Review of irrigation prices

Bulk water asset valuation

October 2010

Contents

SUMMARY

The QCA has been directed to recommend prices for SunWater's irrigation customers. The regulatory price setting process is well defined, has clear precedents and has established regulatory practices able to be replicated consistently over time, and involves the following key elements;

1. A determination of the opening regulatory asset base (RAB),
2. Determination of an appropriate rate of return on the RAB and efficient future capital expenditure, as well as the return of the RAB and that expenditure through depreciation or a renewals annuity. These components can collectively be called capital costs;
3. Allocation of capital costs to services where there is not a homogenous service from the asset (in the case of bulk water, there are generally two services: medium priority and high priority water entitlements);
4. Determination of the efficient operating costs to provide the services;
5. Allocation of those operating costs to different services, to the extent that they are drive different levels of cost;
6. Calculation of the Maximum Allowable Revenue (MAR) for the asset, and for each service provided;
7. Calculation of tariffs to recover the MAR for each service and in aggregate from the asset.

This process normally results in pricing being determined to recover the 'upper bound' level of costs.

Irrigation Pricing

The historic pricing arrangements for the provision of bulk water services in the irrigation sector in Queensland have sought to recover at least the efficient lower bound costs[1]. The current review is seeking to move further toward a full cost recovery position (upper bound), consistent with the NWI and accepted regulatory practice across regulated businesses generally.

However, there is a general concern within Government, the irrigation community, and SunWater that the transition to full cost pricing for irrigation could adversely impact on the viability of the irrigation sector. Accordingly, the Government has put in place two important safety nets designed to protect the viability of an efficient irrigation sector, these safety nets are:

1. An assessment of irrigators' capacity to pay, and
2. Provision for a transition period of up to 15 years.

Unlike the established regulatory price setting process outlined above, the assessment of capacity to pay has very little precedent, is inherently uncertain, and extremely difficult to deliver with confidence. Because of this, there is considerable regulatory risk for all participants associated with the assessment of the capacity to pay.

SunWater submits that the most appropriate way to manage this regulatory risk is to clearly separate the determination of the establishment of the MAR (Steps 1 to 6

[1] Lower bound costs are essentially upper bound costs, without any return on assets.

above) from the application of the safety net provisions, and calculation of tariffs for the irrigation sector.

Such an approach would ensure that the full cost MAR is determined, not just for the irrigation sector but also for the other user groups being the industrial and urban sectors, but then provide for discounted prices to the irrigation sector that are consistent with that sector's capacity to pay.

Scope and purpose of this paper

Consistent with the above approach, this background paper describes the appropriate methodology and data used to determine the regulated asset base which would be used to derive the MAR from the bulk water assets. SunWater submits that this asset base should be set at the optimised replacement cost, at 1 July, 2011 on the basis that the service potential of those assets has been maintained since constructed, and will continue to be maintained through ongoing renewals expenditure, recovered through a renewals annuity. Accordingly the asset base would not be depreciated, once set. This is consistent with the interpretation of the Ministerial Referral Notice as described in the issues paper for return of capital.[2]

SunWater has assessed an optimised replacement cost (ORC) value for each of the schemes, with the total of all schemes being $4,490M. This value:

- has been developed using a Bill of Materials and updated Schedule of Rates for bulk water assets;
- assumes a $zero value for shared distribution assets in some schemes, as well as instream gauging stations;
- includes land at market value, interest during construction and an allowance for working capital; and
- excludes the value of non-infrastructure assets such as IT systems, and does not incorporate the cost of relocated assets or assets constructed which are now owned by third parties, but were necessary for construction of the storage.

The ORC value has been apportioned to medium priority water access entitlements in each scheme on the basis of SunWater's proposed headworks utilisation factors (HUF). This results in $2,297M being apportioned to medium priority access entitlements, the majority of which are held by the irrigation sector.

Finally, the medium priority share of the ORC has been adjusted for contributed assets of $42M to a final share of $2,255M.

On a statewide basis medium priority water access entitlements are allocated, on a weighted average, around 51% of the bulk water ORC.

[2] SAHA. *Issues Paper on Renewals Annuity or a Regulatory Depreciation Allowance: SunWater's Water Supply Schemes 2011-2016 Price Paths* (September 2010). p45

INTRODUCTION

The Queensland Competition Authority (QCA) is to recommend prices for SunWater's irrigation customers.

