Queensland Competition Authority

Draft report Part B

Gladstone Area Water Board price monitoring 2020–25 Part B: accumulated under-recovery

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

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1 INTRODUCTION

To date, the Gladstone Area Water Board (GAWB) has been charging prices that have not recovered the full prudent and efficient costs of providing water. The balance of revenue that GAWB has not recovered has grown in each regulatory period due to additional under-recoveries and the compounding of the under-recovery balance at the weighted average cost of capital (WACC) applying in each period.

We have been directed by the Minister to provide advice on measures to prevent the further accumulation of GAWB's under-recovery, reduce the existing under-recovery balance and manage the impact of these measures on customers. Our advice, taking into account GAWB's proposed approach and stakeholder submissions, is to:

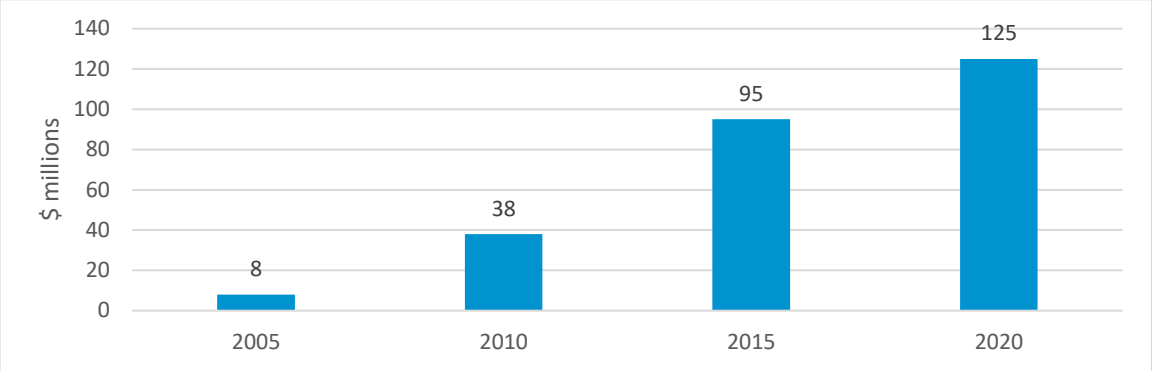
- Prevent any further accumulation of the under-recovery—GAWB should implement price smoothing over five years (starting 1 July 2020), instead of the 20 year period previously applied.
- Reduce the existing under-recovery balance by the following:
  - existing and future customers should pay for the under-recovery balance associated with the Awoonga Dam augmentation (i.e. efficient spare capacity). To this end, GAWB could capitalise the under-recovery associated with the Awoonga Dam augmentation and recoup this balance through GAWB's prices
  - existing customers should pay for the under-recovery balance not associated with the Awoonga Dam augmentation. To this end, GAWB should negotiate with its customers in relation to the repayment method (for example, an annuity of an agreed term or a lump sum up front payment, leaving the choice of the financing arrangements to the customer). If negotiation fails, we consider that appropriate default repayment terms could include annuity repayment terms for industrial and council customers of 30 and 100 years respectively and annuity repayments reflecting future cost of debt.

We consider our advice balances the interests of GAWB and its customers. The impact on customers would be on average 35.5 per cent lower relative to GAWB's proposed approach to recoup its under-recovery, while GAWB would still be able to recoup its prudent and efficient accumulated under-recovered balance.

1.1 Magnitude of GAWB's revenue under-recovery

Each GAWB pricing review has seen a significant escalating increase in the accumulated under-recovery balance (Figure 1):

Figure 1 Accumulated under-recovery balance



Source: QCA calculations

If GAWB continues to apply its current pricing approach, its revenue under-recovery is likely to continue to accumulate and cause a significant price shock to its customers at some stage in the future. Indeed, GAWB's present under-recovery balance of $125 million is now already over double our estimated 2019–20 revenue requirement for GAWB of $56 million.[1]

1.2 GAWB's under-recovery proposal

GAWB's pricing proposal to address the accumulation of revenue under-recoveries reflects its interpretation of the Directions. GAWB proposed a five-year price smoothing approach, rather than a 20-year smoothing period (with under-recoveries included in revenues) that had been used in the past. GAWB further proposed to exclude $124.7 million of under-recovered revenues from the building block calculation of allowable revenue for the 2020–25 regulatory period. Instead, it proposed to recover these under-recovered revenues via a separate annuity[2] as a separate charge on customers' bills.

GAWB determined the amount of the under-recovery and repayment amounts (annuities) for each customer (Table 1). While some of GAWB's customers would receive a refund, a number of customers would face a sizable annuity payment.

Table 1 GAWB's proposed under-recoveries and annuities by customer

Customer	***Repayment amount at 2021***	***Repayment amount at 2023[b]***	***Annuity from 2023***	***Annuity term***
A	[redacted]			
B				
C				
D				
E				
F				
G				
H				

[1] QCA, *Gladstone Area Water Board Price Monitoring 2015–20*, final report, May 2015, p. 76.
[2] A fixed sum of money paid to someone each year for a specified term.

Customer	***Repayment amount at 2021***	***Repayment amount at 2023[b]***	***Annuity from 2023***	***Annuity term***
I	[redacted]			
J				
K				
L				
M				
N				
O				
P				
Q				
R				
S				
T				
U				
Unallocated[a]				
Total	**124,693,021**	**136,350,384**	**n/a**	**n/a**

a Amounts attributable to customers that no longer take supplied water or have a GAWB connection.

b GAWB proposed that the payments commence in 2022–23.

Source: GAWB calculations. Appendix A details how GAWB calculated its proposed annuities.

2 REGULATORY FRAMEWORK AND APPROACH

2.1 The Minister's directions and GAWB's proposal

In accordance with the referral and direction notice issued by the Queensland Treasurer on 28 June 2019 (the 'directions'), we have been asked to provide advice on measures that:

- prevent the further accumulation of GAWB's under-recovered revenue[3]
- reduce GAWB's current accumulated under-recovery balance[4]
- manage the impact on customers of any proposed measures in relation to GAWB's under-recovered revenue.[5]

The directions do not prescribe how we should provide our advice and whether we should simply explore options or put forward a detailed solution.

GAWB, however, chose to put forward a methodology to address the under-recovery as part of its proposal for the pricing practices for 2020–25. We consider GAWB's proposed methodology constitutes relevant information, which should be considered as part of this investigation. GAWB has access to all the necessary information to analyse the under-recovery and has financial incentives to implement appropriate measures.

We therefore use GAWB's proposal as a starting point for our advice on the accumulated under-recovery. In addition, we released relevant information to individual customers regarding GAWB's proposal and provided an additional submission period for stakeholder comments. In light of stakeholders' comments and our own analysis, the advice contained in this draft report goes beyond GAWB's proposal in trying to mitigate customer impacts and identify an appropriate way forward.

While not explicitly stated, we understand the Directions were intended to require us to consider continuing the 20-year price smoothing approach (section 1.1(d) of the Directions). However, this is not how GAWB chose to develop its pricing proposal. As such, the data required to estimate prices using a 20-year smoothing approach was not provided. Notwithstanding this constraint, we consider maintaining the 20-year price smoothing approach would lead to the further rapid accumulation of under-recovered revenue, which would be an increasingly difficult problem to resolve in the future. Therefore, we have formed the view that this approach is no longer appropriate and did not request 20-year data from GAWB. In forming our advice on the measures outlined in section 1.3 in the Directions, we considered GAWB's proposal represented a sensible starting position.

Our approach is outlined in more detail in Chapter 2 (of Part A).

2.2 Legal framework

In delivering our advice, we have had regard to the Directions, as well as the matters listed in section 26 of the QCA Act, which include:

[3] Referral and direction notice, section B(1.3)(a).
[4] Referral and direction notice, section B(1.3)(b).
[5] Referral and direction notice, section B(1.3)(c).

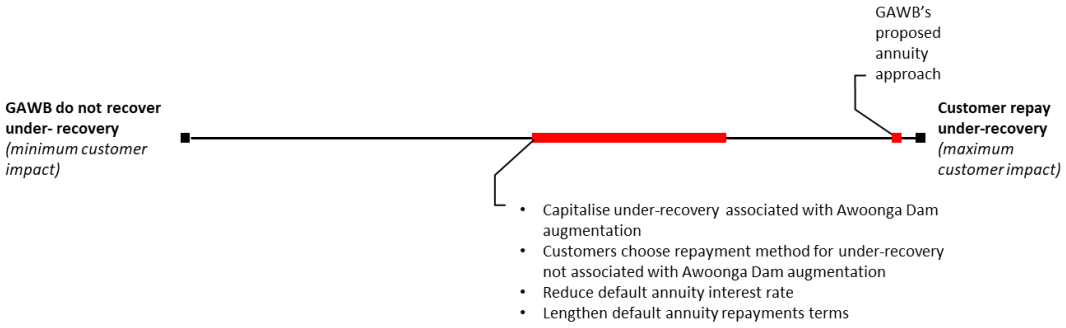
- economic or efficiency factors including the cost of providing the goods or services in an efficient way, the need for efficient resource allocation, and the protection of consumers from abuses of monopoly power[6]
- non-economic factors, including social welfare and equity considerations, economic and regional development issues, demand management, the availability of goods and services to consumers and the social and environmental impacts of pricing practices[7]
- any other matters we consider appropriate in undertaking our investigation.[8]

We have given priority to economic efficiency considerations. Prices that reflect efficient costs promote efficient resource allocation and help protect consumers from abuses of monopoly power. Economic efficiency promotes the overall public interest, while social and non-economic objectives are best addressed by other government policies.

2.3 Options to address the under-recovery

We have identified options that would prevent the further accumulation of GAWB's under-recovery and allow GAWB to deal with the current under-recovery balance. These options have different impacts on GAWB and its customers (Figure 2).

Figure 2 Spectrum of options and extent of revenue recovery

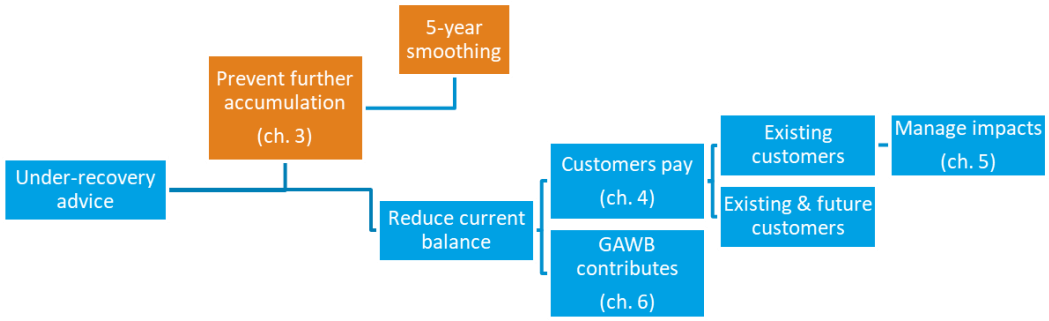


The broad family of options considered in this draft report (in red in Figure 2) focus on how:

- to prevent the further accumulation of under-recovered revenues (Chapter 3)
- to reduce the current balance of under-recoveries (Chapter 4)
- to manage the customer impacts of these measures (Chapter 5)
- GAWB could contribute to address the under-recovery (Chapter 6).

[6] Sections 26(1)(a), (c) and (d) of the QCA Act.
[7] Sections 26(1)(g), (h), (i) and (m) of the QCA Act.
[8] Section 26(3) of the QCA Act.

