↗	1.08	1.50	1.55	1.59	1.63
Part C ($/ML entitlements)						
Bundaberg Channel	⦿	75.70	105.40	108.32	111.32	114.40
	↗	54.54	56.05	58.57	62.88	67.38
Part D ($/ML usage)						
Bundaberg Channel	⦿	59.39	53.80	55.29	56.82	58.40
	↗	58.08	53.80	55.29	56.82	58.40

Table 55 - Proposed Cost Reflective Prices by tariff group – Burdekin

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Burdekin Haughton	⦿	4.19	5.87	6.03	6.20	6.37
	↗	4.19	5.87	6.03	6.20	6.37
Burdekin Channel (incorporating Glady's Lagoon)	⦿	4.19	5.87	6.03	6.20	6.37
	↗	4.10	5.87	6.03	6.20	6.37
Burdekin Channel – Giru Groundwater	⦿	4.19	5.87	6.03	6.20	6.37
	↗	4.10	5.87	6.03	6.20	6.37
Part B ($/ML usage)						
Burdekin Haughton	⦿	0.37	0.76	0.78	0.80	0.82
	↗	0.37	0.76	0.78	0.80	0.82
Burdekin Channel (incorporating Glady's Lagoon)	⦿	0.37	0.76	0.78	0.80	0.82
	↗	0.36	0.76	0.78	0.80	0.82
Burdekin Channel – Giru Groundwater	⦿	0.37	0.76	0.78	0.80	0.82
	↗	0.36	0.37	0.38	0.39	0.40
Part C ($/ML entitlements)						
Burdekin Channel (incorporating Glady's Lagoon)	⦿	46.90	47.73	49.05	50.41	51.80
	↗	45.87	47.73	49.05	50.41	51.80
Burdekin Channel – Giru Groundwater	⦿	46.90	47.73	49.05	50.41	51.80
	↗	29.40	31.10	34.57	38.21	42.03
Part D ($/ML usage)						
Burdekin Channel (incorporating Glady's Lagoon)	⦿	25.44	20.30	20.87	21.45	22.04
	↗	24.88	20.30	20.87	21.45	22.04
Burdekin Channel – Giru Groundwater	⦿	25.44	20.30	20.87	21.45	22.04
	↗	16.43	16.88	17.35	17.83	18.33

Table 56 - Proposed Cost Reflective Prices by tariff group – Nogoa Mackenzie

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Nogoa Mackenzie (high priority) (incorporating LMS)	⊙	50.85	82.18	84.45	86.79	89.20
	↗	41.73	45.43	49.29	53.34	57.58
Nogoa Mackenzie (medium priority LMS)	⊙	7.25	12.51	12.86	13.22	13.58
	↗	7.09	9.83	12.71	13.22	13.58
Nogoa Mackenzie (medium priority)	⊙	7.25	12.51	12.86	13.22	13.58
	↗	7.25	9.99	12.86	13.22	13.58
Part B ($/ML usage)						
Nogoa Mackenzie (high priority) (incorporating LMS)	⊙	0.92	1.99	2.05	2.10	2.16
	↗	0.90	0.92	0.95	0.98	1.00
Nogoa Mackenzie (medium priority LMS)	⊙	0.92	1.99	2.05	2.10	2.16
	↗	0.90	0.92	0.95	2.10	2.16
Nogoa Mackenzie (medium priority)	⊙	0.92	1.99	2.05	2.10	2.16
	↗	0.92	0.95	0.99	2.10	2.16

Table 57 - Proposed Cost Reflective Prices by tariff group – Eton

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Eton (high A priority LMS)	⊙	136.91	161.01	165.47	170.05	174.76
	↗	133.91	140.16	146.65	153.39	160.40
Eton (high B priority) (incorporating LMS)	⊙	36.67	43.71	44.92	46.16	47.44
	↗	35.87	39.40	43.10	46.16	47.44
Part B ($/ML usage)						
Eton (high A priority LMS)	⊙	4.49	5.48	5.63	5.78	5.95
	↗	4.39	4.51	4.64	4.76	4.90
Eton (high B priority) (incorporating LMS)	⊙	4.49	5.48	5.63	5.78	5.95
	↗	4.39	4.51	4.64	5.58	5.95
100 per cent volumetric ($/ML usage)						
Eton (risk A priority) [new]	⊙/↗		1.91	2.08	2.25	2.33

Table 58 - Proposed Cost Reflective Prices by tariff group – St George

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
St George (high priority LMS)	⊙	40.84	42.16	43.32	44.52	45.76
	↗	39.94	42.16	43.32	44.52	45.76
St George (medium priority) (incorporating LMS)	⊙	25.03	27.31	28.06	28.84	29.64
	↗	24.48	27.31	28.06	28.84	29.64
Part B ($/ML usage)						
St George (high priority LMS)	⊙	1.19	1.63	1.68	1.73	1.77
	↗	1.16	1.63	1.68	1.73	1.77
St George (medium priority) (incorporating LMS)	⊙	1.19	1.63	1.68	1.73	1.77
	↗	1.16	1.58	1.68	1.73	1.77

Table 59 – Proposed Cost Reflective Prices by tariff group – Lower Mary

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Mary Barrage	⊙	6.79	7.84	8.06	8.28	8.51
	↗	6.79	7.84	8.06	8.28	8.51
Tinana & Teddington	⊙	19.26	25.26	25.95	26.67	27.41
	↗	19.26	22.33	25.56	26.67	27.41
Lower Mary Channel	⊙	6.79	7.84	8.06	8.28	8.51
	↗	6.64	7.84	8.06	8.28	8.51
Part B ($/ML usage)						
Mary Barrage	⊙	0.94	1.18	1.21	1.24	1.28
	↗	0.94	1.18	1.21	1.24	1.28
Tinana & Teddington	⊙	30.01	27.39	28.15	28.92	29.73
	↗	12.93	13.29	13.66	16.31	19.52
Lower Mary Channel	⊙	0.94	1.18	1.21	1.24	1.28
	↗	0.92	0.95	0.97	1.00	1.03
Part C ($/ML entitlements)						
Lower Mary Channel	⊙	60.39	116.60	119.83	123.15	126.56
	↗	59.07	62.23	66.56	71.09	75.81
Part D ($/ML usage)						
Lower Mary Channel	⊙	73.22	76.04	78.15	80.31	82.54
	↗	71.62	73.60	75.64	77.74	79.89

Table 60 - Proposed Cost Reflective Prices by tariff group – Barker Barambah

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Barker Barambah - River	⊙	47.63	50.57	51.97	53.41	54.89
	↗	38.51	42.12	45.89	49.85	53.98
Barker Barambah – Redgate relift	⊙	53.12	51.41	52.84	54.30	55.80
	↗	38.51	42.12	45.89	49.85	53.98
Part B ($/ML usage)						
Barker Barambah - River	⊙	4.65	8.85	9.10	9.35	9.61
	↗	4.55	4.68	4.81	4.94	5.08
Barker Barambah – Redgate relift	⊙	58.42	39.98	41.09	42.23	43.39
	↗	24.65	25.33	26.03	26.75	27.50

Table 61 - Proposed Cost Reflective Prices by tariff group – Bowen Broken

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Bowen Broken Rivers	⊙	7.80	9.76	10.03	10.31	10.59
	↗	7.80	9.76	10.03	10.31	10.59
Part B ($/ML usage)						
Bowen Broken Rivers	⊙	8.04	7.46	7.67	7.88	8.10
	↗	8.04	7.46	7.67	7.88	8.10

Table 62 - Proposed Cost Reflective Prices by tariff group – Boyne

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Boyne River and Tarong	⦿	19.05	18.10	18.60	19.12	19.65
	➚	19.05	18.10	18.60	19.12	19.65
Part B ($/ML usage)						
Boyne River and Tarong	⦿	2.14	3.27	3.36	3.45	3.55
	➚	2.14	2.20	3.36	3.45	3.55

Table 63 - Proposed Cost Reflective Prices by tariff group – Callide

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Callide (incorporating Callide and Kroombit Creek and Benefited Groundwater)	⦿	77.06	103.98	106.86	109.82	112.86
	➚	30.39	33.77	37.32	41.03	44.93
Part B ($/ML usage)						
Callide (incorporating Callide and Kroombit Creek and Benefited Groundwater)	⦿	9.71	13.27	13.64	14.02	14.41
	➚	9.50	9.76	10.03	10.31	10.60

Table 64 - Proposed Cost Reflective Prices by tariff group – Chinchilla Weir

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Chinchilla Weir	⦿	21.32	30.18	31.02	31.88	32.76
	➚	21.32	24.45	27.74	31.19	32.76
Part B ($/ML usage)						
Chinchilla Weir	⦿	4.03	5.40	5.55	5.70	5.86
	➚	4.03	4.14	4.26	4.37	5.86

Table 65 - Proposed Cost Reflective Prices by tariff group – Cunnamulla

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Cunnamulla	⦿	36.64	41.32	42.47	43.64	44.85
	➚	35.84	39.37	42.47	43.64	44.85
Part B ($/ML usage)						
Cunnamulla	⦿	2.12	1.40	1.44	1.48	1.52
	➚	2.07	1.40	1.44	1.48	1.52

Table 66 - Proposed Cost Reflective Prices by tariff group – Dawson Valley

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Dawson Valley – River (high priority) (incorporating LMS)	⦿	123.70	52.39	53.84	55.33	56.87
	↗	56.91	52.39	53.84	55.33	56.87
Dawson Valley – River (medium priority) (incorporating LMS)	⦿	23.65	13.66	14.04	14.43	14.83
	↗	23.13	13.66	14.04	14.43	14.83
Part B ($/ML usage)						
Dawson Valley – River (high priority) (incorporating LMS)	⦿	1.77	2.01	2.07	2.12	2.18
	↗	1.73	1.78	2.07	2.12	2.18
Dawson Valley – River (medium priority) (incorporating LMS)	⦿	1.77	2.01	2.07	2.12	2.18
	↗	1.73	1.78	2.07	2.12	2.18

Table 67 - Proposed Cost Reflective Prices by tariff group – Lower Fitzroy

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Lower Fitzroy	⦿	13.22	15.19	15.61	16.04	16.49
	↗	13.22	15.19	15.61	16.04	16.49
Part B ($/ML usage)						
Lower Fitzroy	⦿	1.08	1.73	1.78	1.83	1.88
	↗	1.08	1.73	1.78	1.83	1.88

Table 68 - Proposed Cost Reflective Prices by tariff group – Macintyre Brook

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Macintyre Brook	⦿	67.89	127.79	131.33	134.96	138.70
	↗	63.30	67.59	72.07	76.75	81.64
Part B ($/ML usage)						
Macintyre Brook	⦿	4.49	8.00	8.22	8.45	8.68
	↗	4.39	4.51	4.64	4.76	4.90

Table 69 - Proposed Cost Reflective Prices by tariff group – Maranoa

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Maranoa River	⦿	103.88	119.77	123.09	126.50	130.00
	↗	68.27	72.70	77.32	82.15	87.18
Part B ($/ML usage)						
Maranoa River	⦿	81.03	105.81	108.74	111.75	114.85
	↗	71.03	73.00	75.02	77.10	79.23

Table 70 - Proposed Cost Reflective Prices by tariff group – Pioneer

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Pioneer River	⦿	22.40	24.09	24.76	25.44	26.15
	↗	21.90	24.09	24.76	25.44	26.15
Part B ($/ML usage)						
Pioneer River	⦿	4.10	4.26	4.37	4.50	4.62
	↗	4.01	4.26	4.37	4.50	4.62

Table 71 - Proposed Cost Reflective Prices by tariff group – Proserpine

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Proserpine River (incorporating Kelsey Creek Water Board)	⦿	15.50	18.88	19.40	19.94	20.49
	↗	15.16	18.12	19.40	19.94	20.49
Part B ($/ML usage)						
Proserpine River (incorporating Kelsey Creek Water Board)	⦿	3.80	4.72	4.85	4.98	5.12
	↗	3.71	3.81	4.85	4.98	5.12

Table 72 - Proposed Cost Reflective Prices by tariff group – Three Moon Creek

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Three Moon Creek	⦿	55.72	78.44	80.61	82.85	85.14
	↗	37.25	40.82	44.56	48.48	52.58
Part B ($/ML usage)						
Three Moon Creek	⦿	6.61	11.34	11.66	11.98	12.31
	↗	5.22	5.36	5.51	5.67	5.82

Table 73 - Proposed Cost Reflective Prices by tariff group – Upper Burnett

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Regulated Section of the Nogo/Burnett River	⦿	47.31	47.98	49.31	50.67	52.07
	↗	43.59	47.34	49.31	50.67	52.07
John Goleby Weir	⦿	47.31	47.98	49.31	50.67	52.07
	↗	41.82	45.52	49.31	50.67	52.07
Part B ($/ML usage)						
Regulated Section of the Nogo/Burnett River	⦿	5.01	7.08	7.27	7.48	7.68
	↗	4.46	4.58	6.66	7.48	7.68
John Goleby Weir	⦿	5.01	7.08	7.27	7.48	7.68
	↗	4.46	4.58	4.79	7.48	7.68

Table 74 - Proposed Cost Reflective Prices by tariff group – Upper Condamine

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Sandy Creek or Condamine River	⊙	16.89	24.42	25.09	25.79	26.50
	↗	16.89	19.90	23.06	25.79	26.50
North Branch	⊙	16.97	25.55	26.26	26.99	27.73
	↗	16.97	19.98	23.14	26.47	27.73
North Branch – Risk A	⊙	14.17	23.29	23.93	24.60	25.28
	↗	13.86	16.78	19.86	23.09	25.28
Part B ($/ML usage)						
Sandy Creek or Condamine River	⊙	6.33	11.22	11.53	11.85	12.18
	↗	6.33	6.51	6.69	7.46	10.43
North Branch	⊙	21.16	31.85	32.73	33.64	34.57
	↗	19.14	19.67	20.21	20.77	23.57
North Branch – Risk A	⊙	21.16	31.85	32.73	33.64	34.57
	↗	20.69	21.26	21.85	22.46	24.29

7.4.1 CSO implications

The QCA's guidance paper asks Sunwater to consider the implications for the rural irrigation water price subsidy (CSO payment) of any business decision that impact on the expected revenue shortfall from irrigation prices. Sunwater's decision to propose the adoption of a RAB-based revenue requirement and prices has implications for the CSO payment which are summarised in **Table 75**. The annualised values have been calculated as the difference between the cost reflective and transition price, multiplied by total irrigation entitlements (and the assumed scheme usage for variable charges).

7.4.2 Proposed miscellaneous fees and charges

Sunwater also provides a range of other services to irrigators as introduced in **Section 6.4.3**. These charges are referred to as miscellaneous charges and fees and include:

- drainage / diversion charges
- early termination fees that apply, for example, when a distribution system entitlement is permanently transferred to another section of the scheme
- water harvesting charges

A more detail discussion on Sunwater's proposed price-setting approach is provided below.

Table 75 – Difference in expected CSO payments following shift to RAB approach ($'000s)

Expected CSO payment amounts	2025-26	2026-27	2027-28	2028-29
RAB approach				
Part A + Part C charges	$8,850	$8,567	$8,261	$7,931
Part B + Part D charges	$276	$196	$188	$179
Total revenue shortfall	*$9,126*	*$8,763*	*$8,449*	*$8,111*
Annuity approach				
Part A + Part C charges	$13,875	$12,634	$11,367	$10,303
Part B + Part D charges	$337	$346	$346	$356
Total revenue shortfall	*$14,212*	*$12,980*	*$11,713*	*$10,659*
Difference (RAB less annuity)	**-$5,086**	**-$4,217**	**-$3,264**	**-$2,548**

7.4.3 Drainage charges

This charge recover the cost of drainage services provided to customers in the Burdekin River drainage area as a result of farm run-off and stormwater. This charge is levied on applicable customers under section 993 of the *Water Act 2000* (Qld) and section 136 of the *Water Regulation 2016* (Qld).

From 1 July 2022, the Queensland Government introduced a new mechanism for how fees are updated annually to reflect indexation. All regulatory fees in legislation have changed from fee dollars to fee units, with the fee unit value prescribed in the *Acts Interpretation (Fee Unit) Regulation* 2022.

The fee unit value ($31.54 per hectare of irrigable land in 2023-24) is updated annually in line with the Government Indexation Rate (GIR) which Sunwater does not control. As outlined in **Section 6.4.3** Sunwater has assumed an inflation rate for the increase of its revenue from this source.

Sunwater's view is that the effort involved in developing an accurate bottom-up estimate to determine cost reflective drainages charges exceeds the likely benefit from doing so.

Diversion charge revenue is expected to be less than $4,000 per annum as set out in **Table 47**. This is separate to the drainage charge and recovers (in part) the costs of water use from the drainage network In the Burdekin-Haughton distribution system. These charges are increased by an inflation escalator in each year of the next price path period. The 2023-24 price is $187.71 per pump.

7.4.4 Early termination fee

The purpose of the Sunwater's termination fee is to provide revenue adequacy and protect existing customers from any price increases from the permanent transfer of entitlements. Sunwater proposes to make no changes to the calculation basis for this fee in the next price path period. In other words, Sunwater believes that it is appropriate for this fee to be calculated by multiplying the relevant cost reflective fixed charge by a multiplier of 11.

Maximum termination fees per tariff group are presented in **Table 76**. A termination fee for the Eton scheme was calculated at the 2020 Review as Sunwater, at that time, owned and managed the distribution service in that scheme. Eton has been removed from this table as Sunwater no longer owns and manages the distribution service.

7.4.5 Water harvesting charges

Sunwater currently holds distribution system water harvesting entitlements for the Burdekin-Haughton distribution system. The purpose of these charges is to recover the cost associated with distribution customers accessing water – in excess of their entitlements – from a channel or pipeline during authorised or announced high flow periods, such as flood events.

Sunwater proposes no change to the current pricing arrangements for distribution system water harvesting charges.

Table 76 - Maximum termination fees per tariff group ($/ML Entitlements – excluding GST)

Tariff group		2025-26	2026-27	2027-28	2028-29
Bundaberg Channel		$1,353	$1,391	$1,429	$1,469
Burdekin Channel		$590	$606	$623	$640
Burdekin Channel – Glady's Lagoon		$590	$606	$623	$640
Burdekin Channel – Giru Groundwater		$590	$606	$623	$640
Lower Mary – Tinana & Teddington		$278	$286	$293	$302
Lower Mary Channel		$1,369	$1,407	$1,446	$1,486
Mareeba-Dimbulah - River supplemented streams and Walsh River		$297	$305	$314	$322
Mareeba-Dimbulah – relift		$540	$555	$570	$586
Mareeba-Dimbulah – outside a relift	Up to 100ML	$591	$609	$627	$646
	100ML to 500ML	$534	$550	$567	$584
	Over 500ML	$439	$453	$467	$481

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Irrigation pricing proposal

1 July 2025 to 30 June 2029

Appendix A Proposed and recommended prices under an annuity methodology

Appendix A

Proposed and recommended prices under an annuity methodology

For transparency and completeness, Sunwater has produced prices for the next price path period under the alternate (annuity) building block methodology and set them out in this appendix.

Sunwater's price setting process results in proposed smoothed lower bound cost reflective prices for each year of the next price path period. Recommended prices have also been calculated according to the methodology set out in the Notice of Referral.

For schemes where an electricity cost pass-through is proposed Sunwater has included cost reflective indicative Part E and Part F charges in its Scheme Summary documents. During the design of the proposed mechanism we were clear with customers that we did not believe the calculation of a quarter-by-quarter price could be implemented in conjunction with the Pricing Principles contained in Schedule 2 of the Notice of Referral. For this reason there is no recommended price proposed for the electricity cost pass through tariffs.

Proposed cost reflective and recommended prices are shown for each irrigation tariff group in the following tables. These prices are also contained in the Scheme Summaries and the online customer bill calculator.

In the tables below cost reflective (or target) prices are shown against a ¤ symbol, while recommended (or transition) prices are shown against a ì symbol.

Table 1 - Proposed Cost Reflective Prices by tariff group – Mareeba-Dimbulah

Tariff group			Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Access charge ($/connection)				751.50	772.31	793.70	815.67	838.26
Part A ($/ML entitlements)	River Tinaroo/Barron		⊙	6.03	7.30	7.50	7.71	7.92
			↗	6.03	7.30	7.50	7.71	7.92
	River supplemented streams and Walsh River		⊙	6.03	7.30	7.50	7.71	7.92
			↗	5.90	7.30	7.50	7.71	7.92
	Mareeba-Dimbulah – relift		⊙	6.03	7.30	7.50	7.71	7.92
			↗	5.90	7.30	7.50	7.71	7.92
	Mareeba-Dimbulah – outside a relift	Up to 100ML	⊙	6.03	7.30	7.50	7.71	7.92
			↗	5.90	7.30	7.50	7.71	7.92
		100ML to 500ML	⊙	6.03	7.30	7.50	7.71	7.92
			↗	5.90	7.30	7.50	7.71	7.92
		Over 500ML	⊙	6.03	7.30	7.50	7.71	7.92
			↗	5.90	7.30	7.50	7.71	7.92
Part B ($/ML usage)	River Tinaroo/Barron		⊙	0.70	0.60	0.62	0.64	0.65
			↗	0.70	0.60	0.62	0.64	0.65
	River supplemented streams and Walsh River		⊙	0.70	0.60	0.62	0.64	0.65
			↗	0.68	0.60	0.62	0.64	0.65
	Mareeba-Dimbulah – relift		⊙	0.70	0.60	0.62	0.64	0.65
			↗	0.64	0.60	0.62	0.64	0.65
	Mareeba-Dimbulah – outside a relift	Up to 100ML	⊙	0.70	0.60	0.62	0.64	0.65
			↗	0.68	0.60	0.62	0.64	0.65
		100ML to 500ML	⊙	0.70	0.60	0.62	0.64	0.65
			↗	0.68	0.60	0.62	0.64	0.65

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29	Tariff group	Charge
		Over 500ML	⦿	0.70	0.60	0.62	0.64	0.65
			↗	0.68	0.60	0.62	0.64	0.65
Part C ($/ML entitlements)	River supplemented streams and Walsh River		⦿	27.77	32.42	33.31	34.24	35.19
			↗	27.16	29.21	32.63	34.24	35.19
	Mareeba-Dimbulah – relift		⦿	57.44	62.40	64.12	65.90	67.72
			↗	51.02	53.74	57.83	62.12	66.60
	Mareeba-Dimbulah – outside a relift	Up to 100ML	⦿	58.92	70.57	72.64	74.76	76.94
			↗	57.63	60.53	64.82	69.29	73.97
		100ML to 500ML	⦿	51.96	63.05	64.91	66.81	68.77
			↗	50.82	53.53	57.62	61.90	66.37
		Over 500ML	⦿	40.34	50.51	52.01	53.56	55.16
			↗	39.46	41.86	45.62	49.57	53.70
Part D ($/ML usage)	River supplemented streams and Walsh River		⦿	3.87	4.50	4.63	4.75	4.89
			↗	3.79	3.99	4.10	4.75	4.89
	Mareeba-Dimbulah – relift		⦿	97.31	127.02	130.54	134.15	137.87
			↗	94.21	96.88	99.56	102.31	105.15
	Mareeba-Dimbulah – outside a relift	Up to 100ML	⦿	6.45	7.50	7.71	7.92	8.14
			↗	6.31	6.58	6.76	6.95	7.14
		100ML to 500ML	⦿	6.45	7.50	7.71	7.92	8.14
			↗	6.31	6.58	6.76	6.95	7.14
		Over 500ML	⦿	6.45	7.50	7.71	7.92	8.14
			↗	6.31	6.58	6.76	6.95	7.14

Table 2 - Proposed Cost Reflective Prices by tariff group – Bundaberg

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Bundaberg	⦿	13.43	17.86	18.36	18.87	19.39
	↗	13.13	16.03	18.36	18.87	19.39
Bundaberg Channel	⦿	13.43	17.86	18.36	18.87	19.39
	↗	13.13	16.03	18.36	18.87	19.39
Part B ($/ML usage)						
Bundaberg	⦿	1.11	1.50	1.55	1.59	1.63
	↗	1.08	1.11	1.55	1.59	1.63
Bundaberg Channel	⦿	1.11	1.50	1.55	1.59	1.63
	↗	1.08	1.50	1.55	1.59	1.63
Part C ($/ML entitlements)						
Bundaberg Channel	⦿	75.70	114.92	118.10	121.37	124.73
	↗	54.54	56.05	58.33	62.63	67.12
Part D ($/ML usage)						
Bundaberg Channel	⦿	59.39	53.80	55.29	56.82	58.40
	↗	58.08	53.80	55.29	56.82	58.40

Table 3 - Proposed Cost Reflective Prices by tariff group – Burdekin

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Burdekin Haughton	⦿	4.19	6.87	7.06	7.26	7.46
	↗	4.19	6.85	7.06	7.26	7.46
Burdekin Channel (incorporating Glady's Lagoon)	⦿	4.19	6.87	7.06	7.26	7.46
	↗	4.10	6.75	7.06	7.26	7.46
Burdekin Channel – Giru Groundwater	⦿	4.19	6.87	7.06	7.26	7.46
	↗	4.10	6.75	7.06	7.26	7.46
Part B ($/ML usage)						
Burdekin Haughton	⦿	0.37	0.76	0.78	0.80	0.82
	↗	0.37	0.38	0.78	0.80	0.82
Burdekin Channel (incorporating Glady's Lagoon)	⦿	0.37	0.76	0.78	0.80	0.82
	↗	0.36	0.76	0.78	0.80	0.82
Burdekin Channel – Giru Groundwater	⦿	0.37	0.76	0.78	0.80	0.82
	↗	0.36	0.37	0.38	0.39	0.40
Part C ($/ML entitlements)						
Burdekin Channel (incorporating Glady's Lagoon)	⦿	46.90	53.77	55.26	56.79	58.36
	↗	45.87	47.14	50.93	55.03	58.36
Burdekin Channel – Giru Groundwater	⦿	46.90	53.77	55.26	56.79	58.36
	↗	29.40	30.21	33.54	37.15	40.94
Part D ($/ML usage)						
Burdekin Channel (incorporating Glady's Lagoon)	⦿	25.44	20.30	20.87	21.45	22.04
	↗	24.88	20.30	20.87	21.45	22.04
Burdekin Channel – Giru Groundwater	⦿	25.44	20.30	20.87	21.45	22.04
	↗	16.43	16.88	17.35	17.83	18.33

Table 4 - Proposed Cost Reflective Prices by tariff group – Nogoa Mackenzie

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Nogoa Mackenzie (high priority) (incorporating LMS)	⦿	50.85	88.06	90.50	93.01	95.58
	↗	41.73	45.43	49.29	53.34	57.58
Nogoa Mackenzie (medium priority LMS)	⦿	7.25	13.08	13.44	13.82	14.20
	↗	7.09	9.83	12.71	13.82	14.20
Nogoa Mackenzie (medium priority)	⦿	7.25	13.08	13.44	13.82	14.20
	↗	7.25	9.99	12.88	13.82	14.20
Part B ($/ML usage)						
Nogoa Mackenzie (high priority) (incorporating LMS)	⦿	0.92	1.99	2.05	2.10	2.16
	↗	0.90	0.92	0.95	0.98	1.00
Nogoa Mackenzie (medium priority LMS)	⦿	0.92	1.99	2.05	2.10	2.16
	↗	0.90	0.92	0.95	2.10	2.16
Nogoa Mackenzie (medium priority)	⦿	0.92	1.99	2.05	2.10	2.16
	↗	0.92	0.95	0.97	2.10	2.16

Table 5 - Proposed Cost Reflective Prices by tariff group – Eton

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Eton (high A priority LMS)	⦿	136.91	158.23	162.61	167.12	171.74
	↗	133.91	140.16	146.65	153.39	160.40
Eton (high B priority) (incorporating LMS)	⦿	36.67	43.04	44.23	45.46	46.71
	↗	35.87	39.40	43.10	45.46	46.71
Part B ($/ML usage)						
Eton (high A priority LMS)	⦿	4.49	5.48	5.63	5.78	5.95
	↗	4.39	4.51	4.64	4.76	4.90
Eton (high B priority) (incorporating LMS)	⦿	4.49	5.48	5.63	5.78	5.95
	↗	4.39	4.51	4.64	5.78	5.95
100 per cent volumetric ($/ML usage)						
Eton (risk A priority) **[new]**	⦿/↗		1.91	2.08	2.24	2.30

Table 6 - Proposed Cost Reflective Prices by tariff group – St George

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
St George (high priority LMS)	⦿	40.84	57.59	59.18	60.82	62.51
	↗	39.94	43.59	47.40	51.40	55.58
St George (medium priority) (incorporating LMS)	⦿	25.03	36.20	37.20	38.23	39.29
	↗	24.48	27.70	31.08	34.62	38.33
Part B ($/ML usage)						
St George (high priority LMS)	⦿	1.19	1.63	1.68	1.73	1.77
	↗	1.16	1.19	1.23	1.26	1.29
St George (medium priority) (incorporating LMS)	⦿	1.19	1.63	1.68	1.73	1.77
	↗	1.16	1.19	1.23	1.26	1.29

Table 7 - Proposed Cost Reflective Prices by tariff group – Lower Mary

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Mary Barage	⦿	6.79	9.80	10.07	10.35	10.64
	↗	6.79	9.52	10.07	10.35	10.64
Tinana & Teddington	⦿	19.26	30.27	31.11	31.97	32.86
	↗	19.26	22.33	25.56	28.95	32.51
Lower Mary Channel	⦿	6.79	9.80	10.07	10.35	10.64
	↗	6.64	9.36	10.07	10.35	10.64
Part B ($/ML usage)						
Mary Barage	⦿	0.94	1.18	1.21	1.24	1.28
	↗	0.94	0.97	1.21	1.24	1.28
Tinana & Teddington	⦿	30.01	27.39	28.15	28.92	29.73
	↗	12.93	13.29	13.66	14.03	14.42
Lower Mary Channel	⦿	0.94	1.18	1.21	1.24	1.28
	↗	0.92	0.95	0.97	1.00	1.03
Part C ($/ML entitlements)						
Lower Mary Channel	⦿	60.39	135.19	138.93	142.78	146.73
	↗	59.07	60.71	64.55	69.02	73.69
Part D ($/ML usage)						
Lower Mary Channel	⦿	73.22	76.04	78.15	80.31	82.54
	↗	71.62	73.60	75.64	77.74	79.89

Table 8 - Proposed Cost Reflective Prices by tariff group – Barker Barambah

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Barker Barambah - River	⦿	47.63	61.07	62.76	64.50	66.29
	↗	38.51	42.12	45.89	49.85	53.98
Barker Barambah – Redgate relift	⦿	53.12	61.91	63.63	65.39	67.20
	↗	38.51	42.12	45.89	49.85	53.98
Part B ($/ML usage)						
Barker Barambah - River	⦿	4.65	8.85	9.10	9.35	9.61
	↗	4.55	4.68	4.81	4.94	5.08
Barker Barambah – Redgate relift	⦿	58.42	39.98	41.09	42.23	43.39
	↗	24.65	25.33	26.03	26.75	27.50

Table 9 - Proposed Cost Reflective Prices by tariff group – Bowen Broken

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Bowen Broken Rivers	⦿	7.80	9.76	10.03	10.31	10.59
	↗	7.80	9.76	10.03	10.31	10.59
Part B ($/ML usage)						
Bowen Broken Rivers	⦿	8.04	7.46	7.67	7.88	8.10
	↗	8.04	7.46	7.67	7.88	8.10

Table 10 - Proposed Cost Reflective Prices by tariff group – Boyne

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Boyne River and Tarong	⦿	19.05	19.42	19.96	20.51	21.08
	↗	19.05	19.42	19.96	20.51	21.08
Part B ($/ML usage)						
Boyne River and Tarong	⦿	2.14	3.27	3.36	3.45	3.55
	↗	2.14	3.27	3.36	3.45	3.55

Table 11 - Proposed Cost Reflective Prices by tariff group – Callide

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Callide (incorporating Callide and Kroombit Creek and Benefited Groundwater)	⦿	77.06	112.53	115.65	118.85	122.14
	↗	30.39	33.77	37.32	41.03	44.93
Part B ($/ML usage)						
Callide (incorporating Callide and Kroombit Creek and Benefited Groundwater)	⦿	9.71	13.27	13.64	14.02	14.41
	↗	9.50	9.76	10.03	10.31	10.60

Table 12 - Proposed Cost Reflective Prices by tariff group – Chinchilla Weir

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Chinchilla Weir	⦿	21.32	31.30	32.17	33.06	33.98
	↗	21.32	24.45	27.74	31.19	33.98
Part B ($/ML usage)						
Chinchilla Weir	⦿	4.03	5.40	5.55	5.70	5.86
	↗	4.03	4.14	4.26	4.37	5.33

Table 13 - Proposed Cost Reflective Prices by tariff group – Cunnamulla

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Cunnamulla	⦿	36.64	53.52	55.00	56.52	58.09
	↗	35.84	39.37	43.07	46.95	51.01
Part B ($/ML usage)						
Cunnamulla	⦿	2.12	1.40	1.44	1.48	1.52
	↗	2.07	1.40	1.44	1.48	1.52

Table 14 - Proposed Cost Reflective Prices by tariff group – Dawson

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Dawson Valley – River (high priority) (incorporating LMS)	⦿	123.70	136.60	140.38	144.27	148.27
	➚	56.91	61.03	65.33	69.82	74.51
Dawson Valley – River (medium priority) (incorporating LMS)	⦿	23.65	27.01	27.75	28.52	29.31
	➚	23.13	26.31	27.75	28.52	29.31
Part B ($/ML usage)						
Dawson Valley – River (high priority) (incorporating LMS)	⦿	1.77	2.01	2.07	2.12	2.18
	➚	1.73	1.78	1.83	1.88	1.93
Dawson Valley – River (medium priority) (incorporating LMS)	⦿	1.77	2.01	2.07	2.12	2.18
	➚	1.73	1.78	2.07	2.12	2.18

Table 15 -Proposed Cost Reflective Prices by tariff group – Lower Fitzroy

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Lower Fitzroy	⦿	13.22	16.06	16.51	16.97	17.43
	➚	13.22	16.06	16.51	16.97	17.43
Part B ($/ML usage)						
Lower Fitzroy	⦿	1.08	1.73	1.78	1.83	1.88
	➚	1.08	1.17	1.78	1.83	1.88

Table 16 - Proposed Cost Reflective Prices by tariff group – Macintyre Brook

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Macintyre Brook	⦿	67.89	126.96	130.47	134.09	137.80
	➚	63.30	67.59	72.07	76.75	81.64
Part B ($/ML usage)						
Macintyre Brook	⦿	4.49	8.00	8.22	8.45	8.68
	➚	4.39	4.51	4.64	4.76	4.90

Table 17 - Proposed Cost Reflective Prices by tariff group – Maranoa

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Maranoa River	⦿	103.88	106.92	109.88	112.92	116.05
	➚	68.27	72.70	77.32	82.15	87.18
Part B ($/ML usage)						
Maranoa River	⦿	81.03	105.81	108.74	111.75	114.85
	➚	71.03	73.00	75.02	77.10	79.23

Table 18 - Proposed Cost Reflective Prices by tariff group – Pioneer

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Pioneer River	⦿	22.40	24.45	25.12	25.82	26.54
	↗	21.90	24.45	25.12	25.82	26.54
Part B ($/ML usage)						
Pioneer River	⦿	4.10	4.26	4.37	4.50	4.62
	↗	4.01	4.26	4.37	4.50	4.62

Table 19 - Proposed Cost Reflective Prices by tariff group – Proserpine

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Proserpine River (incorporating Kelsey Creek Water Board)	⦿	15.50	19.93	20.49	21.05	21.64
	↗	15.16	18.12	20.49	21.05	21.64
Part B ($/ML usage)						
Proserpine River (incorporating Kelsey Creek Water Board)	⦿	3.80	4.72	4.85	4.98	5.12
	↗	3.71	3.81	4.67	4.98	5.12

Table 20 - Proposed Cost Reflective Prices by tariff group – Three Moon Creek

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Three Moon Creek	⦿	55.72	78.71	80.89	83.13	85.43
	↗	37.25	40.82	44.56	48.48	52.58
Part B ($/ML usage)						
Three Moon Creek	⦿	6.61	11.34	11.66	11.98	12.31
	↗	5.22	5.36	5.51	5.67	5.82

Table 21 - Proposed Cost Reflective Prices by tariff group – Upper Burnett

Tariff group	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Regulated Section of the Nogo/Burnett River	⦿	47.31	54.49	55.99	57.54	59.14
	↗	43.59	47.34	51.26	55.36	59.14
John Goleby Weir	⦿	47.31	54.49	55.99	57.54	59.14
	↗	41.82	45.52	49.39	53.44	57.68
Part B ($/ML usage)						
Regulated Section of the Nogo/Burnett River	⦿	5.01	7.08	7.27	7.48	7.68
	↗	4.46	4.58	4.71	4.84	5.49
John Goleby Weir	⦿	5.01	7.08	7.27	7.48	7.68
	↗	4.46	4.58	4.71	4.84	4.97

Table 22 - Proposed Cost Reflective Prices by tariff group – Upper Condamine

Tariff groups	Charge	2024-25	2025-26	2026-27	2027-28	2028-29
Part A ($/ML entitlements)						
Sandy Creek or Condamine River	⊙	16.89	24.68	25.36	26.07	26.79
	↗	16.89	19.90	23.06	26.07	26.79
North Branch	⊙	16.97	25.81	26.53	27.26	28.02
	↗	16.97	19.98	23.14	26.47	28.02
North Branch – Risk A	⊙	14.17	23.29	23.93	24.60	25.28
	↗	13.86	16.78	19.86	23.09	25.28
Part B ($/ML usage)						
Sandy Creek or Condamine River	⊙	6.33	11.22	11.53	11.85	12.18
	↗	6.33	6.51	6.69	7.19	10.14
North Branch	⊙	21.16	31.85	32.73	33.64	34.57
	↗	19.14	19.67	20.21	20.77	23.29
North Branch – Risk A	⊙	21.16	31.85	32.73	33.64	34.57
	↗	20.69	21.26	21.85	22.46	24.29

sunwater

Irrigation pricing proposal

July 2025 to 30 June 2029

Appendix B Customer engagement report

Appendix B
Customer engagement report

Executive summary

Sunwater has taken a series of strategic steps over the past few years to place customers front of mind in our decision-making, particularly since the last price review. Our efforts have improved customer experience and deepened our understanding of customer needs and expectations. The engagement program designed to support the development of this pricing proposal built on these solid foundations.

Both iterative and responsive, the program allowed for co-design of key elements as well as a degree of flexibility to respond to emerging insights or changing circumstances. Using a variety of channels, we ensured that every customer in every scheme had the best opportunity to engage directly on the issues that mattered most to them. While specific activity was necessary to support developing our pricing proposal, the overall program leveraged existing engagement activities and relationship owners as much as possible to reduce barriers to engagement.

To understand how best to deliver on customer values and priorities, we engaged over three distinct stages. Sunwater was responsive to what we learned from customers in each stage, refining activities and content for the next stage and ensuring these insights helped shape our pricing proposal.

Sunwater identified several topics that customers could influence where we could deliver against customer values and expectations:

- Changing the way Sunwater recovers renewals expenditure from irrigation prices.
- Introducing an electricity cost pass-through mechanism for irrigation schemes that could benefit from a change in the way electricity costs are factored into their prices.
- Changing the way Sunwater reports to irrigation customers on the way it is performing against operating and renewals expenditure allowances, revenue, prices, service standards and assets.
- Specifically for the Eton water supply scheme, the treatment of medium priority entitlements for pricing purposes.

The outcome of effectively implementing the engagement program to support our pricing proposal, as detailed in this report, is that Sunwater customers:

- have been fully informed of the price review process and had every opportunity to participate in, and respond to, Sunwater's pricing proposal
- have reviewed and informed the service standards, operating expenditure, renewals expenditure, and pricing that apply to their scheme
- elected to support changes to the way Sunwater does things that relate to them and their scheme (i.e., transition to a RAB-based renewals funding model, adoption of an electricity cost pass-through mechanism, and an update to Service and Performance Plan reporting

- better understand the emphasis Sunwater has placed on ensuring our cost forecasts represent only prudent and efficient spend to address customer concerns about rising prices across all services, not just their irrigation services.

With reference to the QCA's guidelines and expectations around engaging with customers, Sunwater's engagement program had the following impact on our pricing proposal:

- Customers do not support changes to current service standards – Sunwater therefore developed our expenditure proposals based on meeting current service standards.
- There was no willingness to pay for increased levels of service, or desire for a cost saving (where possible) for a lower level of service.
- Sunwater discussed performance with our customers as part of the expenditure discussions and customers supported an improved method for performance monitoring. Sunwater has proposed this method (and included an example report) in the submission for review.
- Customers were able to scrutinise and challenge Sunwater's proposed costs. We committed to embedding efficiencies in our proposals (and in business processes) where possible and propose increasing our efficiency target for the next price path to 0.5 per cent, up from 0.2 per cent in the current price path, to drive Sunwater to continue to meet customer expectations that Sunwater manage costs and achieve better outcomes for customers.
- Sunwater engaged with Eton customers on the changes proposed to their tariff structure. These changes were supported and are proposed by Sunwater as part of our pricing proposal.
- Sunwater is aware of a desire by some Burdekin customers to review their tariff structure, noting other Burdekin customers are unsupportive of changes. Sunwater's position is that the QCA addressed the issue in its last review and in the absence of customer agreement in the scheme, the issue of tariff reform has not been pursued.

Overleaf is a visual overview of the engagement undertaken for this pricing proposal, highlighting foundational initiatives that contributed to its effectiveness in informing our best pricing proposal yet.

sunwater

Our customer engagement journey

Sunwater has taken strategic steps to place customers front of mind in our decision-making, particularly since the previous irrigation price review

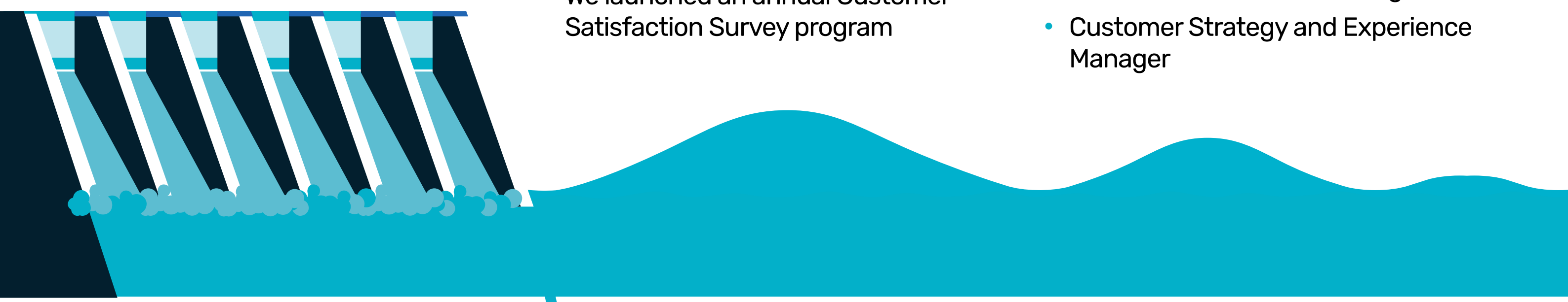
Corporate strategy
We committed to becoming a customer-centric organisation

Customer Charter
We published a pledge to customers

Customer feedback
We launched an annual Customer Satisfaction Survey program

Organisational structure
Senior roles were created to enhance customer focus, including:

- Executive General Manager, Customer and Stakeholder Relations
- Stakeholder Relations Manager
- Customer Strategy and Experience Manager



Enhancing engagement

- Launched Customer Advisory Committees in six schemes and continued to host Irrigator Advisory Committee meetings
- Established Community Reference and Working Groups for specific projects and scheme issues
- Launched the Customer Experience and Regional Tour Program to build deeper connections between employees and customers
- Undertook an irrigation customer segmentation project to identify the different ways customers want to be engaged
- Working with customers in energy intensive schemes, trialled an electricity cost pass-through mechanism

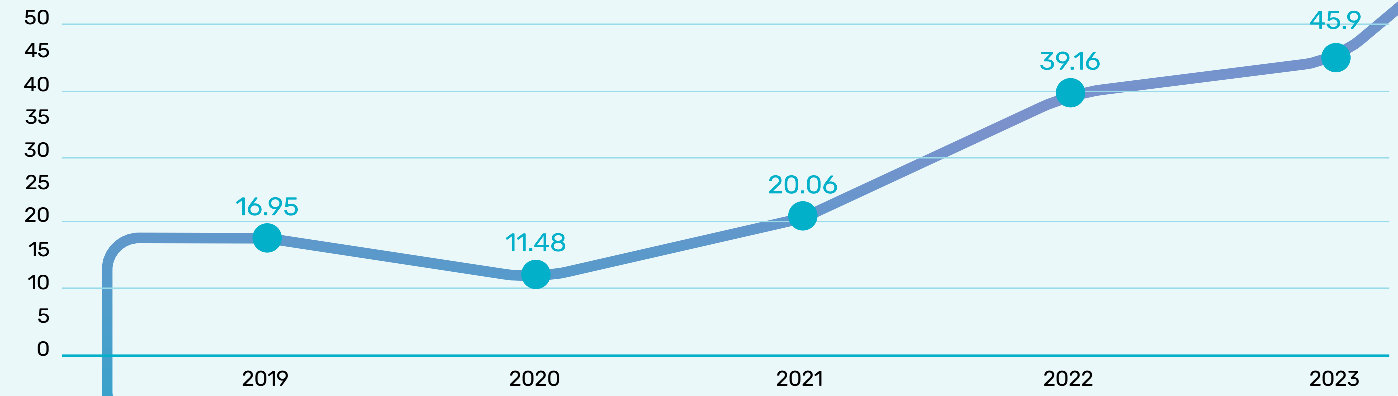
Establishing solid foundations

- Developed engagement principles, a Stakeholder Engagement Policy and a Customer Communication Procedure
- Embedded dedicated stakeholder management planning into operational and project work
- Established a customer compliments, complaints and feedback process
- Launched the Sunwater First Nations Commitment Statement framing the way we want to work with the Aboriginal and Torres Strait Islander community, including as customers

Improvement initiatives

- Launched Sunwater Online – convenient 24/7 digital transaction access to:
  - meter readings
  - out of allocation events
  - invoices
  - water orders
  - contact details
- Undertook a meter upgrade program
- Improved our customer communication templates including our end of water year newsletters and Service and Performance plans
- Committed to a billing system upgrade

Customer satisfaction score



Engaging on Irrigation Price Path 1 July 2025 – 30 June 2029

Stage 1 – March to May 2023

Learn how irrigation prices are set and how you can be involved

- Established a dedicated project website and email
- All Sunwater irrigation customers invited to price path forums
- 21 face-to-face scheme forums
- 1 all-schemes online forum
- 3 Consultative Committee meetings
- 25 scheme-specific factsheets
- 22 scheme-specific presentations*

To provide advice and assurance, Sunwater established a Consultative Committee with representatives from:

- Queensland Farmers' Federation
- Cotton Australia
- Canegrowers Queensland
- Queensland Fruit & Vegetable Growers

Stage 2 – June and July 2023

First look at Sunwater's proposed costs and irrigation prices for each scheme

Sunwater asked customers to consider the following proposals and provide feedback:

1 **Changes to Service and Performance Plans**

2 **Changes to the way renewals expenditure is recovered through irrigation prices**

3 **A permanent, symmetrical electricity cost pass-through (ECPT) mechanism in seven schemes**

- Interviewed on ABC Country Hour
- 17 face-to-face scheme forums
- 3 scheme-specific follow up online forums
- 1 all-schemes online forum
- 2 Consultative Committee meetings
- 25 scheme-specific factsheets
- 22 scheme-specific presentations*
- 3 proposal factsheets
- 5 scheme-specific ECPT factsheets

Calculator
Online tool allowed customers to calculate their prices under the current and proposed renewals recovery methodologies

GoVote
Independent platform allowed customers to provide direct, anonymous feedback about Sunwater's three proposals

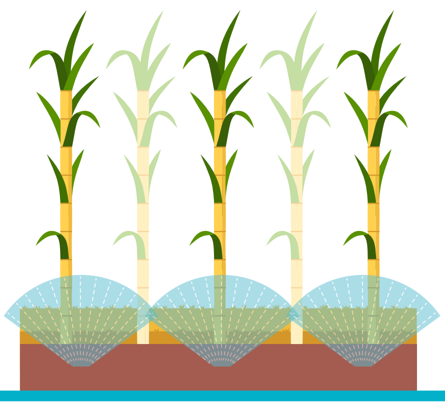
Through GoVote customers told us

- They are in favour of a Service and Performance Plan refresh
- They generally support shifting to a new approach to renewals recovery
- The relevant tariff groups within Bundaberg, Burdekin Haughton, Eton, Lower Mary and Mareeba Dimbulah Water Supply Schemes favour a permanent ECPT

Stage 3 – August to November 2023

Sunwater's final pricing proposal

- Customer feedback on prices and proposals considered
- 17 face-to-face scheme forums
- 1 all-schemes online forum
- 3 Consultative Committee meetings
- 22 scheme-specific presentations*
- 22 scheme-specific summaries
- Individual responses provided to all formal correspondence
- Customers reconsidered support of ECPT proposal



4372 Customers engaged

371 Attendees at forums

369 Customers provided feedback via GoVote about renewals and Service and Performance Plan proposals

178 Customers provided feedback via GoVote about ECPT proposal

77 Presentations produced

61 Forums held

58 Factsheets produced

8 Consultative Committee meetings held

*Including four distribution networks

The engagement planning process

Sunwater has changed considerably over the last four years. We have implemented regular, ongoing engagement with customers in scheme; introduced improvement initiatives to enhance customer experience; and established feedback mechanisms to monitor the effectiveness of these initiatives and identify new opportunities.

This focus on leading practice engagement was driven by new leadership and a shift in strategic direction, and informed by feedback received from the QCA after the 2020 review (set out below), which we responded to:

Table 1 - How Sunwater responded to feedback from the QCA on our engagement practices

Recommendation	Examples of how we have addressed the QCA's recommendation
Engage with customers on an ongoing basis, to keep a strong focus on what is important to customers over the course of the Price Path period and to provide a better understanding of customer requirements prior to the next price review	• Introduced six Customer Advisory Committees (CAC) in the Burdekin Haughton, Chinchilla, Nogoa Mackenzie, Dawson Valley, Lower Mary, and Upper Condamine schemes. • Continued Irrigation Advisory Committee (IAC) meetings where schemes are yet to transition to the CAC structure. • Conducted annual and mid-year customer surveys and identified opportunities for improvement. • Implemented portal chat, a Sunwater app, and a Water Trading Board as tools to enhance customer experience. • Rolled out a Customer Experience and Regional Tour Program for employees to connect with customers. • Implemented scheme-specific reference/working groups to address specific issues impacting customers.
Draw a clearer link for customers between proposed expenditure and both prices and service level outcomes for customers	• Delivered annual scheme-specific Service and Performance plans (S&PPs) and notified all irrigation customers. • Discussed S&PPs at IAC meetings and CACs. • Planned for price path engagement – content included customer education on how prices are developed, operational and renewals expenditure inputs (and renewals cost recovery methodology) and value for money considerations.
Engage with customers prior to the next price review to develop a pricing proposal that incorporates its proposed prices for all its tariff groups with irrigation customers	• This pricing proposal (and the engagement activities that have informed it) address this recommendation.

Regulatory requirements

In its pre-lodgement advice for this price review, the QCA outlined the following expectations of Sunwater's engagement program:

- Structure engagement to gain a better understanding of customer needs.
- Focus engagement on matters that customers value and can influence.
- Ensure ongoing engagement that occurs within timeframes to inform decision-making.
- Ensure engagement informs the business's planning and decision making.

The QCA also offered the following incentives tied to exceptional engagement practice:

- Procedural incentives – streamlining the prudency and efficiency assessment of costs where the business can demonstrate effective engagement.
- Reputational incentives – providing an assessment of the quality of engagement in the QCA's draft and final reports.

Timing

While Sunwater was already engaging more effectively with stakeholders aligned with our enterprise-level commitment to leading practice engagement, this review provided an opportunity for focused engagement on matters of pricing and policy that are material to customers.

Essentially a continuation of our ongoing stakeholder engagement efforts, we leveraged existing forums and customer relationships owners and built on foundational customer work embedded over the past few years. In this way, we ensured that through delivering what we believe to be the most comprehensive engagement program of any regulated business in Australia, learnings could be integrated more broadly and provide longer term benefits for our customers.

Content

In determining what topics to engage on, we considered matters of importance to our customers as well as issues with the potential to significantly influence service provision, costs, and prices.

We also looked to reflect the seven key customer values and priorities we had established through ongoing customer engagement:

1. Price, affordability and value for money.
2. Trust that Sunwater is managing the business responsibly on their behalf, controlling costs, managing assets responsibly and keeping prices as low as possible for them.
3. Water security and availability.
4. Service reliability and minimal interruptions.
5. Water quality and fit for purpose services.
6. Sustainability for the future.
7. Personal customer service – not automated, not computerized but actual people to talk to when customers need something.

These values and priorities were validated during or our three-stage program to ensure the right information was informing our decisions.

Part of our strategy was to ensure customers had a clear understanding of what drives the costs Sunwater incurs in providing the levels of service customers want, and how this influences the prices customers pay.

Design

The program was designed to be delivered in three stages to ensure irrigation customers were fully informed at every stage and consulted on key matters they could influence. More specifically, the design ensured methods were chosen that reflected:

- customer values and priorities
- Sunwater's engagement principles (Figure 1)
- the International Association of Public Participation's (IAP2) Spectrum of Public Participation (Figure 2)
- expressed communication channel preferences
- testing with the Consultative Committee
- ongoing feedback from customers throughout on how Sunwater could engage better and what information was required.

Figure 1 – Sunwater's principles of engagement, embedded in our enterprise-wide Stakeholder Engagement Policy

Proactive
We are proactive and visible in managing Sunwater's corporate footprint. We engage early and maintain contact with our stakeholders, even during periods of limited activity.

Open and transparent
Our engagement is based on what can be achieved and opportunities to improve outcomes. Open communication means our stakeholders can provide informed comment and our transparency means we accurately evaluate and report on our activities.

The big picture
We engage with stakeholders in a way that considers the social environment in which we operate. We work towards understanding the interconnections between our communities and our activities .

Two-way communication
We listen to all of our stakeholders and validate their ideas, and look for ways to collaborate to find solutions.

Responsive
We continually track our stakeholders' needs and expectations and ensure their insighs inform our actions. All of our contact has a purpose and we act on the feedback we receive and deliver on the commitments we make.

Figure 2 – The IAP2 Spectrum

IAP2 Spectrum of Public Participation

iap2 international association for public participation

IAP2's Spectrum of Public Participation was designed to assist with the selection of the level of participation that defines the public's role in any public participation process. The Spectrum is used internationally, and it is found in public participation plans around the world.

INCREASING IMPACT ON THE DECISION

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Table 2 - Sunwater's engagement strategy to inform this pricing proposal

Goal	To demonstrate Sunwater is an organisation that respects its customers, understands its business, and involves stakeholders to achieve sustainable, commercial outcomes. To understand what Sunwater can do to deliver on customer values and priorities (see Content above) through its pricing proposal. To deliver on those commitments for its customers.		
Key approaches	Provide multiple opportunities and channels for irrigation customers to engage with Sunwater as the irrigation pricing proposal is developed	Early engagement with customers in each scheme to outline the proposal development process and test engagement opportunities and channels (three stage engagement strategy)	The formation of a committee with representatives from key influencer organisations (Consultative Committee Terms of Reference attached as Appendix 2)
Objectives	• Raise and sustain awareness of the review and its impacts. • Ensure customers understand Sunwater's proposal and can give feedback. • Promote understanding of the approach Sunwater has adopted to specific feedback. • Foster agreement between Sunwater and its customers, where possible • Protect long term relationships.		
Desired outcomes	• Price path activities complement and build on business-as-usual and project engagement. • Customers agree that Sunwater's process provided the opportunity to give direct feedback and that feedback was responded to. • Customers and other stakeholders are not surprised by the content of Sunwater's submission.		

Testing

One of the key approaches in the engagement program was the formation of a Consultative Committee in conjunction with the Queensland Farmers' Federation. Chaired by two Sunwater Executives and comprising representatives from the Queensland Farmers' Federation, Canegrowers Queensland, Cotton Australia and Queensland Fruit & Vegetable Growers, the committee provided an advisory and assurance role throughout the price path consultation period.

One of the first things we did with the Consultative Committee was test our thinking around the three stages of engagement planned. The committee also played an active role in co-designing the electricity cost pass-through (ECPT) mechanism proposed to customers. Co-design is a method linked with the 'Collaborate' level of participation on the IAP2 Spectrum (Figure 2) and can only be effective where an organisation has a genuine commitment to being influenced by stakeholders. The operation of the committee attests to Sunwater understanding the purpose, level of impact and degree of complexity of the matters under consideration and relinquishing a degree of control to achieve a better outcome.

The committee met monthly from March to November 2023, with presentations by Sunwater subject matter experts generating robust discussions and feedback on Sunwater's costs and proposed prices and Sunwater's proposed policy changes, specifically the proposal to move from an annuity-based renewals cost recovery methodology to a regulated asset base (RAB) methodology.

In addition to their involvement in monthly meetings, committee members promoted customer participation in Sunwater's process. The Queensland Farmers' Federation released a communique to its members, and the Chief Executive Officer of Queensland Fruit & Vegetable Growers authored a piece in Queensland Country Life urging Sunwater allocation holders to prioritise understanding the price path consultation process and provide feedback.

Matters

The engagement program was designed to focus on the matters set out by the QCA in its Guidelines for Pricing Proposal issued in March 2023.

These included:

- deliverables and service levels
- actual and proposed cost inputs
- price targets and proposed prices.

In addition, Sunwater proposed three changes to the regulatory framework within which it delivers services to customers and allowed for significant customer influence:

- Changes to Service and Performance plans (performance monitoring).
- Changes to the way renewals expenditure is recovered through irrigation prices.
- A permanent, symmetrical ECPT mechanism in seven schemes.

The table below sets out the reasons why these proposals were selected for consultation with customers and possible inclusion in our pricing proposal.

Table 3 - Matters for engagement and reasons

Matter	Reasoning
Changes to the way renewals expenditure is recovered through irrigation prices	The benefits of a RAB approach to customers include closer price alignment with actual renewals expenditure by recovering expenditure forecast for the short-term price path periods rather than a 33-year annuity forecast period; greater certainty in forecasting; increased accuracy in any efforts Sunwater makes to improve its forecasting processes; and generational equity (those benefiting from the asset at the time pay) as a result.
A permanent, symmetrical ECPT mechanism in seven schemes	The six schemes that have taken part in the ECPT trial reported positive feedback about understanding the actual cost of electricity. The nature of this proposal being scheme by scheme allowed for individual consideration of the benefits and risks.
Changes to Service and Performance plans	Sunwater's S&PPs are an important mechanism to bolster internal monitoring, reporting, and accountability. The right framework incentivises action and outcomes for customers. Sunwater recognised improvements we could make to our reporting and monitoring framework that would deliver greater benefits to customers through increased accountability.

Stage 1: Inform

Timing

March to May 2023

Purpose

This stage was designed to educate customers on the price review process and how Sunwater would be developing our pricing proposal. Customers were advised of key dates and the process that Sunwater would follow to identify issues, present material, and seek customer views.

Content

Communication at this stage focused on the following:

- Price review process and key dates.
- Sunwater's proposed engagement program and how it will inform the development of the pricing proposal.
- Ways customers could engage over the engagement process.
- Scheme specific overviews of the price setting process with actual price setting data.

Materials

Supporting materials prepared for this stage detailed current tariffs and the price setting process that develops them:

- 25 scheme-specific fact sheets[1]
- 22 scheme-specific presentations[2]
- 1 online forum presentation

Sunwater also established a project email address and dedicated project website - www.sunwater.com.au/projects/price-path/ - and advised all customers that the website would be the hub for available materials during the process, accessible to them in an ongoing way.

Activities

Activities hosted during this stage that covered the content and utilised materials:

- 21 face-to-face scheme forums
- 1 all-schemes online forum
- 3 Consultative Committee meetings

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[1] No fact sheet was prepared for Maranoa as scheme customers neither receive nor pay for an irrigation service due to long-standing issues with the condition of the scheme's weir.

[2] Sunwater operates 22 bulk and four distribution schemes. For the four schemes that have bulk and distribution Sunwater combined presentations for these schemes to ensure customers in those schemes had access to all relevant information.

Who was engaged

Sunwater invited all irrigation customers to forums in their scheme and the all-schemes online forum using SMS, email, and post (as determined by contact preference on customer account profiles).

No face-to-face meetings were scheduled for Pioneer River, Maranoa, and Cunnamulla because these schemes each have a small number of customers who we were able to contact directly about the process and the opportunities to provide feedback.

The number of customers engaged during Stage 1 is set out by scheme in the table below.

Table 4 - Customer participation during Stage 1 by scheme

Forum details	Water supply scheme	Number of customers in scheme	Number of attendees
21 face-to-face sessions were organised in 19 water supply schemes, with all irrigation customers within these schemes were invited ***"Learn how irrigation prices are set and how you can be involved in influencing Sunwater's pricing submission to the QCA."***	Callide Valley	127	6
	Dawson Valley	94	8
	Lower Fitzroy	7	0
	Nogoa Mackenzie meeting 1	308	0
	Nogoa Mackenzie meeting 2		4
	Proserpine River	83	8
	Bowen Broken Rivers	7	0
	Eton	302	4
	Mareeba-Dimbulah	1106	10
	Barker Barambah	150	9
	Upper Burnett	141	5
	Boyne River and Tarong	49	3
	Three Moon Creek	88	14
	Bundaberg meeting 1	1015	5
	Bundaberg meeting 2		4
	Lower Mary River	160	1
	Burdekin Haughton	312	14
	Chinchilla Weir	23	0
	Upper Condamine	112	6
	Macintyre Brook	86	5
	St George	175	6
Teams meeting, all customers invited	All schemes (including Pioneer River, Cunnamulla, Maranoa)	4372	12
	Total attendees for Stage 1 forums		**124**

Outcomes

While Stage 1 was largely an informative stage to educate customers on the price review process and the upcoming stages of engagement, insights were still gathered that helped inform the further development of engagement activities and the pricing proposal. These insights and outcomes were fed back to the project team to inform the development of the pricing proposal.

Engagement program

No customers attended the face-to-face forums in the Lower Fitzroy and Bowen Broken schemes in Stage 1. Given the small number of customers in these two schemes, Sunwater attempted to contact each customer individually prior to the Stage 1 meetings to encourage them to attend. While some interest was noted during these conversations, no customers attended. As a result, Sunwater made the decision to only offer online meetings in stages 2 and 3 for these schemes.

The two extra forums we held in two geographically large schemes (Nogoa Mackenzie and Bundaberg) were not well attended, so the decision was made to only conduct one forum in each scheme in stages 2 and 3.

Pricing proposal

During engagement activities customers were very clear that the rising cost of doing business was a major concern for them. This informed early efforts in developing the pricing proposal, notably a continued focus on ensuring prudent and efficient expenditure and a need for Sunwater to identify proactive actions that could be taken to bring costs down for customers as part of the development of our pricing proposal. Actions taken based on this feedback include:

- engagement of external consultants to undertake a prudency and efficiency review as part of Sunwater's proposal development process
- increasing Sunwater's efficiency target to 0.5 per cent, up from 0.2 per cent in the current price path.

Stage 2: Consult

The detail of this stage of our engagement program evolved as we engaged with customers, based on feedback and analysis of Stage 1, and workshopping the proposals with the Consultative Committee.

Timing

June and July 2023

Purpose

In this stage the focus was on sharing Sunwater's draft costs and draft prices for each scheme; outlining the cost pressures Sunwater is experiencing and absorbing; and explaining how we work to keep costs as low as possible within our regulatory context while exercising our values.

We also introduced three proposals to customers in this stage.

Content

Communication at this stage focused on the following:

- Operating environment context and current cost context by cost category (including historical and forecast costs).
- What customers value in their irrigation service.
- Service standards by scheme (excluding service levels Sunwater is required to meet by law or regulation).
- Initial operating expenditure and renewals expenditure costs by scheme.
- The simple and transparent forecasting methods used to derive cost forecasts (e.g., base year opex methodology, renewals forecasting as well as the difference between RAB and annuity forecasting with revenue and price impacts).
- Price setting process/calculation (by year and per scheme).
- Preliminary cost reflective (price targets) and proposed prices for each scheme.
- Three proposals for customer consideration and feedback:
    - changes to Service and Performance plans
    - changes to the way renewals expenditure is recovered through irrigation prices
    - a permanent, symmetrical ECPT mechanism in seven schemes.

We explained the challenging operating environment; cost impacts – inflation (higher than QCA expected when it set current cost allowances and prices), labour (to meet emerging risks and obligations) and insurance; the cost allocation process; operating expense forecasts methodology; indirect costs; and renewals expenditure forecasts. We explained Sunwater's approach to minimising costs and how, at scheme level, customer service standards drive the work we do and influence our operations and maintenance costs.

Materials

Supporting materials prepared for this stage provided draft costs and prices and outlined the proposals being put to customers:

- 25 scheme-specific fact sheets
- 3 proposals fact sheets
- 5 ECPT scheme-specific fact sheets
- 22 scheme-specific presentations
- 1 online forum presentation

Sunwater also launched an online customer bill calculator. Using the calculator, a customer could enter their entitlement holding and expected usage and see their annual bill under both a RAB- and an annuity-based approach. This was important for customers to understand the expected pricing impact of moving to a RAB-based approach.

These materials can be accessed here: www.sunwater.com.au/projects/price-path/

Activities

Activities hosted during this stage that covered the content and utilised materials:

- 17 face-to-face forums
- 1 online forum presentation for all schemes
- 3 scheme-specific online forums
- 2 Consultative Committee meetings

As one way of evaluating preferences for the three proposals, Sunwater used a collaborative method of participation – an online voting system called GoVote – to capture de-identified, quantified customer feedback. All Sunwater irrigation customers were invited to lodge preferences about the renewals recovery and Service and Performance Plan proposals, and customers within eligible tariff groups in the seven schemes where an ECPT mechanism was proposed were invited to lodge their preference about that proposal.

Hundreds of customers took the opportunity to utilise the GoVote system with:

- 369 customers providing feedback on the RAB-based approach and reporting refresh proposals
- 178 customers providing feedback on the ECPT mechanism specific to their scheme.

In the specific case of the ECPT proposal, customers in these schemes were empowered to fully determine the outcome. 'Empower' is the most stakeholder-led level of engagement in IAP2's Spectrum (Figure 2) and is rarely committed to because it removes organisational control. Sunwater is proud to have offered customers this level of influence over our pricing proposal.

Who was engaged

During this stage Sunwater invited irrigation customers to corresponding forums in their scheme, and all customers to the all-schemes online forum using SMS, email, and post (as determined by preference on customer account profiles).

Table 5 - Customer participation during Stage 2 by scheme

<table>
<tr><th>Forum details</th><th>Water supply scheme</th><th>Number of customers in scheme</th><th>Number of attendees</th></tr>
<tr><td rowspan="17">17 face-to-face sessions were organised, with all irrigation customers within these schemes invited

"View draft future prices and the following proposals for customer feedback:
- changes to Service and Performance plans
- changes to the way renewals expenditure is recovered through irrigation prices
- a permanent, symmetrical ECPT mechanism in seven schemes."</td><td>Callide Valley</td><td>127</td><td>3</td></tr>
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<tr><td>Barker Barambah</td><td>150</td><td>17</td></tr>
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<tr><td>Chinchilla Weir</td><td>23</td><td>1</td></tr>
<tr><td>Upper Condamine</td><td>112</td><td>3</td></tr>
<tr><td>Macintyre Brook</td><td>86</td><td>3</td></tr>
<tr><td>St George</td><td>175</td><td>7</td></tr>
<tr><td>Supplementary Teams meeting at request of Tinaroo Water Committee</td><td>Mareeba-Dimbulah</td><td>1106</td><td>5</td></tr>
<tr><td>Supplementary Teams meeting at request of Nogoa Mackenzie Irrigator Advisory Committee</td><td>Nogoa Mackenzie</td><td>308</td><td>6</td></tr>
<tr><td>Supplementary Teams meeting at request of Customer Advisory Committee</td><td>Upper Condamine</td><td>112</td><td>3</td></tr>
<tr><td>Teams meeting, all customers invited</td><td>All schemes (including Pioneer River, Cunnamulla, Lower Fitzroy, Bowen Broken Rivers, and Maranoa)</td><td>4372</td><td>15</td></tr>
<tr><td colspan="3">Total attendees for Stage 2 forums</td><td>146</td></tr>
</table>

Outcomes

Insights and outcomes were recorded during the engagement activities in Stage 2 and fed back to the project team to inform the development of the pricing proposal.

Service levels and customer values

General comfort with existing scheme service levels and Sunwater's understanding of what customers value about their irrigation service.

Information provided

During Stage 2 (via face-to-face sessions and written correspondence) customers expressed a desire for more detailed scheme-specific information on operational and renewal expenditure; indirect support costs and controls; and how to provide feedback on the pricing proposal.

Sunwater provided the channels available for feedback and included more scheme-specific detail in Stage 3 engagement materials.

General feedback

Generally, customers told us they:

- appreciated Sunwater's transparency on costs and investment priorities
- wanted more detail on projects within the price path period and scheme-specific costs
- had concerns more generally around rising prices.

Where scheme-based groups or individuals provided specific feedback directly to Sunwater on the proposal, our approach or operational matters more generally, Sunwater responded directly and shared both the customer correspondence and our response with all customers in the scheme as part of our final Stage 3 engagement. This is included in our scheme-specific appendices attached to this submission.

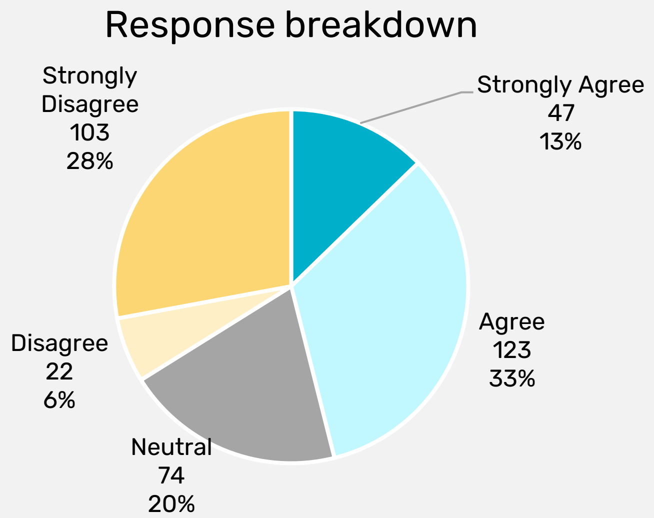
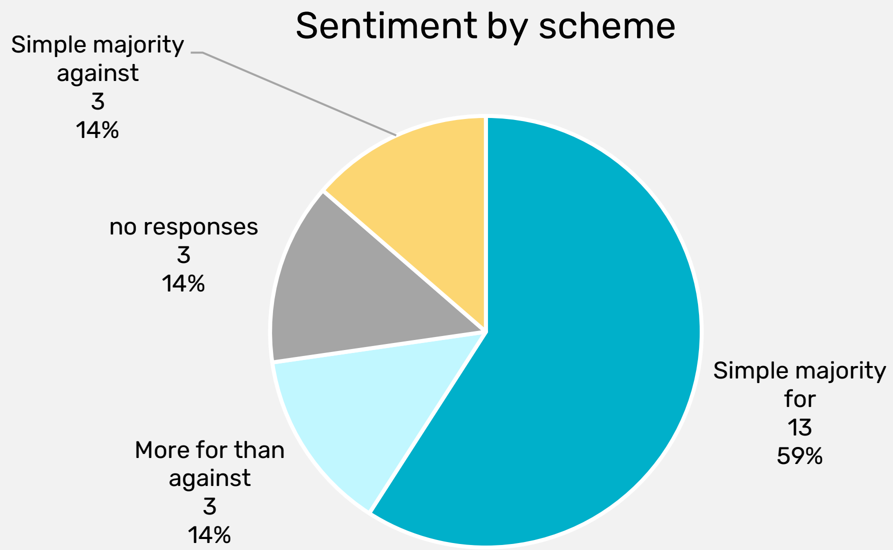
We also received specific requests during Stage 2, noted in the table below.

Table 6 - Stage 2 specific customer requests

Customer requests	How Sunwater responded
The Nogoa Mackenzie Irrigator Advisory Committee (IAC) requested a supplementary customer meeting. The region was experiencing weather conditions that meant some irrigation customers were unable to attend the face-to-face session	Sunwater hosted an additional online customer meeting with the IAC
The Upper Condamine Customer Advisory Committee (CAC) requested a supplementary customer meeting in addition to the face-to-face session	Sunwater hosted an additional online customer meeting with the CAC
The Tinaroo Water Committee requested a supplementary meeting in addition to the face-to-face Mareeba-Dimbulah customer meeting	Sunwater joined a Tinaroo Water Committee meeting via teams to discuss the draft pricing proposal

Specific feedback on proposals The table below sets out the process, feedback, and outcomes regarding the proposals we put to customers.

Table 5 - Clear customer choices and outcomes

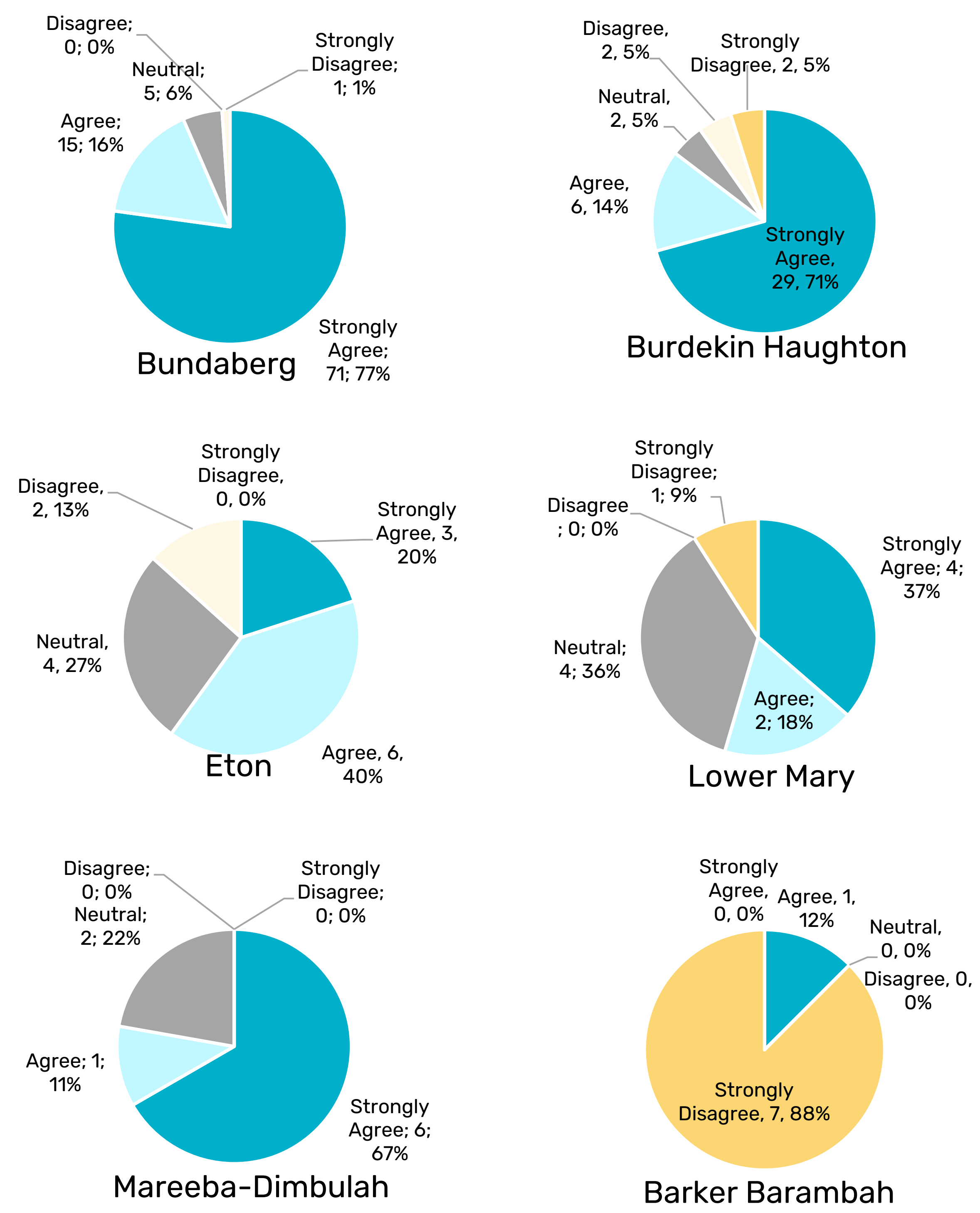
Proposal	Purpose	Engagement	Results	Outcome
Transition from an annuity-based funding method for renewals expenditure to RAB-based funding method	While historically rural water businesses across a number of Australian jurisdictions have used annuity approaches for calculating the appropriate allowance for asset renewals, since the early 2000s a growing number of the larger rural water businesses have transitioned to RAB-based approaches. This transition has been universally supported by economic regulators. The QCA considers 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 Service and Performance plans, which provide detail on renewals expenditure over the short-term to the end of the next price path period. Reflecting the potential merit of a RAB-based approach, the QCA in the previous irrigation pricing review recommended that Sunwater work with our customers and the government to develop a proposal on transitioning to a RAB-based approach.	Prior to taking this proposal to customers Sunwater engaged with the Consultative Committee to test and refine our engagement material. We then presented material to customers in Stage 2 forums outlining the reason for our proposal, its benefits, how the methodology would work/be applied and its impact on prices in the scheme. We extended forecast to three four-year pricing periods to provide insight into medium term impacts of the change following queries raised during engagement with the Consultative Committee Considerable time was devoted to discussing this proposal with customers at scheme presentation sessions, and Sunwater staff stayed behind to enable discussion with customers seeking further understanding. Presentation materials were also uploaded to our project website. Prior to providing feedback through the Go-Vote platform, customers were also required to watch an informational video that summarised the proposal and provided them with pertinent information about what the change would mean for them before they could cast their preference.	**RAB responses overall**  • The RAB methodology received a positive sentiment of 46 per cent, with 20 per cent neutral and 34 per cent unsupportive • "Agree" was the largest single response (33 per cent), followed by "strongly disagree" (28 per cent) **RAB sentiment by scheme**  • 13 schemes recorded a simple majority in support of a RAB methodology (no minimum vote cutoff) • 3 schemes recorded a simple majority against a RAB methodology	Based on "agree" being the strongest sentiment and the majority support by scheme, Sunwater is proposing a transition to a RAB-based funding model as part of this pricing proposal.

<table>
<tr><th>Proposal</th><th>Purpose</th><th>Engagement</th><th>Results</th><th>Outcome</th></tr>
<tr>
<td>Implementing an electricity cost pass-through mechanism for seven schemes with highly variable electricity costs</td>
<td>There are seven schemes Sunwater operates that, given the nature of the infrastructure in those schemes, incur high electricity costs. A permanent pass-through mechanism would ensure customers only pay for actual electricity costs, and that Sunwater was reimbursed for actual electricity costs. Sunwater put this proposal to the seven water supply schemes where electricity costs are material due to significant pumping assets. The pass-through mechanism would only apply to electricity costs in the following water supply schemes: Barker Barambah; Bundaberg distribution; Burdekin Haughton distribution; Lower Mary River distribution; Mareeba-Dimbulah distribution; Upper Condamine and Eton.

Sunwater wished to gauge whether there was customer support for a permanent and fully symmetrical ECPT mechanism applying for the 1 July 2025 to 30 June 2029 period.</td>
<td>Prior to taking this proposal to customers Sunwater engaged with the Consultative Committee to co-design the proposed pass-through mechanism and refine our engagement material.

We then presented material to customers outlining the reason for our proposal, its benefits, how the methodology would work/ be applied and its impact on prices in the scheme.

Presentation materials were also uploaded to our project website.

Prior to providing feedback through the Go-Vote platform, customers were also required to watch an informational video that summarised the proposal and provided them with pertinent information about what the change would mean for them before they could cast their preference.</td>
<td>Responses to pass-through proposal by scheme


Response rates in eligible schemes ranged from 5 per cent (Eton) to 89 per cent (Barker Barambah – Redgate relift) through the GoVote platform.

Barker Barambah customers clearly did not support the adoption of a pass-through mechanism. Respondents from the other six schemes were clearly in favour.</td>
<td>Sunwater discussed these results in the scheme-specific face-to-face forums along with final prices in Stage 3 and received feedback that sentiment had become unfavourable. See main submission for final positions.</td>
</tr>
</table>

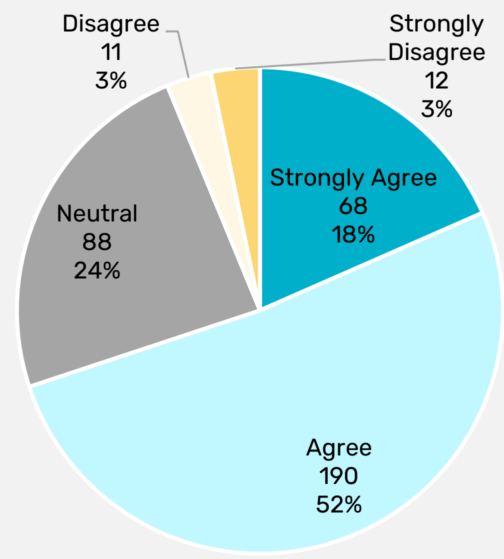
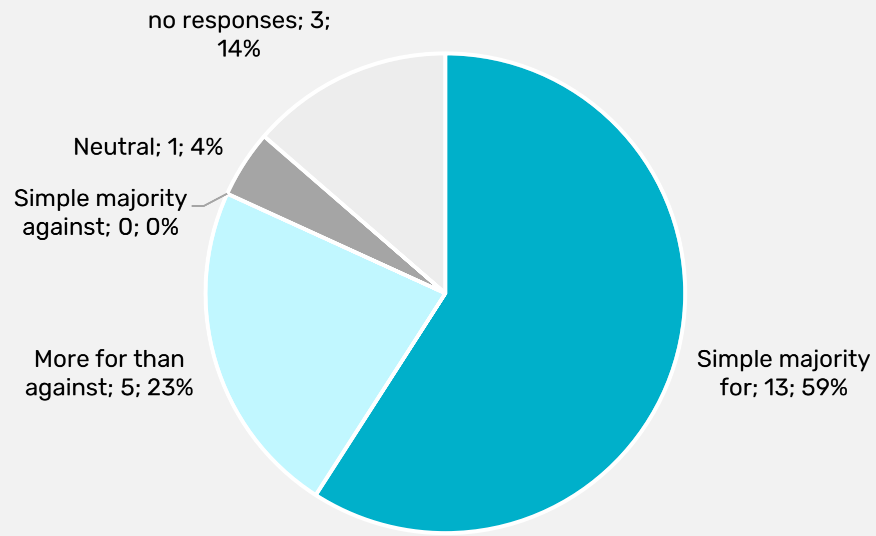
<table>
<tr><th>Proposal</th><th>Purpose</th><th>Engagement</th><th>Results</th><th>Outcome</th></tr>
<tr>
<td>Improving Sunwater's reporting and monitoring regime</td>
<td>Feedback from regional operations teams, who know and understand their customers, led Sunwater to undertake a review of the purpose and effectiveness of the Service and Performance plans (S&PPs).

The current S&PP process typically takes 9-12 months to complete. This extensive timeframe is largely due to S&PPs having the dual purpose of performance and forecast. By the time actuals are collated and reviewed, the next forecasting cycle has commenced, contributing to a delay in publication. Performance data is effectively "out-of-date" by the time it is published. Forecasts generally lack relevance, do not impact prices and are left to an appendix. S&PPs lack pricing context – Sunwater's actuals and forecasts do not affect prices until they have been through a QCA review.

As a result, Sunwater developed a proposal to refresh the plans to make them more relevant, timely, and easier to interpret. Sunwater proposed that we:
continue to prepare S&PPs annually for each irrigation service contract area
compare actual cost performance against cost targets recommended by the QCA in a focused and timely manner
limit the focus on forecasts to the next year only.
These changes would help Sunwater to publish S&PPs in a timely manner, leading to more timely and meaningful customer engagement.</td>
<td>Prior to taking this proposal to customers Sunwater engaged with the Consultative Committee to test and refine our engagement material.

We then presented material to customers outlining the reason for our proposal, its benefits, how the methodology would work/be applied and its impact on timing of publication.

Presentation materials were also uploaded to our project website.

Prior to providing feedback through the Go-Vote platform, customers were also required to watch an informational video that summarised the proposal and provided them with pertinent information about what the change would mean for them before they could cast their preference.</td>
<td>Service and Performance plans responses overall

The S&PP refresh received a positive sentiment of 70 per cent, with 24 per cent neutral and 6 per cent unsupportive
"Agree" was the largest single response (52 per cent), followed by "neither agree nor disagree" (24 per cent)
Service and Performance plans sentiment by scheme

13 schemes recorded a simple majority in support of a refresh of the S&PP reports
5 schemes recorded more for than against, one was neutral
3 schemes did not respond</td>
<td>Based on strong support at a business level and by scheme, Sunwater is proposing a refreshed reporting process as part of this pricing proposal.</td>
</tr>
</table>

Proposal	Purpose	Engagement	Results	Outcome
The treatment of medium priority entitlements for pricing purposes in the Eton Water Supply Scheme	There are a small number of customers categorised as Risk A priority that use the Mirani diversion channel of the Eton Water Supply Scheme. Currently these customers are treated as medium priority users from a pricing perspective even though the cost of supplying these customers is likely to be materially lower. Table 21 below shows Sunwater's proposed water charges to apply to customers using the Mirani diversion channel in the next price path period.	Sunwater proposed to exclude these customers from the calculation of irrigation charges for medium and higher priority users and include a revenue offset in the next price path period that relates to the revenue that Sunwater would have earned from these customers if these water charges had applied. Sunwater proposed to apply a volumetric only water charge to these customers in the next price path period as this is likely to be a more equitable and cost reflective pricing approach given the nature of the service that we provide these customers. Sunwater proposed to treat electricity costs as a fixed cost and recover these costs from customers via the Part A charge. This means that under the ECPT mechanism, the removal of electricity costs from existing charges only impacts the Part A charge. It should also be noted that Sunwater has adopted a variable/fixed split for electricity costs for the purpose of setting Part E and Part F charges under the proposed ECPT mechanism reflective of the electricity usage and retail tariff arrangements applying to the Eton Scheme. More detailed information on the proposed price-setting approach under the ECPT mechanism is provided in the Technical Appendix – Electricity Cost and the Eton Scheme Summary.	Presented in scheme meetings and included in materials made available to Eton customers. No feedback received to suggest not supported.	Outcome is reflected in our pricing proposal for Eton Water Supply Scheme.