A key input to the calculation of the Maximum Allowable Revenue (MAR) and subsequently a full cost price is the establishment of an opening regulated asset base (RAB) is required for bulk water assets.

SunWater submits that this RAB should be set at the optimised replacement cost (ORC) at 1 July 2011, on the basis that the service potential of those assets has been maintained since constructed, and will continue to be maintained through ongoing renewals expenditure, recovered through a renewals annuity. This background paper describes the methodology and data used to determine the ORC for the bulk water assets.

SunWater submits that the calculation of recommended bulk water prices for the irrigation sector need to be considered separately, including the extent of any discounting and price transitioning required to ensure that prices are within irrigators' capacity to pay.

This paper is structured as follows:

- Section 2 sets out the proposed approach to asset valuation;
- Section 3 explains the methodology used to establish an ORC valuation, including land values and working capital;
- Section 4 identifies relevant capital contributions and sets out the amounts to be offset against the asset value;
- Section 5 outlines how the ORC is proposed to be apportioned between medium priority and high priority water access entitlements; and
- Section 6 provides a conclusion.

1. Approach to asset valuation

National pricing principles have recently been published that endorse a range of methods for setting an opening asset value[3]:

> *Legacy assets that are to be retained should be valued at Depreciated Replacement Cost (DRC); Depreciated Optimised Replacement Cost (DORC); Optimised Replacement Cost (ORC); indexed actual cost, Optimised Deprival Value (ODV) or using another recognised valuation method.*

DORC is the most common valuation methodology applied by Australian regulators, including the QCA. SunWater endorses the QCA's previous acknowledgement of the appropriateness of DORC in its Draft Position Paper on 'Asset Valuation Approaches' for the assessment of pricing matters in the Burdekin-Haughton:[4]

> *DORC represents the value of assets consistent with the maximum price achievable in a competitive market, the benchmark for efficient pricing and service delivery. Optimisation of the asset base provides that only assets relevant to future demand and which are optimally configured and constructed are included in the DORC.*
>
> *For reasons similar to those stated by SunWater, the Authority considers that DORC is the appropriate asset valuation methodology when determining the maximum allowable revenue for a monopoly services provider.*

In its final report for the Burdekin-Haughton, the QCA also stated supported a DORC value[5]:

> *In summary, the Authority must choose an asset valuation methodology which best suits its purpose – and that is to determine the appropriate asset base for pricing purposes. The Authority considers that DORC is the most appropriate asset valuation basis for this.*

The Authority re-affirmed the appropriateness of DORC, even where users may be constrained in their capacity to pay[6]:

> *… the Authority considers that DORC is the appropriate methodology for the valuation of assets for the purposes of determining the maximum prices that could be charged while at the same time the Authority notes that it may not be possible to set prices at that level.*

The QCA reaffirmed its position that DORC represents the most appropriate methodology to be applied in determining a value for a regulated asset base in its final report on the previous investigation of GAWB's pricing practices[7]:

> *The Authority notes that DORC is applied in most regulatory asset valuations in Australia and, while there is a degree of subjectivity associated with its application, it provides a conceptually sound basis for regulatory price setting.*

While regulators have generally used DORC valuation, this has occurred in circumstances where businesses utilise a depreciation approach to ensuring a return of

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3 Steering Group of Water Charges, National Water Initiative Committee. *National Water Initiative Pricing Principles,* April 2010. Pg 7.

4 QCA, *Draft Position Paper No. 3 – Asset Valuation Approaches*, September 2002, pg 2.

5 QCA Final Report, *Burdekin Haughton Water Supply Scheme: Assessment of Certain Pricing Matters relating to the Burdekin River Irrigation Area*, April 2003, pg 50.

6 QCA Final Report, *Burdekin Haughton Water Supply Scheme: Assessment of Certain Pricing Matters relating to the Burdekin River Irrigation Area*, April 2003, pg 50.

7 QCA Final Report, *Gladstone Area Water Board: Investigation of Pricing Practices*, March 2005, pg 90.

capital. However, the service potential of bulk water assets has been maintained since their construction, and this service potential will be maintained into the future through renewals expenditure. Accordingly, SunWater has proposed to continue with a renewals annuity approach to return of assets. Therefore the optimised replacement cost (ORC) is the appropriate value to adopt for asset valuation purposes. This is discussed further below.