Figure 3 Overview of options



3 PREVENTING FURTHER ACCUMULATION

3.1 Key points

The QCA's key findings on the prevention of a further accumulation of under-recovered revenues are:

- The accumulation of under-recovered revenue was caused by a misalignment between the regulatory period and the price smoothing period.
- It is appropriate for the price smoothing period to be aligned with the regulatory period (five years), starting 1 July 2020.
- We do not find it appropriate to further capitalise the under-recovered amount beyond 30 June 2020; rather, the under-recovery should be capped at $124.7 million.

3.2 Alignment of regulatory and price smoothing periods

GAWB proposed aligning its regulatory and price smoothing periods at five years in order to prevent the further accumulation of its under-recovery.[9]

The Gladstone Regional Council (the council) did not support this proposal of GAWB. It said the approach:

> conflicts with the QCA's stated principle from prior reviews that the costs of spare capacity are to be shared between current and future users.[10]

We acknowledge that the 20-year price smoothing approach was initially implemented to spread costs associated with spare capacity (created by the raised dam wall) across existing and future customers as well as to mitigate price shocks. However, it is important to highlight that GAWB's resulting under-recovery was spread across *all* of GAWB's prudent and efficient costs, while the costs associated with spare capacity only make up 19 per cent (see Figure 5, Chapter 4).

As a general principle, we believe that price paths over multiple regulatory periods should remain transitional in nature. Whilst such mechanisms can be useful to mitigate price shocks, they should not be ongoing (i.e. they should have an end date), as they can lead to sub-optimal outcomes, including inefficiencies, misaligned price signals and inequities.

We consider that aligning GAWB's regulatory and price smoothing periods at five years is appropriate as a means to prevent the further accumulation of GAWB's under-recovery. Alignment would ensure GAWB recovers all its prudent and efficient costs within the regulatory period and prevent the need for under-recovery adjustments in future regulatory periods. This is consistent with efficient resource allocation (s. 26(1)(a) of the QCA Act).

Preventing further accumulation of under-recovered revenue would also likely benefit economic and regional development (s. 26(1)(m) of the QCA Act), as allowing the under-recovery balance to grow could potentially impact economic and regional development in the Gladstone region in the future.

[9] GAWB, sub. 1, pp. 72–75.
[10] GRC, sub. 15, p. 4.

Finding B3.1—Aligning regulatory and price smoothing periods

The QCA finds it appropriate for GAWB to align its regulatory and price smoothing periods at five years to prevent the further accumulation of GAWB's under-recovered revenue.

3.3 Further capitalisation of accumulated under-recovery

GAWB proposed that customers should commence paying down the accumulated under-recovery balance from 2022–23. GAWB proposed to add two years of capitalisation—based on the prevailing weighted average cost of capital (WACC)—to its under-recovery balance from 1 July 2020 to 30 June 2022, taking the balance from $124.7 million to $136.4 million.

We consider that GAWB's proposal to further capitalise its accumulated under-recovery for two years beyond 1 July 2020 would not prevent the further accumulation of under-recovered revenue. Therefore, if customers commence paying down the accumulated under-recovery balance after 1 July 2020, the under-recovery balance would need to be capped at $124.7 million.

Finding B3.2—Capping the under-recovery balance

The QCA finds GAWB's proposal to further capitalise the accumulated under-recovery to 30 June 2022 is not appropriate. Rather, GAWB's accumulated under-recovery balance should be capped at $124.7 million (the balance as at 1 July 2020).

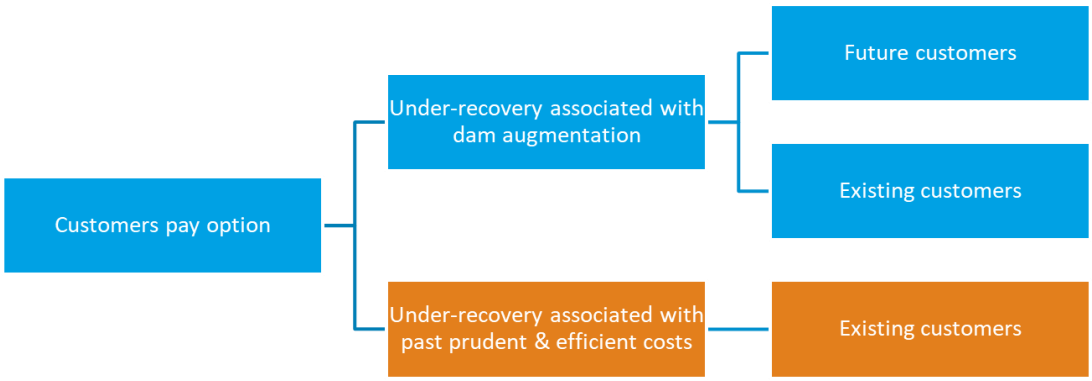
4 REDUCING CURRENT BALANCE

4.1 Key points

The QCA's key findings on how to reduce the current balance of the accumulated under-recovery are:

- The portion of the under-recovery associated with the Awoonga Dam augmentation:
  - should be paid back by both future and existing customers
  - should be capitalised[11] and charged through water prices over the remaining life of the dam.
- The portion of the under-recovery not associated with the Awoonga Dam augmentation:
  - should be paid by only existing customers
  - should be paid under payments terms to be negotiated between GAWB and customers, with default terms to be an annuity, but not exactly as proposed by GAWB.

Figure 4 Overview of reducing current balance

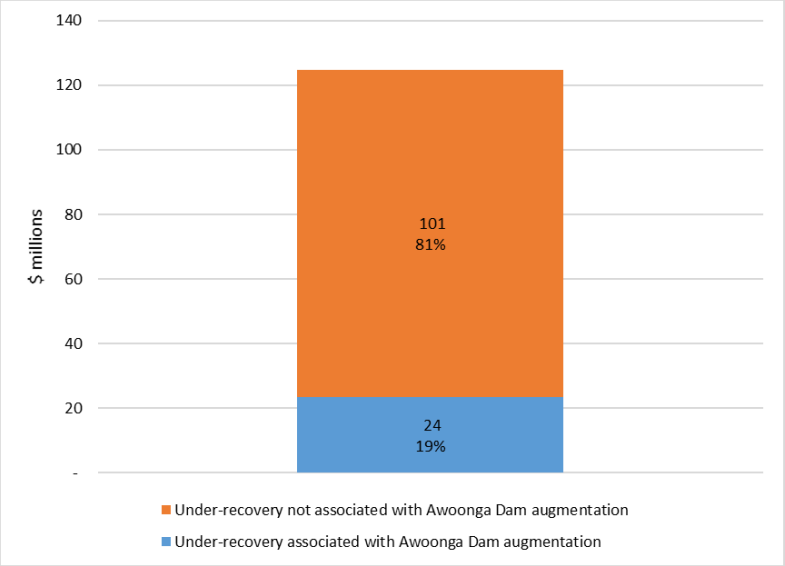


4.2 Current under-recovery balance

GAWB's accumulated under-recovery of revenue as at 1 July 2020 will be $124.7 million. The share of the under-recovery directly associated with Awoonga Dam augmentation is estimated to be $23.5 million (see Appendix A), whilst the remaining $101.2 million is related to the rest of GAWB's expenditures (Figure 5). Therefore, the majority of GAWB's under-recovery (81 per cent) relates to prudent and efficient costs not associated with the Awoonga Dam augmentation.

[11] Meaning this part of the under-recovery is turned into a separate asset. This would activate a return on and of capital, which would be recovered through customer prices over the life of the asset.

Figure 5 GAWB under-recovery of revenue as at 1 July 2020 ($ million, nominal)



Note: Appendix B provides more details on the QCA calculation of GAWB's under-recovery related to the Awoonga Dam.

Source: QCA calculations.

We find allowing GAWB to recover these prudent and efficient costs would encourage GAWB to undertake socially desirable investments—whereas if the under-recovery continues, GAWB may become dis-incentivised to invest (s. 26(1)(j) of the QCA Act).

4.3 Payments from existing and/or future customers

Reducing GAWB's accumulated under-recovery balance raises the question of 'who pays'. Various principles could be applied when trying to address this question. Section 26(1)(a) of the QCA Act states the authority must have regard to the need for efficient resource allocation. This can be achieved by the 'user or beneficiary pays' pricing approach—which is based on the idea that the most efficient allocation of resources occurs when consumers pay the full cost of the services or the goods that they consume. Section 26(1)(i) of the QCA Act provides two other important considerations in the context of who pays—social welfare and equity.

GAWB said that, in principle, it is appropriate for the full amount of the under-recovery to be recovered from existing customers, reflecting their utilisation of GAWB's assets while the under-recovery was accumulating. GAWB said the majority of the accumulated revenue under-recovery relates to the under-recovery of the full costs of providing services to existing customers. Therefore, recovering the under-recovery amount from existing customers would ensure they remain responsible for the costs of servicing their demand, along with a (comparatively small) proportion contributing towards the costs of the most recent Awoonga Dam augmentation, which reflects the benefits they have derived.[12]

In the QCA's 2002 review of GAWB's prices, existing customers raised concerns with having to pay for the costs associated with the significant spare capacity created by the Awoonga Dam augmentation. They argued the project driver was to deliver additional capacity for future customers, and hence these costs should be recovered from future customers. The QCA, at the time, determined the costs should be recovered from both existing and future customers.

[12] GAWB, sub. 7, p. 9.

Conoco Phillips mentioned the unintended consequences if current customers paid for unused capacity:

> GAWB infrastructure has been constructed with significant unutilized capacity, designed to allow future customers to cost efficient access. Charging this unused capacity to existing customers distorts the market and subsidizes future customers at the expense of current customers.[13]

Rio Tinto also questioned whether current customers should be paying for the under-recovery, considering that the Awoonga Dam is a long-life and significant asset:

> [G]iven the long life and significant capacity of the Awoonga Dam asset (compared to current reserves and demand), the QCA must consider whether it's appropriate the full amount of the under recovery is to be recovered from the current users.[14]

We find it appropriate that existing customers pay for the under-recovery not associated with the augmentation of the dam, as it is in accordance with efficient resource allocation (s. 26(1)(a) of the QCA Act). The 20-year price smoothing mechanism did not separate the costs of the Awoonga Dam augmentation investment from all other costs and allowances. In fact, costs associated with the Awoonga Dam augmentation only make up a relatively small portion of GAWB's efficient and prudent costs. Therefore, existing customers effectively have not been paying a price reflecting the full cost of supplying the regulated service. For this reason, existing customers are benefiting from GAWB not receiving revenue that is reflective of the prudent and efficient costs of the services being provided.

However, we do not find it appropriate that only existing customers pay for the under-recovery associated with the augmentation of the dam. We consider existing and future customers should pay for the costs associated with efficient spare capacity, consistent with our previously held view that such an arrangement achieves price stability and intergenerational equity objectives. It is worth noting that, given our demand projections (Part A, Chapter 8), it is likely that it would be some time before both existing and future customers pay for any of the under-recovery associated with the augmentation of the dam. This means that in present value terms, existing customers would still pay for most of this part of the under-recovery.

Finding B4.3—Who should pay?

The QCA finds it appropriate for existing customers to repay the under-recovery not associated with the Awoonga Dam augmentation, while it is appropriate for both existing and future customers to repay the under-recovery associated with the Awoonga Dam augmentation.

4.4 Annuities for under-recovery not associated with the Awoonga Dam

GAWB proposed to exclude the under-recovered revenues from the building block calculation of allowable revenue for the 2020–25 regulatory period. Instead, these revenues would be recovered via a separate annuity as a separate charge on customers' bills.

We consider GAWB's proposal to recover the accumulated under-recovery balance through a separate annuity repayment mechanism is a simple and transparent approach that reduces the balance of the accumulated under-recovery over time. Using annuities has added benefits of providing a fixed charge that can be allocated to customers on a beneficiary pays basis. A separate

[13] Conoco Phillips, sub. 16, p. 2.
[14] Rio Tinto, sub. 19, p. 4.