Engagement program

During Stage 2 Sunwater received feedback from customers that they wanted more:

- detail on the proposed operating expenditure and renewals expenditure at a scheme level
- information on how they could provide feedback on the proposals being presented to them.

Sunwater actioned this feedback immediately by developing more detailed information per scheme for Stage 3 engagement (discussed in the next section); reminding customers of the ways they could engage on the proposals in the presentation sessions and after sessions in SMS, email reminders; and by promoting GoVote directly and from the provider.

Pricing proposal

Stage 2 engagement informed the pricing proposal by confirming:

- customer values and priorities, which provided strategic direction for investment decisions
- that current service levels are appropriate, which meant Sunwater did not need to put forward proposals to customers to change service levels and the various costs for various levels of service to determine customer willingness to pay
- Sunwater's position on tariff issues in three schemes (see Appendix 1).

We also finalised the outcomes of the external consultancy review of our expenditure (discussed in break out box below) to address customer concerns.

Listening to our customers' cost concerns

While undertaking Stage 2 engagement, we concurrently organised an independent review of our operating and renewals expenditure for prudency and efficiency.

Listening to our customers' concerns about the costs of running their businesses in stages 1 and 2, and water pricing being one of those concerns, we sought to improve our renewals forecasting processes as best we could with the systems and processes we currently have.

Following a robust, independent review, the consultancy recommended the following:

- A 4.6 year increase to the scheduling of renewals because it found Sunwater was managing assets well and assets are lasting 4.6 years longer on average than they were designed to last.
- A 2.3 per cent reduction of cost estimates to align Sunwater estimates with current market prices.

Sunwater adopted these recommendations in full, understanding customer concerns largely centred around price and cost inputs to their businesses. Adopting these recommendations in full resulted in an overall reduction of 22.7 per cent across the renewals forecast for 2025-2059, with $13 million saved in the 2024-25 year (a 30 per cent reduction); $17 million saved during the 2025-26 to 2028-29 period (a 17 per cent reduction); and $531 million saved during the 2029-30 to 2057-58 period (a 34 per cent reduction).

Stage 3: Finalising

Timing

August to November 2023

Purpose

The purpose of Stage 3 engagement was to communicate the outcomes of Stage 2 and outline the final proposal, but after receiving feedback that customers wanted additional detailed information on proposed operating and renewals expenditure by scheme, we extended the engagement period by a month and prepared additional material. Sunwater was prepared to change our proposals should customer engagement inform such changes at this point, so the pricing proposal project needed to remain flexible until the end of this stage.

The purpose of this stage was therefore to present and validate detailed cost proposals, and revenue and pricing outcomes for all schemes to finalise the proposal.

Content

Our Stage 3 engagement materials included a Draft Final Scheme Summary document – our intention was that these summaries reflected the final proposal we put to each scheme, pending receipt of any material Stage 3 feedback. A presentation was also prepared that talked through the process Sunwater followed to adjust and finalise our Stage 2 cost estimates for Stage 3, as well as talk through the feedback received from customers at the end of Stage 2.

Responding to Stage 2 feedback we presented more granular views of both our operating expenditure and renewals forecasts. Our renewals forecasts included both the four-year price path period (relevant to a RAB methodology) and an additional 29-year period (relevant to an annuity methodology).

Scheme level revenue requirements and prices were presented reflecting a RAB-based recovery of renewals expenditure in line with Stage 2 feedback.

Six of the seven largest electricity consuming schemes were also presented with a final view of prices under an ECPT mechanism.

Materials

Supporting materials prepared for this stage detailed final costs, revenue requirements and positions on the three proposals:

- 22 scheme-specific presentations
- 22 Scheme Summaries
- 1 online forum presentation

These can be accessed here: www.sunwater.com.au/projects/price-path/

Activities

Activities hosted during this stage that covered the content and utilised materials:

- 17 face-to-face forums
- 1 online forum presentation for all schemes
- 3 Consultative Committee meetings

Who was engaged

During this stage Sunwater invited irrigation customers in 17 schemes to corresponding forums in their scheme, and all customers to the all-schemes online forum using SMS, email, and post (as determined by preference on customer account profiles).

Table 7 - Customer participation during Stage 2 by scheme

Forum details	Water supply scheme	Number of customers in scheme	Number of attendees
17 face-to-face sessions were organised, with all irrigation customers within these schemes invited *"Outline Sunwater's pricing proposal, having taken into account customer feedback and preferences."*	Nogoa Mackenzie	308	5
	Callide Valley	127	4
	Dawson Valley	94	7
	Proserpine River	83	5
	Eton	302	5
	Chinchilla Weir	23	3
	Upper Condamine	112	3
	Mareeba-Dimbulah	1106	16
	Macintyre Brook	86	2
	St George	175	5
	Barker Barambah	150	0
	Upper Burnett	141	3
	Boyne River and Tarong	49	1
	Three Moon Creek	88	3
	Bundaberg	1015	6
	Lower Mary River	160	5
	Burdekin Haughton	312	21
Teams meeting, all customers invited	All schemes (including Pioneer River, Cunnamulla, Lower Fitzroy, Bowen Broken Rivers, and Maranoa)	4372	7
Total attendees for Stage 3 forums			**101**

How engagement data was recorded

During activities in all three stages, customer feedback was captured by the attending Stakeholder Advisor and recorded in Sunwater's online engagement platform under enterprise usage guidelines.

In most cases, questions were answered in session by a subject matter expert. Where a matter required further investigation, the Stakeholder Advisor followed up with internal stakeholders and then provided the customer with a written response.

Feedback received via the price path email inbox was managed by the Stakeholder Advisor and written responses were provided and, in some cases, a follow up phone call was made. Feedback received via the Sunwater Customer Interactions team or other internal teams was forwarded to the price path email inbox and responded to as above.

Several formal submissions were received, and these were shared with the Project team, recorded in the online platform, and responded to in writing (included in individual scheme summaries).

Customer feedback about the three proposals was captured in the GoVote platform. The process anonymised customer information so only scheme, tariff group and megalitres held (within a range) were visible and reportable as characteristics.

How engagement informed the pricing proposal

Sunwater's Stakeholder and Customer Relations team was embedded in the pricing proposal project team (as the Stakeholder Engagement workstream) with full responsibility for informing the project of customer values and preferences both prior to, and during, customer engagement.

Following each stage of engagement, the Stakeholder Engagement workstream informed project team leads of the outcomes for the project leads to operationalise.

The table below shows the information links to other key workstreams within the project.

Table 8 - Stakeholder Engagement workstream dependencies

Workstream	Key contact	Information required
Opex workstream	Workstream co-leads	• Customer values • Service standards required • Customer preferences on specific regulatory matters that could be implemented with customer support
Renewals workstream	Workstream lead	• Customer values • Service standards required • Customer preferences on specific regulatory matters that could be implemented with customer support
Documentation workstream	Workstream lead, Project Director	• Customer values • Service standards agreed with customers • Customer preferences on specific proposals • Engagement design and phasing • Data and outcomes of each stage of engagement

Appendix 1: Customer insights on tariff issues

Table 9 - Customer insights on tariff issues

<table>
<tr><th>Scheme</th><th>Tariff group</th><th>Issue for discussion/consideration</th><th>Sunwater's position</th></tr>
<tr><td rowspan="3">Mareeba-Dimbulah</td><td>Access charge</td><td>The cost-reflectivity of the access charge has been questioned at previous price reviews. In 2024-25 the access charge is set at $751.5/customer.</td><td rowspan="3">Sunwater does not propose any changes to the tariff groups or cost allocators for these tariff groups at this review.
Sunwater's priorities in the Mareeba-Dimbulah scheme during the period have included the continuation of service during the COVID pandemic, and the delivery of the Mareeba-Dimbulah Water Supply Scheme Efficiency Improvement Project and a reduction in distribution losses.
This priority benefits all customers in the distribution service via downward pressure on prices.
Customer engagement has not identified a strong desire for tariff reform, however Sunwater will continue to engage and may explore these issues further at a future review.</td></tr>
<tr><td>Channel – outside a relift</td><td>The cost-reflectivity of the three-part declining block tariff for customers has been questioned at previous price reviews.</td></tr>
<tr><td>River Supplemented Streams and Walsh's River</td><td>The QCA recommended Sunwater explore the appropriate basis for the apportionment of costs to this tariff group and engage with customers if there are grounds for a change from the current 60 per cent allocator.</td></tr>
<tr><td>Eton</td><td>Risk A</td><td>Risk A priority entitlement holders taking water from the Mirani Diversion Channel have engaged with Sunwater over the reform of their tariff given past practice included reference to Part C and Part D price elements associated with Sunwater's former management of the distribution service in this scheme.
Sunwater has identified a structural under-recovery that has arising from the practice of assigning fixed costs to the 504 ML in entitlements held by this group, the 100 per cent volumetric tariff applied, and the typically low usage in this group.</td><td>Sunwater's proposal addresses both customer concerns and the structural under-recovery via:
• the calculation of the Risk A tariff using only Part A and Part B components, and the continuation of a 100 per cent volumetric tariff
• removal of the 504 ML in Risk A priority entitlements from the price calculation process to address the structural under-recovery of fixed costs
• treatment of any revenue earned from Risk A priority entitlements as a revenue offset.
This proposal formed part of our engagement material with Eton customers. No concerns have been raised.</td></tr>
</table>

Scheme	Tariff group	Issue for discussion/consideration	Sunwater's position
Burdekin	Burdekin Channel Burdekin Channel – Glady's Lagoon (other than natural yield) Burdekin Channel – Giru Groundwater	Customers in the Burdekin Channel – Giru Groundwater (Giru customers) continue to raise concerns with the alignment of their cost reflective price with the other two tariff groups in the distribution service. Giru customers are seeking a lower target price on the basis of one or both of lower cost to serve and lower standards of service. Reference continues to be made to matters that are no longer relevant under the current water plan.	Sunwater does not propose any changes to the way in which costs are assigned and cost-reflective prices are calculated for the Burdekin distribution service. Sunwater's view is that current pricing practices reflect an appropriate pricing response to the policy settings contained in the *Water Plan (Burdekin Basin) 2007*. Sunwater does not have any information that would support the QCA rescinding the findings it made at the 2020 review in relation to cost-to-serve and service levels. There is clear disagreement from customers in the Giru and non-Giru tariff groups around the nature of the issues and any proposed pricing solutions. Sunwater's preference is for the continuation of current cost allocation and pricing practices in this scheme, and notes that any holistic review of cost allocation would require considerable time (at least two years) given the competing customer positions and may lead to unexpected outcomes including the creation of more than two effective tariff groups within the distribution service.

Appendix 2: Consultative Committee Terms of Reference

1. **Purpose**

The purpose of the price path Consultative Committee (the committee or group) is to provide a platform to consider and workshop multi-scheme issues and opportunities to inform Sunwater's submission on irrigation pricing to the QCA.

The role of the committee will include:

- discuss individual organisational objectives and establish shared outcomes where possible
- identifying and developing areas of alignment between Sunwater and its customers
- developing and/or providing feedback on policy matters that may be included in Sunwater's
- submission
- advising on Sunwater's engagement and communication efforts, and
- providing direct feedback on Sunwater's proposals.

These Terms of Reference (ToR) are intended to provide a framework for the establishment and effective operation of the group.

2. **Membership of the committee**

Membership of the group is by invitation to key organisations that represent and promote the interests of the bulk of Sunwater's irrigation customer base.

The following organisations have been invited to nominate up to three representatives:

- Queensland Farmers Federation
- Cotton Australia
- Queensland Fruit & Vegetable Growers
- CANEGROWERS Queensland

3. **Sunwater's commitment**

Sunwater is committed to a comprehensive and effective engagement process with customers directly, and with key member organisations, on matters material to its QCA submission on irrigation pricing.

Two Sunwater executives will co-chair the committee – the EGMs Customer and Stakeholder Relations and Operations. Sunwater will ensure meetings are appropriately organised and resourced by a secretariat function and attended by relevant Subject Matter Experts.

While Sunwater acknowledges that alignment or consensus on every issue or opportunity may not be possible, it is committed to:

- being open and transparent with information
- explaining the rationale for positions and decisions
- asking for advice to develop the 'best' options for Sunwater and customers
- outlining how feedback from committee members has been considered, and
- sharing final positions.

4. **Member commitment**

Regardless of organisational affiliation, all members are asked to commit to:

- a willingness to work constructively on matters relating to irrigation pricing
- respectfully contributing their own views and those of their member base
- listening respectfully to differing views
- respecting requests for confidentiality
- sharing accurate information with their member base and bringing member feedback to the committee, and
- encouraging members to engage constructively on the issues and opportunities in other forums.

5. **Proxies**

Members should make all efforts to attend scheduled meetings. However, it is recognised that there will be times when a member may not be able to attend and if this occurs the member can nominate a suitable proxy. Proxies are required to:

- have an equivalent skillset and interest in the project
- be able to contribute to discussions on merit without seeking further approval
- present the views of the member they are representing, and
- abide by the ToR.

6. **Authority**

The committee is an advisory body and while Sunwater retains its right to form independent positions, the views of committee members will have influence on Sunwater's decision-making. Further, Sunwater may seek the endorsement of the committee on specific positions.

7. **Remuneration**

Committee membership is not remunerated given members will participate as part of their role with the organisation they represent. Sunwater will meet any costs associated with meetings, including catering.

8. **Period of operation**

This committee will operate initially for a period of eight months (March to November 2023) to reflect that Sunwater's submission to the QCA is due at the end of 2023.

9. **Frequency and location of meetings**

It is intended that the group will meet monthly and preferably in person to facilitate effective workshop style discussions. Meetings with be held at Sunwater's Fortitude Valley offices.

10. **Confidentiality**

Confidentiality regarding individual input is integral to the effective operation of the committee.

Members are encouraged to share information provided by Sunwater with their member base if material is clearly intended for that purpose.

11. **Communication**

Sunwater intends to note the operation of the committee and its discussions at a high level in its QCA submission, noting that individual opinions will remain confidential.

While members are entitled to their own views about the subject matter, members are asked to not speak on behalf of Sunwater or share Sunwater material that is produced only for the group.

Irrigation pricing proposal

1 July 2025 to 30 June 2029

Appendix C Cost escalation

Appendix C
Cost escalation

Methodology

In line with the regulatory framework set by the QCA, Sunwater applies expected cost escalation factors across major operating expenditure cost categories to inflate its regulated operating expenditure forecast from real to nominal dollars.

For this price review, Sunwater adopted the same major cost categories as the 2020 review and applied the QCA's cost escalation methodology set out in the QCA Final Position Paper – Inflation Forecasting[1] (the QCA's Inflation Position Paper) where possible, deviating where current cost forecasts warrant a departure from previous practice.

All adopted methodologies are described with supporting data and evidence within this document.

In developing its cost escalation factors Sunwater has drawn heavily from the QCA's published position paper on inflation forecasting.

Key features of Sunwater's approach to cost escalation include the use of:

- Contracted (known) price escalation factors where contracts extend beyond the base year
- Respected industry forecasts for the 2023-24 financial year for insurance
- The Reserve Bank of Australia's (RBA) latest short-term inflation forecast for the 2023-24 and 2024-25 financial years where no other forecast exists
- A year five anchor point (coinciding with the 2027-28 year)
- The midpoint of the RBA's target range (2.5 percent) for 2028-29 for ALL cost categories
- Queensland Treasury forecasts for labour (excluding contracted cost increase in 2023-24)

[1] QCA, Final Position Paper – Inflation Forecasting, October 2021

Sunwater's proposed cost escalators

This document summarises the cost escalators Sunwater has applied to the development of its operating and renewals expenditure forecasts from the base year to the end of the price path period (2025-26).

Table 1 sets out the cost categories used as inputs to the pricing model and the escalation factors applied. It also sets out the basis for calculation where applicable.

The derivation of underlying input cost escalators is then presented in **Table 2** (general index), **Table 3** (insurance index) and **Table 4** (labour index).

Where possible Sunwater has sought to align with good regulatory practice and not pass on unreasonable price risk to its customers. It has also sought to simplify the overall cost escalation approach, noting that the current inflationary environment is significantly different to the one that existed at the time of the 2020 price review.

An example of the way Sunwater has sought to balance price risk in favour of customers is its decision to apply only a general index to contracted services costs. Sunwater notes that these services include significant labour elements (particularly in the operations space) and labour costs will be subject to the same wage pressures Sunwater is facing.

The approach adopted for the 2020 price review to create a composite index (comprising general inflation and labour inflation components) for contracted services remains sound and Sunwater may seek to re-introduce a composite index in future reviews.

Sunwater has, however, elected to simplify this approach for the 2025-26 to 2028-29 review, and in doing so, absorb some price risk. Sunwater's cost forecasts for contracted services have adopted a general inflation index across the entirety of Sunwater's contracted services portfolio.

Table 1 - Sunwater's proposed cost escalation factors by cost category

<table>
<tr><th>Cost category</th><th>Basis</th><th>2023-24</th><th>2024-25</th><th>2025-26</th><th>2026-27</th><th colspan="2">2027-28</th><th colspan="2">2028-29</th></tr>
<tr><td>Electricity (default)</td><td>1 July 2023 price changes and General inflation index (Table 2)</td><td>Known price increases</td><td>3.10%</td><td>2.98%</td><td>2.87%</td><td colspan="2">2.75%</td><td colspan="2">2.50%</td></tr>
<tr><td>Electricity (eight schemes)</td><td>Bespoke scheme-by-scheme forecasts in line with known long-term contracts</td><td colspan="8">Refer to electricity model and technical appendix</td></tr>
<tr><td>Insurance</td><td>Insurance index (Table 3)</td><td>21.00%</td><td>10.73%</td><td>2.98%</td><td>2.87%</td><td colspan="2">2.75%</td><td colspan="2">2.50%</td></tr>
<tr><td>Operations& maintenance</td><td>Weighted average of labour (Table 4) and general inflation indices (Table 2)</td><td colspan="8">Calculated separately for operations, preventative maintenance, and corrective maintenance according to the respective proportions of labour and non-labour costs</td></tr>
<tr><td>Labour</td><td>Labour index (Table 4)</td><td>4.50%</td><td>3.50%</td><td>3.50%</td><td>2.98%</td><td colspan="2">2.47%</td><td colspan="2">2.47%</td></tr>
<tr><td>Contracted services</td><td colspan="2">General inflation index (Table 2)</td><td rowspan="3">3.60%</td><td colspan="2">3.10%</td><td>2.98%</td><td>2.85%</td><td>2.75%</td><td>2.50%</td></tr>
<tr><td>Materials</td><td></td><td></td><td></td><td></td><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td>Other</td><td></td><td></td><td></td><td></td><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td>Indirects</td><td colspan="2" rowspan="3">50:50 weighting of labour (Table 4) and general inflation index (Table 2)</td><td rowspan="3">4.05%</td><td colspan="2" rowspan="3">3.30%</td><td rowspan="3">3.24%</td><td rowspan="3">2.93%</td><td rowspan="3">2.61%</td><td rowspan="3">2.49%</td></tr>
<tr><td>Local area support</td></tr>
<tr><td>Corporate support</td></tr>
<tr><td>Renewals</td><td colspan="9">Applied to each cost component of renewals expenditure (labour, contracted services, materials, other non-labour, plant) in line with the above labour cost escalator for the labour costs and general inflation for materials, contracted services, other non-labour and plant</td></tr>
</table>

The derivation of Sunwater's general inflation index adopts the methodology set out in the QCA's Inflation Position Paper and is presented in **Table 2**.

Table 2 - Derivation of general inflation index

2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
RBA forecast🡻	*RBA forecast* 🡻	*Glidepath*🡻		*Anchor year*🡻	RBA mid-point 🡻
3.60%	3.10%	2.98%	2.87%	2.75%	2.5%

Sunwater has applied RBA forecasts[2] for June 2024 and June 2025 on the basis that these represent the best available forecasts for the full year effect of general inflation for the first two years of our base-step-trend forecast.

The derivation of insurance and labour indices align with the methodology set out in the QCA's Inflation Position Paper and past regulatory practice, and is presented in **Table 3** and **Table 4**.

Table 3 - Derivation of insurance index

2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
Contract🡻	*Industry (Marsh) forecast*🡻	Revert to general index (see **Table 2** above)🡻			
21.00%	10.73%	2.98%	2.87%	2.75%	2.5%

Table 4 - Derivation of labour index

2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
Sunwater EBA🡻		Queensland Treasury / RBA forecast🡻	*Glidepath*🡻	10-year simple average for QLD WPI all sectors🡻	
4.50%	3.50%	3.50%	2.98%	2.47%	2.47%

It is expected throughout the review process (prior to issuing its final report in January 2025) the QCA will continue to monitor short-term expectations of inflation and adjust forecasts for forward years accordingly.

[2] Reserve Bank of Australia (2023) August Statement of Monetary Policy, Forecast table – August 2023 | RBA, 22 August 2023

Reference materials

Sunwater has relied on the below reference materials to develop its cost escalators in line with the methods set out further below.

The QCA’s approach

Figure 1 - Extract from the QCA’s 2020 Final Report (irrigation pricing review)

Table 19 The QCA's recommended cost escalation factors (%)

Cost category	*Basis for escalation factor*	*Forecast period*	*Escalation factor (%)*
Materials	CPI using latest short-term inflation forecast of the RBA	2019–22	2.00 (2019–20); 1.75 (2020–21); 2.20 (2021–22)
	Mid-point of the RBA target range	2022–24	2.50
Insurance	Actual increase	2019–20	14.71
	Based on Marsh (broker) forecast	2020–21	10.00
	CPI forecast	2022–24	2.20 (2021–22); 2.50 (2022–24)
Labour	Queensland Government Annual Budget 2018–19	2019–23	2.25 (2019–20); 2.5 (2020–22); 2.75 (2022–23)
	10 year average WPI for all sectors in Queensland over 2009–19 (Australian Bureau of Statistics)	2023–24	2.73
Contracted services	Weighted average of WPI and CPI, using weighting approach proposed by Sunwater	2019–24	2.05 (2019–20); 1.89 (2020–21); 2.26 (2021–22); 2.55 (2022–23); 2.54 (2023–24)
Electricity (default)	AEMO 2019 retail electricity price assumptions, adjusted to nominal terms using our CPI assumption	2019–24	(4.07) (2019–20); 2.14 (2020–21); 1.57 (2021–22); 1.60 (2022–23); 1.38 (2023-24)
Non-direct costs (labour and materials)	Weighted average of WPI (50 per cent) and CPI (50 per cent)	2019–24	2.13 (2019–20); 2.13 (2020–21); 2.35 (2021–22); 2.63 (2022–23); 2.62 (2023–24)

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

QCA, Inflation forecasting, final position paper, October 2021

ABS inflation data and RBA forecasts

Figure 2 - August Statement of Monetary Policy – Forecast table – August 2023 | RBA, 22 August 2023

Table 1: Forecast Table – August 2023[a]

Percentage change over year to quarter shown[b]

	Jun 2023	Dec 2023	Jun 2024	Dec 2024	Jun 2025	Dec 2025
Gross domestic product	1.6	0.9	1.3	1.6	2.0	2.3
Household consumption	1.6	1.3	1.9	2.4	2.5	2.6
Dwelling investment	−1.8	−2.5	−0.9	1.4	3.5	3.3
Business investment	5.2	3.4	−0.1	0.0	1.0	1.8
Public demand	1.3	1.9	1.7	1.5	2.2	3.0
Gross national expenditure	1.2	1.2	1.7	1.9	2.1	2.5
Imports	4.5	7.2	4.9	4.1	3.8	4.0
Exports	7.8	5.7	2.4	2.5	2.9	2.7
Real household disposable income	−2.9	−0.1	0.4	2.1	3.7	3.3
Terms of trade	−8.8	−5.0	−3.6	−2.6	−3.0	−2.6
Major trading partner (export-weighted) GDP	3.9	3.7	3.2	3.0	3.3	3.1
Unemployment rate (quarterly, %)	3.6	3.9	4.2	4.4	4.5	4.5
Employment	3.2	2.3	1.2	1.0	1.1	1.3
Wage price index	3.7	4.1	4.0	3.8	3.7	3.6
Nominal (non-farm) average earnings per hour	4.9	6.5	5.0	4.4	4.1	3.7
Trimmed mean inflation	5.9	3.9	3.3	3.1	2.9	2.8
Consumer price index	6.0	4.1	3.6	3.3	3.1	2.8

(a) Forecasts finalised 2 August. The forecasts are conditioned on a path for the cash rate broadly in line with expectations derived from surveys of professional economists and financial market pricing. Other forecast assumptions: TWI at 61; A$ at US$0.66; Brent crude oil price at US$80bbl. The rate of population growth has been revised higher in the near-term but is expected to gradually decline to around its pre-pandemic average.

(b) Forecasts are rounded to the first decimal point. Shading indicates historical data.

Sources: ABS; CEIC Data; Consensus Economics; Refinitiv; RBA.

Sunwater has adopted the values presented in Table 1 Forecast Table associated with the August Statement of Monetary Policy, noting that Table 5.1 of the August Statement rounds forecasts to the nearest quarter point.

Queensland Government budget outlook

Figure 3 - Extract from Budget_2023-24_Strategy_Outlook.pdf, 22 August 2023

Table 2.2 Queensland economic forecasts/projections[1]

	Actuals	Forecasts			Projections	
	2021–22	2022–23	2023–24	2024–25	2025–26	2026–27
Gross state product[2]	**4.4**	**2**	**3**	**3**	**2¾**	**2¾**
Employment	5.1	3¼	1	1½	1¾	1¾
Unemployment rate[3]	4.5	3¾	4¼	4½	4½	4¾
Inflation[4]	5.4	7¼	3¾	3	2½	2½
Wage Price Index	2.5	3¾	4	3½	3½	3½
Population	1.6	2	1¾	1½	1½	1½

Notes:

1. Unless otherwise stated, all figures are annual percentage changes.
2. Chain volume measure (CVM), 2020–21 reference year.
3. Per cent, year-average.
4. Brisbane, per cent, year-average.

Sources: ABS Annual State Accounts, National, State and Territory Population, Labour Force, Wage Price Index, Consumer Price Index, and Queensland Treasury.

Electricity

Cost escalation methodology summary	
QCA approach 2020	AEMO 2019 retail electricity price assumptions, adjusted to nominal terms using CPI assumption
QCA inflation paper guidance	Not specifically set out.
Sunwater proposed methodology	Sunwater's approach is to use: • Actual escalation where Sunwater has long term contracts in place • Where there is no contract in place, use forecast electricity escalation provided by recognised authority (QCA or AEMO) • Use CPI for years where there is no forecast that is deemed reasonable Sunwater proposes to escalate electricity prices on a National Metering Identifier (NMI) basis: • If the NMI is in the Scheme NMIs (i.e. covered under the Whole of Government (WoG) agreement) use NMI specific electricity escalation for 2023-24 to 2027-2028 with 2028-29 escalated at the RBA mid-point value • If the NMI is not included in the Scheme NMIs, use the 'Regulated retail electricity prices in regional Queensland' 2023-24 tariff forecasts for 2023-24 based on the NMI tariff and then Sunwater's proposed general inflation index for escalation from 2024-25 to 2028-29 (Base Rates)
Any deviation, and why	Very similar to the QCA's previous approach aside from AEMO forecasts not yet available, proxy used.

In its previous price review, the QCA employed the following methodology to determine the appropriate escalation factor for Sunwater's electricity costs.

Figure 4 - The QCA's approach to electricity cost escalation in the 2020 price review

Electricity (default)	AEMO 2019 retail electricity price assumptions, adjusted to nominal terms using our CPI assumption	2019–24	(4.07) (2019–20); 2.14 (2020–21); 1.57 (2021–22); 1.60 (2022–23); 1.38 (2023-24)

Since the 2020 price review electricity prices in Queensland have experienced unprecedented volatility, particularly in the last 12 months. Base contract prices have risen from $250 to $320 per MWh.

The Australian Energy Market Commission stated that the increase was '*as a direct result of global events and fuel prices and the suspension of the wholesale market in June 2022*'.

Forecasting electricity escalators is complex given the current and future energy issues. For this reason, Sunwater proposes to escalate electricity prices on a National Metering Identifier (NMI) basis:

- If the NMI is in the Scheme NMIs (i.e. covered under the Whole of Government (WoG) agreement) use NMI specific electricity escalation for 2023-24 to 2027-2028 with 2028-29 escalated at the RBA mid-point value
- If the NMI is not included in the Scheme NMIs, use the 'Regulated retail electricity prices in regional Queensland' 2023-24 tariff forecasts for 2023-24 based on the NMI tariff and then Sunwater's proposed CPI approach (as per the materials escalator) for escalation from 2024-25 to 2028-29 (Base Rates)

Insurance

Cost escalation methodology summary	
QCA approach 2020	Actual increase for Year 1, Marsh forecast for Year 2, then CPI remaining years
QCA inflation paper guidance	Not addressed in detail other than CPI forecast approach (anchor year and glide path)
Sunwater proposed methodology	Known increase for year 1, expected increase for year 2 (Marsh estimate), then glide path to anchor and mid-point thereafter
Any deviation, and why	No deviation from the QCA's 2020 methodology, updated for its stated CPI forecasting approach (with anchor year and glide path)

In the 2020 price review the QCA adopted the below methodology to escalate Sunwater's insurance costs for the forthcoming price path period.

Figure 5 - The QCA's approach to insurance cost escalation in the 2020 price review

Insurance	Actual increase	2019–20	14.71
	Based on Marsh (broker) forecast	2020–21	10.00
	CPI forecast	2022–24	2.20 (2021–22); 2.50 (2022–24)

For this price review, Sunwater has adopted the same approach, updated for the QCA's stated CPI forecasting approach (with anchor year and glide path).

In May 2023 Sunwater received advice from Marsh that premiums for both the ISR and Liability policies would continue to rise in the short term. Marsh advised CPI is the most reliable cost escalator in the longer term because "It is very difficult to predict premiums so far into the future when there are many factors which effect premium pricing". Marsh's market outlook noted current factors affecting insurance premiums in the short to medium, shown in Figure 6 below.

Figure 6 - Factors affecting insurance premiums in the short to medium term

Ukraine/Russia	Cyber	Natural Perils	Macro impacts	Capacity
Exposure management, Dependencies and Sanctions	Cyber coverage and exclusionary language	Secondary peril exposures	* Inflation	Global Insurers are now retaining a greater amount of CAT exposure
Territorial Scope & Exclusionary Language	Non PDBI exposures	Climate change	Economic Outlook/ Higher Interest Rates	There was a major push to restrict scope of cover
The next big "known unknown" or "unknown unknown"		Model change / Model Adjustment	ESG	CAT programmes in "non-peak " zones were impacted
Market Hardening				

For this reason, Sunwater has adopted the QCA's CPI approach for years three, four, five and six of the forecast.

For years one and two, Sunwater has taken Marsh's short-term advice on asset values, ISR and Liability policy premiums to estimate the expected insurance cost increases for 2023-24 and 2024-25.

Declared asset value (DAV)

Premiums are based on two factors, the value of the assets being insured and the premium applied to the policy type.

Insurers largely accept asset revaluations every five years and for Sunwater, the Australian Bureau of Statistics' Queensland Roads and Bridges Index (series ID A2333727L) to escalate asset values in the between years.

In 2021 Sunwater undertook a full revaluation of its assets resulting in a reduction in values from $13.5B to $11.7B (↓13.33%). This drove significant savings for customers in terms of insurance costs.

For 2022 and 2023 Sunwater's declared asset value was escalated using the Queensland Roads and Bridges Index. This resulted in the declared asset values set out below.

Table 5 - Sunwater's DAV for 2023-24 and 2024-25

	Starting asset value	Queensland Roads and Bridges Index	Declared asset value for given year
2021-22	$11.7B	6.83%	$12.5B
2022-23	$12.5B	14.4%	$14.3B

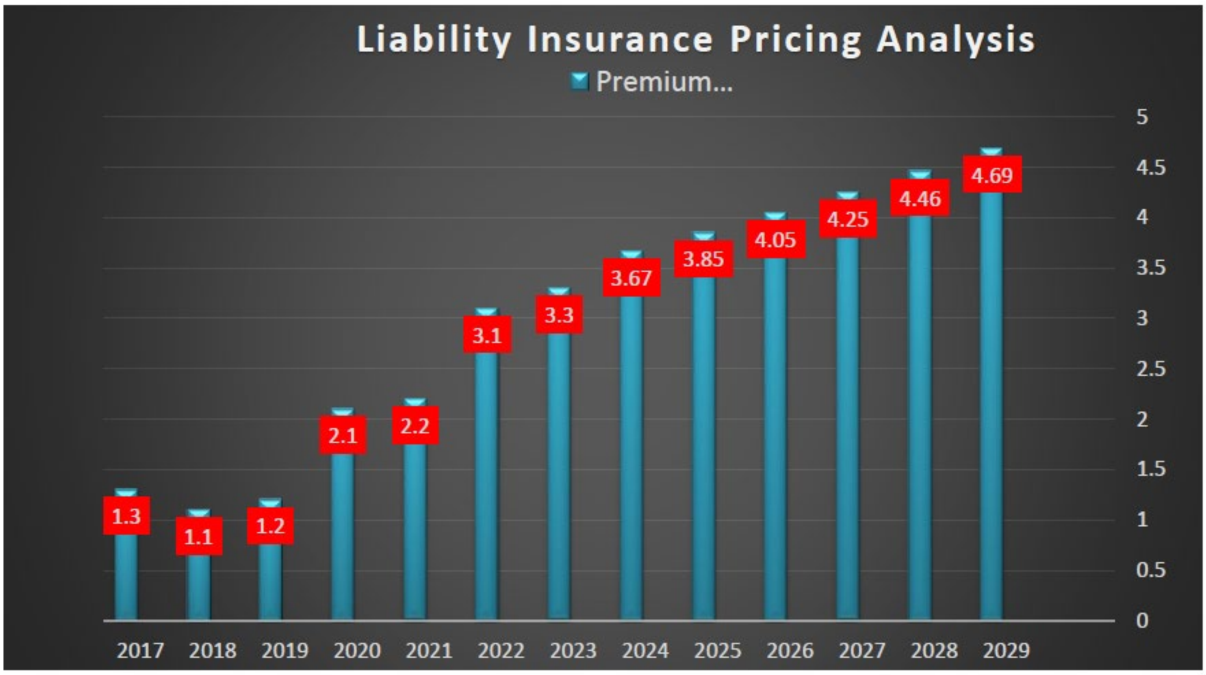
Policy premiums

Separate to declared asset value increases are policy premium increases. The two largest insurance costs for Sunwater are ISR and Liability policies. Marsh provided the below forecast for insurance premiums in its May 2023 outlook.

Figure 7 - Property Indicative Pricing

Holding DAV steady, Marsh is forecasting property premium increases in 2023-24 and 2024-25 of 4.95 per cent and 4.98 per cent respectively.

Figure 8 - Liability insurance pricing analysis



Marsh is forecasting liability insurance premium increases in 2023-24 and 2024-25 of 11.21 per cent and 4.90 per cent respectively.

Total insurance escalation

Factoring the above expected increases in DAV and Marsh's commentary on policy premiums, Sunwater has taken a conservative approach to forecasting insurance cost escalation for the first two years of the cost escalation period.

Sunwater has elected to use the Queensland Roads and Bridges index forecast of 11 per cent for declared asset values in 2023-24, and in the absence of more reliable forecast data, ***no inflation assumption for 2024-25*.**

Table 6 - Sunwater's forecast DAV to inform insurance cost escalators for the pricing proposal

	Starting asset value	Queensland Roads and Bridges Index	Declared asset value for given year
2023-24	$14.3B	11.00%	$15.87B
2024-25	$15.87B	0.00%	$15.87B

When considering Marsh's commentary on policy premiums, and acknowledging the difficulty in accurately forecasting premium increases, Sunwater based its 2023-24 assumption on advice from Marsh that a 10 per cent increase in premiums would be a reasonable assumption in the short term.

For 2024-25 Sunwater has assumed no increase to declared asset value, which is highly unlikely but lacking reliable forecast data. For this reason, Sunwater has assumed a premium increase of 5 per cent above the current rate of inflation at the time which was 5.73 per cent. These assumptions are reflected in the table below and form the basis of Sunwater's insurance cost escalators for years one and two of the cost escalation forecast.

Table 7 - Expected increases in insurance costs 2023-24 and 2024-25

	DAV increase assumption	Premium increases (across policy types) assumption	Total insurance increase assumption
2023-24	11.00%	10.00%	21.00%
2024-25	0.00%	10.73%	10.73%

General inflation index

Cost escalation methodology summary	
QCA approach 2020	CPI using latest RBA short-term inflation forecast, then RBA midpoint
QCA inflation paper guidance	The QCA's stated position is to use short-term RBA forecasts for the first two years of the regulatory period and derive forecasts up to the fifth year ahead, using a linear glide path—from the RBA's short-term forecast in year 2 to a rules-based anchor-point forecast in the fifth year ahead. Specifically, if the second year forecast of headline inflation is: • less than or equal to 2 per cent, the anchor point would be set at 2.25 per cent • between 2 per cent and 3 per cent, the anchor point would be set at 2.5 per cent • greater than or equal to 3 per cent, the anchor point would be set at 2.75 per cent. If the second year RBA forecast is not available, the QCA states it will use a linear glide path commencing from the RBA's first year forecast, and refer to the December-ending RBA forecast in the second year ahead when determining the anchor point.
Sunwater proposed methodology	Sunwater proposes the same approach as the above, specifically, CPI using short term RBA inflation forecast (June-June) and then a linear glide path from the second year RBA forecast to the end of period, with and anchor point in year 5, where year 5 of the forecast years is currently 2027-28.
Any deviation, and why	No deviation from QCA stated position in its Inflation Paper other than the timing of the short-term RBA forecasts and the 5-year anchor point.

Labour cost escalation

Cost escalation methodology summary	
QCA approach 2020	Queensland Government Annual Budget 2019-23, then ABS 10-year average WPI for all sectors in QLD over 2009-19
QCA inflation paper guidance	The QCA states its position is to use expected CPI inflation to escalate opex and capex input costs where the underlying cost drivers are not materially different from CPI inflation; however, to use input specific or sector-specific cost escalators where underlying cost drivers are materially different from CPI inflation[3]. For labour cost escalation, it has previously used Queensland Treasury's most recent forecasts of the Queensland wage price index (WPI) for up to three years ahead, with the long-term (10-year) historical average Queensland WPI thereafter. The QCA states it considers that the Queensland Treasury is a reliable source of information, and its data is publicly available and therefore transparent. The QCA considers the WPI to be the best estimate of wage cost escalation because it measures the pure price change in labour costs independent of compositional changes such as variations in the quality or quantity of work performed.
Sunwater proposed methodology	Sunwater proposes a similar approach as above with two exceptions: • The Year 1 forecast to be based on a known and committed employee increase • Consistent with other approaches, a linear glide path from Queensland Treasury/RBA forecasts in Years 2 and 3 to Year 4 (shown below) Sunwater proposes the QCA approach of the 10-year simple average for QLD WPI all sectors for years 5 and 6 of the forecast.
Any deviation, and why	Sunwater has adopted the committed employee increase of 4.5% in year 1 of the forecast, and a glide path in year 4 to the long-term average for WPI. Reasons for this deviation are set out below.

[3] QCA, Inflation forecasting, final position paper, p. 15

Figure 9 - Queensland economic forecasts/projects

Table 2.2 Queensland economic forecasts/projections[1]

	Actuals	Forecasts			Projections	
	2021–22	2022–23	2023–24	2024–25	2025–26	2026–27
Gross state product[2]	**4.4**	**2**	**3**	**3**	**2¾**	**2¾**
Employment	5.1	3¼	1	1½	1¾	1¾
Unemployment rate[3]	4.5	3¾	4¼	4½	4½	4¾
Inflation[4]	5.4	7¼	3¾	3	2½	2½
Wage Price Index	2.5	3¾	4	3½	3½	3½
Population	1.6	2	1¾	1½	1½	1½

Notes:

1. Unless otherwise stated, all figures are annual percentage changes.
2. Chain volume measure (CVM), 2020–21 reference year.
3. Per cent, year-average.
4. Brisbane, per cent, year-average.

Sources: ABS Annual State Accounts, National, State and Territory Population, Labour Force, Wage Price Index, Consumer Price Index, and Queensland Treasury.

Reasons for deviation from QCA approach

It is important to note that the Queensland Treasury/RBA forecast for wage growth in 2023-24 does not reflect the agreed wage increases across Queensland Government for government employees (which is 4.5 per cent).

In order to successfully negotiate the next Enterprise Agreement with Sunwater employees, Sunwater, in line with State Government policy, has agreed wage increases as set out below.

Table 8 - Agreed wage increases

	2022-23	2023-24	2024-25
Wage increases	4.50%	4.50%	3.50%

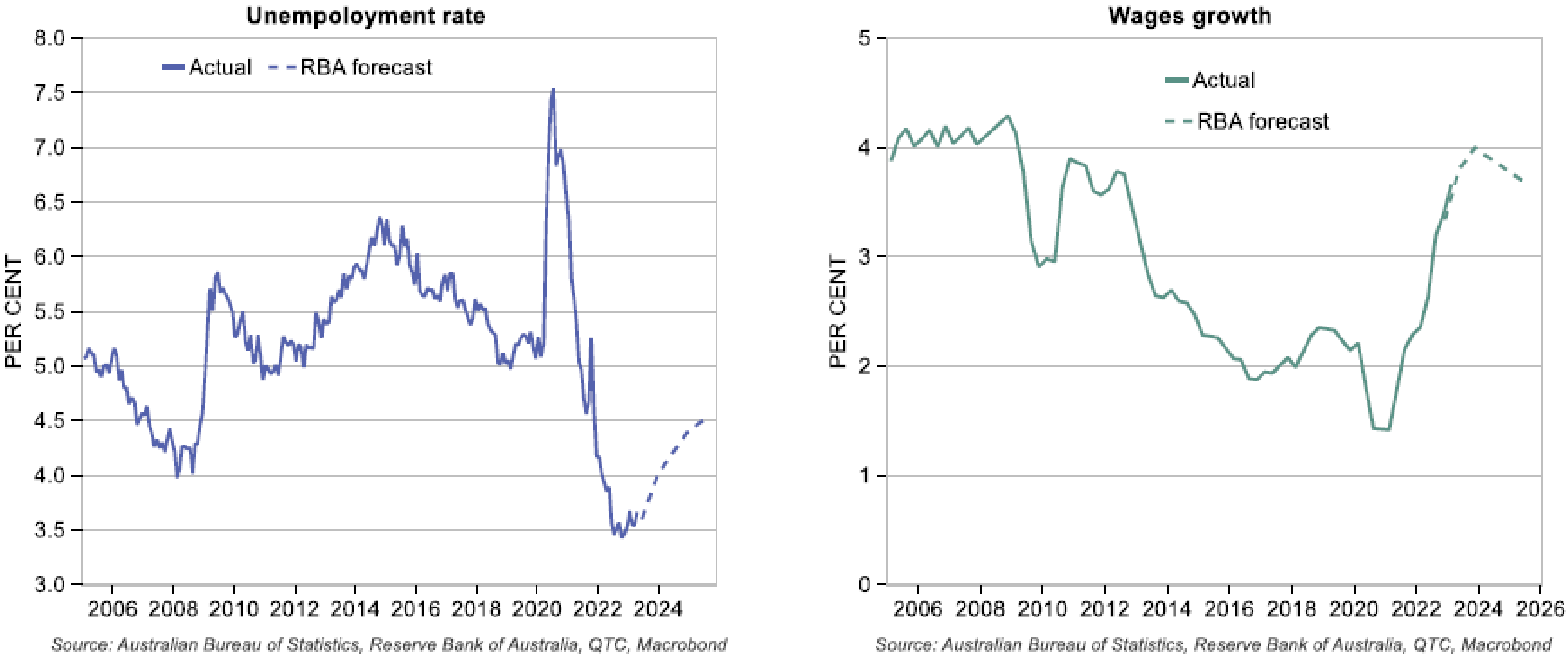
These rates were the subject of extensive consultation and market testing, and initiated by external advice set out below.

External advice on wage escalation

This is one of the toughest markets for wage-price escalation the nation has seen in more than a decade.

Inflation is the highest it has been in this period, and cost of living pressures are being felt across the nation.

Figure 10 - ABS/RBA unemployment and wage growth forecasts



Wages growth is expected to reach its fastest rate since 2009 before softening in 2024-2025.

Employees and employee representatives across all labour markets have been active for some time, with upwards pressure on wages to close the cost-of-living gap.

Sunwater received external advice on the labour market when preparing its Strategic Workforce Planning initiative. The current labour market represents a risk to Sunwater and its services to customers if Sunwater does not meet the market in terms of its wage expectatio

Figure 11 - External analysis provided to Sunwater on current labour market

- There may be increasing difficulty attracting and recruiting staff as demand in the external labour market is accelerating for critical and specialist skill segments
- Strong employment growth predicted to 2025, for regional and remote regions of Queensland
- Greater work participation may require organisations to look at offering flexible work arrangements, and directly addressing critical participation barriers

Innovative attraction and retention **strategies** will be key to securing workers in a **shrinking talent pool**

Given that **STEM jobs are growing almost twice as fast** as other jobs, Sunwater has an important role to play in **developing female STEM talent**

Over the five years to November 2025, **STEM** occupations are projected to **grow (12.9 per cent), more than twice as fast** as non-STEM occupations

Current **Unemployment** rate **(3.5%)** at the **lowest** since April 2012

52% of employed persons indicated that the **ability to work Part-time** hours was one of the **most important incentives** to increasing work participation

Female workforce **participation increased** to 62.1%, compared with males which decreased to 70.4%

Job **Vacancies** in Electricity, Gas, Water & Waste Services industry in Queensland are to rise by **8.3%** by 2024/25.

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This led to the agreed wage increases set out in Table 4 which Sunwater believes is vital to attracting and retaining the employees required to deliver the regulated water services.

For this reason, Sunwater proposes this wage increase for 2023-24.

Given the higher than 10-year average wage escalation at present, Sunwater proposes a glide path approach to the 10-year average WPI. Sunwater proposes two years of Queensland Treasury/RBA forecasts for wage escalation in Queensland post the known Year 1 increase with a glide path to the longer term WPI of 2.47 per cent in years 5 and 6.

It is unlikely labour escalation will drop from 3.5 per cent to 2.47 per cent in one year. It is more reasonable to expect escalation will glide from 3.5 per cent to 2.98 per cent and then 2.47 per cent or thereabouts into the future.

In calculating the 10-year average for WPI in Queensland (all sectors), Sunwater relied on independent advice from KBR set out in Table 6 below.

Table 9 - Independently calculated 10 year WPI average

Ten-year average

Year	Index	Annual change
2014–15	120.5	2.4
2015–16	122.8	2.2
2016–17	125.1	2
2017–18	127.9	2
2018–19	130.8	2.3
2019–20	133.3	2.1
2020–21	135.4	1.5
2021–22	138.7	2.4
2022–23*	143.9	3.75
2023-24*	149.7	4
Ten year simple average		**2.47**
Ten year geometric average		**2.43**

Consultant note: 2022-23 and 2023-24 are based on a forecast. Given that recent years have a much higher wage increases than the ten year average, it is considered appropriate that these values inform the price path period. The current WPI (albeit a forecast) is considered more reliable than 2013-14.

Irrigation pricing proposal

1 July 2025 to 30 June 2029

Appendix D Demand Report

Sunwater Demand

Sunwater demand – review of forecasting approach

Sunwater Demand

Sunwater demand – review of forecasting approach

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CLIENT
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11 September 2023

Limitations Statement

The sole purpose of this report and the associated services performed by Kellogg Brown & Root Pty Ltd (KBR) is to **estimate demand in Sunwater's schemes** in accordance with the scope of services set out in the contract between KBR and **Sunwater** ('the Client'). That scope of services was defined by the requests of the Client, by the time and budgetary constraints imposed by the Client, and by the availability of access to the site.

KBR derived the data in this report primarily from **data provided by Sunwater**. In preparing this report, KBR has relied upon and presumed accurate certain information (or absence thereof). Except as otherwise stated in the report, KBR has not attempted to verify the accuracy or completeness of any such information.

The findings, observations and conclusions expressed by KBR in this report are not, and should not be considered, an opinion. No warranty or guarantee, whether express or implied, is made with respect to the data reported or to the findings, observations and conclusions expressed in this report.

This report has been prepared on behalf of and for the exclusive use of the Client, and is subject to and issued in connection with the provisions of the agreement between KBR and the Client. KBR accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report by any third party.

Revision History

Revision	Date	Comment	Signatures			
			Originated by	Checked by	Technical Approval	Project Approval
1	11 September 2023	Distribution Loss Report	Matt Bradbury	Nick Smith	Sebastian Vanderzeil	Chris Hewitt

Contents

Sunwater demand forecast for 2025-26 to 2029-30 regulatory submission

BACKGROUND

The demand forecast for Sunwater's last pricing submission to the QCA was calculated as the average of the previous 20 years of water demand for each scheme.

This paper discusses two topics:

- Confirming the previous approach using a 20-year average
- Calculation of the 20-year average for each scheme

REVIEW OF FORECASTING APPROACH

The demand forecast for Sunwater's last pricing submission to the QCA was calculated as the average of the previous 20 years of water demand for each scheme.

KBR reviewed this approach, with the aim to determine whether the 20-year average continues to be the most suitable method, or whether there is an improved approach that is practical to implement and can be consistently applied to each of the schemes.

The recommended approach will form the basis of the demand forecast for the upcoming submission to the QCA for the regulatory period 2025-26 to 2029-30.

Data Provided

KBR relied on the following information provided by Sunwater and is considered comprehensive for the demand forecast assessment.

- PRODUCTION-#2640958-v2-All_Schemes_-_AA_History.XLSX
- PRODUCTION-#2776701-v1-Historical_water_allocations_all_schemes_2002_to_2022.XLSX
- PRODUCTION-#2776527-v1-Historical_water_usage_regulated_schemes_2002_to_2022.XLSX
- PRODUCTION-#2659833-v4-20211013_Scheme_water_allocation_and_usage_data_request_-_Service_and_Performance_Plans
- PRODUCTION-#2750877-v6-Scheme_water_allocation_and_usage_data_file_-_2024_Service_and_Performance_Plans_V2
- PRODUCTION-#2803882-v1-Scheme_water_allocation_entitlement_and_usage_data_file_-_2025_Service_and_Performance_Plans
- Sunwater 2020-2024 irrigation review final report – 20 year water use forecasts.XLSX
- QCA Information Request 29_Attachement 1_water entitlements and usage v2.XLSX

Method

KBR sought to identify trends in the data that could be used as a basis for projections of future water demand. Some of the initial questions considered were:

- Is there a general trend (up, down, or flat) in water demand over the 20 years?
- Is there a change in WAEs over the 20 years?
- Is there a relationship between AAs and annual water demand?

Assessment of the data was conducted for total water usage as well as at a scheme level, to determine if there are trends at all levels and to ensure the adopted demand forecasting approach aligns with the scheme-level structure of other elements of the submission (e.g., the pricing model). The following table outlines the fields and parameters analysed from the three data sets.

Table 1 Data analysis parameters

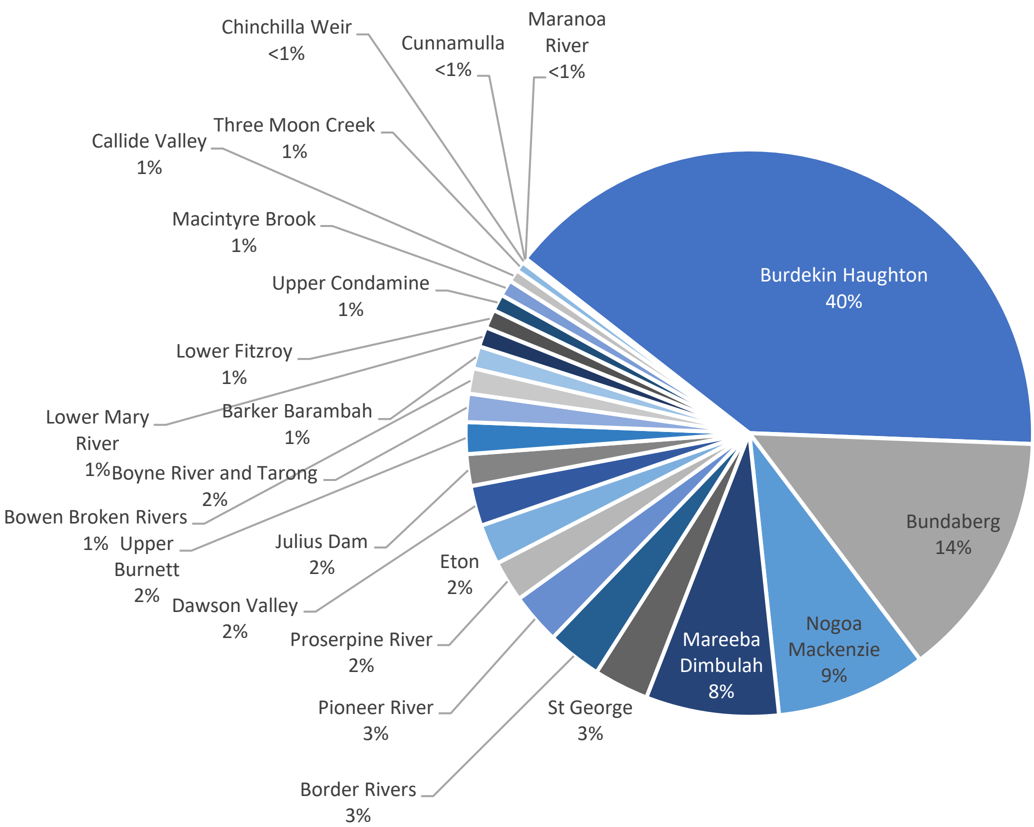
Data set and unit	Time step	Calculation	Priority	Scheme level
WAE (ML)	Annual	Sum	Medium and high	Scheme & total
AA (%)	Quarterly	Min, max, average	Medium and high	Scheme & total
Water demand (ML)	Annual	Sum	N/A (total only)	Scheme & total

AA percentage data was converted to volumes through multiplication with WAE volumes. The minimum and maximum AA in each quarter was extracted to provide the range over each timestep, as the opening, ramp up and closing AA in each quarter may have an impact on water demand.

Assessment

The pie chart in Figure 1 shows the scheme volumes as a percentage of the sum total volume of all schemes. This shows that top two schemes, Burdekin Haughton and Bundaberg, make up over 50% of the overall WAE volume, and the top five make up almost 75%. It's important to consider the relative contribution these schemes have on overall trends and to ensure that the proposed forecasting approach aligns with the trends of the greatest volume of demand.

Figure 1 Proportion of WAE by scheme (% of total WAE volume)



Water demand, WAE and AA data was plotted by date on charts to visualise and compare trends over the 20 years. The chart for the total water demand across all schemes is presented in Figure 2, and the individual scheme plots are provided in Appendix A.

For some schemes, there were material increases and/or decreases in WAE volumes over the last 20 years. Overall, the WAE total volume changed by only small amount over the 20 years, resulting in an overall increase of 5% from 2003 to 2022. There was little to no evidence of WAE changes having an impact on water demand, i.e. increases or decreases in WAE did not consistently result in corresponding increases or decreases in water demand.

AA volumes fluctuated inconsistently over the 20 years. This is as expected, as the volumes announced depend on water availability, which is impacted by weather and climate conditions, which are inherently variable.

There are significant peaks and troughs in water demand, with a large variety in the timing and scale of those fluctuations across the schemes. Total water demand also fluctuates, but generally over larger time periods than individual schemes.

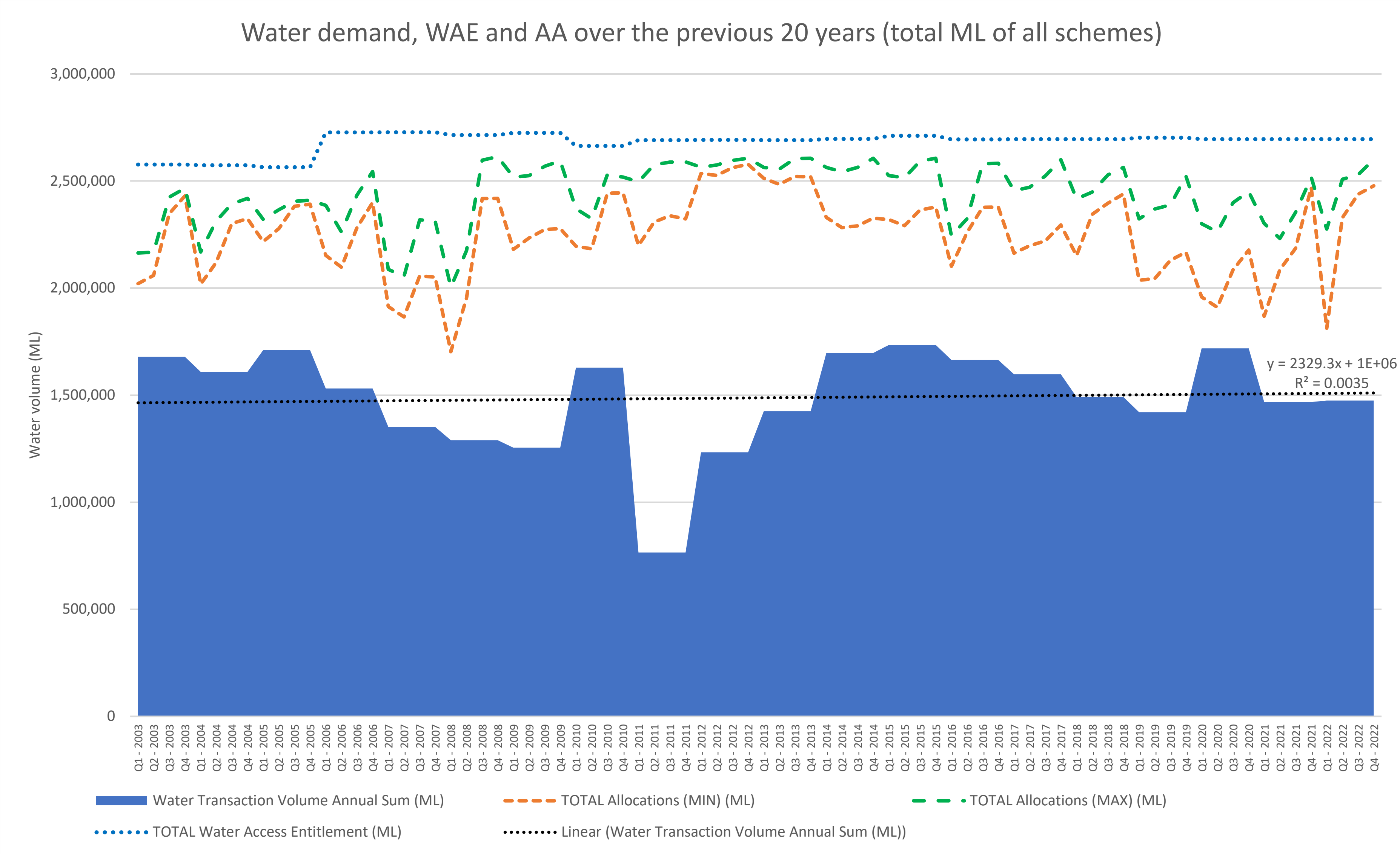


Figure 2 20 years of water demand, AA and WAE for all schemes totalised, 2003 to 2022. The water demand linear trend formula displayed is the equation for x in years, not quarters.

There is a near-zero growth trend in overall use. Placing a linear line of best fit across the total water demand generates an almost horizontal line (0.16% slope). The R^2 value of 0.003 indicates high variance when compared to a smooth linear trend,[1] showing how the water demand was volatile on an annual basis.

Lines of best fit were similarly placed on the individual scheme demand data, with varying results, as demonstrated in Table 2.

Table 2 Water demand trends by scheme

Network	2022 Access Entitlement (ML)	20-year average usage (ML/a)	Slope of linear trend of demand (ML/a)	R^2 value of linear trend (ML)
ALL NETWORKS	**2,695,244**	**1,487,227**	**2,329**	**0.003**
Barker Barambah	34,315	12,197	-398	0.089
Bowen Broken Rivers	38,931	15,725	131	0.092
Boyne River and Tarong	43,405	21,911	101	0.008
Bundaberg	380,329	122,514	5,146	0.283
Burdekin Haughton	1,079,593	617,944	-4,386	0.031
Callide Valley	18,935	12,296	252	0.201
Chinchilla Weir	4,049	9,256	986	0.476
Cunnamulla	2,612	1,880	26	0.082
Dawson Valley	61,737	53,999	1,681	0.420
Eton	62,059	25,429	-340	0.038
Lower Fitzroy	28,621	18,636	-66	0.054
Lower Mary River	30,399	9,003	182	0.045
Macintyre Brook	24,997	14,187	-733	0.398
Maranoa River	805	25	-2	0.129
Mareeba Dimbulah	204,424	131,541	-104	0.001
Nogoa Mackenzie	231,859	165,696	-2,870	0.180
Pioneer River	78,110	26,099	-621	0.150
Proserpine River	62,876	26,786	-589	0.131
St George	84,575	165,451	3,585	0.120
Three Moon Creek	14,934	-7,360	-160	0.145
Upper Burnett	48,700	17,874	106	0.014
Upper Condamine	25,715	26,138	402	0.029
Border Rivers	84,414	0	0	N/A*
Julius Dam	48,850	0	0	N/A*

* No water demand data provided

The majority of schemes did not correlate well with a linear trend, displaying similar volatility with significant peaks and troughs in demand. Although a handful of schemes had R^2 values of 0.4 to 0.5, closer scrutiny of those schemes revealed unusual data (e.g., demand far exceeding WAE volumes) and therefore inconclusive results.

Overall, the trend in total water demand matched almost exactly the 20-year average, and there was otherwise no growth trend identified that could be applied as a demand forecasting method.

[1] R^2 measures the variance between the data and the linear trend, where 0 is zero correlation and 1 is perfect correlation.

AA and water demand volumes

Intuitively, a correlation may exist between AA and future water demand: if the AA is currently high, does this correlate with higher water use, either now or in the future. If a strong relationship was found, there could be a justification to forecast higher / lower demand.

This was investigated by developing scatter plots of the AA volumes on one axis compared to water demand on the other. If the charts resembled dots along a line, it could indicate a relationship between the two variables. The strength of that correlation was tested with the R^2 value of a linear line of best fit.

Further factors were considered in this assessment:

- A lag may exist between the release of AA volumes and resulting impacts on water demand, due to storages providing a buffer between water sources and their users. Therefore, additional scatter plots were developed with water demand delayed by varying timeframes.
- The minimum, maximum or average AA may have varying impacts on water demand. Each were tested, but found to have only a minor impact on results. The scatter plots presented in this report are the results using an average annual AA, due to it producing the highest R^2 values, though only by a small margin.

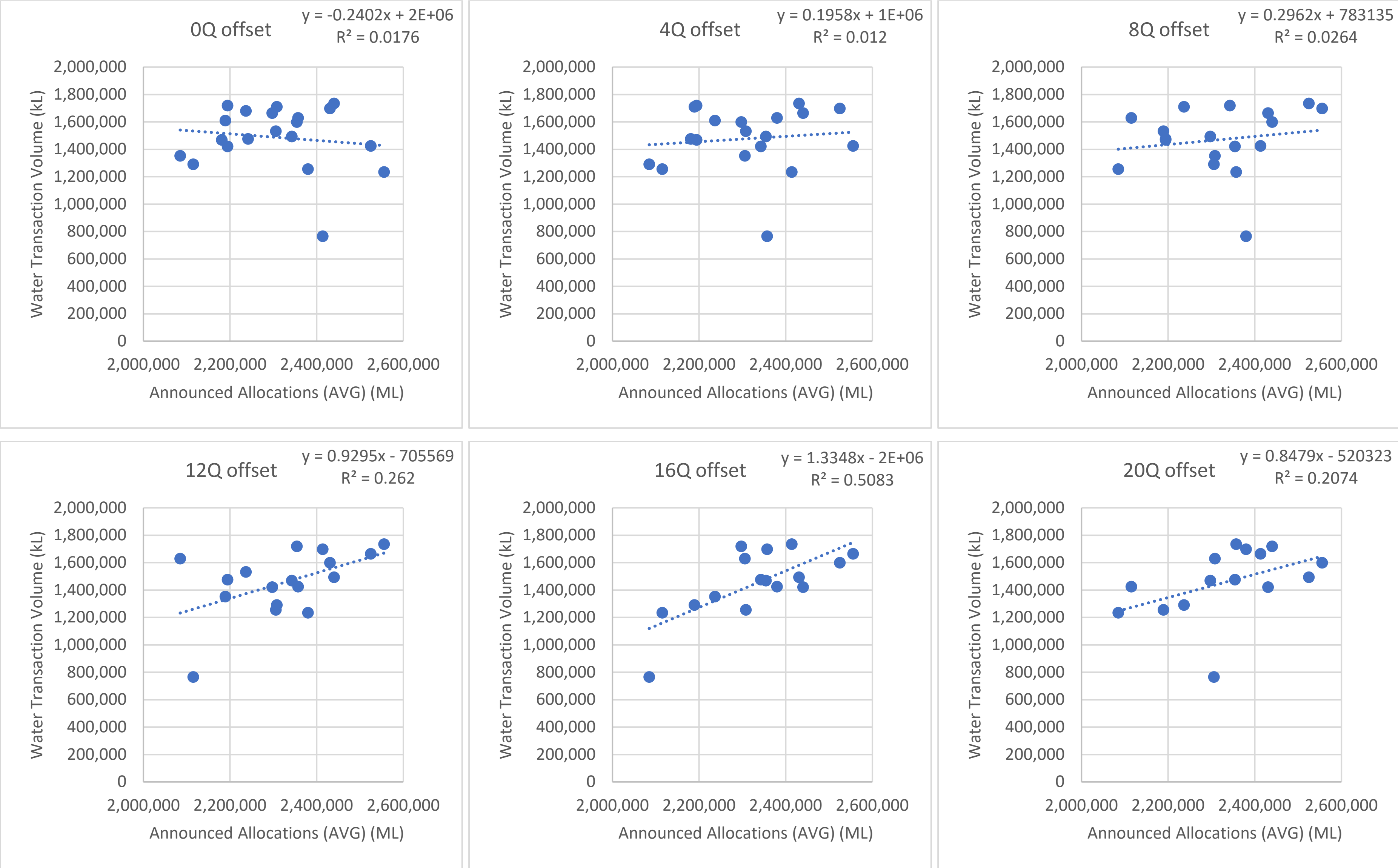
The R^2 results are summarised in Table 3, and the AA vs. water demand plots for totalised volumes are presented in Figure 3. Plots for each scheme are provided in Appendix A, due to the large number of figures.

Table 3 R^2 values for each water demand timing offset

Network	R^2 values for each water demand timing offset (Q = Quarters)						
	0Q	4Q	8Q	12Q	16Q	20Q	24Q
Total of all networks	**0.018**	**0.012**	**0.026**	**0.262**	**0.508**	**0.207**	**0.004**
Barker Barambah	0.321	0.579	0.423	0.379	0.051	0.061	0.276
Bowen Broken Rivers	0.000	0.157	0.115	0.107	0.000	0.015	0.131
Boyne River and Tarong	0.027	0.203	0.253	0.197	0.297	0.208	0.180
Bundaberg	0.130	0.174	0.111	0.186	0.277	0.211	0.160
Burdekin Haughton	0.003	0.001	0.010	0.045	0.164	0.062	0.020
Callide Valley	0.114	0.012	0.080	0.209	0.507	0.476	0.311
Chinchilla Weir	0.085	0.201	0.372	0.495	0.479	0.447	0.368
Cunnamulla	0.051	0.015	0.073	0.131	0.108	0.006	0.069
Dawson Valley	0.000	0.019	0.034	0.096	0.346	0.171	0.012
Eton	0.303	0.009	0.018	0.002	0.000	0.276	0.006
Lower Fitzroy	0.013	0.011	0.118	0.123	0.000	0.002	0.027
Lower Mary River	0.001	0.054	0.002	0.081	0.032	0.082	0.001
Macintyre Brook	0.076	0.000	0.034	0.178	0.168	0.027	0.190
Mareeba Dimbulah	0.219	0.008	0.001	0.031	0.068	0.003	0.274
Nogoa Mackenzie	0.440	0.222	0.041	0.004	0.028	0.009	0.060
Pioneer River	0.001	0.032	0.008	0.004	0.000	0.234	0.011
Proserpine River	0.026	0.010	0.002	0.035	0.339	0.050	0.005
St George	0.002	0.058	0.365	0.228	0.089	0.061	0.012
Upper Burnett	0.035	0.090	0.198	0.222	0.506	0.327	0.310
Upper Condamine	0.340	0.080	0.067	0.001	0.015	0.016	0.283
Maranoa River*	-	-	-	-	-	-	-
Three Moon Creek#	-	-	-	-	-	-	-

* No AA data provided ^ No water demand data provided # Negative water demand recorded

Figure 3 Scatter plots of AA versus water demand (total across all schemes), with varying annual quarter (Q) offsets and trend lines to evaluate correlation



For the totalised results, there appears to be little correlation between AA volumes and water demand in the same year (0Q) and the years immediately following (4Q through 12Q). For the 16Q offset, an R^2 value of 0.508 indicates a potential four-year lag between AA volumes and impacts to water demand. However, in discussion with Sunwater it was considered that four years is an unlikely long period to be reasonable for a lag factor, and it is possible that the result is a coincidence.

On an individual scheme basis, the results are varied. Of the 24 schemes, there are five with R^2 values of greater than 0.4, but at different timing offsets. The largest WAE volume scheme, Burdekin Haughton, has a top correlation result of just 0.164, and the second largest, Bundaberg, has a top result of 0.277, indicating low correlation for over 50% of the total WAE volume. The highest R^2 value was 0.579 for Barker Barambah at the 4Q offset, but amounts to just 1% of total WAE.

From these results, there is some indication of a measurable relationship between AA and water demand for some schemes, but it is not conclusive. Furthermore, it does not readily translate into an approach that can be adopted for a demand forecast, as an AA forecast would be required first, and one does not currently exist. It may be an area to investigate further for future submissions.

Key findings and recommended approach

Key findings:

- Water demand over the last 20 years was volatile, and did not conform to a smooth growth trend at a scheme level or in total over the 20-year period.
- The total water demand trendline was near horizontal, indicating that the 20-year average is a reasonable approximation of the long term trend in total water demand.
- No conclusive relationship could be established between water demand and AA volumes. Offsetting water demand by a lag factor improved results for some schemes, but not consistently. The greater volume of demand showed poor correlation at all timing offsets. In any case, basing the demand forecast on AA volumes would require a sufficiently robust AA forecast, and is not a practical approach.

Based on the above findings, KBR considers that the 20-year average of water demand remains the most practical demand forecasting approach, and recommends that it be adopted for the upcoming submission to the QCA.

The recommended approach has been applied to the latest (2022-23) water demand data and the results are discussed in the next section of this report.

DEMAND FORECAST

KBR has prepared a 20-year simple average for each of Sunwater's irrigation schemes, aligned with the method applied by the QCA in the previous review.

Adjustments to water demand and WAE data

In the previous review, several scheme-specific adjustments were applied to customer water demand and WAE data by Sunwater and the QCA, to reflect the way those schemes are managed and regulated. The approach undertaken for this submission is consistent with that of the previous review.

The adjustments made to the demand data are documented in Appendix B of this report.

The adjustments made to the WAE data are listed below, which is an extraction from the previous submission file *QCA Information Request 29_Attachment 1_Water entitlements and usage v2.xlsx*.

Table 4 Adjustments applied to 2023 WAE data, consistent with the previous submission

Adjustments to data

Scheme	Review adjustment	Reason
Bundaberg (distribution)	Included Burnett Water allocations delivered through the Bundaberg distribution system	Some Burnett Water allocations continue to be delivered through the distribution system.
Bundaberg (bulk)	Exclusion of Burnett Water allocations for Paradise Dam	Not subject to QCA review. Also excluded from water deliveries.
Burdekin Haughton (distribution)	Exclusion of 110,000 ML of reserve allocations for Townsville Thuringowa Water Supply Board	The Board has not yet taken up these reserve allocations.
Eton (bulk & distribution)	Additional 700 ML of high priority allocations for two industrial customers in the Pioneer scheme that use Eton bulk and distribution assets	Contractual arrangements have not changed since the 2012 review.
Lower Mary (bulk)	Included 2690 ML of medium priority water allocations and 1360 ML of high priority water allocations for the Teddington Weir water supply scheme.	The resource operations plan requirements in relation to bulk water transfers from Lower Mary River water supply scheme to Teddington Weir water supply scheme still apply.
Upper Burnett	Exclusion of Burnett Water allocations for Kirar Weir	Not subject to QCA review. Also excluded from water deliveries.

Other adjustments

Scheme	Adjustment
Eton distribution	Excluded 504 ML of risk priority water entitlements (Mirani Diversion Channel customers). These customers do not use the distribution system.

The adjusted water demand data has been used to calculate the 20-year average. This calculation has used the data provided to the QCA (and accepted by them) for the 2020-24 review for 16 years (2003-04 to 2018-19).

For the remaining four years (2019-20 to 2022-23), published NSP data has been used, which adopts the same adjustments to water demand.

Resulting 20-year average demand

The results of the 20-year average of adjusted water demand is provided Table 3. Average water use is presented in ML for each scheme, as well as a percentage of each scheme's WAE. This is then compared to the WAE percentage from the prior 2020-24 submission, showing the change in 20-year average demand.

Table 5 Water use by scheme, 20-year average over 2003-04 to 2022-23

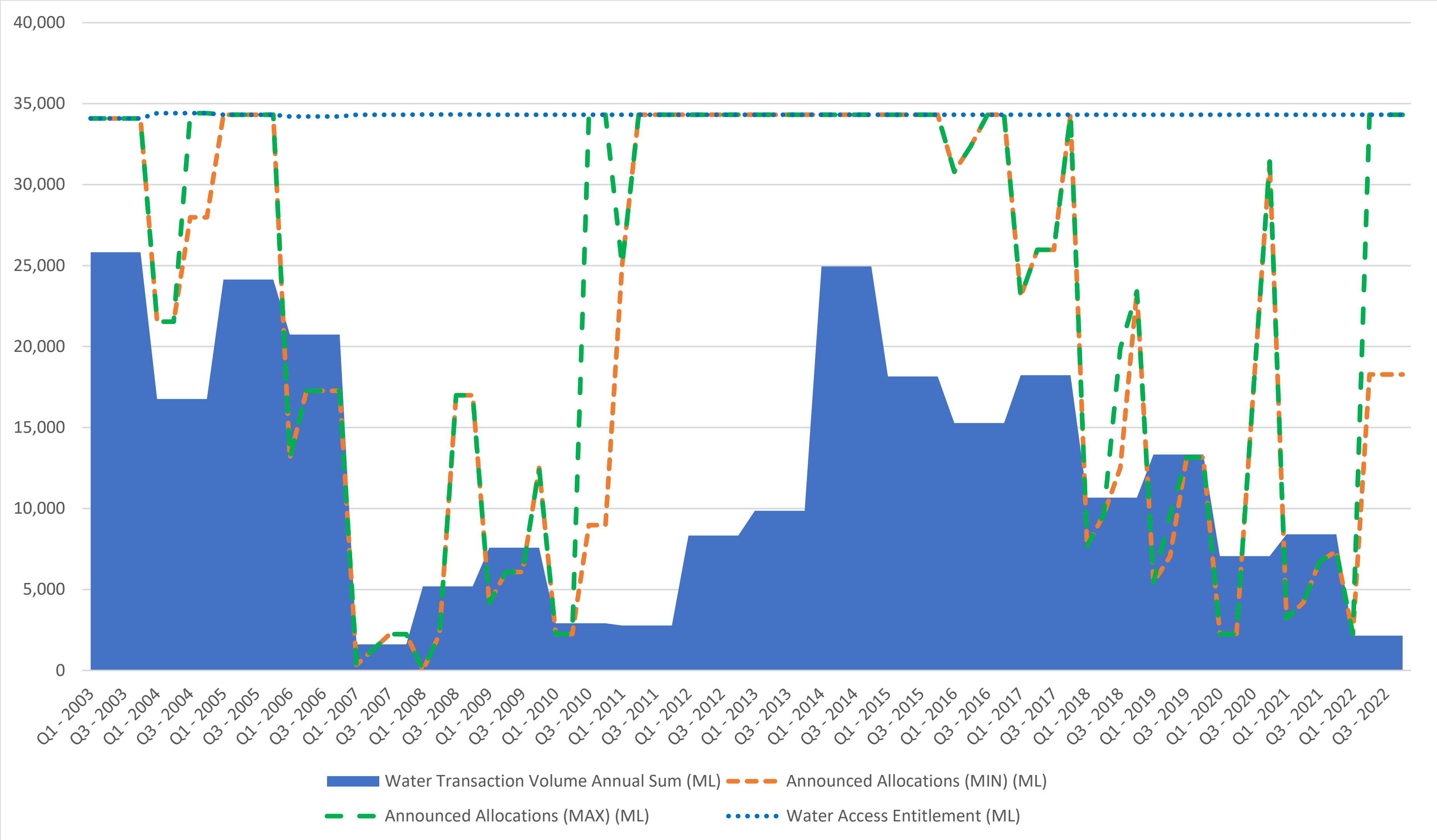
Scheme	System Type	20-year average usage (ML)	Average usage (% of 2022-23 WAE)	2020-24 QCA Average usage (% of WAE)	Difference (%)
Barker Barambah	Bulk Water	11,155	32.5%	42.0%	9.5%
Bowen Broken	Bulk Water	15,565	40.0%	37.2%	-2.8%
Boyne River	Bulk Water	21,819	50.3%	55.8%	5.5%
Bundaberg with BWPL	Channel + Distn Loss	99,500	48.0%	48.0%	0.0%
Bundaberg without BWPL	Bulk Water	113,349	48.0%	47.1%	-0.8%
Burdekin Haughton	Channel (incl. groundwater) + Distn Loss	336,827	62.2%	65.0%	2.8%
Burdekin Haughton	Bulk Water	573,507	53.1%	54.9%	1.8%
Callide	Bulk Water	12,271	63.1%	62.4%	-0.7%
Chinchilla	Bulk Water	2,263	55.9%	57.5%	1.6%
Cunnamulla	Bulk Water	1,587	60.7%	58.7%	-2.1%
Dawson Valley	Bulk Water	37,648	61.0%	61.6%	0.6%
Eton	Channel + Distn Loss	22,352	35.6%	42.1%	6.5%
Eton	Bulk Water	22,699	35.9%	41.9%	6.0%
Lower Fitzroy	Bulk Water	18,600	65.0%	66.4%	1.4%
Lower Mary River	Channel + Distn Loss	6,002	29.8%	31.2%	1.4%
Lower Mary River	Bulk Water	8,899	25.8%	33.1%	7.2%
Macintyre Brook	Bulk Water	13,399	53.6%	63.0%	9.4%
Maranoa River	Bulk Water	23	2.8%	3.3%	0.5%
Mareeba-Dimbulah	Channel + Distn Loss	119,879	62.6%	63.0%	0.4%
Mareeba-Dimbulah	Bulk Water	126,653	62.0%	64.7%	2.7%
Nogoa Mackenzie	Bulk Water	147,242	63.5%	72.7%	9.2%
Pioneer River	Bulk Water	23,512	30.1%	34.0%	3.9%
Proserpine	Bulk Water	24,223	38.5%	42.1%	3.5%
St George	Bulk Water	72,605	85.8%	88.6%	2.8%
Three Moon Creek	Bulk Water	5,958	39.9%	41.8%	1.9%
Upper Burnett without BWPL	Bulk Water	15,791	54.9%	56.7%	1.8%
Upper Condamine	Bulk Water	13,936	41.0%	45.0%	3.9%

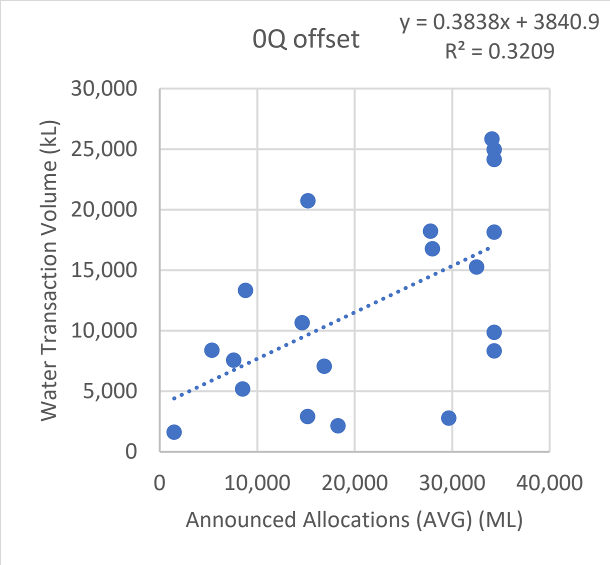
The full annual water demand over 2003-04 to 2022-23 is provided in the supporting Excel model.