1.1 Setting the opening RAB at the ORC

As noted above, it is common regulatory practice for the RAB to reflect a DORC valuation, reflecting an assumption of a declining asset service potential matched by a depreciation (or return of capital) charge. However, SunWater has proposed to continue with a renewals annuity approach. SunWater's rationale will be set out in more detail in its response to the QCA's issues paper on return of assets.

Conceptually, a renewals annuity is set at a level sufficient to maintain the assets' service potential and recover the future expenditure required for the assets to continue in this state. The QCA have acknowledged this in the past[8]:

> *The renewals annuity approach assumes that, through regularly planned maintenance and renewals programs, the system as a whole does not lose service potential and therefore does not need to be depreciated.*

The issues paper in relation to renewals annuities and depreciation also acknowledges that the asset base under a renewals approach is not depreciated.[9]

Accordingly, SunWater submits that the opening RAB should be set according to its optimised replacement cost (ORC), rather than its depreciated value (DORC).

In doing so, SunWater acknowledges that the past approach to the financing and change in service potential of the asset base needs to be considered. This is discussed below.

Financing of the asset base

The ACCC has considered asset values under a hypothetical renewals regime in terms of the financing of those assets. Essentially, it argues that if assets have been financed through a renewals annuity (fully recovering all capital invested) then there is no need to incorporate those assets into a RAB[10]:

> *To ensure consistency, the opening value for assets—for a comparable business that has previously financed all of its capital under a renewals annuity—should equal zero. This is because the renewals annuity represents a current contribution by customers to the future renewal of assets, not a contribution by the provider yet to be recovered through prices. The unique nature of the renewals annuity (where customers provide the financing for future renewals) means that a valuation of assets of greater than zero will result in customers providing 'compensation' to the provider for assets in the ground that were originally financed by the customer and not the provider.*
>
> *Where a bulk water service provider has undertaken to finance capital investments outside the renewals annuity and has utilised debt financing or an*

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8 Queensland Competition Authority. Issues Paper: Queensland Rail – Draft Undertaking Asset Valuation, Depreciation and Rate of Return. (May 1999). p11

9 SAHA. Issues Paper on Renewals Annuity or a Regulatory Depreciation Allowance: SunWater's Water Supply Schemes 2001 – 2016 Price Paths (September 2010).

10 ACCC. Issues Paper. Bulk Water Charge Rules (July 2008) p36

equity contribution, there may be a case for establishing an opening value for assets of greater than zero.

The capital cost of bulk water assets such as dams and weirs were financed by the proponent, typically the Government at the time[11]. More importantly, irrigation prices did not recover the costs of that investment, nor a return on it. Indeed, prices before 2000 in most schemes did not even recover operating and maintenance costs, and the forward looking renewals expenditure (lower bound costs).

In those schemes where prices were above this lower bound level of cost recovery, they were only marginally so. For example, in the Burdekin-Haughton scheme, the QCA[12] found that river irrigator prices were only contributing $161,000/annum to $186,000/annum above lower bound costs[13].

Furthermore, renewals annuities only formed part of irrigation prices from the first round of price paths (in 2000) and those renewals annuities were forward looking, and (rightly) did not incorporate any opening balance to account for past expenditure, including the cost of the initial investment in bulk water assets.

As such, there is no basis to suggest that bulk water assets were financed on the basis of a renewals annuity that sought to recover the original cost of the investment. While lower bound prices included a renewals annuity, this annuity was forward looking only. Where prices were above lower bound, they only achieved a very small return on assets.

This is not to say that adjustments are not required to account for capital contributions and contributed assets. These adjustments are discussed in later sections.

Historic consumption of the asset base

A renewals annuity was formally incorporated into prices in 2000, with the commencement of the first pricing reforms and irrigation price paths to achieve lower bound cost recovery[14].

It might be argued that prior to this time, the service potential of bulk water assets was declining as they were not being funded under a renewals annuity. That is, it might be argued that the RAB should be depreciated to 2000.

This assumes that the actual service potential of the assets declined over this time. However, it is clear that bulk water assets today continue to deliver the same service potential as when originally constructed. Furthermore, the current condition of the major civil components of those storage assets – dam walls, abutments, spillways etc – have indefinite lives. Other components (gated structures, electrical and other mechanical equipment) have been maintained and replaced to ensure the storage remained safe and could function to release water to customers.