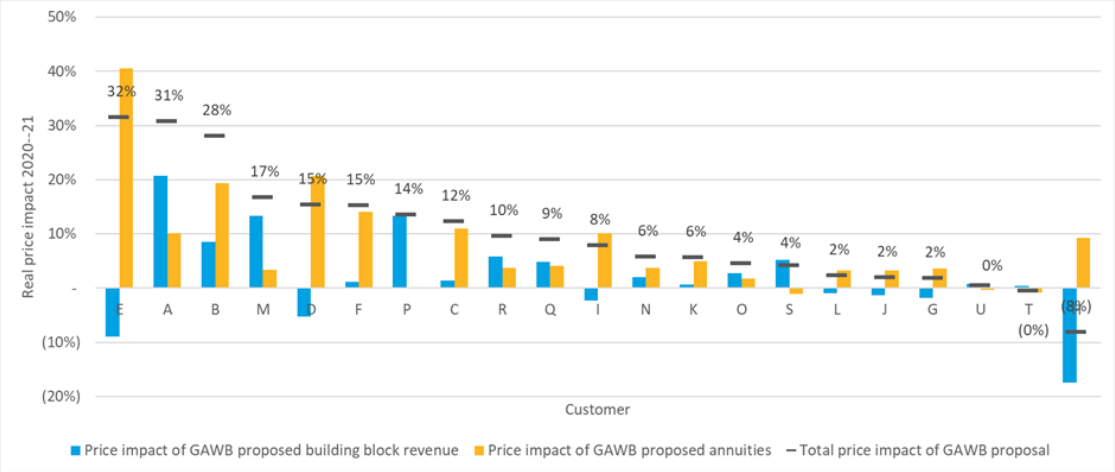
annuity charge also potentially prevents price distortion, as would be the case if the historical under-recovery were recovered through GAWB's current prices.

In principle, we find that an annuity approach similar to that proposed by GAWB is appropriate to recover the under-recovery *not* associated with the Awoonga Dam augmentation. This portion of GAWB's under-recovery relates purely to existing customers who have not been paying the full amount for GAWB's prudent and efficient service provision. Allowing GAWB to recover these costs from existing customers also satisfies section 26(1)(a) of the QCA Act on the grounds of efficient resources allocation.

However, we consider amendments are required to GAWB's proposal in order to manage the impact on customers and prevent a price shock to customers (see Chapter 5). We note that if GAWB's proposal was implemented, some customers may face a price shock due to substantial increases in their prices for bulk water (see Figure 5). In particular, we calculated that the council would be facing a real price increase of about 31 per cent in 2020–21.

We also note the negative impact GAWB's proposed price increases could have on some industrial customers who operate as price takers, with commodity prices set within international markets. These customers may have limited ability to pass through GAWB's proposed price increases to end purchasers.

Figure 6 Approximate price impact on customers from GAWB's proposal



Sources: GAWB, Under-recovery Analysis Model, Submission, September 2019; QCA calculations.

Concern about a price shock was raised by the council and Rio Tinto, which said:

> Rio Tinto submits that the QCA should consider that price jumps of the magnitude proposed by GAWB have the potential to undermine the competiveness of customers in the Gladstone area, which may in turn detrimentally impact the opportunity to attract capital to create further investment and employment opportunities at these sites.[15]

It is a difficult task to determine what an acceptable price impact for GAWB's industrial customers is. The impact is likely to be different for each customer, depending on its size and what proportion of its costs relate to bulk water. We are therefore unable to formulate a view as we lack detailed information on the cost structures of individual industrial customers.

[15] Rio Tinto, sub. 19, p. 3.

The council said:

> The concern to Council is that the sum impact of the proposed pricing to residents is a 37% [sic] increase per ML by 2025, under Part A and Part B submissions with increased costs to the community proposed over this period of $26.8m, despite only a total 2.1% increase in forecast demand over the five year forecast period in total.[16]

The materiality of the price impact for the council—which passes on GAWB's costs to its retail customers—is somewhat easier to ascertain. We understand the council has approximately 23,300 retail customer connections, which implies that the average impact of GAWB's proposed annuity repayment would be $87 per annum per retail customer.[17] We further understand a council ratepayer's average annual water bill currently is approximately $1,000. An $87 annuity would therefore cause a nearly 9 per cent increase in costs for the average retail customer.

On balance, we consider GAWB's proposal is not appropriate to implement in its current form, as it could potentially negatively impact Gladstone's economic and regional development (s. 26(1)(m) of the QCA Act).

Finding B4.4—Annuity approach

The QCA finds GAWB's proposal to recoup its under-recovery from existing users through separate annuities is partly appropriate, specifically it is:

- appropriate for GAWB to recoup the under-recovery *not* associated with the Awoonga Dam augmentation via an annuity
- not appropriate for GAWB to implement the annuity approach in its current form, as several customers may face a price shock.

4.5 Capitalisation for under-recovery associated with Awoonga Dam

We find GAWB's proposed annuity approach to recover the under-recovery associated with the Awoonga Dam augmentation is not appropriate. A case can be made that this portion of GAWB's under-recovery should not be allocated solely to existing customers. At the time of the augmentation, existing major water customers considered these augmentation costs should be borne by incoming customers, given they created the need for the augmentation.[18] The QCA at the time took the view that efficient spare capacity generated through the expansion of capacity at Awoonga Dam should be recovered across existing and future customers. The QCA considered this was consistent with price stability and intergenerational equity objectives.

We acknowledge there are arguments for and against spreading these costs over existing and future customers. However, on balance we consider this is an option that should be adopted. GAWB argued that existing customers have conceivably received benefits from spare capacity since the augmentation, including deferral of drought management plans and the costs associated with such plans, along with increased security of supply.[19]

[16] GRC, sub. 15, p. 1.
[17] GAWB's proposed council annuity of $2,037,271 divided by 23,300 connections.
[18] QCA, *Gladstone Area Water Board: Investigation of Pricing Practices*, final report, September 2002, p. 37.
[19] GAWB, sub. 1, pp. 67–71.

Meanwhile, the argument against existing users paying for spare capacity was raised by three customers in submissions:

> GAWB must find a way to separate the portion of costs attributable to unused excess capacity over the regulatory period. Customers should not have to pay for capacity they do not need. As customer needs increase, the cost of raising the dam wall (and associated costs) should be included in the charges. Historic 'under-recoveries' should also be adjusted to account for unused excess capacity.[20]

> GAWB infrastructure has been constructed with significant unutilized capacity, designed to allow future customers to cost efficient access. Charging this unused capacity to existing customers distorts the market and subsidizes future customers at the expense of current customers.[21]

> [G]iven the long life and significant capacity of the Awoonga Dam asset (compared to current reserves and demand), the QCA must consider whether it's appropriate the full amount of the under recovery is to be recovered from the current users.[22]

Recovering prudent and efficient under-recovered costs associated with the Awoonga Dam augmentation from existing and future customers could achieve intergenerational equity objectives (s. 26(1)(i) of the QCA Act). However, the counter-argument is that new entrants should not be required to contribute to historical under-recoveries as it might deter efficient entry (s. 26(1)(m) of the QCA Act).

If the under-recovery associated with the Awoonga Dam augmentation was capitalised in 2020–21, with a life of 131 years (i.e. the remaining asset life of the Awoonga Dam augmentation), costs would be spread across existing and future customers. Specifically, this part of the under-recovery (i.e. $23.5 million) would be turned into a separate asset as at 1 July 2020, with an asset life equal to the remaining life of the Awoonga Dam (i.e. 131 years). This would activate a return on, and of, capital, which would be recovered through customer prices over the remaining life of the asset. While unusual, this approach is quite simple to implement.

There are pricing benefits associated with recovering these costs across a broader customer base over a longer time horizon, relative to GAWB's proposed recovery of these costs entirely from existing customers over shorter-term annuities. In other words, the financial impact on customers in the 2020–25 period would be less than if this portion of the under-recovery was recovered via an annuity. This is reflective of approximately $4 million less revenue being recouped from customers over the 2020–25 regulatory period. Adopting GAWB's proposed 2021 annuities, $39.5 million would be recouped from customers over the 2020–25 regulatory period, compared our option where $35.5 million would be recouped (i.e. $32 million in annuities and $3.5 million in capitalised costs).

Sensitivity analysis conducted on a variety of options showed the capitalisation as a separate asset had the most effect in managing the price impact on customers, while still allowing GAWB to recover its money.

[20] GRC, sub. 15, p. 5.
[21] Conoco Phillips, sub. 16, p. 2.
[22] Rio Tinto, sub. 19, p. 4.

Finding B4.5—Under-recovery associated with Awoonga Dam augmentation

The QCA finds it appropriate for GAWB to recoup the under-recovery directly associated with the Awoonga Dam augmentation:

- from existing and future users
- by capitalising this portion of the under-recovery.

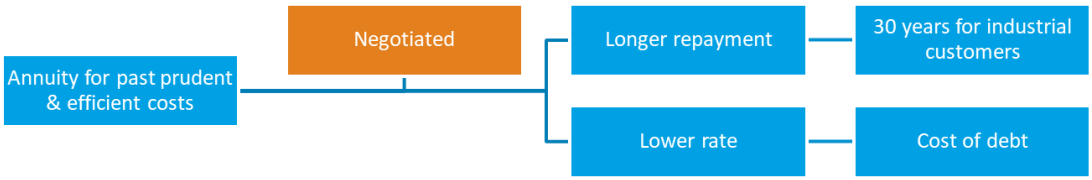
5 MANAGING CUSTOMER IMPACT

5.1 Key points

The QCA's key findings on how to manage the impact on customers of the measures to address the under-recovery not associated with the Awoonga Dam augmentation are:

- GAWB is to provide customers with a choice of repayment methods and to negotiate with customers to determine the optimal repayment length.
- If negotiations fail, the default repayment method should be an annuity with:
  - a term of at least 30 years for industrial customers
  - a term of 100 years for the council
  - an interest rate set at the appropriate cost of debt.[23]

Figure 7 Overview of managing customer impact



We propose to capitalise the under-recovery associated with the Awoonga Dam augmentation and thereby spread the costs across a broad range of customers (existing and future customers) over a long-time horizon. This in itself is a means to manage the impact on customers.

5.2 Choice of repayment method

For the component of the under-recovery balance *not* associated with the Awoonga Dam augmentation, we consider that GAWB should provide customers with a choice of repayment methods—for example, an annuity of an agreed term, or a lump-sum upfront payment.

Some customers may prefer to finance a lump sum payment via loans (if required), which they may be able to obtain on more favourable terms than at the prevailing WACC proposed by GAWB. This view was also expressed by the council:

> If Council was to accept an appropriate portion of under-recovered revenue, once all necessary information has been reviewed and agreed upon, then it may be more beneficial for it to consider how the overall cost to the public can be minimised, either through guarantee or annuity set at current borrowing rates, rather than the proposed WACC rate, ensuring that the net cost to the community and State is achieved.
>
> There is approximately a 2.56% p.a. difference between current borrowing rates and the proposed annuity rate by GAWB. The premium rate of return proposed relative to applicable borrowing rates, means that a debt that GAWB is seeking to recover over 100 years can be repaid through

[23] As advised by Queensland Treasury Corporation.

debt in only 27 years, at a net saving to the community on a Net Present Value basis of over $43m.[24]

GAWB might want to offer further discounts to customers who choose to pay upfront as a lump sum. While GAWB would be foregoing some of the under-recovery, an upfront repayment would lower GAWB's prospective risk—and the value of this could be reflected in the discount.

Moreover, we are of the view that GAWB should offer customers with a negative under-recovery balance the option to receive their payment upfront, as opposed to an annuity over time.