Appendix A

Data assessment charts for each scheme

BARKER BARAMBAH

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20,000
15,000
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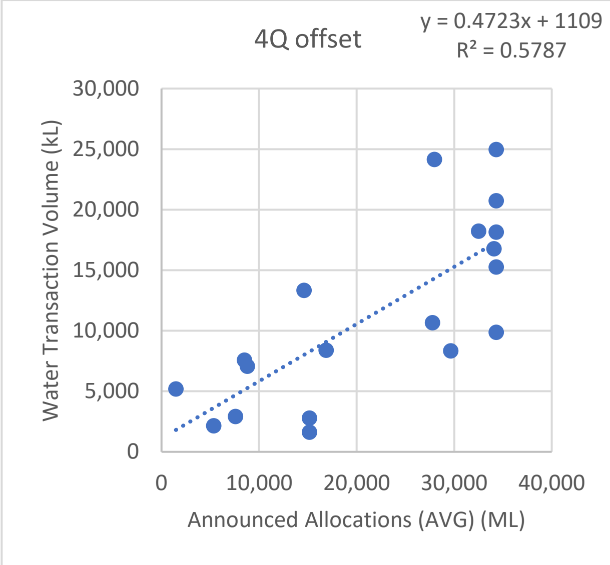
10,000
20,000
30,000
40,000
Announced Allocations (AVG) (ML)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Water Transaction Volume (kL)
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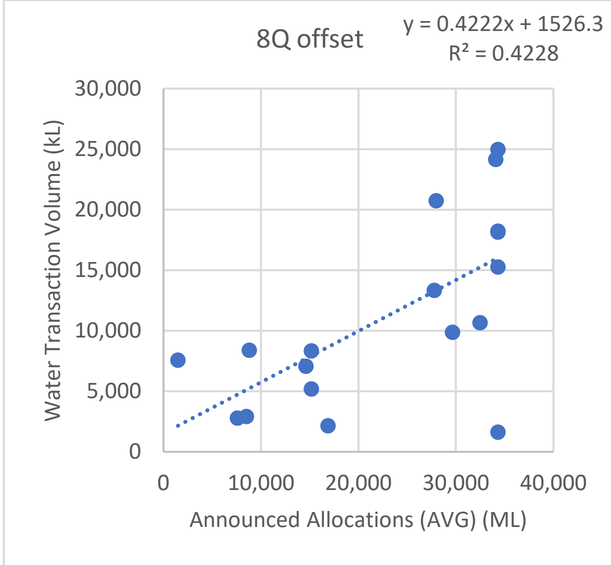
20,000
30,000
40,000
Announced Allocations (AVG) (ML)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20,000
15,000
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5,000
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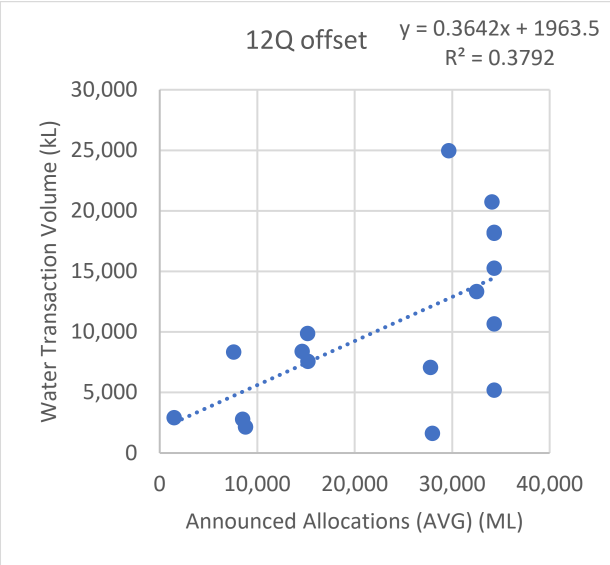
20,000
30,000
40,000
Announced Allocations (AVG) (ML)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5,000
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Water Transaction Volume (kL)
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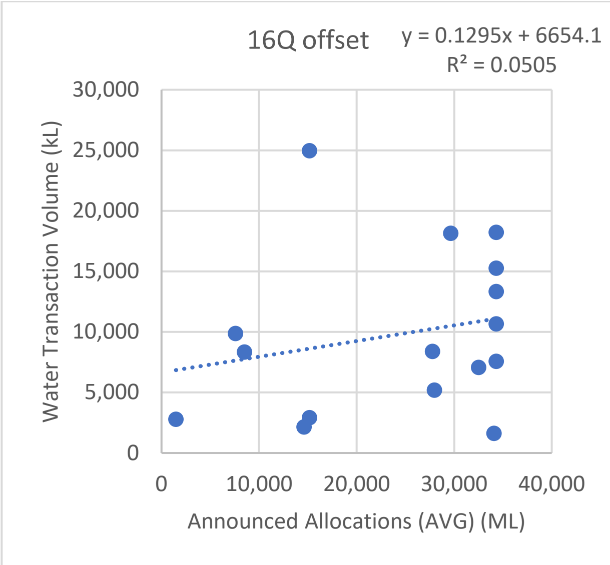
20,000
30,000
40,000
Announced Allocations (AVG) (ML)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R² = 0.0505
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20,000
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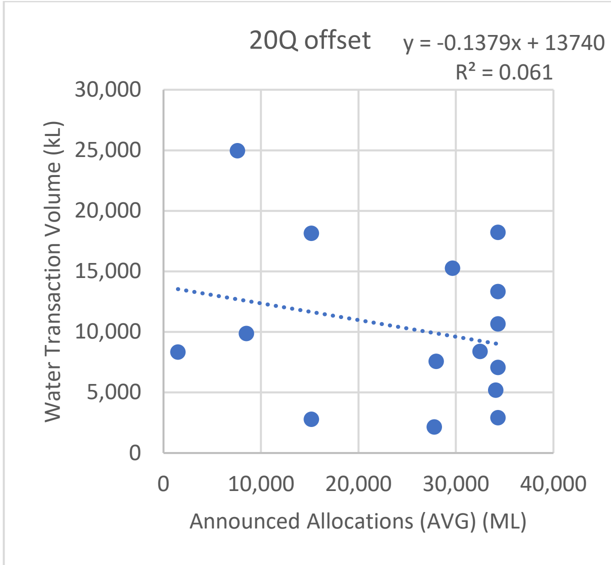
20,000
30,000
40,000
Announced Allocations (AVG) (ML)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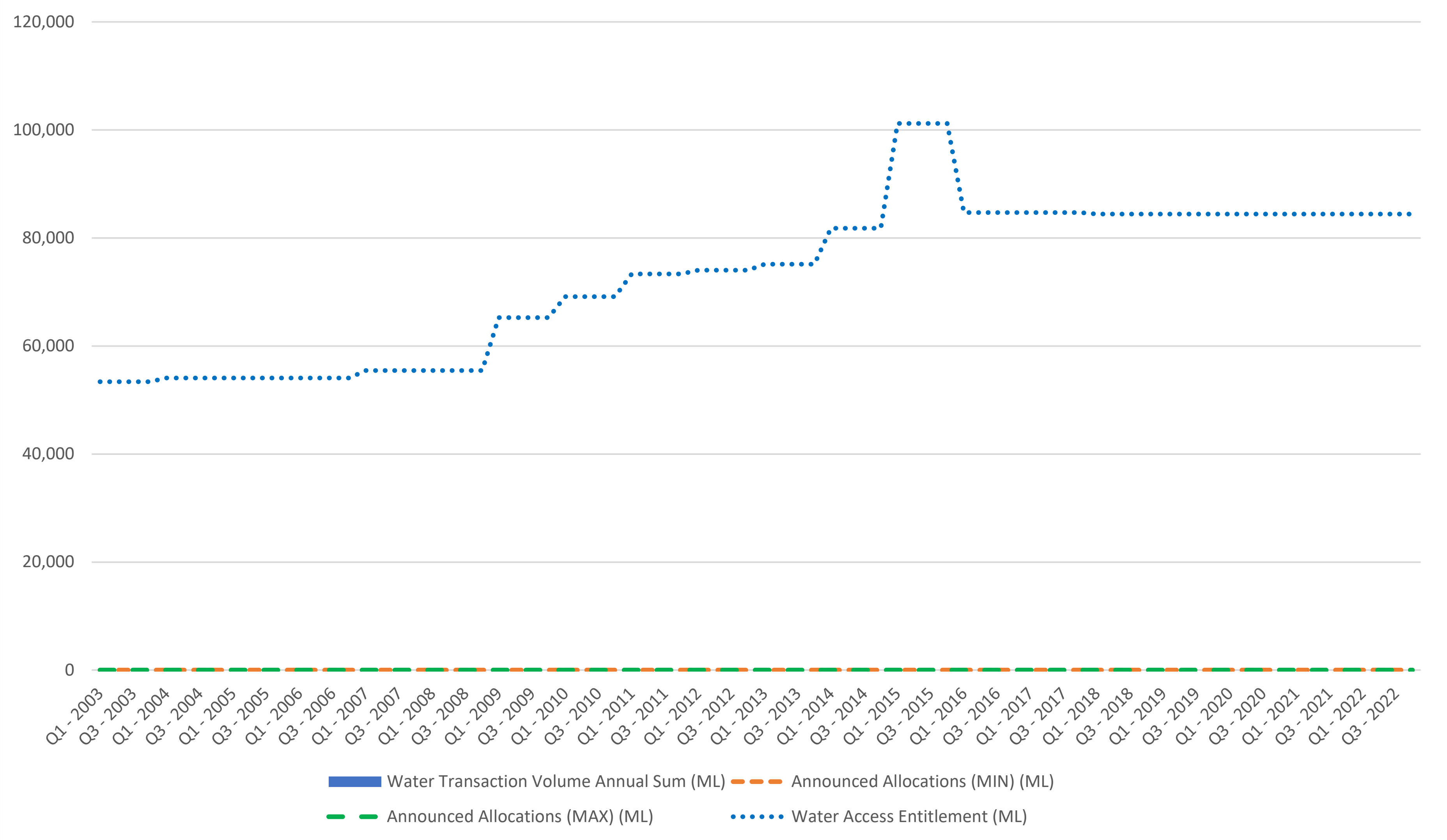
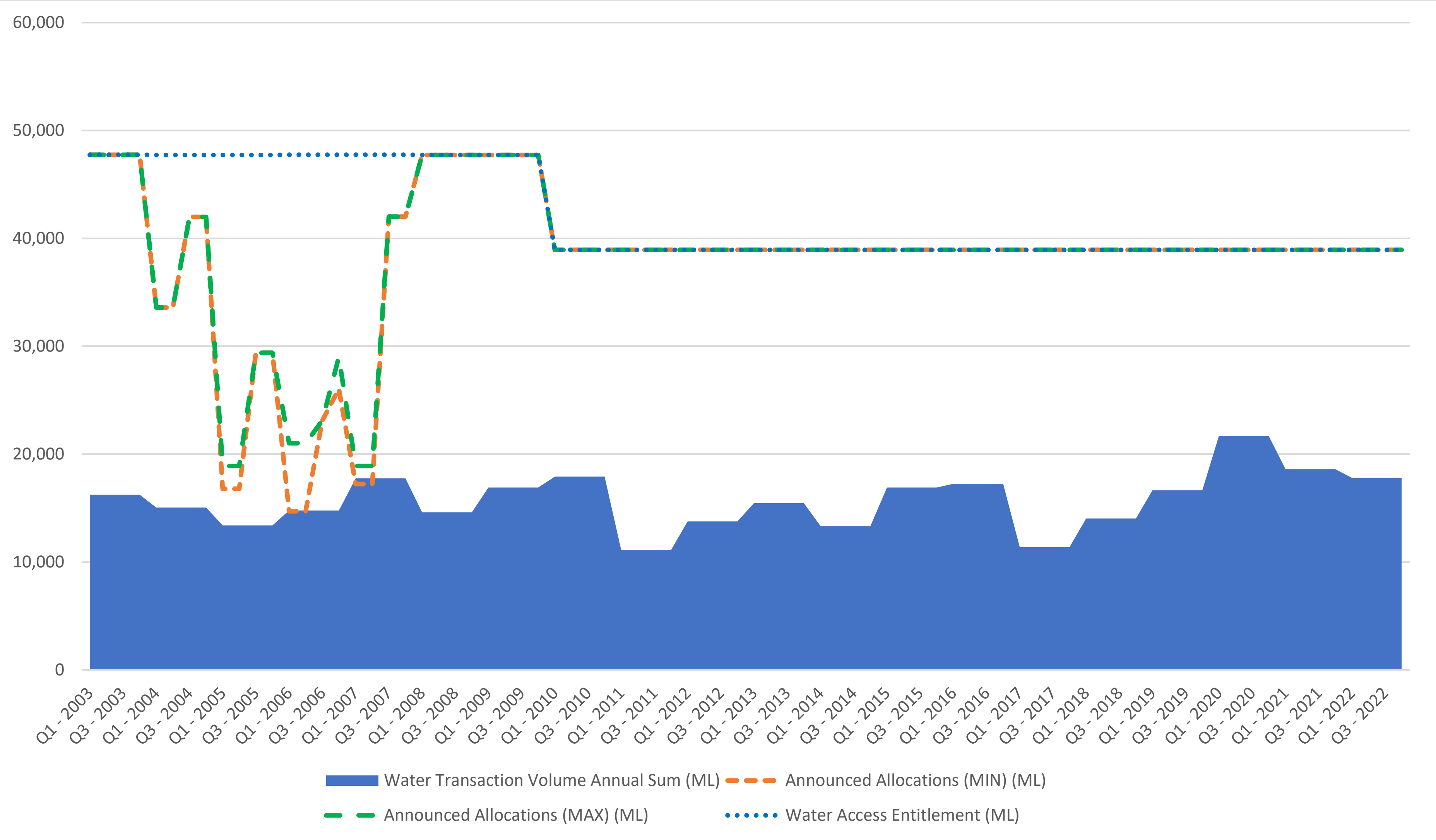
Water Transaction Volume (kL)
0
10,000
20,000
30,000
40,000
Announced Allocations (AVG) (ML)

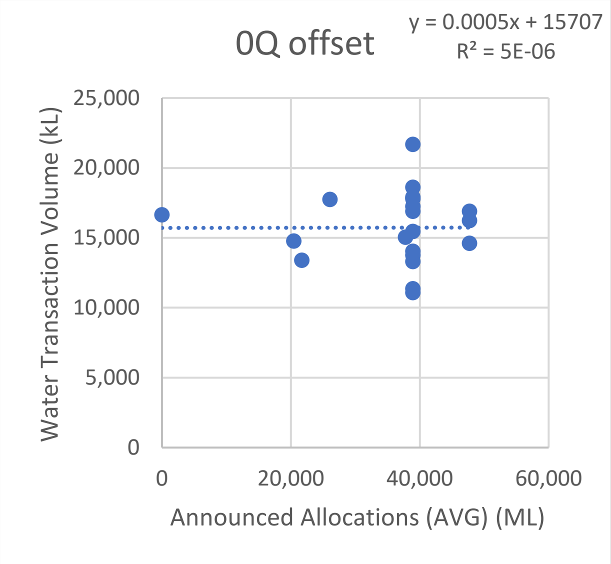
BORDER RIVERS

NOTE: No AA vs use charts developed, as no recorded AA volume or water demand data was provided for Border Rivers scheme.



BOWEN BROKEN RIVERS

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0
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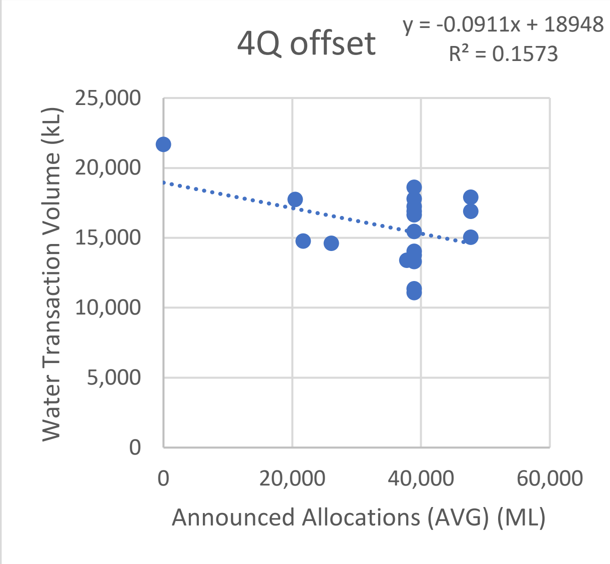
40,000
60,000
Announced Allocations (AVG) (ML)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10,000
5,000
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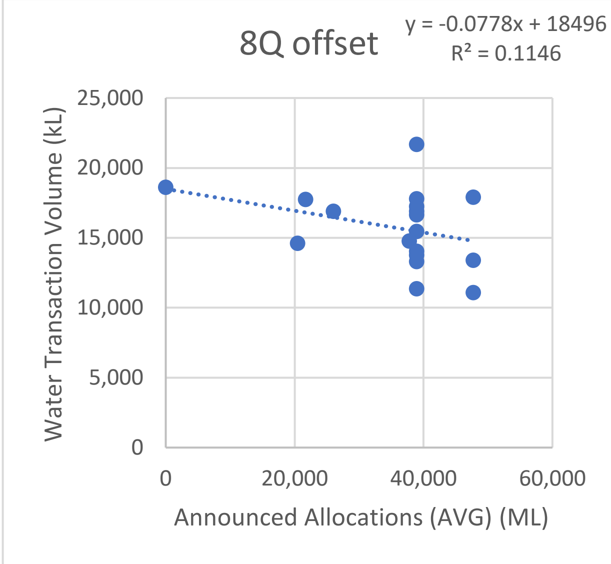
0
20,000
40,000
60,000
Announced Allocations (AVG) (ML)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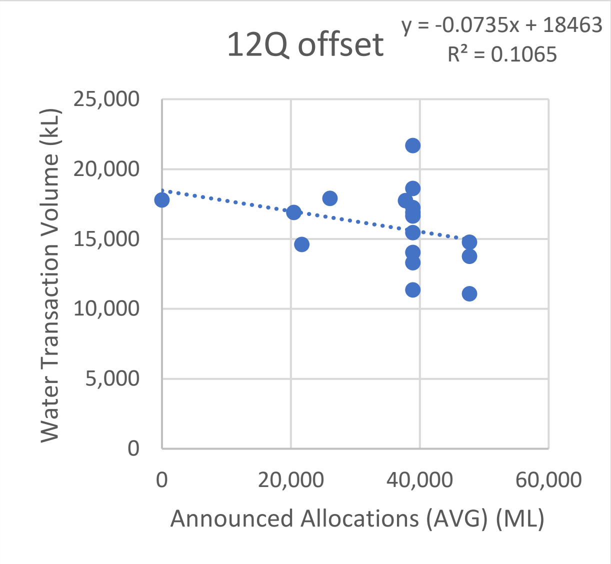
15,000
10,000
5,000
0
0
20,000
40,000
60,000
Announced Allocations (AVG) (ML)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Water Transaction Volume (kL)
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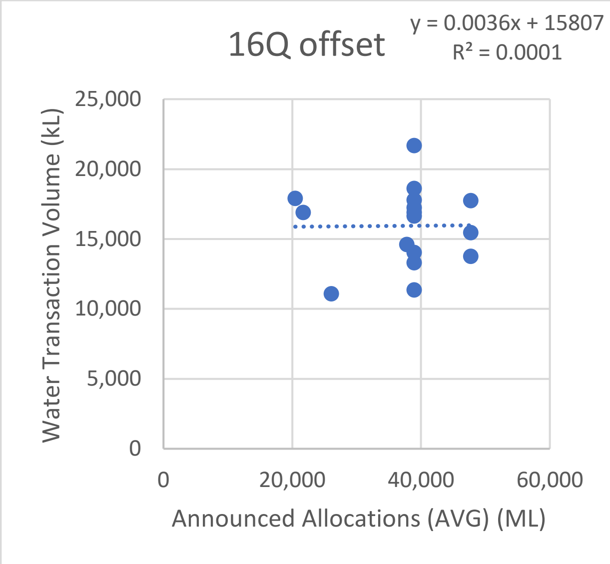
15,000
10,000
5,000
0
0
20,000
40,000
60,000
Announced Allocations (AVG) (ML)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R² = 0.0001
Water Transaction Volume (kL)
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15,000
10,000
5,000
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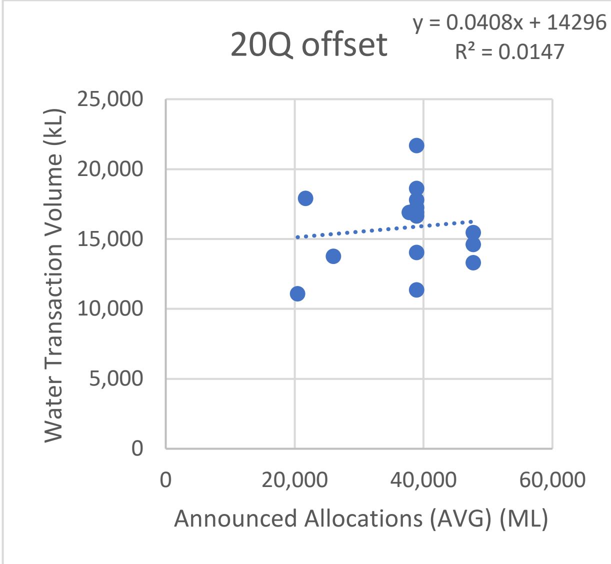
0
20,000
40,000
60,000
Announced Allocations (AVG) (ML)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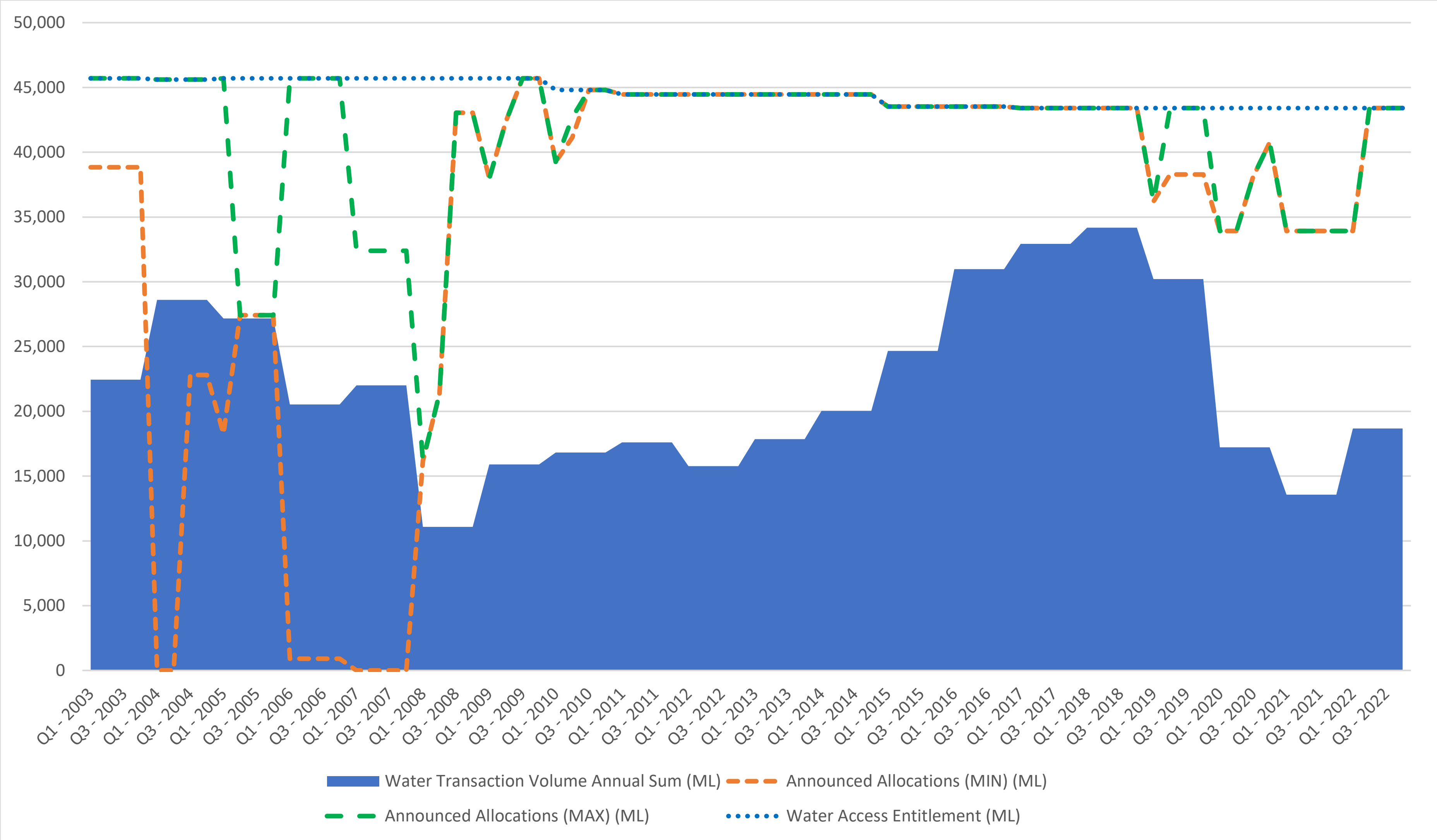
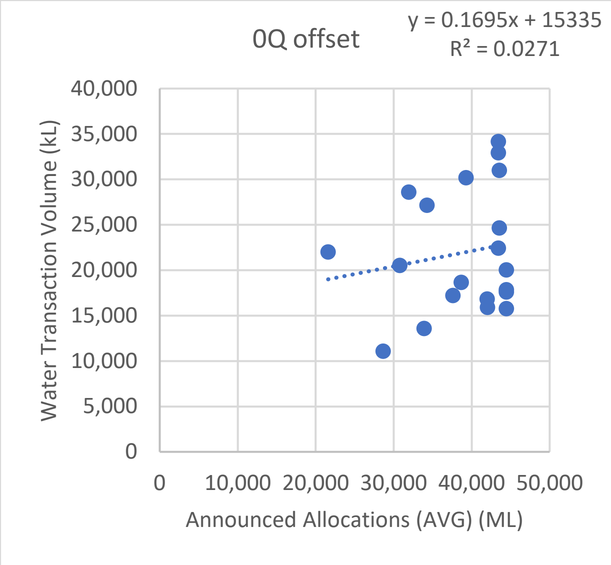
0
20,000
40,000
60,000
Announced Allocations (AVG) (ML)

BOYNE RIVER AND TARONG

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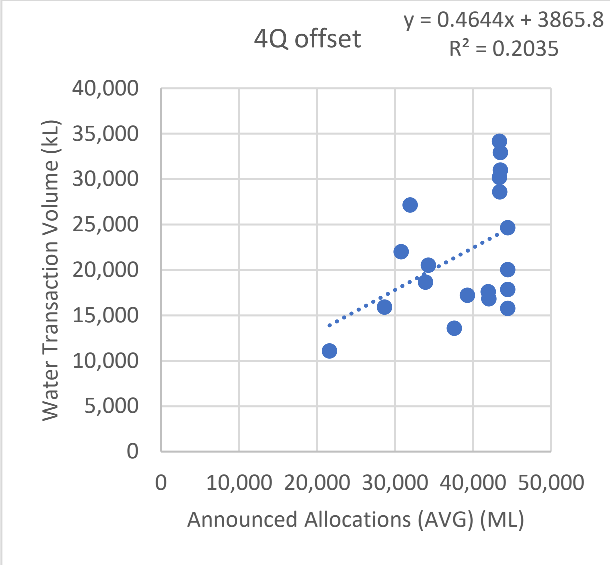
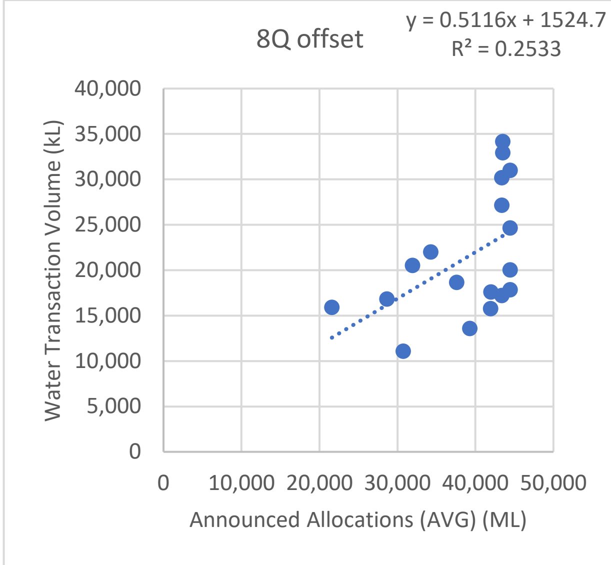
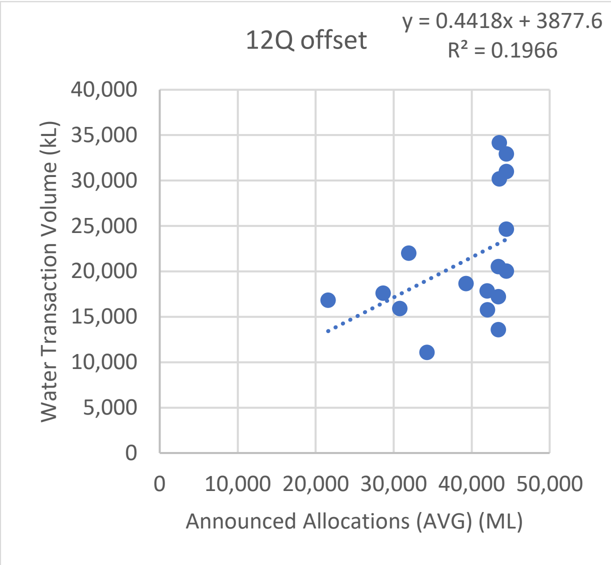
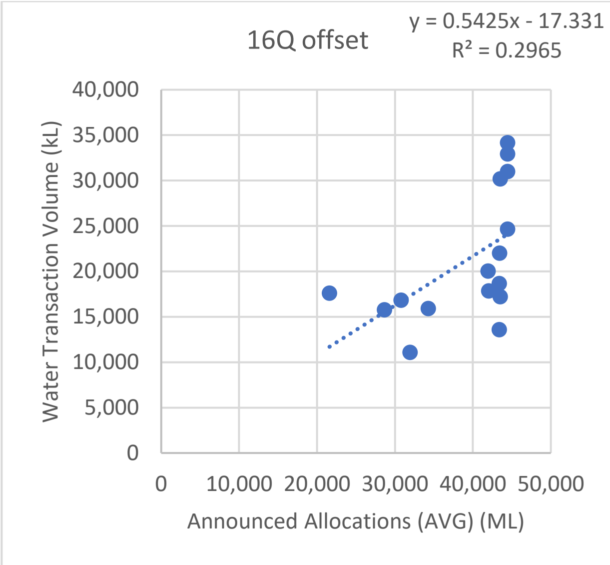
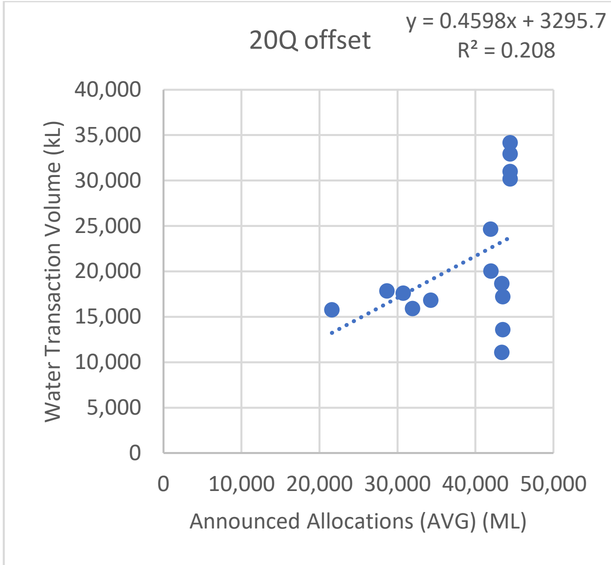
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
40,000
50,000
Announced Allocations (AVG) (ML)


4Q offset
y = 0.4644x + 3865.8
R² = 0.2035
Water Transaction Volume (kL)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
40,000
50,000
Announced Allocations (AVG) (ML)

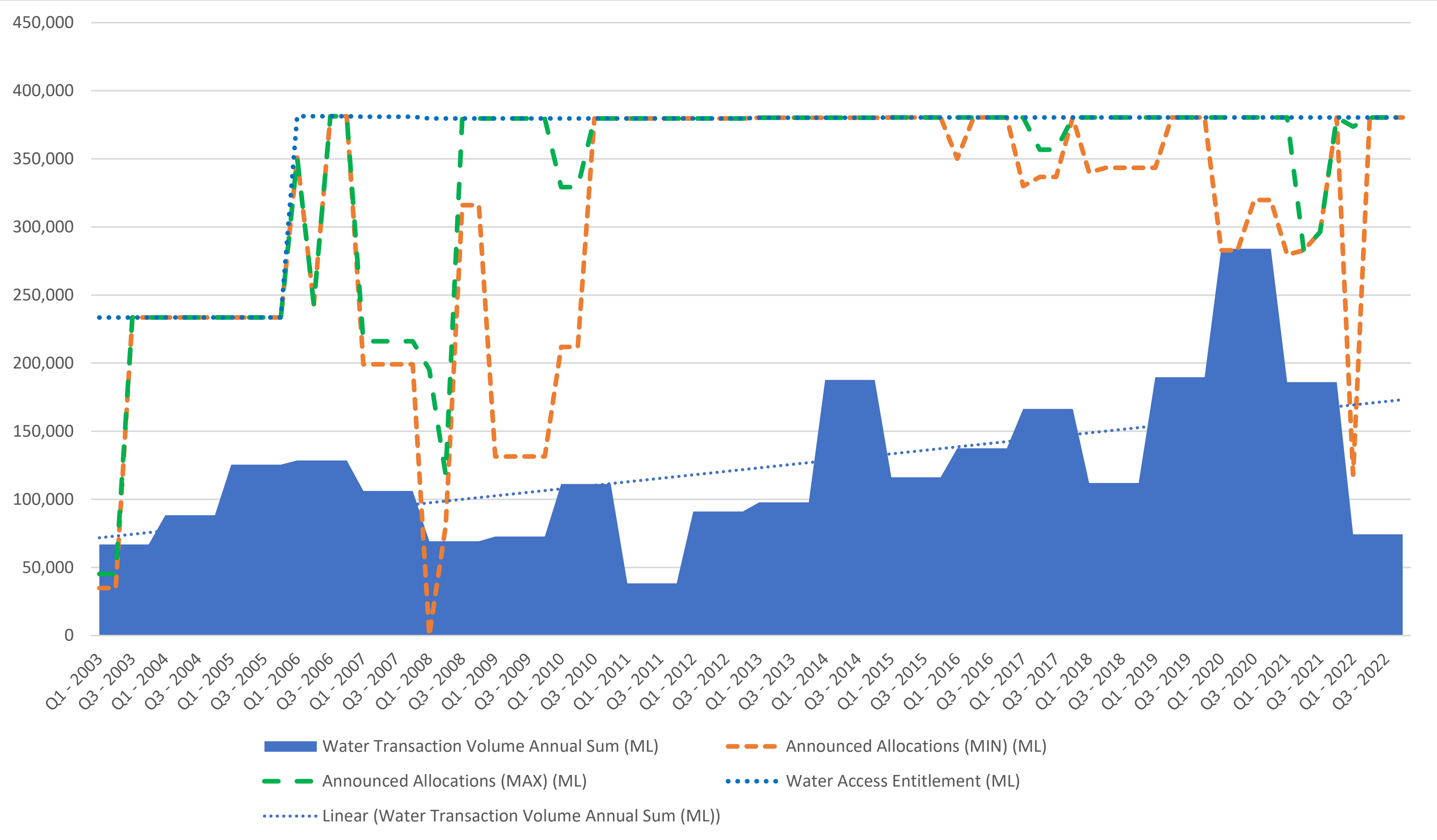

8Q offset
y = 0.5116x + 1524.7
R² = 0.2533
Water Transaction Volume (kL)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
40,000
50,000
Announced Allocations (AVG) (ML)


12Q offset
y = 0.4418x + 3877.6
R² = 0.1966
Water Transaction Volume (kL)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
40,000
50,000
Announced Allocations (AVG) (ML)

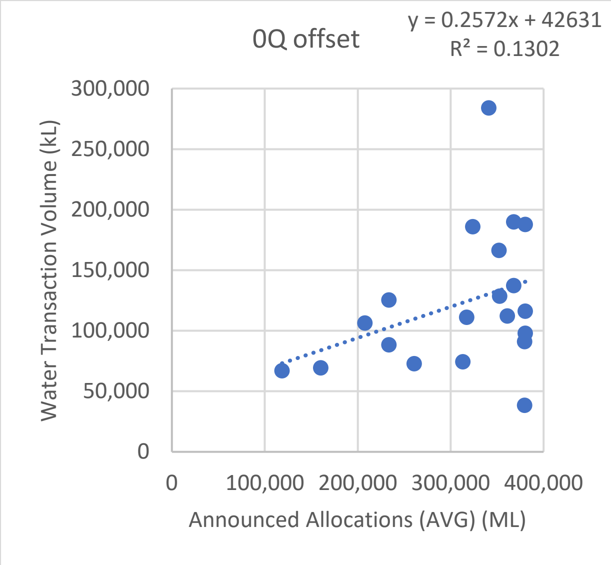

16Q offset
y = 0.5425x - 17.331
R² = 0.2965
Water Transaction Volume (kL)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
40,000
50,000
Announced Allocations (AVG) (ML)

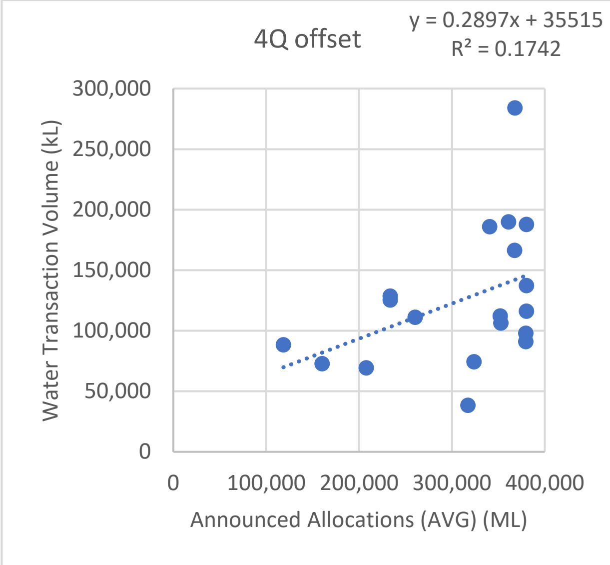

20Q offset
y = 0.4598x + 3295.7
R² = 0.208
Water Transaction Volume (kL)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
40,000
50,000
Announced Allocations (AVG) (ML)

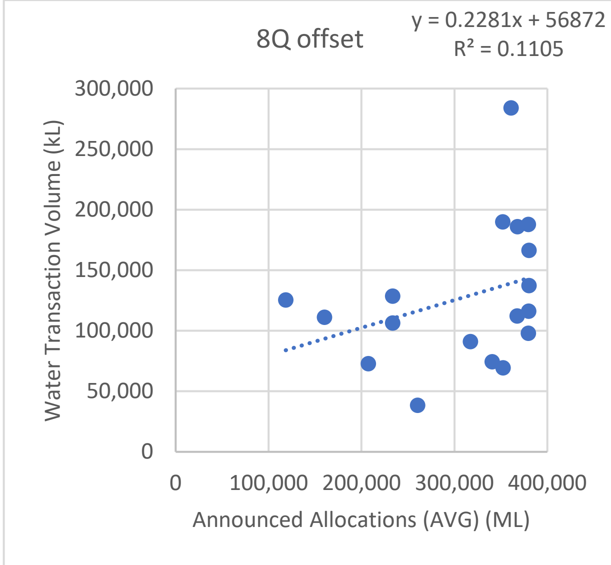
BUNDABERG

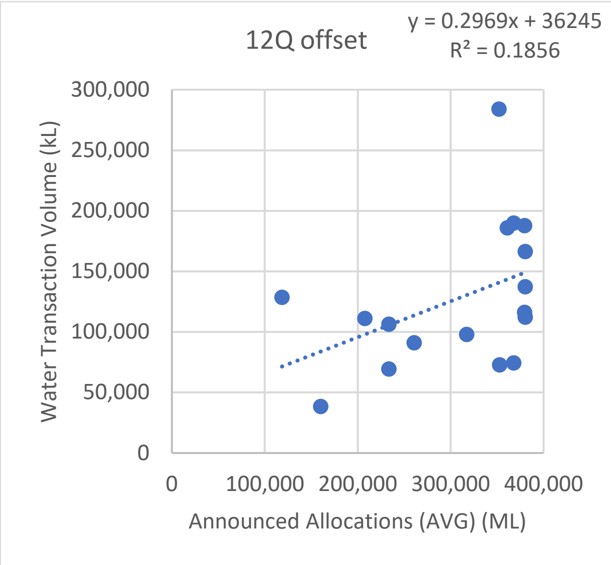


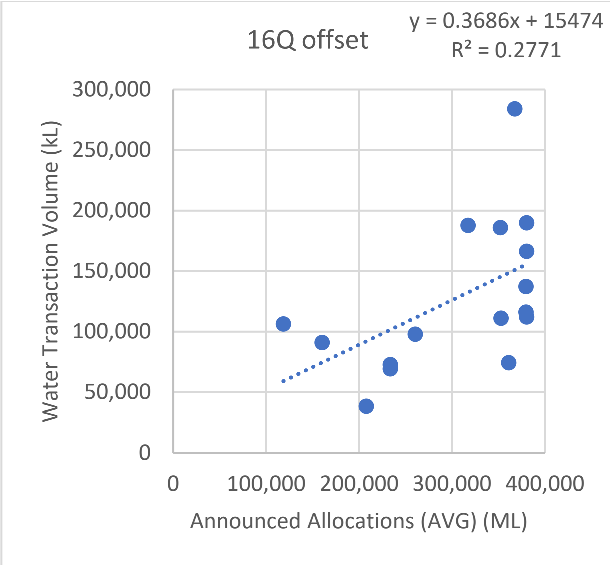
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
Q1 - 2003
Q3 - 2003
Q1 - 2004
Q3 - 2004
Q1 - 2005
Q3 - 2005
Q1 - 2006
Q3 - 2006
Q1 - 2007
Q3 - 2007
Q1 - 2008
Q3 - 2008
Q1 - 2009
Q3 - 2009
Q1 - 2010
Q3 - 2010
Q1 - 2011
Q3 - 2011
Q1 - 2012
Q3 - 2012
Q1 - 2013
Q3 - 2013
Q1 - 2014
Q3 - 2014
Q1 - 2015
Q3 - 2015
Q1 - 2016
Q3 - 2016
Q1 - 2017
Q3 - 2017
Q1 - 2018
Q3 - 2018
Q1 - 2019
Q3 - 2019
Q1 - 2020
Q3 - 2020
Q1 - 2021
Q3 - 2021
Q1 - 2022
Q3 - 2022
Water Transaction Volume Annual Sum (ML)
Announced Allocations (MIN) (ML)
Announced Allocations (MAX) (ML)
Water Access Entitlement (ML)
Linear (Water Transaction Volume Annual Sum (ML))

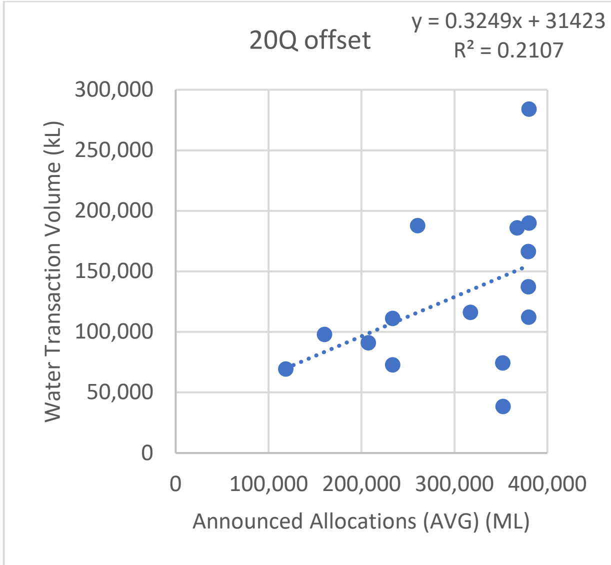

0Q offset
y = 0.2572x + 42631
R² = 0.1302
Water Transaction Volume (kL)
300,000
250,000
200,000
150,000
100,000
50,000
0
0
100,000
200,000
300,000
400,000
Announced Allocations (AVG) (ML)


4Q offset
y = 0.2897x + 35515
R² = 0.1742
Water Transaction Volume (kL)
300,000
250,000
200,000
150,000
100,000
50,000
0
0
100,000
200,000
300,000
400,000
Announced Allocations (AVG) (ML)

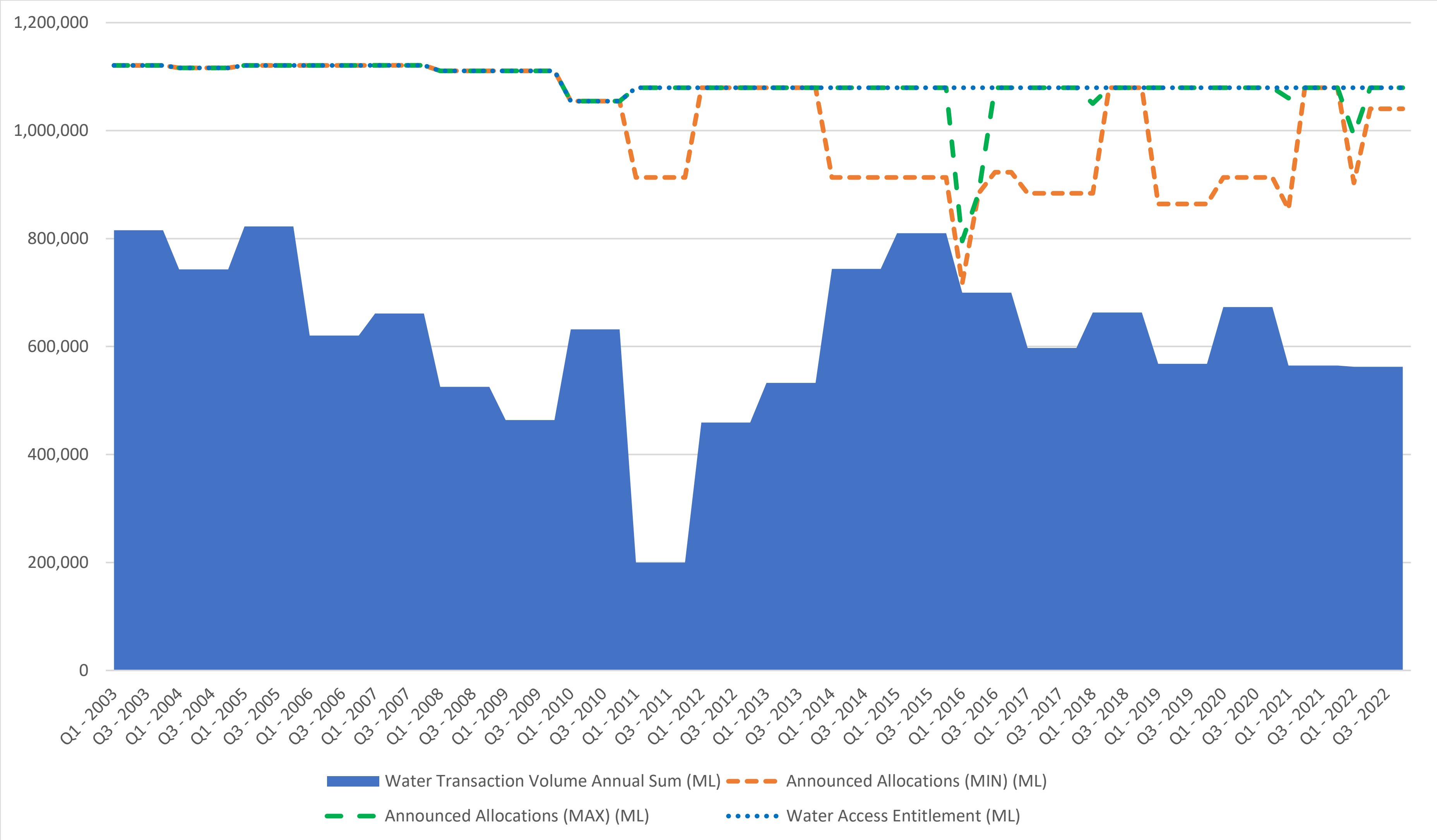

8Q offset
y = 0.2281x + 56872
R² = 0.1105
Water Transaction Volume (kL)
300,000
250,000
200,000
150,000
100,000
50,000
0
0
100,000
200,000
300,000
400,000
Announced Allocations (AVG) (ML)

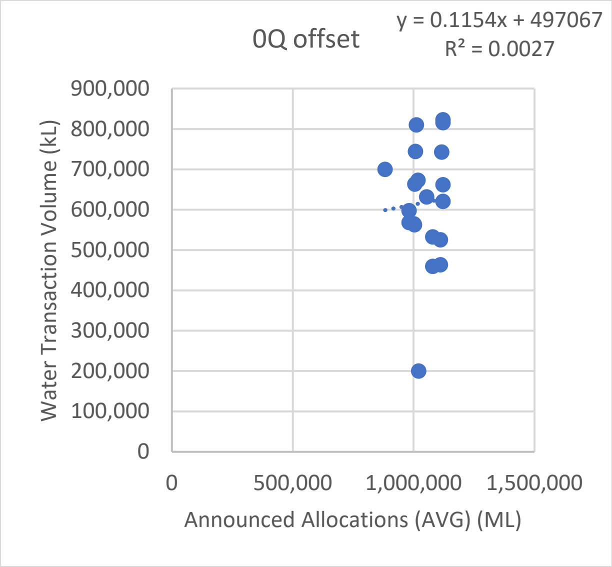

12Q offset
y = 0.2969x + 36245
R² = 0.1856
Water Transaction Volume (kL)
300,000
250,000
200,000
150,000
100,000
50,000
0
0
100,000
200,000
300,000
400,000
Announced Allocations (AVG) (ML)

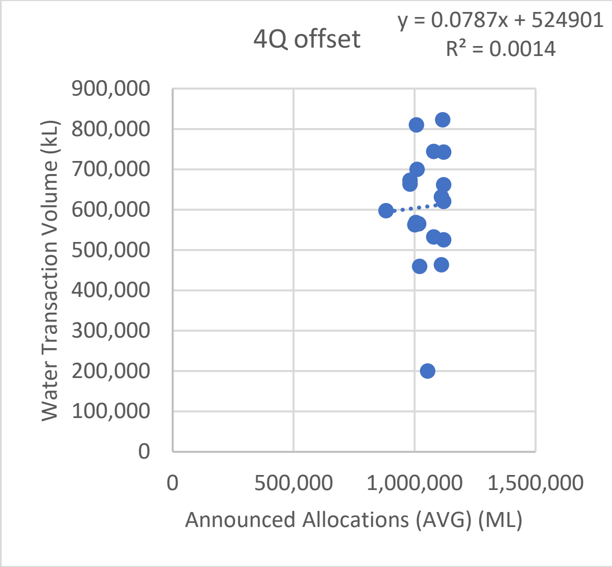

16Q offset
y = 0.3686x + 15474
R² = 0.2771
Water Transaction Volume (kL)
300,000
250,000
200,000
150,000
100,000
50,000
0
0
100,000
200,000
300,000
400,000
Announced Allocations (AVG) (ML)

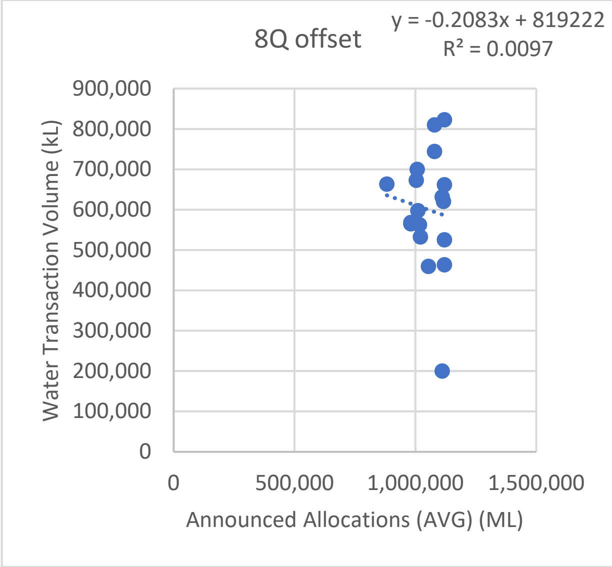

20Q offset
y = 0.3249x + 31423
R² = 0.2107
Water Transaction Volume (kL)
300,000
250,000
200,000
150,000
100,000
50,000
0
0
100,000
200,000
300,000
400,000
Announced Allocations (AVG) (ML)

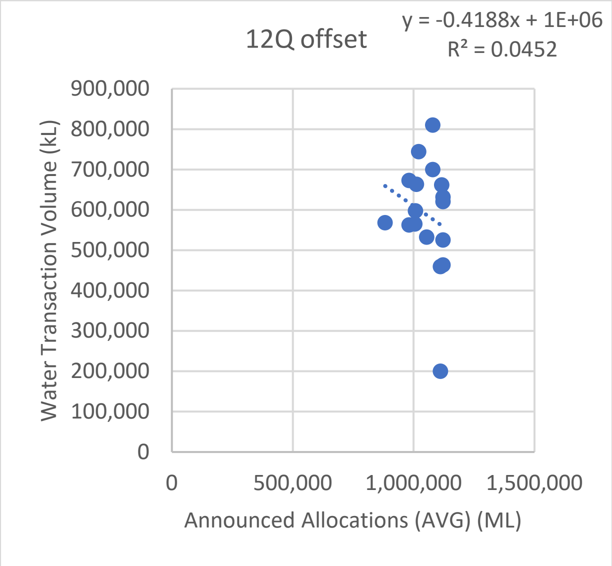
BURDEKIN HAUGHTON

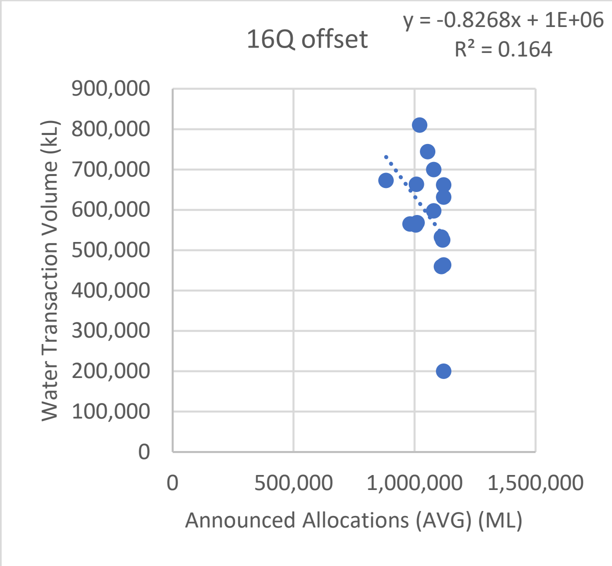


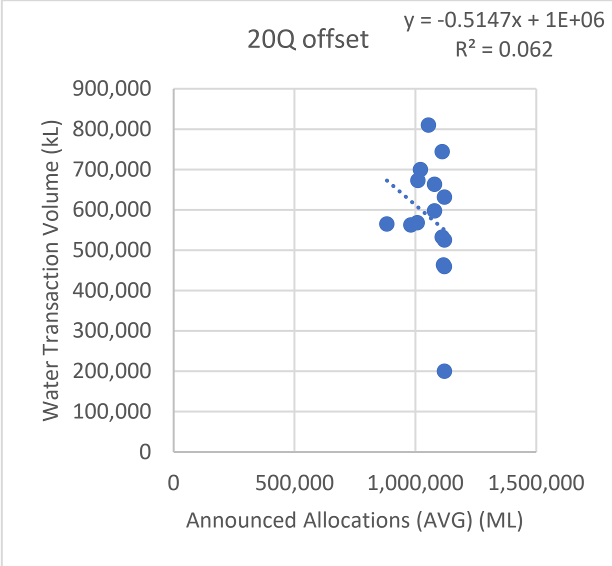

0Q offset
y = 0.1154x + 497067
R² = 0.0027
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)


4Q offset
y = 0.0787x + 524901
R² = 0.0014
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

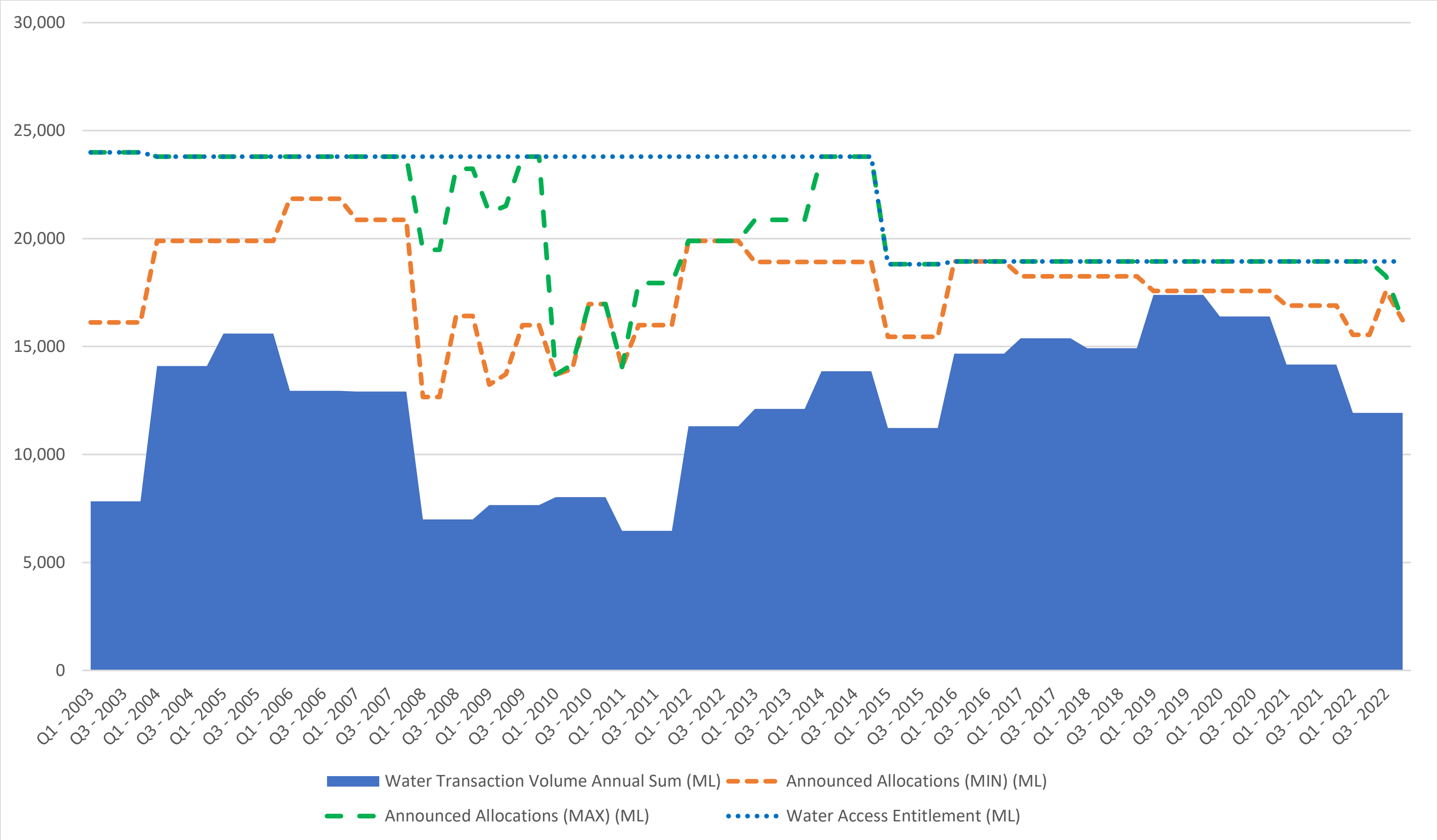

8Q offset
y = -0.2083x + 819222
R² = 0.0097
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

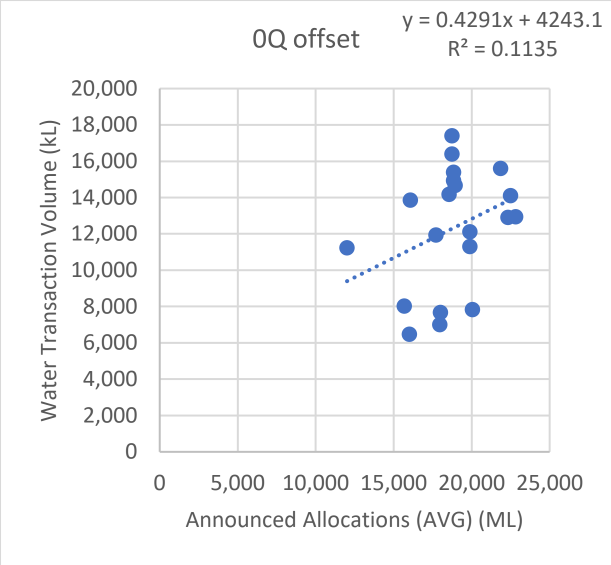

12Q offset
y = -0.4188x + 1E+06
R² = 0.0452
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

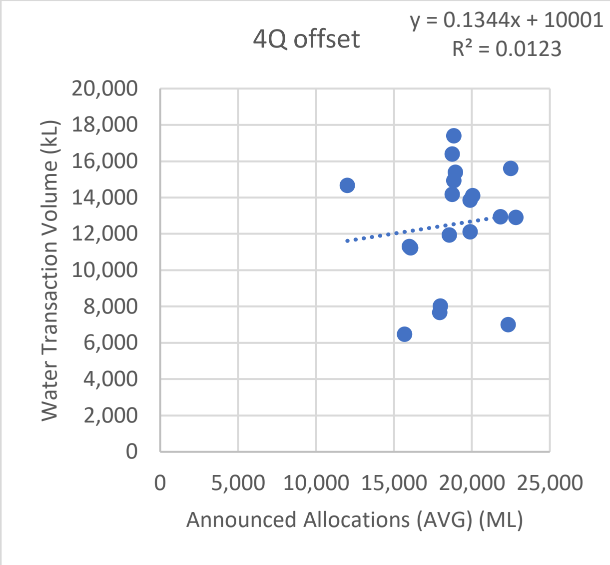

16Q offset
y = -0.8268x + 1E+06
R² = 0.164
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

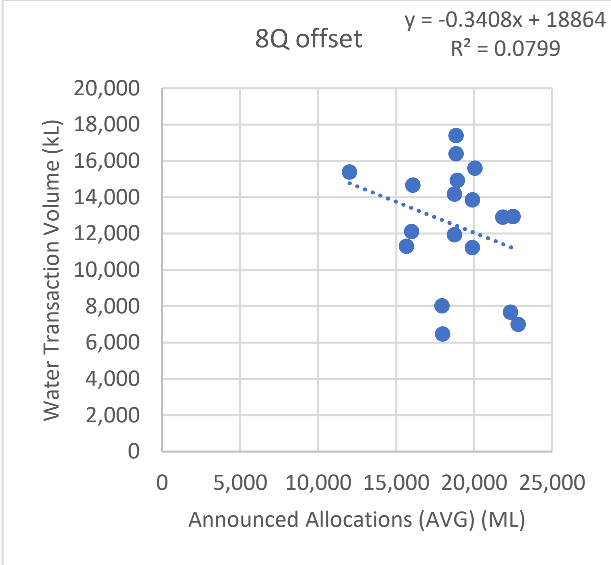

20Q offset
y = -0.5147x + 1E+06
R² = 0.062
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

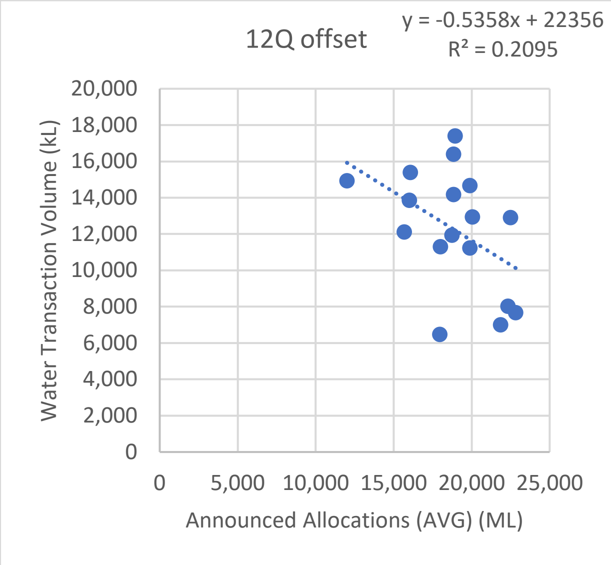
CALLIDE VALLEY

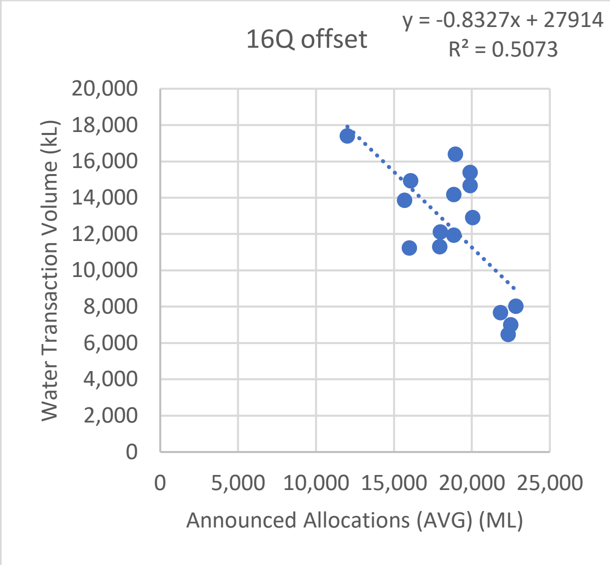


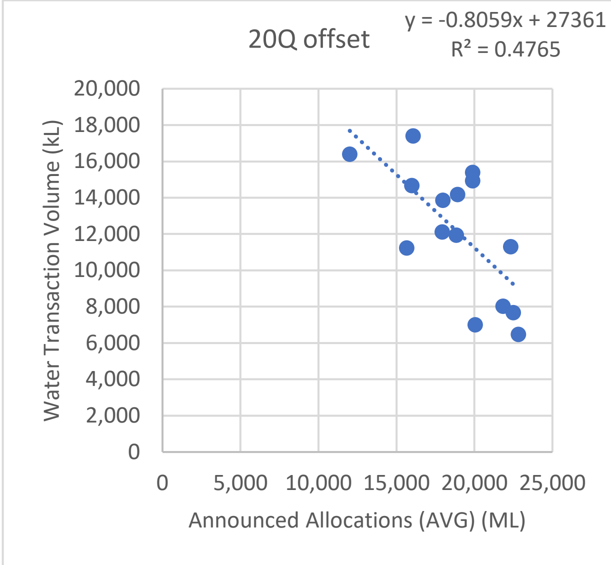

0Q offset
y = 0.4291x + 4243.1
R² = 0.1135
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)


4Q offset
y = 0.1344x + 10001
R² = 0.0123
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

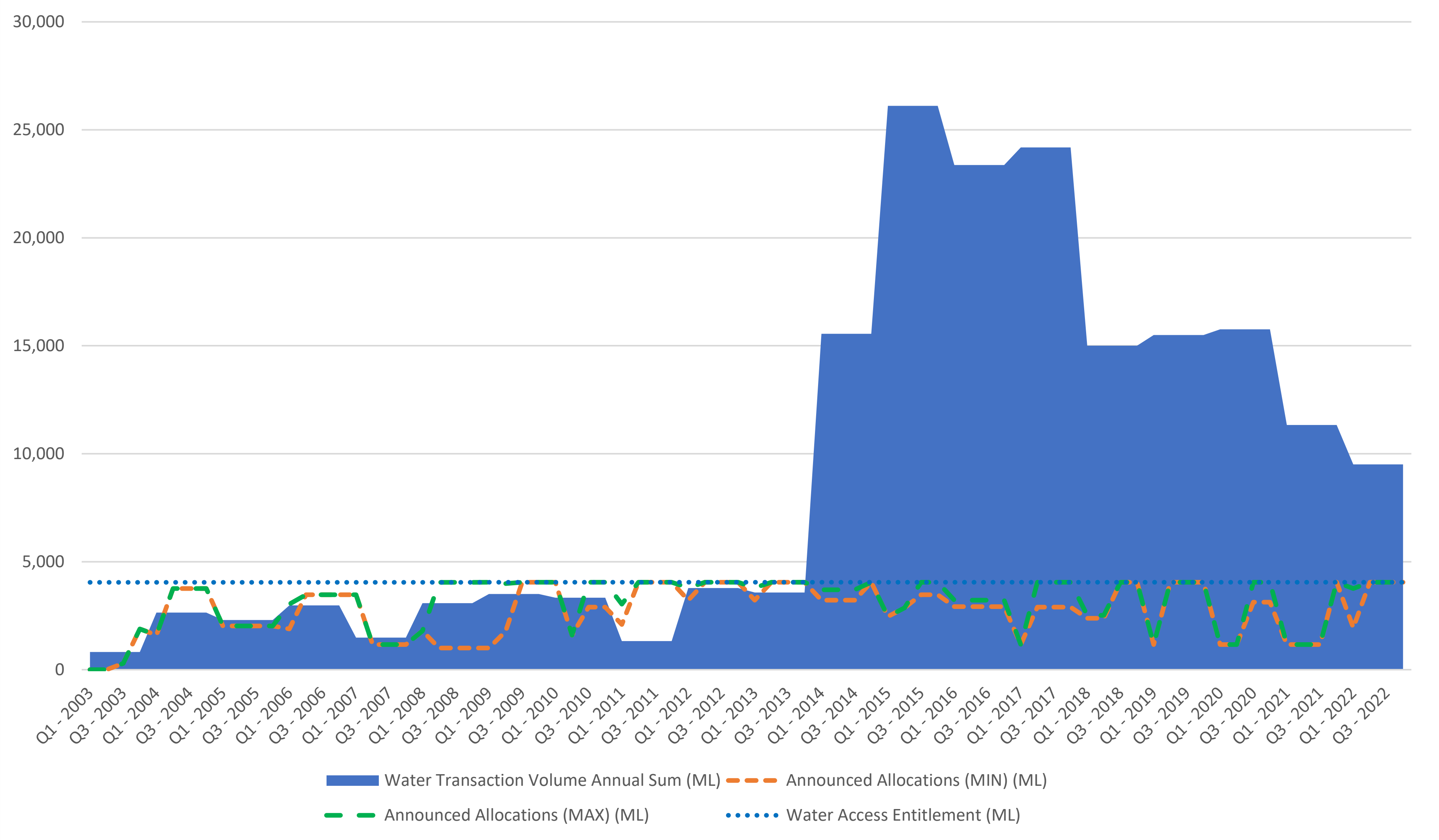

8Q offset
y = -0.3408x + 18864
R² = 0.0799
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

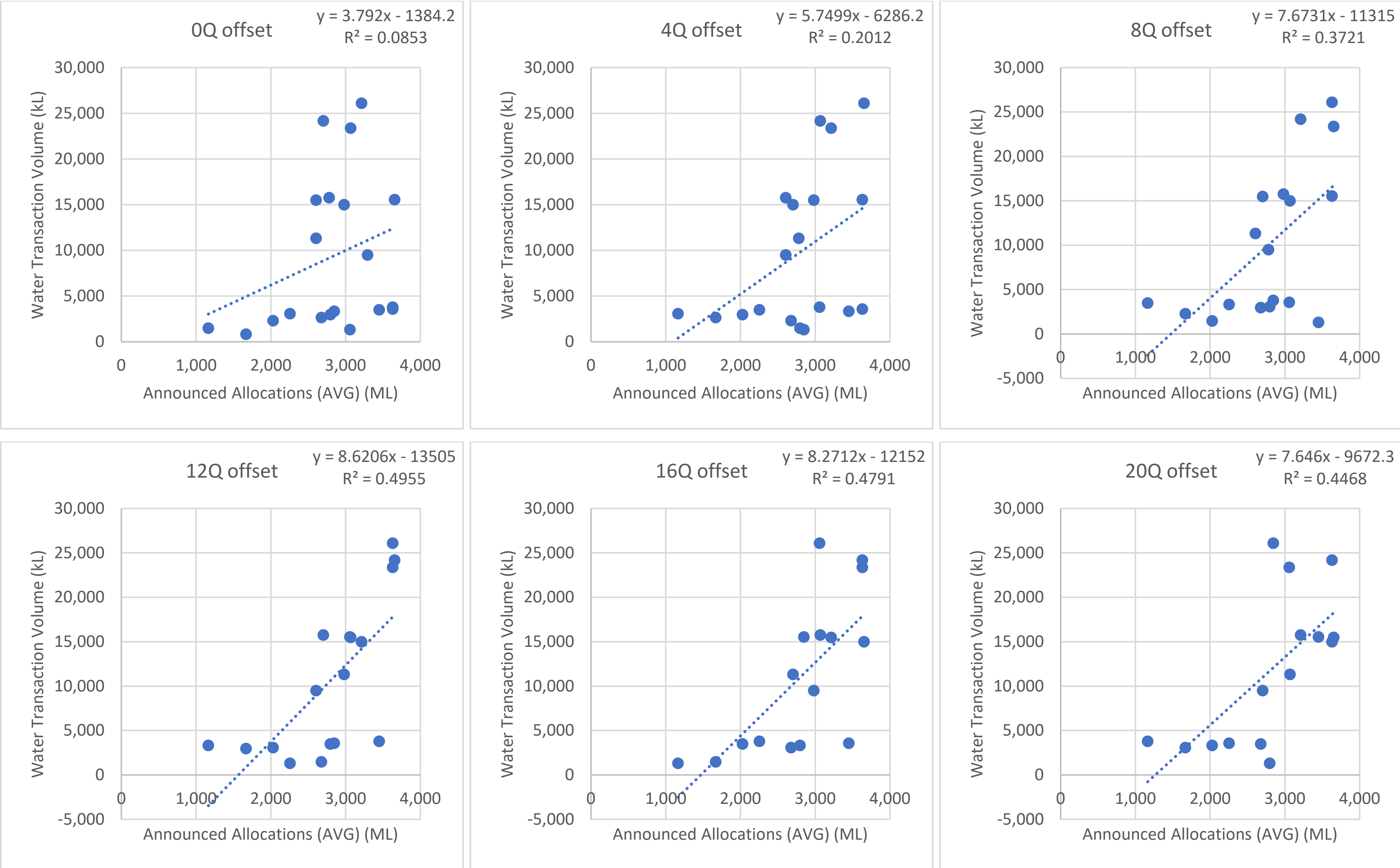

12Q offset
y = -0.5358x + 22356
R² = 0.2095
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)


16Q offset
y = -0.8327x + 27914
R² = 0.5073
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

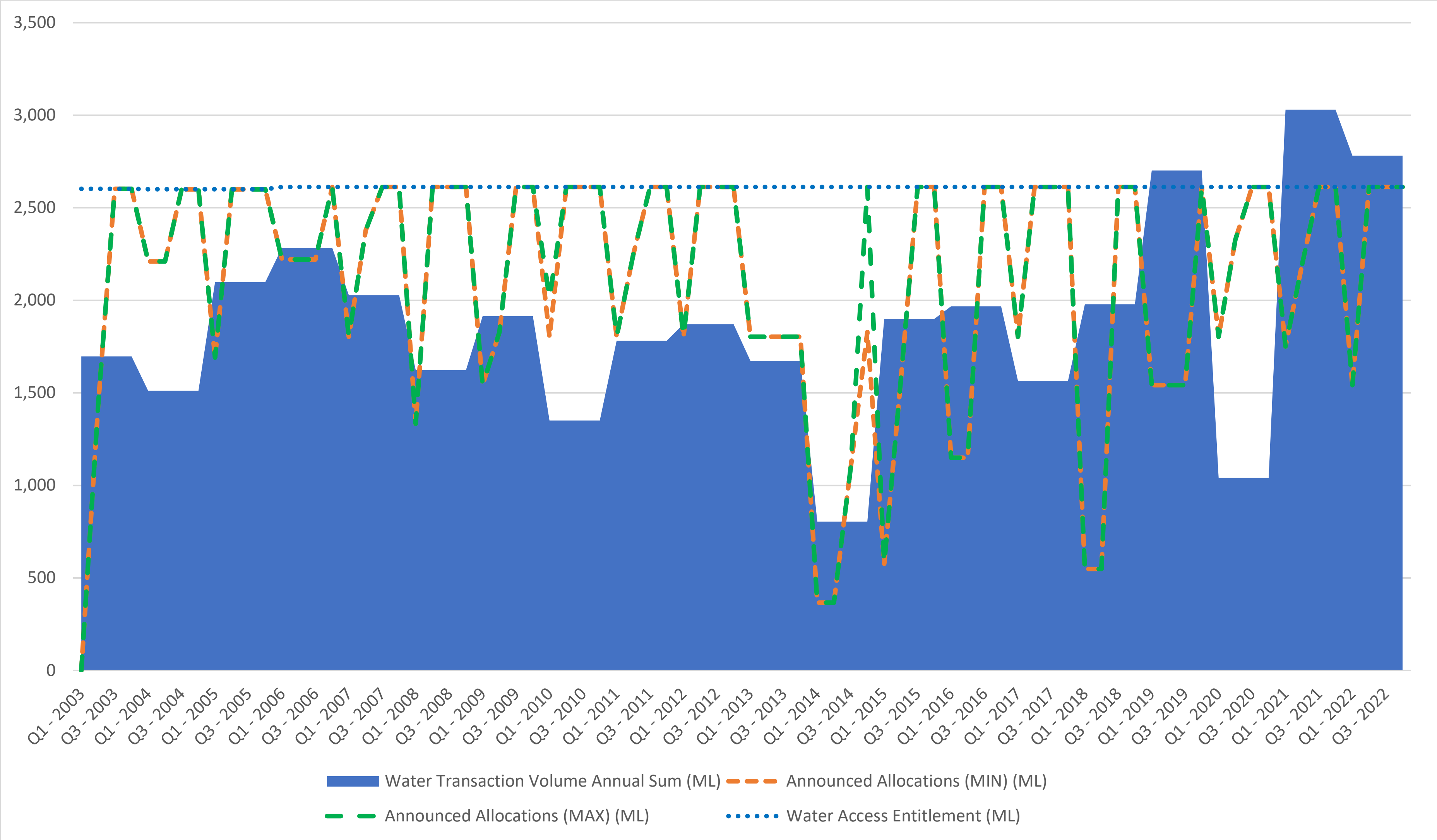

20Q offset
y = -0.8059x + 27361
R² = 0.4765
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

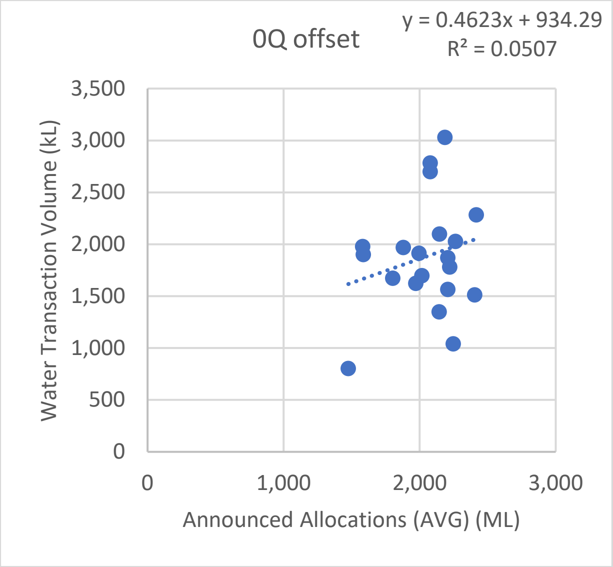
CHINCHILLA WEIR

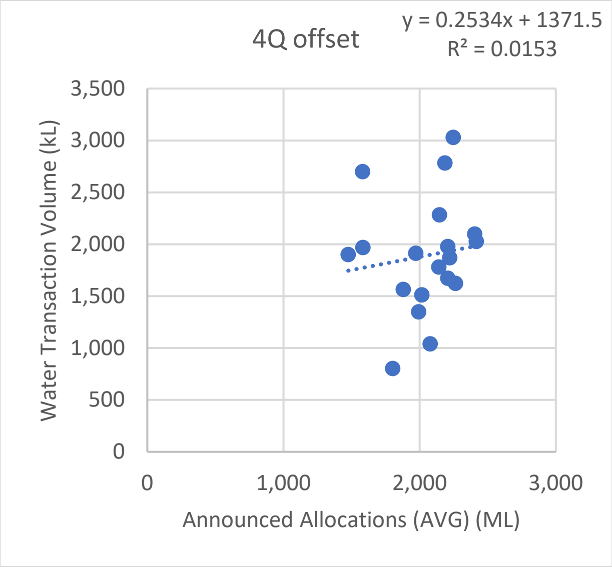


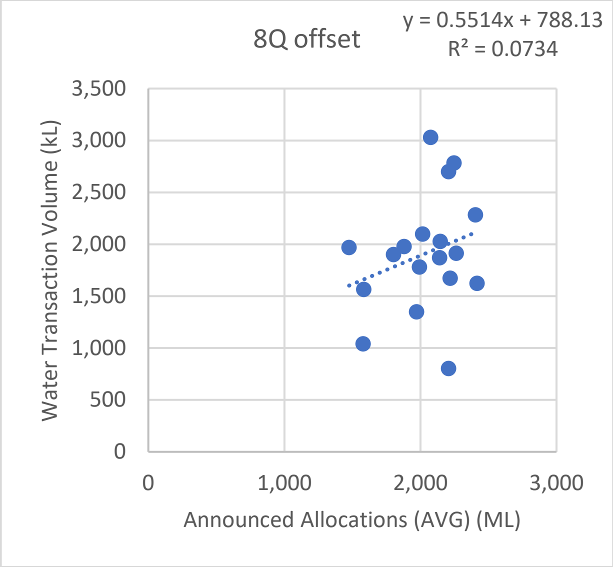

0Q offset
y = 3.792x - 1384.2
R² = 0.0853
4Q offset
y = 5.7499x - 6286.2
R² = 0.2012
8Q offset
y = 7.6731x - 11315
R² = 0.3721
12Q offset
y = 8.6206x - 13505
R² = 0.4955
16Q offset
y = 8.2712x - 12152
R² = 0.4791
20Q offset
y = 7.646x - 9672.3
R² = 0.4468
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)
30,000
25,000
20,000
15,000
10,000
5,000
0
-5,000
0
1,000
2,000
3,000
4,000

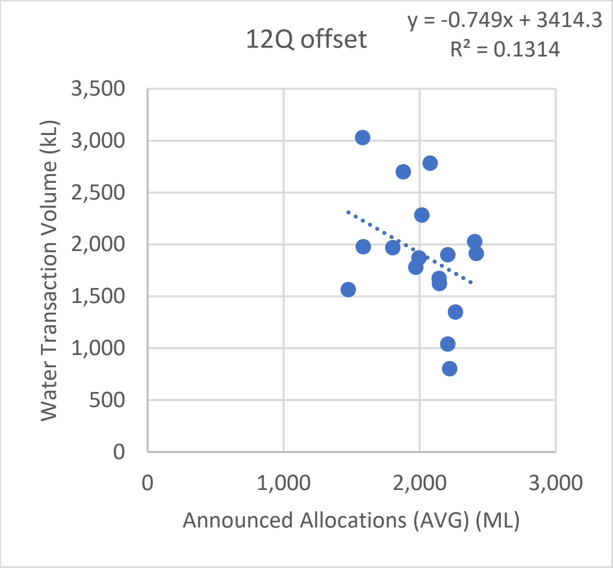
CUNNAMULLA

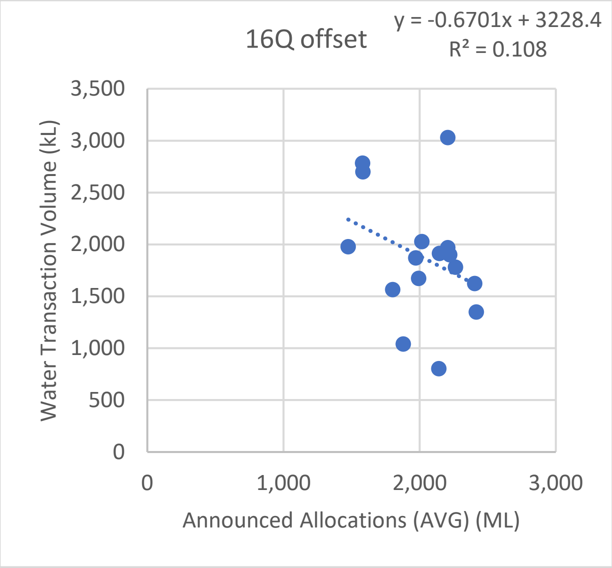

3,500
3,000
2,500
2,000
1,500
1,000
500
0
Q1 - 2003
Q3 - 2003
Q1 - 2004
Q3 - 2004
Q1 - 2005
Q3 - 2005
Q1 - 2006
Q3 - 2006
Q1 - 2007
Q3 - 2007
Q1 - 2008
Q3 - 2008
Q1 - 2009
Q3 - 2009
Q1 - 2010
Q3 - 2010
Q1 - 2011
Q3 - 2011
Q1 - 2012
Q3 - 2012
Q1 - 2013
Q3 - 2013
Q1 - 2014
Q3 - 2014
Q1 - 2015
Q3 - 2015
Q1 - 2016
Q3 - 2016
Q1 - 2017
Q3 - 2017
Q1 - 2018
Q3 - 2018
Q1 - 2019
Q3 - 2019
Q1 - 2020
Q3 - 2020
Q1 - 2021
Q3 - 2021
Q1 - 2022
Q3 - 2022
Water Transaction Volume Annual Sum (ML)
Announced Allocations (MIN) (ML)
Announced Allocations (MAX) (ML)
Water Access Entitlement (ML)

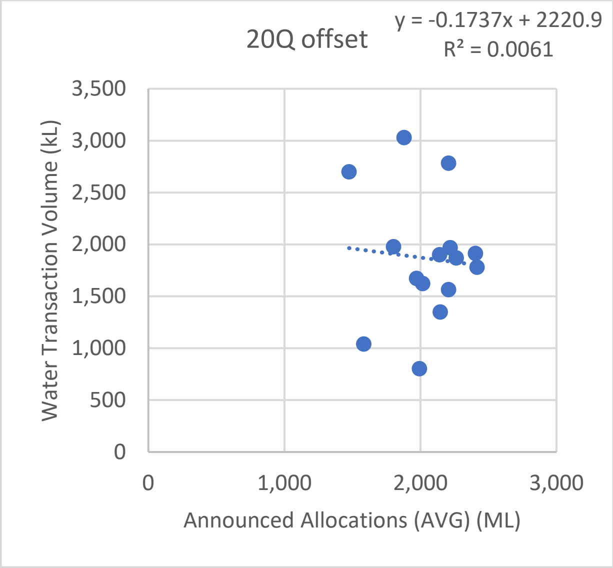

0Q offset
y = 0.4623x + 934.29
R² = 0.0507
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)


4Q offset
y = 0.2534x + 1371.5
R² = 0.0153
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

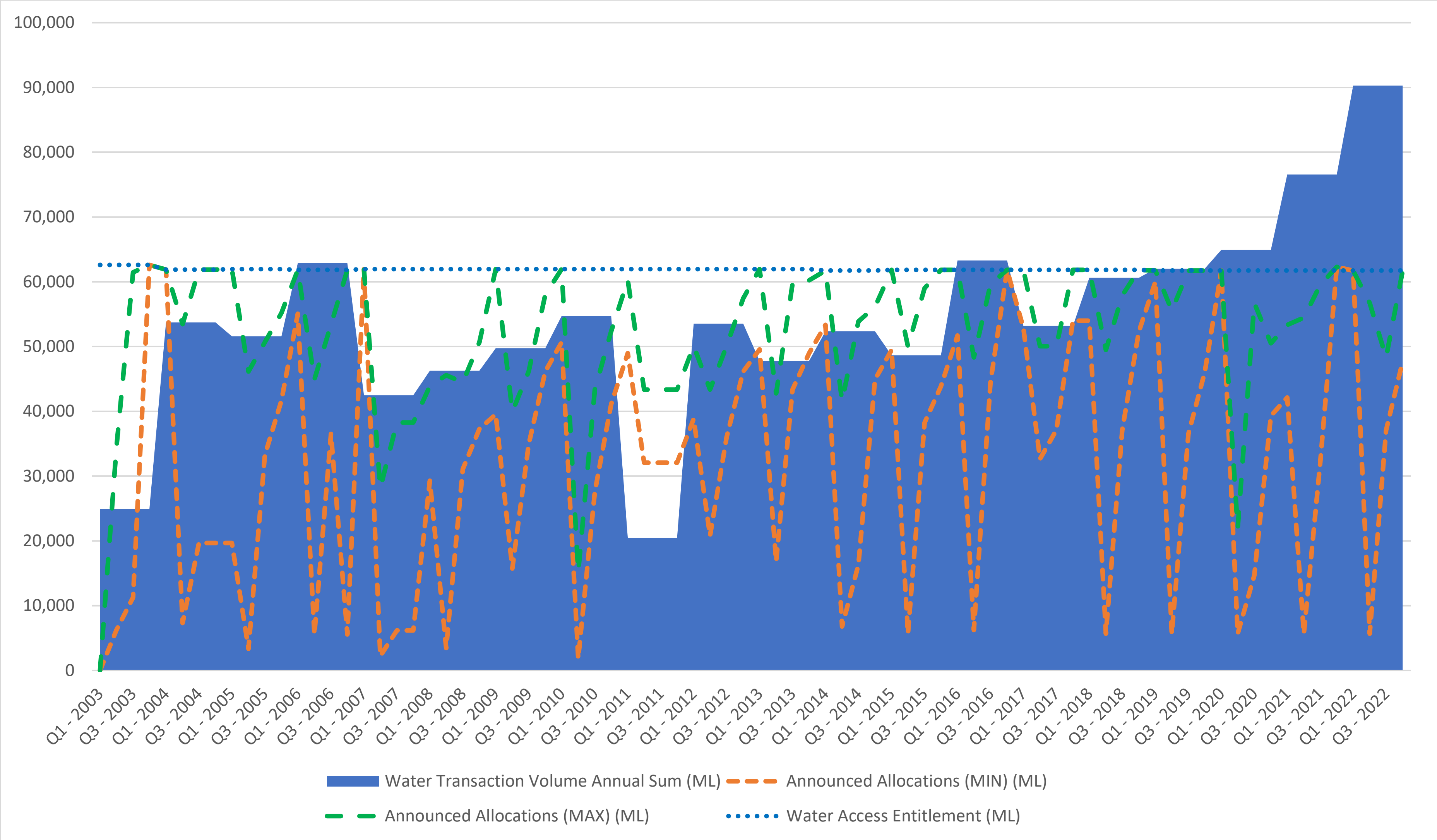

8Q offset
y = 0.5514x + 788.13
R² = 0.0734
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