As such, SunWater submits there is no case to depreciate the RAB to account for historic consumption of the asset base. Rather, bulk water assets today continue to offer the same service potential as when originally constructed, either through the

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[11] Contributed assets are discussed in later sections.

[12] QCA. Final Report Burdekin Haughton Water Supply Scheme: Assessment of Certain Pricing Matters relating to the Burdekin River Irrigation Area. (April 2003) p107.

[13] This compares to the storage value adopted by the QCA of $248M.

[14] As set out below, in a few schemes existing prices already recovered lower bound costs, but provided only a very small return on assets.

long-lived nature of the assets (arguably infinite lives) or continued maintenance and replacement of components.

1.2 RAB roll forward

Under a renewals regime, the total annual capital charge would be the sum of the return on capital allowance (WACC times ORC) plus renewals annuity. Adjusting the initial ORC annually to reflect the impact of inflation will have the benefit of ensuring the RAB more closely reflects the replacement cost in current dollar terms and therefore that prices continue to reflect the full current cost of service provision.

Where the WACC is expressed in nominal terms, an adjustment will be required to avoid double counting the impact of inflation in prices. In accordance with standard regulatory practices, this can be done by reducing each year's MAR by an amount equivalent to the inflationary increase in the value of the ORC.

Under a DORC valuation, annual depreciation is deducted from the RAB. Clearly, this is not required under a renewals regime. This approach accords with the NWI pricing principles which state that where a renewals annuity is used, asset values should not be depreciated in performing the asset roll forward.[15] Moreover, the issues paper for renewals annuities and depreciation states that the asset based is not to be depreciated.

> *... the Ministerial Direction is silent in relation to a return of the initial RAB (depreciation), and it is understood that the Authority interprets this to mean that only ongoing capital expenditure is to be depreciated.* [16]

This would mean that bulk water prices would not include an allowance for depreciation of the initial RAB, and that a rate of return will be applied on an undepreciated asset base.

Capital expenditure recovered through the renewals annuity is not added to the RAB[17].

1.3 Summary

It is standard regulatory practice to establish an MAR, based on an appropriate asset value. This asset value is usually DORC, however because SunWater utilises a renewals approach, an ORC value at 1 July 2011, should apply.

The MAR (referenced to the ORC value) presents the full cost ceiling for revenue recovery in each water supply scheme. Actual prices to irrigators may not fully recover this amount, as these need to be set separately in consideration of other factors such as capacity to pay and transitional price paths.

The balance of this paper sets out SunWater's methodology for calculating the ORC value for each water supply scheme.

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15 Ibid. p8. This can be found at http://www.environment.gov.au/water/publications/action/pubs/nwi-pricing-principles.pdf.

16 SAHA. Issues Paper on Renewals Annuity or a Regulatory Depreciation Allowance: SunWater's Water Supply Schemes 2001 – 2016 Price Paths (September 2010). p45

17 SunWater's approach to calculating the renewals annuity is set out in a separate background paper.

2. Methodology for ORC value

This section summarises the approach and key assumptions used to develop the ORC value for each bulk water scheme, and addresses:

- the optimised replacement cost of storages, including land values and allowances for working capital;
- the treatment of other bulk water assets that are to be valued at $0; and
- third party assets which have been identified, but are yet to be valued and included into the ORC value.

2.1 Optimised replacement cost

SunWater has calculated the optimised replacement cost at $4,490,537,459, excluding the costs associated with third party assets.[18] The following sections outline how this value has been derived.

General approach

SunWater's approach to calculating replacement cost for its assets involves:

- establishing a bill of materials;
  - identifying discrete cost items or codes (eg mass concrete) and assigning costs to those items;
  - determining the assets that have these materials and the quantities involved;
- assigning unit rates to each bill of material cost item or code;
- calculating an initial valuation for each item by multiplying cost by quantity; and
- applying a range of multipliers depending on geographical location and other factors.

This is discussed below in more detail.

Bill of materials

The core data used for the valuation is the bill of materials determined in 1997 by the then State Water Projects (SWP). This also formed the basis for the Arthur Andersen valuation prepared prior to corporatisation.

The QCA engaged consultants Sinclair Knight Merz (SKM) to review this valuation data and update the rates to determine a value at 2000. In its draft report, the QCA noted[19].