Finding B5.6—Repayment method

The QCA finds it appropriate that, in the first instance, GAWB provide each customer with a choice of repayment method for the component of the under-recovery balance *not* associated with the Awoonga Dam augmentation.

5.3 Default annuity repayment length

We consider GAWB should negotiate with customers to determine the optimal repayment length. However, if negotiation fails, default terms need to be in place.

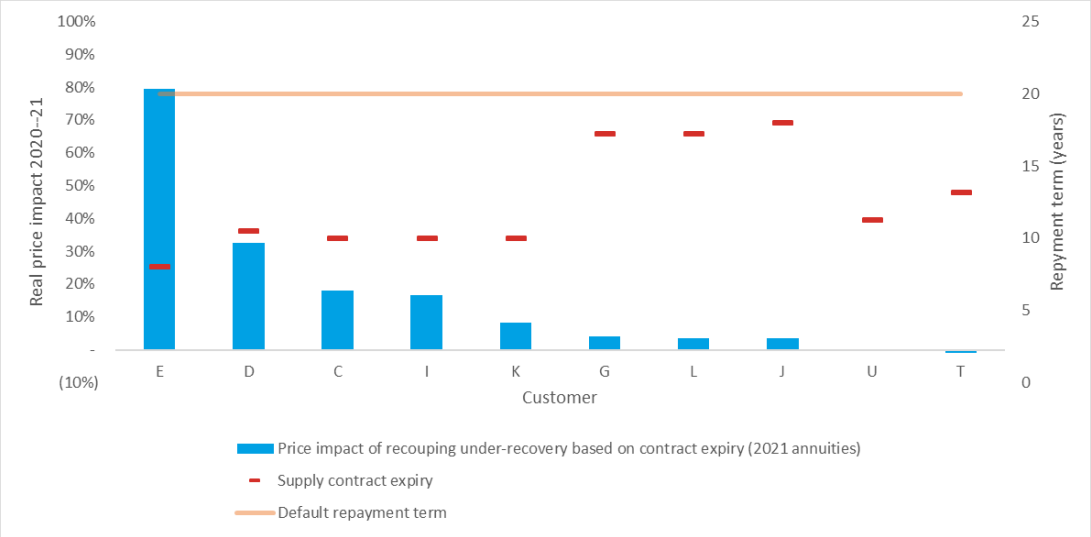
GAWB's proposed the following default arrangements:

- For industrial and domestic customers,[25] a default repayment term of 20 years would apply. GAWB said the default repayment term aligns with the current price smoothing period of 20 years, and is the assumed period in which the accumulated under-recovery has to be fully repaid. The default repayment term would be the maximum amount of time permitted for customers to repay their accumulated under-recovered revenue. A shorter term for repayment would apply to:
  - customers with a water supply contract that has an expiry date earlier than the default repayment term (i.e. prior to 2042); or
  - customers whose plant has an expected economic life shorter than the default repayment term.[26]
- For the council, a default repayment term of 100 years would apply. GAWB said this longer period is in recognition of the different risk factors associated with the supply of water for residential compared to industrial purposes.[27]

Those industrial customers with expiry dates listed in their contract all have contracts that expire prior to 2042 and some significantly earlier (Figure 8). Applying GAWB's approach (i.e. industrial customers' under-recovery repayment term is the lessor of 20 years or supply contract/plant expiry) would increase the burden on these customers from what would already be a significant impact with a default repayment term of 20 years. Our calculations show that customers would face a real price impact in 2020–21 of up to 80 per cent if the repayment term is based on customers' supply contract expiry. We therefore consider GAWB's proposal to be overly onerous on some industrial customers.

[24] GRC, sub. 15, p. 7.
[25] GAWB has 28 customers within close proximity to the Awoonga Dam who are directly connected to its network.
[26] GAWB, sub. 7, p. 11.
[27] GAWB, sub. 7, p. 12.

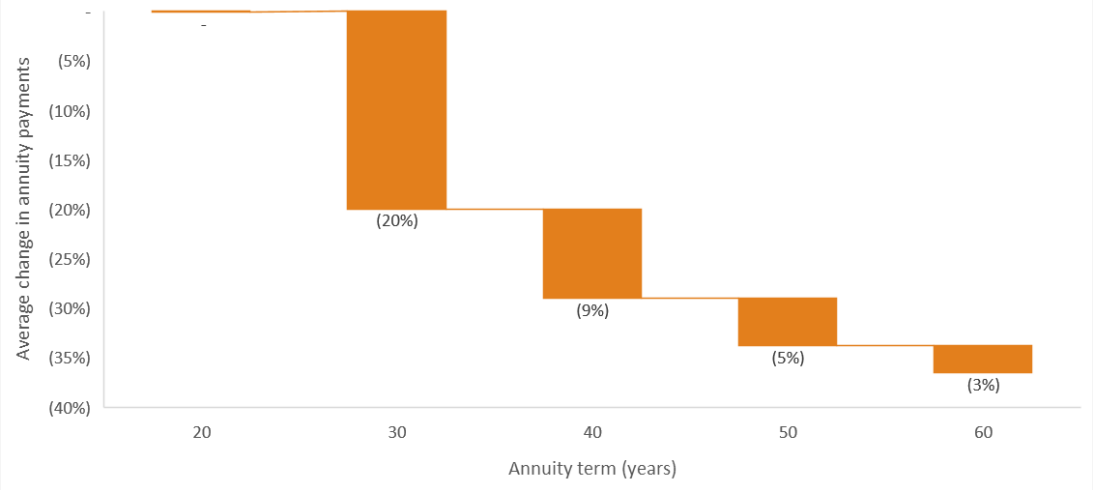
Figure 8 GAWB customer supply contract expiry dates and impact of GAWB's proposal



Sources: GAWB, Under-recovery Analysis Model, Submission, September 2019; QCA calculations.

An option to reduce the price impact of the under-recovery payments on customers would be to spread the repayments over a longer term. Using GAWB's proposed annuity payments approach with different repayment terms, we can calculate the average percentage change in industrial customers' annuity payments relative to those of GAWB's proposed 20-year repayment terms. Increasing the proposed annuity repayment term for industrial customers from 20 to 30 years would reduce the average annual annuity by 20 per cent (Figure 9). The marginal reduction in annual annuities significantly reduces for each subsequent 10-year increase to the repayment term.

Figure 9 Average decrease in industrial customer's annuity payments with increasing annuity terms

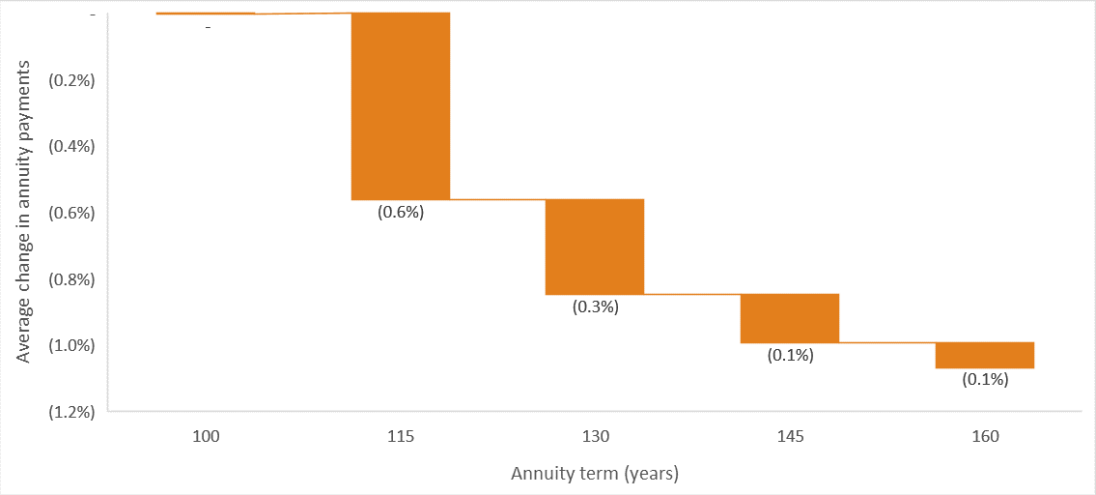


Sources: GAWB, Under-recovery Analysis Model, Submission, September 2019; QCA calculations.

We consider a default repayment term of 30 years would be more appropriate for industrial customers than the proposed 20 years, as it would significantly reduce the customer impact. However, it would require GAWB to collect annuities from some customers after their supply contract or plant expires. We suggest GAWB engage with its customers to determine a suitable way to collect the subsequent unallocated revenue in these events. One option could be charging a balloon payment if a customer terminates their supply arrangements prior to the end of the 30-year annuity term, or if the expected economic life of the plant is less than 30 years.

Figure 10 shows the average percentage change in the council's annuity payments relative to those of GAWB's proposed 100-year repayment terms with increasing repayment terms. Increasing the annuity repayment term over GAWB's proposed 100 years has a relatively minor impact. This is due to the capitalisation impact being applied over a substantial period of time. For example, if annuity payments were stretched from 100 to 160 years (i.e. the repayment term increased by 60 per cent), the average annuity payments would only decrease by 1 per cent per annum. We consider GAWB's proposed default repayment term of 100 years is appropriate in terms of balancing the under-recovery impact of GAWB and the repayment impact on the council.

Figure 10 Average decrease in the council's annuity payments with increasing annuity terms



Sources: GAWB, Under-recovery Analysis Model, Submission, September 2019; QCA calculations.

As highlighted above, we encourage GAWB to give its customers choice and flexibility over how they repay their allocated under-recovery, and to negotiate with customers to determine the optimal repayment length. If negotiations between GAWB and its customers fail, we find default annuity terms of 30 and 100 years for industrial and council customers respectively would be appropriate. We consider these default terms balance the interests of GAWB and its customers:

- GAWB will be able to recoup its under-recovery from the council and from industrial customers. In relation to industrial customers, GAWB may need to manage the additional risk relative to repayment terms set to the lesser of supply contract/plant expiry and 30 years. We understand that water supply contracts between GAWB and its customers can be extended and that, if contracts are terminated before the expiry date, GAWB can collect an early termination payment.[28] We consider these contractual measures should largely mitigate GAWB's risk.

[28] WICET, sub. 9, p. 1.

- Customers will face an additional charge to pay down their allocated under-recovery balance. However, this impact is reduced with a longer default annuity term for industrial customers of 30 years, where feasible.

We find the default terms of 30 and 100 years respectively will provide a more acceptable price impact for customers to bear and, in accordance with s. 26(1)(m) of the QCA Act, will reduce potential negative economic and regional impacts on the Gladstone region that would arise from a significant price shock to customers.

Finding B5.7—Default annuity repayment length

The QCA finds that GAWB's proposed default annuity repayment length of 20 years for industrial customers is not appropriate, while the proposed length of 100 years for the council is appropriate. The QCA finds the appropriate default annuity repayment lengths are:

- 30 years for industrial customers
- 100 years for the council.

5.4 Default annuity interest rate

We consider GAWB should negotiate with customers to determine optimal repayment terms. However, default terms need to be in place if negotiation fails.

GAWB proposed to set annuities based on the prevailing WACC.[29] Another option to reduce the price impact of under-recovery payments on customers would be to set the prospective repayments (annuities) using an interest rate equal to the cost of debt, instead of the prevailing WACC. By applying this interest rate prospectively, it would not impact on the retrospective under-recovery balance, which has been capitalised at the prevailing WACC. This approach was also put forward by the council, which stated that consideration should be given to setting repayments at current borrowing costs, as opposed to the proposed WACC.[30] A similar precedent exists in the Seqwater 2018–21 bulk water price review, where the Directions for the review stipulated that the interest on the price path debt was to be calculated using Seqwater's cost of debt as advised by Queensland Treasury Corporation.[31]

The WACC was the appropriate rate to apply to the under-recovery balance while it was accumulating as part of GAWB's regulatory allowable revenue requirement. This is because GAWB was entitled to compensate its debt and equity *investors* under the benchmark entity assumption. The relevant systematic risk in this case was compensated by the weighted opportunity costs of the investors' debt and equity capital, or WACC.