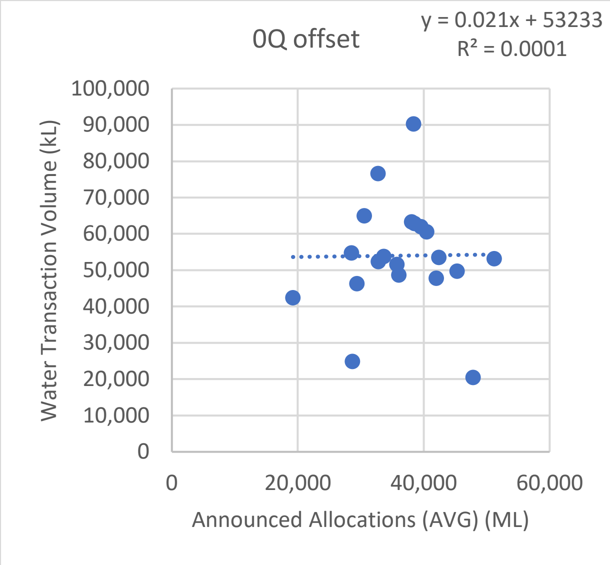

12Q offset
y = -0.749x + 3414.3
R² = 0.1314
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

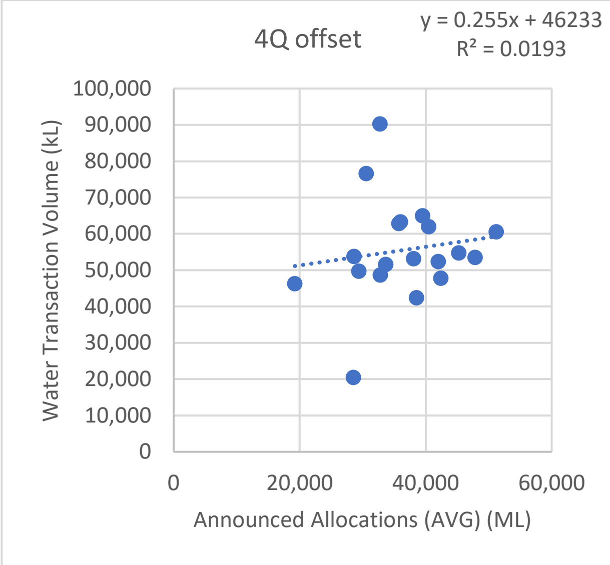

16Q offset
y = -0.6701x + 3228.4
R² = 0.108
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

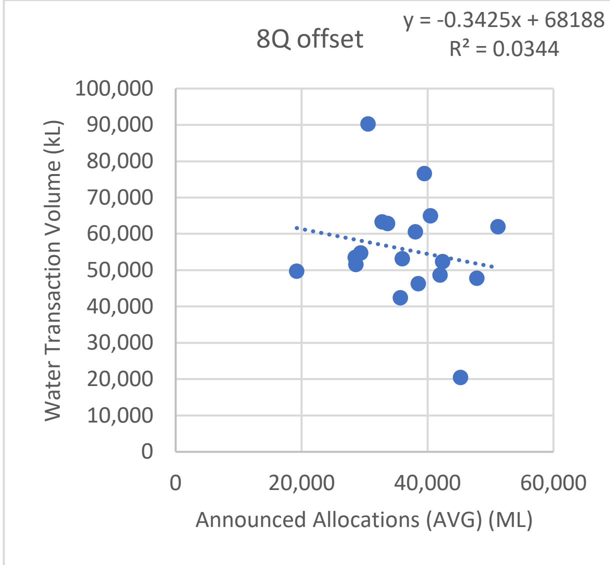

20Q offset
y = -0.1737x + 2220.9
R² = 0.0061
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

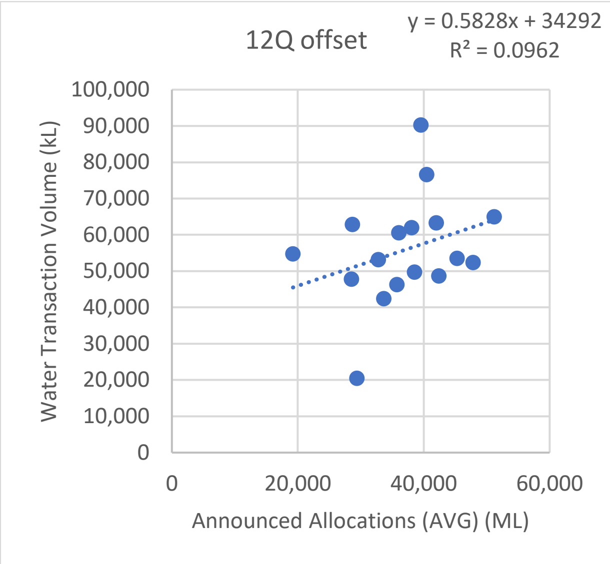
DAWSON VALLEY

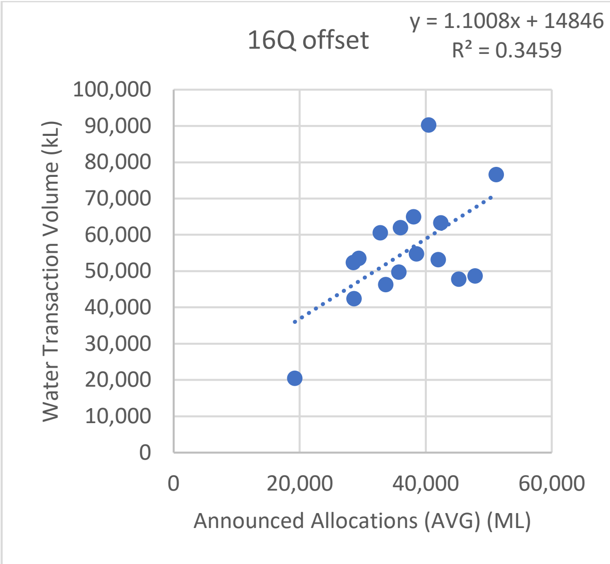


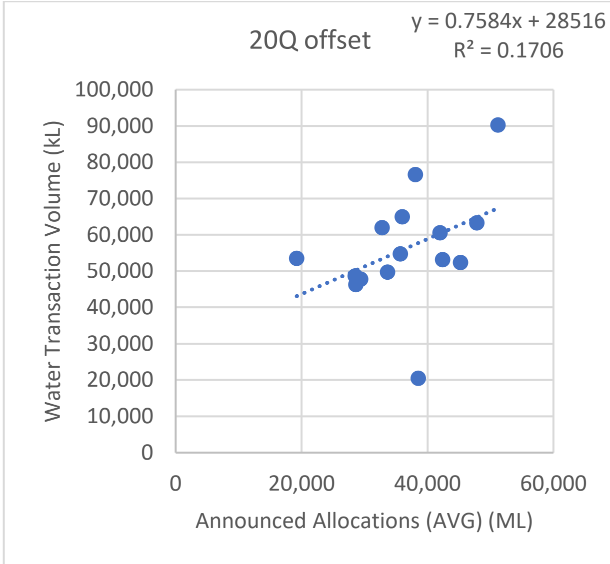

0Q offset
y = 0.021x + 53233
R² = 0.0001
Water Transaction Volume (kL)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
0
20,000
40,000
60,000
Announced Allocations (AVG) (ML)


4Q offset
y = 0.255x + 46233
R² = 0.0193
Water Transaction Volume (kL)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
0
20,000
40,000
60,000
Announced Allocations (AVG) (ML)

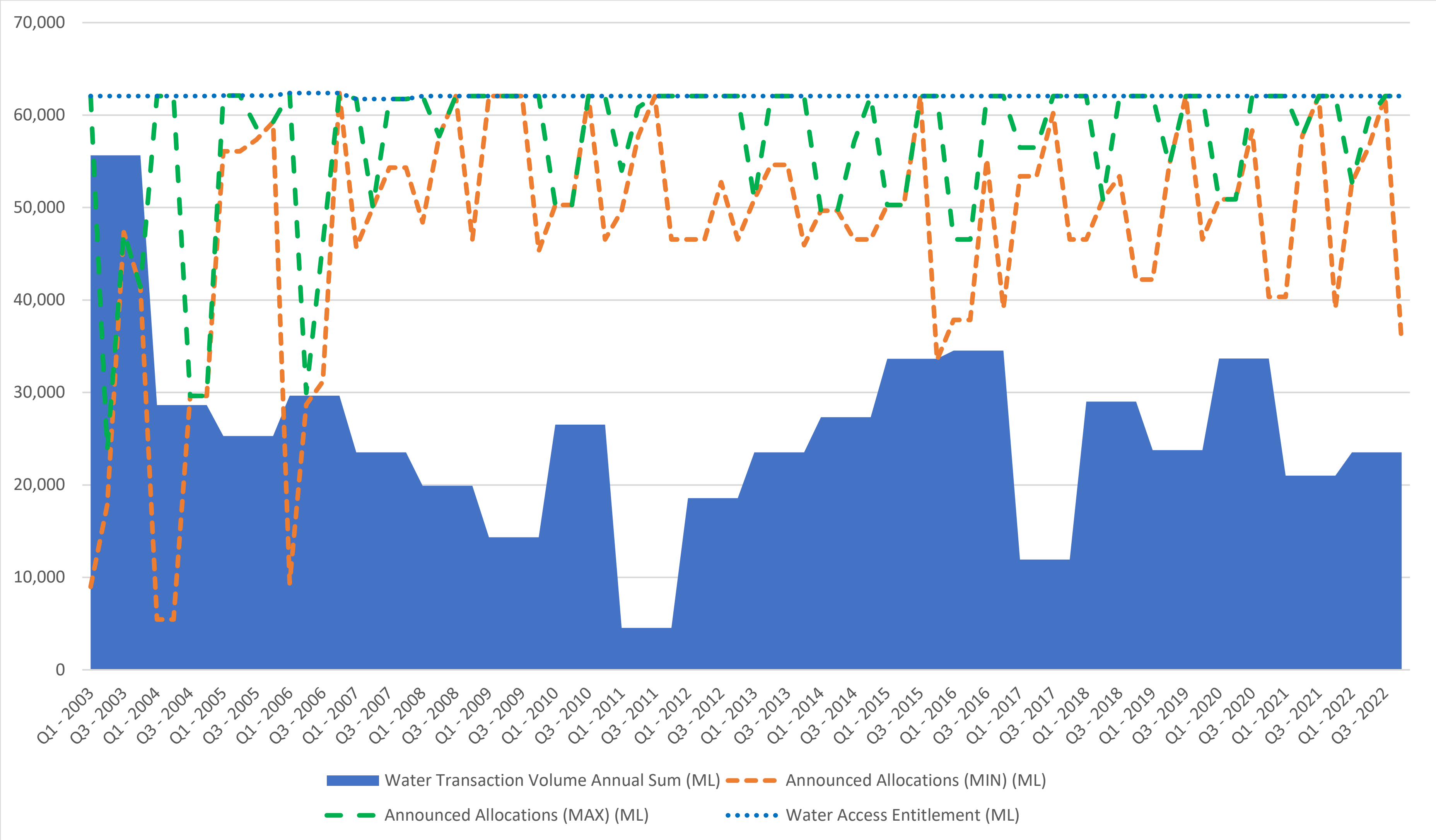

8Q offset
y = -0.3425x + 68188
R² = 0.0344
Water Transaction Volume (kL)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
0
20,000
40,000
60,000
Announced Allocations (AVG) (ML)

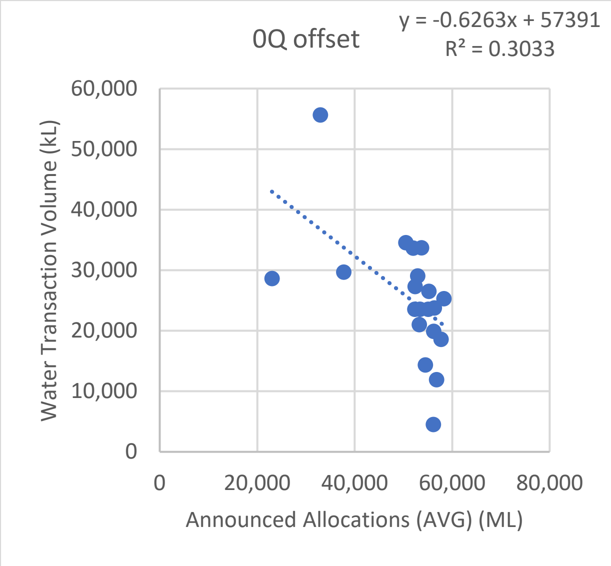

12Q offset
y = 0.5828x + 34292
R² = 0.0962
Water Transaction Volume (kL)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
0
20,000
40,000
60,000
Announced Allocations (AVG) (ML)

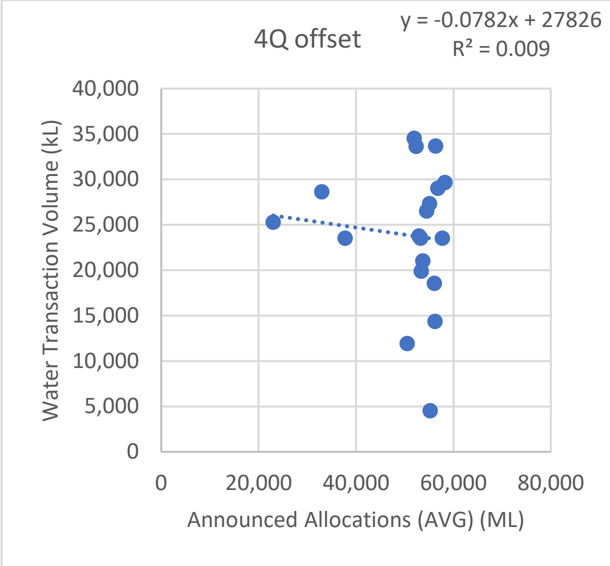

16Q offset
y = 1.1008x + 14846
R² = 0.3459
Water Transaction Volume (kL)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
0
20,000
40,000
60,000
Announced Allocations (AVG) (ML)

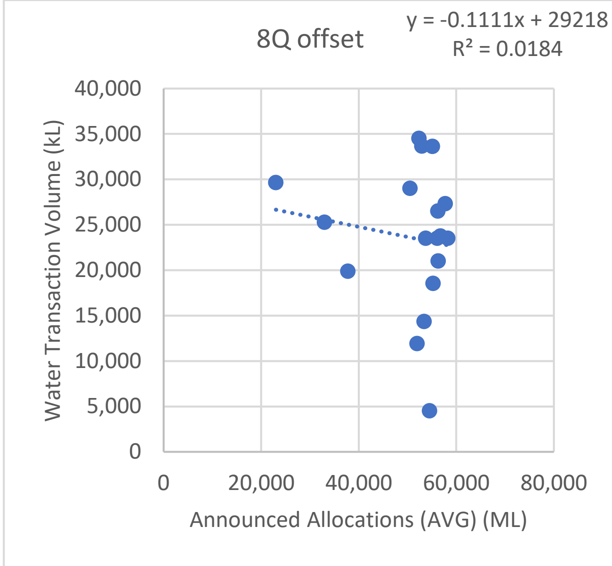

20Q offset
y = 0.7584x + 28516
R² = 0.1706
Water Transaction Volume (kL)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
0
20,000
40,000
60,000
Announced Allocations (AVG) (ML)

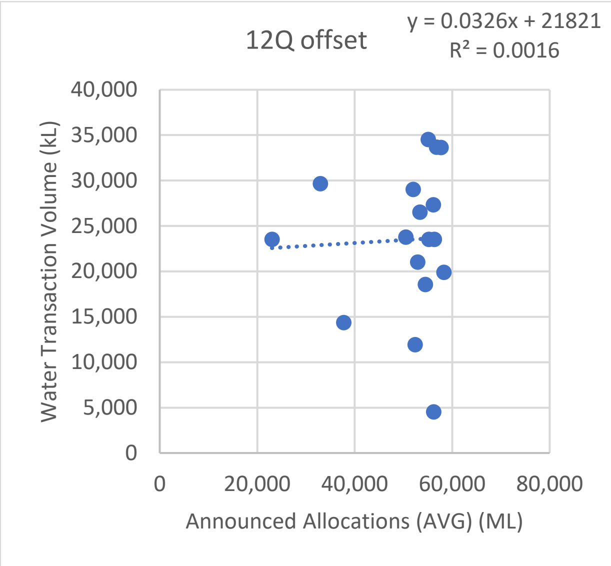
ETON

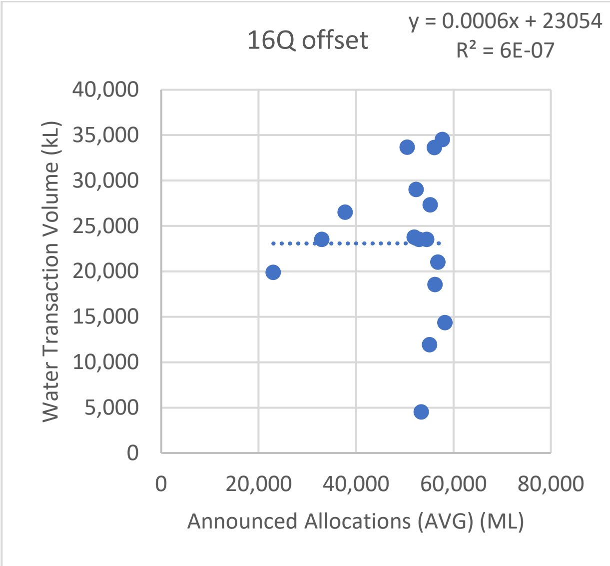

70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Q1 - 2003
Q3 - 2003
Q1 - 2004
Q3 - 2004
Q1 - 2005
Q3 - 2005
Q1 - 2006
Q3 - 2006
Q1 - 2007
Q3 - 2007
Q1 - 2008
Q3 - 2008
Q1 - 2009
Q3 - 2009
Q1 - 2010
Q3 - 2010
Q1 - 2011
Q3 - 2011
Q1 - 2012
Q3 - 2012
Q1 - 2013
Q3 - 2013
Q1 - 2014
Q3 - 2014
Q1 - 2015
Q3 - 2015
Q1 - 2016
Q3 - 2016
Q1 - 2017
Q3 - 2017
Q1 - 2018
Q3 - 2018
Q1 - 2019
Q3 - 2019
Q1 - 2020
Q3 - 2020
Q1 - 2021
Q3 - 2021
Q1 - 2022
Q3 - 2022
Water Transaction Volume Annual Sum (ML)
Announced Allocations (MIN) (ML)
Announced Allocations (MAX) (ML)
Water Access Entitlement (ML)

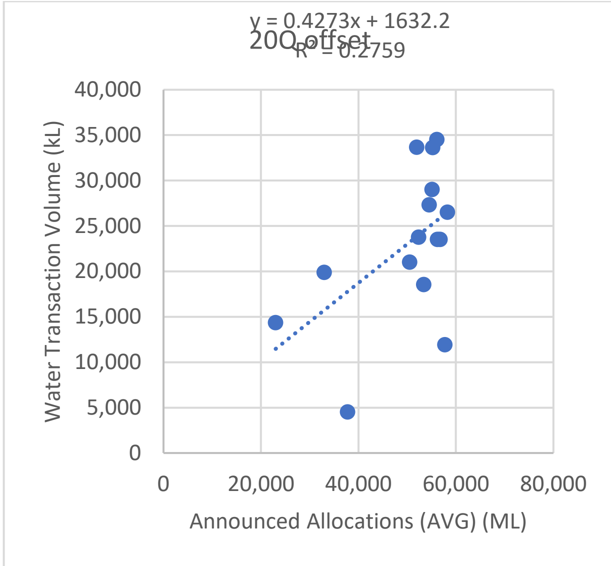

0Q offset
y = -0.6263x + 57391
R² = 0.3033
Water Transaction Volume (kL)
60,000
50,000
40,000
30,000
20,000
10,000
0
0
20,000
40,000
60,000
80,000
Announced Allocations (AVG) (ML)


4Q offset
y = -0.0782x + 27826
R² = 0.009
Water Transaction Volume (kL)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
20,000
40,000
60,000
80,000
Announced Allocations (AVG) (ML)


8Q offset
y = -0.1111x + 29218
R² = 0.0184
Water Transaction Volume (kL)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
20,000
40,000
60,000
80,000
Announced Allocations (AVG) (ML)

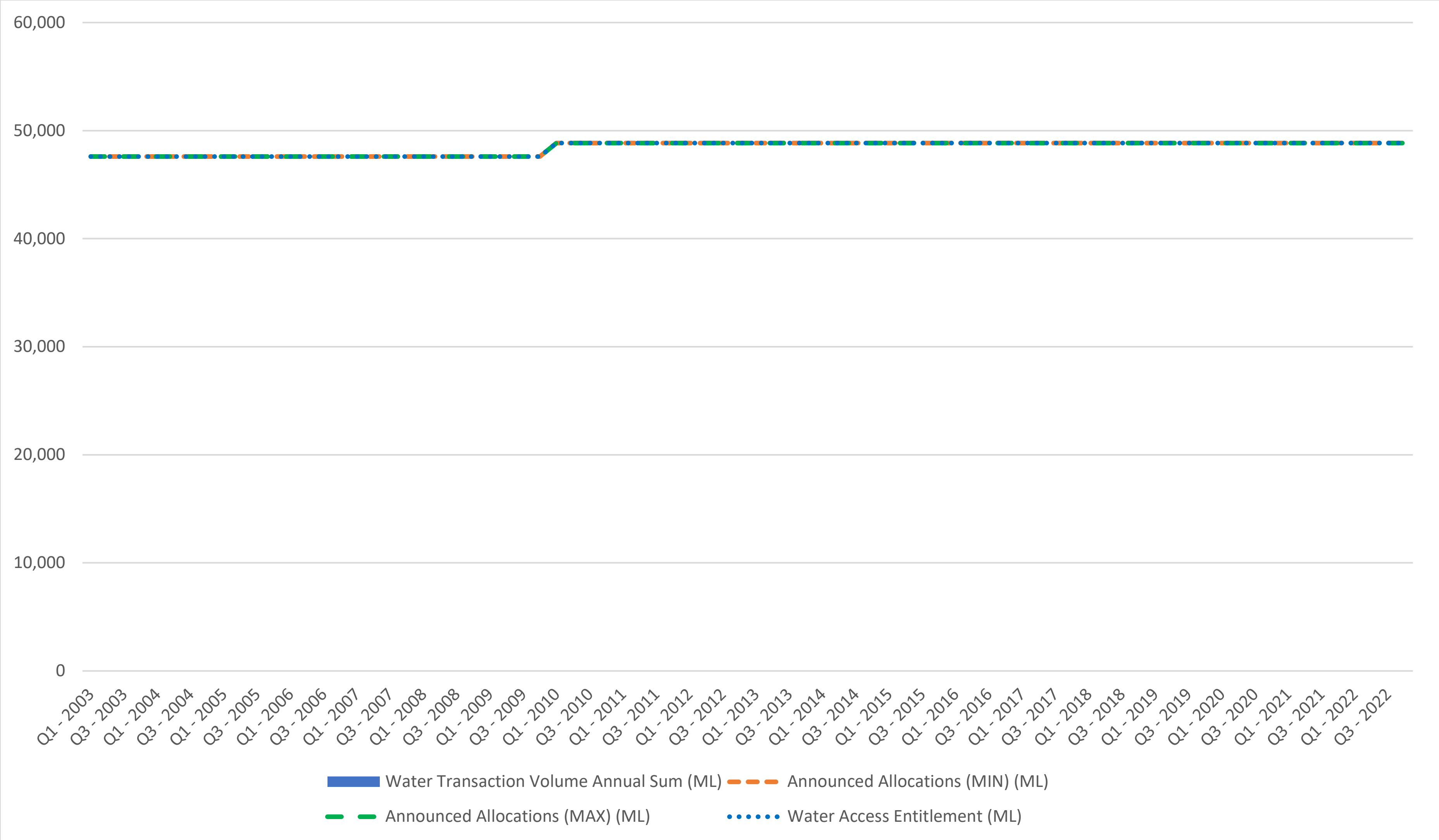

12Q offset
y = 0.0326x + 21821
R² = 0.0016
Water Transaction Volume (kL)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
20,000
40,000
60,000
80,000
Announced Allocations (AVG) (ML)


16Q offset
y = 0.0006x + 23054
R² = 6E-07
Water Transaction Volume (kL)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
20,000
40,000
60,000
80,000
Announced Allocations (AVG) (ML)

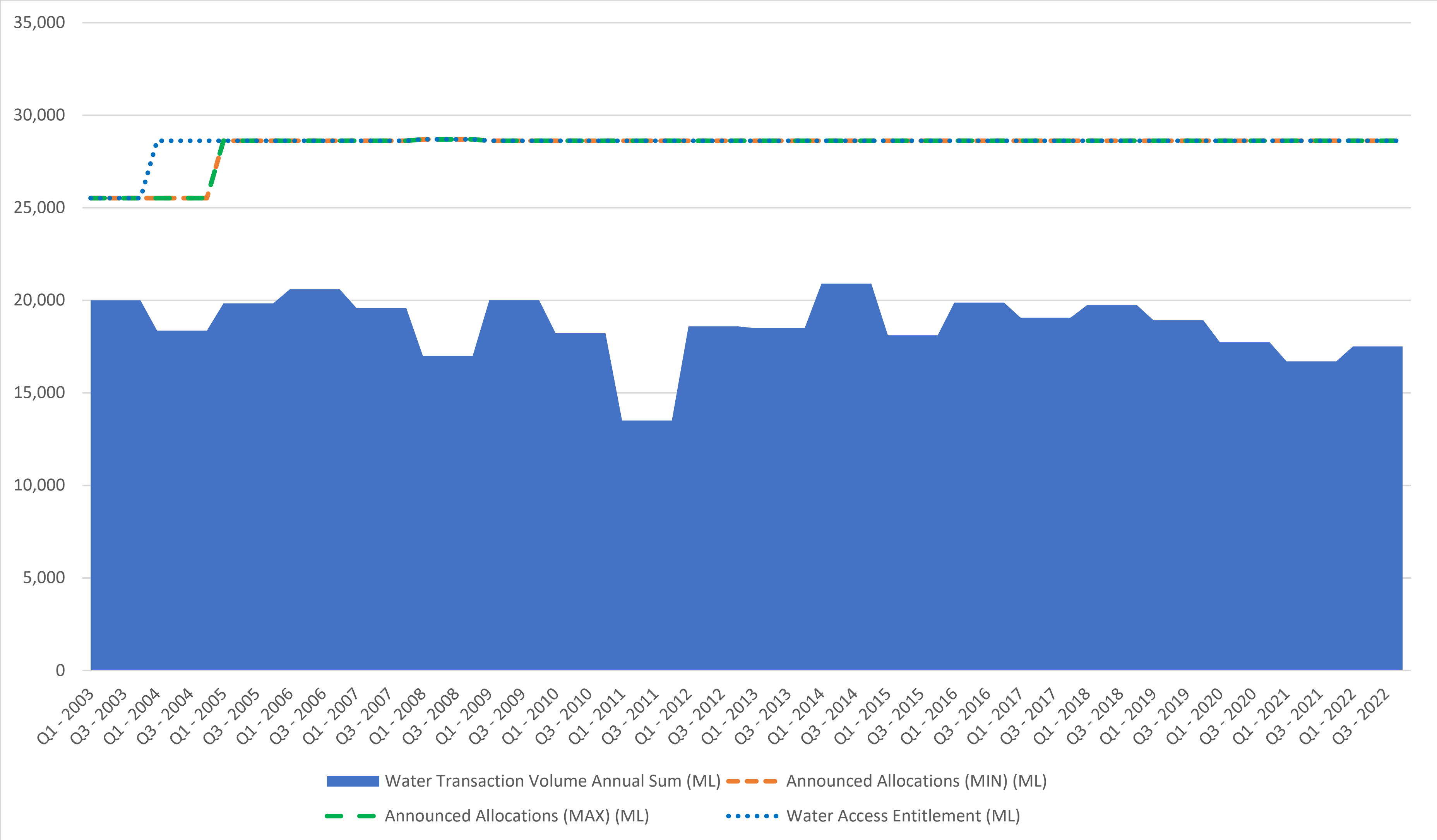

y = 0.4273x + 1632.2
20Q offset
R² = 0.2759
Water Transaction Volume (kL)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
20,000
40,000
60,000
80,000
Announced Allocations (AVG) (ML)

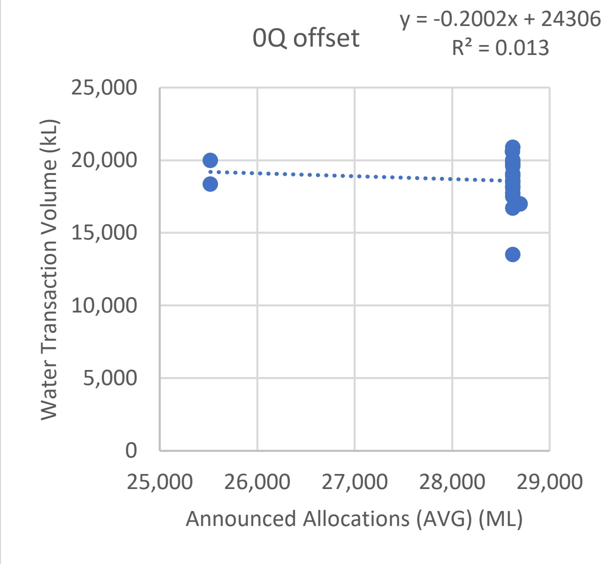
JULIUS DAM

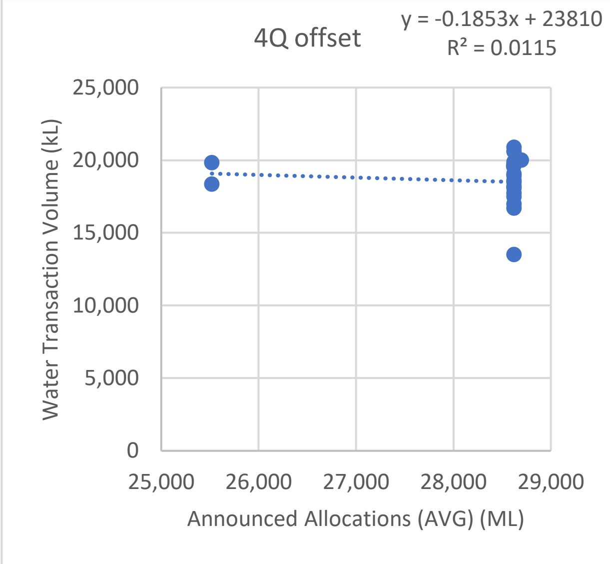
NOTE: No AA vs use charts developed, as no recorded water demand data was provided for Julius Dam scheme.

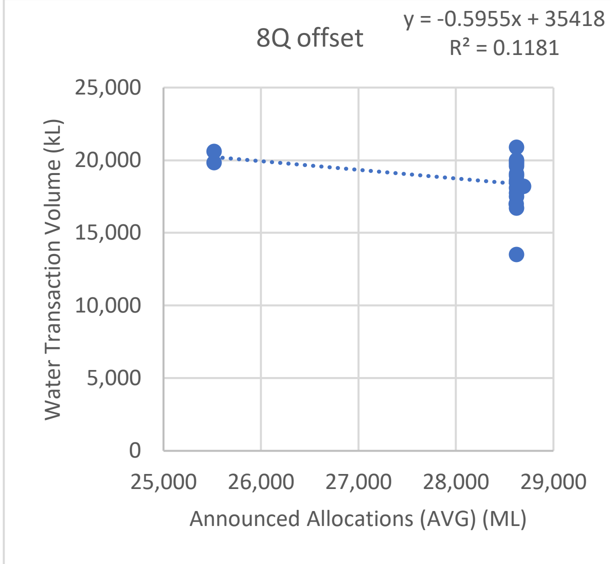


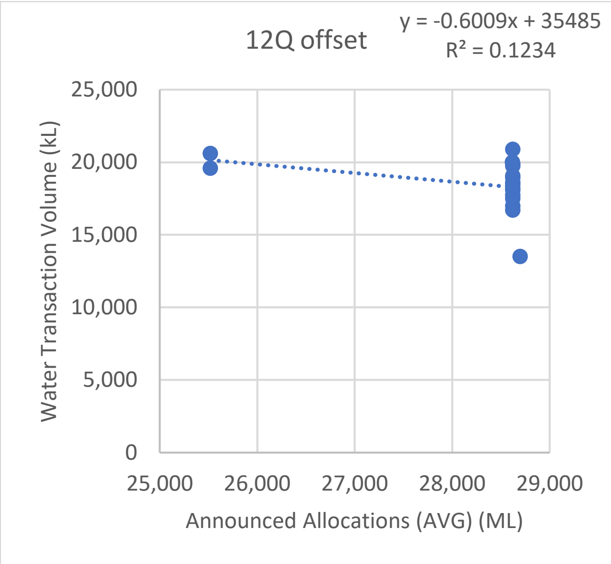
LOWER FITZROY

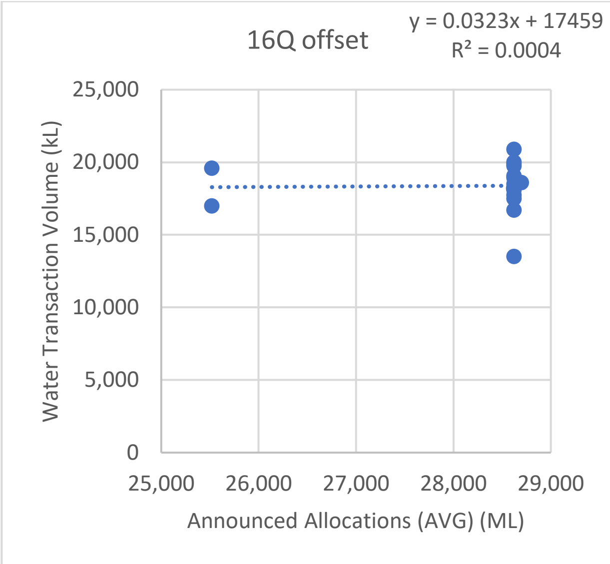


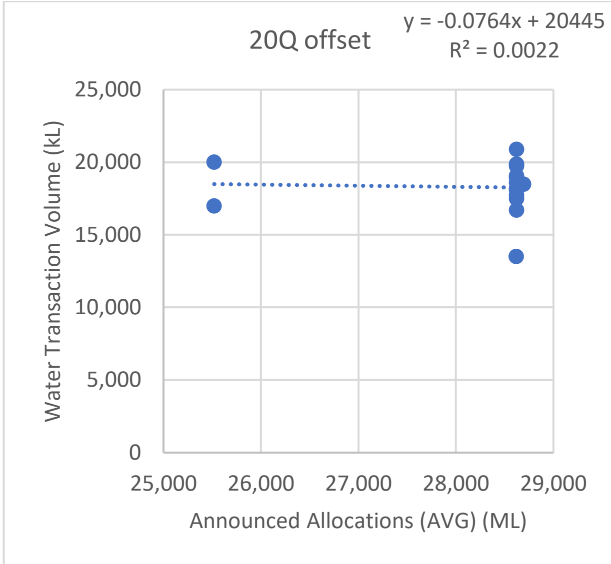

0Q offset
y = -0.2002x + 24306
R^2 = 0.013
Water Transaction Volume (kL)
25,000
20,000
15,000
10,000
5,000
0
25,000
26,000
27,000
28,000
29,000
Announced Allocations (AVG) (ML)


4Q offset
y = -0.1853x + 23810
R^2 = 0.0115
Water Transaction Volume (kL)
25,000
20,000
15,000
10,000
5,000
0
25,000
26,000
27,000
28,000
29,000
Announced Allocations (AVG) (ML)

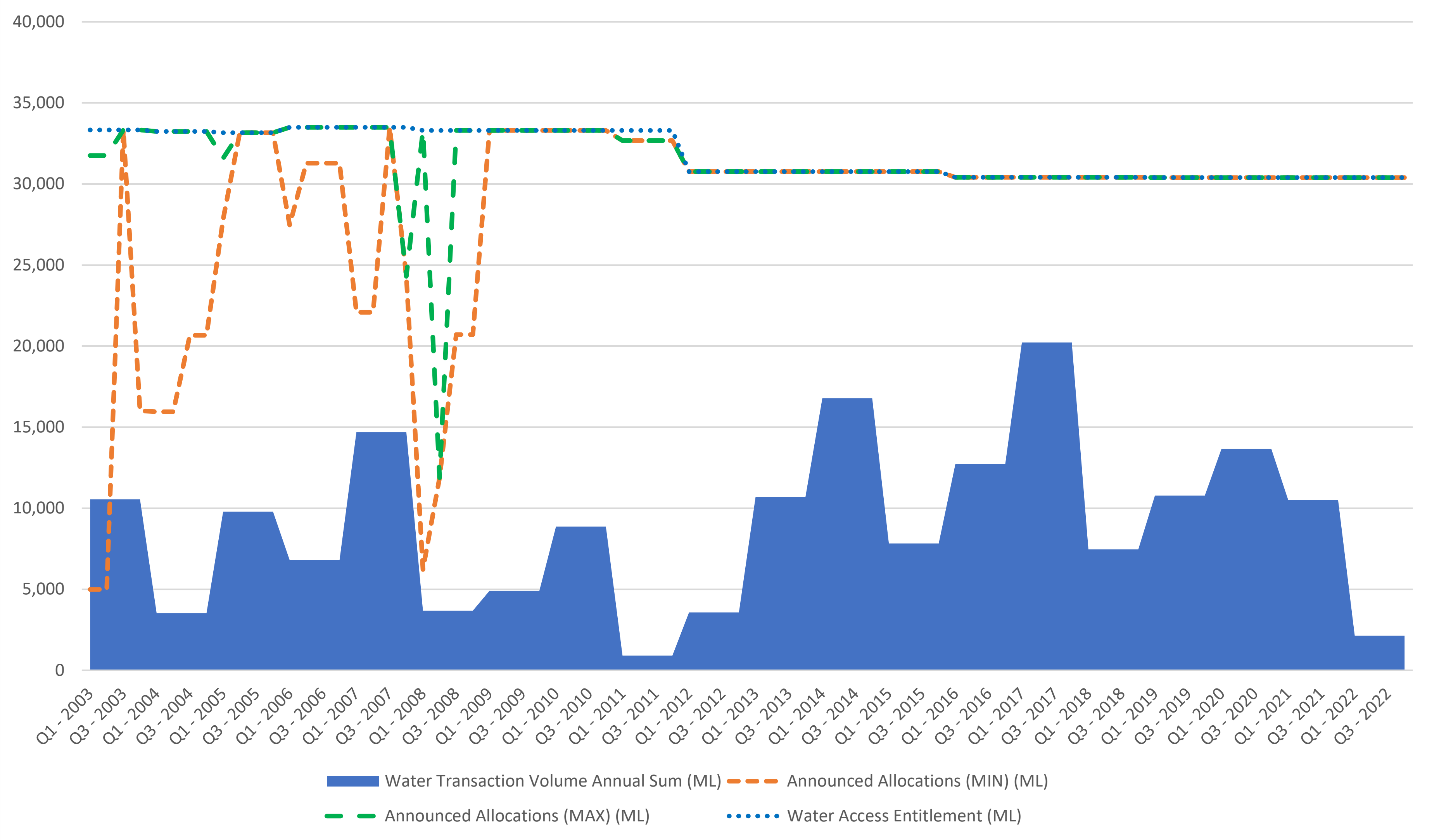

8Q offset
y = -0.5955x + 35418
R^2 = 0.1181
Water Transaction Volume (kL)
25,000
20,000
15,000
10,000
5,000
0
25,000
26,000
27,000
28,000
29,000
Announced Allocations (AVG) (ML)

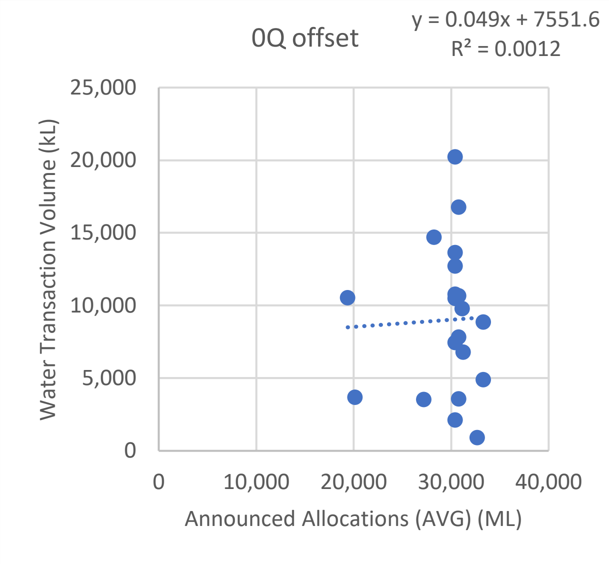

12Q offset
y = -0.6009x + 35485
R^2 = 0.1234
Water Transaction Volume (kL)
25,000
20,000
15,000
10,000
5,000
0
25,000
26,000
27,000
28,000
29,000
Announced Allocations (AVG) (ML)

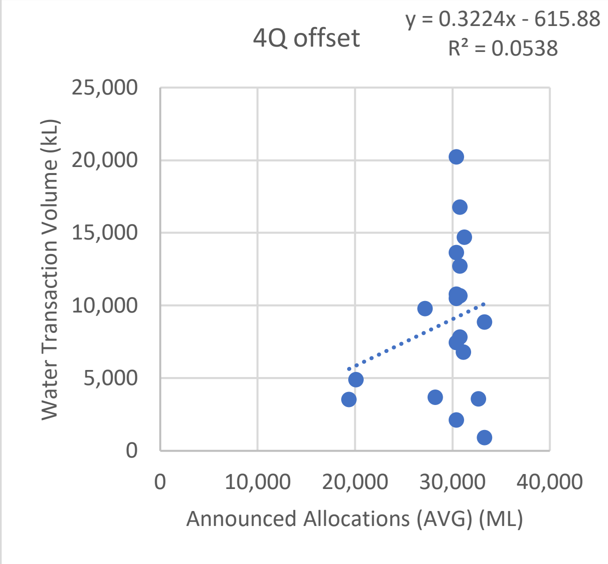

16Q offset
y = 0.0323x + 17459
R^2 = 0.0004
Water Transaction Volume (kL)
25,000
20,000
15,000
10,000
5,000
0
25,000
26,000
27,000
28,000
29,000
Announced Allocations (AVG) (ML)

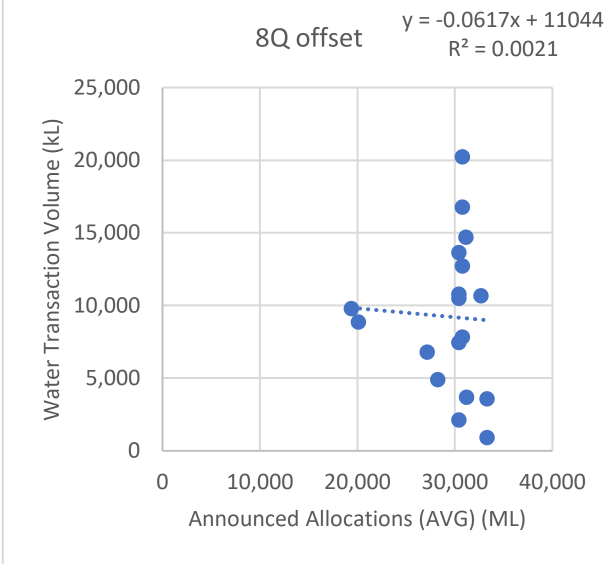

20Q offset
y = -0.0764x + 20445
R^2 = 0.0022
Water Transaction Volume (kL)
25,000
20,000
15,000
10,000
5,000
0
25,000
26,000
27,000
28,000
29,000
Announced Allocations (AVG) (ML)

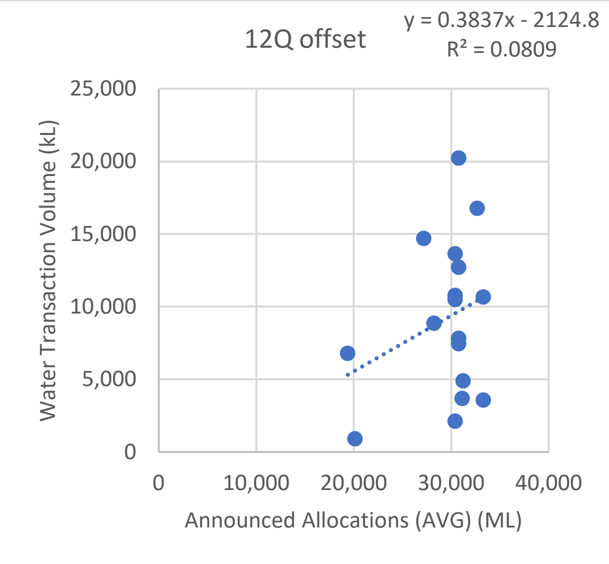
LOWER MARY RIVER

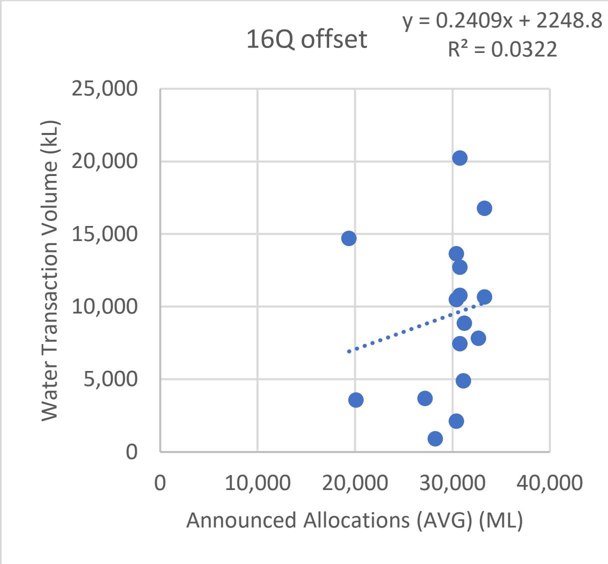


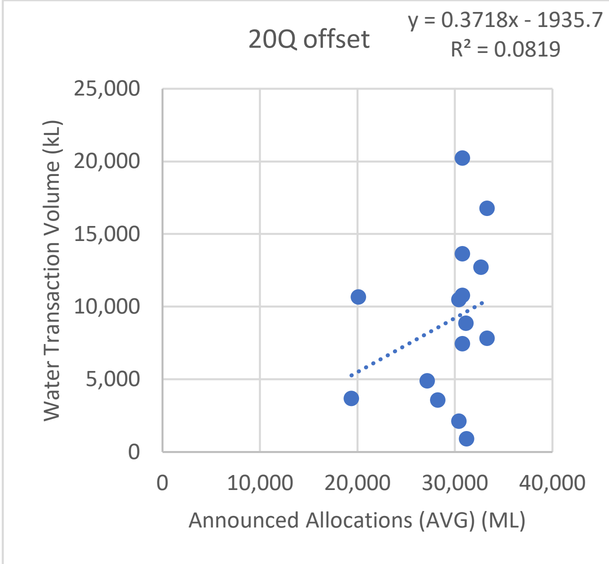

0Q offset
y = 0.049x + 7551.6
R² = 0.0012
Water Transaction Volume (kL)
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
40,000
Announced Allocations (AVG) (ML)


4Q offset
y = 0.3224x - 615.88
R² = 0.0538
Water Transaction Volume (kL)
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
40,000
Announced Allocations (AVG) (ML)

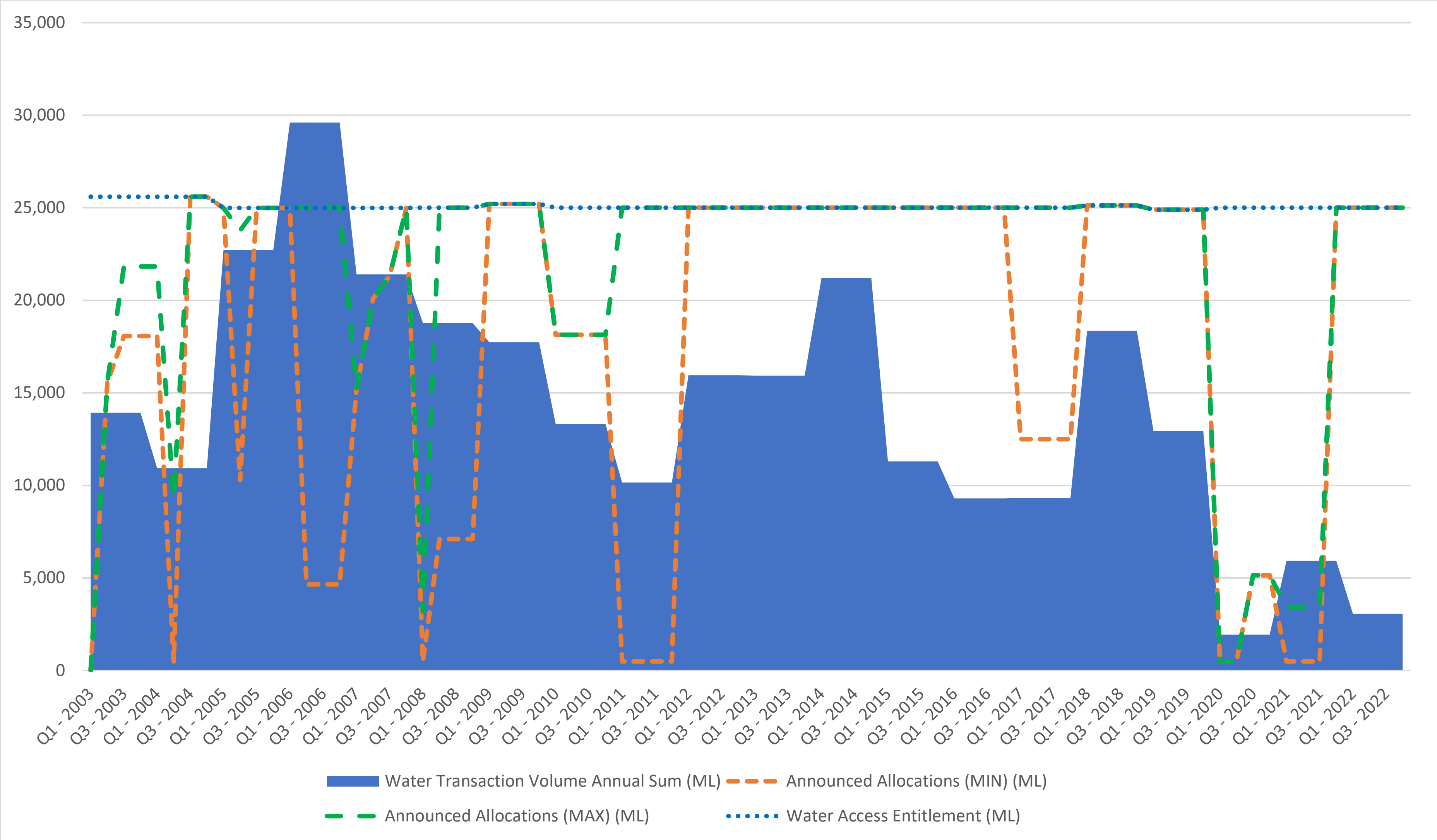

8Q offset
y = -0.0617x + 11044
R² = 0.0021
Water Transaction Volume (kL)
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
40,000
Announced Allocations (AVG) (ML)

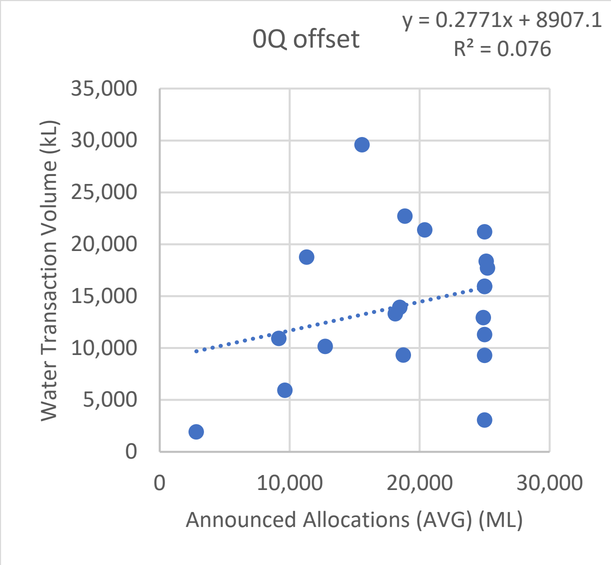

12Q offset
y = 0.3837x - 2124.8
R² = 0.0809
Water Transaction Volume (kL)
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
40,000
Announced Allocations (AVG) (ML)

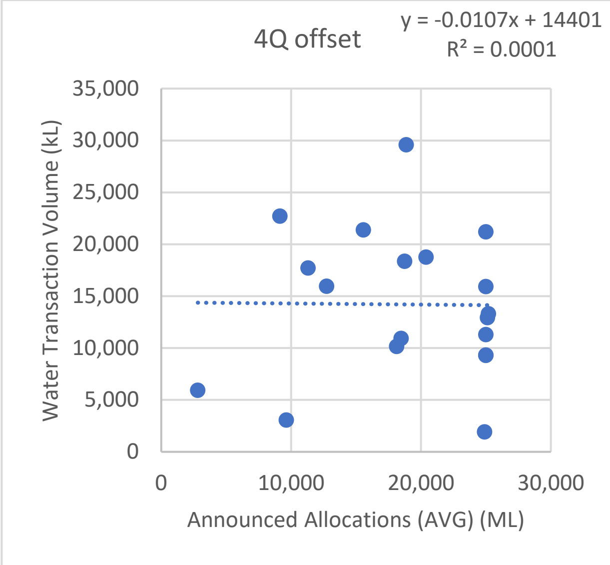

16Q offset
y = 0.2409x + 2248.8
R² = 0.0322
Water Transaction Volume (kL)
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
40,000
Announced Allocations (AVG) (ML)

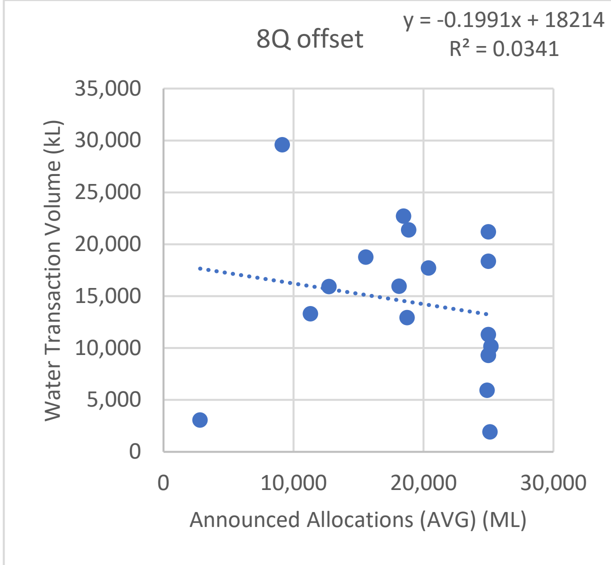

20Q offset
y = 0.3718x - 1935.7
R² = 0.0819
Water Transaction Volume (kL)
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
40,000
Announced Allocations (AVG) (ML)

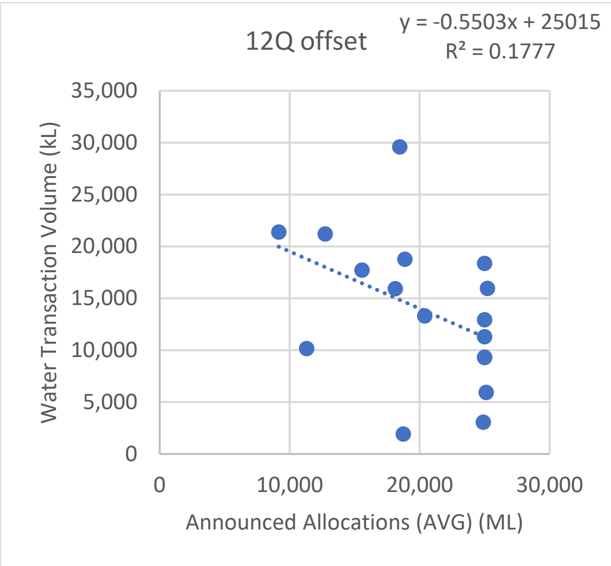
MACINTYRE BROOK

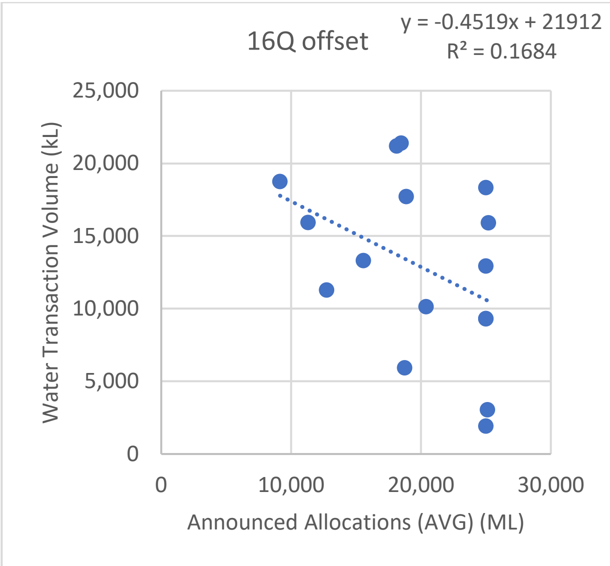


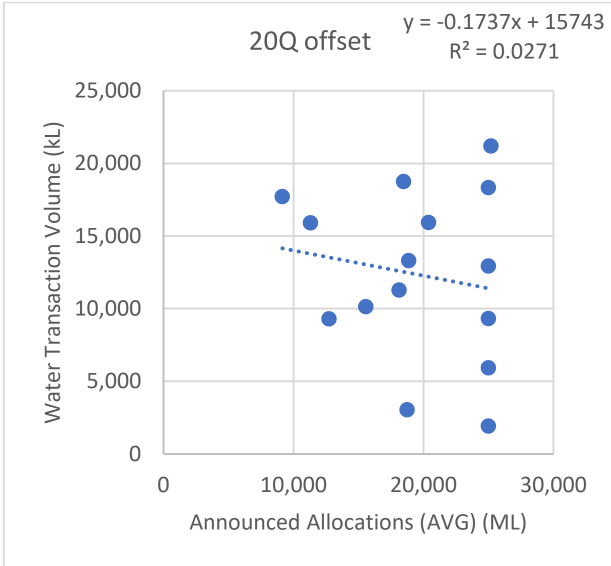

0Q offset
y = 0.2771x + 8907.1
R^2 = 0.076
Water Transaction Volume (kL)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
Announced Allocations (AVG) (ML)


4Q offset
y = -0.0107x + 14401
R^2 = 0.0001
Water Transaction Volume (kL)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
Announced Allocations (AVG) (ML)


8Q offset
y = -0.1991x + 18214
R^2 = 0.0341
Water Transaction Volume (kL)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
Announced Allocations (AVG) (ML)

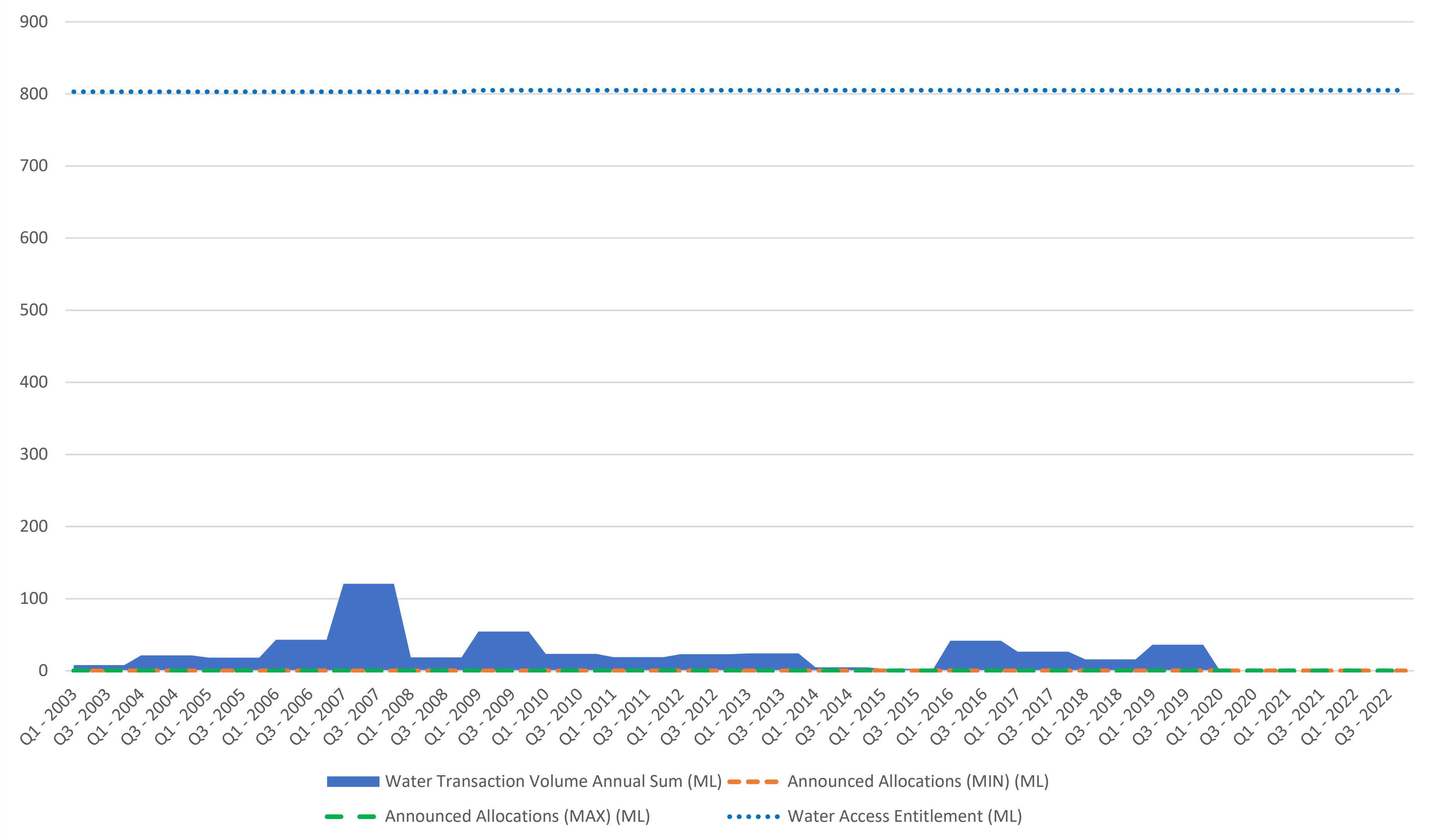

12Q offset
y = -0.5503x + 25015
R^2 = 0.1777
Water Transaction Volume (kL)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
Announced Allocations (AVG) (ML)


16Q offset
y = -0.4519x + 21912
R^2 = 0.1684
Water Transaction Volume (kL)
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
Announced Allocations (AVG) (ML)

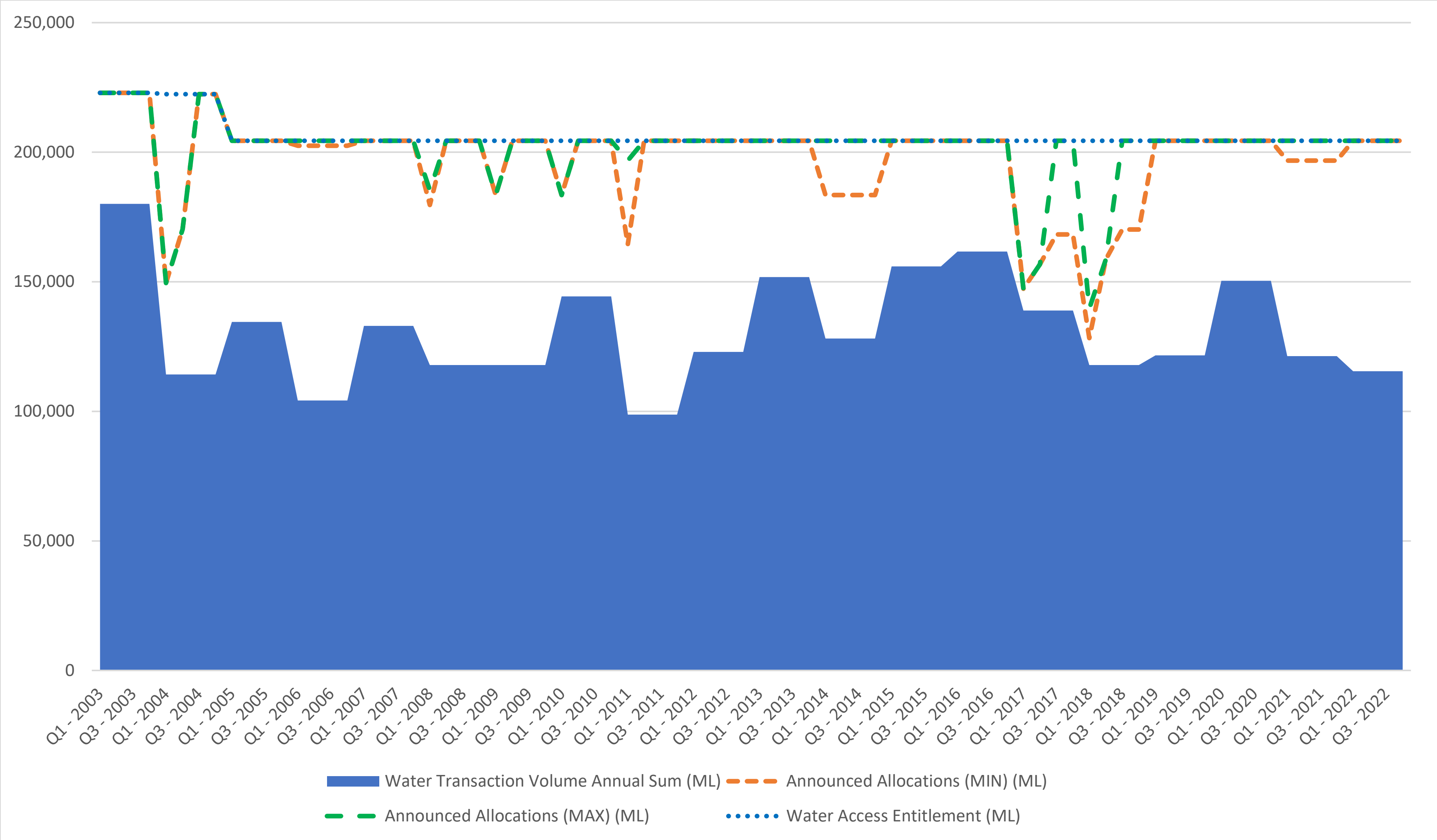

20Q offset
y = -0.1737x + 15743
R^2 = 0.0271
Water Transaction Volume (kL)
25,000
20,000
15,000
10,000
5,000
0
0
10,000
20,000
30,000
Announced Allocations (AVG) (ML)

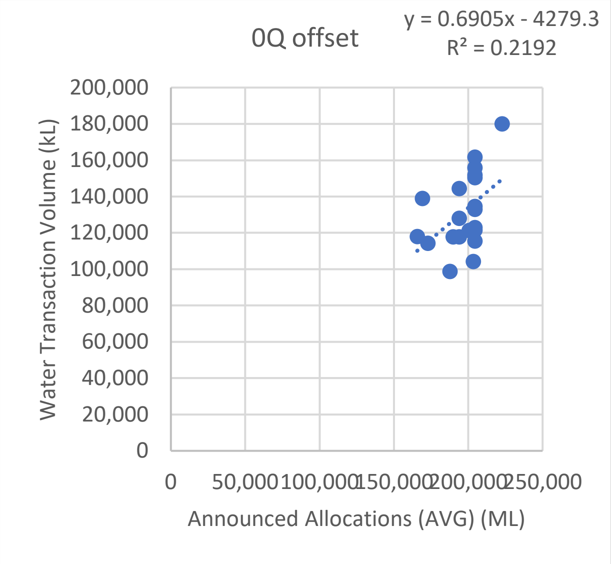
MARANOA RIVER

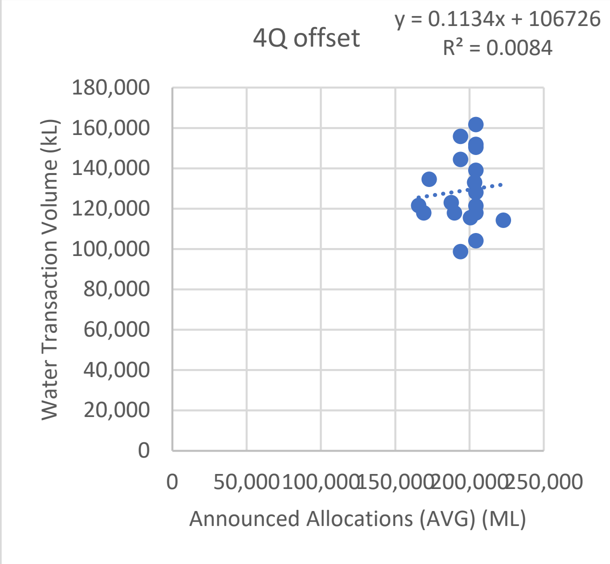
NOTE: No AA vs use charts developed, as no recorded AA volume data was provided for Maranoa River scheme.

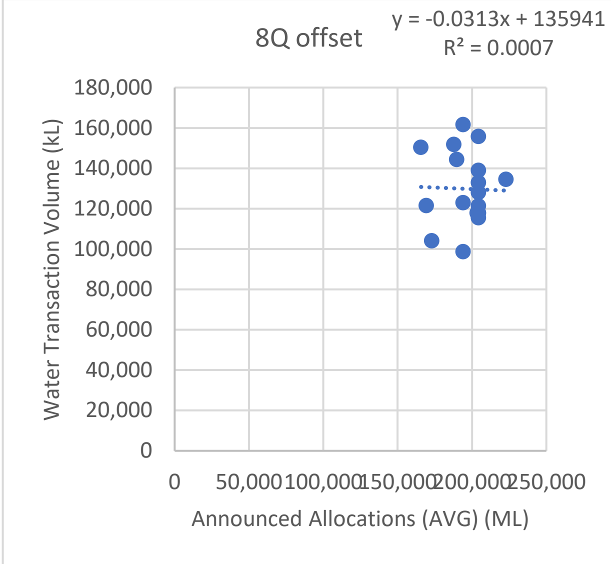


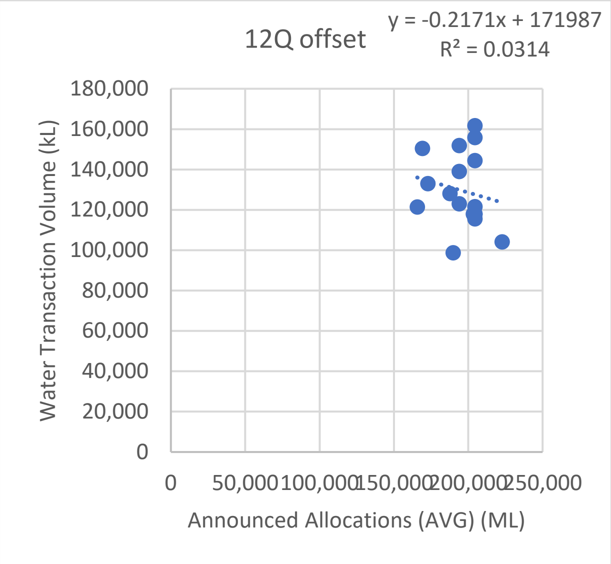
MAREEBA DIMBULAH

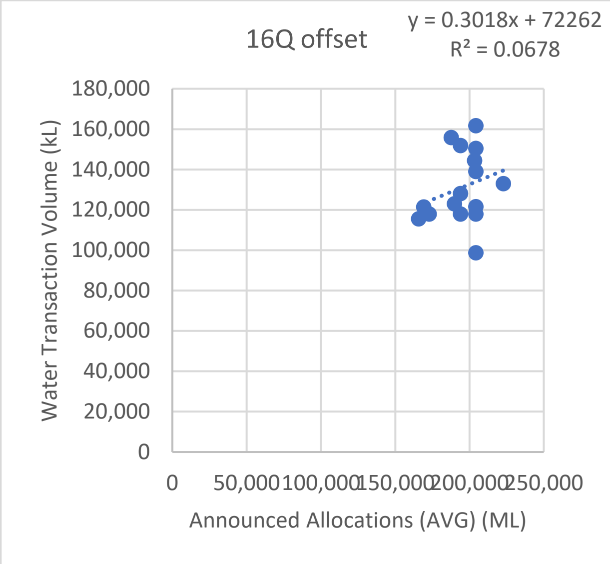


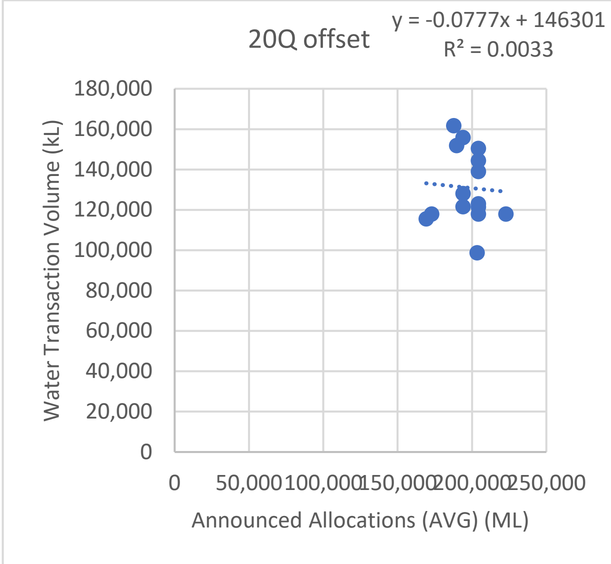

0Q offset
y = 0.6905x - 4279.3
R² = 0.2192
Water Transaction Volume (kL)
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
0
50,000
100,000
150,000
200,000
250,000
Announced Allocations (AVG) (ML)


4Q offset
y = 0.1134x + 106726
R² = 0.0084
Water Transaction Volume (kL)
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
0
50,000
100,000
150,000
200,000
250,000
Announced Allocations (AVG) (ML)

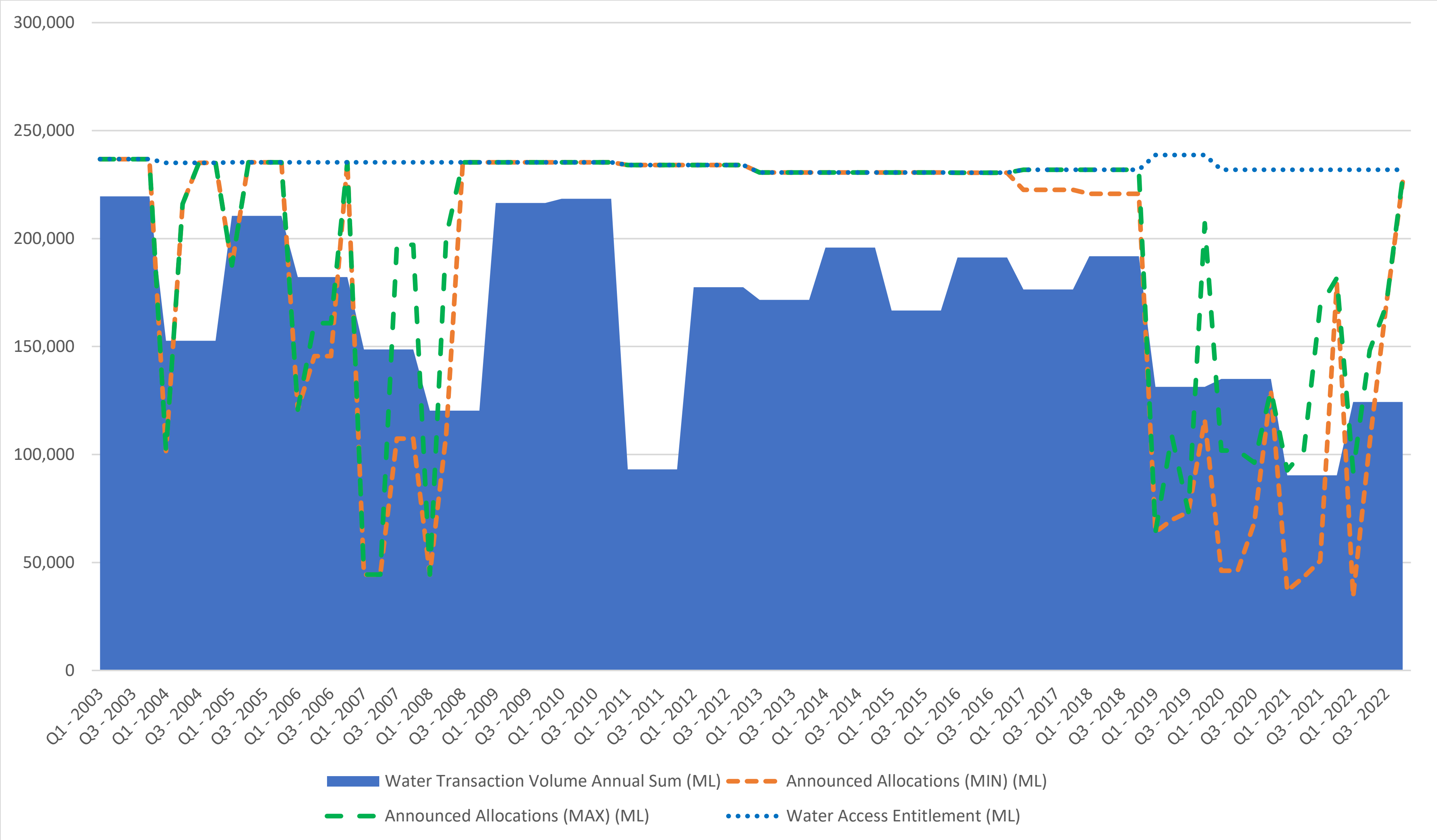

8Q offset
y = -0.0313x + 135941
R² = 0.0007
Water Transaction Volume (kL)
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
0
50,000
100,000
150,000
200,000
250,000
Announced Allocations (AVG) (ML)

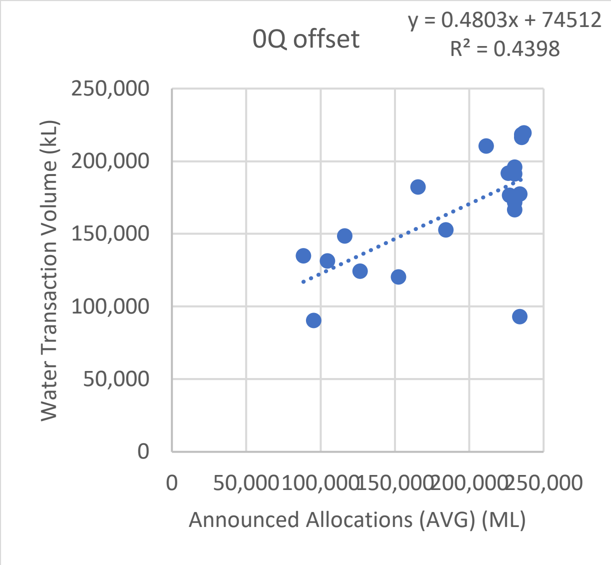

12Q offset
y = -0.2171x + 171987
R² = 0.0314
Water Transaction Volume (kL)
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
0
50,000
100,000
150,000
200,000
250,000
Announced Allocations (AVG) (ML)

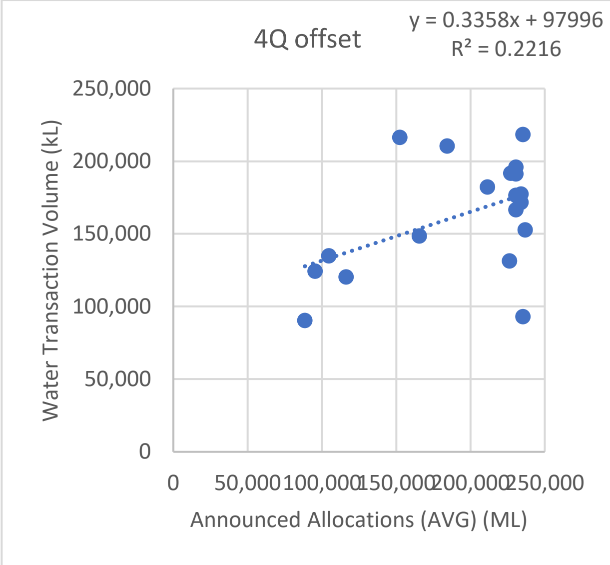

16Q offset
y = 0.3018x + 72262
R² = 0.0678
Water Transaction Volume (kL)
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
0
50,000
100,000
150,000
200,000
250,000
Announced Allocations (AVG) (ML)

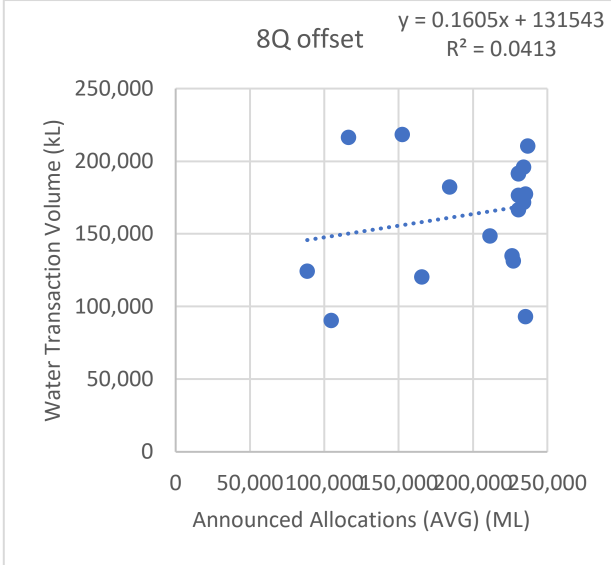

20Q offset
y = -0.0777x + 146301
R² = 0.0033
Water Transaction Volume (kL)
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
0
50,000
100,000
150,000
200,000
250,000
Announced Allocations (AVG) (ML)

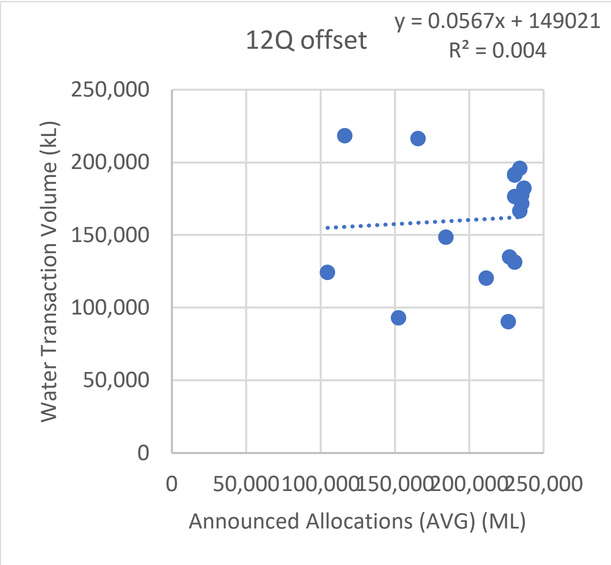
NOGOA MACKENZIE

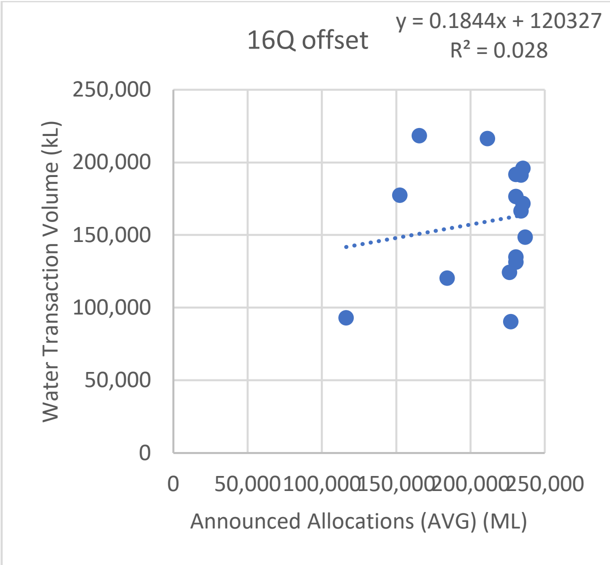


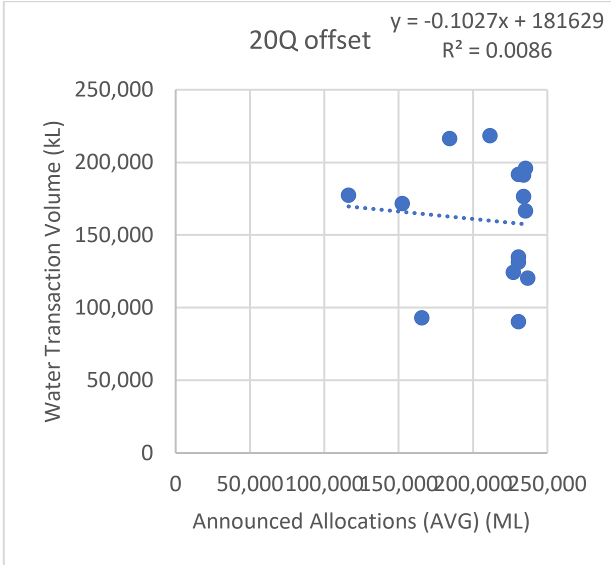

0Q offset
y = 0.4803x + 74512
R² = 0.4398
Water Transaction Volume (kL)
250,000
200,000
150,000
100,000
50,000
0
0
50,000
100,000
150,000
200,000
250,000
Announced Allocations (AVG) (ML)