> *The approach applied by SKM to validate SunWater's existing asset register included field assessment of Scheme assets, a review of the 1997 SWPs' Bill of Materials and a review of additional costs that should be incorporated in the DORC valuation.*

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[18] These include relocation of roads, bridges, rail line or construction of access roads or other infrastructure to sites that are now owned by third parties.

[19] Queensland Competition Authority. Draft Report for Consultation. Burdekin Haughton Water Supply Scheme: Assessment of Certain Pricing Matters in relation to the Burdekin River Irrigation Area (September, 2002). p40

In determining its valuations, Arthur Andersen drew from the earlier 1997 Scheme valuation undertaken by SWP, the former commercialised business unit of the Department of Natural Resources and predecessor of SunWater. This valuation was based on a detailed calculation of the quantities of Scheme assets, applied against unit rates and other factors. Spot auditing of these quantities by SKM suggested that they were consistent with the Scheme infrastructure, with some minor inconsistencies.

The draft report also highlighted the need for the valuation to capture other costs when setting a RAB[20]:

SMEC noted that the DORC prepared by Arthur Andersen did not include some assets that would typically be included in an asset base for regulatory price setting, such as:

- *working capital;*
- *road access, electricity infrastructure and telephone infrastructure required to build the Burdekin Falls Dam; and*
- *some other indirect costs associated with the construction of the infrastructure, such as infrastructure design and construction camp costs.*

Working capital and third party assets (such as access roads since transferred to councils) are discussed in later sections.

Schedule of rates and replacement cost valuation

SunWater engaged consultants Cardno to update the schedule of rates and the geographical load factors. Cardno examined key unit rates, focusing on two large dams (Burdekin Falls and Fairbairn) that provided a reasonably representative spread of bill of materials items across all storages. These rates were then applied across all relevant storages, with adjustments for geographic factors. This approach was considered reasonable given the cost, time and effort required to revalue each of SunWater's 19 dams and over 60 weirs, which would require site-specific assessment of matters such as the availability and cost of local materials such as rock.

Replacement costs were then calculated for each storage asset, including interest during construction (calculated at SunWater's WACC)[21].

Optimisation

In arriving at an ORC value, optimisation of the replacement cost is required to account for excess capacity or inappropriate configuration or technology, relative to the asset that would be developed today.

Optimisation commonly occurs in relation to excess capacity. For SunWater's storage assets, this is not a relevant consideration as all water supply schemes are fully allocated. That is, water access entitlements are either owned by customers or SunWater. Accordingly, SunWater proposes to allocate capital costs to all of these

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[20] Ibid. p 39

[21] SunWater has adopted an interim WACC, pending the release of the QCA's issues paper on this matter. SunWater's formal position will be made in its submission to this issues paper.

water access entitlements, including its own. In this way SunWater will bear the same holding costs for those entitlements.

SunWater has however optimised Burdekin Falls Dam to take account of works constructed in anticipation of a hydro power station and subsequent dam raising. This accords with the optimisation applied by QCA in 2003 for the raised saddle dams. Based on SunWater's engineering assessment, this reduces some $5.2M from the replacement cost. This compares to QCA's adjustment (in accordance with advice from consultant SKM) of some $15M in 2003. SunWater has been unable to reconcile to the SKM amount due to informational constraints.

The optimised replacement cost of storage infrastructure assets is summarised in the table below, by scheme.

Table 1. Optimised Replacement Cost - storages ($ 1 July, 2011)[22]

Scheme	Optimised Replacement Cost ($)
Barker Barambah	208,459,252
Bowen Broken Rivers	125,712,823
Boyne River and Tarong	160,236,959
Bundaberg	241,952,914
Burdekin-Haughton	807,438,868
Callide Valley	367,250,636
Chinchilla Weir	16,176,841
Cunnamulla	7,227,211
Dawson Valley	139,771,664
Eton	186,442,375
Lower Fitzroy	40,116,564
Macintyre Brook	208,014,162
Maranoa River	17,454,229
Mareeba Dimbulah	240,315,730
Mary River	20,732,145
Nogoa Mackenzie	516,568,085
Pioneer River	230,952,654
Proserpine River	233,027,560
St George	115,543,877
Three Moon Creek	99,441,369
Upper Burnett	182,576,349
Upper Condamine	164,920,393
TOTAL	**4,330,332,660**

Land values

SunWater owns significant parcels of land that are inundated by its dams and off-stream storages. This land has been valued at its market value[23], in accordance with

[22] Fabridams have been excluded from these values.