However, the under-recovery is no longer a cost component that contributes to GAWB's future prices, as per GAWB's proposal and the findings of this draft report. Because it is government-owned, GAWB would finance any debt from loans from the Queensland Treasury Corporation (QTC), therefore we find the appropriate interest rate for the default annuities should be QTC's cost of debt.

[29] GAWB, sub. 7, p. 13.
[30] GRC, sub. 15, p. 7.
[31] C Pitt, *Referral Notice for the Review of South East Queensland Bulk Water Prices*, 25 May 2017, para. (C)(5) of the referral notice, https://www.qca.org.au/wp-content/uploads/2019/05/31841_Referral-Notice-1.pdf. Seqwater's price path debt is its accumulated under-recovery arising from its bulk water price path.

As an example, applying a cost of debt of 3.1 per cent[32] as opposed to GAWB's proposed WACC of 4.57 per cent as the default interest rate would reduce GAWB's proposed annuities by 28.6 per cent for the council and 11 per cent for industrial customers. We find applying the cost of debt as the default annuity interest rate would contribute to a more acceptable price impact for customers. We consider reducing the price impact on customers will also reduce potential negative economic and regional impacts on the Gladstone region arising from a significant price shock to customers (s. 26(1)(m) of the QCA Act).

Finding B5.8—Default annuity interest rate

The QCA finds GAWB's proposal to set annuities based on the prevailing WACC is not appropriate. Rather, the QCA finds that annuities based on the cost of debt as advised by QTC would be appropriate from 1 July 2020.

[32] Cost of debt used by GAWB in its preliminary WACC estimates (GAWB, sub. 1, p. 122).

6 OPTIONS FOR GAWB

6.1 Key points

The QCA's key findings on the consideration of options for GAWB to contribute to the solution of the under-recovery are that:

- any decision on whether GAWB should not recover some past accumulated under-recoveries is best addressed by GAWB's board and shareholding minister[33]
- should the shareholding minister direct GAWB not to recover certain past under-recoveries:
  - this would not adversely affect GAWB's financial health[34]
  - the accumulated under-recovery amount for domestic customers should first be considered for non-recovery
- there is no reliable estimate to establish a clear threshold for GAWB to bear some utilisation risk with regard to past demand forecasts and the dam wall augmentation.

6.2 Potential merits of not recovering certain past under-recoveries

Instead of current and future customers repaying all past under-recoveries, an option could be that GAWB does not recover certain past under-recoveries. While this constitutes a government policy option and is not traditionally in the realm of the independent economic regulator, we feel compelled to raise this option for the following reasons:

- The Deputy Premier has sought our advice and we want to make this advice comprehensive.
- We have access to GAWB's regulatory modelling and, second to GAWB, are possibly best placed to assess this option.
- When it comes to unregulated companies, where past revenues are not collected, boards have the option (indeed possibly the obligation) to write off those debt and reflect this in their balance sheets according to the accounting standards.

To assess if not recovering certain past under-recoveries is appropriate from a regulatory perspective, we have considered economic, equity and regional development criteria, as well as regulatory and pricing principles.

6.2.1 Economic criteria

From an economic perspective, we are guided by efficiency factors. Efficiency objectives are generally achieved where prices are cost-reflective and forward-looking, and provide adequate revenues for investment and efficient operation.

We consider GAWB's under-recovery is likely cost-reflective, as it relates to prudent and efficient costs as previously assessed by us. However, we find recovering historical under-recoveries through current prices is not consistent with being forward-looking and may distort current price signals, unless the under-recovery is recouped through a separate charge. This issue is difficult to ascertain. If paying a separate charge is not optional to GAWB's customers, they would likely treat

[33] The current shareholding minister for GAWB is Dr Anthony Lynham.
[34] Our assessment of GAWB's financial health is described in Appendix C.

it as an increase in their water costs. Also, it is important to note that the council has historically rolled up all of GAWB's charges into one price when determining charges for its customers. If this practice continues, there is potential for price distortion to occur. Industrial customers may also see the annuity as an added water charge, as they have not been able to track their allocated under-recovery as a liability.

In terms of revenue adequacy, it depends on when the assessment takes place. At first glance, it would appear not allowing GAWB to recover its prudent and efficient costs would fail the revenue adequacy test. However, the fact that GAWB has survived with relatively stable financial health whilst under-recovering[35] may suggest GAWB would have sufficient revenue adequacy without recouping the under-recovery.

Another important efficiency issue to consider is whether recovering historical under-recoveries would affect industrial customers' investment decisions. For example, recouping the under-recovery may incite industrial customers to invest in their own water supply entirely and not buy anything from GAWB. Bypass of natural monopolies is generally an inefficient outcome.

The allocation of risk is also relevant to establishing efficient costs. Due to GAWB's healthy finances, GAWB may be better placed to absorb the under-recovery as opposed to customers repaying the under-recovery. Moreover, while GAWB has been monitoring the under-recovery accumulation since 2002, customers were not aware of their individual share of the under-recovery prior to the present review and have therefore not been able to manage this liability.

6.2.2 Equity criteria

There could potentially be equity and social welfare considerations that support GAWB not recovering certain past under-recoveries. These issues are often associated with the broad concept of ‘fairness’. The ‘beneficiary pays’ principle is consistent with the idea that it is fair for any given user of a service, or individual/entity that causes costs to be incurred, to pay for the costs directly associated with their use or action.

Since the implementation of GAWB's 20-year price smoothing mechanism, GAWB's customers have in effect not paid the full prudent and efficient costs of bulk water provision. Therefore, based on the 'beneficiary pays' test of fairness, it seems appropriate for GAWB to recover its under-recovery from its customers. However, there are cases where achieving equity and social objectives comes at the expense of economically efficient outcomes. For example, customers may consider that they are not responsible for imperfections in the pricing approach that sought to achieve intergenerational equity and may therefore object on fairness grounds.

6.2.3 Regional development criteria

Another consideration is the effect of price increases associated with recouping the under-recovery on Gladstone's economic and regional development. The Gladstone region is home to a range of significant industries, which account for approximately 80 per cent of GAWB's water supply. Ultimately, price increases could lead to existing industrial customers bypassing GAWB's network altogether. That said, as noted above, without detailed information on the cost structures of individual industrial customers, it is not possible to estimate the extent of such a response. If this circumstance were to eventuate, demand decreases would cause GAWB's prices to increase for the remaining customers. This event could self-perpetuate, ultimately leaving the remaining customers faced with unaffordable water costs, again depending on the cost

[35] More details are in Appendix C.

restructures of the remaining businesses, the ability of GAWB to reduce its own costs and the pricing approach taken to the treatment of any stranded assets.

6.2.4 Regulatory and pricing principles

Investment in water utilities is lumpy and in terms of minimising total costs investments are undertaken to not only meet existing demand, but also allow for a reasonable (expected) level of growth in demand. Therefore, prudent planned excess capacity—where the planned excess capacity is considered necessary to produce the lowest long-run total cost on a present value basis—should be included in the asset base.

Our initial assessment found that the dam augmentation was prudent and efficient given future demand forecasts at that time. GAWB was therefore allowed to recover this cost consistent with revenue adequacy principles. In line with our generally accepted regulatory principles, including regulatory certainty, this was confirmed in subsequent reviews despite evidence that demand was unlikely to meet expectations.

6.2.5 Overall assessment

On efficiency and equity grounds, the argument for GAWB not recovering certain past under-recoveries is somewhat weak, and from a regulatory and pricing principles perspective, we would not endorse or enforce a non-recovery of costs that have been deemed prudent and efficient. However, GAWB could consider not recovering part of its under-recovery balance to discourage inefficient bypass by industrial customers and address customer fairness concerns. We are also of the view that if GAWB did decide to not recover certain past under-recoveries, it would not adversely affect GAWB's financial health. In any case, we consider any decision in relation to GAWB not recovering certain past under-recoveries is best left to GAWB's board and shareholding minister.

Finding B6.9—GAWB not recovering certain past under-recoveries

The QCA considers it is appropriate that any decision in relation to GAWB not recovering certain past under-recoveries be left to GAWB's board and shareholding minister. If it is decided not to recover certain past under-recoveries, the QCA finds it would not adversely affect GAWB's financial health.

6.3 Absorbing under-recovery allocation to domestic customers

GAWB could absorb the under-recovery allocation to its domestic customers. The owners of these 28 direct connections within close proximity of Awoonga Dam have potentially changed hands in the past and could do so in the future. This brings into question whether the current and future owners of the connections are responsible for utilising GAWB's assets over the duration of the under-recovery mechanism and proposed annuity repayment scheme.

We note the relative insignificance of this allocation in GAWB's overall under-recovery balance (i.e. $17,770 out of $124.7 million[36]) and the potential significance of the annuity payments to these customers (i.e. GAWB's proposed average annuity for these customers is $51 for 20 years). It might not be efficient for GAWB to spend the time and effort to recover this amount from the 28 domestic customers.

[36] GAWB, sub. 8, p. 12.

If it is decided to forgo recovering GAWB's domestic customers' share of under-recovery allocation, it would raise the issue of fairness on the grounds of differential treatment between GAWB's domestic customers and the council's customers. The council's share of GAWB's under-recovery is significant, however, and not recovering that amount would mean GAWB would forgo a large sum, unlike the under-recovered amount from direct domestic customers. We consider managing the impacts on the council's retail customers is best addressed through our identified customer repayment options, which seek to manage the impact on customers.

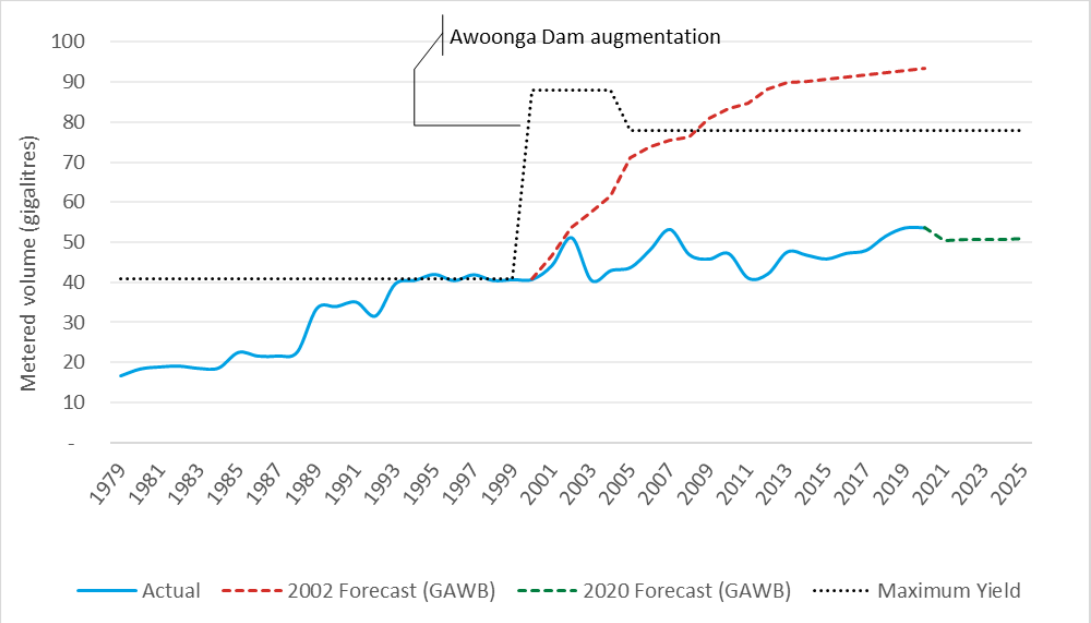
Finding B6.10—Absorbing domestic customers' under-recovery

If it is decided that GAWB should not recover certain past under-recoveries, GAWB's direct domestic customers' under-recovery should first be considered.