4Q offset
y = 0.3358x + 97996
R² = 0.2216
Water Transaction Volume (kL)
250,000
200,000
150,000
100,000
50,000
0
0
50,000
100,000
150,000
200,000
250,000
Announced Allocations (AVG) (ML)

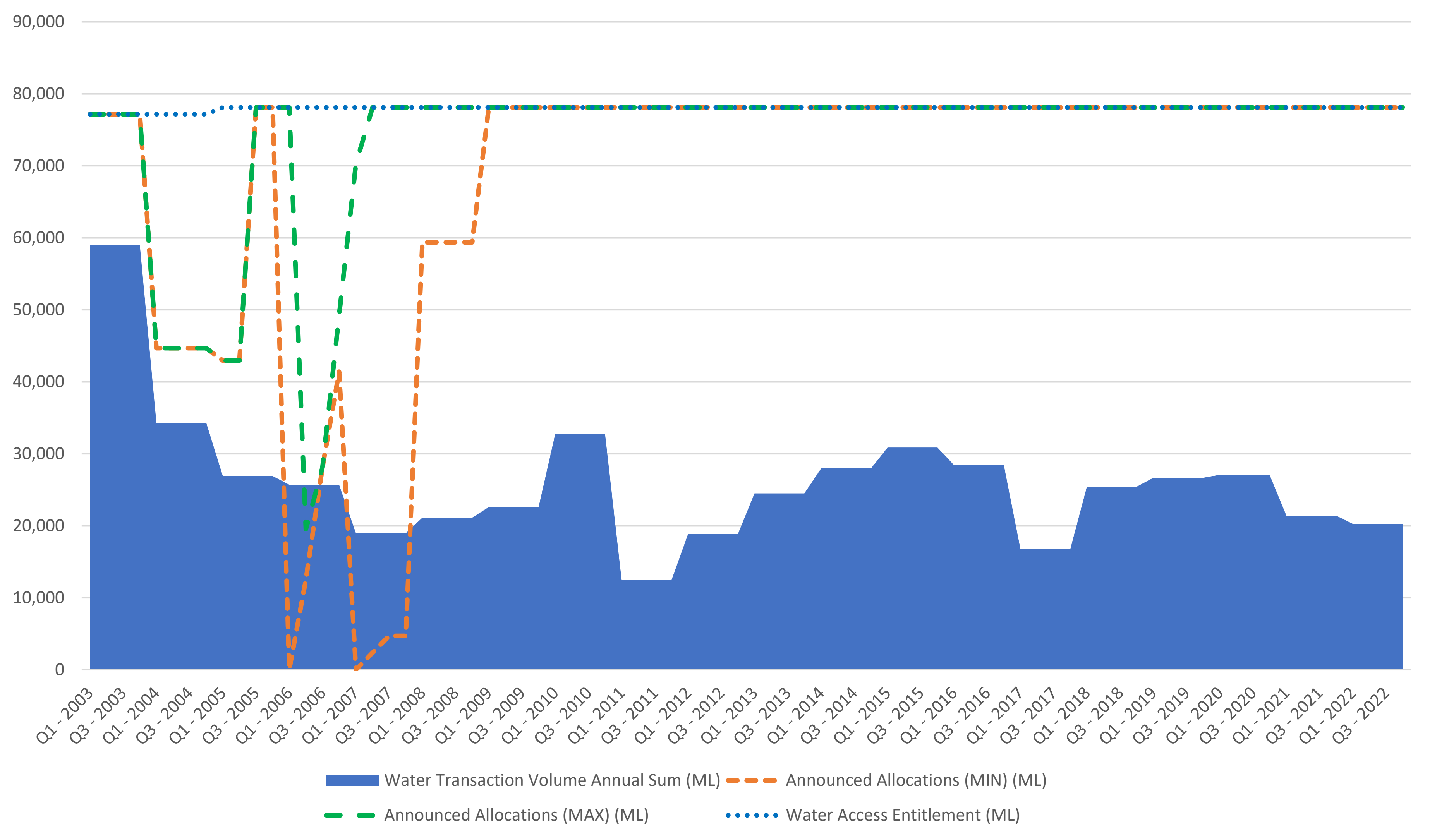

8Q offset
y = 0.1605x + 131543
R² = 0.0413
Water Transaction Volume (kL)
250,000
200,000
150,000
100,000
50,000
0
0
50,000
100,000
150,000
200,000
250,000
Announced Allocations (AVG) (ML)

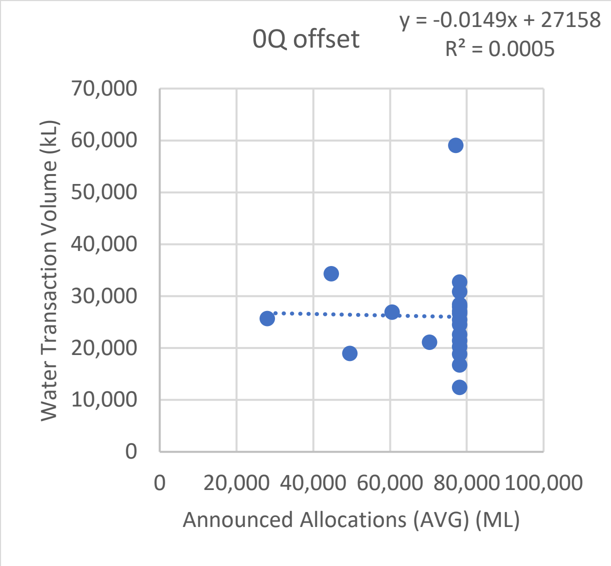

12Q offset
y = 0.0567x + 149021
R² = 0.004
Water Transaction Volume (kL)
250,000
200,000
150,000
100,000
50,000
0
0
50,000
100,000
150,000
200,000
250,000
Announced Allocations (AVG) (ML)

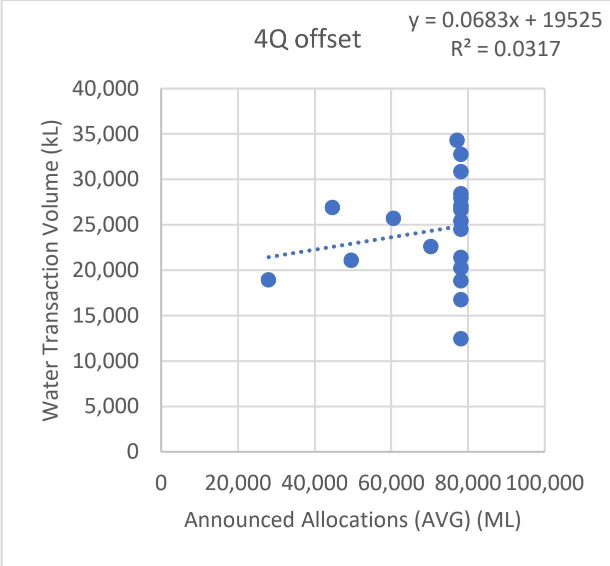

16Q offset
y = 0.1844x + 120327
R² = 0.028
Water Transaction Volume (kL)
250,000
200,000
150,000
100,000
50,000
0
0
50,000
100,000
150,000
200,000
250,000
Announced Allocations (AVG) (ML)

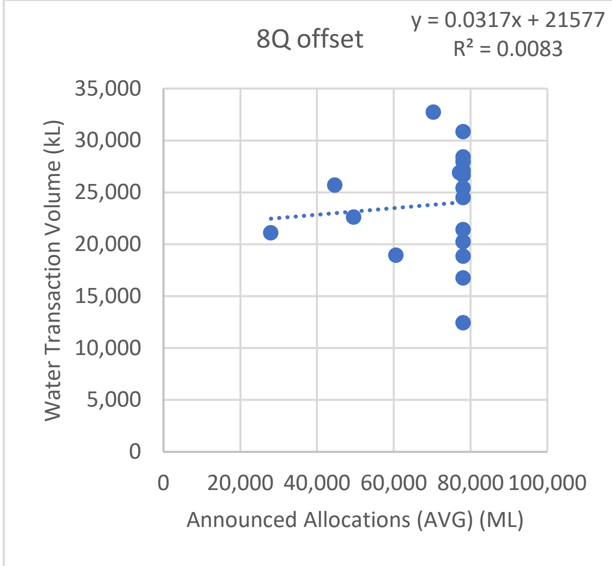

20Q offset
y = -0.1027x + 181629
R² = 0.0086
Water Transaction Volume (kL)
250,000
200,000
150,000
100,000
50,000
0
0
50,000
100,000
150,000
200,000
250,000
Announced Allocations (AVG) (ML)

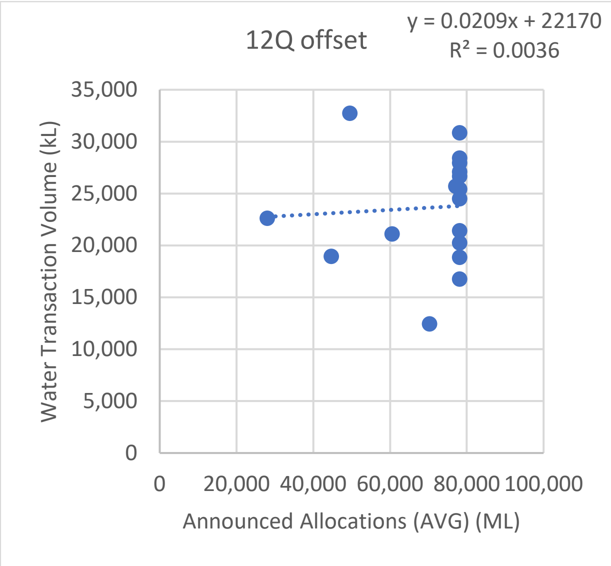
PIONEER RIVER

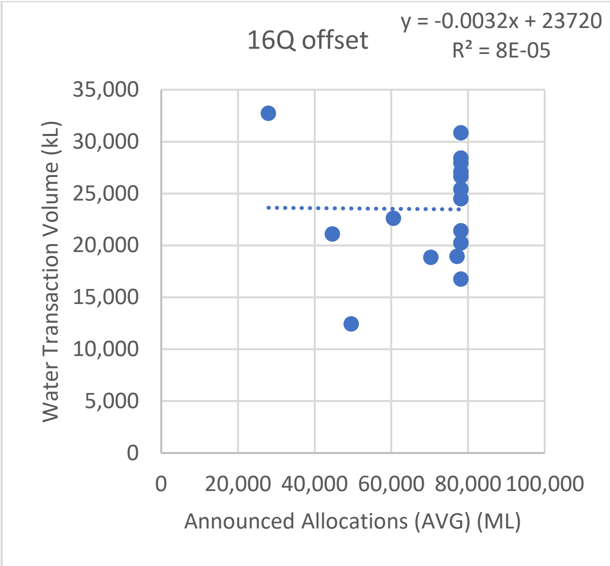


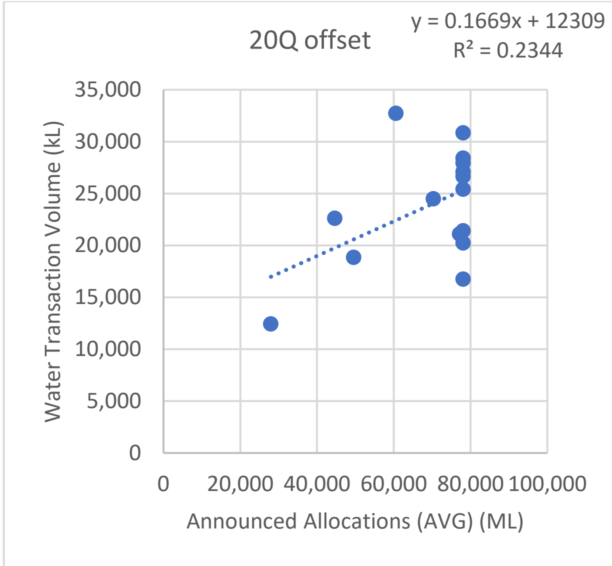

0Q offset
y = -0.0149x + 27158
R² = 0.0005
Water Transaction Volume (kL)
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
0
20,000
40,000
60,000
80,000
100,000
Announced Allocations (AVG) (ML)


4Q offset
y = 0.0683x + 19525
R² = 0.0317
Water Transaction Volume (kL)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
20,000
40,000
60,000
80,000
100,000
Announced Allocations (AVG) (ML)

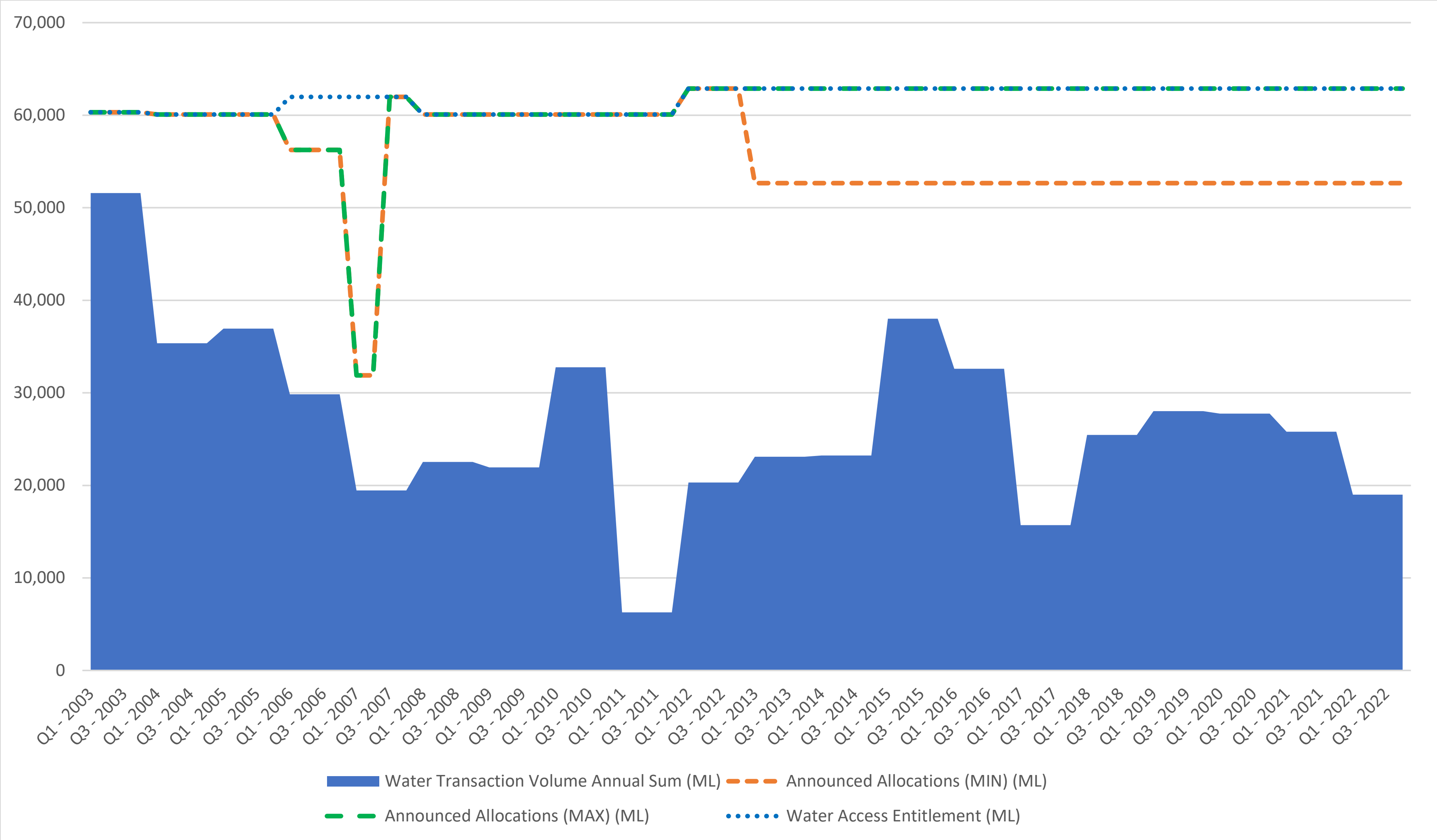

8Q offset
y = 0.0317x + 21577
R² = 0.0083
Water Transaction Volume (kL)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
20,000
40,000
60,000
80,000
100,000
Announced Allocations (AVG) (ML)

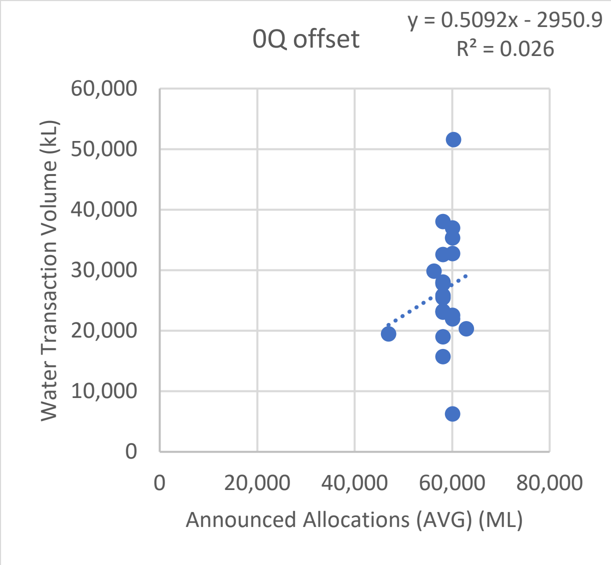

12Q offset
y = 0.0209x + 22170
R² = 0.0036
Water Transaction Volume (kL)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
20,000
40,000
60,000
80,000
100,000
Announced Allocations (AVG) (ML)

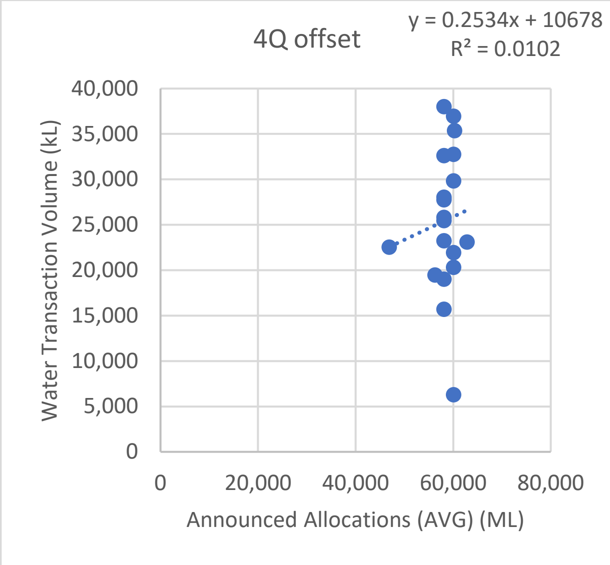

16Q offset
y = -0.0032x + 23720
R² = 8E-05
Water Transaction Volume (kL)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
20,000
40,000
60,000
80,000
100,000
Announced Allocations (AVG) (ML)

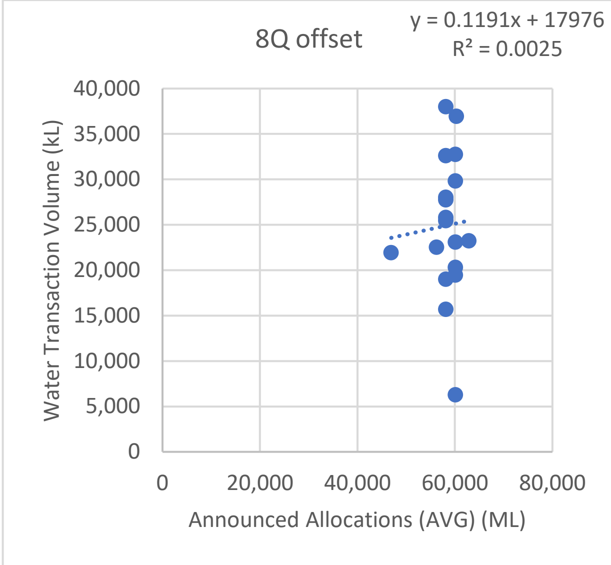

20Q offset
y = 0.1669x + 12309
R² = 0.2344
Water Transaction Volume (kL)
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
0
20,000
40,000
60,000
80,000
100,000
Announced Allocations (AVG) (ML)

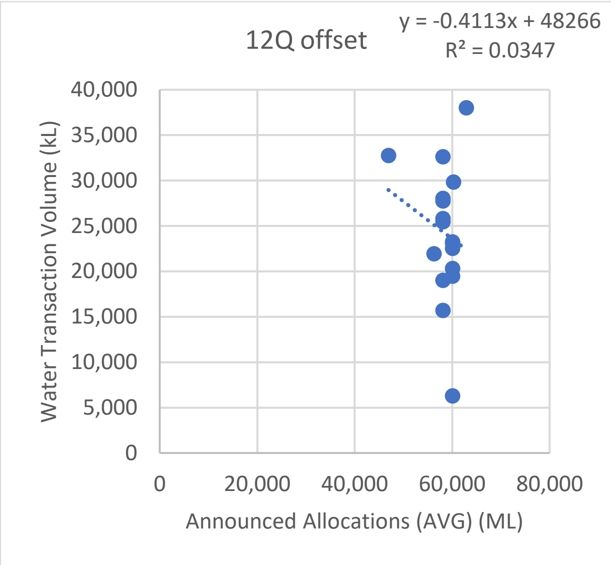
PROSERPINE RIVER

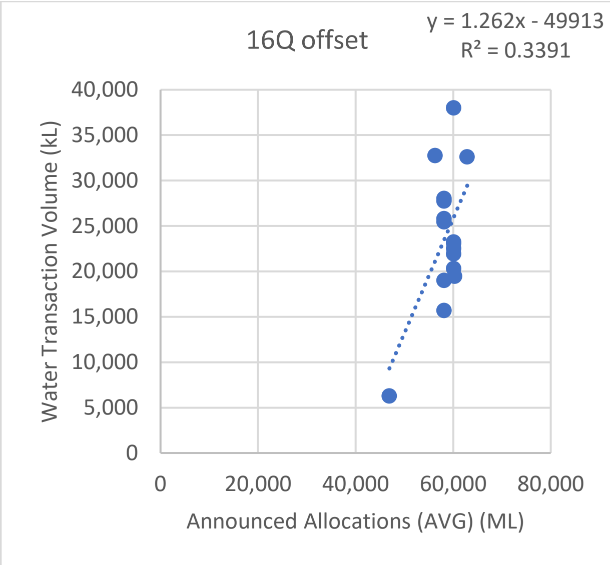


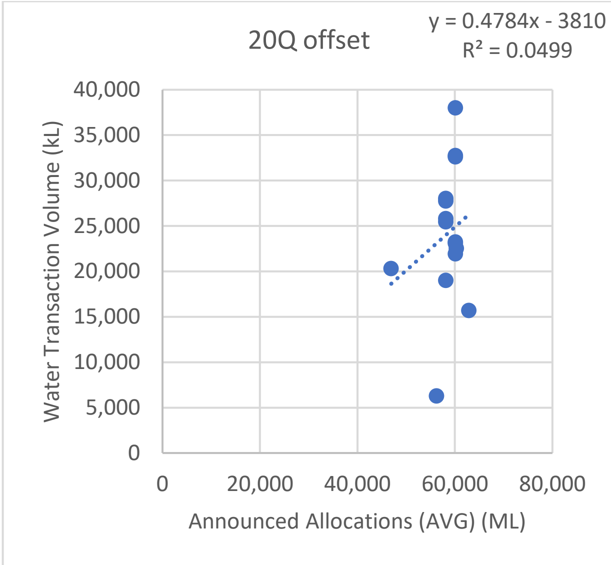

0Q offset
y = 0.5092x - 2950.9
R² = 0.026
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)


4Q offset
y = 0.2534x + 10678
R² = 0.0102
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

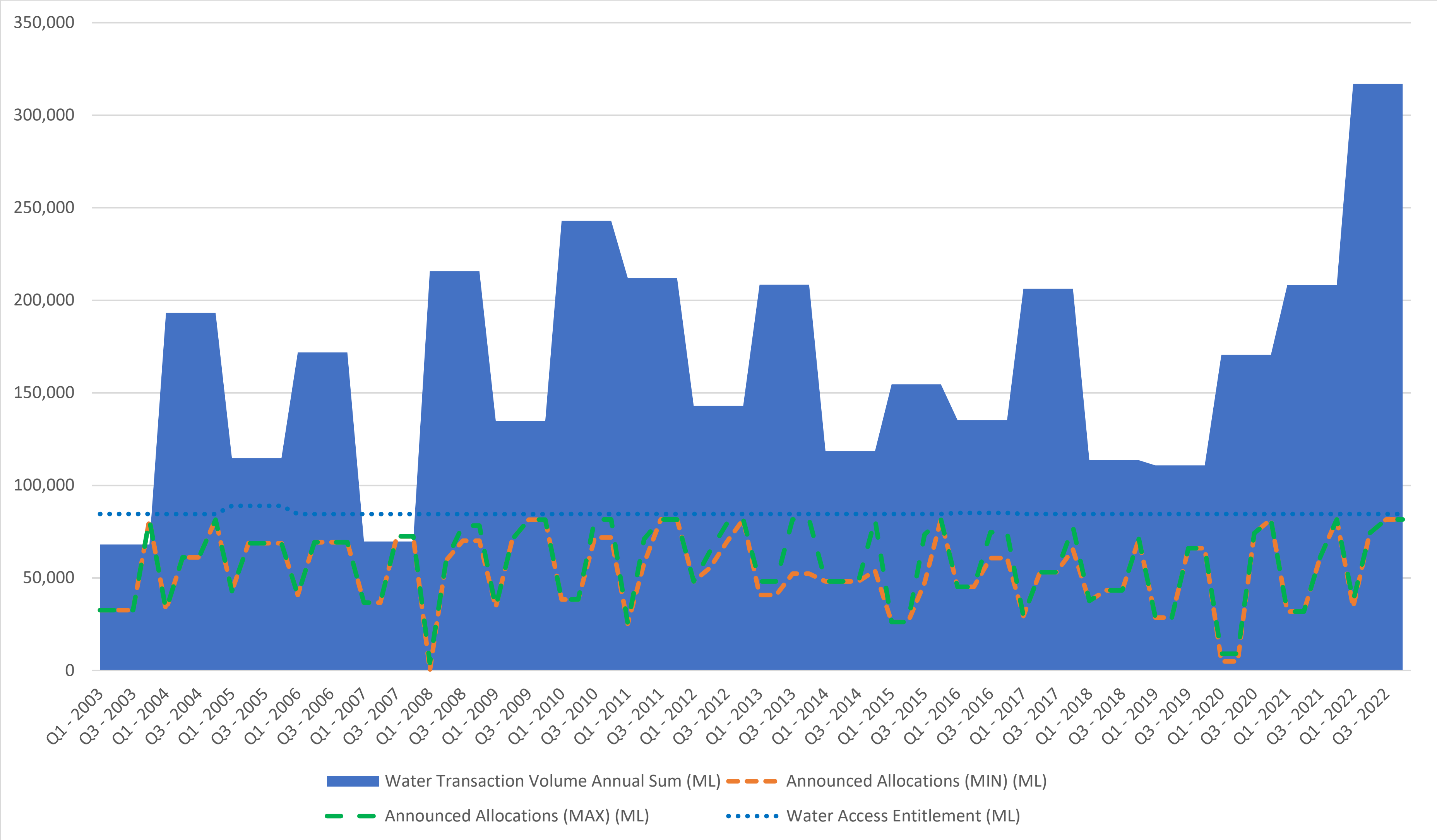

8Q offset
y = 0.1191x + 17976
R² = 0.0025
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)


12Q offset
y = -0.4113x + 48266
R² = 0.0347
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

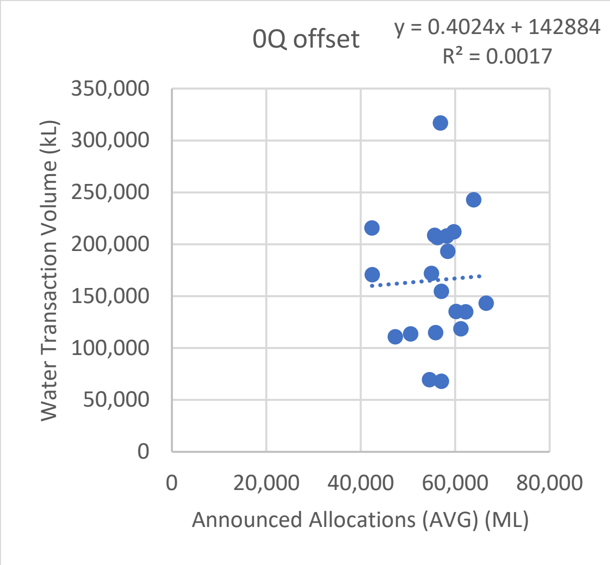

16Q offset
y = 1.262x - 49913
R² = 0.3391
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

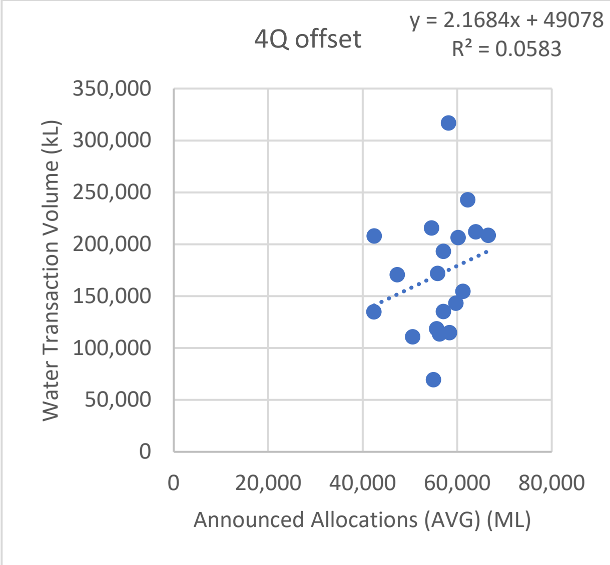

20Q offset
y = 0.4784x - 3810
R² = 0.0499
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

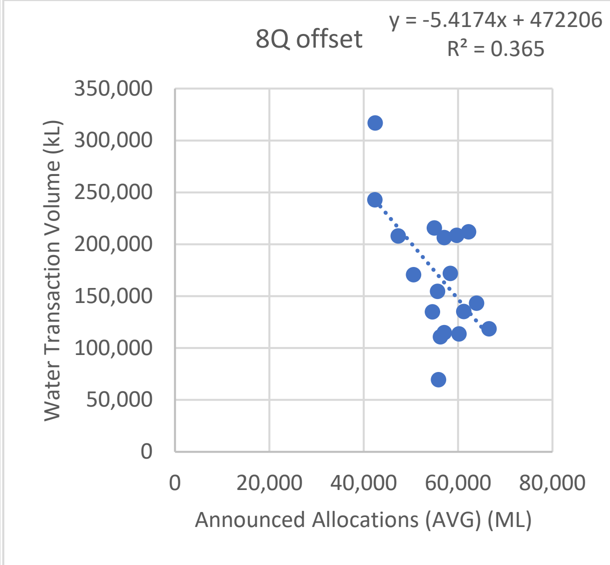
ST GEORGE

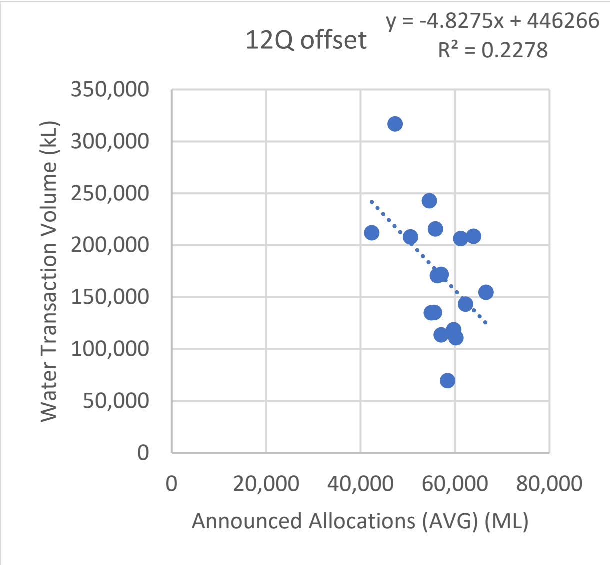


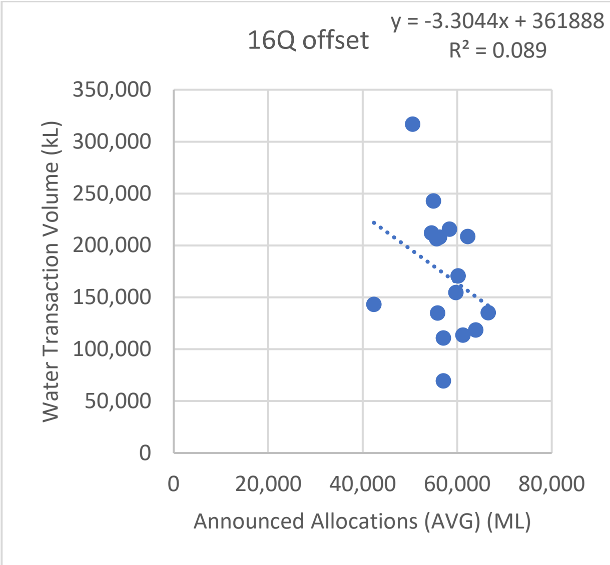
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
Q1 - 2003
Q3 - 2003
Q1 - 2004
Q3 - 2004
Q1 - 2005
Q3 - 2005
Q1 - 2006
Q3 - 2006
Q1 - 2007
Q3 - 2007
Q1 - 2008
Q3 - 2008
Q1 - 2009
Q3 - 2009
Q1 - 2010
Q3 - 2010
Q1 - 2011
Q3 - 2011
Q1 - 2012
Q3 - 2012
Q1 - 2013
Q3 - 2013
Q1 - 2014
Q3 - 2014
Q1 - 2015
Q3 - 2015
Q1 - 2016
Q3 - 2016
Q1 - 2017
Q3 - 2017
Q1 - 2018
Q3 - 2018
Q1 - 2019
Q3 - 2019
Q1 - 2020
Q3 - 2020
Q1 - 2021
Q3 - 2021
Q1 - 2022
Q3 - 2022
Water Transaction Volume Annual Sum (ML)
Announced Allocations (MIN) (ML)
Announced Allocations (MAX) (ML)
Water Access Entitlement (ML)

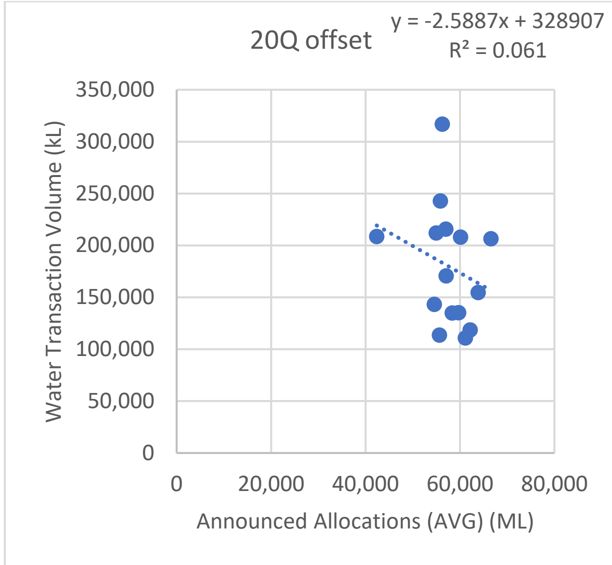

0Q offset
y = 0.4024x + 142884
R² = 0.0017
Water Transaction Volume (kL)
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
0
20,000
40,000
60,000
80,000
Announced Allocations (AVG) (ML)


4Q offset
y = 2.1684x + 49078
R² = 0.0583
Water Transaction Volume (kL)
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
0
20,000
40,000
60,000
80,000
Announced Allocations (AVG) (ML)


8Q offset
y = -5.4174x + 472206
R² = 0.365
Water Transaction Volume (kL)
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
0
20,000
40,000
60,000
80,000
Announced Allocations (AVG) (ML)

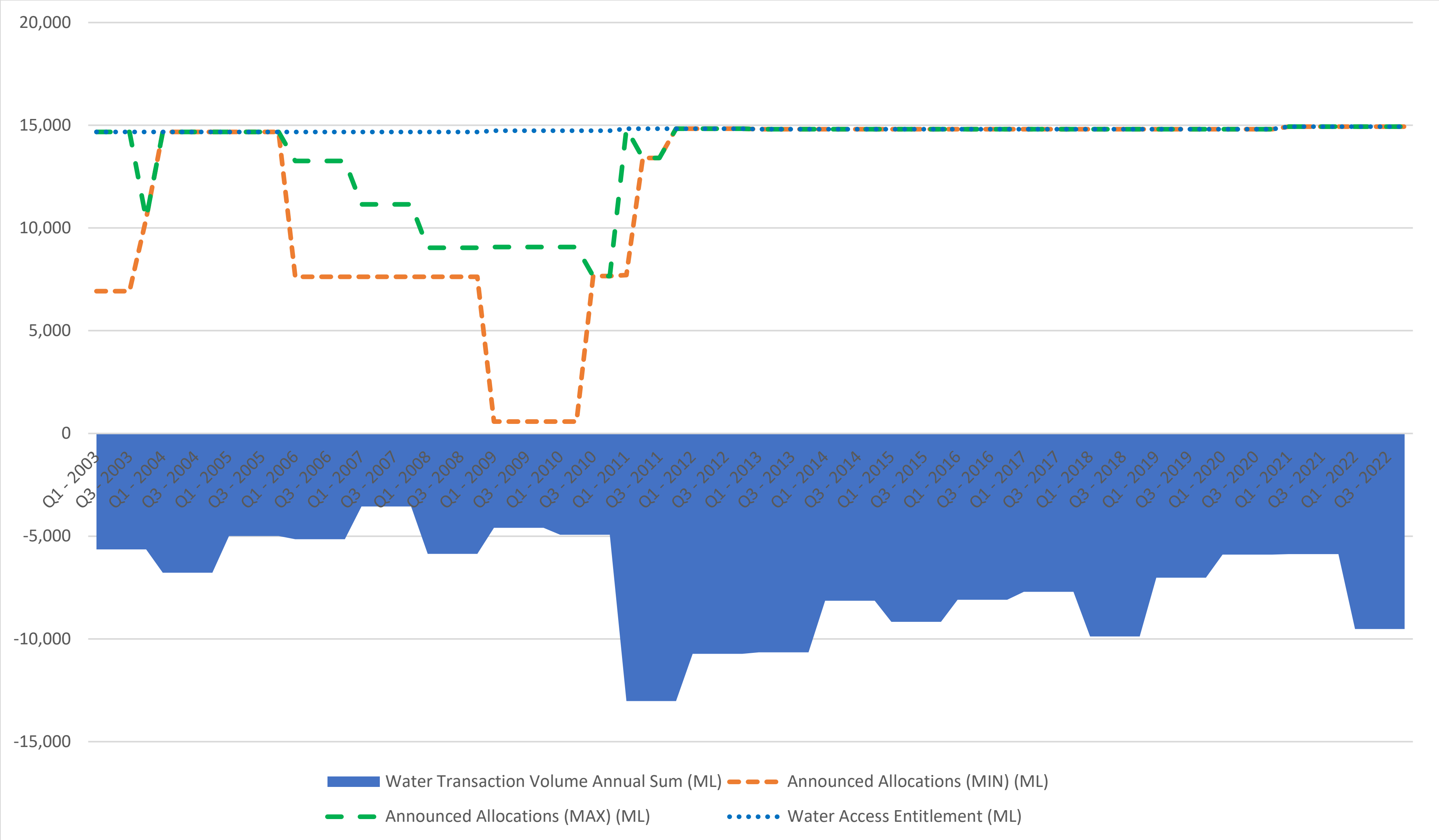

12Q offset
y = -4.8275x + 446266
R² = 0.2278
Water Transaction Volume (kL)
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
0
20,000
40,000
60,000
80,000
Announced Allocations (AVG) (ML)


16Q offset
y = -3.3044x + 361888
R² = 0.089
Water Transaction Volume (kL)
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
0
20,000
40,000
60,000
80,000
Announced Allocations (AVG) (ML)

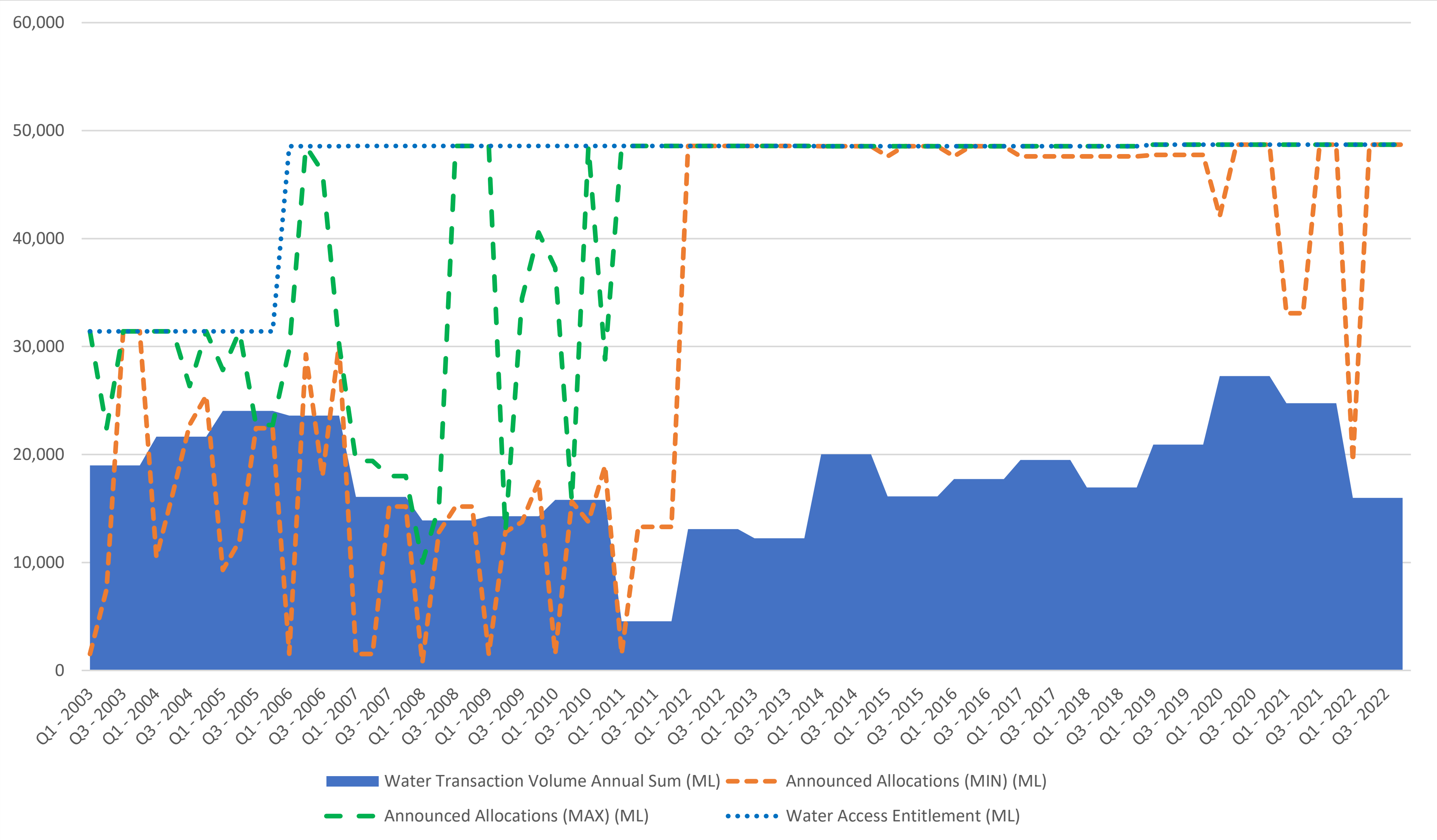

20Q offset
y = -2.5887x + 328907
R² = 0.061
Water Transaction Volume (kL)
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
0
20,000
40,000
60,000
80,000
Announced Allocations (AVG) (ML)

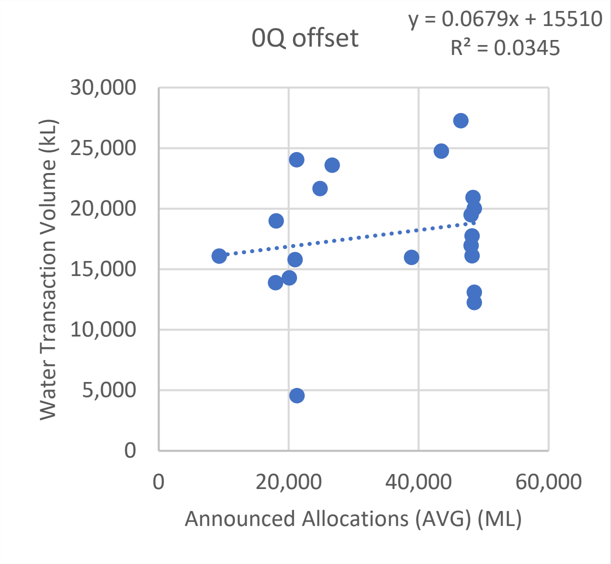
THREE MOON CREEK

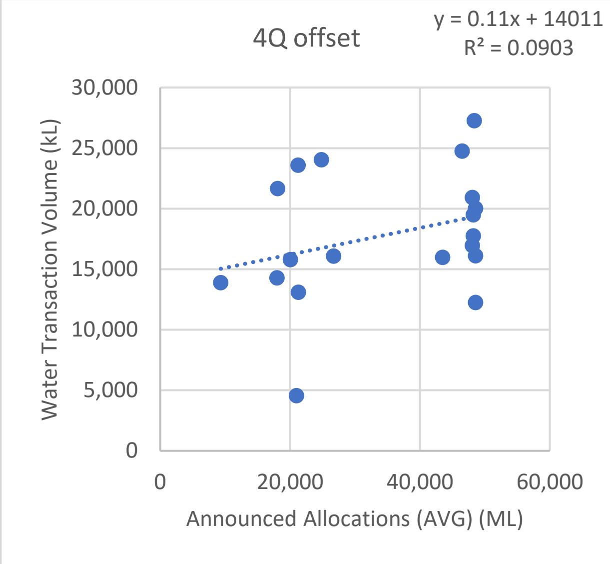
NOTE: No AA vs use charts developed, as the data provided for Three Moon Creek scheme demand shows negative volumes.

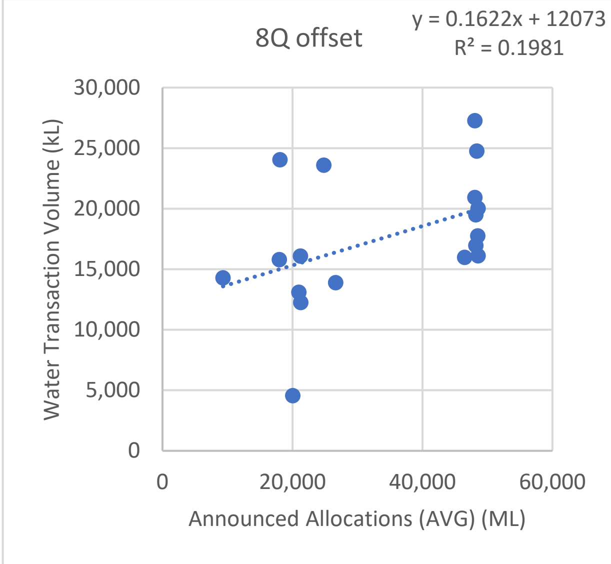


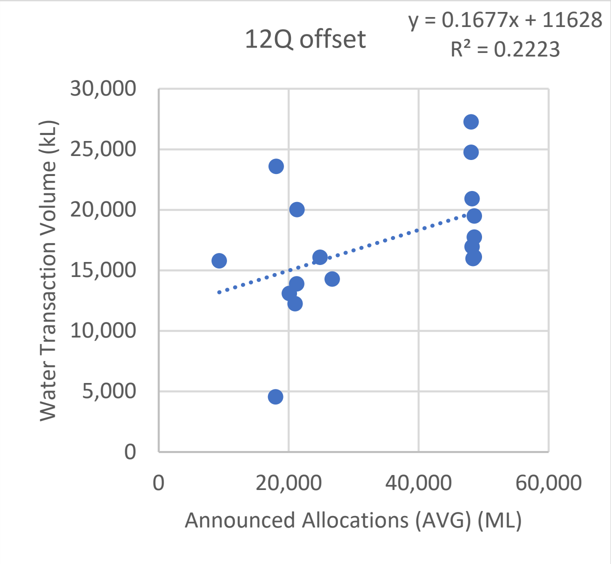
UPPER BURNETT

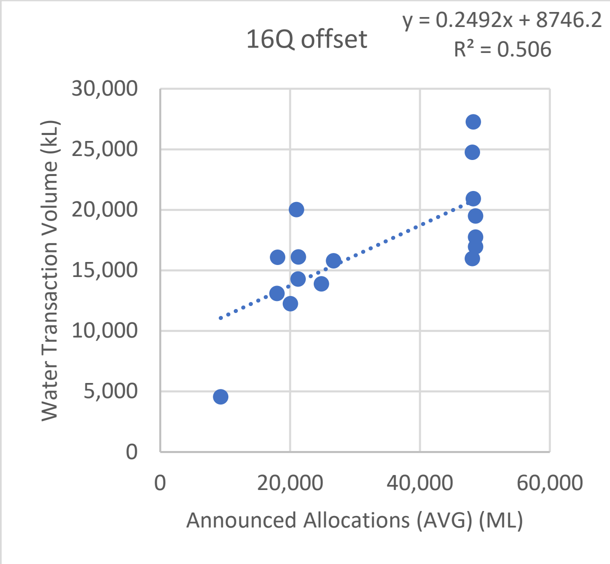


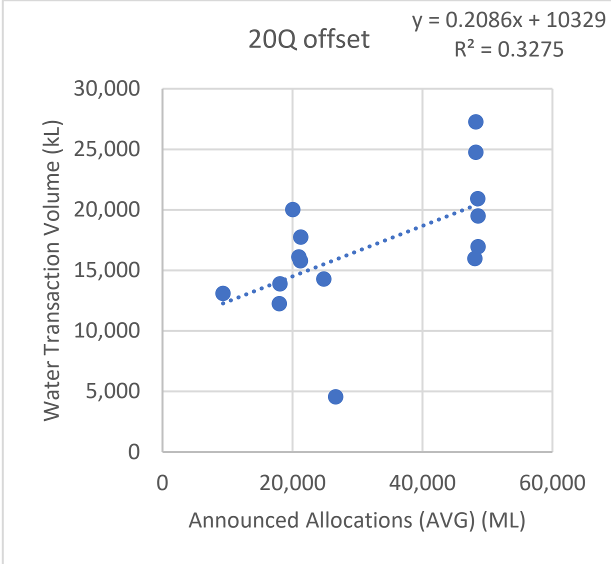

0Q offset
y = 0.0679x + 15510
R² = 0.0345
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)


4Q offset
y = 0.11x + 14011
R² = 0.0903
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

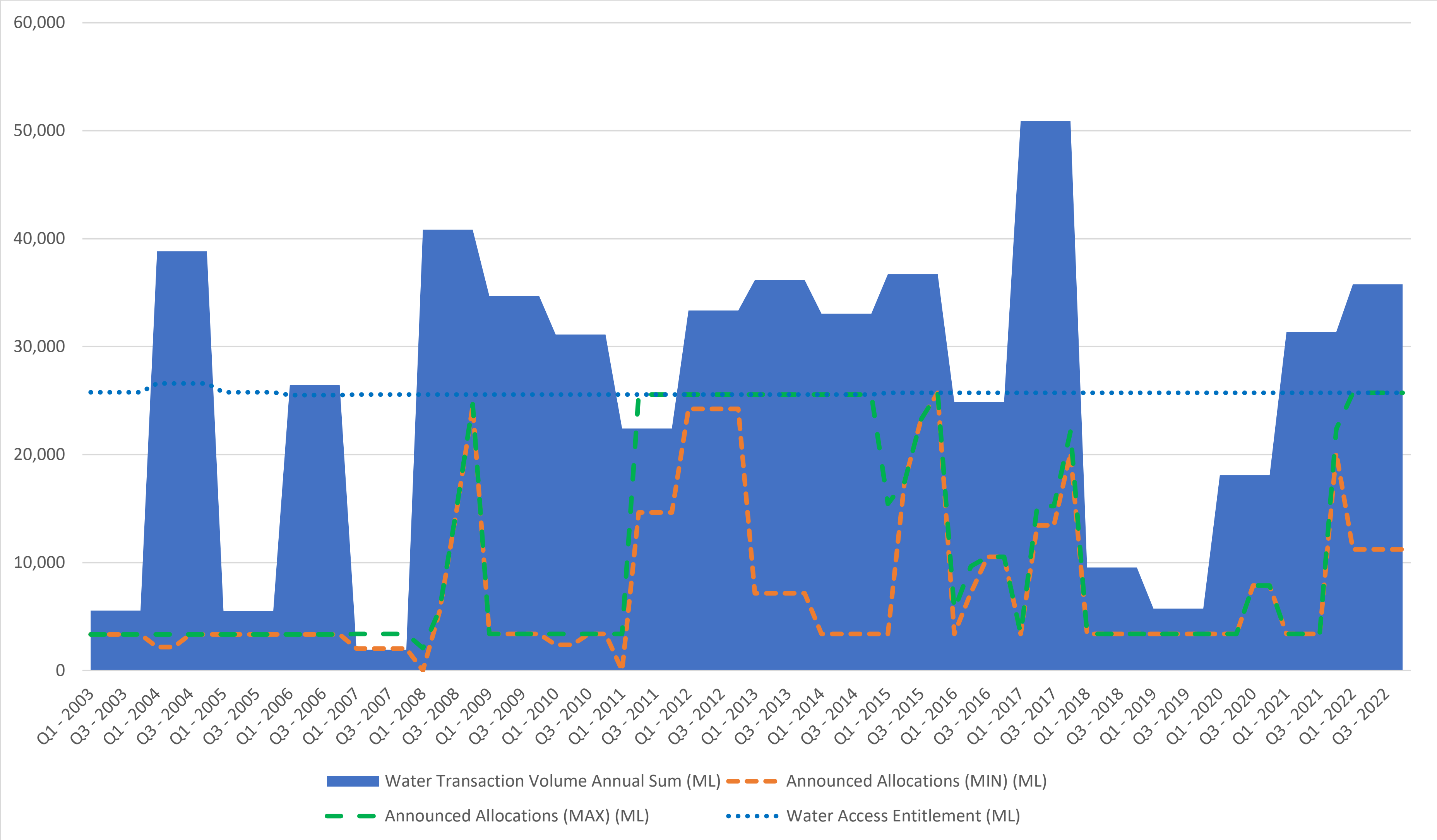

8Q offset
y = 0.1622x + 12073
R² = 0.1981
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

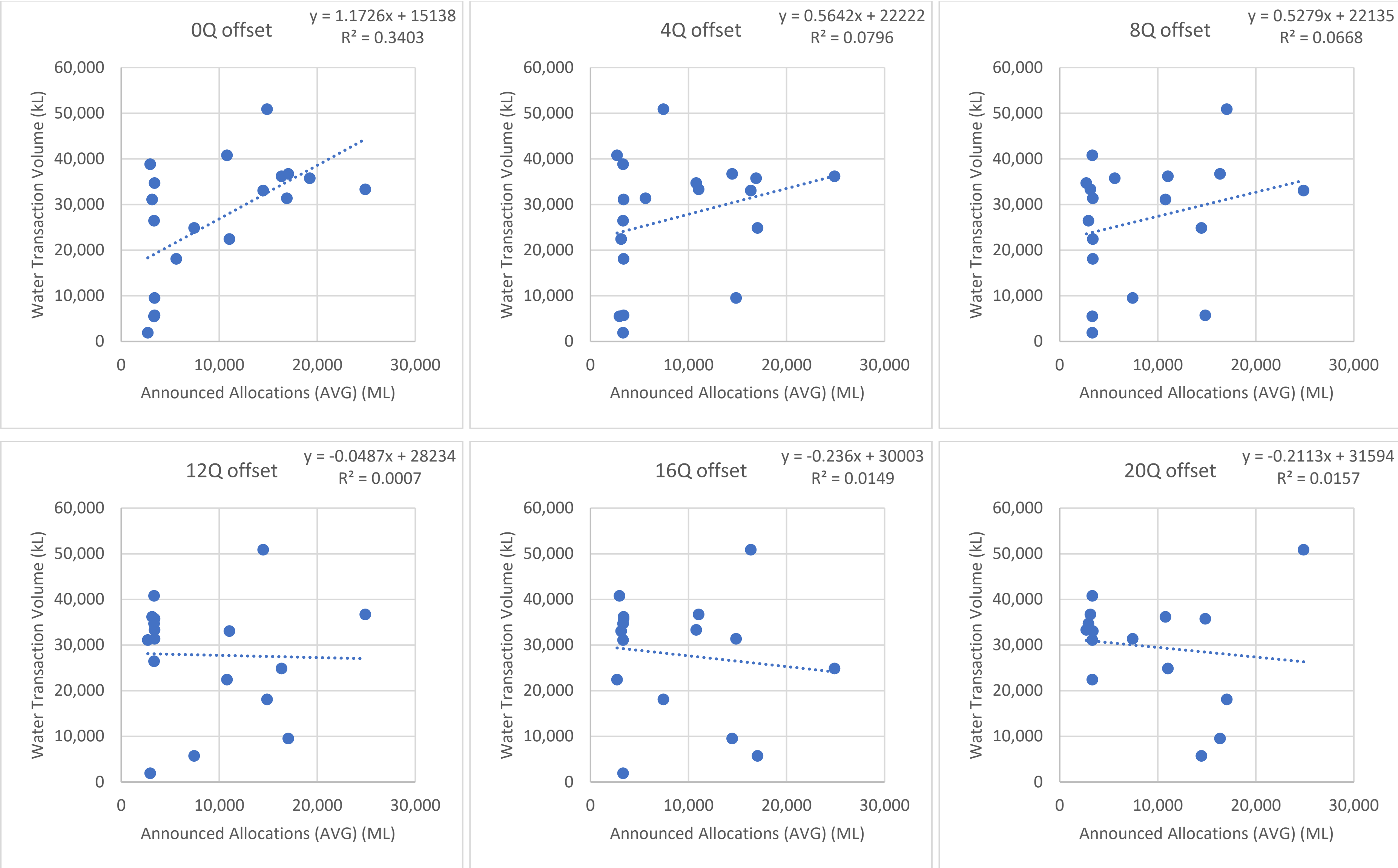

12Q offset
y = 0.1677x + 11628
R² = 0.2223
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)


16Q offset
y = 0.2492x + 8746.2
R² = 0.506
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)


20Q offset
y = 0.2086x + 10329
R² = 0.3275
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)

UPPER CONDAMINE




0Q offset
y = 1.1726x + 15138
R² = 0.3403
4Q offset
y = 0.5642x + 22222
R² = 0.0796
8Q offset
y = 0.5279x + 22135
R² = 0.0668
12Q offset
y = -0.0487x + 28234
R² = 0.0007
16Q offset
y = -0.236x + 30003
R² = 0.0149
20Q offset
y = -0.2113x + 31594
R² = 0.0157
Water Transaction Volume (kL)
Announced Allocations (AVG) (ML)
0
10,000
20,000
30,000
40,000
50,000
60,000

Appendix B

Adjustments to demand data

The following information in Table 4 below details the adjustments that are applied to the customer demand data, with the relevant column headings in **bold**.

Table 6 Filters applied to water use data to align assessment results with the previous approach

Scheme description	Adjustments to align data assessment (column headings in Bold)	Justification (Sunwater to populate)
Filters applied to all schemes	**Water_Transaction_Group** • Allocation Water Usage • Estimated Losses • Other Water Usage **Water_Transaction_Type_Desc** • Allocation Water (Positive/Negative) • Estimated Loss (Positive/Negative) • Risk A Water (Positive/Negative) **Water_Transaction_Date** • Assessment performed by financial year	
St George – Bulk water	**Textbox31** • Removed 'Environmental, S & D'	
Bundaberg with BWPL – Channel + Distribution Loss	**Water_Transaction_Type_Desc** • Added 'BW Allocation Use (Positive/Negative)' **Offtake_Type** • Removed 'River water' **Textbox31** • Removed 'SW Trading'	
Burdekin Haughton – Channel + Distribution Loss	**Operational_System_Description** • Removed 'Burdekin Moranbah Pipeline' • Removed 'Burdekin River & Burdekin Falls Dam'	
Dawson – Bulk water	**Water_Transaction_Date** • Assessed by the water year for the Dawson scheme: 1 October to 30 September. • Reported in the financial year in which the water year ended. For example, usage over the Dawson water year from 1 October 2018 to 30 September 2019 was reported in the 2019-20 financial year. This is consistent with the previous report.	
Eton – Bulk water, and Channel + Distribution Loss	**Water_Transaction_Date** • Assessed by the water year for the Eton scheme: 1 April to 30 March. For example, the water year 1 April 2018 to 30 March 2019 was designated as the 2018-19 water year.	
Lower Mary River – Channel + Distribution Loss	**Offtake_Type** • Removed 'River water'	
Mareeba-Dimbulah – Channel + Distribution Loss	**ROL_Zone_Offtake** • Included 40% only of 'Barron E – Walsh & Mitchell Catchments Supplemented Streams'	

Irrigation pricing proposal

1 July 2025 to 30 June 2029

Appendix E Headworks Utilisation Factor Technical Paper

Appendix E
Headworks Utilisation Factor Technical Paper

Overview

The Headworks Utilisation Factors (HUFs) first approved by the Queensland Competition Authority (QCA) in 2011 have been reviewed in 2018 and now in 2023. This document outlines the outcomes of the 2023 HUFs review.

A summary of schemes where the HUFs were reviewed is presented in *Table 1*. The table also compares the HUF from the 2020 irrigation pricing review and with current HUF review outcomes. This report will discuss the process of calculating the latest HUF for these water supply schemes.

For schemes not listed in *Table 1*, the HUF has not changed. Details of existing HUF values can be found in the 2020 – 2024 HUF report (on the QCA website).

Table 1: Updated Headworks Utilisation Factors for Water Supply Schemes operated by Sunwater

Water Supply Scheme	Result of HUF Review	Headworks Utilisation Factors (%) for each Water Allocation Priority Group in schemes subject to review					
		2020 Pricing Review			2025 Pricing review		
Chinchilla Weir	*Increased MP ratio*	MP - 12%	HP - 88%		MP - 16%	HP - 84%	
Mareeba - Dimbulah	*Decrease MP ratio*	MP - 46%	HP - 54%		MP - 34%	HP - 66%	
Upper Condamine[1]	*No change*	MP - 8%	HPA - 89%	HPB - 3%	MP - 8%	HPA - 89%	HPB - 3%

Note 1: For Upper Condamine Risk A and Risk B categories have a 0% HUF assigned across both review periods.

1 Introduction

The Headworks Utilisation Factors (HUFs) approach was first approved in 2011 by the Queensland Competition Authority (QCA) and was subsequently reviewed in 2018. HUFs are defined as the percentages of a scheme's storage headworks volumetric capacity able to be utilised by each priority group of water entitlements in that scheme, taking into consideration (a) the application of water sharing rules and other operational requirements set out the relevant Operations Manual and (b) the probability of utilisation of the scheme storages under conditions of relative supply shortage. The HUFs are a key consideration in the allocation of the relevant capital costs (i.e. asset value and renewal costs) associated with Sunwater's bulk water asses.

1.1 Purpose

The purpose of this report is to confirm HUF values ahead of the 2025 irrigation pricing review. It does this by:

- reviewing HUFs 2020 data inputs and identifying nature and materiality of changes
- identifying which schemes require / warrant a review of the HUF
- calculating a new HUF for use in the 2025 irrigation pricing review

The material changes may include, but are not limited to, water sharing rules amendment, storage management or Water Plan hydrologic model updates.

1.2 Methodology

The approved methodology used to calculate the HUFs for the 2020 review remains unchanged. This was used for reviewing the HUFs as part of the 2025 Irrigation Pricing review. The full methodology is provided in Attachment A.

In summary, the technical methodology for deriving HUFs within a water supply scheme considers:

- the volumes and priority groups of water entitlements within the scheme (including the potential for conversion between priority groups where applicable)
- the water sharing and water accounting rules (including taking into account announced allocation and continuous sharing arrangements) defined in the Resource Operations Licence (ROL) Operations Manual (OM).
- the critical water supply arrangements (CWSAs) including storage cut-off rules
- other ROL requirements relating to instream storage infrastructure operations (including discharge release rules, environmental flow requirements as well as inter-storage management arrangements)
- an analysis of hydrologic performance of headworks storages (in terms of the probability of storages actually holding various volumes of water during critical periods).

1.3 Review of Headworks Utilisation Factors considerations for 2025 price path

0 sets out the assessment of the inputs into the HUFs. It compares the inputs into the 2012 and 2020 HUFs against the current situation applying to each WSS and identifies which HUFs required a revision. Table 2 identifies the reasons for revising the HUF for the schemes outlined in this report.

Table 1 Summary of reasons for revising HUF

Water Supply Scheme	Reasons for revisions
Chinchilla Weir	• Model simulation period has changed • New eWater Source hydrologic model
Mareeba Dimbulah[1]	New Water Plan due July 2023 which results in: • New eWater Source hydrologic model • Model simulation period has changed
Upper Condamine	• Model simulation period has changed • New water sharing rules for Medium Priority users • New eWater Source hydrologic model

Note 1 An application to change the purpose of distribution losses (MP type "loss") to purpose any (MP type "any") has been submitted to DRDMW for assessment. Because the allocations are both Medium Priority, this does not impact the inputs to the HUF

Results

1.4 Chinchilla Water Supply Scheme

1.4.1 Input data from water allocation register (Business Queensland)

Water Entitlement Priority Group (in ROL)	Nominal Volume		Water Entitlement Grouping (in HUF calc):		
Medium Priority	2,284 ML	→	MPA = 2,284 ML	Conversion Factor = N/A	MPAmin = 2,284 ML
High Priority	1165 ML	→	HPA = 1,165 ML		HPAmax = 1,165 ML

1.4.2 Water sharing rules and operational requirements

MP0 AA	= Announced allocation water sharing rules give minimum storage volume in the scheme above which medium priority announced allocation is greater than 0% at the commencement of the water year = NOT APPLICABLE	
Adjustments	storage volume below which HP AA<100% on 1 July according to the water sharing rules (Chinchilla WSS Operations Manual, Chap 10 (1))	6,757 ML
MP0	= max (MP0 AA and CWSA Adjustment)	6,757 ML

MP100 AA	= Water sharing rules give minimum storage volume in the scheme at which medium priority announced allocation is at a maximum (100%) at the commencement of the water year = NOT APPLICABLE	
Adjustments	Full Supply Volume of Chinchilla Weir	9,780 ML
MP100	= min {MP100 AA, Adjustment Volume (FSV) }	9,780 ML

FSV Hwks	Full supply volume of the major headworks storage/s in the scheme	9780 ML
DSV Hwks	Dead storage volume of the major headworks storage/s in the scheme	120 ML

1.4.3 Probability of utilisation

Storage component of capacity volumes:		Probability of Utilisation:	Utilised storage component volumes:	
MP2 = 0 ML	HP2 = 0ML	P3 = 0%	MP2util = 0 ML	HP2util = 0 ML
MP1 = 3,023 ML		P2 = 28%	MP1util = 846 ML	
HP1 = 6,637 ML		P1 = 66%	HP1util = 4,380 ML	

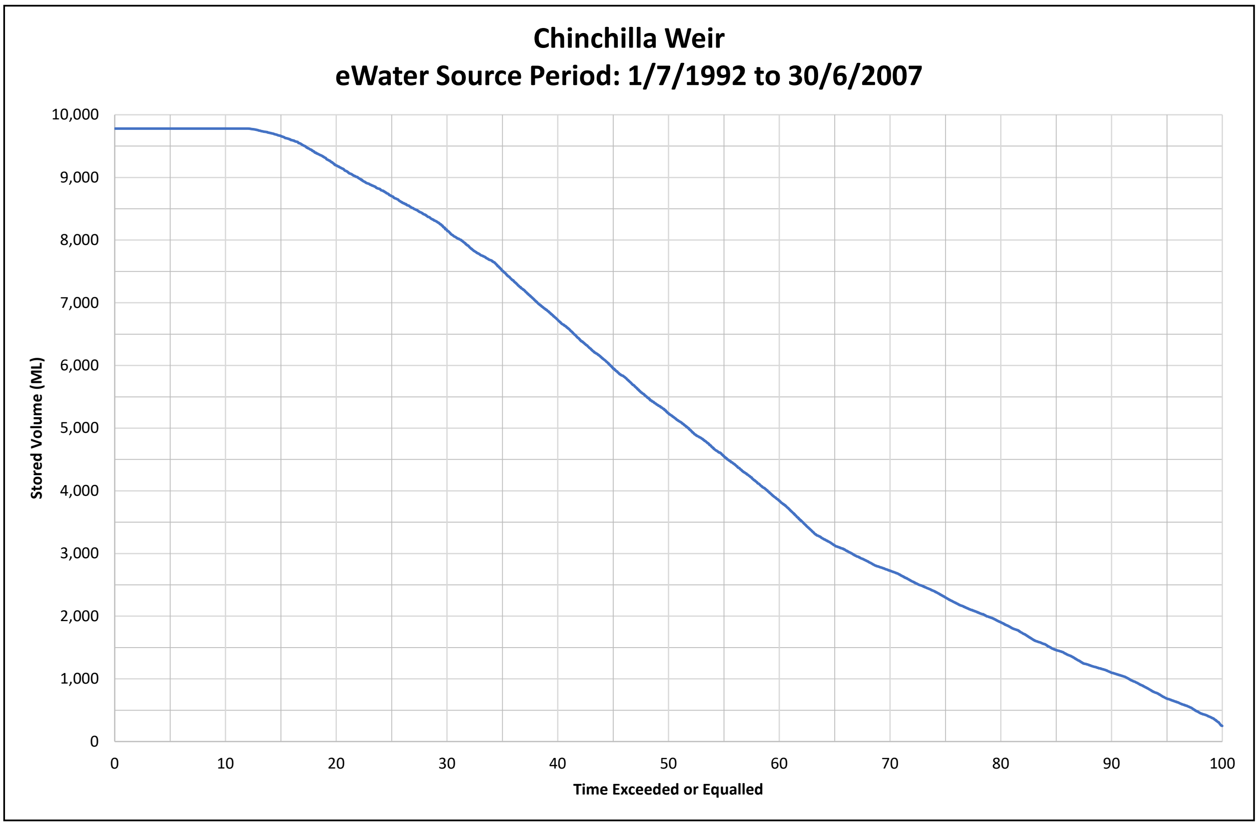
1.4.4 HUF Results

Water Entitlement Grouping (in HUF calc):	Headworks Utilisation Factor for Grouping
MPA	16%
HPA	84%

Water Entitlement Priority Group (in ROL):	Headworks Utilisation Factor for Priority Group
Medium Priority	16%
High Priority	84%

The results show an increase in the MP HUF and decrease in the HP HUF. This is due to the updated hydrologic model (eWater Source) generally reflecting more base flows to the weir during the critical period compared to the previous IQQM model. Despite the new model also incorporating updated, higher storage evaporation rates, the overall result of increased baseflows is for water levels within the weir to remain higher during critical periods, and improved water availability for MP water allocations during such periods.

1.4.5 Exceedance curve used for Chinchilla WSS



1.5 Mareeba- Dimbulah Water Supply Scheme

1.5.1 Input data from water allocation register (Business Queensland)

Water Entitlement Priority Group (in ROL)	Nominal Volume		Water Entitlement Grouping (in HUF calc):		
Medium Priority	204,425 ML	→	MPA = 204,425 ML	ROL Conversion Factor = N/A	MPAmin = 176,034 ML
High Priority*	14,026 ML	→	HPA = 14,026 ML		HPAmax = 33,900 ML

Note: An application to change the purpose of distribution losses (MP type "loss") to purpose any (MP type "any") has been submitted to DRDMW for assessment. Because the allocations are both Medium Priority, this does not impact the performance of the inputs to the HUF

1.5.2 Water sharing rules and operational requirements

MP0 AA	= Announced allocation water sharing rules give minimum storage volume in the scheme above which medium priority announced allocation is greater than 0% at the commencement of the water year	99,481 ML
Adjustments	Volume of Tinaroo falls Dam required to supply hydro releases in first month of Water Year (Mareeba-Dimbulah WSS ROL s4 (2))	24,700 ML
MP0	= MP0 AA volume and hydro release volume adjustment	124,4181 ML

MP100 AA	= Water sharing rules give minimum storage volume in the scheme at which medium priority announced allocation is at a maximum (100%) at the commencement of the water year = 329461 ML	329,461 ML
Adjustments	Volume of Tinaroo falls Dam required to supply hydro releases in first month of Water Year (Mareeba-Dimbulah WSS ROL s4 (2))	24,700 ML
MP100	= MP100 AA volume and hydro release volume adjustment	354,161 ML

FSV Hwks	Full supply volume of the major headworks storage/s in the scheme	438,920 ML
DSV Hwks	Dead storage volume of the major headworks storage/s in the scheme	1,300 ML

1.5.3 Probability of utilisation

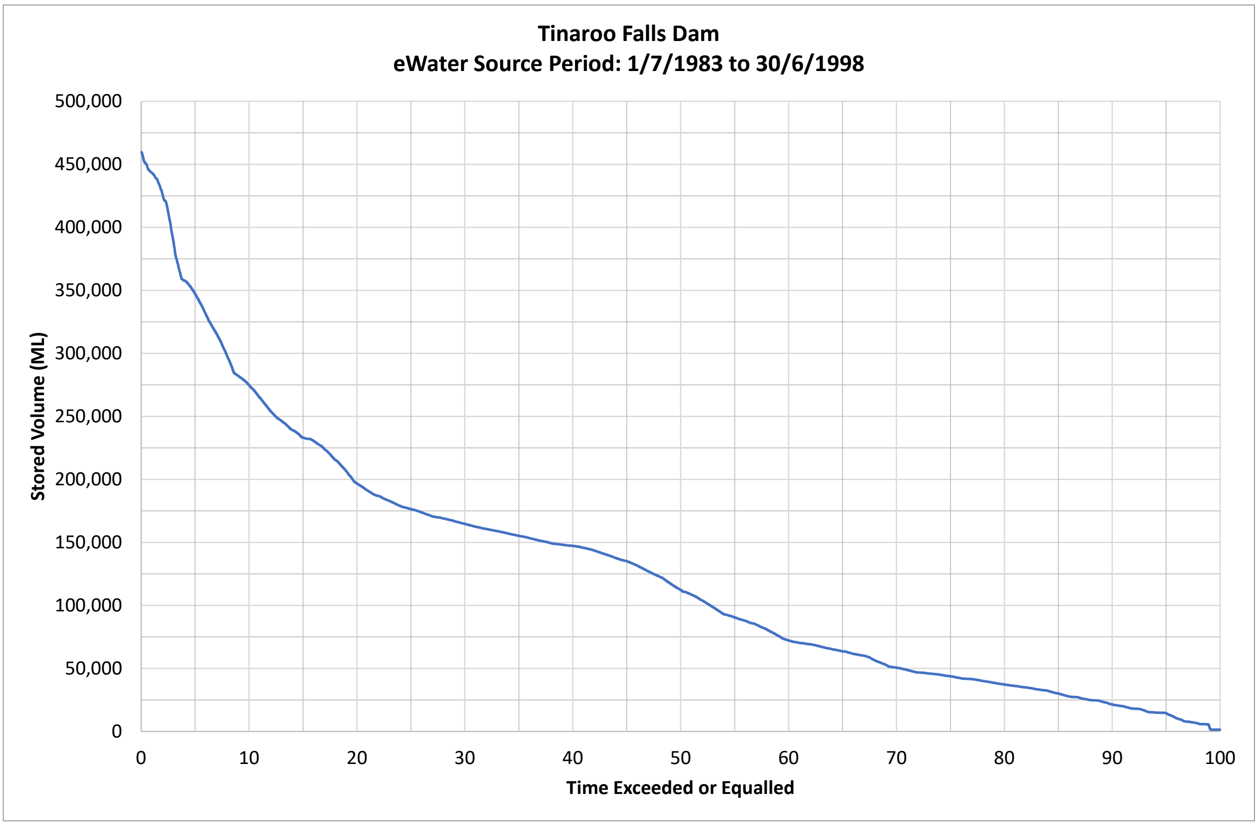
Storage component of capacity volumes:			Probability of Utilisation:		Utilised storage component volumes:	
MP2 = 71,072 ML	HP2 = 13,687 ML	→	P3 = 3%	→	MP2util = ,2132 ML	HP2util = 411 ML
MP1 = 229,980 ML		→	P2 = 18%	→	MP1util = 41,396 ML	
HP1 = 122,881 ML		→	P1 = 68%	→	HP1util = 84,788 ML	

1.5.4 HUF Results

Water Entitlement Grouping (in HUF calc):	Headworks Utilisation Factor for Grouping		Water Entitlement Priority Group (in ROL):	Headworks Utilisation Factor for Priority Group
MPA	34%	→	Medium Priority	34%
HPA	66%	→	High Priority	66%

The results show a significant decrease in the MP HUF (previously 46%) and this is understood to be due to the updated hydrological model (eWater source). As part of the revisions to the model, updated approaches for estimating storage evaporation rates were adopted which ultimately resulted in more rapid drawdown in the lake levels in Tinaroo Falls Dam. This, in turn, impacts on water availability for MP water allocations during the critical period.

1.5.5 Exceedance curve used for Mareeba-Dimbulah WSS



1.6 Upper Condamine Water Supply Scheme

1.6.1 Input data from water allocation register (Business Queensland)

Water Entitlement Priority Group	Nominal Volume
Medium Priority	22,328 ML
High A Priority	3,262 ML
High B Priority*	125
Risk A**	7,320
Risk B**	925

Water Entitlement Grouping (in HUF calc):		
MPA = 22,328 ML	ROL Conversion Factor = N/A	MPAmin = 22,328 ML
HPA = 3,387 ML		HPAmax = 3,387 ML

Note * With reference to water sharing rules for UCWSS (Upper Condamine Operations Manual 2019, Chapter 3), High Class A Priority and High Class B Priority are considered to be comparable products for the purposes of this HUF analysis. These are both intended to be urban supplies.

Note ** With reference to water access rules for UCWSS (Upper Condamine Operations Manual 2019, Chapter 3) , Risk Class A Priority and Risk Class B Priority are considered to be comparable products for the purposes of this HUF analysis. Risk Class A is a streamflow product (available on an opportunistic, run-of-the-river basis and is not related to storage capacity). Risk Class B is a low value water product which is not expected to result in significant access to water over the period of analysis.

1.6.2 Water sharing rules and operational requirements

MP0 AA	= Announced allocation water sharing rules give minimum storage volume in the scheme above which medium priority announced allocation is greater than 0% at the commencement of the water year	15,861 ML
Adjustments	= Maximum headworks storage volume at the start of the water year below which the headworks storage volume is forecast to reach the medium priority cut-off level (460.35 mAHD which equates to volume in storage of 15,000 ML) on the last day of that water year assuming minimum inflows (based on Leslie Dam Forecast Storage Model) This parameter is only relevant to storages that have an MP cut-off rule such as Leslie Dam.	40,697 ML
If MP0 nom > MP0 AA	= MP0 nom	40,697 ML

MP100 AA	= Water sharing rules give minimum storage volume in the scheme at which medium priority announced allocation is at a maximum (100%) at the commencement of the water year	60,930 ML
Adjustments	None	
MP100	= min (MP100 AA, Adjustment)	60,930 ML

FSV Hwks	Full supply volume of the major headworks storage/s in the scheme	106,200 ML
DSV Hwks	Dead storage volume of the major headworks storage/s in the scheme	2,130 ML

1.6.3 Probability of utilisation

Storage component of capacity volumes:	
MP2 = 39,307ML	HP2 = 5,963 ML
MP1 - B = 21911 ML	
MP1 - A = 12, 418 ML	HP1 = 12,418 ML
HP1 = 38,567 ML	

Probability of Utilisation:
P3 = 0%
P2 - B = 6.9%
P2 - A = 20.2%
P1 = 55.8%

Utilised storage component volumes:	
MP2util = 0 ML	HP2util = 0 ML
MP1-B_util = 1,396 ML	
MP1 - A_util = 2,409 ML	HP1-A_util = 2,409 ML
HP1util = 21,520 ML	

1.6.4 HUF Results

Water Entitlement Grouping (in HUF calc):	Headworks Utilisation Factor for Grouping
MPA	7%
HPA	93%

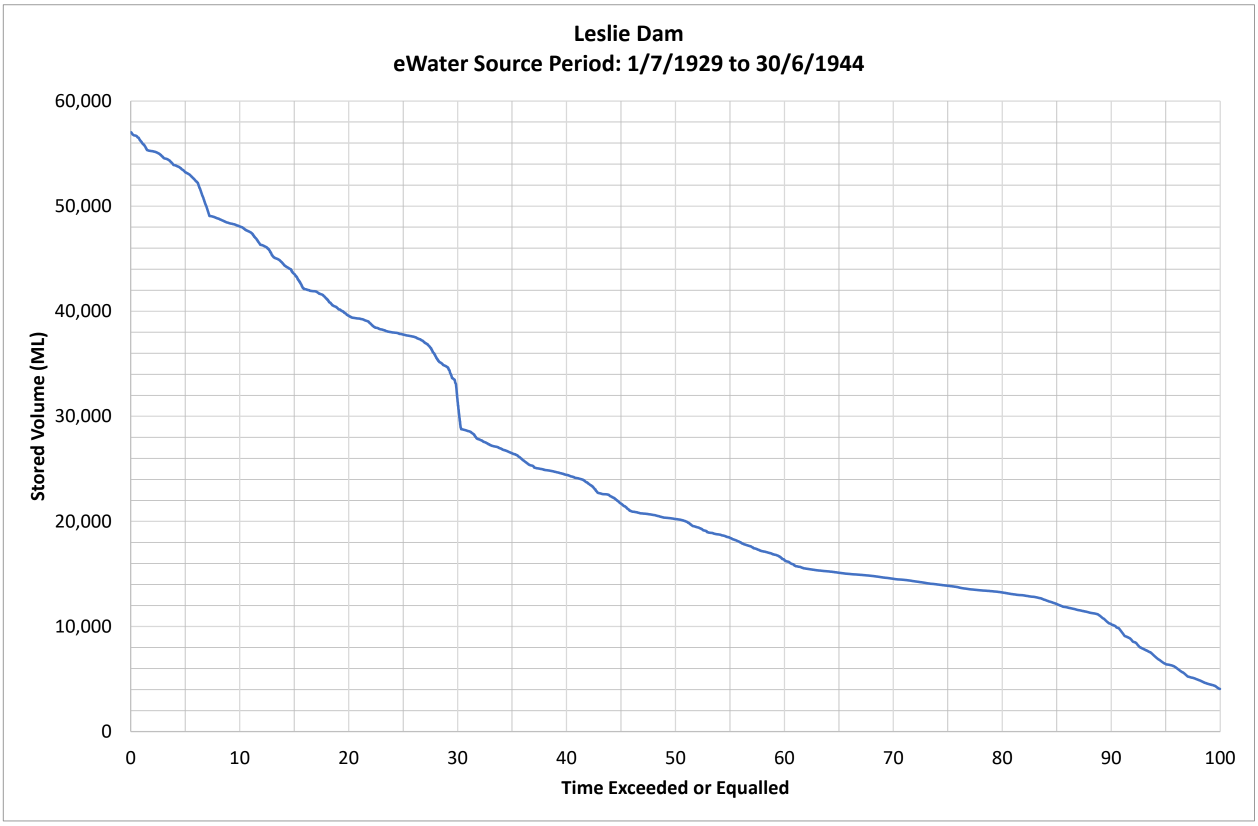
Water Entitlement Priority Group (ROL):	Headworks Utilisation Factor for Priority Group
Medium Priority	7%
High A Priority	89%
High B Priority*	3%
Risk A	0%
Risk B	0%

* HUF RESULTS DISAGGREGATED IN PROPORTION TO THE VOLUME OF WATER ENTITLEMENTS IN THE RESPECTIVE GROUPING

The updated HUF calculations do not result in a material change (<1%) to the previously calculated HUFs from 2018, therefore the previous HUFs are retained as follows:

Water Entitlement Priority Group (ROL):	Headworks Utilisation Factor for Priority Group
Medium Priority	8%
High A Priority	89%
High B Priority*	3%
Risk A	0%
Risk B	0%

1.6.5 Exceedance curve used for Upper Condamine



Attachment A

Headworks Utilisation Factor methodology

A.1 Rationale

Background to water entitlements and priority groups

Each water user that draws water from a supplemented water supply scheme is able to do so because either:

- they own or lease a water entitlement that authorises the holder to take water subject to certain conditions, or
- they have secured access within a water year by way of a seasonal water assignment from the owner of a water access entitlement.