[23] SunWater acknowledges that the QCA's approach for the Burdekin Haughton scheme was to value land at indexed historic cost. However, the approach used is based on the more recent precedent for GAWB.

the QCA's 2004 recommendations for GAWB's Awoonga Dam.[24] The QCA engaged Herron Todd White to undertake the market valuation for Awoonga Dam:[25]

> *Herron Todd White's assessment of market value was based on the highest and best alternative use and excluded the value of all improvements other than fencing. In addition, for the purposes of valuing land submerged by and bordering Lake Awoonga, it assumed that the dam and associated improvements did not exist and that each lot would be marketed and sold individually as grazing land. This best represents the replacement cost of the land assets.*

SunWater engaged Taylor Byrne to undertake a market valuation on a similar basis, although Taylor Byrne generally assumed that land was not fenced, nor watered. An allowance for resumption costs of 25% was also made.

The table below summarises the land values for each scheme. For schemes that only comprise weirs, no land is held and there is no land value.[26]

Table 2. Land values for- dams ($ 1 July, 2011)

Scheme	Assessed market value ($)
Barker Barambah	7,738,750
Bowen Broken Rivers	1,793,750
Boyne River and Tarong	6,683,000
Bundaberg	15,298,125
Burdekin-Haughton	36,515,625
Callide Valley	6,566,406
Chinchilla Weir	0
Cunnamulla	0
Dawson Valley	0
Eton	5,957,813
Lower Fitzroy	0
Macintyre Brook	3,075,000
Maranoa River	0
Mareeba Dimbulah	15,278,906
Mary River	0
Nogoa Mackenzie	28,828,125
Pioneer River	5,157,031
Proserpine River	10,121,875
St George	4,612,500
Three Moon Creek	2,857,188
Upper Burnett	4,356,250
Upper Condamine	4,100,000
TOTAL	**158,940,344**

[24] Queensland Competition Authority. Final Report: Gladstone Area Water Board: Investigation of Pricing Practices. (March 2005). p 96

[25] Bid. p 97

[26] This is because SunWater does not own land inundated by weirs.

Third party assets

The construction of storage assets often requires the relocation of certain assets (eg railways and roads) or construction of new assets (eg access roads) that are owned by third parties. As such, these assets do not appear on SunWater's asset register. However, the costs of these assets need to be accounted for in the asset valuation.

For example, in the QCA's Burdekin-Haughton review, it allowed the cost of the road between Mingella to Burdekin Falls Dam, which is now owned by local government, to be included into the asset base. The QCA also allowed relocated assets in determining the opening RAB for GAWB[27].

SunWater has undertaken a desktop review, based on planning and construction reports, to identify the major third party assets that were relocated or constructed for its dams. These assets are set out in Attachment 1.

SunWater's storages were largely constructed between the 1950s and the 1980s. This has presented a number of challenges in identifying the full scope of third party assets associated with each storage. Consequently, more assets may be identified over the following months as the QCA prepares its draft report.

Also, SunWater has not yet identified a value for these assets, but proposes to do so. It is anticipated that this information will be available to the QCA during the course of its review of the proposed asset values, and prior to its draft report.

Working capital

Working capital is an element of the standard building blocks approach to pricing. In establishing the maximum allowable revenues (MAR), working capital is one of the asset components on which a return on investment (at WACC) is allowed.

The QCA routinely includes an allowance for working capital in its analysis of the efficient costs of regulated businesses. In the recent GAWB Final Decision, the QCA included an allowance for working capital, noting[28]:

> *In its initial submission, GAWB proposed to include an allowance for working capital, adopting the Authority's previously recommended approach of debtors less creditors plus inventories.*
>
> *GAWB submitted that its proposed allowance would be based on the average monthly working capital requirement for the 2008-09 year, estimated at $2.355 million.*
>
> *For the Draft Report, the Authority's consultant Davwil advised that the SMEC formula remained broadly appropriate and that GAWB's submitted working capital requirement of $2.355 million, calculated on a 12-month average basis, was reasonable.*

This represented approximately 5.7% of GAWB's QCA approved revenue for 2010/11 ($41.2 million).