6.4 Absorbing utilisation risk with the Awoonga Dam augmentation

The Awoonga Dam augmentation has resulted in spare capacity in the order of 25 per cent since being commissioned in 2001 (Figure 11). It could be argued that current users have benefited from the first 20 gigalitres of the augmentation, while it is not clear whether they have benefited from the remaining 17 gigalitres.

Figure 11 GAWB's metered volume relative to maximum yield



Source: GAWB historical demand data; QCA analysis.

Rio Tinto suggested GAWB should bear some utilisation risk in relation to the Awoonga Dam augmentation:

> Rio Tinto submits that GAWB should bear a degree of utilisation risk associated with capital projects to ensure capital is deployed in an efficient manner. If a capital or augmentation project by a monopoly provider has benefits which are far beyond those then required by the users, then it should be considered whether the monopoly provider should have some responsibility for funding such excess.[37]

[37] Rio Tinto, sub. 19, p. 3.

Callide Power Management also raised concerns that GAWB's proposed cost recovery methodology for the under-recovery effectively transferred demand risk from GAWB to current users.[38]

Until now, customers have been responsible to pay for the augmentation through GAWB charges, so—aside from the carried-over under-recovered amount—responsibility for unutilised spare capacity has rested with the existing customers. One way GAWB could take responsibility for the unutilised spare capacity would be by absorbing the difference in capital costs between the original augmentation cost and that of an optimal scale augmentation for the current and forecast demand. This approach would require a cost estimate of a lower raising of the Awoonga Dam wall.

The original report prepared by engineering consultant SMEC for us, explained that at the time, the Awoonga Dam was in the process of being raised from a full supply level (FSL) of 30 metres to a FSL of 40 metres, its current dam height. However, SMEC noted that the embankment design was engineered to accommodate a future 'stage 2', raising the dam height to a FSL of 45 metres. SMEC said it could not reliably estimate the cost if the dam height had been scaled to a lower level, such as a FSL of 38 metres only.[39] Due to time constraints associated with this review, we are not in a position to determine this difference in cost (by appointing an expert to build a retrospective cost estimate for a lower dam wall augmentation, for example).

Therefore, we consider the available information does not provide a reasonable basis for an adjustment to the accumulated under-recovery. However, we are conceptually in favour of this approach, or other similar approaches, in which GAWB absorbs some responsibility for what has, in hindsight, been an over-investment based on forecast demand that has not materialised. GAWB would be best placed to propose an estimate of the value of an optimised dam wall, as it may have more information than we have on the costs of various options at the time to substantiate such an estimate. We note that GAWB's board or shareholding minister could also make the decision to optimise GAWB's asset base.[40]

There may also be plausible arguments for optimising the asset based on a prospective analysis. Such a prospective analysis would consider what it would cost now—with advances in technology and design—to build the appropriate infrastructure to meet the changed demand circumstances. Under these circumstances, part of GAWB's assets for which a previous investment decision was assessed as prudent and efficient on the basis of a forward-looking analysis would subsequently be written out of the asset base.

Finding B6.11—Absorbing utilisation risk with Awoonga Dam augmentation

The QCA finds GAWB absorbing the utilisation risk in relation to the Awoonga Dam augmentation is not appropriate, because there is no reliable cost estimate to establish a clear threshold. However, the QCA considers that there may be a case for GAWB to propose an optimisation of its asset base.

[38] Callide Power Management, sub. 17, p. 5.
[39] SMEC, *Gladstone Area Water Board Asset Valuation Study – Stage 2 Report*, volume 1, 2002, pp. 81–82.
[40] Water Act 2000 (Qld), ss. 652–658; 675–676.

7 QCA ADVICE

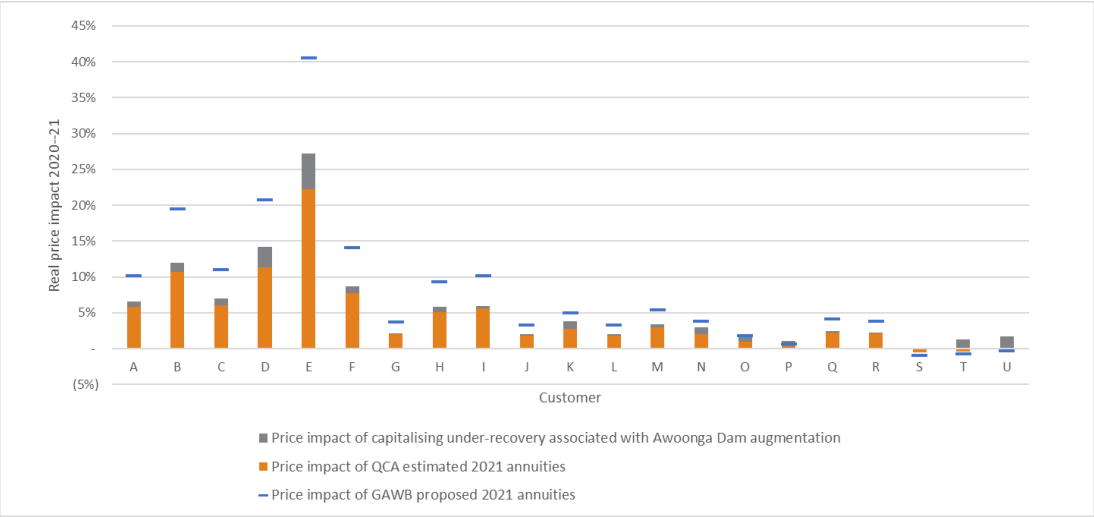
7.1 Key points and financial impact on customers

The QCA broadly agrees with GAWB's proposal to recoup accumulated under-recoveries from customers via a separate charge. However, we consider the following adjustments should be adopted for implementation:

- GAWB should capitalise the under-recovery associated with the Awoonga Dam augmentation and recoup this balance through GAWB's prices, as opposed to a separate charge or arrangement.
- For the under-recovery balance not associated with the Awoonga Dam augmentation, GAWB should negotiate with its customers in relation to the repayment method (for example, an annuity of an agreed term, or a lump-sum upfront payment), leaving the choice of the financing arrangements to the customer. GAWB could consider offering discounts to customers for a prompt payment.
- Where negotiation fails, we consider that appropriate default repayment terms should include:
  - an annuity repayment term of 30 years for industrial customers and 100 years for council customers
  - annuity repayments that reflect an appropriate cost of debt.

We consider these modifications balance the interests of GAWB and its customers. GAWB would be able to recoup its prudent and efficient accumulated under-recovered balance, while the financial impact on customers would be on average 36 per cent lower relative to GAWB's proposed approach to recoup its under-recovery (Figure 12).

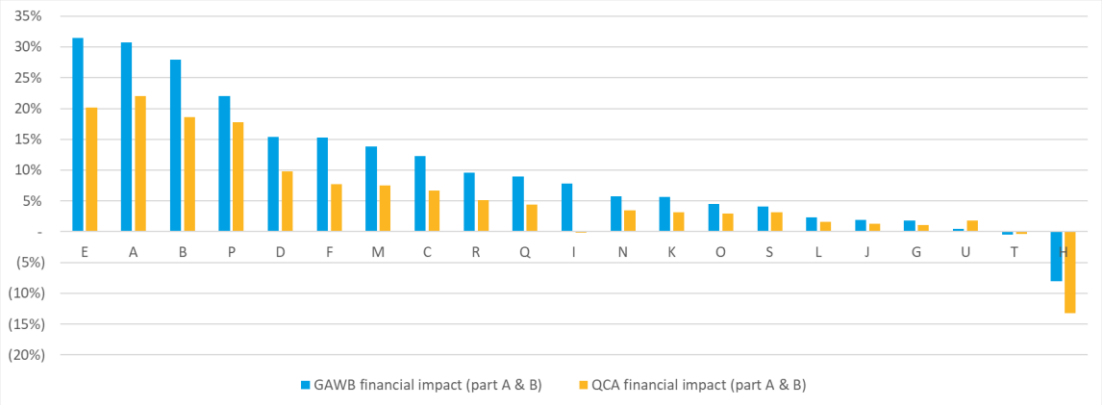
Figure 12 Customer financial impact of preferred approach relative to GAWB's proposal



Sources: GAWB, Under-recovery Analysis Model, Submission, September 2019; QCA calculations.

Combined with the indicatives prices we found in Part A of this report, the financial impact on customers would be 35 per cent lower relative to GAWB's proposal for prices (part A) and the under-recovery (part B) (Figure 13).

Figure 13 Overall customer financial impact of GAWB proposal relative to QCA



Sources: GAWB, Under-recovery Analysis Model, Submission, September 2019; QCA calculations.

We recalculated the indicative prices for each pricing zone adding the capitalisation of the Awoonga Dam's portion of the under-recovery (Table 2).

Table 2 QCA indicative prices—including capitalisation of Awoonga Dam under-recovery (1 July 2020)

Price zone	*Reservation & storage*		*Delivery*		*Admin*	*Indicative average price*
	Storage access	*Storage volumetric*	*Delivery access*	*Delivery volumetric*	*($/res. ML)*	*($/res. ML)*
	($/res. ML)	*($/metered ML)*	*($/reserved MDQ)*	*($/metered ML*		
Awoonga	381.07	1.76	—	—	30.82	413.39
Awoonga to Toolooa	381.07	1.76	6,141.71	36.67	92.45	773.73
Toolooa to Fitzsimmons	381.07	1.76	7,777.87	36.67	92.45	844.26
Boyne Raw	381.07	1.76	10,617.58	36.67	92.45	1,010.09
Central Raw	381.07	1.76	9,678.88	36.67	92.45	929.52
Fitzsimmons to Gladstone	381.07	1.76	8,294.34	36.67	92.45	865.94
QAL	381.07	1.76	10,015.78	36.67	92.45	945.19
Fishermans Landing Raw	381.07	1.76	13,622.63	37.32	92.45	1,375.15
Gladstone WTP	381.07	1.76	23,915.97	115.84	215.71	1,658.65
Gladstone City	381.07	1.76	27,150.60	115.84	215.71	1,790.26
Gladstone WTP to South Gladstone	381.07	1.76	28,653.63	115.89	215.71	1,841.17
Calliope	381.07	1.76	40,310.61	132.43	215.71	2,333.22
South Gladstone to Toolooa	381.07	1.76	37,131.14	118.80	215.71	2,199.97
Boyne Potable	381.07	1.76	44,864.93	119.11	215.71	2,527.62
Benaraby	381.07	1.76	67,908.89	144.52	215.71	3,471.94
Yarwun WTP	381.07	1.76	32,868.31	127.28	215.71	2,613.95

Price zone	*Reservation & storage*		*Delivery*		*Admin*	*Indicative average price*
	Storage access	*Storage volumetric*	*Delivery access*	*Delivery volumetric*	*($/res. ML)*	*($/res. ML)*
	($/res. ML)	*($/metered ML)*	*($/reserved MDQ)*	*($/metered ML*		
North Industrial Potable	381.07	1.76	39,548.28	123.52	215.71	3,233.92
Fishermans Landing Potable	381.07	1.76	57,322.47	123.52	215.71	6,000.93
Boat Creek to East End	381.07	1.76	81,846.44	323.98	215.71	9,835.90

Source: QCA calculations.