Each water entitlement in a scheme belongs to a “priority group” which is defined under the Water Act 2000 to mean water allocations that have the same water allocation security objective.[1]

A water entitlement’s priority group is important both in:

- determining the volume of water that may be made available to the water entitlement under the scheme’s water sharing rules, and
- identifying the conditions under which supply to that water may be allowed or restricted.

These rules and other operational requirements are defined in statutory catchment-based Resource Operations Licence (ROLs) and Operations Manual (OMs) which are prepared by the Department of Natural Resources, Mines and Energy (DNRME) and approved by the Governor-in-Council in accordance with Water Resource Plan provisions under the Water Act 2000.

The performance, numbers, types and names of priority groups differ between each of the water supply schemes reflecting the unique arrangements that have been defined within the applicable ROP. Most schemes have just two water entitlement priority groups, namely High Priority, and Medium Priority[2] although some schemes have just one priority group (Julius Dam WSS) and others may have as many as five (Upper Condamine WSS).

Generally, the water sharing rules within the OM provide a holder of a high priority water entitlement with superior access to the nominal volume[3] specified on their water entitlement. That is, a holder of a high priority water allocation will usually be able to access a quantity of water equal to their nominal volume more frequently and with less restriction on their water availability than the holder of a water entitlement within a medium or other lesser priority group.[4]

This superior performance is achieved through a number of mechanisms including:

- sharing rules that give high priority water entitlements first access to available water
- reserve volumes that specify volumes of stored water to be set aside for future use by high priority water entitlements.

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1 A water allocation security objective (WASO) is based on the probability of being able to obtain water. Target values of WASO (usually in terms of minimum mandatory values and/or target ranges) are specified in a Water Resource Plan for each priority group of water entitlements within a catchment.

2 Although the names of priority groups generally give an indication of their relative access to water supplies within a scheme, this is not always the case, particularly in supplemented groundwater schemes where both groundwater and surface water allocations exist.

3 The term “nominal volume” is defined in the Act to mean “the number used to calculate the allocation’s share of the water available to be taken by holders of water allocations in the same priority group”.

4 Exceptions to this may occur in some supplemented groundwater schemes where medium priority allocations accessing groundwater and surface water supplies may be able to access water supplies more often than high priority water allocations that are entirely reliant on surface water supplies.

- storage cut-off rules that restrict access to water supplies by medium priority water entitlements once water storage levels fall below defined levels.

In addition, there may be Critical Water Supply Arrangements (CWSAs)[5] that, once triggered, effectively replace the "normal" water sharing rules and other operational requirements during extended drought periods. The CWSAs therefore give further priority to reserving or allocating dwindling supplies to high priority entitlements. In such situations, environmental flow provisions are also typically suspended by the CWSAs. These arrangements mean that medium priority entitlement holders may be cut off from accessing stored water supplies for extended periods of time during extended droughts, while high priority entitlement holders continue to access the water stored by the headworks.

In very severe water shortage situations, the Minister may exercise powers under the Water Act to disallow all water entitlements from accessing water, and restrict water use to "essential" purposes only (such as domestic/drinking, power generation etc.).

When to use Headworks Utilisation Factors?

The Headworks Utilisation Factors are used to apportion headworks-related costs in accordance with the benefit or "level of service" attributable to each water entitlement priority group.

The discussion in the previous section regarding water sharing arrangements illustrates how high priority water entitlement holders clearly derive more benefit from bulk water infrastructure than other lesser priority water entitlement holders. Indeed, the proportion of the overall benefit derived from storage headworks by high priority water entitlements is typically greater than their proportion of the total nominal volume of entitlements in a scheme. In other words, the benefits derived from bulk water assets are not shared uniformly between all water entitlements.

It follows that high priority water entitlements should therefore be apportioned a share of the storage assets that is proportionate to this increased utilisation.

Headworks Utilisation Factors are defined as "the percentages of a scheme's storage headworks volumetric capacity able to be utilised by each priority group of water entitlements in that scheme, taking into consideration:

- the application of operational requirements, water sharing rules and Critical Water Supply Arrangements associated with the relevant Water Planning instruments; and
- the probability of utilisation of the scheme storages under conditions of relative supply shortage".

A Headworks Utilisation Factor does not represent a priority group's proportional share of a scheme's overall "hydrologic yield" nor reflect any proportional demand for – or usage of – operational services. In general, the HUF allocates a greater proportion of capital costs to high priority due to a more detailed assessment of the storage required to service high priority entitlements.

For supplemented water supply schemes, the benefit derived from bulk water assets essentially relates to the ability of the storage headworks to store flows during wet periods and then subsequently make releases during dry periods and combine with (i.e. supplement) natural flows within a scheme thereby ultimately meeting the water demands of water entitlement holders.

Headworks Utilisation Factors specifically exclude water entitlement groups that are not included in the scheme's water sharing rules thereby deriving little or no benefit from the scheme's bulk water infrastructure (e.g. "risk-A priority" in some schemes).

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5 CWSAs are approved by DRDMW in accordance with processes and requirements established within OMs.

Water Management Protocol Conversion Factors

It should also be noted that a few Water Plans or related water planning instruments contain "conversion factors". Conversion factors represent the rate at which medium priority water entitlements may be converted to high priority water entitlements and vice versa. However, where conversion factors are specified, there are also limits placed on the maximum volumes of each priority group of water entitlements that may exist at any one time. These limits are usually very restrictive.

Conversion factors and their associated restrictive limits are designed to allow for limited conversion from one priority group to another without causing unintended third-party impacts on either the performance of other water entitlements or on riverine environmental flow regimes.[6] The conversion factors are not designed for apportioning bulk water asset costs between different priority groups of water entitlements within a scheme.

When not to use Headworks Utilisation Factors

It is appropriate at this point to advise caution against the broad-scale adoption of HUF's as the basis of the allocation of other non-headworks and non-asset related headworks costs.

Bulk water operational costs are not related to extent to which storage headworks volumetric capacity is able to be utilised by a priority group of water entitlements. Such costs are driven by operational elements such as scheduling and delivering water, meter reading and maintenance, environmental management obligations, data management, compliance reporting, customer support and billing.

Such functions relate to the entire bulk water scheme (including those only accessing a share of natural flows) and not just the headworks. Furthermore, these costs will not change if the amounts of high or medium priority entitlements in a scheme change.

A.2 Methodology

Overview

The following section provides a detailed step-by-step guide to the approach for deriving Headworks Utilisation Factors. This approach may be summarised as involving the following main steps:[7]

1. **Identify the water entitlement groupings** – for each water supply scheme, establish which water entitlement priority groups are to be considered in the "high priority" versus "medium priority" groupings for the purposes of this analysis.

   In most schemes where there are high and medium water entitlement priority groups this step is straightforward. However, in some schemes there are more than two types of priority groups with a variety of names, some of which may (for the purposes of this analysis) utilise scheme headworks to a similar extent and therefore may be assembled together under either the high or medium priority group.

   The conditions attached to some other water entitlement priority groups may be such that they utilise storage headworks to either little or no extent (such as those entitlements with access that is wholly conditional on the existence of run of river flows) and therefore excluded from the analysis (and assigned a HUF of zero).

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6 The criteria and mandatory performance standards for assessing such impacts are specified in terms of Water Allocation Security Objectives and Environmental Flow Objectives within Water Resource Plans.

7 For water supply schemes where continuous sharing has been implemented through a ROL (viz. St George and Macintyre Brook Water Supply Schemes, steps 1 through 4 do not apply because the volumes of headworks storage attributable to each water entitlement priority group can be directly inferred from the Continuous Share Volumes stated in the relevant OM).

2. **Determine the volumes of the identified water entitlement groupings** – for each water entitlement grouping that has been identified in a water supply scheme, establish the total volume of water entitlements included in each grouping.

   Again, for most schemes this step is straightforward with the volume simply being equivalent to the total nominal volume of the relevant water entitlement priority group (or groups, where more than one has been assembled together under one grouping).

   However, some Water Plans provide for the conversion of limited volumes of water entitlements from medium priority to high priority using a conversion factor. Where this is the case, the analysis takes account of this by setting the high priority nominal volume to the maximum allowable under the rules and calculating the reduced medium priority nominal volume by applying the conversion factor.

   This step ensures that the headworks utilisation factors take account of the effect of converting medium priority water entitlements to high priority water entitlements.

3. **Determine the extent to which water sharing rules, critical water sharing rules and other operational requirements give the different water entitlement priority groups exclusive or shared access to components of storage capacity** – the rules and requirements are analysed to establish the (bottom) volume of storage that is effectively reserved for supplying high priority water entitlements, the (next) volume of storage (above that effectively reserved for high priority) that is available for use by medium priority water entitlements, and the (top) volume of storage shared between priority groups. This is shown conceptually in the following section.

   Examples of rules and requirements that influence these volumes include the water sharing (i.e. announced allocation) rules, split/joint sub-scheme provisions, critical water supply arrangements (including storage cut-off and trigger rules), and other Water Plan requirements relating to instream storage infrastructure operations including discharge release rules, low-flow environmental release requirements, hydro release rules as well as inter-storage water level management requirements.

4. **Assess the hydrologic performance of each component of headworks storage** – Water Plan based hydrologic models (based on Integrated Quantity Quality Models or IQQM) are used to assess the probabilities of each component of headworks storage being accessible to the relevant water entitlement priority group during periods of relative supply shortage. These probabilities are used to determine the volumes of components of headworks storage effectively utilised by different water entitlement priority groups.

   This is an important step because the probability of the lower layers of the headworks storage storing water is likely to be greater than the probability of upper layers of headworks storage storing water. This in turn means that high priority water entitlements effectively have access to – and therefore are able to utilise – headworks storage capacity more often and with less restriction than medium priority water entitlements.

   Probabilities were derived by extracting the modelled headworks storage levels for the driest contiguous fifteen-year critical period (the "standard period"). Recent storage levels actually observed were also checked for the driest fifteen-year period. A fifteen-year period was considered an appropriate duration for the purposes of this analysis and is consistent with short and medium term planning periods used in contemporary climate scenario modelling in Australia.[8] A fifteen-year period is also representative of the typical horizon over which irrigation enterprises plan for and base their business investment decisions.

1. **Determine the Headworks Utilisation Factors** – using the parameters established and derived in steps 1 to 4 above, calculate the Headworks Utilisation Factors for each of the medium and high priority water entitlement groups.

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[8] See Chiew FHS, Cai W and Smith IN, 2009. Advice on defining climate scenarios for use in Murray-Darling Basin Authority Basin Plan modelling, CSIRO report for the Murray-Darling Basin Authority.

In some instances, water sharing rules are common to two water supply schemes (such as the Lower Fitzroy and Fitzroy Barrage Water Supply Schemes) or to water entitlement priority groups arising from specific headworks infrastructure within a scheme (such as pre-existing and new groups of water entitlements in the Bundaberg Water Supply Scheme). In such cases, Headworks Utilisation Factors are disaggregated and apportioned to the relevant headworks storage capacity.

In those schemes where different priority groups of water entitlements were (for the purposes of analysis) assembled together under either the "high" or "medium" priority group, the Headworks Utilisation Factors are disaggregated in proportion to the nominal volumes of the priority groups that were assembled together

A sensitivity analysis was undertaken to assess the effect of changing the duration of the standard period by performing HUF calculations using both ten year and twenty year critical periods. The summary results of the sensitivity analysis was presented in the original version of this methodology.

For the calculations using a ten year critical period, the HUFmp in 15 schemes (out of a total 23 schemes) varied by 2% or less from the HUFmp calculated using the standard 15 year critical period. Twenty-two schemes varied by less than 10% from the standard period results and only one scheme varied by greater than 10% (16%).

For the calculations using a twenty-year critical period, the HUFmp in 17 schemes varied by 2% or less from the HUFmp calculated using the standard 15 year critical period. Twenty-two schemes varied by less than 10% from the standard period results and only one scheme varied by greater than 10% (12%).

A.3 Guide to determining the Headworks Utilisation Factor

Identify the water entitlement groupings

1. Establish the existing volumes of the highest (typically described as high) priority group of water entitlements
   a. Referenced from DRDMW's water entitlement register
   b. Usually equivalent to the nominal volume of high priority water entitlements (with any exceptions to be noted)
   c. = "HPA"
2. Establish the existing volume of the second highest (typically described as medium) priority group of water entitlements
   a. Usually equivalent to the nominal volume of medium priority water entitlements (with any exceptions to be noted)
   b. Where more than two priority groups of water entitlements exist in a scheme, the purpose, water sharing rules and other characteristics differentiating the groups are taken into account in determining whether to include them in the HPA, MPA or neither group
   c. = "MPA"

Determine the volumes of the identified water entitlement groupings

1. Establish the medium priority to high priority conversion factor (if applicable)
   a. Only applicable where a includes a medium priority to high priority water entitlement conversion factor
   b. = "CF"
   c. Note that CF is normally specified in terms of a number greater than one, where 1 ML high priority is worth (1* CF) ML medium priority. In some ROPs the CF is specified as less than one (e.g. Section 22 Burdekin Basin Water Management Protocol where CF= 0.565), in which case 1 ML high priority is worth (1/ CF) ML medium priority
   d. Also note that some Water Plans allow conversion in both directions i.e. medium to high and vice versa. However, the current water market trend is for conversion from medium to high and hence this approach has been adopted for the purposes of this HUF analysis.
2. Determine the maximum volume of high priority water entitlement that can exist (if applicable)
   a. Only different from HPA where a Water Planning instrument specifies the maximum allowable volume of high priority entitlements that may be converted from medium priority water entitlements in a scheme
   b. = "HPA max"
3. Determine the volume of medium priority water entitlements corresponding to the maximum volume of high priority water entitlements determined above (if applicable).
   a. (if applicable) based on reducing the volume of medium priority water entitlements by the volume of the increase in high priority water entitlements multiplied by the conversion factor
   b. = "MPA min" = MPA – (HPA max – HPA) x CF (or x 1/CF for those ROPs that specify the CF as a number less than 1)

Determine exclusive or shared access of water entitlement groupings

1. Determine the volume of scheme storage below which the water sharing rules effectively make water unavailable to medium priority water entitlements by reserving for high priority entitlements

a. Calculated as the minimum storage volume in the scheme above which medium priority announced allocation is greater than 0% at the commencement of the water year

b. Calculation based on applying water sharing rules to HPA max ML of high priority water entitlements and MPA min ML of medium priority water entitlements, with previous year's carryover and projected inflows both assumed to be zero

c. = "MP0 AA"

2. Check existence of any critical water supply arrangements, storage cut-off rules or other operational requirements likely to increase the volume effectively reserved for high priority entitlements (and therefore unavailable to medium priority water entitlements)

   a. Despite the "normal" water sharing rules, the critical water supply arrangements or other operational rules may increase the storage volume below which access to medium priority water entitlements is effectively cut-off;[9]

   b. Where future (non pass-through) low-flow environmental release provisions, hydro releases or other reserve volumes outlined in a ROL are not explicitly or fully included as a term in the water sharing rules, the total volume of the required release is added to the volume effectively reserved for high priority entitlements and therefore unavailable to medium priority water entitlements;

   c. = "MP0"

3. Determine the minimum volume of scheme storage required before water sharing rules effectively give medium priority water entitlements maximum water availability

   a. Calculated as the minimum storage volume in the scheme at which medium priority announced allocation is at a maximum (usually 100%) at the commencement of the water year

   b. Calculation again based on applying water sharing rules to HPA max ML of high priority water entitlements and MPA min ML of medium priority water entitlements, with previous year's carryover and projected inflows both assumed to be zero

   c. = "MP100 AA" (cannot exceed scheme full supply volume)

4. Check existence of any operational requirements likely to increase the minimum volume of scheme storage required before water sharing rules effectively give medium priority water entitlements maximum water availability

   a. Despite the "normal" water sharing rules, the critical water supply arrangements or other operational rules may increase the storage volume at which medium priority water entitlements can access their full water availability;

   b. = "MP100" (cannot exceed scheme full supply volume)

5. Establish full supply volume of the major headworks storages in the scheme

   a. Generally equivalent to the cumulative full supply volume of the major headworks storage/s (dam/s and weir/s) in the scheme. Note that the storage volumes of downstream weirs are included in the HUF analysis only when these are specifically included in the relevant ROL (or IROL) water sharing rules

   b. Where there is no major dam in a scheme, the sum of the full supply volumes of the weirs is used (such exceptions should be noted)

   c. = "FSV hwks"

6. Establish dead storage volume of the major headworks storage in the scheme

[9] In the case of the Pioneer Valley Water Supply Scheme, the water sharing rules provide some access to high-B priority water entitlements below the level at which high-A priority announced allocations equal 100%.

a. Generally equivalent to the cumulative dead storage volume of the major headworks storage/s (dam/s and weir/s) in the scheme

b. Where there is no major dam in a scheme, the sum of the dead storage volumes of the weirs is used (such exceptions should be noted)

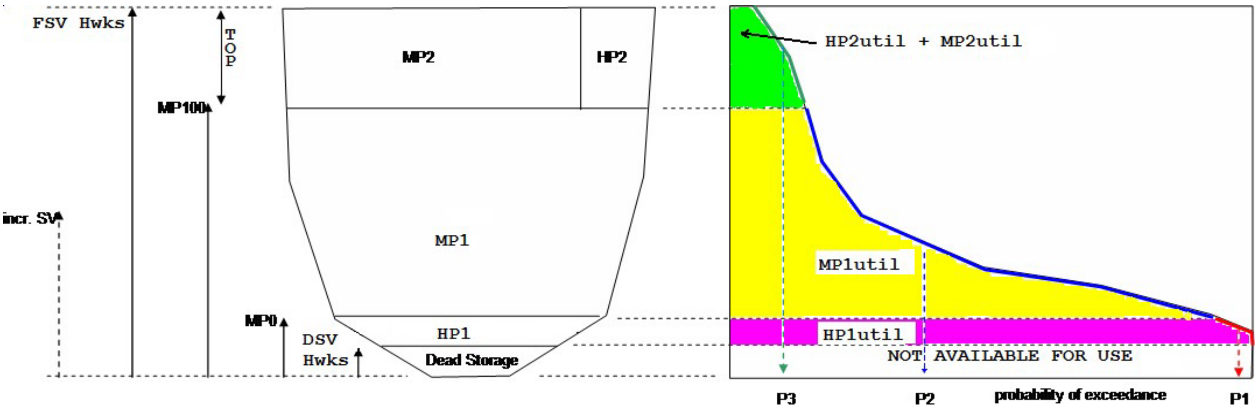
c. = “DSV hwks”

7. Calculate the capacity volume of the bottom horizontal layer of the headworks storage effectively reserved for high priority

a. Figure 1 shows conceptual breakdown and apportionment of headworks storage capacity

b. = “HP1” = MP0 - hwks

Figure 1 Relationship between parameters used in the calculation of Headwords Utilisation Factors



8. Calculate the capacity volume of the next horizontal layer of the headworks storage effectively available for medium priority

a. See Figure 1

b. = “MP1” = minimum of { (MP100 – MP0) and (FSV hwks – MP0) }

9. Calculate the capacity volume of the top horizontal layer of the headworks storage effectively available for sharing between medium and high priority

a. = “TOP” = maximum of { (FSV hwks-MP100) , 0 }

b. The top layer is apportioned between medium and high priority in the same proportions as the respective nominal volumes of each priority group used in the above analysis [10]

10. Calculate the proportion of the capacity volume of the top horizontal layer of the headworks storage effectively available for high priority

a. See Figure 1

b. = “HP2” = HPAmax/(MPAmin+HPAmax) x TOP

11. Calculate the proportion of the volume of the top horizontal layer of the headworks storage effectively available for medium priority

a. See Figure 1

b. = “MP2” = MPAmin/(MPAmin+HPAmax) x TOP

[10] This incorporates changes to the original methodology as recommended by the QCA in 2011.

Assess the hydrologic performance of each component of headworks storage

1. For each water supply scheme, extract multiple 15 year sequences of combined daily storage volume data (for those dams and weirs referred to in the scheme's water sharing rules) starting each of the 15 year sequences on the first day of the water year (defined in the corresponding ROL) from:
   a. The long-term IQQM simulation of the scheme under the current ROL conditions; and
   b. The recent recorded daily storage data (if available) which mostly corresponds to the last 30- 40 years.

   Then for each of these fifteen year sequences, calculate (b) through (j) below.
2. Assess the probability of the headworks storage being in the bottom (high priority) horizontal layer of the headworks storage volume
   a. = "P1"
3. Assess the probability of the headworks storage being in the next (medium priority) horizontal layer of the headworks storage volume
   a. = "P2"Assess the probability of the headworks storage being in the top (shared medium and high priority) horizontal layer of the headworks storage volume
   b. = "P3"
4. Determine the utilised volume of the bottom horizontal layer of the headworks storage by applying the high priority probability for that bottom layer
   a. = "HP1util" = HP1 x P1
5. Determine the utilised volume of the next horizontal layer of the headworks storage by applying the medium priority probability in that next layer
   a. = "MP1util" = MP1 x P2
6. Determine the utilised proportion of the volume of the top horizontal layer of the headworks storage effectively available for high priority, by applying the high priority probability in that top horizontal layer
   a. = "HP2util" = HP2 x P3
7. Determine the utilised proportion of the volume of the top horizontal layer of the headworks storage effectively available for medium priority, by applying the medium priority probability in that top horizontal layer
   a. = "MP2util" = MP2 x P3

Determine the Headworks Utilisation Factors

1. For each of the fifteen-year sequences analysed in Step 4, calculate the medium priority and high priority Headworks Utilisation Factors
   a. = "HUFmp" = (MP1util + MP2util) / (MP1util + MP2util + HP1util + HP2util) %
2. Set the HUFmp to equal the minimum of these HUFmp values. Note that the adopted 15 year critical period may not always correspond to the driest rainfall period due other factors such as OM rules, headworks water storage levels at the start of the water year, etc. The adopted period exceedance curves for the headworks storages in each scheme should be documented.
3. Calculate the high priority Headworks Utilisation Factor
   a. "HUFhp" = 1 – HUFmp
4. (If applicable) Disaggregate the Headworks Utilisation Factors to apportion subsets of water priority water entitlements to the relevant headworks storage capacity (such exceptions should be noted where applicable). For example:

a. The overall HUF results for **Bundaberg WSS** are disaggregated into two separate sets of results:

   (i) water allocations associated with the original scheme (pre Paradise Dam); and

   (ii) water allocations associated with Burnett Water Pty Ltd (based on Paradise Dam)

   For Bundaberg WSS, the process of disaggregation is simply based on an apportioning of the overall scheme HUF factors each into two components on the basis of the water allocation volumes in the relevant grouping (SunWater vs. Burnett Water). A similar approach is used for the Upper Burnett WSS since it also has infrastructure owned by Burnett Water Pty Ltd.

b. The operational rules outlined in the Fitzroy Basin ROL necessitated the calculation of overall HUF results for the combined Lower Fitzroy and Fitzroy Barrage schemes. The overall HUF results were then disaggregated so that only the results for the water allocations in the **Lower Fitzroy WSS** (operated by SunWater) are provided. Results for Fitzroy Barrage WSS (operated by Fitzroy River Water) are not provided.

   For the Fitzroy, the process of disaggregation is simply based on an apportioning of the combined Lower Fitzroy WSS and Fitzroy Barrage WSS HUF factors each into two components on the basis of the water allocation volumes in the relevant water supply scheme.

Adjustment to Headworks Utilisation Factor Method to address 'within water-year headworks storage cut-off rules'

Alternative steps should be taken to address the situation where a water supply scheme's water sharing rules are subject to "within water-year headworks storage cut-off rules" (i.e. that have the effect of disallowing continuing access to announced allocation within a water year once headwater storage water levels have fallen below a defined trigger level).

Explicit cut-off rules within scheme sharing rules have been found to impact the volume of medium priority water that is actually available to be taken by irrigators within a water year (irrespective of the initial announced allocation percentage calculated and published at the start of the water year). For example, this occurs in:

- the Upper Condamine (Leslie Dam)
- the Boyne Tarong (Boondooma Dam)

In these schemes, the water utility may develop arrangements for allowing a start-of-water-year announced allocation to be made that applies for a period of less than 12 months. These arrangements are applied when forecasts suggest that the headworks cut-off levels are likely to be reached within the coming water year. This suggests that in such instances, headworks utilisation is effectively being shared between high and medium priority water allocations within a definable band of storage volume values.

It is therefore recommended that the HUF methodology be adjusted to recognise this band of shared benefit as follows:

1. calculate the maximum headworks storage volume at the start of a water year below which the headworks storage volume is forecast to reach the medium priority cut-off level on the last day of that water year (referred to here as MP0-nominal or "MP0 nom'). It is suggested that water utilities might use either their forecast storage models to estimate this volume, by assuming minimum inflows throughout the water year and other assumptions as published online for the relevant dam forecast storage model (e.g. Leslie Dam Storage Forecast Model or the Boondooma Dam Storage Forecast Model) or historical storage drawdown information where forecast models are not available. If the value of MP0-nom is greater than MP0 AA, then proceed with the following steps to calculate the adjusted HUFs (if not, then no adjustment is recommended to the existing HUF calculations):

   a. Set MP0 = MP0 AA;

   b. Calculate MP100 AA and MP100 in the usual way;

   c. Record FSV Hwks and DSV Hwks in the usual way;

d. Calculate HP1 in the usual way;

e. Calculate MP2 and HP2 in the usual way;

f. Calculate MP1-B to = MP100 – MP0 nom;

g. Calculate MP1-A to = 0.5 x (MP nom – MP0);

h. Calculate HP1-A to = 0.5 x (MP nom – MP0);

i. Calculate P1 and P3 in the usual way

j. Calculate P2-A and P2-B for the ranges between MP0 to MP0 nom and MP0 nom to MP100 respectively

k. Calculate MP2util, HP2util and HP1util in the usual way

l. Calculate MP1-Autil to = MP1-A x P2-A

m. Calculate HP1-Autil to = HP1-A x P2-A

n. Calculate MP1-Butil to = MP1-B x P2-B

o. Calculate MPA = (MP2util + MP1-Autil + MP1-Butil) /

p. (MP2util + MP1-Autil + MP1-Butil + HP2util + HP1util + HP1-Autil) x 100%

q. Calculate HPA = (HP2util + HP1util + HP1-Autil) /

r. (MP2util + MP1-Autil + MP1-Butil + HP2util + HP1util + HP1-Autil) X 100%

s. Disaggregate into priority groups in the usual way.

2. Note that the reserve (RE) parameters used in calculating MP0 AA values should be those published in the OM (i.e. not modified to be the cut-off volumes).

3. The new MP0 nom volume represents the start-of-water-year headworks volume below which:

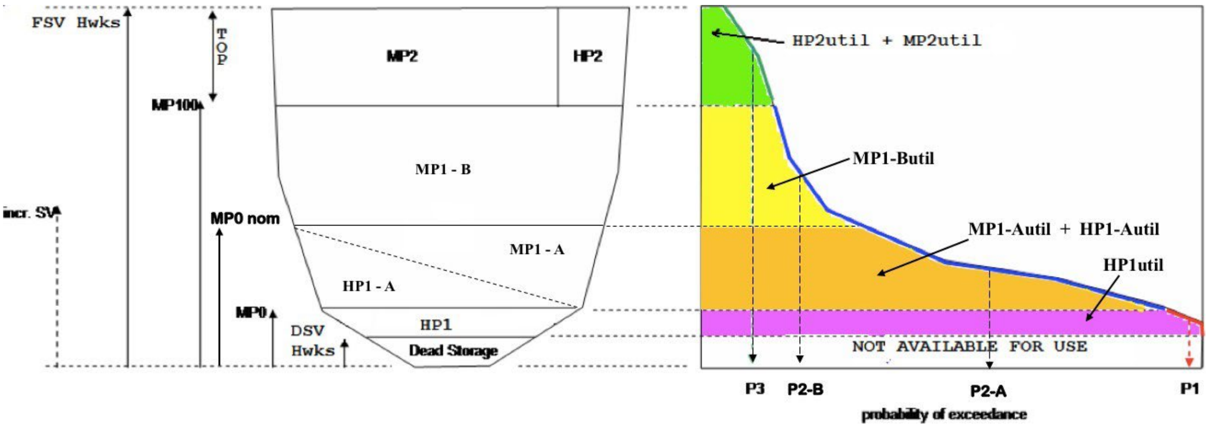
   a. supply of a twelve-month period medium priority announced allocation might be considered to be at risk of being cut-off during the water year as a result of the headworks storage volume reaching the medium priority cut-off level during that water year;

   b. sharing arrangements would apply whereby a start-of-water-year announced allocation would be made that would apply for a period of less than 12 months

4. Supply to medium priority announced allocation might be considered unlikely to be cut-off during the water year in years when the start-of-water-year headworks volume is above the new MP0 adjustment volume.

5. A revised conceptual diagram that describes the above is presented in Figure 2below.

Figure 2 Relationship between parameters used in the calculation of Headworks Utilisation Factors for situations where in a 'in-year MP cut-off rule' applies



Attachment B

Review of Headworks Utilisation Factor considerations for the 2025 price path

Comparison of Headworks Utilisation Factor considerations, 2018–2023

<table>
<tr><th rowspan="2">Water Supply Scheme</th><th colspan="2">Water Entitlement Groupings</th><th colspan="2">Exclusive and shared access of storage capacity</th><th colspan="2">Hydrological Performance (Simulation Period)</th><th rowspan="2">Review Recommended</th><th rowspan="2">Comments</th></tr>
<tr><th>2018</th><th>2023</th><th>2018</th><th>2023</th><th>2018</th><th>2023</th></tr>
<tr><td rowspan="2">Barker Barambah WSS</td><td>Medium Priority (32079 ML)</td><td>Medium Priority (32079 ML)</td><td rowspan="2"></td><td rowspan="2">No change from 2018</td><td>1890-2008</td><td rowspan="2">No change</td><td rowspan="2">û</td><td rowspan="2">• No significant change</td></tr>
<tr><td>High Priority (2236 ML)</td><td>High Priority (2236 ML)</td><td>New IQQM due to revision of Water Plan (Burnet Basin) 2014</td></tr>
<tr><td rowspan="3">Bowen Broken WSS</td><td>Medium Priority (5676 ML)</td><td>Medium Priority (5676 ML)</td><td rowspan="3"></td><td rowspan="3">No change from 2018</td><td rowspan="3">1890-2004</td><td rowspan="3">No change</td><td rowspan="3">û</td><td rowspan="3">• No significant change</td></tr>
<tr><td>High A1 Priority (11649 ML)</td><td>High A1 Priority (11649 ML)</td></tr>
<tr><td>High A2 Priority (21605 ML)</td><td>High A2 Priority (21605 ML)</td></tr>
<tr><td rowspan="2">Boyne River and Tarong WSS</td><td>Medium Priority (9485 ML)</td><td>Medium Priority (9485 ML)</td><td rowspan="2"></td><td rowspan="2">No change from 2018</td><td>1890-2008</td><td rowspan="2">No change</td><td rowspan="2">û</td><td rowspan="2">• No significant change</td></tr>
<tr><td>High Priority (33920 ML)</td><td>High Priority (33920 ML)</td><td>New IQQM due to revision of Water Plan (Burnett Basin) 2014 (Qld)</td></tr>
<tr><td>Bundaberg WSS</td><td>Medium Priority (335957 ML)</td><td>Medium Priority (252597 ML) [Quarantined MP of 83,360 ML due to Paradise Dam Improvement Project]</td><td>• Bucca Weir release rule amended to approximately 484 ML/year
• New water sharing rules
• 1 July High Priority reserve of 44372 ML</td><td>Reduced Paradise Dam Full Supply Level (61.8 mAHD)</td><td>1890-2008</td><td>1890 - 2008</td><td>û</td><td>• No permanent significant change
• Temporary changes listed below are expected to revert to pre-reduction status during the 2025 price path period
• New (temporary) water sharing rules to represent quarantined water due to the Dam Improvements Project (DIP)</td></tr>
</table>

Water Supply Scheme	Water Entitlement Groupings		Exclusive and shared access of storage capacity		Hydrological Performance (Simulation Period)		Review Recommended	Comments
	2018	2023	2018	2023	2018	2023		
	High Priority (44372 ML)	High Priority (27,221 ML) [Quarantined MP of 17,151 ML due to Paradise Dam Improvement Project]				New IQQM due to lowering of the Paradise Dam Full Supply Level due to the Dam Improvement Project		• Reduced (**temporary**) full supply volume of Paradise Dam
Burdekin Haughton WSS	Medium Priority (979594 ML) High Priority (99998 ML)	Medium Priority (979594 ML) High Priority (99998 ML)		No change from 2018	· 1890-2004	No change	û	• No significant change
Callide Dam WSS	Medium Priority Groundwater (13558 ML) High B Priority (1066 ML) Risk Priority Surface water (514) High A Priority Surface water (4311 ML)	Medium Priority Groundwater (13558 ML) High B Priority (1066 ML) Risk Priority Surface water (514) High A Priority Surface water (4311 ML)		No change from 2018	· 1889-2007 · New IQQM due to revision of Water Plan (Fitzroy Basin) 2011	No change	û	• No significant change
Chinchilla Weir WSS	Medium Priority (2884 ML) High Priority (1165 ML)	Medium Priority (2884 ML) High Priority (1165 ML)		No change from 2018	· 1895-2006	· 1889-2013 New eWater Source model due to the revision of Water Plan (Condamine Balonne) 2019	ü	• Model simulation period has changed • New eWater Source hydrologic model
Cunnamulla WSS	Medium Priority (2612 ML) High Priority (0 ML)	Medium Priority (2612 ML) High Priority (0 ML)		No change from 2018		No change	û	• Scheme is all Medium Priority

Water Supply Scheme	Water Entitlement Groupings		Exclusive and shared access of storage capacity		Hydrological Performance (Simulation Period)		Review Recommended	Comments
	2018	2023	2018	2023	2018	2023		
Dawson Valley WSS	Medium Priority (36719 ML) Medium A Priority (19339 ML) High Priority (5679 ML)	Medium Priority (36719 ML) Medium A Priority (19339 ML) High Priority (5679 ML)		No change from 2018	· 1889-2007 · New IQQM due to revision of Water Plan (Fitzroy Basin) 2011	No change	û	• No significant change
Eton WSS	High A Priority (3089 ML) High B Priority (58970 ML) Risk (504 ML)	High A Priority (3089 ML) High B Priority (58970 ML) Risk (504 ML)			· 1890-1996	No change	û	• No significant change
Lower Fitzroy WSS	Medium Priority Lower Fitzroy WSS (3101 ML) Medium Priority Fitzroy Barrage WSS (11610 ML) High Priority Lower Fitzroy Barrage (25520 ML) High Priority Fitzroy Barrage WSS (50483 ML)	Medium Priority Lower Fitzroy WSS (3101 ML) Medium Priority Fitzroy Barrage WSS (11610 ML) High Priority Lower Fitzroy Barrage (25520 ML) High Priority Fitzroy Barrage WSS (50483 ML)		No change from 2018	· 1889-2007	No change	û	• No significant change
Macintyre Brook WSS	Medium Priority (24509 ML) High Priority (488 ML)	Medium Priority (24509 ML) High Priority (488 ML)		No change from 2018		· 1889-2013 New eWater Source model due tot the revision of Water Plan (Border Rivers and Moonie) 2019	û	• No significant change
Mareeba Dimbulah WSS	Medium Priority (190399 ML) High Priority (14026 ML)	Medium Priority (190399 ML) High Priority (14026 ML)		No change from 2018	· 1913-1995	1889 - 2019 New eWater Source model due to the	ü	• New Water Plan due July 2023 which results in:

Water Supply Scheme	Water Entitlement Groupings		Exclusive and shared access of storage capacity		Hydrological Performance (Simulation Period)		Review Recommended	Comments
	2018	2023	2018	2023	2018	2023		
						revision of Water Plan (Barron) (DRAFT) – due July 2023 Represents 11,508 ML of MP type 'Loss' as MP type 'Any'		• Model simulation period has changed • New eWater Source hydrologic model due July 2023 An application to change the purpose of distribution losses (MP type "loss") to purpose any (MP type "any") has been submitted to DRDMW for assessment. Because the allocations are both Medium Priority, this does not impact the total nominal volumes used as an input to the water sharing rules
Maranoa WSS	Medium Priority (805 ML) High Priority (0 ML)	Medium Priority (805 ML) High Priority (0 ML)		No change from 2018			û	• · All medium priority
Lower Mary River WSS	Medium Priority (32650 ML) High Priority (1809 ML)	Medium Priority (32650 ML) High Priority (1809 ML)		No change from 2018	· 1890-1999	No change from 2018	û	• New water sharing rules
Nogoa Mackenzie WSS	Medium Priority (185732 ML) High Priority (46127 ML)	Medium Priority (185732 ML) High Priority (46127 ML)		No change from 2018	· 1889-2007 · New IQQM due to revision of Water Plan (Fitzroy Basin) 2011	No change from 2018	û	• No significant change
Pioneer River WSS	High B Priority (47357 ML) High A Priority (30753 ML)	High B Priority (47357 ML) High A Priority (30753 ML)		No change from 2018	· 1900-2008	No change from 2018	û	• No significant change
Proserpine River WSS	Medium A1 Priority (27876 ML) Medium A2 Priority (3000 ML)	Medium A1 Priority (27876 ML) Medium A2 Priority (3000 ML)		No change from 2018	1890-2004	No change from 2018	û	• No significant change

Water Supply Scheme	Water Entitlement Groupings		Exclusive and shared access of storage capacity		Hydrological Performance (Simulation Period)		Review Recommended	Comments
	2018	2023	2018	2023	2018	2023		
	Medium A3 Priority (10000 ML)	Medium A3 Priority (10000 ML)						
	High A Priority (22000 ML)	High A Priority (22000 ML)						
St George WSS	Medium Priority (81575 ML)	Medium Priority (81575 ML)					û	• Continuous sharing scheme
	High Priority (3000 ML)	High Priority (3000 ML)						• No significant change
Three Moon Creek WSS	Medium Priority Surface Water (1940 ML)	Medium Priority Surface Water (1940 ML)		No change from 2018	· 1890-2008	No change from 2018	û	• No significant change
	Medium Priority Groundwater (12621 ML)	Medium Priority Groundwater (12621 ML)						
	High Priority Groundwater (580 ML)	High Priority Groundwater (580 ML)						
Upper Burnett WSS	Medium Priority (34991 ML)	Medium Priority (34991 ML)		No change from 2018	· 1890-2008	No change from 2018	û	• No significant change
	Low Priority (10469 ML)	Low Priority (10469 ML)			· New IQQM due to revision of Water Plan (Burnett Basin) 2014			
	High Priority (1530 ML)	High Priority (1530 ML)						
John Goleby WSS	Medium Priority (1560 ML)	Medium Priority (1560 ML)		No change from 2018		No change from 2018	û	• All medium priority
	High Priority (0 ML)	High Priority (0 ML)						
Upper Condamine WSS	Medium Priority (22328 ML)	Medium Priority (22328 ML)		New water sharing rules for MP users	· 1895-2006	1889-2013	ü	• Model simulation period has changed • New water sharing rules for Medium Priority users • New eWater Source hydrologic model
	High A Priority (3262 ML)	High A Priority (3262 ML)						
	High B Priority (125 ML)	High B Priority (125 ML)				New eWater Source model due to the revision of Water Plan (Condamine Balonne) 2019		
	Risk A Priority (7320 ML)	Risk A Priority (7320 ML)						
	Risk B Priority (925 ML)	Risk B Priority (925 ML)						

Irrigation pricing proposal

1 July 2025 to 30 June 2029

Appendix F Electricity Costs Technical Paper

Appendix F
Electricity Costs Technical paper

1. Background and context

1.1 Key points

- Sunwater realised significant savings in electricity costs during the current price path period. A key driver of these cost savings was Sunwater's decision to procure its electricity requirements through a Whole of Government (WoG) electricity supply arrangement[1], which resulted in Sunwater paying much lower wholesale electricity costs than it would have if these sites were assigned to an applicable regulated retail electricity tariff.
- Actual electricity consumption in the base year (2022-23) does not reflect a normal year due to the influence of a major La Nina weather event. To address this issue, Sunwater proposes an adjustment to electricity costs in the base year of around $1.2 million to align with 16-year historical average annual electricity usage.
- Baseline and forecast electricity costs for the major pumping station sites have been produced using a comprehensive bottom-up model that takes account of the retail tariff structure and the extent of electricity usage at each site.
- The proposed fixed and variable split for annual electricity costs has been derived on the basis of a comprehensive bottom-up model of each major pumping station site that takes account of the fixed and variable nature of the electricity usage and the underlying retail electricity tariffs of each site. Consistent with the previous QCA pricing review, Sunwater proposes to treat the electricity costs relating to the smaller sites as fixed in nature.
- Forecast annual electricity cost escalators for each distribution system and water supply scheme have been calculated using a comprehensive bottom-up approach that takes account of electricity retail tariff increase and the extent of electricity usage at each site.
- Sunwater proposes to introduce an Electricity Cost Pass-Through (ECPT) mechanism in the next price path period in eligible schemes where there is sufficient evidence of broad and informed customer support for doing so. On the basis the feedback received using the GoVote platform, Sunwater proposes to respect the positive support for the ECPT in the following schemes:
    - Bundaberg Distribution Scheme
    - Burdekin-Haughton Distribution Scheme
    - Lower Mary River Distribution Scheme
    - Mareeba-Dimbulah Distribution Scheme (Channel – Relift tariff group)
    - Upper Condamine Bulk Water Supply Scheme (North Branch – medium priority and North Branch – risk A tariff groups).
    - Eton Bulk Water Supply Scheme.
- Sunwater will continue to gather and respond to feedback and will keep the QCA informed of any material change to customer support for this proposal.
- Sunwater does not propose to apply the ECPT mechanism to Barker Barambah scheme (Redgate Relift – medium priority tariff group) in the next price path period on the basis that the feedback gathered using the GoVote platform is strongly suggestive that these customers do not support this proposal.

[1] https://www.csenergy.com.au/news/new-energy-contract-delivers-savings-and-sustainability

- Our proposed ECPT mechanism represents an important ‘stepping stone’ to a more light handed and less costly regulatory regime, where Sunwater passes through no more or less than the actual electricity costs incurred to irrigation customers in the form of new Part E and Part F charges.

1.2 Sunwater’s current electricity retail tariff arrangements

The QCA guidance indicates that the pricing proposal should describe and justify the proposed forecasting approach, including electricity tariffs (and recent consumption) for each of the large connection points (e.g pumping stations) in each scheme.

Sunwater procures its electricity requirements in two ways – through regulated retail tariffs set by the QCA and contestable retail pricing contracts that are negotiated with Retailers.

Sunwater has over 184 sites on retail electricity tariffs. Many of these sites are classified by Ergon Energy as small customers using less than 100 MWh per annum. There are also a significant number of large customer sites that are typically pumping stations. Sunwater has assigned many of these sites to a contestable retail pricing contract under a WoG electricity supply arrangement, where the wholesale electricity costs are fixed until 31 December 2028. The remaining pumping station sites are assigned to a regulated retail tariff with a demand charge, such as Ergon Energy regulated retail Tariff 44 and Tariff 24A.

It should also be noted that Sunwater actively manages its electricity costs by ensuring that its sites are assigned to the least cost network and regulated retail tariffs given their historical electricity consumption and demand characteristics. Our proposed annual tariff optimisation process for the next price path period is summarised below:

- To identify the eligible regulated retail tariffs for a site in accordance with the terms and conditions set out in published price guide or equivalent document.
- To estimate the annual retail bill outcome under each eligible regulated retail tariff for a site using the available historical electricity consumption data, noting that at least 4 years of historical data is required to support a tariff change request.
- To compare the estimated annual retail bill outcome across eligible regulated tariffs for a site, noting that a comparison is also made at this stage of the available contestable retail pricing option(s).
- In addition, Sunwater also compares its retail tariff analysis with the outcomes using Ergon Energy’s analysis tool for validation purposes, noting that Ergon’s calculator tool is based on a 12-month forecast usage pattern.
- If the above tariff analysis reveals an opportunity for a site to save material electricity costs by switching to another retail tariff, then Sunwater will submit a tariff change request application to the Retailer. The Retailer will assess this application in accordance with its published tariff assignment and reassignment policy. If the application is approved, the Retailer will reassign this site to the requested cheaper retail tariff.
- If the above tariff analysis reveals that an available contestable pricing option is at a lower cost, then a review of the risks of movement off regulated tariffs to the contestable arrangements is done. Should the cost improvement and benefits outweigh the risks Sunwater submits this change request for inclusion of this site into the given contestable arrangement. Note that once a site has moved off gazette tariffs, it cannot return.

While a site may be reassigned to another electricity retail tariff in the future as a result of the annual tariff optimisation process, Sunwater has assumed for the purposes of forecasting electricity costs in the next price path period that all of its sites will remain on the retail electricity tariff that applied in the base year for the duration of the next price path period.

1.3 The nature of Sunwater's electricity usage and costs

To deliver the regulated water services that customers want requires that Sunwater consumes significant volumes of electricity. The biggest contributor to our electricity costs is the need to pump water, predominantly in distribution systems such as Bundaberg and Burdekin-Haughton. In bulk schemes, key drivers of electricity costs are the need to balance off-stream storages (Bowen Broken, Dawson Valley and Eton bulk water supply schemes) or pump water to supplement stream flows (Barker Barambah – Redgate Relift and Upper Condamine bulk water supply schemes).

Sunwater also consumes relatively small amount electricity at the bulk water supply scheme level. As shown in the table below, Sunwater has a significant number of small sites across its bulk water supply schemes that, on average, consume immaterial amounts of electricity. Table 1 shows that many of these sites are assigned to the Ergon Energy small business flat regulated retail tariff (Tariff 20), but there are also a significant number of unmetered sites on regulated retail tariffs relating to street lighting, water gate controllers and Supervisory Control and Data Acquisition (SCADA).

Table 1 – Actual electricity consumption and tariff arrangements for other sites - 2022-2023

Meter Type	Tariff Code	Retail Electricity Tariff Name	Description	Number of sites	Annual Electricity (kWh) Consumption
Unmetered	Tariff 91	Business flat primary tariff for unmetered supplies	Water Gates Controller	25	2275
Unmetered	Tariff 71	Business flat primary tariff for street lighting	Street lighting	14	3,083
Unmetered	Tariff 91	Business flat primary tariff for unmetered supplies	SCADA	8	9,104
Unmetered	Tariff 91		Other	4	561
Metered	Tariff 20	Small business flat primary tariff	Various	75	442,957
Metered	Tariff 11	Residential flat rate primary tariff	Various	2	589
Metered	Tariff 44	Large business monthly demand primary tariff	Various	1	140,782
Total				**129**	**599,351**

1.4 Comparison of actual electricity costs against QCA electricity cost allowance in current price path period

The QCA guidance indicates that the pricing proposal should explain the business's operating expenditure performance over the period 2020-21 to 2023-24, including:

- *A year-on-year comparison of actual operating expenditure (using the latest forecasts for 2023-24) with our approved operating expenditure allowance.*
- *Explanation of key drivers for any significant variations between approved and actual opex*
- *Any significant cost savings or cost increases.*

In February 2020, the QCA determined lower bound cost-reflective prices for Sunwater's irrigation water charges covering the 2020/21 to 2023/24 regulatory period based on what it considered to be prudent and efficient costs of providing this regulated service.

One of the key challenges shared by SunWater and our customers is managing the cost of electricity. There has been a significant increase in retail electricity prices in recent years, due mainly to a sharp increase in wholesale electricity costs of electricity, which are reflective of high international prices for gas and coal due in part to the war in Ukraine, as well as uncertainties surrounding the availability and reliability of coal-fired power plants and their impacts on the supply-demand balance in Queensland.

In spite of these unanticipated cost pressures, Sunwater realised material savings in its electricity costs compared to the QCA allowance during the current price path period. These cost savings were driven primarily by Sunwater entering into a long-term WoG electricity supply arrangement from 1 January 2020. Under this contestable retail pricing contract, Sunwater is paying much lower wholesale electricity costs than it would otherwise have if these sites were assigned to regulated retail tariff arrangements.

It should also be noted that Sunwater's electricity costs have to some extent been impacted by the recent increases in wholesale electricity costs given that many of its smaller sites are assigned to regulated retail electricity tariffs.

2. Explanation of proposed methodology for forecasting prudent and efficient electricity costs in next price path period

The QCA guidance indicates that the pricing proposal should describe and explain the business's proposed forecasting approach, including the methodology used to develop baseline opex, including identified risks.

Sunwater's proposed methodology for developing a baseline electricity cost for the next price path period is based on the base-step-trend approach.

- **Step 1:** Estimation of baseline electricity costs – this step involves estimating the fixed and variable electricity costs in the base year using actual or historical data reflective of expected recurrent expenditures over the next price path period.
- **Step 2:** Estimation of the step changes to baseline electricity costs to exclude expenditures that are non-recurrent in nature and to include expenditures that, while not currently incurred, can reasonably be expected to be incurred in the next price path period.
- **Step 3:** estimation of the annual escalators to apply to electricity costs over the next price path period and to account for any cost savings or efficiencies expected to be realised

Each of the above steps are discussed in detail below.

3. Sunwater's proposed base year electricity costs

The QCA guidance indicates that the pricing proposal should describe and justify the proposed forecasting approach, including the methodology used to develop the baseline opex, including identified risks; justification that the baseline opex at the total business and scheme level reflects annual recurrent expenditure expected to be incurred over the price path period and a description of, and rationale for, a proposed split between fixed and variable electricity costs.

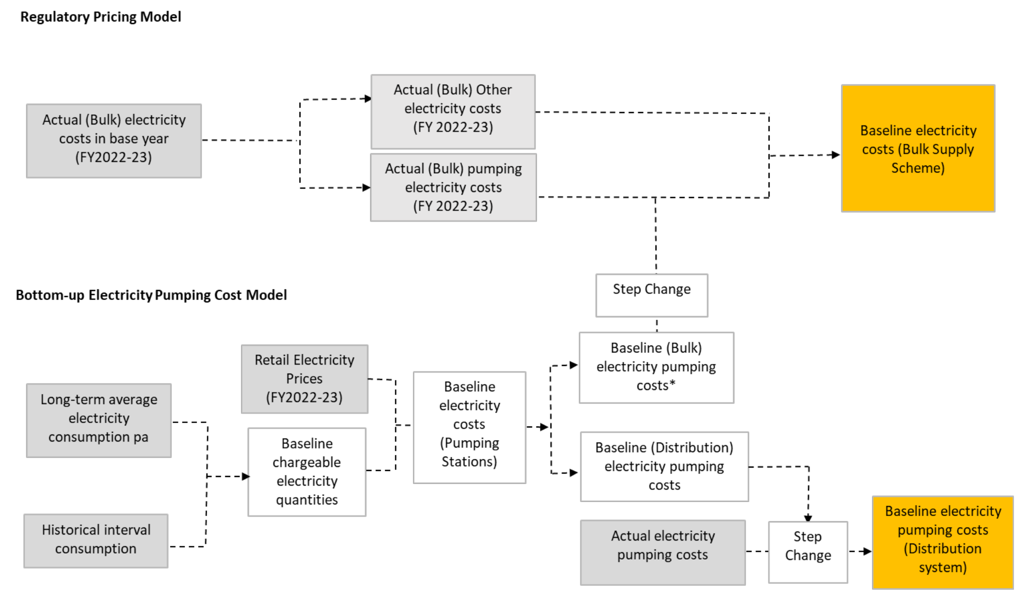
Sunwater proposed methodology for estimating the baseline electricity costs for the next price path period is based on a bottom-up approach for the electricity costs associated with the major pumping station sites. Under this approach, electricity costs are estimated for each individual pumping station site on the basis of the underlying retail tariffs and the associated chargeable quantities (e.g kWh electricity consumption, and kW/kVA demand). Sunwater believes that a more complicated forecasting approach is justified given that these sites typically account for over 95% of Sunwater's total annual electricity costs.

Sunwater's bottom-up electricity cost model produces an estimate of the baseline electricity costs for each distribution system as well as the baseline electricity costs for the bulk supply schemes where applicable.

It is also important to note that Sunwater incurs electricity costs in bulk supply schemes that are not included in the bottom-up electricity cost model. Sunwater has not undertaken a bottom-up analysis of these costs given that these sites consume relatively small amounts of electricity. Nevertheless, the actual electricity costs associated with smaller sites have been included in the calculation of baseline electricity costs in the regulatory model for completeness.

Figure 1 provides an overview of Sunwater's proposed approach to estimating the baseline electricity costs for each distribution system and Barker Barambah (Redgate relift) and Upper Condamine bulk water supply schemes.

Figure 1: Illustrative overview of Sunwater's proposed estimation approach to baseline electricity pumping costs



Note: Grey shaded cells - actual data, orange shaded cells - output data

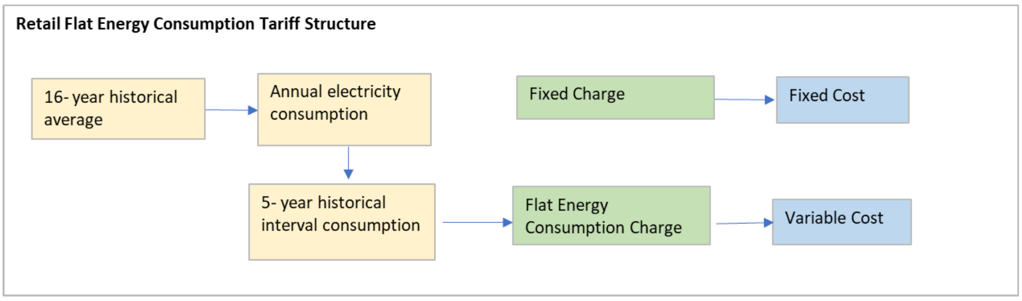
The following sections provide an understanding of the key elements of Sunwater's proposed approach to estimating baseline electricity costs for the next price path period. The focus is on explaining our bottom-up modelling approach given the materiality of the pumping related electricity costs.

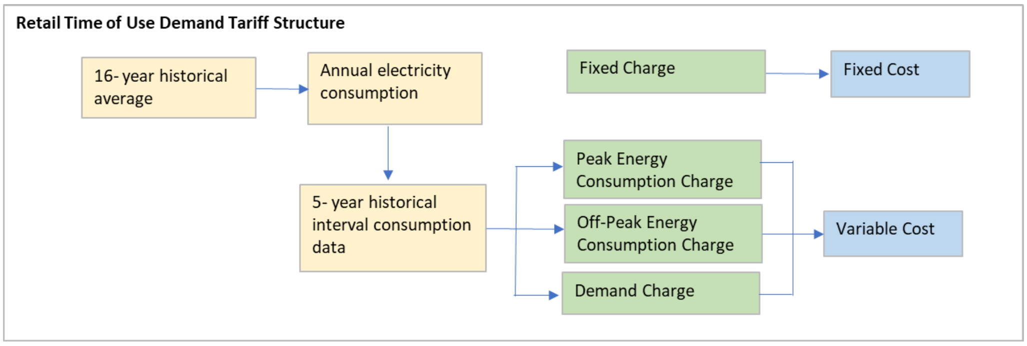
The key steps under this approach are to:

- Estimate the baseline electricity consumption and demand (if applicable) for each individual pumping station site reflective of a typical or representative year.
- Translate the baseline electricity consumption into the chargeable quantities under the retail electricity tariff applying to each individual pumping station site.

Figure 2 illustrates Sunwater's approach to estimating baseline electricity costs for sites under two hypothetical retail tariff structures.

Figure 2: Proposed baseline estimation approach to fixed and variable split costs





3.1 Proposed estimation approach to chargeable quantities in base year at NMI level

Sunwater proposes to use the 2022-23 financial year as the base year for its pricing proposal. However, it should be noted that actual electricity costs in 2022-23 are not reflective of the annual recurrent electricity costs expected to be incurred over the next price path period due the influence of a significant La-Nina weather event. The extent that actual electricity consumption by the irrigation scheme pumping stations in 2022-23 varies from long-term historical average levels by Scheme is shown in Table 2.

Table 2 – Comparison of actual electricity consumption – Base year Vs Long-term historical average

Scheme	Electricity usage		
	Base year (kWh)	*16-year avg (kWh)*	*Variance (kWh)*
Barker Barambah	566	41,358	40,792
Bowen Broken Rivers	321,605	514,100	192,495
Bundaberg Distribution	17,058,990	21,659,379	4,600,389
Burdekin-Haughton Distribution	19,619,375	23,191,665	3,572,291
Eton Supply	36,519	1,270,791	1,234,273
Dawson Valley	28,926	189,778	160,852
Lower Mary Distribution	288,871	989,753	700,882
Mareeba-Dimbulah Distribution	1,786,152	1,898,182	112,030
Upper Condamine	455,963	355,331	-100,632
Total	**39,596,967**	**50,110,337**	**10,513,372**

Due to the impact of the La-Nina weather event it is necessary for Sunwater to estimate its baseline electricity consumption using a long-term historical average, rather than actual electricity consumption in the base year.

It should be noted that Sunwater has also used the available 5 years of interval energy consumption data for each major pumping station site to estimate the load profile for the purpose of translating the annual baseline electricity consumption for each site into chargeable quantities (e.g peak and off-peak) reflective of the structure of the retail electricity tariff applying to each site in the base year.

3.2 Sunwater's approach to deriving fixed and variable electricity costs

Sunwater's proposed allocation of baseline electricity costs into fixed and variable components is derived from our bottom-up electricity pumping cost model. As previously explained, the fixed and variable costs under this approach are estimated on the basis of the retail electricity tariff structures that apply to each major pumping station site. This approach recognises that an important driver of the extent that our baseline electricity costs are fixed in nature is the structure of the retail electricity tariffs. For simple retail flat anytime energy tariffs, the fixed component is typically modest as the variable energy consumption charge is set well below the marginal economic costs of supplying network capacity at peak times. However, the fixed component will be higher for cost reflective retail tariff structures that have a high reliance on fixed charges or charges, such as capacity charges that are difficult for Sunwater to avoid by changing electricity usage.
Table 3 shows the proposed fixed and variable split in percentage terms that applies to our proposed electricity costs by bulk water supply scheme.

Table 3 – Proposed Fixed and variable electricity cost split for electricity costs by bulk supply scheme

Scheme	Fixed % of baseline electricity cost
Barker Barambah (excluding Redgate relift)	100%
Barker Barambah (Redgate Relift)	Varies
Bowen Broken River	100%
Boyne River and Tarong	100%
Bundaberg	100%
Burdekin-Haughton	100%
Callide Valley	100%
Chinchilla Weir	100%
Cunnamulla Weir	100%
Dawson Valley	100%
Eton[2]	100%
Lower Fitzroy	100%
Lower Mary (excluding Tinana Barrage and Teddington Weir)	100%
Lower Mary (Tinana Barrage and Teddington Weir)	Varies
Macintyre Brook	100%
Mareeba-Dimbulah	100%
Ngoa-MacKenzie	100%
Pioneer River	100%
Proserpine River	100%
St George	100%
Three Moon Creek	100%
Upper Burnett	100%
Upper Condamine (excluding North Branch relift)	100%
Upper Condamine (North Branch relift)	Varies

[2] Sunwater proposed a fixed/variable % split for electricity costs incurred in the Eton scheme for the purpose of calculating Part E and Part F charges under the ECPT mechanism.

The above table highlights that Sunwater proposes to treat baseline electricity costs as being fixed for the majority of bulk water supply schemes. Whereas, the baseline electricity costs are variable in all of the distribution systems. This approach is consistent with the approach taken in the previous QCA irrigation pricing review.[3]

Table 4 shows the proposed fixed and variable split in percentage terms that applies to our proposed baseline electricity costs by distribution system.

Table 4 – Proposed Fixed and variable electricity cost split for baseline electricity cost by distribution system

Distribution System	Fixed % of baseline electricity cost
Bundaberg	Varies
Burdekin-Haughton	Varies
Lower Mary	Varies
Mareeba-Dimbulah	Varies

4. Proposed step change to baseline electricity costs

With reference to baseline operating expenditure, QCA guidance indicates that the pricing proposal should include prudent and efficient incremental costs (step changes) that it expects to incur over the price path period that are necessary to fulfil new, or changed, binding statutory or regulatory obligations; are reasonably required to achieve an outcome that is explicitly endorsed by customers or broadly accepted changes in community expectations in relation to corporate responsibility; are not already funded through other components of other approved allowances; represent cyclical activities that are not within annual business-as-usual budgets; are of sufficient materiality such that the costs could not be reasonably met by an efficient entity operating within business-as-usual budget constraints.

Sunwater's proposes to make a step change adjustment to the actual electricity consumption of the major pumping station sites in the base year of financial year 2022-23. Sunwater believes that this step change is necessary to robustly estimate baseline electricity costs as the actual electricity consumption of these sites in the base year is not representative of annual recurrent electricity costs expected to be incurred over the next price path period due to the temporary impact of a major La Nina weather event.

Sunwater proposes to make no step change adjustments to actual electricity costs incurred in the other sites included in the base year electricity costs. This is because the electricity consumed at these sites is not likely to be materially impacted by variations in weather given the nature of the electricity use at these sites and that many of these sites are not metered.[4]

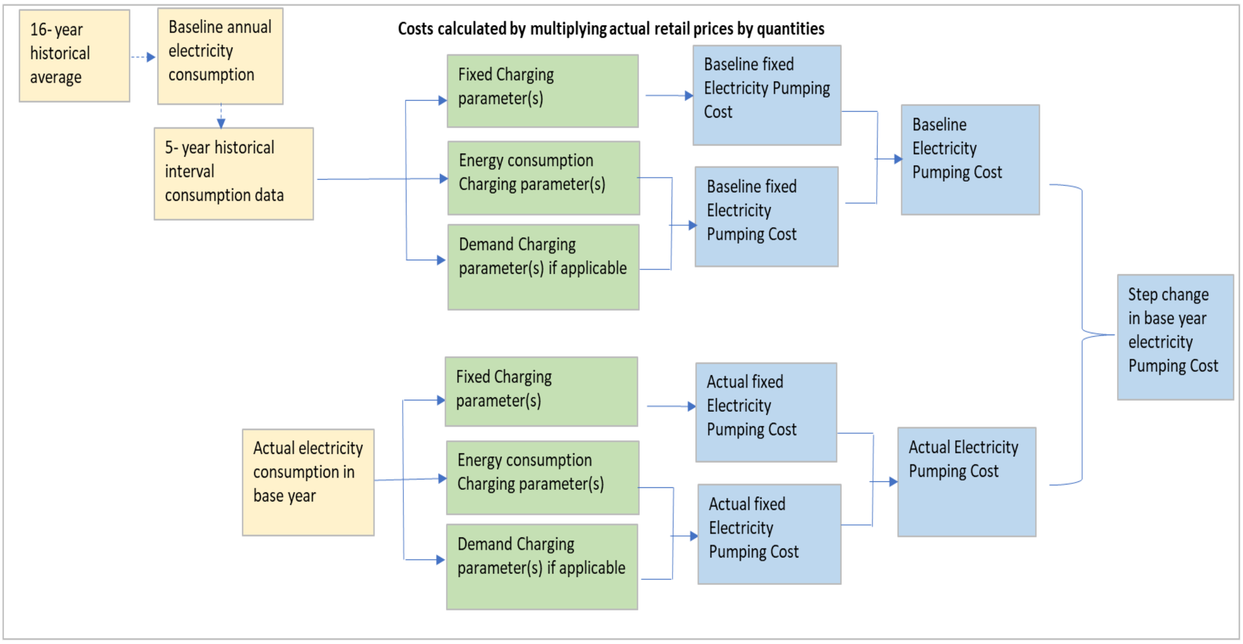
4.1 Proposed methodology for estimating the step change in electricity costs

Sunwater's proposed approach to estimating the step change adjustment to the base year electricity costs of the major pumping station sites is a bottom-up approach, as illustrated in the figure below.

[3] The QCA relied on the Assessment of fixed and variable cost drivers undertaken by INDEC. This report is available from: [Irrigation prices 2012–17 (qca.org.au)](qca.org.au)

[4] AEMO applies apparent load to unmetered sites, like public lighting, tariff lights, for billing purposes.

Figure 3 - Proposed estimation methodology for the step change to base year electricity costs



As highlighted in the figure above Sunwater's proposed approach to estimating the step change is based on a detailed bottom-up calculation of the retail tariff costs in the base year for each major pumping station site. Under this approach, the proposed step change is the difference in actual electricity costs in the base year and the electricity costs that would have been incurred if the electricity usage of the major pumping station sites matched the long-term historical average. It is important to note that Sunwater believes that the actual electricity retail tariffs applying to the major pumping station sites in the base year are representative of the tariff arrangements that will apply to these sites in the next price path period.

4.2 Proposed step change in baseline electricity costs

On the basis of proposed estimation methodology discussed above, Sunwater proposes a step change in total electricity costs of around $1.2 million in the base year.[5]

5. Sunwater's proposed annual electricity price escalators

QCA guidance indicates that the pricing proposal should adjust baseline opex and step changes for trend growth over the next price path period using cost escalators, usage growth (if applicable) and efficiency gains. The pricing proposal should describe and justify the proposed forecasting approach, including a description of, and rationale for, cost escalation factors proposed for each tariff.

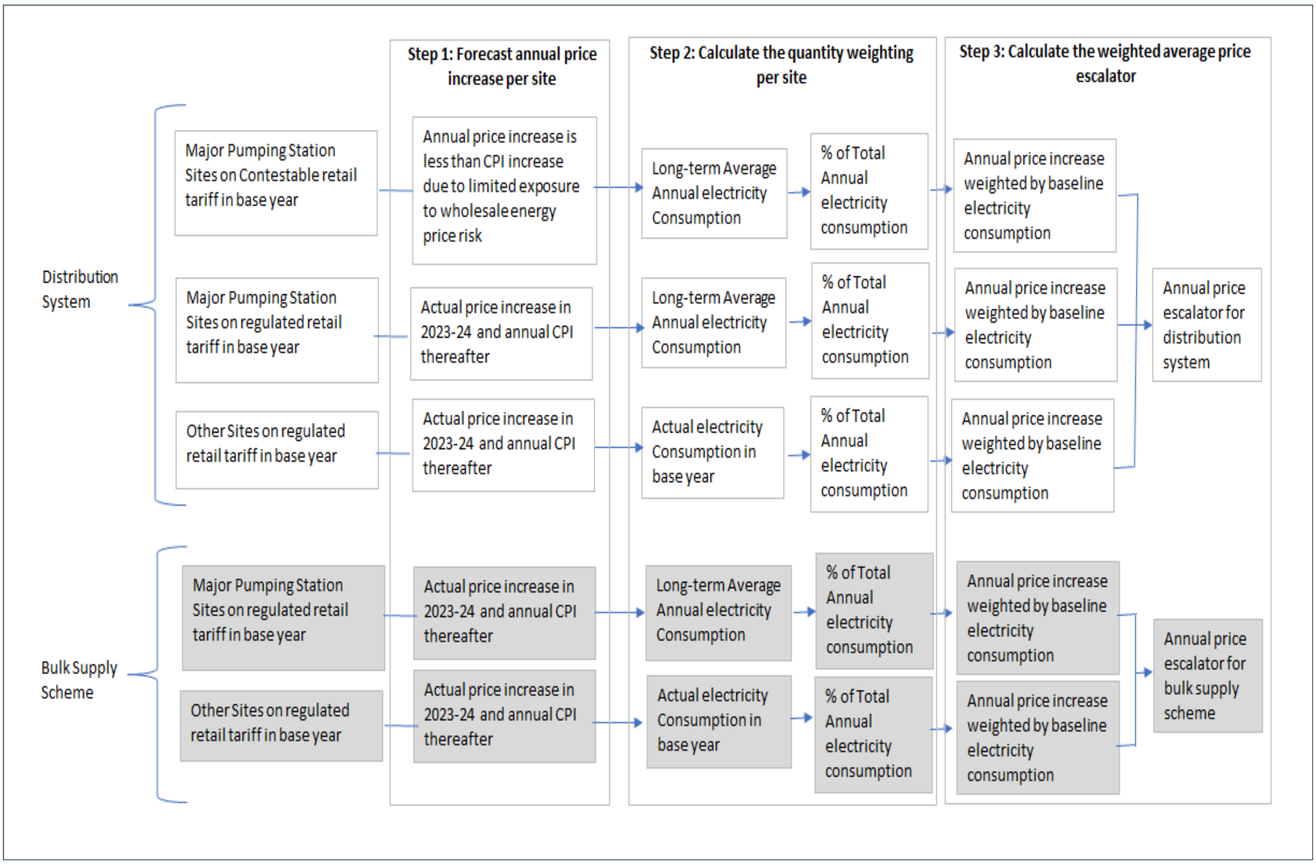
Sunwater's proposes to apply separate electricity price escalators to electricity costs in bulk water supply schemes and distribution systems in recognition of the different retail electricity tariff arrangements that apply to major pumping station sites compared to smaller sites. For example, many of the major pumping station sites are on a WoG electricity supply arrangement [6]where the wholesale electricity cost is fixed until the final year of the next price path period. In contrast, the smaller sites are on regulated retail tariffs that are exposed to annual movements in wholesale electricity prices.

[5] Note that Sunwater has estimated the step change outside the regulatory model using a detailed bottom-up calculation.
[6] New energy contract delivers savings and sustainability - CS Energy

5.1 Proposed methodology for estimating the annual electricity price escalators

Sunwater's proposed methodology for estimating separate annual electricity price escalators for bulk supply schemes and distribution systems to apply to the next price path period is a bottom-up approach, as illustrated in the figure below.

Figure 4 - Proposed estimation methodology for annual electricity price escalators



As illustrated in the figure above, Sunwater's general approach is to escalate electricity prices by forecast annual CPI over the next price path period, except where there is actual electricity price information available. For example, Sunwater has calculated the retail price increase for each site in 2023-24 using the actual increase to retail electricity tariffs on 1 July 2023. This is a more accurate approach than using a general price index such as the forecast CPI.

Sunwater has generally applied a less than CPI increase to the major pumping station sites under a WoG electricity supply contract in recognition that these sites are not exposed to wholesale electricity cost risk until this contract expires on 31 December 2028. Given the uncertainty beyond this date, Sunwater has applied forecast CPI as the electricity price escalator for these major pumping station sites in the final year of the next price path period.

The annual electricity price escalators by scheme are calculated by weighting the forecast of electricity prices for each site by the corresponding forecast of annual electricity consumption by site. For the major pumping sites, Sunwater has used the historical average electricity consumption as the quantity weight in the weighted average calculation given that actual electricity consumption is not representative due to impact of a major La Nina weather event. For the other sites, that are typically on a regulated retail tariff, Sunwater has used the actual baseline electricity consumption as the quantity weight in the weighted average calculation.

5.2 Proposed annual electricity price escalators

Table 6 shows the proposed annual electricity price escalators for our bulk water supply schemes for the remaining years of the current price path and the four years of the next price path period.

Table 5 – Proposed Electricity Cost Escalators by bulk water supply scheme

Distribution System	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
Burdekin	26.80%	3.10%	2.98%	2.87%	2.75%	2.50%
Proserpine	26.80%	3.10%	2.98%	2.87%	2.75%	2.50%
Bundaberg	26.80%	3.10%	2.98%	2.87%	2.75%	2.50%
Barker Barambah	26.80%	3.10%	2.98%	2.87%	2.75%	2.50%
Upper Burnett	26.84%	3.10%	2.98%	2.87%	2.75%	2.50%
St George	25.36%	3.10%	2.98%	2.87%	2.75%	2.50%
Upper Condamine	16.10%	2.70%	3.00%	2.90%	3.10%	2.50%
Bowen Broken	16.00%	3.10%	2.98%	2.87%	2.75%	2.50%
Eton Supply	4.67%	2.61%	2.58%	2.55%	2.88%	2.50%
Pioneer	26.80%	3.10%	2.98%	2.87%	2.75%	2.50%
Callide	26.80%	3.10%	2.98%	2.87%	2.75%	2.50%
Dawson	26.80%	3.10%	2.98%	2.87%	2.75%	2.50%
Lower Fitzroy	26.80%	3.10%	2.98%	2.87%	2.75%	2.50%
Nogoa	26.00%	3.10%	2.98%	2.87%	2.75%	2.50%
Three Moon	26.80%	3.10%	2.98%	2.87%	2.75%	2.50%
Mareeba	26.80%	3.10%	2.98%	2.87%	2.75%	2.50%
Macintyre Brook	26.80%	3.10%	2.98%	2.87%	2.75%	2.50%
Boyne	26.80%	3.10%	2.98%	2.87%	2.75%	2.50%
Lower Mary	13.30%	2.90%	3.00%	2.90%	2.90%	2.50%

Table 6 shows the proposed annual electricity price escalators for our distribution systems that have been estimated using our proposed methodology discussed above.

Table 6 – Proposed Electricity Cost Escalators by distribution system

Distribution System	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
Burdekin-Haughton	2.38%	2.00%	2.10%	1.80%	2.10%	2.50%
Bundaberg	1.60%	2.50%	2.20%	2.10%	2.30%	2.50%
Mareeba-Dimbulah	17.90%	3.00%	3.00%	2.90%	2.80%	2.50%
Lower Mary	13.30%	2.90%	3.00%	2.90%	2.90%	2.50%

6. Proposed Electricity Cost Pass Through mechanism

QCA guidance indicates that if proposing an adjustment mechanism to account for potential changes in cost associated with uncertain events beyond their control, the businesses should describe and justify the nature of the event and the likely materiality of costs associated with the event; why the proposed mechanism is appropriate for dealing with the event; how the proposed mechanism would work; how the mechanism avoids material price impacts on customer.

6.1 Background and context

Sunwater proposed an Electricity Cost Pass Through ECPT mechanism in the previous QCA irrigation pricing review.[7] The rationale for this proposal was to address concerns that the existing approach, where the QCA determines an electricity allowance, may deliver an outcome that is contrary to the interests of customers in an environment where future electricity prices are highly uncertain. Following the QCA decision not to approve this proposal in their determination, Sunwater consulted with customer representative groups and irrigation customers to determine their level of interest in undertaking an ECPT trial. Following this consultation, Sunwater submitted a recommendation to the Queensland Government to proceed with ECPT trials in the following schemes:[8]

- Barker Barambah Bulk Water Supply Scheme (Redgate Relift – medium priority tariff group)
- Bundaberg Distribution Scheme
- Burdekin-Haughton Distribution Scheme
- Lower Mary River Distribution Scheme
- Mareeba-Dimbulah Distribution Scheme (Channel – Relift tariff group)
- Upper Condamine Bulk Water Supply Scheme (North Branch – medium priority and North Branch – risk A tariff groups).

The Queensland Government subsequently approved the ECPT trial on this basis.

Sunwater has completed this three-year ECPT mechanism trial on 30 June 2023. Even though the trial was asymmetric in the sense that Sunwater only passed through electricity cost savings to customers, the trial still provided evidence that a ECPT mechanism has the potential to benefit customers by ensuring that they pay no more than the actual cost incurred. The trial also gave Sunwater a better understanding of the costs of administering this type of mechanism. For more information on the results of Sunwater's ECPT mechanism trial refer to our website, see link: Electricity Cost Pass-through Trial - Sunwater

On the basis of the insights and learnings gained from the ECPT trial, as well as the recent feedback that received directly from customers and their representatives during the engagement process for this pricing proposal, Sunwater proposes a ECPT mechanism for the next price path period for the eligible schemes that voted in support of this proposal.

Based on feedback received from customers prior to 30 November Sunwater is:

- NOT proposing an ECPT mechanism for the Barker Barambah, Burdekin, Eton, Lower Mary, Mareeba and Upper Condamine schemes.
- Proposing an ECPT mechanism for the Bundaberg scheme, noting that support in this scheme may be qualified / may change during the review phase.

6.2 Underlying rationale for an ECPT mechanism

Sunwater believes that a ECPT mechanism has merit in eligible schemes where the majority of customers have expressed a clear preference to pay no more or less than the actual electricity costs incurred by sunwater to provide the service wanted by customers.

[7] Sunwater 2019, Sunwater: Irrigation price review submission 1 July 2020 to 30 June 2024, Section 6.7, page 72.

[8] Note that customers in the Eton scheme decided not to participate in the electricity cost pass-through trial.

A key insight from our ECPT trial is that a pass-through mechanism has the potential to deliver a better outcome for customers than the current approach where the QCA determines an electricity cost allowance and bundles these costs into existing charges. The ECPT trial also showed that a pass-through mechanism also provided customers with improved transparency over the electricity usage, electricity tariffs and actual electricity costs.

There could also be broader economic efficiency reasons to adopt a ECPT mechanism, including the potential long-term economic welfare benefits to be realised from the introduction of unbundling electricity costs into cost reflective Part E and Part F charges.

Sunwater acknowledges the QCA concerns over the pass-through of electricity costs to customers and their preference to apply such mechanisms in limited circumstances.[9] It is important for the QCA to consider our ECPT proposal as a "stepping stone" towards a more light-handed and less costly economic regulatory regime, rather than as a traditional cost pass-through triggered by the occurrence of a pre-defined event. Nevertheless, Sunwater has made a genuine effort to address the QCA's concerns by including a comprehensive reporting and review process in our ECPT proposal. This will improve transparency and empower customers and their representatives to raise concerns with the knowledge that there is an effective process in place to address these concerns.

6.3 Proposed design of the electricity cost-pass through mechanism

Sunwater worked closely with customer and their representatives to develop our ECPT proposal. For example, Sunwater adopted a quarterly ECPT mechanism in response to concerns that an annual mechanism had the potential to create unacceptable bill shocks on customers. The design of our ECPT proposal was also influenced by the insights and learnings obtained from our ECPT trial.

The key design features of our ECPT proposal are shown in Table 7 below.

Table 7 – The key design features of proposed ECPT mechanism

Design Feature	Description
Fully symmetrical pass-through	Changes in actual electricity prices and costs impact both Sunwater and customers equally
Opt-in at scheme level	The ECPT mechanism is to apply in the next price path period only to eligible schemes where Sunwater has obtained sufficient evidence during its engagement process of broad and informed customer support.
All electricity costs in scope	The calculation of Part E and Part F charges under the ECPT mechanism is proposed to be based on total electricity costs.
Price setting / pass-through at regular intervals	Pass-through of changes in price are implemented in a timely manner (e.g. quarterly price setting)
Agreed performance reporting with clearly defined review pathways	An agreed review mechanism with a potential trigger for review. Adverse findings could trigger asymmetric pass-through outcome.

[9] QCA 2023, Guidelines for pricing proposals, Rural irrigation price review 2025-29, March, Page 37

The rationale and justification for each proposed design feature of the ECPT mechanism are discussed in more detail below:

(i) Proposed full symmetric exposure to cost and price risk

Sunwater believes that it is appropriate for the ECPT mechanism to expose customers to total price and volume related risks associated with electricity costs. This is a fundamental design concept underlying Sunwater's proposal as without this design feature it is impossible to design cost reflective Part E and Part F charges. It is also necessary to design the ECPT mechanism in this way to ensure that the irrigation customers pay no more or less than the actual electricity cost incurred by Sunwater. This outcome is necessary to address the concerns raised by some customer representatives over the current approach, where the QCA determines an annual electricity cost allowance for the next price path period, in an environment of significant uncertainty over future electricity prices and costs.

(ii) Proposed opt-in at a scheme level

Sunwater believes that the ECPT mechanism should be opt-in at the individual scheme level. This means Sunwater will only propose a ECPT to apply to a water supply scheme in the next price path if there is adequate evidence of broad and informed support from customers for doing so. On this basis, Sunwater is proposing that ECPT mechanism to apply to all eligible schemes in the next price path period, except Barker Barambah scheme. Sunwater believes there is merit in allowing Barker Barambah to voluntarily opt-in to the ECPT mechanism during the next price path period if adequate support were to emerge over time.

(iii) Proposed scope of electricity costs covered by the ECPT mechanism

Sunwater believes that it is important that the ECPT mechanism is based on total electricity costs incurred to provide the regulated service to irrigation customers. This means that the electricity pass-through cost is calculated on the basis of the actual costs incurred for electricity transmission, electricity distribution, retail components (including environmental and market fees) and any applicable government levies. This approach ensures that the Part E and Part F charges under the ECPT mechanism are as cost reflective as possible.

(iv) Proposed methodology for setting Part E and Part F charges

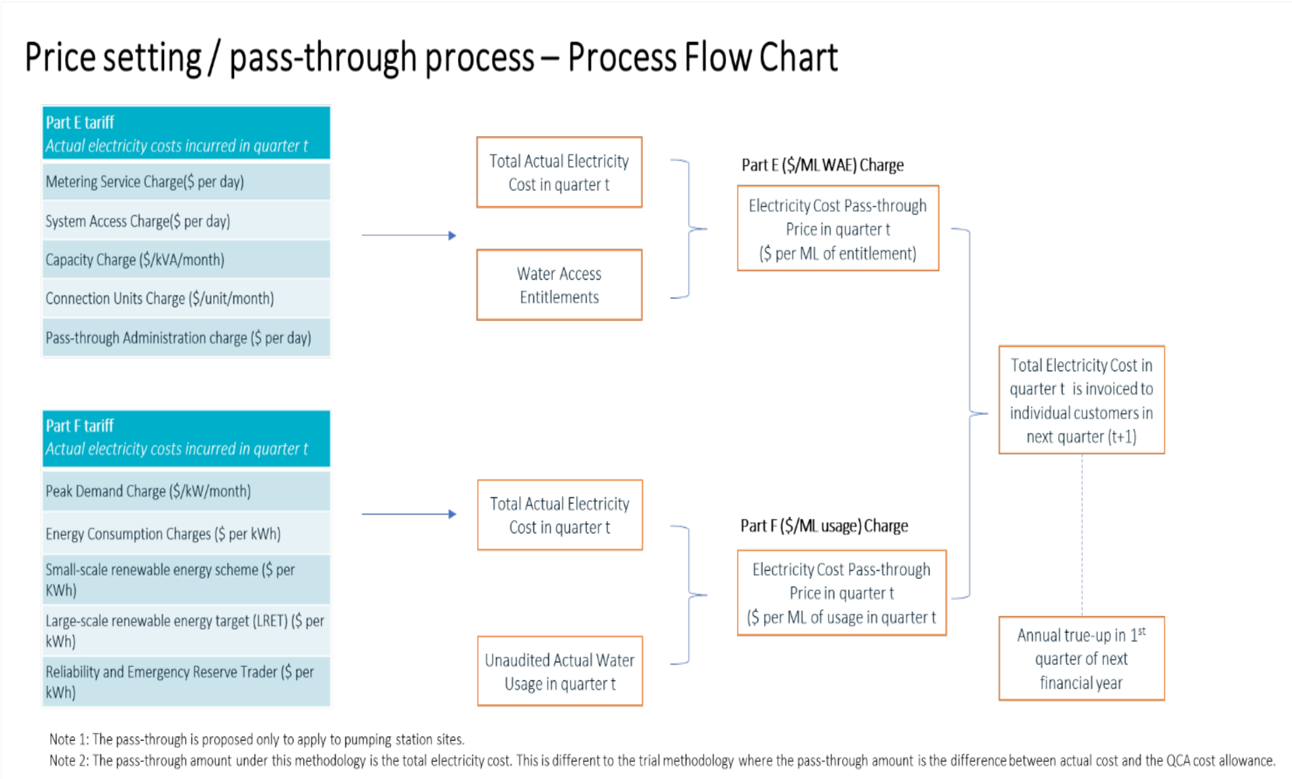
An important design feature of Sunwater's proposed ECPT mechanism is the introduction of Part E and Part F charges in the next price path period. Sunwater believes that it is important to unbundle electricity costs from the existing charges to more clearly convey price signals to our customers relating to the electricity cost component of our cost to serve. While the responsiveness of irrigation customers to these price signals is unknown, it is conceivable that progressing tariff reform in this way could enhance economic welfare over the longer term, particularly if future reforms sharpen these price signals to encourage irrigators to better manage their demand for water to minimise the extent that Sunwater is required to operate pumping stations during the more expensive times of the day and year.

The proposed methodology for calculating these charges is designed to be as cost reflective as possible in the sense that there is direct link between the actual electricity cost incurred by Sunwater and the Part E and Part F charges payable by irrigation customers. Importantly the cost reflectivity aspects of our price-setting methodology also extend to ensuring that the Part E charge is reflective of fixed electricity costs[10] and the Part F charge is reflective of variable electricity costs[11], as illustrated in the figure below.

[10] Fixed electricity costs relate to costs that are not related to the water usage decisions of customers. In other words, Sunwater is required to incur these costs regardless of the level water usage.

[11] Variable costs in this context relate to electricity costs that vary in accordance with water usage. This is an important aspect of our proposal from an allocative efficiency perspective as it ensures that customers will make their marginal water usage decisions on the basis of the marginal electricity cost of supplying water to these customers.

Figure 5 -Proposed methodology for setting Part E and Part F charges



The other aspect to our proposal price-setting approach under the proposed ECPT mechanism is our proposal to set the Part E and Part F on a quarterly basis with up to a three-month lag in the billing of customers. This approach was adopted to address the concerns of some customer representatives over the potential impact associated with an annual ECPT mechanism, such as approach taken for the trial where the annual ECPT pass-through amount is invoiced in the March quarter of the following financial year.[12]

(v) Proposed reporting and review process

An important design feature of Sunwater's proposed ECPT mechanism is the reporting and review process. The proposed steps in this process are discussed below.

Step 1: Sunwater to publish an annual report on the ECPT mechanism

The purpose of this report is to provide customers and their representatives with all the information that they require to assess whether the actual electricity costs passed through to customers in the previous financial year is reasonable and in accordance with the price-setting methodology. The information contained in this annual report is proposed to include the following:

- the pass-through amount and true-up amount (if any) for the review year and the underlying calculations.
- a comparison of electricity prices with prior year prices
- an overview of Sunwater's tariff strategy and upcoming price changes relevant to selected tariffs

[12] For more information about this approach, refer to our ECPT trial approach, see link [Electricity Cost Pass-through Trial - Sunwater]

- a comparison of the annual water and electricity usage against previous years.
- additional information as necessary to explain high usage or irregular water and electricity usage relationships.