This compares to the Burdekin-Haughton scheme, where the QCA included a working capital allowance at 5.08% of sales revenue[29].

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[27] [27] QCA Final Report, *Gladstone Area Water Board: Investigation of Pricing Practices*, March 2005, pg 58

[28] QCA Final Report, *Gladstone Area Water Board: Investigation of Pricing Practices*, June 2010 pg 115

[29] Ibid. p56

SunWater has adopted the same approach to calculate working capital, adopting the values in its most recent published statutory accounts (2008/09). In these accounts, average trade debtors (net of provision for bad debt) less trade creditors plus inventory is $6.543 million. This represents 3.3% of revenue from ordinary operations, based on 2008/09 revenues.

This percentage has been applied to revenue for that year at each scheme, rather than projected revenues over the regulatory period. SunWater acknowledges that this is an average measure across the entire business, encompassing a number of activities. At the same time, future prices and revenues for the irrigation sector are yet to be determined. On balance, SunWater submits its approach, which is referenced from 2008/09 data, is a reasonable approach and is notably lower than the outcome previously determined for GAWB and the Burdekin-Haughton. Furthermore, SunWater submits that a new working capital allowance should be re-determined at the next price review (2016/17), based on an updated assessment of regulated revenues.

The proposed working capital allowance is set out below, based on the approach described above.

Table 3. Working capital allowance – bulk water ($ 1 July 2011)

Scheme	Working capital ($)
Barker Barambah	28,401
Bowen Broken Rivers	171,313
Boyne River and Tarong	28,334
Bundaberg	73,188
Burdekin-Haughton	141,472
Callide Valley	47,529
Chinchilla Weir	5,647
Cunnamulla	4,171
Dawson Valley	72,081
Eton	43,237
Lower Fitzroy	14,907
Macintyre Brook	27,604
Maranoa River	3,621
Mareeba Dimbulah	101,197
Mary River	14,624
Nogoa Mackenzie	224,999
Pioneer River	40,366
Proserpine River	63,799
St George	58,331
Three Moon Creek	19,483
Upper Burnett	33,218
Upper Condamine	46,933
TOTAL	**1,264,455**

Non-infrastructure assets

SunWater owns a number of non-infrastructure assets including plant and equipment, houses and information technology assets and systems. SunWater does not propose to incorporate the value of these assets into the RAB.

Rather, the costs for these assets (including depreciation) has been included in the indirect and overhead costs that are allocated to each scheme.

Accordingly, SunWater submits that these assets should not be captured in the line-in-the-sand valuation, and SunWater reserves the right to reconsider its position at future price reviews in relation to the pricing treatment for these assets.

2.2 Other bulk water assets valued at $zero

The Ministers' referral notice to the QCA sets out the scope of assets to be valued for the opening RAB, and those assets where a $zero value is to apply.

For the purposes of this submission, SunWater has also assumed that similar assets that provide a distribution service but not listed in the notice are to be valued at $zero.

SunWater has also assumed that shared distribution assets (eg channels) and gauging stations are to be valued at $zero, subject to any decision or directive to the contrary. At the same time, SunWater notes that these assets are essential for providing bulk water services. These shared distribution assets and gauging stations assets are listed below, for completeness, along with their replacement cost.

Shared distribution assets

In four schemes, a portion of distribution infrastructure is required to divert and release water into streams (eg supplemented streams). While in some cases these assets are not specifically listed in the ROP, they are fundamental to the bulk water service. Indeed, without them, the water entitlements in those supplemented streams would cease to be regulated, or would perform very differently. This situation arises in four schemes:

- Burdekin-Haughton;
- Mareeba-Dimbulah;
- Lower Mary; and
- Bundaberg.

These distribution assets are predominantly main channels and associated works (eg pump stations, balancing storages etc), and have been valued at their replacement cost based on the quantities and replacement costs in SunWater's asset register.

SunWater has analysed the capacity required for a stand-alone asset to only meet the bulk water service, based on the peak flow requirement. This capacity excludes any allowance for the peak demands within the distribution network. The peak flow requirement for bulk water is then compared to the existing capacity of the main channel(s), and expressed as a percentage. These percentages are used to derive the share of the asset to be assigned to bulk water. It is notable that in some cases a very high percentage applies. This arises because similar capacity works would be required to meet the peak flow requirement for bulk water.