We also calculated the price changes from the indicative prices we found in Part A, Chapter 10 (section 10.4, table 34) and the differences are presented in Table 3. The effects of the capitalisation are:

- an increase to the storage access charge, and
- a decrease in delivery access charges and admin charges, due to the tax component effect.

Table 3 Comparison QCA indicative prices including and excluding capitalisation of Awoonga Dam under-recovery (1 July 2020)

Price zone	*Reservation & storage*		*Delivery*		*Admin*	*Indicative average price change*
	Storage access	*Storage volumetric*	*Delivery access*	*Delivery volumetric*	*($/res. ML)*	*($/res. ML)*
	($/res. ML)	*($/metered ML)*	*($/reserved MDQ)*	*($/metered ML*		
Awoonga	12.12	—	—	—	(0.00)	12.12
Awoonga to Toolooa	12.12	—	(0.96)	—	(0.00)	12.07
Toolooa to Fitzsimmons	12.12	—	(1.11)	—	(0.00)	12.07
Boyne Raw	12.12	—	(1.97)	—	(0.00)	12.02
Central Raw	12.12	—	(1.53)	—	(0.00)	12.05
Fitzsimmons to Gladstone	12.12	—	(1.12)	—	(0.00)	12.07
QAL	12.12	—	(1.35)	—	(0.00)	12.06
Fishermans Landing Raw	12.12	—	(2.24)	—	(0.00)	11.97
Gladstone WTP	12.12	—	(1.84)	—	(0.01)	12.03
Gladstone City	12.12	—	(1.96)	—	(0.01)	12.03
Gladstone WTP to South Gladstone	12.12	—	(2.34)	—	(0.01)	12.01
Calliope	12.12	—	(4.56)	—	(0.01)	11.92

Price zone	*Reservation & storage*		*Delivery*		*Admin*	*Indicative average price change*
	Storage access	*Storage volumetric*	*Delivery access*	*Delivery volumetric*	*($/res. ML)*	*($/res. ML)*
	($/res. ML)	*($/metered ML)*	*($/reserved MDQ)*	*($/metered ML*		
South Gladstone to Toolooa	12.12	—	(3.34)	—	(0.01)	11.97
Boyne Potable	12.12	—	(4.49)	—	(0.01)	11.92
Benaraby	12.12	—	(6.62)	—	(0.01)	11.84
Yarwun WTP	12.12	—	(3.23)	—	(0.01)	11.93
North Industrial Potable	12.12	—	(4.44)	—	(0.01)	11.83
Fishermans Landing Potable	12.12	—	(7.25)	—	(0.01)	11.39
Boat Creek to East End	12.12	—	(12.57)	—	(0.01)	10.59

Source: QCA calculations.

7.2 Implementation via the pricing principles

GAWB made a submission in 2009 to our investigation of GAWB's pricing practices (completed in 2010), in which it provided a set of pricing principles that it had developed.[41] GAWB said these principles accorded with the recommendations we made following the investigations we completed in 2002 and 2005.[42] GAWB also said in its proposal to this investigation that its commercial arrangements recognise this element of the regulatory framework and refer to it as the 'price smoothing carryover'.[43]

Accordingly, we have assumed that the pricing principles in the users' contracts[44]—insofar as they relate to the 'price smoothing carryover'—are on the following, or substantially similar, terms:

> The first step in calculating prices is to determine an Aggregate Revenue Requirement (ARR) for GAWB in each year of a 20-year planning period.
>
> The ARR will include:
>
> …
>
> - an amount to recover the present smoothing effects from the previous review period (the Price Smoothing Carry-over)[45]

[41] GAWB, submission to the QCA, *Commercial Framework and Pricing Principles for the 2010 price review*, September 2009, Appendix E, https://www.qca.org.au/wp-content/uploads/2019/05/4266_W-GAWB2010-GAWB-Submission1-040909-1.pdf.

[42] GAWB, submission to the QCA, *Commercial Framework and Pricing Principles for the 2010 price review*, September 2009, p. 43.

[43] GAWB, sub. 1, p. 56.

[44] Other than that for Callide Power Management Pty Ltd—see Callide Power Management, sub. 17, p. 7.

[45] GAWB, submission to the QCA, *Commercial Framework and Pricing Principles for the 2010 price review*, September 2009, p. 124.

To reflect our advice in respect of the under-recovery, we consider the pricing principles should be amended as set out below.

Finding B7.12—Amendment to pricing principles

The QCA finds it appropriate that the pricing principles in the user contracts be amended in the following ways:

- that the amount required to recover the present smoothing effects from the previous review period (the Price Smoothing Carry-over) be removed from the calculation of the aggregate revenue requirement, save in relation to the under-recovery associated with the Awoonga Dam augmentation;
- that the under-recovery associated with the Awoonga Dam augmentation be capitalised in 2020–21, to be recovered through customer prices over the remaining asset life of the Awoonga Dam; and
- that the amount required to recover the present smoothing effects from the previous review period (the Price Smoothing Carry-over), less the amount included in the aggregate revenue requirement for the Awoonga Dam augmentation, be recoverable from each current user (in the appropriate amount) through an annuity, or a lump-sum payment, as agreed between GAWB and the applicable customer. Failing such agreement, the amount should be repaid by that customer through an annuity over a term of 30 years (for industrial customers) and 100 years (for the council), with the annuity repayments reflecting the cost of debt.

GLOSSARY

ARR	Aggregate Revenue Requirement
CFO	Cash flow from operations
CPI	Consumer price index
council	Gladstone Regional Council
the Directions	The Treasurer's referral and direction notice to the QCA dated 28 June 2019
ESC	Essential Services Commission Victoria
FFO	Funds from operations
FSL	Full supply level
GAWB	Gladstone Area Water Board
GRC	Gladstone Regional Council
IPART	Independent Pricing and Regulatory Tribunal
ML	Megalitre
NERA	National Economic Research Associates
QCA	Queensland Competition Authority
QTC	Queensland Treasury Corporation
WACC	Weighted average cost of capital
WICET	Wiggins Island Coal Export Terminal

APPENDIX A: CALCULATION OF GAWB'S PROPOSED ANNUITIES

ConocoPhillips suggested 'that further information should be requested from GAWB on the methodology to be applied in determining any additional payment.'[46] This appendix is meant to provide this information to customers.

Our investigation shows that in order to determine the allocation of the under-recovery to customers, GAWB:

- calculated the revenue that was unrecovered annually by pricing zone
- solved for an incremental zonal price so as to extinguish these annual under-recoveries from each pricing zone
- applied the incremental zonal prices to the historic demand of each customer in order to identify the amount of revenue that was unrecovered for each customer
- presented the revenue stream as a present value amount for each customer as at 1 July 2020.[47]

Once GAWB determined the amount of the under-recovery for each customer, it calculated repayment amounts. This was achieved using an annuity approach.

GAWB proposed that the following measures should be applied with each price reset in the context of a new five-year regulatory period:

- Calculate the annual annuity payment for each customer that would extinguish the outstanding balance, having regard to the maximum repayment term.[48] The initial annual annuity payments will be based on the WACC used to set prices commencing 1 July 2020.
- Each customer gets a repayment schedule with five annual payments (called annuities).
- All remaining payments due in the five-year regulatory period, including a balloon payment, become due and payable if the customer terminates their supply arrangements prior to the end of the regulatory period.
- If supply is to occur in the following regulatory period, the 'balloon payment' identified in year five of the repayment schedule will be used to set the new annuity for the next regulatory period.[49]

[46] ConocoPhillips, sub. 16, p. 2.
[47] GAWB, Under-recovery analysis model, submission, September 2019.
[48] For industrial customers, GAWB proposed the lesser of supply contract termination/plant expiry dates and 20 years. For the council, GAWB proposed 100 years.
[49] GAWB, sub. 7, p. 14.

APPENDIX B: UNDER-RECOVERY RELATED TO AWOONGA DAM AUGMENTATION

Item	*Awoonga Dam augmentation*	
1	Asset life	150 years
2	Opening asset value	$99.2 million
3	Commission date	2001
4	WACC[a]: 2001–02 to 2004–05 2005–06 to 2009–10 2010–11 to 2014–15 2015–16 to 2019–20	 8.72% 8.05% 9.46% 5.41%
5	Awoonga Dam augmentation revenue requirement (2001–02 to 2019–20) Return on asset *plus* depreciation *less* inflation Total	 $181.4 million $12.6 million $58.7 million $135.3 million
6	GAWB's overall revenue requirement (2001–02 to 2019–20)[b]	$717.2 million
7	Awoonga Dam augmentation under-recovery portion = (item 5 ÷ item 6) × total under-recovery $135.3 million ÷ $717.2 million × $124.7 million	 $23.5 million

a Prevailing WACC for each review period.

b See previous QCA final reports for GAWB

Note: All dollar amounts in the table are nominal.

Sources: QCA calculations; QCA, Gladstone Area Water Board: Investigation of Pricing Practices, final report, September 2002, pp. 51, 101; ABS, Consumer Price Index, Australia, Sep 2019, cat. 6401.0, Table 5—CPI: Groups, Index Numbers by Capital City, All groups CPI, Brisbane.

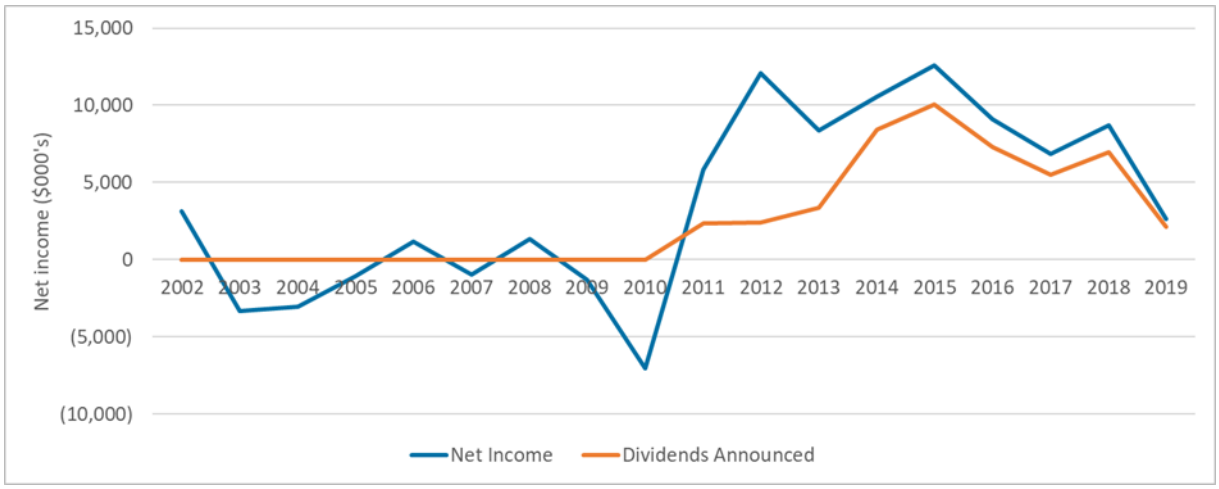
APPENDIX C: ASSESSING GAWB'S FINANCIAL HEALTH

We have undertaken an indicative assessment of GAWB's financial health over the period since the initial augmentation of Awoonga Dam up until now.

Net income and cash flow analysis

Looking at GAWB's publicly available financial data contained within its annual reports, we were able to determine net income and cash flow metrics. We found that GAWB has been making sufficient revenues to run a positive net income consecutively since 2010–11, especially in the past five-year period, despite under-recovering revenues. GAWB did not pay dividends from 2001–02 to 2011–12; it was incurring losses in that period (Figure 14).[50] However, GAWB's financial position after 2011–12 has been robust enough to sustain dividend payments out of net income.