Step 2: Customer feedback

The next step in the process is for customers and their representatives to review the annual report published by Sunwater and raise any concerns of inefficient or imprudent electricity usage or retail tariff selection. Examples of potential areas of customer concern could relate to the tariff optimisation process in the situation where Sunwater did not appropriately take account of a new retail tariff, changes to existing tariff structures or tariff eligibility criteria.

Step 3: Sunwater responds to customer concerns

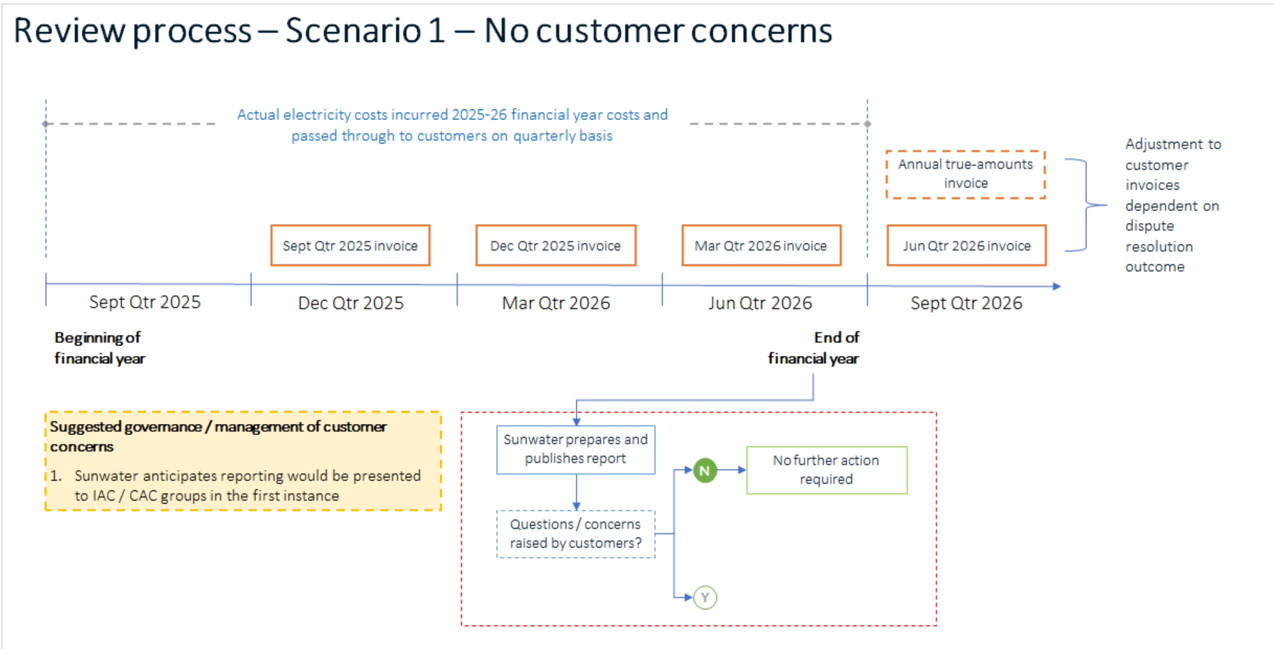
Sunwater provides a response to any customer concerns. This response may include providing additional information and analysis.

Step 4: External review/dispute resolution

If customers remain concerned over the efficiency and prudency of the actual electricity costs incurred by Sunwater, then customers have the option under the proposed ECPT mechanism of initiating a formal dispute resolution and review process.

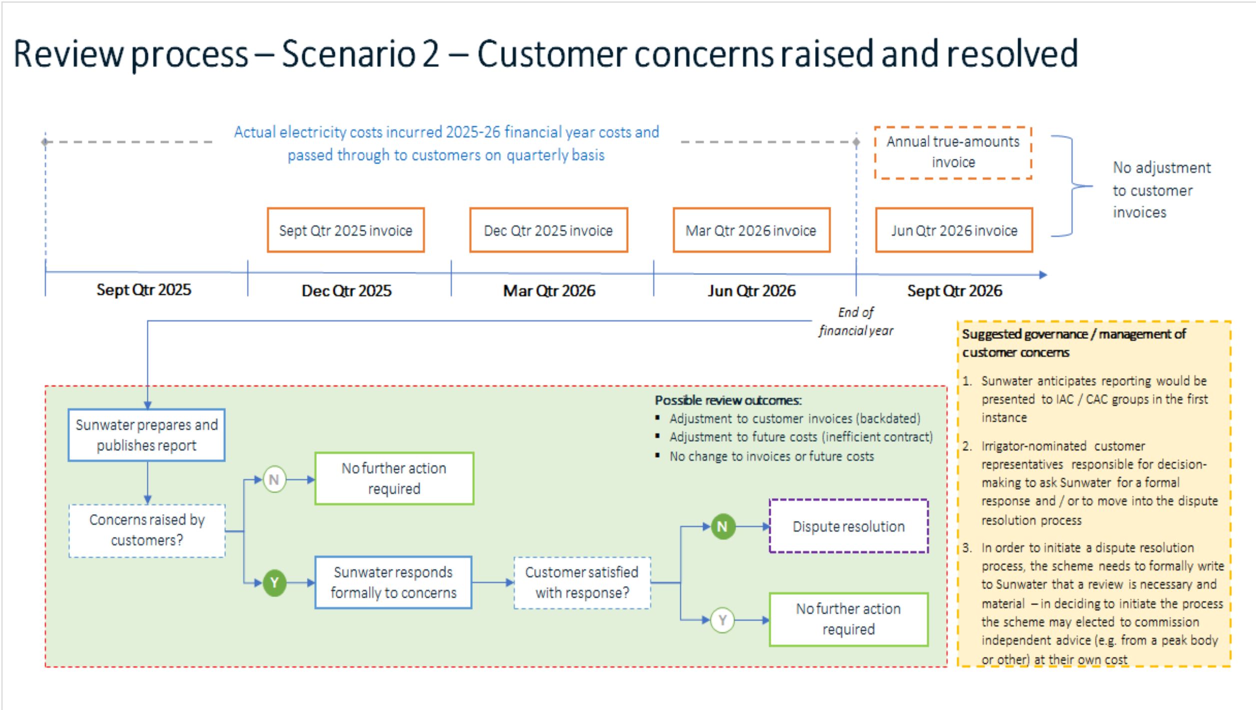
This review process could result in no customer concerns being raised, as illustrated in Scenario 1 in the figure below.

Figure 6 – Proposed review process – Scenario 1 – No customer concerns raised



This review process could result in customer concerns being raised and resolved with no further action taken, as illustrated in Scenario 2 in Figure 7 below.

Figure 7 – Proposed review process – Scenario 2 – Customer concerns raised and resolved



The following table outlines the proposed steps and time limits associated with the dispute resolution process under the proposed ECPT mechanism.

Table 8 – The proposed dispute resolution process under the proposed ECPT mechanism

Description of key elements of proposed dispute resolution process	
(a)	Parties to be defined as Sunwater and Irrigator elected representatives (minimum of 2) of the scheme IACs (Irrigation Advisory Committees) or CACs (Customer Advisory Committees).
(b)	If any dispute arises between the Parties to this agreement the Parties will first attempt to resolve the dispute by negotiation.
(c)	If the dispute is not resolved within 30 business days of the referral of the dispute to the Parties for negotiation, then either Party to the dispute may refer the dispute to mediation. Timeframes may be varied by agreement of the Parties.
(d)	If the dispute is not resolved within 30 business days of mediation, then either Party may refer the dispute to arbitration. Timeframes may be varied by agreement of the Parties.
(e)	The Arbitrator shall be drawn from a list comprising of entities or individuals that are appropriately qualified in mediation/negotiation and independent. The membership of this list can be refreshed from time to time with the mutual agreement of Sunwater and the Queensland Farmers Federation.
(f)	Sunwater's costs associated with the negotiation, mediation and arbitration process will be eligible for recovery through the electricity pass-through charges. Sunwater will bear the upfront cost associated with engaging a mediator/arbitrator. For clarity these costs will be eligible for recovery through the electricity pass-through charges.
(g)	An arbitrated decision will be valid and binding on the Parties.

The following section addresses the specific questions and issues raised by the QCA in their guidance.

(i) What are the key risks associated with material changes in allowable costs outside the control of the business?

While Sunwater is committed to minimising actual electricity costs to the extent that it is prudent and efficient to do so, Sunwater accepts that there is a residual risk that actual electricity costs could increase materially in the future due to events outside of its control, such as unanticipated developments in the wholesale energy market and regulatory decisions made by the Australian Energy Regulator and the Queensland Competition Authority. It is important to note in this regard that Sunwater's exposure to future electricity cost risk in the next price path period is reduced to an extent due to the wholesale energy price applying to electricity use at our large pumping station sites being fixed until 1 January 2029 when the existing WoG electricity supply arrangement expires.

(ii) What are the proposed mechanisms to mitigate these risks, including the rationale for why the proposal reflects an appropriate sharing of risk

Sunwater proposes to introduce an ECPT mechanism (see below for details) in eligible schemes where there is sufficient evidence of broad and informed customer support for doing so. Sunwater believes that the support for this proposal reflects that majority of customers in eligible schemes (except Barker Barambah scheme) that participated in the engagement process:

- have a strong revealed preference to pay no more or less than the actual electricity cost incurred by Sunwater to provide the services that our customers want.
- Believe that the proposed ECPT mechanism will deliver an outcome that better matches their revealed risk preferences compared the current approach, where the QCA sets prices based on a forecast electricity cost allowance for the new price path period, particularly in an environment where there is significant uncertainty over future electricity costs.

Sunwater acknowledges that there is a risk that future developments in the energy market could result in a material and sudden increase in actual electricity costs incurred by Sunwater and it is important that the design of the ECPT mechanism mitigates this risk to the extent that it is economically and equitably desirable to do so. It is for this reason that Sunwater worked closely with customer representatives to include in the design of the proposed ECPT mechanism a robust dispute resolution and review process, supported by comprehensive reporting obligations. These additional design features ensure that customers and their representatives have an effective avenue to raise any concerns that they have in relation to the pass-through of electricity costs under this mechanism and for these concerns to be appropriately considered within a reasonable timeframe. Sunwater envisages that there may be limited circumstances where the full pass-through of actual electricity costs to customers is not justified under the ECPT mechanism.

(iii) justification and supporting information for the proposed expenditure, if proposing to recover costs incurred to manage a particular risk, including the nature and scale of the risk and the reasons the mitigation strategy is prudent and efficient.

Sunwater proposes to absorb the set-up and on-going administration costs associated with the proposed ECPT mechanism. In other words, Sunwater is not seeking to recover these costs from customers in the next price path period.

Irrigation pricing proposal

1 July 2025 to 30 June 2029

Appendix G Strategic Asset Management Plan

Strategic Asset Management Plan

Sunwater Asset Management and Strategic Objectives

QRN:

Revision 7

Creation, Review and Approval

Author	Technical Content Advisor	SME	Regional Planning Manager North	Owner	GM Asset Management
eDMSR:	2787428 -v1 (word) XXXXXXX (pdf)	Effective Date	07/11/2023	Next Review Date	01/11/2024

Document revision history

Revision	Revision Date	Revision Description	Approved By
1	June 2003	Original version	D.Boo GM Asset Management

Responsibilities

Role	Responsible For
Technical Content Advisor	• Prepares the document and facilitates the review cycles, compiling comments and creates final version to be published • Ensures the document aligns with relevant legislation, government policy and/or Sunwater requirements/ strategies/ values
Reviewers	• Review the document according to their area of expertise to evaluate its continuing effectiveness, e.g. achieving its purpose, remains relevant/ current • Confirms the document aligns with relevant legislation, government policy and/or Sunwater requirements/ strategies/ values
Approvers	• Ensures the document has met compliance requirement and approves the final document

Executive summary

Previously, under the *Water Act 2000 (Qld)*, Sunwater was required to prepare a Strategic Asset Management Plan (SAMP) for approval by the regulator for each of its water supply schemes. This requirement was repealed in 2008, however consistent with industry good practice and in alignment with International Organisation for Standardisation (ISO) 55000 asset management standards, we have created a Sunwater-wide SAMP and separate Asset Management Plans (AMP) for Service Contracts on our water supply schemes.

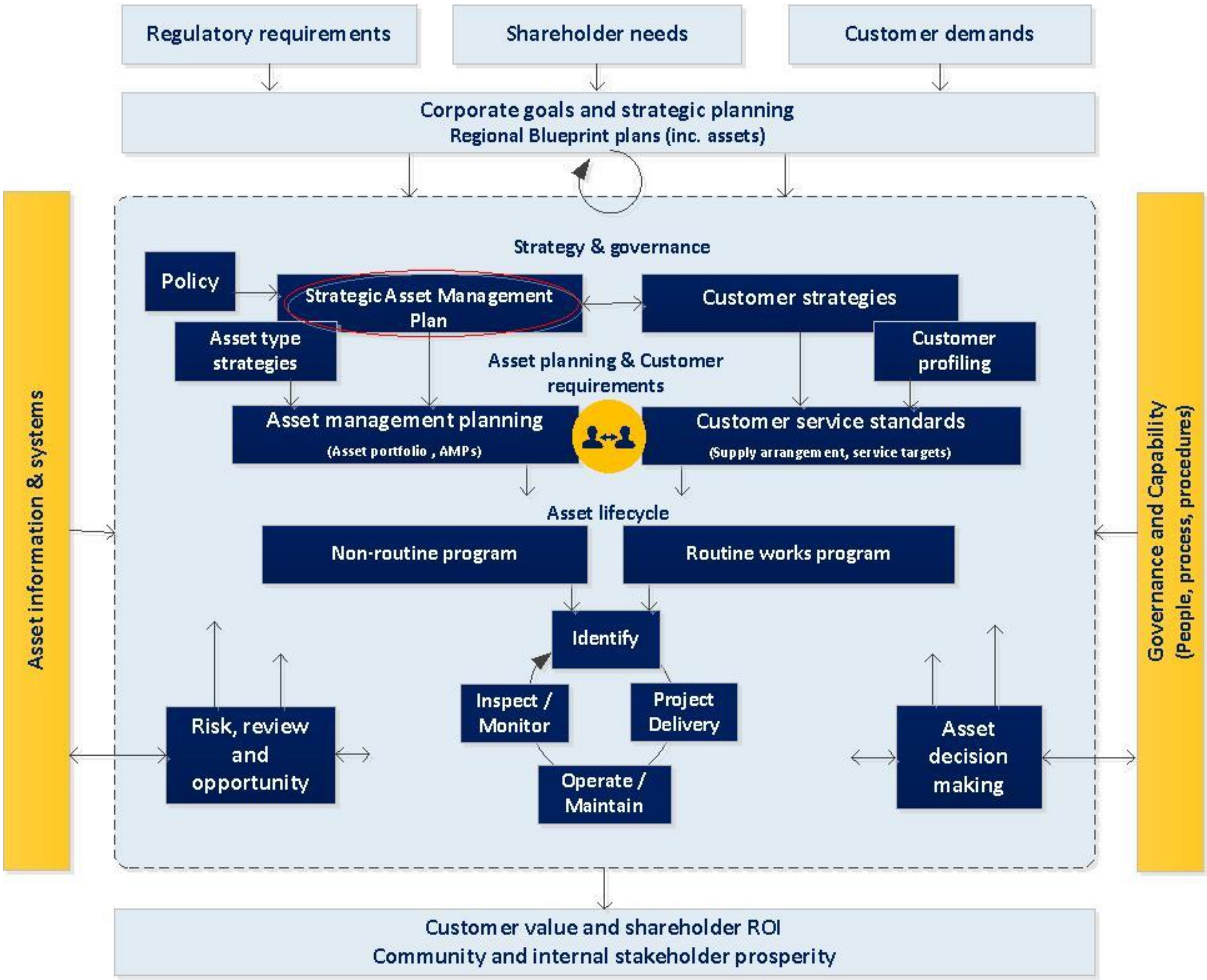
This SAMP document aims to provide asset management objectives, aligned with Sunwater's strategic goals over the 2023/24 to 2028/29 strategic planning horizons, and a framework for asset management in the form of an Asset Management System (Figure 1) which will be used to achieve these objectives.

The SAMP in its current format, applies to assets used directly for the provision of water services and does not apply to non-water assets such as land, office space, plant and equipment, vehicles and housing.

Asset Management System

The Asset Management System (AMS) illustrated below (Figure 1), presents Sunwater's framework for asset management which will be used to achieve our CORP POL 24 AM01 P01 Asset Management Policy (herein referred to as the "*Asset Management Policy*") and asset management objectives. A more detailed explanation of the AMS components is provided in Section 5.

Figure 1 Asset Management System



Key components of the SAMP include the *Asset Management Policy* and asset management objectives which provide high-level governance and strategic direction for the AMS.

Asset Management Policy

The aim of our *Asset Management Policy* is to ensure we manage our assets in a sustainable and commercially focused manner to meet Sunwater's business objectives of safeguarding asset integrity and ensuring optimal service value to our customers.

To do this, we will:

- Manage our assets with a fit-for-purpose mindset, considering customer needs and their future requirements with due consideration for customer engagement and advocacy
- Engage with our customers and stakeholders to define service standards which create value balanced with affordability
- Develop short and long-term financial plans which are informed by a TOTEX approach to ensure our assets achieve desired service standards and acceptable risk levels at the least whole of life cost
- Implement an integrated asset management approach aligned with the requirements of ISO55001
- Monitor the performance of assets against asset management and energy efficiency objectives and strategies
- Manage our assets in compliance with all relevant legislation, regulations, licences, permits, approvals, and authorities
- Manage our assets in an environmentally sustainable manner with due regard to community values and heritage, and strive for a safe, zero harm, working environment
- Manage our assets to ensure we mitigate dam safety risk and meet compliance obligations in accordance with our Dam Safety Policy
- Clearly define accountabilities for the management of assets at all levels within Sunwater and its business partners to support effective outcomes, build asset management capability and foster employee engagement across the business
- Provide effective governance and assurance of our asset management framework across the business
- Ensure energy efficiency is considered in all planning and asset investment decisions
- Continually improve and strengthen our digital strategies to support optimal asset decision making as we transition to a digital engineering environment
- Develop systems and processes which provide reliable and up to date asset data to increase asset knowledge and inform decisions
- Continuously improve, innovate and collaborate with industry to ensure our asset management practices are contemporary and best practice..

Asset management objectives

Sunwater's asset management objectives are aligned with Sunwater's strategic goals and policy statements and will be used to drive asset management strategy in the business:

- Our assets will be managed to provide a safe environment for our workers and the community and we will continuously reduce dam safety risk as soon as practical.
- Our people will be capable and engaged in asset strategy and execution of initiatives with KPI and asset management accountabilities clearly understood by the business.
- Asset opportunities and innovation will be continually assessed and implemented to improve our value offering.
- Our assets will be fit for purpose and optimally managed throughout their lifecycle to deliver customer and shareholder value.
- Our customer needs will be understood and our customers engaged to develop trust in our asset investments and planning decisions.
- We will collaborate and integrate with internal and external stakeholders to strengthen our asset services and value offering.
- We will continually optimise our asset lifecycle and processes to provide efficient delivery of services to customers.
- We will fully leverage asset opportunities and realise value improvement across the asset management value chain.
- We will provide asset management governance and compliance with all relevant legislation, regulation, licences, permits, approvals and authorities.

Asset management roadmap

While this SAMP provides high level asset management objectives, the initiatives to achieve these objectives will be plotted over the 2023/24 to 2028/29 strategic horizons and managed within the business's strategic work programs.

The implementation plan to achieve the asset management objectives is detailed in Section 6.2.

Contents

1. Introduction

1.1. Background

This document is a Sunwater-wide Strategic Asset Management Plan (SAMP) which describes the asset management objectives for the business and describes how the Asset Management System (AMS) will support the achievement of these objectives. The asset management objectives are aligned with the Sunwater's strategic goals and the SAMP will be updated in line with Sunwater's strategic planning horizons.

The Asset Management Plans are separate from the SAMP and provide a six-year outlook of planned asset activities, expenditure drivers, service requirements and forecast expenditure for each Service Contract within our water supply schemes. The AMS processes as defined in the SAMP document will be used to execute the activities in the Asset Management Plans and will be driven by the asset management objectives to ensure the plan is efficient and continually optimised.

1.2. Purpose

The purpose of this document is to:

- Describe our internal and external organisational context.
- Describe the scope of asset management at Sunwater.
- Provide asset management objectives with guiding principles for our asset decision making and improvements to our AMS framework going forward.
- Describe the AMS framework and show how the components interact.
- Describe our implementation plan for the achievement of the asset management objectives using the AMS.
- Describe our improvement plan for the SAMP going forward.

1.3. Audience

This document has been written for the following audiences:

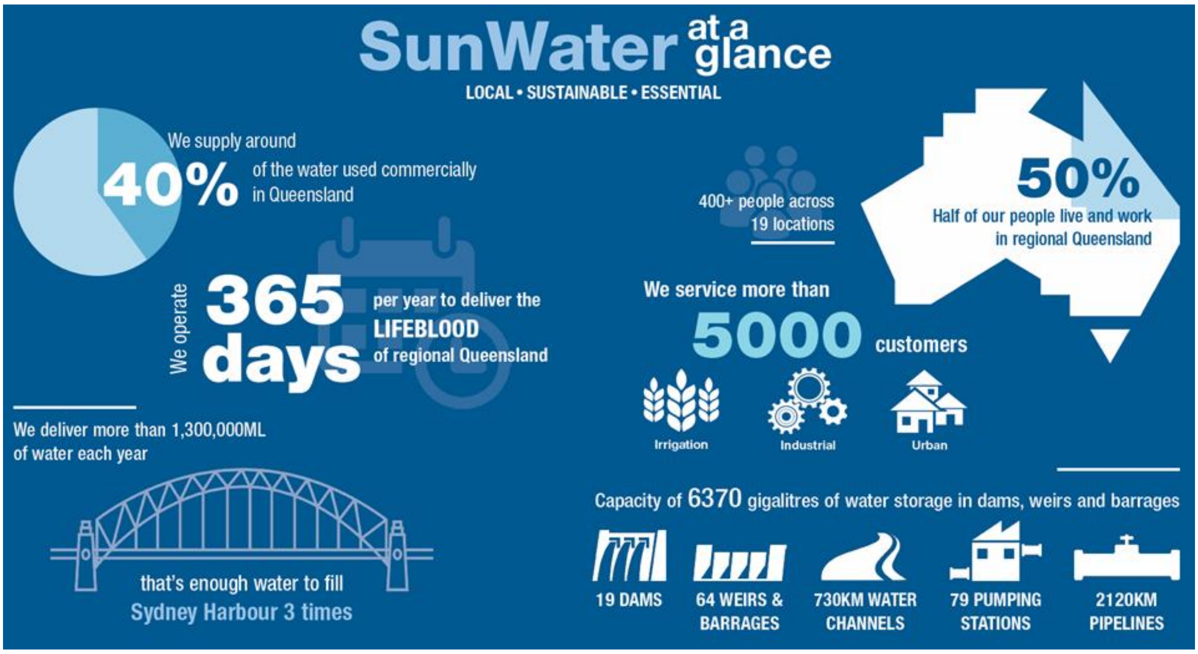
- To our customers – to communicate how our AMS more closely integrates customer strategy with asset management activities and to show how our asset management objectives will work towards achieving a customer value output.
- To our board – to provide confidence in our asset management objectives and their alignment with organisational strategy and to also demonstrate how our AMS framework going forward will meet these objectives.
- To our shareholders – to provide confidence that our asset decision making processes and procedures demonstrate prudency and efficiency and that we have a strong framework for continual improvement.
- To our internal stakeholders – to describe how we will work together within the AMS framework to collaborate and jointly achieve our asset management objectives.

2. Organisational Context

2.1. Sunwater at a glance

Sunwater is Queensland's largest bulk water service provider. We own and manage a network of dams, balancing and off-stream storages, weirs, barrages, pumping stations, pipes, channels and drains that are used to supply bulk water to more than 5000 customers in the agriculture, local government, mining, power and industrial sectors in Queensland. Our water infrastructure assets have an estimated replacement value of around $13 billion and supply approximately 40 per cent of all water used commercially in Queensland.

Figure 2 Sunwater at a glance



2.2. Why do we exist?

Sunwater is one of four bulk water entities owned by the Queensland Government, together with Seqwater (the bulk water service provider for South-East Queensland), the Gladstone Area Water Board and the Mount Isa Area Water Board. Sunwater is established under the *Government Owned Corporations Act 1993 (Qld)* and is a registered water service provider under the *Water Act 2000 (Qld)*.

Queensland's water resource planning and management framework is established in the *Water Act 2000*, including matters such as the allocation of water resources (including surface and groundwater), trading and market arrangements and management of unallocated reserves. Sunwater holds Resource Operating Licences for 23 water supply schemes in Queensland, as listed in Table 1 below.

Table 1 Sunwater operated Water supply schemes

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 • Julius Dam • Lower Fitzroy	• Lower Mary River • Macintyre Brook • Maranoa River • Mareeba-Dimbulah • Nogoa Mackenzie • Pioneer River	• Proserpine River • St George • Three Moon Creek • Upper Burnett • Upper Condamine

2.3. Our dam safety obligations

In Queensland the responsibility for dam safety rests with the dam owner. Sunwater is required to maintain dam safety standards consistent with a suite of requirements including, but not limited to:

- *Water Supply (Safety and Reliability) Act*
- Dam Safety Condition Schedules (per individual referable dam)
- *Queensland Dam Safety Management Guidelines* (October 2020, Queensland Government)
- *Guidelines on Safety Assessments for Referable Dams* (November 2021, Department of Regional Development, Manufacturing and Water (DNRW))
- *Guidelines on Risk Assessment* (2022, ANCOLD).

In 2003, the Bureau of Meteorology issued updated 'probable maximum precipitation' estimates, which had an impact on the calculation of the 'probable maximum flood'. These climate impacts, together with increasing population growth downstream of some dams and changes to national standards (ANCOLD) and state guidelines, mean that some of Sunwater's dams built before 2003 require upgrading to maintain compliance.

The schedule for upgrade of dams is provided in the *Guidelines on Acceptable Flood Capacity for Water Dams*, with the aim that all Queensland dams meet minimum standards by 2035. Sunwater has a *Dam Safety Policy* (*DS00 Referable Structures Safety Policy*) which describes how Sunwater intends to meet its dam safety obligations.

2.4. Economic regulation

As a Government Owned Corporation, Sunwater is required to operate on a commercial basis as far as practicable, consistent with the principles and framework described in the *Government Owned Corporations Act*. Sunwater is also required to comply with directions made by the shareholding Ministers, as reflected in the *Statement of Corporate Intent*.

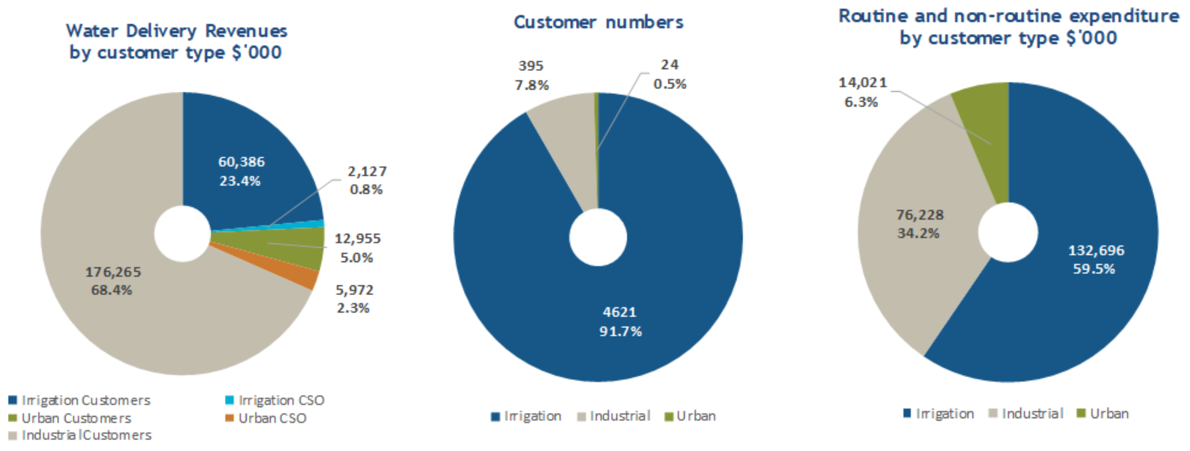
Sunwater's irrigation prices are determined by the shareholding Ministers, based on advice provided by the Queensland Competition Authority (QCA). In advising the government on appropriate irrigation prices, the QCA considers a range of matters including the prudency and efficiency of Sunwater's operating and capital costs. The QCA recommends irrigation prices for 23 Sunwater bulk water supply schemes and four distribution systems[1].

2.5. Our customers

Our extensive network of water supply infrastructure supports mining, power generation, industry, urban development and irrigated agriculture throughout rural and regional Queensland. Irrigation makes up over 90 per cent of our customer base and almost 60 per cent of our costs, but less than a quarter of our revenues, as shown in Figure 3.

[1] Following the 2012 Irrigation Price Review, the Queensland Government began considering in more detail local management of Sunwater's eight distribution systems. At the time of publication of this document, two distribution systems had transitioned to local management arrangements (LMA). The remaining schemes are still going through the process and, at this stage, it is uncertain whether they will proceed to LMA or remain with Sunwater. This needs review, its 4 schemes (St George, Theodore, Emerald and Eton), the process is no longer proceeding on the other four.

Figure 3 Indicative key customer statistics for 2018/19



2.6. Our corporate structure

As a corporation, Sunwater is managed by a Board that is accountable to shareholding Ministers for the attainment of Sunwater's purpose and for ensuring the ongoing performance and sustainability of the company.

The Board appoints the Chief Executive Officer who appoints the Executive Leadership Team responsible for the day –to-day operations of Sunwater, consistent with legislative and contractual requirements, and policies and directives established by the Board.

In addition, Sunwater is a Government Owned Corporation and required to operate in accordance with Queensland agencies such as the *Investment Guidelines for Government Owned Corporations* (2013, Queensland Treasury).

Of particular significance to the development of this SAMP are:

- dam safety requirements described in the *Water Supply (Safety and Reliability) Act 2008 (Qld)*
- Resource Operations Licences
- water resource management arrangements
- economic regulatory framework.

2.7. Our corporate strategies

Sunwater produces a range of corporate and strategic plans and statements, including a five-year Corporate Plan and a one-year Statement of Corporate Intent for our shareholding Ministers (updated annually). Sunwater's Strategic Roadmap, as of October 2018, is presented in Figure 4 below. Our focus is on delivering water for the prosperity of our customers and the community.

Figure 4 Sunwater's Strategic Roadmap

OUR PURPOSE

Delivering water for prosperity

OUR STRATEGIC GOALS

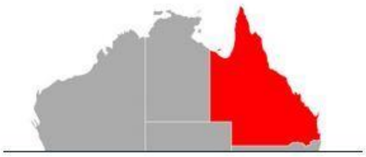
1. Safe and engaged people
2. A sustainable business ("here today and here tomorrow")
3. Stakeholder-centric business
4. Operational Excellence
5. Water Infrastructure Leader

OUR VALUES

VALUE PEOPLE Everyone matters and we are committed to respect and zero harm for our people

WORK TOGETHER We are our best when we work together as one Sunwater and with our customers front of mind

TAKE RESPONSIBILITY We all have a part to play to deliver on our promises and challenge our thinking



OUR STRATEGIC PRIORITIES

1. 2022 – 2025: Optimise our water infrastructure maintenance and operations capability
2. 2025 – 2030: Become the preferred proponent and policy shaper for bulk water supply with relevant industries
3. 2030 +: Be the custodian of Regional Queensland's water system

2.8. Enterprise risk and opportunity assessment

Sunwater's Enterprise Risk Management System is an essential element of corporate governance and supports the establishment, monitoring and maintenance of controls to enable the delivery of our strategic and operational objectives.

2.9. Integration with corporate systems

Sunwater's business operations are supported by a range of business management systems – one of which is the asset management system. The asset management system integrates and aligns with all the key business management systems including:

- *Quality Management (ISO 9001:2015)*
- *Strategic Asset Management (ISO 55001)*
- *Environmental Management (AS/NZS ISO 14001:2004)*
- *Safety Management (AS/NZS 4801:2001)*
- Risk Management Framework
- Dam Safety Management Program (DSMP001).

3. Scope of asset management at Sunwater

3.1. Application of the SAMP

This SAMP applies to:

- Physical assets owned and managed by Sunwater and used directly for the provision of water services.
  - Physical assets owned and managed by Sunwater subsidiary companies and used directly for the provision of water services:Eungella Water Pipeline Pty Ltd
  - North West Queensland Water Pipeline Pty Ltd
  - Burnett Water Pty Ltd.
- All phases of the asset management lifecycle including planning, design, procurement (including acquisition and construction), operation, maintenance (including renewals, refurbishments and replacement), enhancements, monitoring, reporting, decommissioning and disposal.

This SAMP does not apply to:

- The management of assets owned by others that Sunwater maintains and operates under agreed terms and arrangements.
- Non-water assets such as land, office space, plant and equipment, vehicles and housing.

Whilst the SAMP in its current format does not consider non-water assets, future revisions may consider including these assets as part of the asset management strategy.

3.2. Asset base

Sunwater owns and operates the majority of bulk water infrastructure in Queensland, outside of South-East Queensland.

We have an extensive asset base including:

- 22 referable storage structures (19 dams and 3 balancing and off-stream storages)
- 64 weirs and barrages (non-referable structures)
- 79 major pumping stations
- 2120 km pipelines
- 730 km water channels[2]
- 11 small licensed water and sewage treatment plants.

In addition to assets owned directly by Sunwater, Sunwater owns and operates subsidiary facilities as listed below:

- Eungella Water Pipeline Pty Ltd (EWP) – owns and operates a 123 km-long pipeline and associated pumping equipment that transports water from Eungella Dam near Mackay to Moranbah, principally for use by the mining industry. EWP also owns and operates 116 km of eastern and southern spur pipelines that take water from the Eungella Water Pipeline and the Burdekin-Moranbah Pipeline to coal mines and related users in the northern Bowen Basin.
- North West Queensland Water Pipeline Pty Ltd (NWQWP) – owns and operates a 113 km of pipeline and associated pumping equipment that transports water from Lake Julius near Mount Isa to the Ernest Henry Mine and a number of rural users. NWQWP also owns and operates the Cloncurry Pipeline, a 38km extension pipeline from the NWQWP to the township of Cloncurry for domestic and industrial supply.
- Burnett Water Pty Ltd (BW) – owns and operates Paradise Dam and Kirar Weir in the Burnett River catchment and 164,000 ML of water allocations.

3.3. Our services

Our fundamental service to customers is to store and release water to satisfy customer demand. This is subject to the *Water Act 2000 (Qld)*, associated plans and operating licenses and customer water allocations.

Sunwater's services are delivered via Service Contracts associated with each of the Water Supply Schemes. These Service Contracts group assets relate to common services and delivery areas in a Water Supply Scheme and include the following types:

- 23 Bulk Supply Service Contracts[3] – providing bulk water services that store and distribute raw water entitlements to river customers,.
- 4 Irrigation Distribution and Drainage Service Contracts – diverting water from bulk water storage to the customer's own offtake using a network of Sunwater owned pumps, pipes and/or channels. In addition, Sunwater provides drainage services to some Service Contracts.
- 11 Commercial Pipeline Service Contracts – providing raw bulk water delivery to commercial customers throughout regional Queensland.
- 2 Potable water treatment and distribution network Service Contracts – providing potable water treatment services to town water customers; and

[2] Some channels are leased.
[3] Includes Julius Dam

- 2 Hydroelectric generator Service Contracts - providing hydroelectric power generation services.

Standard customer supply contracts include clauses on supply arrangements and the schedule of fees and charges. Sunwater provides information on past and forecast routine and non-routine expenditure to irrigation customers and stakeholders in the form of the annual Service and Performance Plans (SPP's)..

Sunwater provides water delivery, operation and maintenance of infrastructure, and engineering consultancy services to 57 Service Contract areas.

4. Asset management objectives and principles

4.1. Our asset management objectives

The following asset management objectives (Table 2) are aligned with our *Asset Management Policy* and Strategic goals; being achievable and measurable; clearly articulated, understandable and useful. These objectives were developed with consideration of a number of inputs including our strategic business objectives, regulatory obligations, *Statement of Corporate Intent*, risk management framework, relevant corporate policies, and guidance provided in the *ISO 55000* standard series.

Sunwater's asset management objectives will be used to drive asset management strategy in the business and the implementation plan for these objectives is described Section 6.2.

Table 2 Asset management objectives

Sunwater's strategic goals		Asset management objectives
Safe and engaged people	Our success will be measured by our employee engagement and safety metrics aiming to achieve zero harm with our people.	Our assets will be managed to provide a safe environment for our workers and the community, and we will continuously reduce dam safety risk as soon as practical. Our people will be capable and engaged in asset strategy and execution of initiatives with KPI and asset management accountabilities clearly understood by the business
A Sustainable business	Sunwater will safely deliver water for prosperity now and in the future for Queensland. This will be achieved through meeting our customer and communities changing demands, whilst minimising the impact from our activities on the environment, effectively managing our assets and nurturing relationships with all the communities where we operate. We instill good governance principles and will be reliable and resilient in the face of a changing world and during adverse events. We will continue to ensure that	Asset opportunities and innovation will be continually assessed and implemented to improve our value offering. Our assets will be fit for purpose and optimally managed throughout their lifecycle to deliver customer and shareholder value.

Sunwater's strategic goals		Asset management objectives
	Queensland's catchment plans consider the impacts of climate change and provide sustainable water allocation for the environment, agriculture, industries and population centres.	
A stakeholder-centric business	We strive to build relationships with stakeholders based on trust; actively working with our customers, Shareholders and industry groups, and in the communities in which we operate. Minimising the impacts of our operations and projects, and creating opportunities for benefits beyond water delivery, wherever possible, is at the heart of our approach. We acknowledge that we operate on Aboriginal land, and that Aboriginal and Torres Strait Islander peoples are the traditional custodians of this country.	Our customer needs will be understood, and our customers engaged to develop trust in our asset investments and planning decisions. We will collaborate and integrate with internal and external stakeholders to strengthen our asset services and value offering.
Operational excellence	We deliver water for the prosperity of our customers in regional communities. We will execute on our business strategy effectively and consistently by creating a workplace that is exceptional at problem-solving, teamwork and leadership and using contemporary systems, processes and technology. We aim for best practice and fit for purpose asset management and manage our assets in focused manner, to safeguard asset integrity and ensure optimal service value to our customers. This is our core business.	Our asset management will be planned and managed to a life-cycle approach and aligned with best industry practise (e.g., ISO 55001). We will continually optimise our asset lifecycle and processes to provide efficient delivery of services to customers.

Sunwater's strategic goals		Asset management objectives
Water infrastructure leader	Our focus is to successfully plan, design, construct and commission quality bulk water infrastructure solutions that drive economic growth and jobs in regional economies by making the best use of our valuable water resource. We will develop a state-wide bulk water infrastructure development master plan, using best-practice analysis frameworks to establish investment priorities by assessing emerging market drivers and trends to guide investment pathways.	Our asset management strategies and objectives will be aligned with the organisation's infrastructure development master plan. We will fully leverage asset opportunities and realise value improvement across the asset management value chain.
Policy alignment		
Policy and governance	See policy statements	We will provide asset management governance and compliance with all relevant legislation, regulation, licences, permits, approvals and authorities.

4.2. Asset management principles

The asset management principles have been developed to guide asset planning, decision-making, monitoring and improvement programs. The principles were developed with consideration of our policy statements, the *ISO 55000* series and Sunwater strategic information.

- We manage assets to provide value to our customers, stakeholders and shareholders.
- The system for managing assets will be an agreed, clearly articulated framework that underpins achievement of the *Asset Management Policy* and objectives.
- We will improve asset management efficiency through the simplification of processes, where appropriate to do so.
- We understand our assets including their purpose, criticality, capability, performance, condition and history, and operate within these bounds.
- We will collect and store accurate asset data and make it readily available to all those that require access to it.
- We will develop and implement asset plans, initiatives and standards that are required to support achievement of the objectives, in a timely manner.
- We will plan for the management of our asset portfolio over the short, medium and long term, to ensure we can deliver on our service commitments into the future.
- We will consistently manage our assets to have a risk profile that aligns with the Sunwater risk appetite.
- Responsibilities for the management of assets will be clearly allocated at all levels within the business, to appropriately skilled teams.
- The performance of assets and the asset management system will be monitored against objectives to inform future strategies and plans, and aid continuous improvement.
- We support analysis, research and development in asset management related areas that improves our asset management practices and contributes to achievement of our objectives.

- We will service, monitor, maintain and replace assets to ensure the ongoing operational performance and service capacity required to meet service standards.
- Assets will be refurbished through their service lives, as necessary, to extend service lives as long as economically feasible.

5. Asset Management System (AMS)

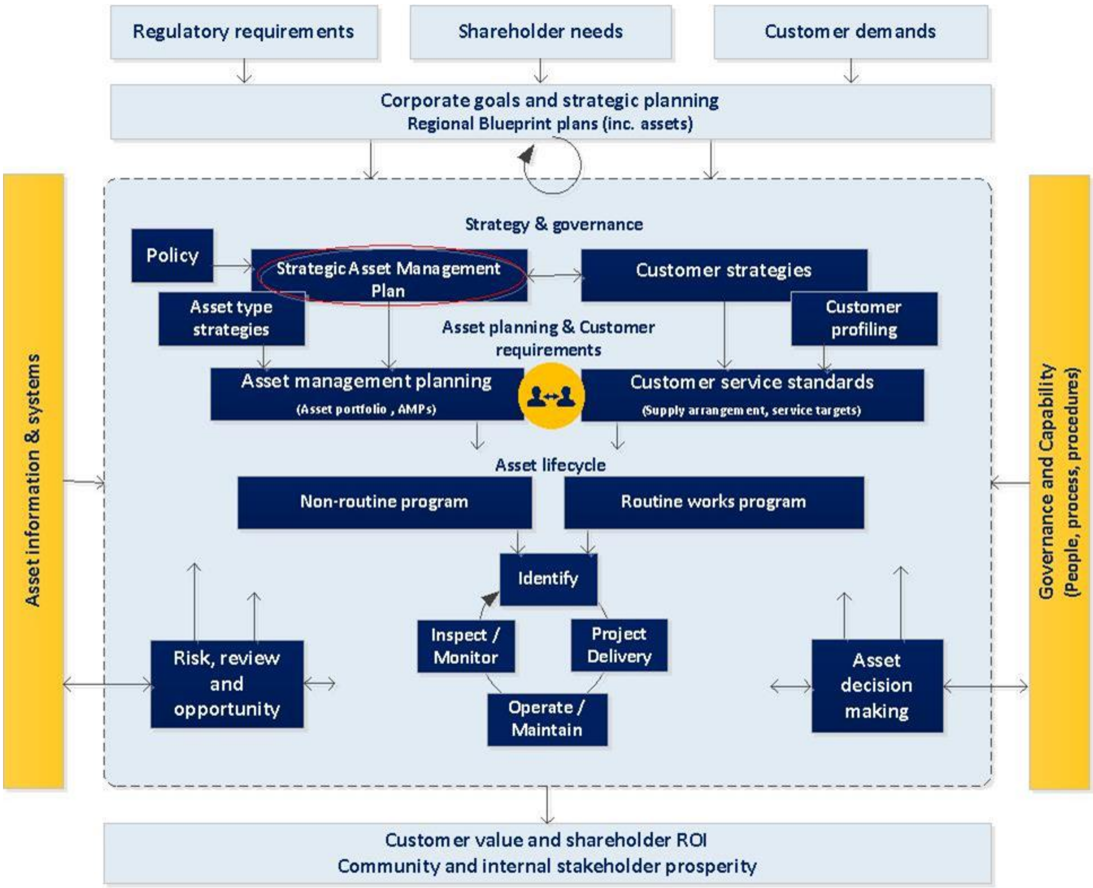
5.1. Overview

Sunwater uses a 'life-cycle' approach to asset management which considers the 'whole-of-life' implications of acquiring, operating, maintaining and disposing of our assets to meet customer service targets.. Our 2023/24 to 2028/29 strategic focus is on customer value and building a regional blueprint to better understand our customer's drivers. This focus will in-turn provide greater input to our asset planning and allow us to proactively prepare our asset plans to align with our customer's objectives and see beyond the original design intent of the infrastructure.

The AMS (Figure 5) provides a structured framework for Sunwater's asset management processes and procedures and is strongly focused on strengthening the alignment between asset planning and and Sunwater's Corporate strategy. The AMS builds on Sunwater's existing processes of asset management, and provides stronger integration with internal business areas that contribute to asset management outcomes, customer value and shareholder return on investment.

The AMS will be used to drive the asset management objectives which will be actioned by initiatives in our strategic work programs.

Figure 5 Asset Management System (AMS)

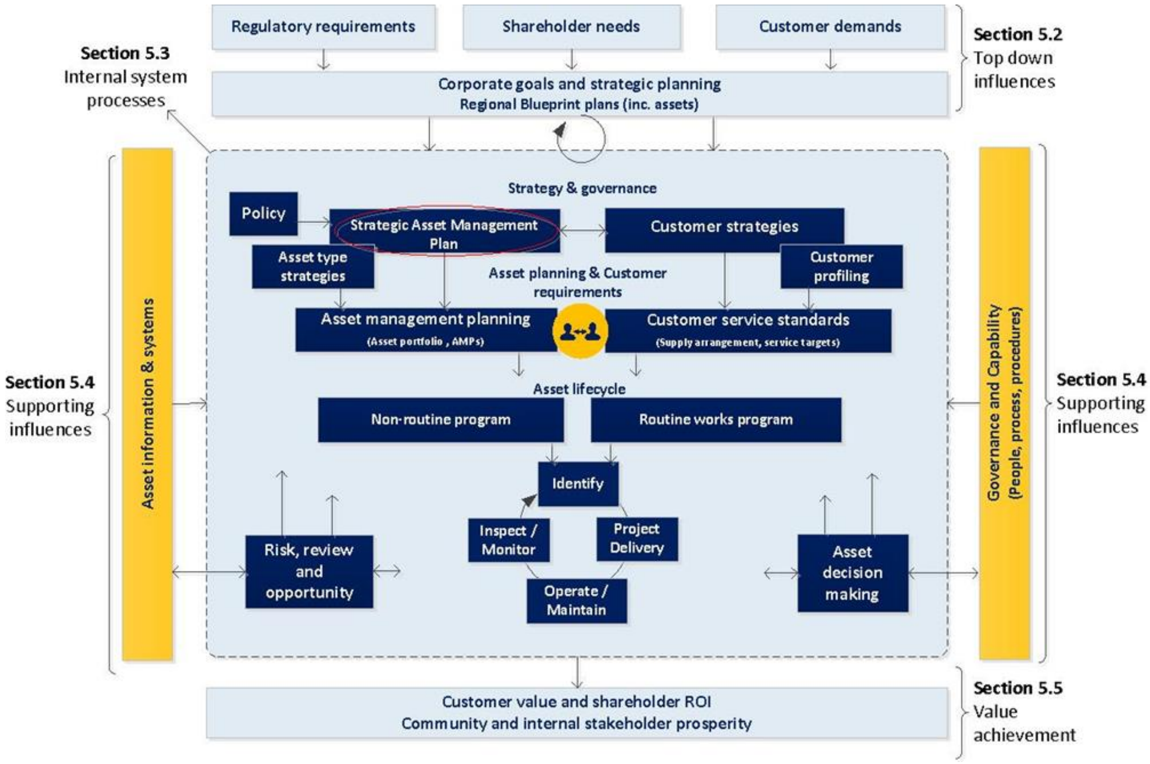


To describe our Sunwater AMS (Figure 5), the framework has been broken into components as listed and illustrated in Figure 6 and further described in detail in the following sections.

The building blocks of the AMS can be described as follows:

- Top down influences (Section 5.2) – represents external stakeholder influences and the creation of corporate plans and strategies used to formulate the asset management objectives.
- Internal system processes (Section 5.3) – represents interconnecting activities internal to the asset management system that execute Sunwater’s asset management processes, lifecycle and objectives.
- Supporting influences (Section 5.4) – represents the business’s internal capability to strengthen and support asset management processes.
- Value achievement (Section 5.5) – represents the targeted end state where asset management activities and objectives have been effectively delivered to provide customer value, shareholder return on investment and community prosperity.

Figure 6 Sections of the AMS



Sections 5 through 5.5 inclusive provide detailed explanations of these system components and the part they play in the AMS framework.

5.2. Top down influences

5.2.1. External stakeholder drivers

As described in Section 2 Organisational Contextt, Sunwater has a unique mix of business drivers that inform the nature of asset management in its business. Key external business drivers include: regulatory compliance and requirements; shareholder needs, and customer demands, which are reflected through into our corporate goals and strategic planning activities.

5.2.2. Corporate goals and strategic planning

Our corporate goals and strategic planning activities are driven by external stakeholder drivers which are captured in documents such as:

- The *Shareholder Mandate and Strategic Expectations* – which provides an understanding of shareholder expectations.
- The *Sunwater Regional Blueprint* – which sets the long-term vision for growth in infrastructure and increased availability of water in regional Queensland.

Our corporate level strategies are captured in documents such as the *Statement of Corporate Intent* and Corporate plans which are reviewed in line with Sunwater's corporate planning cycles, and executed by a strategic program of works over the following strategic horizons:

- FY22-25 horizon – strategic action
- FY25-30 – strategic intent
- FY30+ - strategic vision.

Sunwater's strategic goals (Figure 7), underpin our asset management objectives (Section 14) and drive an aligned strategy at Sunwater.

Figure 7 Sunwater's strategic goals

PURPOSE	DELIVERING WATER FOR PROSPERITY				
5 Strategic Goals	Safe and engaged people	A Sustainable business	A stakeholder-centric business	Operational excellence	Water infrastructure leader

5.3. Internal system processes

Within the AMS, the following internal processes work together to achieve asset management objectives and provide governance in asset decision making and optimal customer value.

5.3.1. Strategy and governance

5.3.1.1. Asset Management Policy

Our *Asset Management Policy* provides governance in our asset management processes and direction in the creation of our asset management strategies and objectives.

5.3.1.2. Strategic Asset Management Plan

The SAMP document contains our asset management objectives which are consistent with our *Asset Management Policy* and corporate strategies. *Asset Management Policy* and asset management objectives remain relatively fixed over the strategic planning horizons, the initiatives and executable strategy will be reviewed in line with ongoing business initiatives and Key Performance Indicators (KPI).

5.3.1.3. Customer strategies

Sunwater's *Regional Blueprint*, along with the *Business Development Strategic Plan* and *Sunwater's Corporate Strategy*, are key strategies going forward. They define Sunwater's relationship with our customers, the services we provide and the expected demand for those services. In addition, these documents identify strategic water solutions to manage future demands and supply constraints. Our customer strategies help direct our long-term asset portfolio direction and strategy.

5.3.1.4. Asset type strategies

Our asset type strategies are constantly evolving to provide fit-for-purpose asset management plans. Asset life is initially assigned by a standard asset 'type' and may be further refined through condition-based decay curves, asset portfolio analyses and individual strategies informed by maintenance history.

The asset strategies provide guidance on the maintenance and replacement activity and frequency which is applied to the whole of life plans for our assets. This will in-turn provide a revised long-term forecast of an optimised asset investment portfolio.

5.3.1.5. Customer profiling

Customer profiling initiatives currently underway with our industrial customers enable us to understand and predict long-term behaviours and support proactive and sustainable facility-based decisions. Opportunities to strengthen the alignment of customer understanding with our asset portfolio decisions is part of our AMS framework improvement strategy.

5.3.2. Asset planning and customer requirements

5.3.2.1. Asset management planning

While the immediate program for the next year's budget is well defined as it is informed with known asset condition and performance data, asset plans become less certain as the program moves further into the planning horizon. Consequently, the medium to long term work program reflects an asset portfolio level view of work effort and focus. The program is informed through asset condition and risk, service history and broader strategic objectives.

Asset Management Plans developed for our water supply scheme Service Contracts provide customers with a five-year snapshot of the program forecasts over the next regulatory period. The plans provide a summary of non-routine items scheduled in each Service Contract. .

5.3.2.2. Customer service standards

Water Supply Arrangement and Service Targets define the scheme level service arrangements between Sunwater and its customers. Sunwater develops Service and Performance Plans (SPP's)for our 26 irrigation Service Contracts which provide a summary of historical routine and non-routine performance, and a five-year forecast of future expenditure and service target[4] .

5.3.2.3. Customer engagement

An important strategic focus for our business in asset planning and service delivery is customer engagement. Our Service and Performance Plans (SPPs)are formed in consultation with customer representative groups during regional engagement meetings. While the plans contain service and cost details applicable to customers, our Asset Management Plans provide an overview of the scheme's asset profile and justification of future works and estimated expenditure required to maintain the scheme customer service standards.

5.3.3. Asset lifecycle

Sunwater's asset lifecycle management incorporates two broad activity types, described as routine works (higher frequency repetitive activities); and non-routine works (lower frequency or one-off refurbishment, replacement, enhancement or new asset activities). The non-routine activities also include emergency works such as flood repairs.

[4] The complete list of service targets is included in each scheme's Water Supply Arrangements and Service Targets document.

5.3.3.1. Non-routine program

Sunwater has developed whole of life strategies around the maintenance and replacement of its asset portfolio which is based on the concept of optimised life-cycle cost. Key inputs to the approach are the risk and condition of each asset. The current condition of an asset informs an prediction of the future work to ensure an asset continues to provide the required level of service, at an acceptable risk. Sunwater maintains a program of asset inspections and condition assessments which updates our knowledge of asset condition. This information feeds into the annual review of the non-routine program and ensures items requiring refurbishment or replacement are prioritised accordingly in the program of works.

The non-routine program is managed by the asset planning group who have a strong regionally-based knowledge of asset condition and riskbased on periodic inspections, condition assessments and support services for each service contract.

5.3.3.2. Routine works program

Sunwater's routine works program includes day-to-day facility operations, environmental management, preventative and minor corrective maintenance, condition monitoring, legislated (Dam Safety) and non-legislated safety inspections. The execution and monitoring of the program is predominately carried out by Sunwater's regional operations centres.

5.3.3.3. Project Delivery

Sunwater's aworks and programs are diverse in scale, scope and complexity. Projects may be capital or expense and delivered through the planned corrective maintenance (PCM) program or as a special purpose (major) projects.

The PCM program encompasses the majority (by number) of non-routine Sunwater projects that generally consist of asset refurbishment, enhancement or replacement works. These works are managed by project delivery teams embedded within the regional operations groups utilising PCM procedures and guidelines. These are:

- *Planned Corrective Maintenance Development Process* (#2819200)
- *Program Delivery Planned Corrective Maintenance Guideline* (#2819202)
- *Program Delivery Planned Corrective Maintenance Procedure* (#2819205).

Projects of 'material' significance to Sunwater utilise the Portfolio, Program and Project Management Framework (P3MF). These works are generally considered 'major projects', and have complexity, cost and risk profiles that suit this management framework and ensures effective delivery of project objectives. .

The P3MF framework typically consists of the project lifecycle phases of initiation, evaluation and definition, execution, closure and benefits realisation.

The benefits of this approach will help provide the following project outcomes:

- Business focussed processes that address the complete lifecycle of opportunities.
- Movement of opportunities through defined and disciplined processes in a series of controlled steps.
- Structured processes for decision making including formal decision review checkpoints or gates at each significant step in the process.
- Clear performance targets discussed and agreed with project stakeholders.
- Emphasis on pragmatic and effective planning and Front-End Loading.
- Timely use of Value Improving Practices (VIPs).

- Independent review as the opportunity moves through gated milestones of project execution and delivery.
- Benefits realisation and learnings reintegrated into future works programs.

Projects delivered under P3MF are predominately undertaken through Sunwater's Infrastructure Development and Delivery group..

5.3.3.4. Operate / maintain

The routine works programs are carried out by the regional operations groups who have a clear understanding of their facilities and the water supply scheme rules. Shutdowns and outages are planned and coordinated by the operations groups in consultation with customers and according to the scheme rules and targets.

5.3.3.5. Inspect / monitor

Sunwater maintains its asset condition information through:

- Periodic condition assessments carried out by engineering or regional staff according to an asset condition assessment schedule.
- Condition monitoring activities carried out on a routine basis by expert service providers.
- Performance analysis using real time tracking to monitor the unplanned downtime and performance KPI for particular assets.

Asset condition information is used to optimise routine and non-routine works programs.

5.4. Supporting influences

Whilst the supporting influences are represented as interfacing with the AMS' internal system processes, they are closely linked to and interact with key internal system processes such as asset decision making and risk, review and governance processes. These interactions provide the: asset governance, risk mitigation, asset optimisation, efficiency and value improvement opportunities that are key to achieving our asset management objectives. These interactions ensure that our asset strategy, planning and asset lifecycle processes are informed and optimised in a way that aims to deliver maximum customer value.

The asset management objectives aim to strengthen the value offering from our asset information and management systems and also our governance and capability from people, process and procedures. Our current strategic initiatives to strengthen our digital strategy, provide asset management and assurance and develop capability and leadership, will help drive the achievement of our asset management objectives.

5.5. Value achievement

In achieving of our asset management objectives through a strong AMS framework , our value achievement objectives can be monitored and improved. Figure 8 shows the measures and values we aim to achieve for our customers, shareholders, community and internal stakeholders.

Figure 8 Sunwater Measures and Values

Strategic Goals	Safe & engaged people	A sustainable business	Stakeholder-centric business	Operational excellence	Water infrastructure leader
Strategic Measures	• % Employee engagement • % Talent retention • % Distinctive capabilities filled	• Supply to Demand ratio • $ Electricity costs / ML pumped water • CO2 emissions / ML delivered water	• Customer net promoter score • Corporate stakeholder net promoter score	• Water delivery reliability • Cost variance • Delivery asset availability %	• % Projects on time & on budget • % Successful project funding applications • % of QLD water yield managed by Sunwater

Values
The foundation of how we deliver for our customers

VALUE PEOPLE

TAKE RESPONSIBILITY

WORK TOGETHER

6. Implementation and monitoring

To establish the AMS and to provide an implementation plan for the achievement of the asset management objectives, the roles and responsibilities within the AMS framework have been established and an implementation plan provided describing how the AMS will achieve the asset management objectives.

6.1. Roles and responsibilities

Sunwater Operations are organised into regions that locate our staff as close as practicable to our customers and assets while maintaining efficiencies. The four operating regions are North, Central, South, and Burnett and Lower Mary. These regional locations are supported by centralised head office services for asset planning and asset strategy.

Within the context of the AMS, clearly defined roles and responsibilities are essential to the achievement of objectives and the translation of these into asset management objectives. Within the AMS the roles and responsibilities which are applicable are described Table 3.

Table 3 Roles and responsibilities applicable within the AMS

Role	Core Asset-Related Responsibilities
The Board	• Endorse corporate vision, strategy and values • Set risk appetite within parameters set by shareholder • Provide guidance regarding risk appetite
CEO / Executive Leadership Team	• Set vision and purpose in accordance with company objectives and purpose • Develop Strategy, Corporate Plan and Statement of Corporate Intent • Monitor progress of strategy implementation • Advise board on risk impacts to enable setting of risk appetite • Approve policies in accordance with Government Owned Corporations policies and requirements and other compliance obligations • Approve operation and capital expenditure annual budgets, monitor budgets • Develop and implement stakeholder engagement strategy
General Manager Asset Management	• Develop and implement *Asset Management Policy* • Prepare and manage the *Strategic Asset Management Plan* • Ensure asset standards are established and documented • Maintain and improve the asset management suite of Methodologies • Provide governance oversight and assurance for implementation of the Asset Management System • Prepare and implement an Asset Management Improvement program • Prepare and manage the individual asset management plans • Manage the Asset Portfolio Investment Program • • Perform asset condition and risk assessments • Undertake asset performance assessments • Develop and implement routine maintenance plans • Establish and maintain asset information • Work with Operations to define the renewals program objectives, scope, customer impacts, constraints and budgets (P&IDs)

Role	Core Asset-Related Responsibilities
General Manager Operations (by Region)	• Manage the non-routine program execution • ~~Prepare detailed program/project business cases~~ • Ensure renewals program aligns with established Asset Management Plans • Develop fit-for-purpose renewals project solutions that achieve Sunwater's strategic asset management and business objectives • Engage with customers regarding asset planning • Ensure maintenance costs are justified and supported by pricing frameworks • ~~Deliver the renewals works program within budgetary and business parameters~~ •
Chief Development Officer	• Initiate, plan, deliver and closeout the Major Projects program of works in accordance with all agreed project specific metrics • Delivery, closure and operationalisation
General Manager Engineering Services	• Establish technical services support frameworks across the business • Manage technical assurance and skills including governance/review capability (including Registered Professional Engineer Queensland (RPEQ) supervision) to support infrastructure and asset management • Develop and further establish engineering standards frameworks • Continue development of technical drawing standards across the business
General Manager Asset Integrity	• Manage Dam Improvement Program (DIP) • Dam Safety Management Program (portfolio risk assessment, comprehensive risk assessment, 20-year dam safety reviews) • Dam safety technical decision-making
General Manager Stakeholder Relations	• Create customer strategies • Create the *Regional Blueprint* for long term customer strategies

6.2. Implementation plan

An implementation plan defining the means by which the AMS will achieve the asset management objectives has been provided in the table below, as a mechanism to connect to the initiatives within our strategic programs for work iand execute the objectives.

The initiatives aligned to this plan will be planned across Sunwater's strategic horizons and monitored as part of the Key Performance Indicator (KPI) performance review process (Table 4). New initiatives will be added, as required, to achieve these objectives.

Table 4 Initiatives to achieve the Strategic Asset Management Objectives

Sunwater's strategic goals		Asset management objectives	Our AMS will provide:
A safe high-performance culture	'Act on it' safety mindset	Our assets will be managed to provide a safe environment for our workers and the community, and we will continuously reduce dam safety risk as soon as practical	• procedures in place for management of high-risk assets • strong culture of dam safety management and compliance

Sunwater's strategic goals		Asset management objectives	Our AMS will provide:
			• safe work procedures for high-risk assets • assets designed with a safety mindset.
	Our people deliver results, and are engaged and capable	Our people will be capable and engaged in asset strategy and execution of initiatives with KPI and asset management accountabilities clearly understood by the business	• asset strategy linked to business goals • KPI's and targets clearly communicated by line managers • asset management capability developed across asset management roles • responsibilities and accountabilities clearly understood within business units.
A sustainable business	Innovation and business improvement focus	Asset opportunities and innovation will be continually assessed and implemented to improve our value offering	• continual improvement in our digital strategies and information management capabilities • governance and continual review and improvement of our processes and procedures • our strategic initiatives connected across the business
	Assets and resources optimised	Our assets will be fit for purpose and optimally managed throughout their lifecycle to deliver customer and shareholder value.	• asset lifecycle integrated across project and program planning • continual feedback of condition and risk information to optimise asset maintenance and service delivery.
Supportive stakeholders	Our customers value us	Our customer needs will be understood and our customers engaged to develop trust in our asset investments and planning decisions	• stronger alignment with customer strategy in asset management strategy and planning • customer profiling and demand understood and used to optimise asset type strategies • communication strategies created for customers to achieve engagement, transparency and trust.
	We collaborate with all stakeholders	We will collaborate and integrate with internal and external stakeholders to strengthen our asset services and value offering.	• stakeholder engagement in operational issues such as shutdown planning • customer engagement in service and non-routine program delivery

Sunwater's strategic goals		Asset management objectives	Our AMS will provide:
			• leverage strategic initiatives across the business to achieve improvement asset management outcomes.
Commercially focused operations	Efficient service delivery to our customers	We will continually optimise our asset lifecycle and processes to provide efficient delivery of services to customers	• asset strategies continually revised to meet customer service requirements • options studies leveraged and informing future plans • energy efficient strategies in new and existing assets • efficient routine and non-routine planning and execution.
	Value improvement focused	We will fully leverage asset opportunities and realise value improvement across the asset management value chain	• opportunities and partnerships explored to improve value offering • assess and implement value adding opportunities across the asset lifecycle.
Policy alignment			
Policy and governance	See policy statements	We will provide asset management governance and compliance with all relevant legislation, regulation, licences, permits, approvals and authorities	• asset governance and assurance in effective and efficient policies and procedures • safety and legislation considered in our procedures and work instructions • engineering standards maintained and design / review / signoffs undertaken by qualified personnel • strong dam safety management program.

6.3. Monitoring

Due to the overall strategic alignment of the asset management objectives with Sunwater's strategic goals and work programs, the initiatives within these programs will be leveraged to strengthen the establishment of the AMS framework across Sunwater and to monitor the achievement of the asset management objectives by establishing a series of improvement KPI's.

In addition to this, the maturity of the AMS will be benchmarked and assessed using the *Self-Assessment Methodology* for *ISO 55000*; which reviews the asset management maturity of a business against an established set of asset management standards provided in the *ISO 55000*, standard of asset management.

Sunwater has a well-established framework for measuring KPI and monitoring progress against defined targets. Monitoring and improvement activities against this SAMP and other aspects of the Asset Management System will be integrated with the existing KPI framework, using the existing approach and methodologies.

7. Related legislation and documents

Table 5 Associated Documents

Sunwater references	Legislation, Standards and other references
• AM01 P01 Asset Management Policy • Planned Corrective Maintenance Development Process (#2819200) • Program Delivery Planned Corrective Maintenance Guideline (#2819202) • Program Delivery Planned Corrective Maintenance Procedure (#2819205) • AM31 Asset Performance Monitoring and Measurement • AM21 Asset Refurbishment Planning – Methodology for Condition Assessments of Assets • Corporate Plan • DSMP001Dam Safety Management Program Procedure • DS00 Referable Structures Safety Policy • Environmental Policy • Fees and Charges Schedule • Guide to SAP PM Asset Hierarchy Development • Methodology for Risk Assessment of Infrastructure Assets • Non-Routine Works delivery Methodology • Options Analysis Guidelines – Non-Regulatory Period • AM 11 G4 Options Analysis Guidelines Regulatory Period • Procedure Map – Asset Strategy and Development • Business Management (Quality) Policy • Enterprise Risk Management Policy • Risk Management Framework • Routine Works Planning and Delivery Methodology • Statement of Corporate Intent • Sunwater Dam Improvement Plan • Supply Contract Standard Conditions • Water Supply Arrangements and Service Targets • Work Health, Safety and Well-Being Policy • Shareholder Mandate and Strategic Expectations • Sunwater Regional Blueprint • Business Development Strategic Plan • Customer Strategy • Asset Management System Manual • Regional Blueprint	• Government Owned Corporations Act 1993 (Qld) • Water Act 2000 (Qld) • Water Supply (Safety and Reliability) Act • Queensland Dam Safety Management Guidelines (October 2020, Qld Government) • Guidelines on Safety Assessments for Referable Dams (November 2021, Department of Regional Development, Manufacturing and Water (DNRW)) • Guidelines on Risk Assessment (2022, ANCOLD) • Statement of Corporate Intent • the Guidelines on Acceptable Flood Capacity for Water Dams • Investment Guidelines for Government Owned Corporations (2013, Queensland Treasury and Trade) • Water Supply (Safety and Reliability) Act 2008 (Qld) • Quality Management (ISO 9001:2015) • Strategic Asset Management (ISO 55001) • Environmental Management (AS/NZS ISO 14001:2004) • Safety Management (AS/NZS 4801:2001)

8. Definitions

Table 6 Acronyms and abbreviations

Acronym / abbreviation	Explanation
AM	Asset Management
AMP	Asset Management Plan
AMS	Asset Management System
ANCOLD	Australian National Committee on Large Dams
BW	Burnett Water Pty Ltd
DIS	Drawing Information System
DIP	Dam Improvement Program
DSMP	Dam Safety Management Program
EAP	Emergency Action Plan
ERP	Enterprise Resource Planning
EWP	Eungella Water Pipeline Pty Ltd
GIS	Geographical Information System
GOC	Government Owned Corporation
ISO	International Organization of Standardization
KPI	Key Performance Indicator
NSP	Network Service Plan
NWQWP	North West Queensland Water Pipeline Pty Ltd
OEM	Original Equipment Manufacturer
P3MF	Program and Portfolio Management Framework
PCM	Planned Corrective Maintenance
QCA	Queensland Competition Authority
ROL	Resource Operations Licence
RPEQ	Registered Professional Engineer Queensland
SAMP	Strategic Asset Management Plan
SAP PM	SAP Plant Management

Acronym / abbreviation	Explanation
SCADA	Supervisory Control and Data Acquisition
SCI	Statement of Corporate Intent
SWIMS	Sunwater Information Management System
WHS	Workplace Health and Safety

Table 7 Glossary of Terms

Defined Term	Explanation
Asset	An item, thing or entity that has potential or actual value to an organisation and is realised by a balancing of costs, risk, opportunities and performance. Value can be tangible or intangible, financial or non-financial, and includes consideration of risks and liabilities. It can be positive or negative at different stages of the asset life. Physical assets usually refer to equipment, inventory and properties owned by the organisation. Physical assets are the opposite of intangible assets, which are non-physical assets such as leases, brands, digital assets, use rights, licences, intellectual property rights, reputation or agreements. A grouping of assets referred to as an asset system could also be considered as an asset. (AS ISO55000:2014)
Asset Hierarchy	The structure within an asset register that establishes the dependency or interrelationship of functional locations and equipment for the purpose of effective asset management. (A Guide to SAP PM Asset Hierarchy Development - AM40_G3)
Asset Integrity	A standard of operating that aims to protect equipment, health, safety and environment. It applies to all stages of the equipment life cycle. (Inspectioneering 2018, 'Overview of Asset Integrity Management', <https://inspectioneering.com/tag/asset+integrity+management>)
Asset Life	The period from asset creation to asset end-of-life. (AS ISO55000:2014)
Asset Management	A coordinated activity of an organisation to realise value from assets. Activity can also refer to the application of the elements of the asset management system, the approach, the planning, the plans and their implementation. (AS ISO55000:2014)
AMP	Asset Management Plan Documented information that specifies the activities, resources and timescales required for an individual asset, or a grouping of assets, to achieve the organisation's asset management objectives. The grouping of assets may be by asset type, asset class, asset system or asset portfolio. An asset management plan is derived from the strategic asset management plan and may be contained in, or be a subsidiary plan of the strategic asset management plan. (AS ISO55000:2014)
Asset Management Policy	The principles and mandated requirements derived from and consistent with the organisational/corporate plan, providing a framework for the development and implementation of the asset management strategic plan and the setting of the asset management objectives. (Global Forum on Maintenance and Asset Management 2014, 'The Asset Management Landscape: second edition', available at: http://www.gfmam.org/publications.html).

Defined Term	Explanation
Asset Management Strategy	The strategic plan for the management of the assets of an organisation that will be used to achieve the organisational/corporate objectives. Long-term approach to management of the physical assets. Includes a set of strategic statements that describe current and future service levels the organisation is planning to deliver and current and future asset management capabilities that the organisation needs in order to sustainably deliver these outcomes. (Global Forum on Maintenance and Asset Management 2014, 'The Asset Management Landscape: second edition', available at: http://www.gfmam.org/publications.html)
Asset Management System	This is a management system for asset management whose function is to establish the Asset Management Policy and asset management objectives. It is a subset of asset management (AS ISO55000:2014).
Asset Type	The grouping of assets having common characteristics that distinguish those assets as a group or class. For example: physical assets, information assets, intangible assets, critical assets, enabling assets, linear assets, information and communications technology assets, infrastructure assets, moveable assets. (AS ISO55000:2014)
Life Cycle	The stages involved in the management of an asset. The naming and number of the stages and the activities under each stage usually vary in different industry sectors and are determined by the organisation. (AS ISO55000:2014)
Maintenance Policy	A set of organisational rules that define the thresholds and basis for making decisions about the activities required to conserve the service potential of an asset without extending its life. (Victoria State Government 2017, 'Asset management Accountability Framework', Department of Treasury and Finance, Melbourne)
Monitoring	Determining the status of a system, a process or an activity. (AS ISO55000:2014)
Objective	Result to be achieved. An objective can be strategic, tactical or operational. They can relate to different disciplines (health and safety, environmental goals) and can apply at different levels (such as strategic, organisation-wide, project, process). An objective can be expressed in other ways, e.g. as an intended outcome, a purpose, an operational criterion, an asset management objective or by the use of other words with similar meaning. In the context of asset management systems, asset management objectives are set by the organisation, consistent with the organisational objectives and Asset Management Policy to achieve specific measurable results. (AS ISO55000:2014)
Organisational Objective	Overarching objectives that set the context and direction for an organisation's activities. Organisational objectives are established through the strategic level planning activities of the organisation. (AS ISO55000:2014)
P3MF	The Project, Program and Portfolio Management Framework (P3MF) is the integrated delivery, governance and assurance methodology used to enable successful delivery of initiatives and projects across Sunwater's Enterprise Investment Portfolio.
Policy	Iintentions and direction of an organisation as formally expressed by its top management. (AS ISO55000:2014)
Risk	The effect of uncertainty on objectives. An effect is a deviation from the expected and can be either positive or negative. Risk is often characterised by reference to potential 'events' and 'consequences', or a combination of these. (AS ISO55000:2014)

Defined Term	Explanation
Risk Management	The coordinated activities to direct and control an organisation with regard to risk. (Victoria State Government 2017, 'Asset management Accountability Framework', Department of Treasury and Finance, Melbourne)
Service Contract	Service Contracts are specific to a particular service type and represent 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 area may include a dam, associated weirs, water accounting services, and a range of operational and maintenance services for customers in that area.
Stakeholder	A person or organisation that can affect, be affected by, or perceive themselves to be affected by a decision or activity. (AS ISO55000:2014)
Strategic Asset Management Plan	Documented information that specifies how organisational objectives are to be converted into asset management objectives, the approach for developing asset management plans and the role of the asset management system in supporting achievement of the asset management objectives (AS ISO55000:2014)
Sustainable Asset Management	The amount and timing of investment in resources and systems necessary to make sure our assets can make the social, economic and environmental contribution that we need or want at the least cost, risk and impact in a sound governance and decision-making framework (Waverly Council 2013, 'Strategic Asset Management Plan4')

9. Approval and review details

Owner:	General Manager Asset Management	Issue Date:	November 2023
SME:	Regional Planning Managers	Next Revision Date:	November 2025

Irrigation pricing proposal

1 July 2025 to 30 June 2029

Appendix G Strategic Asset Management Plan

Strategic Asset Management Plan

Sunwater Asset Management and Strategic Objectives

QRN:

Revision 7

Creation, Review and Approval

Author	Technical Content Advisor	SME	Regional Planning Manager North	Owner	GM Asset Management
eDMSR:	2787428 -v1 (word) XXXXXXX (pdf)	Effective Date	07/11/2023	Next Review Date	01/11/2024

Document revision history

Revision	Revision Date	Revision Description	Approved By
1	June 2003	Original version	D.Boo GM Asset Management

Responsibilities

Role	Responsible For
Technical Content Advisor	• Prepares the document and facilitates the review cycles, compiling comments and creates final version to be published • Ensures the document aligns with relevant legislation, government policy and/or Sunwater requirements/ strategies/ values
Reviewers	• Review the document according to their area of expertise to evaluate its continuing effectiveness, e.g. achieving its purpose, remains relevant/ current • Confirms the document aligns with relevant legislation, government policy and/or Sunwater requirements/ strategies/ values
Approvers	• Ensures the document has met compliance requirement and approves the final document

Executive summary

Previously, under the *Water Act 2000 (Qld)*, Sunwater was required to prepare a Strategic Asset Management Plan (SAMP) for approval by the regulator for each of its water supply schemes. This requirement was repealed in 2008, however consistent with industry good practice and in alignment with International Organisation for Standardisation (ISO) 55000 asset management standards, we have created a Sunwater-wide SAMP and separate Asset Management Plans (AMP) for Service Contracts on our water supply schemes.

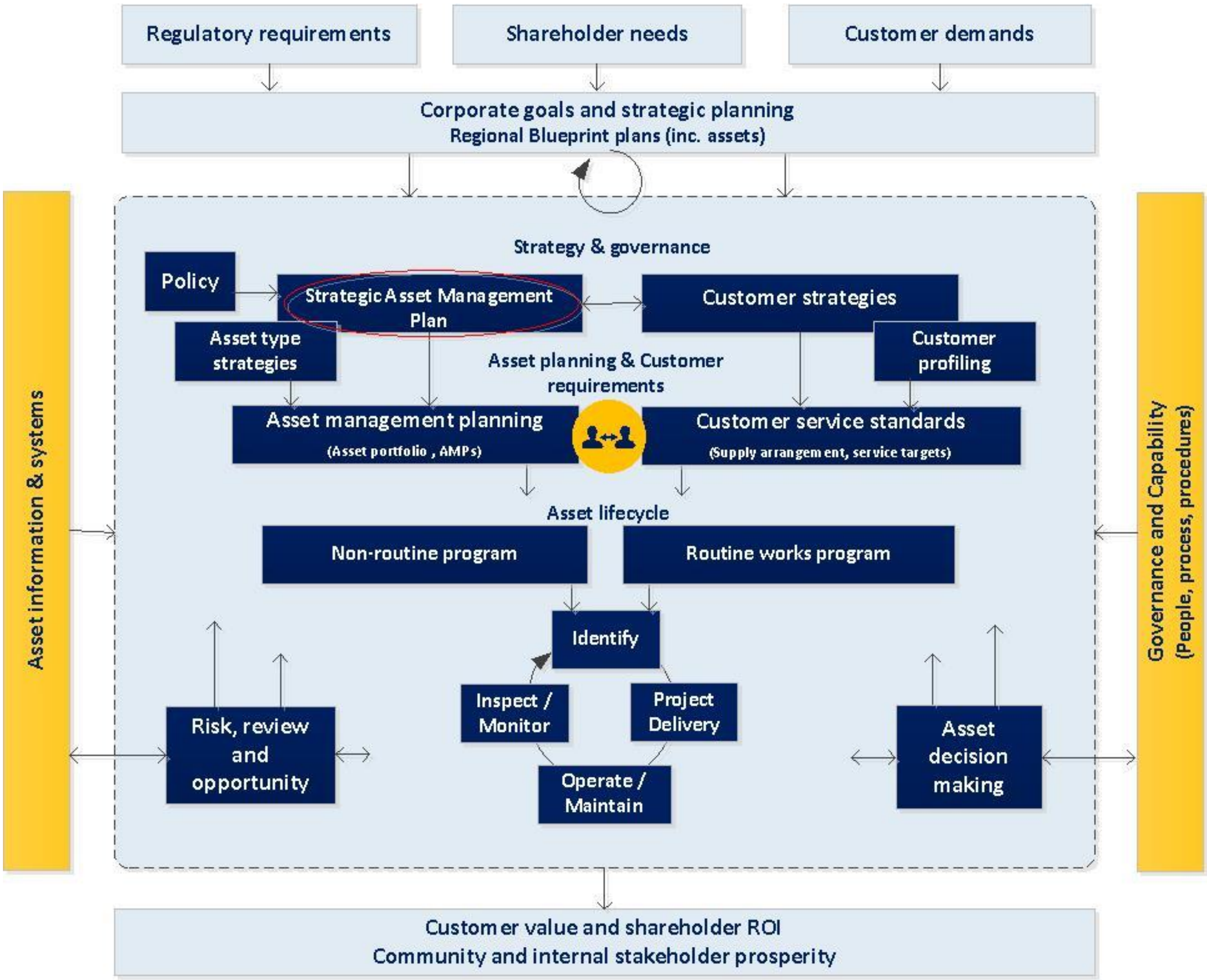
This SAMP document aims to provide asset management objectives, aligned with Sunwater's strategic goals over the 2023/24 to 2028/29 strategic planning horizons, and a framework for asset management in the form of an Asset Management System (Figure 1) which will be used to achieve these objectives.

The SAMP in its current format, applies to assets used directly for the provision of water services and does not apply to non-water assets such as land, office space, plant and equipment, vehicles and housing.

Asset Management System

The Asset Management System (AMS) illustrated below (Figure 1), presents Sunwater's framework for asset management which will be used to achieve our CORP POL 24 AM01 P01 Asset Management Policy (herein referred to as the "*Asset Management Policy*") and asset management objectives. A more detailed explanation of the AMS components is provided in Section 5.

Figure 1 Asset Management System



Key components of the SAMP include the *Asset Management Policy* and asset management objectives which provide high-level governance and strategic direction for the AMS.

Asset Management Policy

The aim of our *Asset Management Policy* is to ensure we manage our assets in a sustainable and commercially focused manner to meet Sunwater's business objectives of safeguarding asset integrity and ensuring optimal service value to our customers.

To do this, we will:

- Manage our assets with a fit-for-purpose mindset, considering customer needs and their future requirements with due consideration for customer engagement and advocacy
- Engage with our customers and stakeholders to define service standards which create value balanced with affordability
- Develop short and long-term financial plans which are informed by a TOTEX approach to ensure our assets achieve desired service standards and acceptable risk levels at the least whole of life cost
- Implement an integrated asset management approach aligned with the requirements of ISO55001
- Monitor the performance of assets against asset management and energy efficiency objectives and strategies
- Manage our assets in compliance with all relevant legislation, regulations, licences, permits, approvals, and authorities
- Manage our assets in an environmentally sustainable manner with due regard to community values and heritage, and strive for a safe, zero harm, working environment
- Manage our assets to ensure we mitigate dam safety risk and meet compliance obligations in accordance with our Dam Safety Policy
- Clearly define accountabilities for the management of assets at all levels within Sunwater and its business partners to support effective outcomes, build asset management capability and foster employee engagement across the business
- Provide effective governance and assurance of our asset management framework across the business
- Ensure energy efficiency is considered in all planning and asset investment decisions
- Continually improve and strengthen our digital strategies to support optimal asset decision making as we transition to a digital engineering environment
- Develop systems and processes which provide reliable and up to date asset data to increase asset knowledge and inform decisions
- Continuously improve, innovate and collaborate with industry to ensure our asset management practices are contemporary and best practice..

Asset management objectives

Sunwater’s asset management objectives are aligned with Sunwater’s strategic goals and policy statements and will be used to drive asset management strategy in the business:

- Our assets will be managed to provide a safe environment for our workers and the community and we will continuously reduce dam safety risk as soon as practical.
- Our people will be capable and engaged in asset strategy and execution of initiatives with KPI and asset management accountabilities clearly understood by the business.
- Asset opportunities and innovation will be continually assessed and implemented to improve our value offering.
- Our assets will be fit for purpose and optimally managed throughout their lifecycle to deliver customer and shareholder value.
- Our customer needs will be understood and our customers engaged to develop trust in our asset investments and planning decisions.
- We will collaborate and integrate with internal and external stakeholders to strengthen our asset services and value offering.
- We will continually optimise our asset lifecycle and processes to provide efficient delivery of services to customers.
- We will fully leverage asset opportunities and realise value improvement across the asset management value chain.
- We will provide asset management governance and compliance with all relevant legislation, regulation, licences, permits, approvals and authorities.

Asset management roadmap

While this SAMP provides high level asset management objectives, the initiatives to achieve these objectives will be plotted over the 2023/24 to 2028/29 strategic horizons and managed within the business’s strategic work programs.

The implementation plan to achieve the asset management objectives is detailed in Section 6.2.

Contents

1. Introduction

1.1. Background

This document is a Sunwater-wide Strategic Asset Management Plan (SAMP) which describes the asset management objectives for the business and describes how the Asset Management System (AMS) will support the achievement of these objectives. The asset management objectives are aligned with the Sunwater's strategic goals and the SAMP will be updated in line with Sunwater's strategic planning horizons.

The Asset Management Plans are separate from the SAMP and provide a six-year outlook of planned asset activities, expenditure drivers, service requirements and forecast expenditure for each Service Contract within our water supply schemes. The AMS processes as defined in the SAMP document will be used to execute the activities in the Asset Management Plans and will be driven by the asset management objectives to ensure the plan is efficient and continually optimised.

1.2. Purpose

The purpose of this document is to:

- Describe our internal and external organisational context.
- Describe the scope of asset management at Sunwater.
- Provide asset management objectives with guiding principles for our asset decision making and improvements to our AMS framework going forward.
- Describe the AMS framework and show how the components interact.
- Describe our implementation plan for the achievement of the asset management objectives using the AMS.
- Describe our improvement plan for the SAMP going forward.