Figure 14 Net income and dividends announced

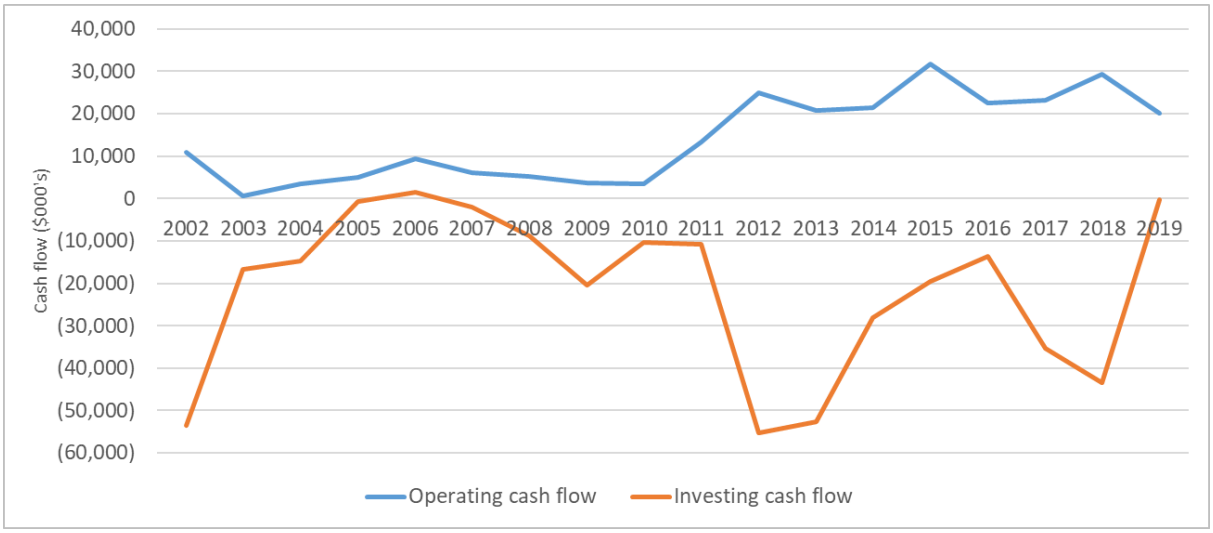


Source: GAWB's annual reports.

In addition, GAWB's operating cash flows have been steady, signifying that the water supply revenue tariffs have been adequate. Operating income has been similarly stable and has trended upwards since 2001–02. GAWB's net cash flows have historically been very volatile due to unstable investing cash flows from acquisitions of property and intangible assets. However, when considering operating cash flow, which stems from water supply tariffs, GAWB has produced consistently positive cash flows with positive growth since the dam augmentation. This signifies a robust revenue stream from customers and relatively stable performance, despite having volatile cash flows from investing activities (Figure 15).

[50] The figure shows dividends announced, not dividends paid. GAWB pays dividends in the financial year after the financial year in which they are announced. However, the financial year of announcement is a more accurate representation of GAWB's ability to pay dividends, as the dividends announced in a particular financial year correlates to the net income of the same financial year.

Figure 15 Operating and investing cash flows



Source: GAWB's annual reports.

Financeability

Financeability refers to the capacity of a business to finance its activities—including its day-to-day operations and its capital investments to renew and expand the infrastructure required for these activities. One indicator of a business's financeability is the credit rating that credit rating agencies such as Moody's, Standard & Poor's and Fitch Ratings assign it.

Many businesses regularly rely on debt and equity markets to finance new capital expenditure and refinance debt related to past capital expenditure. Lenders typically focus on credit ratings to determine how much they will charge, and businesses with a lower credit rating usually face higher debt financing costs. If a business's rating falls below investment grade, it may have difficulty raising finance at a cost it can afford, and this may threaten its short-term financial viability.

We applied the financeability test adopted by GAWB during our 2015 price monitoring review to GAWB's 2019 annual report data.[51] GAWB adopted the following four financial ratios recommended by National Economic Research Associates (NERA)[52] in its 2013 report to the Essential Services Commission (ESC) on financeability tests for regulated water service providers:

- funds from operations (FFO) interest cover
- net debt to regulatory asset value
- FFO to net debt
- retained cash flow to capital expenditure.

Table 4 shows the financial ratios target ranges to determine if businesses are investment grade (i.e. BBB rating) and QCA estimates for GAWB. GAWB noted it placed less importance on the retained cash flow to capital expenditure ratio under the concern that it is not definitive in determining a business's financeability.

[51] GAWB, submission to the QCA, *2015 Price Monitoring Investigation*, September 2014, pp. 86–87.
[52] NERA Economic Consulting, *Assessing the Financeability of Regulated Water Service Providers*, final report, October 2013, p. 8.

Table 4 Financial ratios and ranges

Indicator	*Calculation*	*Range for BBB rating*	*QCA estimate*	*Evaluation*
FFO interest cover Measures the extent of the cash flow buffer a business has to meet its debt obligations	(FFO + net interest) ÷ net interest	2.5 to 4.5 times	2.98 times	FFO interest cover estimates GAWB's rating to be **BBB**
Net debt to regulatory asset base (Gearing) Measures the debt component of the regulatory capital structure	(Interest bearing liabilities – cash) ÷ regulatory asset value	55 to 70 per cent	38 per cent	Net debt to regulatory asset value estimates GAWB's rating to be **above BBB**
FFO to net debt Measures the extent to which the serviceability of debt is improving, remaining stable, or declining	FFO ÷ (Interest bearing liabilities – cash)	10 to 15 per cent	8.73 per cent	FFO to net debt estimates GAWB's rating to be slightly **below BBB**
Retained cash flow to capital expenditure (Internal financing) Measures the extent to which an entity has cash remaining to finance a prudent portion of capital expenditure after making dividends	(FFO – dividends) ÷ net capital expenditure	1 to 1.5 times	1.09 times	Retained cash flow to capex indicates a **BBB** rating for GAWB

Notes:

1. To undertake this test on GAWB, we calculated the financial ratios using financial data from GAWB's annual reports, except for GAWB's regulatory asset base, which was sourced from GAWB's building block model.

2. Our credit rating estimator ratios are for the 2019 financial year.

3. Interest-bearing liabilities were taken as current and non-current loans and borrowings.

4. FFO was defined by NERA as pre-tax profit plus depreciation minus tax paid minus change in working capital. We have assumed, however, cash flow from operations (CFO) is a substitutable proxy for FFO as the calculation method for CFO is broadly the same.

5. IPART (in 2015) suggested to use CFO prior to changes in working capital for FFO.[53] IPART (in 2018) also reviewed their financiability test and used a similar definition for FFO, where FFO was calculated as CFO less interest payments.[54] In GAWB's case, IPART included interest payments in CFO, and both IPART reports indicate operating cash flow as an appropriate proxy for FFO.

6. The ESC (in 2013) used CFO less sources of non-recurrent revenue as its approximation for FFO.[55] As GAWB's operating cash flow does not have non-recurrent inflows, we believe operating cash flow is an appropriate proxy for FFO.

7. Our proxy of CFO for FFO broadly in line with the approach used by the Corporate Finance Institute (CFI).[56]

Source: GAWB's annual reports; QCA calculations.

We recognise the ratios in Table 4 provide indicative results only, with an indicative BBB rating for GAWB by the financial metrics being available. However, we encourage GAWB to undertake its own assessment in response to this draft report using its financial data.

Although we deem a BBB rating appropriate, we acknowledge certain limitations to this method, in particular the lack of diversity of metrics. NERA and Moody's both recommend that a quantitative

[53] IPART, *Final Decision—Financeability ratios*, fact sheet, April 2015, p. 2.
[54] IPART, *Review of our financeability test*, final report, November 2018, p. 44.
[55] ESC, *Assessing the Financeability of Victorian Water Businesses*, consultation paper, December 2013, p. 6.
[56] CFI, Cash Flow from Operations, https://corporatefinanceinstitute.com/resources/knowledge/accounting/cash-flow-from-operations/.

assessment receive approximately a 40 per cent weighting when considering the overall rating of a company, with considerable weighting going to qualitative factors such as business practices.

We also highlight the use of metrics such as FFO, which do not have a standardised method of calculation and are not commonly used in this manner for regulated water utilities, but rather for real estate investment trusts. Although regulators and consultants have adopted various versions of FFO to use in financeability tests, no consensus remains regarding the method of calculation.

APPENDIX D: LIST OF SUBMISSIONS

The submissions that we received during our review of GAWB's pricing proposal (1 July 2020 to 30 June 2025) are listed below. The submissions are numbered for reference purposes only—the numbers are used in the footnotes in the report. The submissions are available on our website.

Table 5 Submissions

Stakeholder	*Sub. no.*	*Type of submission*	*Date*
Callide Power Management	11	Submission on GAWB's proposal	28 October 2019
	17	Submission in response to under-recovery	29 November 2019
CS Energy	14	Submission on GAWB's proposal	25 October 2019
	18	Submission in response to under-recovery	29 November 2019
Conoco Phillips (APLNG)	16	Submission in response to under-recovery	29 November 2019
Gladstone Regional Council	15	Submission on GAWB's proposal	8 November 2019
Gladstone Area Water Board	1	GAWB's proposal, Part A	30 September 2019
	2	GAWB's proposal, Part A—confidential version	30 September 2019
	3	Attachment 1—Referral and direction notice	30 September 2019
	4	Attachment 2—Cost escalation factors (2020–21 to 2024–25), prepared for GAWB by Deloitte Access Economics, August 2019	30 September 2019
	5	Attachment 3—Review of the WACC for Gladstone Area Water Board, prepared for GAWB by Synergies, September 2019	30 September 2019
	6	Attachment 4—Capital contributions framework	30 September 2019
	7	GAWB's proposal, Part B	30 September 2019
	8	GAWB's proposal, Part B—confidential version	30 September 2019
	12	Submission in response to WICET's initial submission	28 October 2019
Nevin, O	10	Submission on GAWB's proposal	21 October 2019
Rio Tinto	19	Submission on GAWB's proposal and under-recovery	29 November 2019
Wiggins Island Coal Export Terminal (WICET)	9	Initial submission	30 September 2019
	13	Submission on GAWB's proposal	28 October 2019

REFERENCES

Corporate Finance Institute (CFI), Cash Flow from Operations, viewed 19 December 2019, https://corporatefinanceinstitute.com/resources/knowledge/accounting/cash-flow-from-operations/.

Essential Services Commission (ESC), *Assessing the financial viability of Victorian water businesses*, consultation paper, December 2013.

Gladstone Area Water Board (GAWB), submission to the Queensland Competition Authority, *2015 Price Monitoring Investigation*, September 2014.

—— submission to the QCA, *Commercial Framework and Pricing Principles for the 2010 price review*, September 2009.

Independent Pricing and Regulatory Tribunal (IPART), *Financeability tests in price regulation*, final decision, December 2013.

—— *Final Decision—Financeability ratios*, fact sheet, April 2015.

—— *Review of our financeability test*, final report, November 2018.

NERA Economic Consulting, *Assessing the Financeability of Regulated Water Service Providers*, final report, October 2013.

Pitt, C, *Referral Notice for the Review of South East Queensland Bulk Water Prices*, 25 May 2017.

Queensland Competition Authority (QCA), *Gladstone Area Water Board: Investigation of Pricing Practices*, final report, September 2002.

Trad, J, *Queensland Competition Authority Act 1997 sections 23A and 24: Referral and Direction Notice*, 28 June 2019.

Legislation

Queensland Competition Authority Act 1997 (Qld)

Water Act 2000 (Qld)