1.3. Audience

This document has been written for the following audiences:

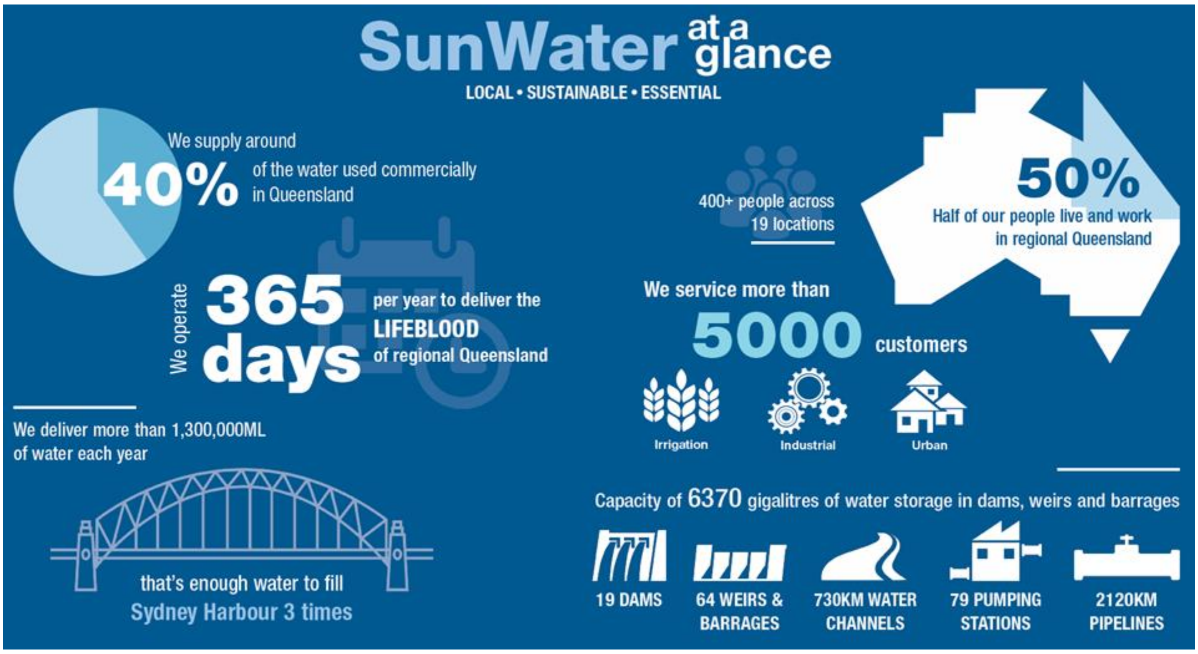
- To our customers – to communicate how our AMS more closely integrates customer strategy with asset management activities and to show how our asset management objectives will work towards achieving a customer value output.
- To our board – to provide confidence in our asset management objectives and their alignment with organisational strategy and to also demonstrate how our AMS framework going forward will meet these objectives.
- To our shareholders – to provide confidence that our asset decision making processes and procedures demonstrate prudency and efficiency and that we have a strong framework for continual improvement.
- To our internal stakeholders – to describe how we will work together within the AMS framework to collaborate and jointly achieve our asset management objectives.

2. Organisational Context

2.1. Sunwater at a glance

Sunwater is Queensland's largest bulk water service provider. We own and manage a network of dams, balancing and off-stream storages, weirs, barrages, pumping stations, pipes, channels and drains that are used to supply bulk water to more than 5000 customers in the agriculture, local government, mining, power and industrial sectors in Queensland. Our water infrastructure assets have an estimated replacement value of around $13 billion and supply approximately 40 per cent of all water used commercially in Queensland.

Figure 2 Sunwater at a glance



2.2. Why do we exist?

Sunwater is one of four bulk water entities owned by the Queensland Government, together with Seqwater (the bulk water service provider for South-East Queensland), the Gladstone Area Water Board and the Mount Isa Area Water Board. Sunwater is established under the *Government Owned Corporations Act 1993 (Qld)* and is a registered water service provider under the *Water Act 2000 (Qld)*.

Queensland's water resource planning and management framework is established in the *Water Act 2000*, including matters such as the allocation of water resources (including surface and groundwater), trading and market arrangements and management of unallocated reserves. Sunwater holds Resource Operating Licences for 23 water supply schemes in Queensland, as listed in Table 1 below.

Table 1 Sunwater operated Water supply schemes

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 • Julius Dam • Lower Fitzroy	• Lower Mary River • Macintyre Brook • Maranoa River • Mareeba-Dimbulah • Nogoa Mackenzie • Pioneer River	• Proserpine River • St George • Three Moon Creek • Upper Burnett • Upper Condamine

2.3. Our dam safety obligations

In Queensland the responsibility for dam safety rests with the dam owner. Sunwater is required to maintain dam safety standards consistent with a suite of requirements including, but not limited to:

- *Water Supply (Safety and Reliability) Act*
- Dam Safety Condition Schedules (per individual referable dam)
- *Queensland Dam Safety Management Guidelines* (October 2020, Queensland Government)
- *Guidelines on Safety Assessments for Referable Dams* (November 2021, Department of Regional Development, Manufacturing and Water (DNRW))
- *Guidelines on Risk Assessment* (2022, ANCOLD).

In 2003, the Bureau of Meteorology issued updated 'probable maximum precipitation' estimates, which had an impact on the calculation of the 'probable maximum flood'. These climate impacts, together with increasing population growth downstream of some dams and changes to national standards (ANCOLD) and state guidelines, mean that some of Sunwater's dams built before 2003 require upgrading to maintain compliance.

The schedule for upgrade of dams is provided in the *Guidelines on Acceptable Flood Capacity for Water Dams*, with the aim that all Queensland dams meet minimum standards by 2035. Sunwater has a *Dam Safety Policy* (*DS00 Referable Structures Safety Policy*) which describes how Sunwater intends to meet its dam safety obligations.

2.4. Economic regulation

As a Government Owned Corporation, Sunwater is required to operate on a commercial basis as far as practicable, consistent with the principles and framework described in the *Government Owned Corporations Act*. Sunwater is also required to comply with directions made by the shareholding Ministers, as reflected in the *Statement of Corporate Intent*.

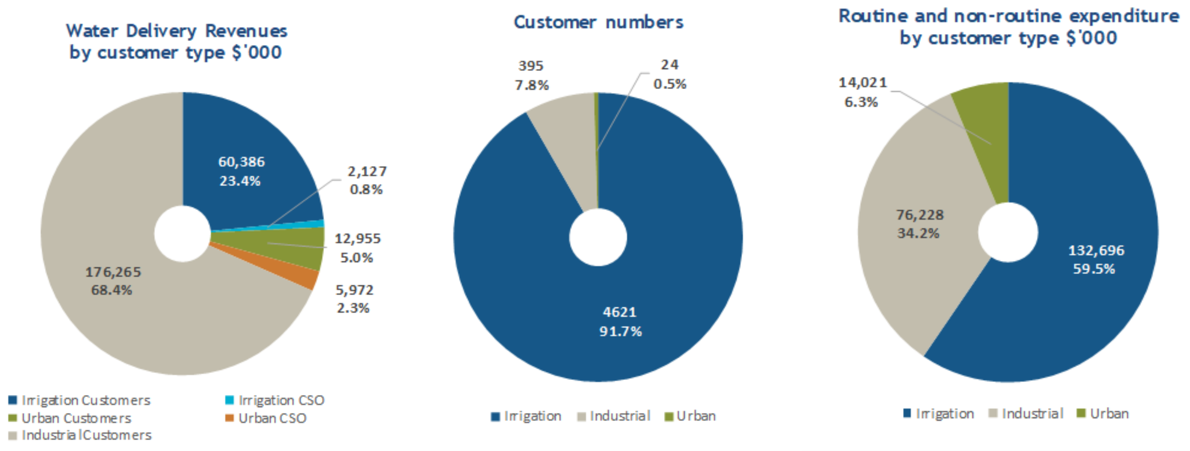
Sunwater's irrigation prices are determined by the shareholding Ministers, based on advice provided by the Queensland Competition Authority (QCA). In advising the government on appropriate irrigation prices, the QCA considers a range of matters including the prudency and efficiency of Sunwater's operating and capital costs. The QCA recommends irrigation prices for 23 Sunwater bulk water supply schemes and four distribution systems[1].

2.5. Our customers

Our extensive network of water supply infrastructure supports mining, power generation, industry, urban development and irrigated agriculture throughout rural and regional Queensland. Irrigation makes up over 90 per cent of our customer base and almost 60 per cent of our costs, but less than a quarter of our revenues, as shown in Figure 3.

[1] Following the 2012 Irrigation Price Review, the Queensland Government began considering in more detail local management of Sunwater's eight distribution systems. At the time of publication of this document, two distribution systems had transitioned to local management arrangements (LMA). The remaining schemes are still going through the process and, at this stage, it is uncertain whether they will proceed to LMA or remain with Sunwater. This needs review, its 4 schemes (St George, Theodore, Emerald and Eton), the process is no longer proceeding on the other four.

Figure 3 Indicative key customer statistics for 2018/19



2.6. Our corporate structure

As a corporation, Sunwater is managed by a Board that is accountable to shareholding Ministers for the attainment of Sunwater's purpose and for ensuring the ongoing performance and sustainability of the company.

The Board appoints the Chief Executive Officer who appoints the Executive Leadership Team responsible for the day –to-day operations of Sunwater, consistent with legislative and contractual requirements, and policies and directives established by the Board.

In addition, Sunwater is a Government Owned Corporation and required to operate in accordance with Queensland agencies such as the *Investment Guidelines for Government Owned Corporations* (2013, Queensland Treasury).

Of particular significance to the development of this SAMP are:

- dam safety requirements described in the *Water Supply (Safety and Reliability) Act 2008 (Qld)*
- Resource Operations Licences
- water resource management arrangements
- economic regulatory framework.

2.7. Our corporate strategies

Sunwater produces a range of corporate and strategic plans and statements, including a five-year Corporate Plan and a one-year Statement of Corporate Intent for our shareholding Ministers (updated annually). Sunwater's Strategic Roadmap, as of October 2018, is presented in Figure 4 below. Our focus is on delivering water for the prosperity of our customers and the community.

Figure 4 Sunwater's Strategic Roadmap

2.8. Enterprise risk and opportunity assessment

Sunwater's Enterprise Risk Management System is an essential element of corporate governance and supports the establishment, monitoring and maintenance of controls to enable the delivery of our strategic and operational objectives.

2.9. Integration with corporate systems

Sunwater's business operations are supported by a range of business management systems – one of which is the asset management system. The asset management system integrates and aligns with all the key business management systems including:

- *Quality Management (ISO 9001:2015)*
- *Strategic Asset Management (ISO 55001)*
- *Environmental Management (AS/NZS ISO 14001:2004)*
- *Safety Management (AS/NZS 4801:2001)*
- Risk Management Framework
- Dam Safety Management Program (DSMP001).

3. Scope of asset management at Sunwater

3.1. Application of the SAMP

This SAMP applies to:

- Physical assets owned and managed by Sunwater and used directly for the provision of water services.
    - Physical assets owned and managed by Sunwater subsidiary companies and used directly for the provision of water services:Eungella Water Pipeline Pty Ltd
    - North West Queensland Water Pipeline Pty Ltd
    - Burnett Water Pty Ltd.
- All phases of the asset management lifecycle including planning, design, procurement (including acquisition and construction), operation, maintenance (including renewals, refurbishments and replacement), enhancements, monitoring, reporting, decommissioning and disposal.

This SAMP does not apply to:

- The management of assets owned by others that Sunwater maintains and operates under agreed terms and arrangements.
- Non-water assets such as land, office space, plant and equipment, vehicles and housing.

Whilst the SAMP in its current format does not consider non-water assets, future revisions may consider including these assets as part of the asset management strategy.

3.2. Asset base

Sunwater owns and operates the majority of bulk water infrastructure in Queensland, outside of South-East Queensland.

We have an extensive asset base including:

- 22 referable storage structures (19 dams and 3 balancing and off-stream storages)
- 64 weirs and barrages (non-referable structures)
- 79 major pumping stations
- 2120 km pipelines
- 730 km water channels[2]
- 11 small licensed water and sewage treatment plants.

In addition to assets owned directly by Sunwater, Sunwater owns and operates subsidiary facilities as listed below:

- Eungella Water Pipeline Pty Ltd (EWP) – owns and operates a 123 km-long pipeline and associated pumping equipment that transports water from Eungella Dam near Mackay to Moranbah, principally for use by the mining industry. EWP also owns and operates 116 km of eastern and southern spur pipelines that take water from the Eungella Water Pipeline and the Burdekin-Moranbah Pipeline to coal mines and related users in the northern Bowen Basin.
- North West Queensland Water Pipeline Pty Ltd (NWQWP) – owns and operates a 113 km of pipeline and associated pumping equipment that transports water from Lake Julius near Mount Isa to the Ernest Henry Mine and a number of rural users. NWQWP also owns and operates the Cloncurry Pipeline, a 38km extension pipeline from the NWQWP to the township of Cloncurry for domestic and industrial supply.
- Burnett Water Pty Ltd (BW) – owns and operates Paradise Dam and Kirar Weir in the Burnett River catchment and 164,000 ML of water allocations.

3.3. Our services

Our fundamental service to customers is to store and release water to satisfy customer demand. This is subject to the *Water Act 2000 (Qld)*, associated plans and operating licenses and customer water allocations.

Sunwater's services are delivered via Service Contracts associated with each of the Water Supply Schemes. These Service Contracts group assets relate to common services and delivery areas in a Water Supply Scheme and include the following types:

- 23 Bulk Supply Service Contracts[3] – providing bulk water services that store and distribute raw water entitlements to river customers,.
- 4 Irrigation Distribution and Drainage Service Contracts – diverting water from bulk water storage to the customer's own offtake using a network of Sunwater owned pumps, pipes and/or channels. In addition, Sunwater provides drainage services to some Service Contracts.
- 11 Commercial Pipeline Service Contracts – providing raw bulk water delivery to commercial customers throughout regional Queensland.
- 2 Potable water treatment and distribution network Service Contracts – providing potable water treatment services to town water customers; and

[2] Some channels are leased.

[3] Includes Julius Dam

- 2 Hydroelectric generator Service Contracts - providing hydroelectric power generation services.

Standard customer supply contracts include clauses on supply arrangements and the schedule of fees and charges. Sunwater provides information on past and forecast routine and non-routine expenditure to irrigation customers and stakeholders in the form of the annual Service and Performance Plans (SPP's)..

Sunwater provides water delivery, operation and maintenance of infrastructure, and engineering consultancy services to 57 Service Contract areas.

4. Asset management objectives and principles

4.1. Our asset management objectives

The following asset management objectives (Table 2) are aligned with our *Asset Management Policy* and Strategic goals; being achievable and measurable; clearly articulated, understandable and useful. These objectives were developed with consideration of a number of inputs including our strategic business objectives, regulatory obligations, *Statement of Corporate Intent*, risk management framework, relevant corporate policies, and guidance provided in the *ISO 55000* standard series.

Sunwater's asset management objectives will be used to drive asset management strategy in the business and the implementation plan for these objectives is described Section 6.2.

Table 2 Asset management objectives

Sunwater's strategic goals		Asset management objectives
Safe and engaged people	Our success will be measured by our employee engagement and safety metrics aiming to achieve zero harm with our people.	Our assets will be managed to provide a safe environment for our workers and the community, and we will continuously reduce dam safety risk as soon as practical. Our people will be capable and engaged in asset strategy and execution of initiatives with KPI and asset management accountabilities clearly understood by the business
A Sustainable business	Sunwater will safely deliver water for prosperity now and in the future for Queensland. This will be achieved through meeting our customer and communities changing demands, whilst minimising the impact from our activities on the environment, effectively managing our assets and nurturing relationships with all the communities where we operate. We instill good governance principles and will be reliable and resilient in the face of a changing world and during adverse events. We will continue to ensure that	Asset opportunities and innovation will be continually assessed and implemented to improve our value offering. Our assets will be fit for purpose and optimally managed throughout their lifecycle to deliver customer and shareholder value.

Sunwater's strategic goals		Asset management objectives
	Queensland's catchment plans consider the impacts of climate change and provide sustainable water allocation for the environment, agriculture, industries and population centres.	
A stakeholder-centric business	We strive to build relationships with stakeholders based on trust; actively working with our customers, Shareholders and industry groups, and in the communities in which we operate. Minimising the impacts of our operations and projects, and creating opportunities for benefits beyond water delivery, wherever possible, is at the heart of our approach. We acknowledge that we operate on Aboriginal land, and that Aboriginal and Torres Strait Islander peoples are the traditional custodians of this country.	Our customer needs will be understood, and our customers engaged to develop trust in our asset investments and planning decisions. We will collaborate and integrate with internal and external stakeholders to strengthen our asset services and value offering.
Operational excellence	We deliver water for the prosperity of our customers in regional communities. We will execute on our business strategy effectively and consistently by creating a workplace that is exceptional at problem-solving, teamwork and leadership and using contemporary systems, processes and technology. We aim for best practice and fit for purpose asset management and manage our assets in focused manner, to safeguard asset integrity and ensure optimal service value to our customers. This is our core business.	Our asset management will be planned and managed to a life-cycle approach and aligned with best industry practise (e.g., ISO 55001). We will continually optimise our asset lifecycle and processes to provide efficient delivery of services to customers.

Sunwater's strategic goals		Asset management objectives
Water infrastructure leader	Our focus is to successfully plan, design, construct and commission quality bulk water infrastructure solutions that drive economic growth and jobs in regional economies by making the best use of our valuable water resource. We will develop a state-wide bulk water infrastructure development master plan, using best-practice analysis frameworks to establish investment priorities by assessing emerging market drivers and trends to guide investment pathways.	Our asset management strategies and objectives will be aligned with the organisation's infrastructure development master plan. We will fully leverage asset opportunities and realise value improvement across the asset management value chain.
Policy alignment		
Policy and governance	See policy statements	We will provide asset management governance and compliance with all relevant legislation, regulation, licences, permits, approvals and authorities.

4.2. Asset management principles

The asset management principles have been developed to guide asset planning, decision-making, monitoring and improvement programs. The principles were developed with consideration of our policy statements, the *ISO 55000* series and Sunwater strategic information.

- We manage assets to provide value to our customers, stakeholders and shareholders.
- The system for managing assets will be an agreed, clearly articulated framework that underpins achievement of the *Asset Management Policy* and objectives.
- We will improve asset management efficiency through the simplification of processes, where appropriate to do so.
- We understand our assets including their purpose, criticality, capability, performance, condition and history, and operate within these bounds.
- We will collect and store accurate asset data and make it readily available to all those that require access to it.
- We will develop and implement asset plans, initiatives and standards that are required to support achievement of the objectives, in a timely manner.
- We will plan for the management of our asset portfolio over the short, medium and long term, to ensure we can deliver on our service commitments into the future.
- We will consistently manage our assets to have a risk profile that aligns with the Sunwater risk appetite.
- Responsibilities for the management of assets will be clearly allocated at all levels within the business, to appropriately skilled teams.
- The performance of assets and the asset management system will be monitored against objectives to inform future strategies and plans, and aid continuous improvement.
- We support analysis, research and development in asset management related areas that improves our asset management practices and contributes to achievement of our objectives.

- We will service, monitor, maintain and replace assets to ensure the ongoing operational performance and service capacity required to meet service standards.
- Assets will be refurbished through their service lives, as necessary, to extend service lives as long as economically feasible.

5. Asset Management System (AMS)

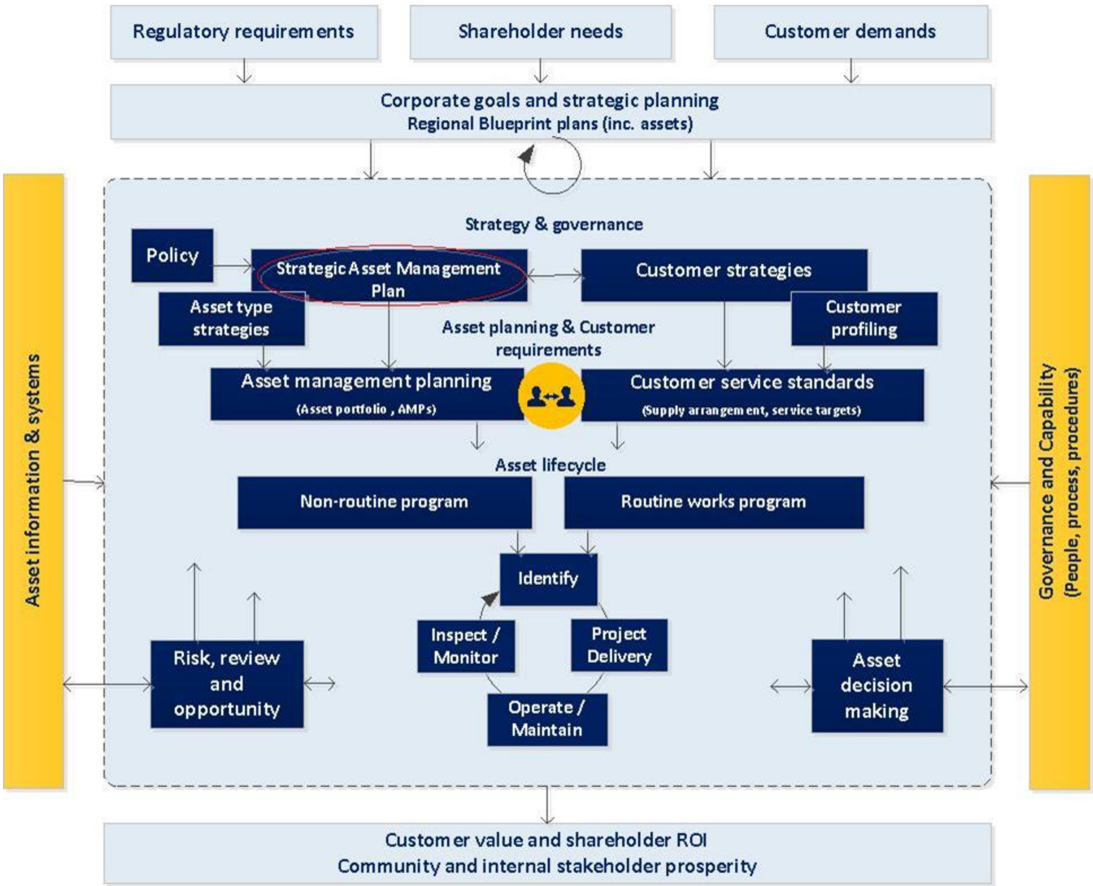
5.1. Overview

Sunwater uses a 'life-cycle' approach to asset management which considers the 'whole-of-life' implications of acquiring, operating, maintaining and disposing of our assets to meet customer service targets.. Our 2023/24 to 2028/29 strategic focus is on customer value and building a regional blueprint to better understand our customer's drivers. This focus will in-turn provide greater input to our asset planning and allow us to proactively prepare our asset plans to align with our customer's objectives and see beyond the original design intent of the infrastructure.

The AMS (Figure 5) provides a structured framework for Sunwater's asset management processes and procedures and is strongly focused on strengthening the alignment between asset planning and and Sunwater's Corporate strategy. The AMS builds on Sunwater's existing processes of asset management, and provides stronger integration with internal business areas that contribute to asset management outcomes, customer value and shareholder return on investment.

The AMS will be used to drive the asset management objectives which will be actioned by initiatives in our strategic work programs.

Figure 5 Asset Management System (AMS)

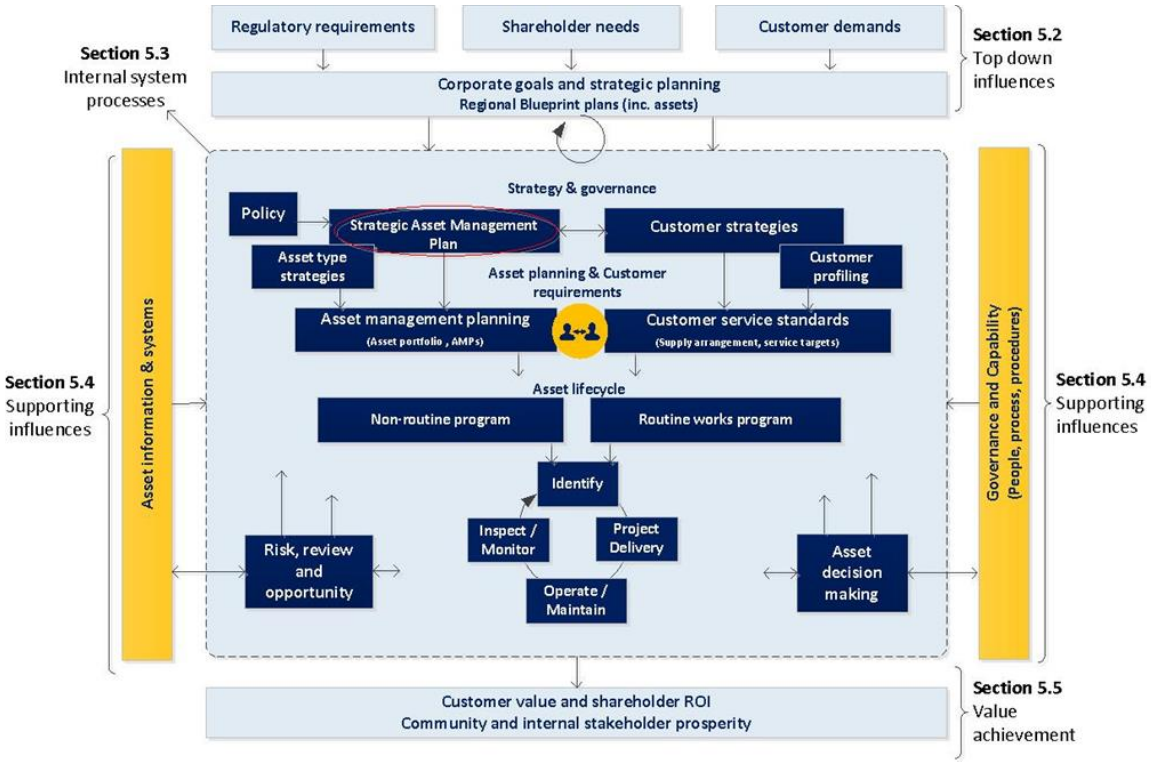


To describe our Sunwater AMS (Figure 5), the framework has been broken into components as listed and illustrated in Figure 6 and further described in detail in the following sections.

The building blocks of the AMS can be described as follows:

- Top down influences (Section 5.2) – represents external stakeholder influences and the creation of corporate plans and strategies used to formulate the asset management objectives.
- Internal system processes (Section 5.3) – represents interconnecting activities internal to the asset management system that execute Sunwater's asset management processes, lifecycle and objectives.
- Supporting influences (Section 5.4) – represents the business's internal capability to strengthen and support asset management processes.
- Value achievement (Section 5.5) – represents the targeted end state where asset management activities and objectives have been effectively delivered to provide customer value, shareholder return on investment and community prosperity.

Figure 6 Sections of the AMS



Sections 5 through 5.5 inclusive provide detailed explanations of these system components and the part they play in the AMS framework.

5.2. Top down influences

5.2.1. External stakeholder drivers

As described in Section 2 Organisational Contextt, Sunwater has a unique mix of business drivers that inform the nature of asset management in its business. Key external business drivers include: regulatory compliance and requirements; shareholder needs, and customer demands, which are reflected through into our corporate goals and strategic planning activities.

5.2.2. Corporate goals and strategic planning

Our corporate goals and strategic planning activities are driven by external stakeholder drivers which are captured in documents such as:

- The *Shareholder Mandate and Strategic Expectations* – which provides an understanding of shareholder expectations.
- The *Sunwater Regional Blueprint* – which sets the long-term vision for growth in infrastructure and increased availability of water in regional Queensland.

Our corporate level strategies are captured in documents such as the *Statement of Corporate Intent* and Corporate plans which are reviewed in line with Sunwater's corporate planning cycles, and executed by a strategic program of works over the following strategic horizons:

- FY22-25 horizon – strategic action
- FY25-30 – strategic intent
- FY30+ - strategic vision.

Sunwater's strategic goals (Figure 7), underpin our asset management objectives (Section 14) and drive an aligned strategy at Sunwater.

Figure 7 Sunwater's strategic goals

PURPOSE	DELIVERING WATER FOR PROSPERITY				
5 Strategic Goals	Safe and engaged people	A Sustainable business	A stakeholder-centric business	Operational excellence	Water infrastructure leader

5.3. Internal system processes

Within the AMS, the following internal processes work together to achieve asset management objectives and provide governance in asset decision making and optimal customer value.

5.3.1. Strategy and governance

5.3.1.1. Asset Management Policy

Our *Asset Management Policy* provides governance in our asset management processes and direction in the creation of our asset management strategies and objectives.

5.3.1.2. Strategic Asset Management Plan

The SAMP document contains our asset management objectives which are consistent with our *Asset Management Policy* and corporate strategies. *Asset Management Policy* and asset management objectives remain relatively fixed over the strategic planning horizons, the initiatives and executable strategy will be reviewed in line with ongoing business initiatives and Key Performance Indicators (KPI).

5.3.1.3. Customer strategies

Sunwater's *Regional Blueprint*, along with the *Business Development Strategic Plan* and *Sunwater's Corporate Strategy*, are key strategies going forward. They define Sunwater's relationship with our customers, the services we provide and the expected demand for those services. In addition, these documents identify strategic water solutions to manage future demands and supply constraints. Our customer strategies help direct our long-term asset portfolio direction and strategy.

5.3.1.4. Asset type strategies

Our asset type strategies are constantly evolving to provide fit-for-purpose asset management plans. Asset life is initially assigned by a standard asset 'type' and may be further refined through condition-based decay curves, asset portfolio analyses and individual strategies informed by maintenance history.

The asset strategies provide guidance on the maintenance and replacement activity and frequency which is applied to the whole of life plans for our assets. This will in-turn provide a revised long-term forecast of an optimised asset investment portfolio.

5.3.1.5. Customer profiling

Customer profiling initiatives currently underway with our industrial customers enable us to understand and predict long-term behaviours and support proactive and sustainable facility-based decisions. Opportunities to strengthen the alignment of customer understanding with our asset portfolio decisions is part of our AMS framework improvement strategy.

5.3.2. Asset planning and customer requirements

5.3.2.1. Asset management planning

While the immediate program for the next year's budget is well defined as it is informed with known asset condition and performance data, asset plans become less certain as the program moves further into the planning horizon. Consequently, the medium to long term work program reflects an asset portfolio level view of work effort and focus. The program is informed through asset condition and risk, service history and broader strategic objectives.

Asset Management Plans developed for our water supply scheme Service Contracts provide customers with a five-year snapshot of the program forecasts over the next regulatory period. The plans provide a summary of non-routine items scheduled in each Service Contract. .

5.3.2.2. Customer service standards

Water Supply Arrangement and Service Targets define the scheme level service arrangements between Sunwater and its customers. Sunwater develops Service and Performance Plans (SPP's)for our 26 irrigation Service Contracts which provide a summary of historical routine and non-routine performance, and a five-year forecast of future expenditure and service target[4] .

5.3.2.3. Customer engagement

An important strategic focus for our business in asset planning and service delivery is customer engagement. Our Service and Performance Plans (SPPs)are formed in consultation with customer representative groups during regional engagement meetings. While the plans contain service and cost details applicable to customers, our Asset Management Plans provide an overview of the scheme's asset profile and justification of future works and estimated expenditure required to maintain the scheme customer service standards.

5.3.3. Asset lifecycle

Sunwater's asset lifecycle management incorporates two broad activity types, described as routine works (higher frequency repetitive activities); and non-routine works (lower frequency or one-off refurbishment, replacement, enhancement or new asset activities). The non-routine activities also include emergency works such as flood repairs.

[4] The complete list of service targets is included in each scheme's Water Supply Arrangements and Service Targets document.

5.3.3.1. Non-routine program

Sunwater has developed whole of life strategies around the maintenance and replacement of its asset portfolio which is based on the concept of optimised life-cycle cost. Key inputs to the approach are the risk and condition of each asset. The current condition of an asset informs an prediction of the future work to ensure an asset continues to provide the required level of service, at an acceptable risk. Sunwater maintains a program of asset inspections and condition assessments which updates our knowledge of asset condition. This information feeds into the annual review of the non-routine program and ensures items requiring refurbishment or replacement are prioritised accordingly in the program of works.

The non-routine program is managed by the asset planning group who have a strong regionally-based knowledge of asset condition and riskbased on periodic inspections, condition assessments and support services for each service contract.

5.3.3.2. Routine works program

Sunwater's routine works program includes day-to-day facility operations, environmental management, preventative and minor corrective maintenance, condition monitoring, legislated (Dam Safety) and non-legislated safety inspections. The execution and monitoring of the program is predominately carried out by Sunwater's regional operations centres.

5.3.3.3. Project Delivery

Sunwater's aworks and programs are diverse in scale, scope and complexity. Projects may be capital or expense and delivered through the planned corrective maintenance (PCM) program or as a special purpose (major) projects.

The PCM program encompasses the majority (by number) of non-routine Sunwater projects that generally consist of asset refurbishment, enhancement or replacement works. These works are managed by project delivery teams embedded within the regional operations groups utilising PCM procedures and guidelines. These are:

- *Planned Corrective Maintenance Development Process* (#2819200)
- *Program Delivery Planned Corrective Maintenance Guideline* (#2819202)
- *Program Delivery Planned Corrective Maintenance Procedure* (#2819205).

Projects of 'material' significance to Sunwater utilise the Portfolio, Program and Project Management Framework (P3MF). These works are generally considered 'major projects', and have complexity, cost and risk profiles that suit this management framework and ensures effective delivery of project objectives. .

The P3MF framework typically consists of the project lifecycle phases of initiation, evaluation and definition, execution, closure and benefits realisation.

The benefits of this approach will help provide the following project outcomes:

- Business focussed processes that address the complete lifecycle of opportunities.
- Movement of opportunities through defined and disciplined processes in a series of controlled steps.
- Structured processes for decision making including formal decision review checkpoints or gates at each significant step in the process.
- Clear performance targets discussed and agreed with project stakeholders.
- Emphasis on pragmatic and effective planning and Front-End Loading.
- Timely use of Value Improving Practices (VIPs).

- Independent review as the opportunity moves through gated milestones of project execution and delivery.
- Benefits realisation and learnings reintegrated into future works programs.

Projects delivered under P3MF are predominately undertaken through Sunwater's Infrastructure Development and Delivery group..

5.3.3.4. Operate / maintain

The routine works programs are carried out by the regional operations groups who have a clear understanding of their facilities and the water supply scheme rules. Shutdowns and outages are planned and coordinated by the operations groups in consultation with customers and according to the scheme rules and targets.

5.3.3.5. Inspect / monitor

Sunwater maintains its asset condition information through:

- Periodic condition assessments carried out by engineering or regional staff according to an asset condition assessment schedule.
- Condition monitoring activities carried out on a routine basis by expert service providers.
- Performance analysis using real time tracking to monitor the unplanned downtime and performance KPI for particular assets.

Asset condition information is used to optimise routine and non-routine works programs.

5.4. Supporting influences

Whilst the supporting influences are represented as interfacing with the AMS' internal system processes, they are closely linked to and interact with key internal system processes such as asset decision making and risk, review and governance processes. These interactions provide the: asset governance, risk mitigation, asset optimisation, efficiency and value improvement opportunities that are key to achieving our asset management objectives. These interactions ensure that our asset strategy, planning and asset lifecycle processes are informed and optimised in a way that aims to deliver maximum customer value.

The asset management objectives aim to strengthen the value offering from our asset information and management systems and also our governance and capability from people, process and procedures. Our current strategic initiatives to strengthen our digital strategy, provide asset management and assurance and develop capability and leadership, will help drive the achievement of our asset management objectives.

5.5. Value achievement

In achieving of our asset management objectives through a strong AMS framework , our value achievement objectives can be monitored and improved. Figure 8 shows the measures and values we aim to achieve for our customers, shareholders, community and internal stakeholders.

Figure 8 Sunwater Measures and Values

Strategic Goals	Safe & engaged people	A sustainable business	Stakeholder-centric business	Operational excellence	Water infrastructure leader
Strategic Measures	• % Employee engagement • % Talent retention • % Distinctive capabilities filled	• Supply to Demand ratio • $ Electricity costs / ML pumped water • CO2 emissions / ML delivered water	• Customer net promoter score • Corporate stakeholder net promoter score	• Water delivery reliability • Cost variance • Delivery asset availability %	• % Projects on time & on budget • % Successful project funding applications • % of QLD water yield managed by Sunwater

Values

The foundation of how we deliver for our customers

VALUE PEOPLE

TAKE RESPONSIBILITY

WORK TOGETHER

6. Implementation and monitoring

To establish the AMS and to provide an implementation plan for the achievement of the asset management objectives, the roles and responsibilities within the AMS framework have been established and an implementation plan provided describing how the AMS will achieve the asset management objectives.

6.1. Roles and responsibilities

Sunwater Operations are organised into regions that locate our staff as close as practicable to our customers and assets while maintaining efficiencies. The four operating regions are North, Central, South, and Burnett and Lower Mary. These regional locations are supported by centralised head office services for asset planning and asset strategy.

Within the context of the AMS, clearly defined roles and responsibilities are essential to the achievement of objectives and the translation of these into asset management objectives. Within the AMS the roles and responsibilities which are applicable are described Table 3.

Table 3 Roles and responsibilities applicable within the AMS

Role	Core Asset-Related Responsibilities
The Board	• Endorse corporate vision, strategy and values • Set risk appetite within parameters set by shareholder • Provide guidance regarding risk appetite
CEO / Executive Leadership Team	• Set vision and purpose in accordance with company objectives and purpose • Develop Strategy, Corporate Plan and Statement of Corporate Intent • Monitor progress of strategy implementation • Advise board on risk impacts to enable setting of risk appetite • Approve policies in accordance with Government Owned Corporations policies and requirements and other compliance obligations • Approve operation and capital expenditure annual budgets, monitor budgets • Develop and implement stakeholder engagement strategy
General Manager Asset Management	• Develop and implement *Asset Management Policy* • Prepare and manage the *Strategic Asset Management Plan* • Ensure asset standards are established and documented • Maintain and improve the asset management suite of Methodologies • Provide governance oversight and assurance for implementation of the Asset Management System • Prepare and implement an Asset Management Improvement program • Prepare and manage the individual asset management plans • Manage the Asset Portfolio Investment Program • • Perform asset condition and risk assessments • Undertake asset performance assessments • Develop and implement routine maintenance plans • Establish and maintain asset information • Work with Operations to define the renewals program objectives, scope, customer impacts, constraints and budgets (P&IDs)

Role	Core Asset-Related Responsibilities
General Manager Operations (by Region)	• Manage the non-routine program execution • ~~Prepare detailed program/project business cases~~ • Ensure renewals program aligns with established Asset Management Plans • Develop fit-for-purpose renewals project solutions that achieve Sunwater's strategic asset management and business objectives • Engage with customers regarding asset planning • Ensure maintenance costs are justified and supported by pricing frameworks • ~~Deliver the renewals works program within budgetary and business parameters~~ •
Chief Development Officer	• Initiate, plan, deliver and closeout the Major Projects program of works in accordance with all agreed project specific metrics • Delivery, closure and operationalisation
General Manager Engineering Services	• Establish technical services support frameworks across the business • Manage technical assurance and skills including governance/review capability (including Registered Professional Engineer Queensland (RPEQ) supervision) to support infrastructure and asset management • Develop and further establish engineering standards frameworks • Continue development of technical drawing standards across the business
General Manager Asset Integrity	• Manage Dam Improvement Program (DIP) • Dam Safety Management Program (portfolio risk assessment, comprehensive risk assessment, 20-year dam safety reviews) • Dam safety technical decision-making
General Manager Stakeholder Relations	• Create customer strategies • Create the *Regional Blueprint* for long term customer strategies

6.2. Implementation plan

An implementation plan defining the means by which the AMS will achieve the asset management objectives has been provided in the table below, as a mechanism to connect to the initiatives within our strategic programs for work iand execute the objectives.

The initiatives aligned to this plan will be planned across Sunwater's strategic horizons and monitored as part of the Key Performance Indicator (KPI) performance review process (Table 4). New initiatives will be added, as required, to achieve these objectives.

Table 4 Initiatives to achieve the Strategic Asset Management Objectives

Sunwater's strategic goals		Asset management objectives	Our AMS will provide:
A safe high-performance culture	'Act on it' safety mindset	Our assets will be managed to provide a safe environment for our workers and the community, and we will continuously reduce dam safety risk as soon as practical	• procedures in place for management of high-risk assets • strong culture of dam safety management and compliance

Sunwater's strategic goals		Asset management objectives	Our AMS will provide:
			• safe work procedures for high-risk assets • assets designed with a safety mindset.
	Our people deliver results, and are engaged and capable	Our people will be capable and engaged in asset strategy and execution of initiatives with KPI and asset management accountabilities clearly understood by the business	• asset strategy linked to business goals • KPI's and targets clearly communicated by line managers • asset management capability developed across asset management roles • responsibilities and accountabilities clearly understood within business units.
A sustainable business	Innovation and business improvement focus	Asset opportunities and innovation will be continually assessed and implemented to improve our value offering	• continual improvement in our digital strategies and information management capabilities • governance and continual review and improvement of our processes and procedures • our strategic initiatives connected across the business
	Assets and resources optimised	Our assets will be fit for purpose and optimally managed throughout their lifecycle to deliver customer and shareholder value.	• asset lifecycle integrated across project and program planning • continual feedback of condition and risk information to optimise asset maintenance and service delivery.
Supportive stakeholders	Our customers value us	Our customer needs will be understood and our customers engaged to develop trust in our asset investments and planning decisions	• stronger alignment with customer strategy in asset management strategy and planning • customer profiling and demand understood and used to optimise asset type strategies • communication strategies created for customers to achieve engagement, transparency and trust.
	We collaborate with all stakeholders	We will collaborate and integrate with internal and external stakeholders to strengthen our asset services and value offering.	• stakeholder engagement in operational issues such as shutdown planning • customer engagement in service and non-routine program delivery

Sunwater's strategic goals		Asset management objectives	Our AMS will provide:
			• leverage strategic initiatives across the business to achieve improvement asset management outcomes.
Commercially focused operations	Efficient service delivery to our customers	We will continually optimise our asset lifecycle and processes to provide efficient delivery of services to customers	• asset strategies continually revised to meet customer service requirements • options studies leveraged and informing future plans • energy efficient strategies in new and existing assets • efficient routine and non-routine planning and execution.
	Value improvement focused	We will fully leverage asset opportunities and realise value improvement across the asset management value chain	• opportunities and partnerships explored to improve value offering • assess and implement value adding opportunities across the asset lifecycle.
Policy alignment			
Policy and governance	See policy statements	We will provide asset management governance and compliance with all relevant legislation, regulation, licences, permits, approvals and authorities	• asset governance and assurance in effective and efficient policies and procedures • safety and legislation considered in our procedures and work instructions • engineering standards maintained and design / review / signoffs undertaken by qualified personnel • strong dam safety management program.

6.3. Monitoring

Due to the overall strategic alignment of the asset management objectives with Sunwater's strategic goals and work programs, the initiatives within these programs will be leveraged to strengthen the establishment of the AMS framework across Sunwater and to monitor the achievement of the asset management objectives by establishing a series of improvement KPI's.

In addition to this, the maturity of the AMS will be benchmarked and assessed using the *Self-Assessment Methodology* for *ISO 55000*; which reviews the asset management maturity of a business against an established set of asset management standards provided in the *ISO 55000*, standard of asset management.

Sunwater has a well-established framework for measuring KPI and monitoring progress against defined targets. Monitoring and improvement activities against this SAMP and other aspects of the Asset Management System will be integrated with the existing KPI framework, using the existing approach and methodologies.

7. Related legislation and documents

Table 5 Associated Documents

Sunwater references	Legislation, Standards and other references
• AM01 P01 Asset Management Policy • Planned Corrective Maintenance Development Process (#2819200) • Program Delivery Planned Corrective Maintenance Guideline (#2819202) • Program Delivery Planned Corrective Maintenance Procedure (#2819205) • AM31 Asset Performance Monitoring and Measurement • AM21 Asset Refurbishment Planning – Methodology for Condition Assessments of Assets • Corporate Plan • DSMP001Dam Safety Management Program Procedure • DS00 Referable Structures Safety Policy • Environmental Policy • Fees and Charges Schedule • Guide to SAP PM Asset Hierarchy Development • Methodology for Risk Assessment of Infrastructure Assets • Non-Routine Works delivery Methodology • Options Analysis Guidelines – Non-Regulatory Period • AM 11 G4 Options Analysis Guidelines Regulatory Period • Procedure Map – Asset Strategy and Development • Business Management (Quality) Policy • Enterprise Risk Management Policy • Risk Management Framework • Routine Works Planning and Delivery Methodology • Statement of Corporate Intent • Sunwater Dam Improvement Plan • Supply Contract Standard Conditions • Water Supply Arrangements and Service Targets • Work Health, Safety and Well-Being Policy • Shareholder Mandate and Strategic Expectations • Sunwater Regional Blueprint • Business Development Strategic Plan • Customer Strategy • Asset Management System Manual • Regional Blueprint	• Government Owned Corporations Act 1993 (Qld) • Water Act 2000 (Qld) • Water Supply (Safety and Reliability) Act • Queensland Dam Safety Management Guidelines (October 2020, Qld Government) • Guidelines on Safety Assessments for Referable Dams (November 2021, Department of Regional Development, Manufacturing and Water (DNRW)) • Guidelines on Risk Assessment (2022, ANCOLD) • Statement of Corporate Intent • the Guidelines on Acceptable Flood Capacity for Water Dams • Investment Guidelines for Government Owned Corporations (2013, Queensland Treasury and Trade) • Water Supply (Safety and Reliability) Act 2008 (Qld) • Quality Management (ISO 9001:2015) • Strategic Asset Management (ISO 55001) • Environmental Management (AS/NZS ISO 14001:2004) • Safety Management (AS/NZS 4801:2001)

8. Definitions

Table 6 Acronyms and abbreviations

Acronym / abbreviation	Explanation
AM	Asset Management
AMP	Asset Management Plan
AMS	Asset Management System
ANCOLD	Australian National Committee on Large Dams
BW	Burnett Water Pty Ltd
DIS	Drawing Information System
DIP	Dam Improvement Program
DSMP	Dam Safety Management Program
EAP	Emergency Action Plan
ERP	Enterprise Resource Planning
EWP	Eungella Water Pipeline Pty Ltd
GIS	Geographical Information System
GOC	Government Owned Corporation
ISO	International Organization of Standardization
KPI	Key Performance Indicator
NSP	Network Service Plan
NWQWP	North West Queensland Water Pipeline Pty Ltd
OEM	Original Equipment Manufacturer
P3MF	Program and Portfolio Management Framework
PCM	Planned Corrective Maintenance
QCA	Queensland Competition Authority
ROL	Resource Operations Licence
RPEQ	Registered Professional Engineer Queensland
SAMP	Strategic Asset Management Plan
SAP PM	SAP Plant Management

Acronym / abbreviation	Explanation
SCADA	Supervisory Control and Data Acquisition
SCI	Statement of Corporate Intent
SWIMS	Sunwater Information Management System
WHS	Workplace Health and Safety

Table 7 Glossary of Terms

Defined Term	Explanation
Asset	An item, thing or entity that has potential or actual value to an organisation and is realised by a balancing of costs, risk, opportunities and performance. Value can be tangible or intangible, financial or non-financial, and includes consideration of risks and liabilities. It can be positive or negative at different stages of the asset life. Physical assets usually refer to equipment, inventory and properties owned by the organisation. Physical assets are the opposite of intangible assets, which are non-physical assets such as leases, brands, digital assets, use rights, licences, intellectual property rights, reputation or agreements. A grouping of assets referred to as an asset system could also be considered as an asset. (AS ISO55000:2014)
Asset Hierarchy	The structure within an asset register that establishes the dependency or interrelationship of functional locations and equipment for the purpose of effective asset management. (A Guide to SAP PM Asset Hierarchy Development - AM40_G3)
Asset Integrity	A standard of operating that aims to protect equipment, health, safety and environment. It applies to all stages of the equipment life cycle. (Inspectioneering 2018, 'Overview of Asset Integrity Management', <https://inspectioneering.com/tag/asset+integrity+management>)
Asset Life	The period from asset creation to asset end-of-life. (AS ISO55000:2014)
Asset Management	A coordinated activity of an organisation to realise value from assets. Activity can also refer to the application of the elements of the asset management system, the approach, the planning, the plans and their implementation. (AS ISO55000:2014)
AMP	Asset Management Plan Documented information that specifies the activities, resources and timescales required for an individual asset, or a grouping of assets, to achieve the organisation's asset management objectives. The grouping of assets may be by asset type, asset class, asset system or asset portfolio. An asset management plan is derived from the strategic asset management plan and may be contained in, or be a subsidiary plan of the strategic asset management plan. (AS ISO55000:2014)
Asset Management Policy	The principles and mandated requirements derived from and consistent with the organisational/corporate plan, providing a framework for the development and implementation of the asset management strategic plan and the setting of the asset management objectives. (Global Forum on Maintenance and Asset Management 2014, 'The Asset Management Landscape: second edition', available at: http://www.gfmam.org/publications.html).

Defined Term	Explanation
Asset Management Strategy	The strategic plan for the management of the assets of an organisation that will be used to achieve the organisational/corporate objectives. Long-term approach to management of the physical assets. Includes a set of strategic statements that describe current and future service levels the organisation is planning to deliver and current and future asset management capabilities that the organisation needs in order to sustainably deliver these outcomes. (Global Forum on Maintenance and Asset Management 2014, 'The Asset Management Landscape: second edition', available at: http://www.gfmam.org/publications.html)
Asset Management System	This is a management system for asset management whose function is to establish the Asset Management Policy and asset management objectives. It is a subset of asset management (AS ISO55000:2014).
Asset Type	The grouping of assets having common characteristics that distinguish those assets as a group or class. For example: physical assets, information assets, intangible assets, critical assets, enabling assets, linear assets, information and communications technology assets, infrastructure assets, moveable assets. (AS ISO55000:2014)
Life Cycle	The stages involved in the management of an asset. The naming and number of the stages and the activities under each stage usually vary in different industry sectors and are determined by the organisation. (AS ISO55000:2014)
Maintenance Policy	A set of organisational rules that define the thresholds and basis for making decisions about the activities required to conserve the service potential of an asset without extending its life. (Victoria State Government 2017, 'Asset management Accountability Framework', Department of Treasury and Finance, Melbourne)
Monitoring	Determining the status of a system, a process or an activity. (AS ISO55000:2014)
Objective	Result to be achieved. An objective can be strategic, tactical or operational. They can relate to different disciplines (health and safety, environmental goals) and can apply at different levels (such as strategic, organisation-wide, project, process). An objective can be expressed in other ways, e.g. as an intended outcome, a purpose, an operational criterion, an asset management objective or by the use of other words with similar meaning. In the context of asset management systems, asset management objectives are set by the organisation, consistent with the organisational objectives and Asset Management Policy to achieve specific measurable results. (AS ISO55000:2014)
Organisational Objective	Overarching objectives that set the context and direction for an organisation's activities. Organisational objectives are established through the strategic level planning activities of the organisation. (AS ISO55000:2014)
P3MF	The Project, Program and Portfolio Management Framework (P3MF) is the integrated delivery, governance and assurance methodology used to enable successful delivery of initiatives and projects across Sunwater's Enterprise Investment Portfolio.
Policy	Iintentions and direction of an organisation as formally expressed by its top management. (AS ISO55000:2014)
Risk	The effect of uncertainty on objectives. An effect is a deviation from the expected and can be either positive or negative. Risk is often characterised by reference to potential 'events' and 'consequences', or a combination of these. (AS ISO55000:2014)

Defined Term	Explanation
Risk Management	The coordinated activities to direct and control an organisation with regard to risk. (Victoria State Government 2017, 'Asset management Accountability Framework', Department of Treasury and Finance, Melbourne)
Service Contract	Service Contracts are specific to a particular service type and represent 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 area may include a dam, associated weirs, water accounting services, and a range of operational and maintenance services for customers in that area.
Stakeholder	A person or organisation that can affect, be affected by, or perceive themselves to be affected by a decision or activity. (AS ISO55000:2014)
Strategic Asset Management Plan	Documented information that specifies how organisational objectives are to be converted into asset management objectives, the approach for developing asset management plans and the role of the asset management system in supporting achievement of the asset management objectives (AS ISO55000:2014)
Sustainable Asset Management	The amount and timing of investment in resources and systems necessary to make sure our assets can make the social, economic and environmental contribution that we need or want at the least cost, risk and impact in a sound governance and decision-making framework (Waverly Council 2013, 'Strategic Asset Management Plan4')

9. Approval and review details

Owner:	General Manager Asset Management	Issue Date:	November 2023
SME:	Regional Planning Managers	Next Revision Date:	November 2025

sunwater

Irrigation pricing proposal

1 July 2025 to 30 June 2029

Appendix H Weighted Average Cost of Capital Review

Weighted average Cost of Capital

Sunwater

Weighted average Cost of Capital

Sunwater

Prepared for:
Sunwater

Prepared by:
Kellogg Brown & Root Pty Ltd
ABN 91 007 660 317

7 September 2022

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Revision History

Revision	Date	Comment	Originated by	Checked by	Technical Approval	Project Approval
1A	22/03/2023	Draft	Sebastian Vanderzeil	Matt Bradbury	Angus MacDonald	Matt Bradbury
1B	7/06/2023	Responding to QCA comments	Sebastian Vanderzeil	Matt Bradbury	Angus MacDonald	Matt Bradbury
1C	7/09/2023	Final	Sebastian Vanderzeil	Matt Bradbury	Angus MacDonald	Matt Bradbury

Contents

Executive summary

- Sunwater's preparation of its 2025-29 pricing proposal includes the development of a weighted average cost of capital (WACC).
- The Queensland Competition Authority (QCA), as part of the price review, requires an Officer WACC3 or 'vanilla' form of the discount rate. This approach defines cash flows and the discount rate in nominal, post-tax terms and modifies the cash flows, rather than the discount rate, for the tax deductibility of interest payments and the value of dividend imputation credits.
- In 2021, the QCA conducted a review of the rate of return (WACC) used in the regulatory process and made a number of changes. The WACC calculation process now has an initial 'reasonable' assessment where regulated entities can submit a 'reasonable' WACC without completing a detailed, bottom- up assessment from the outset.
- Given this principle, this paper calculates the WACC that is consistent with the QCA methodology and seeks WACC approval on the process, rather than going through a detailed process prior to engaging with the QCA. This approach is particularly suitable as the value of the WACC does not materially impact on Sunwater's revenue required and irrigation prices.
- The WACC in this paper uses real-market data and QCA methodology where it is more necessary (i.e., risk-free rate and cost of debt) but adopts existing values of parameters which are not subject to substantial change between price reviews.
- The risk-free rate and cost of debt have increased since the last pricing proposal by Sunwater, resulting in a higher WACC as shown below.

Table 1.1 Comparison of current estimated WACC with previous proposal and QCA recommendation

Parameter	Current Sunwater proposal	Previous Sunwater proposal	Previous QCA recommendation
End date	**1-Sep-23**	**27-Aug-18**	**29-Nov-19**
Risk-free rate	4.27%	2.260%	1.160%
Market risk premium	6.50%	7.000%	6.500%
Asset beta	0.393	0.410	0.400
Equity beta	0.725	0.765	0.755
Cost of equity	**8.98%**	**7.615%**	**6.068%**
Credit rating	BBB	BBB	BBB
Debt margin		2.410%	2.090%
Cost of debt	**4.95%**	**4.670%**	**3.250%**
Capital structure	60%	60%	60%
Gamma	0.484	0.410	0.484
Nominal post-tax WACC	**6.56%**	**5.85%**	**4.38%**

Note: QCA's Rate of Return Review stated that the total cost of debt (risk free rate and debt margin) should be calculated together so there is no separate debt margin in the current Sunwater proposal.

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1 Overview

The weighted average cost of capital (WACC) is a component to calculate a regulated business's return on capital. However, in a lower bound pricing environment, the WACC is less important to pricing outcomes.

In the previous review, the QCA said that it has used the WACC:

- as a discount rate in deriving an annuity-based allowance for renewals expenditure
- a rate of return in deriving a regulated asset base allowance for dam safety upgrade capital expenditure.

This WACC paper:

1. examines Sunwater's 2018 proposal and the QCA's response.
2. estimates each WACC parameter in accordance with QCA's 2021 guidance paper
3. Cross-checks these values against:
   a. recent QCA regulatory decisions
   b. recent regulatory decisions made in other jurisdictions.
4. Details the justification for each parameter and then calculates the overall WACC.

2 WACC used in Sunwater's previous review

Sunwater's last pricing review developed a WACC as shown in Table 2.1. While Sunwater sought to apply the QCA's WACC precedent, the QCA reduced the WACC from 5.85% to 4.37%. The changes with an explanation for each change is also shown in Table 2.1.

Table 2.1 How the QCA changed Sunwater's proposed WACC

Parameter	Sunwater proposal	QCA recommended	Reason for change
20-day averaging period (end date)	27 August 2018	29 November 2019	
Risk-free rate	2.26%	1.16%	Mostly due to change in financial markets over the course of 15 months. Also, the QCA applied a 10-year risk free rate, rather than the length of the regulatory period.
Market risk premium	7.0%	6.5%	Sunwater proposed to continue the use of the MRP from the recently completed bulk water review. In November 2019, the QCA updated the MRP to 6.5%.
Asset beta	0.41	0.4	The QCA considered a range of listed regulated international water businesses and made a very minor adjustment.
Equity beta	0.765	0.755	
Cost of equity	7.62%	6.06%	Impacted by the change to the risk-free rate and market risk premium.
Credit rating	BBB	BBB	
Debt margin	2.41%	2.09%	Impacted by the change to the risk-free rate.
Cost of debt	4.67%	3.24%	Mostly due to change in financial markets over the course of 15 months.
Capital structure	60%	60%	
Gamma	0.41	0.484	
Nominal post-tax WACC	5.85%	4.37%	

Sunwater did not propose changes to the QCA's draft report.

3 QCA's guidance on WACC

Since the past irrigation review, the QCA has reviewed its approach to setting the WACC.[1] Sunwater provided a submission to this review on the topics of the cost of debt, beta risk, regulatory risk, and stakeholder engagement[2]. These matters were considered by the QCA.

While the QCA has established a detailed methodology for each WACC parameter, the QCA has set an important principle. The QCA will:

> *Determine whether the overall WACC value proposed by a regulated entity is reasonable—by considering our statutory obligations, including public consultation; assessing commercial and regulatory risk, considering factors such as the estimation methods and values applied for each parameter, and the WACC values of other regulated entities.*
>
> *If the proposed value is considered reasonable, it will be approved. If the proposed WACC value is not considered reasonable, determine a reasonable WACC value—by estimating a bottom-up value and applying a top-down assessment to confirm whether the bottom-up value constitutes a reasonable WACC value (applying judgement in the circumstances), including whether the overall WACC value requires an adjustment to reflect prevailing market conditions at the time of a decision.*

Given this principle, the WACC calculated in this paper is consistent with the QCA methodology and Sunwater seeks WACC approval. This approach is particularly suitable as the value of the WACC does not materially impact on Sunwater's revenue required and irrigation prices.

[1] QCA, *Rate of Return Review*, November 2021.
[2] Sunwater, *Rate of Return Review*, submission to the QCA request for comments paper, *29* January 2021.

4 WACC methodology

The QCA's recently completed Rate of Return Review sets out guidelines for the calculation of the WACC. The approach of this paper is to develop a fit-for-purpose WACC which the QCA will consider to be 'reasonable.' This will be done through emphasis on recent regulatory decisions, both from the QCA and other Australian regulators.

The method for each parameter of the WACC is shown in Table 4.1

Table 4.1 Method to calculate each parameter

Parameter	Method	Source
Form of WACC	Nominal, post-tax WACC (Officer WACC3)	
Gearing	Consider the previous regulatory gearing as a starting point, and only depart from this benchmark if there is sufficient evidence of change.	Recent regulatory precedent from QCA, ESC, ICRC and IPART.
Cost of debt approach		
Cost of debt credit rating	Consider the entity's financial risk and business risk, regulatory precedent, and comparator analysis.	We will consider whether the previously approved rating of BBB needs to change, based on recent decisions made by regulators.
Trailing average characteristics	Apply an unweighted (simple) 10-year trailing average (extrapolated to 10 year and annualise) to the entire cost of debt, with annual and equal debt tranche refinancing.	We will use data from the Reserve Bank of Australia with a 10-year term to maturity
Debt-raising costs	Apply an allowance of ten basis points for the transaction costs associated with raising debt for the trailing average approach.	QCA rate of return review.
Cost of equity approach		
Risk free rate	Use Yields on Australian government bonds, interpolated, 10 years maturity from RBA F2, averaged over a period of 20 to 60 business days close to the commencement of each regulatory period, with the length and timing of the period nominated by the regulated entity in advance.	We will use daily Australian Government Yields on Australian government bonds, interpolated, 10 years maturity, published by the RBA (F2 table) to estimate the risk-free rate. We have used a 20-day period.
Beta	In the previous review, the QCA changed the proposed asset beta from 0.41 to 0.40. Given the small possible change, we propose to review recent regulatory decision for similar Australian water business to determine whether the beta is materially different from the previously approved 0.40.	We will examine the regulatory decisions for similar Australian water business. We will provide beta comparators and discussion on the applicability of these comparators.

Parameter	Method	Source
Market risk premium	The QCA adopts the Ibbotson (historical) method to estimate the market risk premium, supplemented by consideration of a range of current market information to assess whether the overall return on equity requires an adjustment to reflect prevailing market conditions at the time of a decision.	The market risk premium is consistent between regulatory reviews, as it reflects long-term markets trends. We will propose a market risk premium based on recent regulatory precedent.
Gamma	The QCA concluded in its cost of capital review that a value of 0.484 is appropriate. This is the product of a value of 0.88 for the distribution rate based on the average distribution rate of relevant top fifty companies on the ASX by market capitalisation, and a utilisation rate of 0.55 based on the equity ownership of Australian listed companies.	QCA rate of return review

5 WACC by parameter

Each of the WACC parameters have been generated to calculate the current WACC. These parameters will be reviewed and updated prior to the review lodgement date.

5.1 FORM OF WACC

QCA employs the Officer WACC3 or 'vanilla' form of the discount rate. This approach defines cash flows and the discount rate in nominal, post-tax terms and modifies the cash flows, rather than the discount rate, for the tax deductibility of interest payments and the value of dividend imputation credits.

5.2 GEARING

Gearing for a regulated entity is likely to be stable over time—regulated entities tend to have stable cash flows, because of factors such as features of the regulatory framework (for example, revenue caps) and low demand elasticity.

Sunwater's previously approved gearing was 60% debt/ 40% equity.

The gearing (ratio of debt to equity) for Sunwater should reflect the gearing approved for similar entities. The table below provided by the QCA in its recent Rate of Return Review shows the debt gearing approved for water entities in other jurisdictions (ESG, ICRC and IPART).

Table 5.1: Regulatory gearing from recent decision

Regulator	Industry	Debt gearing from a recent decision
ESC	Water	60%
ICRC	Water	60%
IPART	Water	60%

Source: QCA, Rate of Return Review, Final Report, 9 November 2021

There is no current basis, such as material change in circumstances for Sunwater, to change the 60% debt gearing.

We recommend that a gearing of 60% debt/40% equity be adopted.

5.3 COST OF DEBT

The QCA advises that the cost of debt should be calculated as:

- cost of debt based on credit rating
- additional cost of debt raising.

5.3.1 Credit rating

The QCA states the credit rating benchmark for entities should be considered on a case-by-case basis at the time of their next review.

In the last review, the QCA confirmed that Sunwater should be considered a BBB-rated corporate. QCA's assessment of credit ratings used by other regulators across Australia is that all regulators use a BBB rated corporate rating as shown in Table 5.2

Table 5.2 Credit ratings used by other Australian Regulators

Regulator	Credit rating
ESC	RBA 10-year BBB rated corporate bond yield
IPART	RBA 10-year BBB rated corporate bond yield
ESCOSA	RBA 10-year BBB rated corporate bond yield
OTTER	RBA 10-year BBB rated corporate bond yield
ICRC	Average of Bloomberg and RBA 10-year BBB corporate bond yields

Source: QCA, Rate of Return Review, Final Report, 9 November 2021

Given that there has been no major financing or market changes to Sunwater since the last review, it is recommended that Sunwater adopt a BBB credit rating for this review.

5.3.2 Trailing average debt calculation

The QCA states that the entire cost of debt (risk-free rate and debt risk premium all-in-one) should be calculated using a trailing average approach for 10 years (linearly extrapolated to 10 years and annualised) and assumed refinancing to be undertaken annually.

QCA consider it appropriate to apply the following trailing average approach to determine the cost of debt allowance:

A 10-year trailing average approach is used to determine the entire cost of debt (that is, risk-free rate and DRP).

- The averaging period is the 10 years preceding the year in which the rate applies.
- Each year, the 10-year trailing average cost of debt is updated by rolling forward the data series by one year, such that:
  - the cost of debt for the roll-forward year reflects RBA's non-financial corporate [credit rating] bonds – yield – 10-year target tenor – RBA statistical table F3, linearly extrapolated to 10 years and annualised
  - the annual update will be a simple average of the monthly observations from April to March in the preceding year to which the rate applies
  - the trailing average is a simple average of 10 years of cost of debt.

The cost of debt based on the BBB-rated bonds has been calculated using the trailing average approach as shown in Table 5.3

Table 5.3 Cost of debt trailing average approach

Trailing average approach calculation	RBA non-financial corporate [credit rating] bonds – yield – 10-year target tenor – RBA statistical table F3. RBA data linearly extrapolated to 10 years and annualised
Cost of debt regulatory year (t-10) – average of twelve monthly observations of RBA data, April 2013 – March 2014	7.18%
Cost of debt regulatory year (t-9) – average of twelve monthly observations of RBA data, April 2014 – March 2015	5.22%
Cost of debt regulatory year (t-8) – average of twelve monthly observations of RBA data, April 2015 – March 2016	5.26%
Cost of debt regulatory year (t-7) – average of twelve monthly observations of RBA data, April 2016 – March 2017	4.72%

Trailing average approach calculation	RBA non-financial corporate [credit rating] bonds – yield – 10-year target tenor – RBA statistical table F3. RBA data linearly extrapolated to 10 years and annualised
Cost of debt regulatory year (t-6) – average of twelve monthly observations of RBA data, April 2017 – March 2018	4.48%
Cost of debt regulatory year (t-5) – average of twelve monthly observations of RBA data, April 2018 – March 2019	4.68%
Cost of debt regulatory year (t-4) – average of twelve monthly observations of RBA data, April 2019 – March 2020	3.36%
Cost of debt regulatory year (t-3) – average of twelve monthly observations of RBA data, April 2020 – March 2021	2.87%
Cost of debt regulatory year (t-2) – average of twelve monthly observations of RBA data, April 2021 – March 2022	3.75%
Cost of debt regulatory year (t-1) – average of twelve monthly observations of RBA data, April 2022 – March 2023	6.95%
Trailing average cost of debt regulatory year (t,2023–24) – average of cost of debt regulatory year (t-1) to (t-10)	**4.85%**

Source: RBA,2023, F3 Aggregate Measures of Australian Corporate Bond Spreads and Yields: Non-Financial Corporate (Nfc) Bonds

5.3.3 Debt-raising costs

The QCA provides an allowance of ten basis points (0.1%) for the transaction costs associated with raising debt for the trailing average approach. This is added the cost of debt to generate a total cost of debt of 5.00%.

5.3.4 Cost of debt summary

The current cost of debt calculated using the QCA’s guidelines and the most recent data is 4.95%.

5.4 COST OF EQUITY

The cost of equity is calculated using the:

- Risk free rate
- Equity beta
- Market risk premium.

5.4.1 Risk free rate

The risk-free rate is the rate of return an investor would expect to receive on an asset with zero default risk. It compensates an investor for the time value of money.

Estimation of the risk-free rate requires determining an appropriate term to maturity, proxy, data source and estimation method (including an averaging period).

Due to changes in the availability of RBA data, the risk-free rate is now calculated by:

- Using the yields on Australian government bonds, interpolated, 10 years maturity from the F2 Capital Market Yields – Government Bonds over the selected period (between 20 and 60 business days in length)
- Converting each yield to an effective annual rate (EAR)
- Averaging the yields over the period.

A 20-day period has been chosen as the initial period for consideration and sensitivity analysis as shown in Table 5.4

Table 5.4 Risk free rate average period

Risk free rate period	
Start date	7/08/2023
End date	1/09/2023
Business days	20

The risk-free rate calculations are shown in Table 5.5.

Table 5.5 Current risk-free rate calculation

Dates	Yields on Australian government bonds, interpolated, 10 years maturity	Yields on Australian government bonds, interpolated, 10 years maturity (%)	Effective annual rate (EAR)
7/08/2023	4.06	4.06%	4.12%
8/08/2023	4.01	4.01%	4.01%
9/08/2023	3.99	3.99%	3.98%
10/08/2023	4.04	4.04%	4.07%
11/08/2023	4.10	4.10%	4.20%
14/08/2023	4.19	4.19%	4.38%
15/08/2023	4.25	4.25%	4.52%
16/08/2023	4.20	4.20%	4.41%
17/08/2023	4.32	4.32%	4.65%
18/08/2023	4.23	4.23%	4.46%
21/08/2023	4.26	4.26%	4.53%
22/08/2023	4.26	4.26%	4.54%
23/08/2023	4.19	4.19%	4.38%
24/08/2023	4.11	4.11%	4.21%
25/08/2023	4.15	4.15%	4.31%
28/08/2023	4.13	4.13%	4.26%
29/08/2023	4.10	4.10%	4.19%
30/08/2023	4.07	4.07%	4.13%
31/08/2023	4.02	4.02%	4.04%
1/09/2023	4.00	4.00%	4.00%
Risk free rate (average)			**4.27%**

Source: RBA,2023, F2 Capital Market Yields – Government Bonds

The calculated risk-free rate, based on the chosen 20-day period, is 4.27%.

5.4.2 Equity beta

Previous QCA review

In the previous review, QCA used an asset beta of 0.40 and an equity beta of 0.755. The same asset beta and equity beta has been recalculated as shown in Table 5.6.

Table 5.6 Equity beta calculations

Parameter	
Asset beta	0.40
Debt beta	0.12
Imputation credit adjustment to the tax rate	15.48%
Debt	60%
Equity	40%
Equity beta	**0.755**

Systematic risk update

The asset beta (or unlevered equity beta) of an entity is a measure of the volatility of returns from a firm's assets relative to the volatility of returns to the market as a whole—often referred to as systematic (or non-diversifiable) risk. The equity beta (or levered asset beta) reflects not only this risk, but also the financial risk borne by equity holders from the use of debt as part of the funding for the business.

Systematic risks include:

- macroeconomic conditions
- political events
- interest rate changes
- inflation
- overall market sentiment.

The past 5 years has seen major changes to systematic risks from factors including:

- impact of the pandemic and associated response
- rising interest rates
- rising inflation.

The change in these factors affect the systematic risk for Sunwater but this change only be analysed by using comparable publicly listed companies.

Ideally, in the Australian context, this set would comprise firms that are listed on the Australian Stock Exchange (ASX), with similar operational characteristics and facing similar risks as the regulated entity. This is commonly cross-checked against similar analysis undertaken by other regulators in relation to similar firms.

There are few domestically listed firms that are comparable to Sunwater. In prior reviews, QCA's has benchmarked Sunwater using international comparable companies.

The QCA provides a list of comparator companies and the following four publicly listed US water companies have been used in the analysis of systematic risk. All four companies pass a liquidity filter of:

- minimum 100,000 shares traded per day (3-month average)
- Current market capitalisation above $AUD 100 million.

Table 5.7 Comparator companies

Water Ticker	Name
AWK	American Water Works Co Inc
WTRG	Essential Utilities Inc
CWT	California Water Service Grp
MSEX	Middlesex Water Co

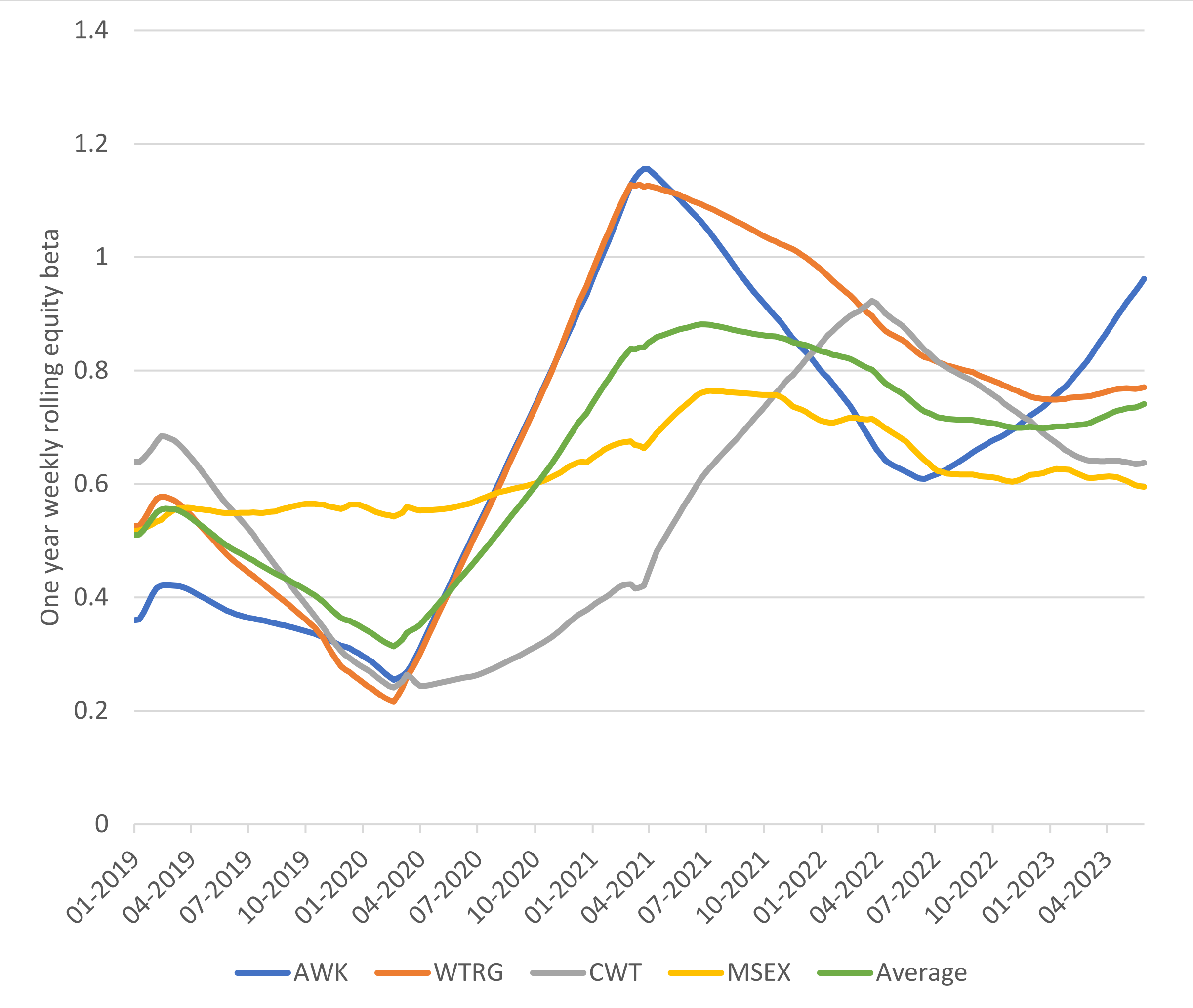
Pandemic and associated responses

The impact of COVID-19 on systematic risk was significant and varied across different industries and companies. These included:

- Increased Systematic Risk: The COVID-19 pandemic had a widespread impact on global economies and financial markets. The uncertainty surrounding the virus, lockdown measures, and their economic consequences led to increased market volatility. Higher volatility indicates increased systematic risk, and as a result, many stocks experienced higher betas during this period. The heightened uncertainty and market downturn increased the sensitivity of stock prices to market movements.
- Industry-Specific Effects: The impact of COVID-19 on beta varied across industries. Sectors such as travel, hospitality, and retail were severely affected due to travel restrictions, closures, and reduced consumer spending. Companies in these industries experienced significant declines in their stock prices and increased betas. On the other hand, sectors like healthcare, technology, and online retail saw increased demand, leading to more stable or even decreased betas.
- Company-Specific Factors: The pandemic's impact on individual companies depended on numerous factors such as their business model, financial strength, and ability to adapt. Companies with stronger balance sheets, diversified operations, and robust online presence were better positioned to weather the storm. These companies may have experienced lower betas compared to their industry peers, as their business operations were less affected.
- Market Recovery and Beta Normalization: As governments and central banks implemented stimulus measures and vaccination campaigns progressed, financial markets gradually recovered from the initial shocks of the pandemic. The recovery in market sentiment and improved economic outlook led to a decline in overall market volatility and the gradual normalization of betas for many stocks.

The one-year rolling weekly average equity betas for five publicly listed US water businesses shows a rise during the pandemic and subsequent fall as shown in Figure 5.1

Figure 5.1 One year weekly rolling equity betas for comparators companies



Source: Yahoo finance

It is likely that all companies experienced higher betas during the initial pandemic periods, even regulated entities such as Sunwater. Since the responses to the pandemic, it is likely that Sunwater's beta has normalised along with the comparator companies.

Inflation and interest rates

Inflation and interest rate changes can have significant impacts on the systematic risk in a firm's beta.

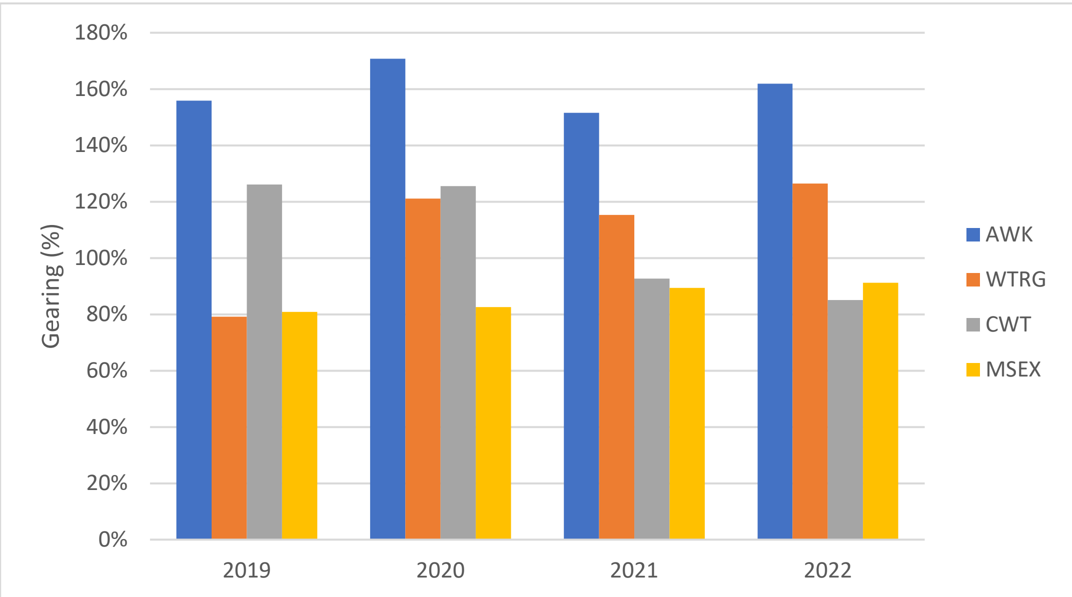
- Inflation: Inflation refers to the general increase in prices of goods and services over time. It affects the purchasing power of consumers and the profitability of businesses. When inflation rises, it can have the following impacts on systematic risk:
    - Interest rates: Central banks often raise interest rates to combat inflation. Higher interest rates can increase borrowing costs for firms, which can impact their profitability. If a firm relies heavily on debt financing, higher interest rates can lead to higher interest expenses, potentially affecting its earnings and stock price. Consequently, a firm's beta may increase due to the increased systematic risk associated with higher interest rates.
    - Consumer demand: Inflation can impact consumer purchasing power and behaviour. When prices rise, consumers may reduce their spending on discretionary items or delay purchases. This can affect the revenues and earnings of companies, particularly those in industries sensitive to consumer demand. A decline in sales and profitability can increase the systematic risk of a firm, leading to a higher beta.

- Input costs: Inflation can also increase the cost of raw materials, energy, and labour for businesses. If a firm's production costs rise significantly, it may face challenges in maintaining profitability. This can impact its stock price and increase the systematic risk reflected in its beta.

- Interest rate changes: Changes in interest rates, particularly the benchmark interest rates set by central banks, can affect the systematic risk in a firm's beta:
  - Borrowing costs: Interest rate changes can impact a firm's borrowing costs. When interest rates rise, borrowing becomes more expensive, leading to higher interest expenses for companies with debt. This can affect their profitability and increase the systematic risk associated with the firm, resulting in a higher beta.
  - Discount rates: Interest rates also affect the discount rates used in discounted cash flow (DCF) valuations. A higher discount rate reduces the present value of future cash flows, potentially lowering a firm's valuation and stock price. Changes in discount rates can impact the systematic risk of a firm and influence its beta.
  - Investment decisions: Interest rate changes can influence investment decisions by firms. Higher interest rates can make capital investments less attractive, potentially leading to reduced investment spending. This can impact a firm's growth prospects and future earnings potential, thus affecting its systematic risk and beta.

There has been a divergence in beta for the comparable companies since the start of inflation and interest rises. The divergence may be explained by the interest rate exposure - gearing (total debt divided by total equity) of the comparator companies as shown in Figure 5.2.

Figure 5.2 Annual gearing (total debt/total equity)



Source: Yahoo finance

A potential explanation for the recent rise in beta for AWK may be the higher gearing compared, resulting in greater increase in interest repayments, leading to lower profitability and higher share price volatility, as interest rates rise.

Comparator company asset (unlevered) asset betas

The average asset beta from 1 January 2017 to 31 August 2023 for the four comparator companies is shown in Table 5.8.

Table 5.8 Asset betas – comparator companies

	Average equity beta	Gearing	Corporate tax rate	Asset beta (unlevered)
AWK	1.007	162%	21%	0.442
WTRG	0.768	126%	21%	0.384
CWT	0.654	85%	21%	0.391
MSEX	0.608	91%	21%	0.353
Average	**0.759**	**116%**	**21%**	**0.393**

Source: Yahoo finance

The average (unlevered) asset beta of 0.393 which is lower than the QCA's recommended previous asset beta for Sunwater of 0.40.

Sunwater's equity beta, calculated by relevering the international comparator asset beta, is shown in Table 5.9.

Table 5.9 Sunwater equity beta using international comparator average asset beta

Asset beta	0.39
Debt beta	0.12
Imputation credit adjustment to the tax rate	15.48%
Debt	60%
Equity	40%
Equity beta	0.739

Note: Debt beta is QCA assumption - Rate of Return Review - Brealey-Myers levering formula with a debt beta of 0.12

NSW IPART equity beta for water businesses

The equity beta currently provided by the NSW Independent Pricing and Regulation Tribunal's (IPART) WACC calculation spreadsheet which provides a release financial market updates biannually in February and August.

The current equity betas (current market data and long-term averages) for water businesses regulated by IPART is shown in Table 5.10.

Table 5.10 IPART water equity beta (August 2023)

	Current market data	Long term averages
Equity beta	0.70	0.70

Adopted equity beta

The international comparator analysis and review of NSW IPART equity beta for water businesses indicates that Sunwater's equity beta may be lower than the previous equity beta of 0.755.

We recommend that an equity beta of 0.725 be adopted for this pricing proposal as a mid-point from the international comparators to IPART's current advice.

Gamma

Gamma is used to calculate the imputation credit adjustment to the tax rate as shown in Table 5.11

Table 5.11 Gamma calculations

Gamma	0.484
Implied tax rate	30.00%
Imputation credit adjustment to the tax rate	15.48%

The QCA concluded in its cost of capital review that a value of 0.484 is appropriate. This is the product of a value of 0.88 for the distribution rate based on the average distribution rate of relevant top fifty companies on the ASX by market capitalisation, and a utilisation rate of 0.55 based on the equity ownership of Australian listed companies.

5.4.3 Market risk premium

The market risk premium estimates the additional return that an equity investor requires, to be compensated for the risk of investing in a fully diversified portfolio of risky assets, relative to purchasing a risk-free asset.

QCA advises that the market risk premium be calculated using the Ibbotson method. This method — which assumes that investors use historical excess returns data to inform their expectations of achievable future returns—provides a plausible indication of the risk premium an investor requires on average for investing in the market.

The market risk premium is consistent between regulatory reviews, as it reflects long-term markets trends.

In the last review, Sunwater proposed to continue the use of the MRP from the recently completed bulk water review. However, in November 2019, the QCA updated the MRP to 6.5%.

We propose to use 6.5% as the market risk premium. We note, as indicated in the QCA's 2021 WACC review final report (p. 65), the QCA will calculate the MRP using the Ibbotson method with arithmetic averaging and the 1958 data sampling period as part of its review of Sunwater's pricing proposal.

NSW IPART market risk premium for water businesses

The chosen market risk premium of 6.5% is between the current market data and long-term average provided by the NSW IPART's WACC calculation spreadsheet.

The current market risk premiums (current market data and long-term averages) for water businesses regulated by IPART is shown in Table 5.10.

Table 5.12 IPART water equity beta (February 2023)

	Current market data	Long term averages
Market Risk premium	7.7%	6.0%

5.4.4 Cost of equity summary

The cost of equity calculated using the parameters above is 8.98%.

6 Current estimated WACC

The current estimated WACC for Sunwater, based on a high-level update and comparison with other jurisdictions, is shown in Table 6.1

Table 6.1 Current estimated WACC

Parameter	Current Sunwater proposal
20-day averaging period (end date)	**1-Sep-23**
Risk-free rate	4.27%
Market risk premium	6.50%
Asset beta	0.393
Equity beta	0.725
Cost of equity	**8.98%**
Credit rating	BBB
Cost of debt	**4.95%**
Capital structure	60%
Gamma	0.484
Nominal post-tax WACC (Office WACC3)	**6.56%**

The estimated WACC has increased from the previous review due to increases in the risk-free rate and the cost of debt as shown in Table 6.2.

Table 6.2 Comparison of current estimated WACC with previous proposal and QCA recommendation

Parameter	Current Sunwater proposal	Previous Sunwater proposal	QCA recommended in 2019
20-day averaging period (end date)	**1-Sep-23**	**27-Aug-18**	**29-Nov-19**
Risk-free rate	4.27%	2.260%	1.160%
Market risk premium	6.50%	7.000%	6.500%
Asset beta	0.393	0.410	0.400
Equity beta	0.725	0.765	0.755
Cost of equity	**8.98%**	**7.615%**	**6.068%**
Credit rating	BBB	BBB	BBB
Debt margin		2.410%	2.090%
Cost of debt	**4.95%**	**4.670%**	**3.250%**
Capital structure	60%	60%	60%
Gamma	0.484	0.410	0.484
Nominal post-tax WACC	**6.56%**	**5.85%**	**4.38%**

Note: QCA's Rate of Return Review stated that the total cost of debt (risk free rate and debt margin) should be calculated together so there is no debt margin in the current Sunwater proposal