As set out above, it is assumed that these assets are to be valued at $zero, although SunWater notes that such assets are necessary to provide the bulk water service in those schemes.

Table 4. Valuation of shared distribution assets ($ 1 July, 2011)

Scheme	Asset	Replacement cost	Proportion (%)	Value notionally attributable to bulk water ($)	Value adopted for the proposed ORC
Bundaberg	Monduran pump station and Gin Gin main channel	90,102,282	65	58,566,483	0
Burdekin-Haughton	Haughton pump station and main channel	163,286,925	11	17,961,562	0
Mareeba Dimbulah	West Barron main channel	128,971,660	60	77,382,996	0
Lower Mary River	Owanyilla pump station and main channel	19,361,618	93	18,006,305	0
TOTAL		**401,722,485**		**171,917,346**	**0**

Gauging stations

Gauging stations are required to monitor streamflows, thereby allowing SunWater to manage releases to meet customer demands and meet environmental flow requirements. Gauging stations are also required as a compliance monitoring and reporting tool.

The table below presents the replacement cost for these gauging stations, as per SunWater's asset register. As set out above, it is assumed that these assets are to be valued at $zero.

Table 5. Gauging stations ($ 1 July 2011)

Scheme	Replacement cost ($)	Value adopted for the proposed ORC
Barker Barambah	314,911	0
Bowen Broken Rivers	77,996	0
Boyne River and Tarong	126,393	0
Bundaberg	175,666	0
Burdekin-Haughton	89,447	0
Callide Valley	430,412	0
Chinchilla Weir	29,992	0
Cunnamulla	0	0
Dawson Valley	530,069	0
Eton	14,269	0
Lower Fitzroy	141,260	0
Macintyre Brook	89,975	0

Scheme	Replacement cost ($)	Value adopted for the proposed ORC
Maranoa River	0	0
Mareeba Dimbulah	102,828	0
Mary River	31,074	0
Nogoa Mackenzie	260,544	0
Pioneer River	37,561	0
Proserpine River	197,087	0
St George	50,404	0
Three Moon Creek	128,387	0
Upper Burnett	124,251	0
Upper Condamine	183,996	0
TOTAL	**3,136,520**	**0**

2.3 Summary – Replacement cost of bulk water assets

The sections above discussed the components to the optimised replacement cost calculation. This is summarised in the table below.

Table 6. Optimised replacement cost ($ 1 July 2011), excluding third party assets

Scheme	Storages ($)	Land ($)	Gauging stations ($)	Shared d'bution assets ($)	Working Capital ($)	TOTAL ($)
Barker Barambah	208,459,252	7,738,750	0		28,401	216,226,404
Bowen Broken Rivers	125,712,823	1,793,750	0		171,313	127,677,887
Boyne River and Tarong	160,236,959	6,683,000	0		28,334	166,948,293
Bundaberg	241,952,914	15,298,125	0	0	73,188	257,324,227
Burdekin-Haughton	807,438,868	36,515,625	0	0	141,472	844,095,965
Callide Valley	367,250,636	6,566,406	0		47,529	373,864,572
Chinchilla Weir	16,176,841	0	0		5,647	16,182,488
Cunnamulla	7,227,211	0	0		4,171	7,231,381
Dawson Valley	139,771,664	0	0		72,081	139,843,745
Eton	186,442,375	5,957,813	0		43,237	192,443,424
Lower Fitzroy	40,116,564	0	0		14,907	40,131,471
Macintyre Brook	208,014,162	3,075,000	0		27,604	211,116,766
Maranoa River	17,454,229	0	0		3,621	17,457,850
Mareeba Dimbulah	240,315,730	15,278,906	0	0	101,197	255,695,834
Mary River	20,732,145	0	0	0	14,624	20,746,770
Nogoa Mackenzie	516,568,085	28,828,125	0		224,999	545,621,209
Pioneer River	230,952,654	5,157,031	0		40,366	236,150,051
Proserpine River	233,027,560	10,121,875	0		63,799	243,213,234
St George	115,543,877	4,612,500	0		58,331	120,214,708
Three Moon Creek	99,441,369	2,857,188	0		19,483	102,318,039
Upper Burnett	182,576,349	4,356,250	0		33,218	186,965,817
Upper Condamine	164,920,393	4,100,000	0		46,933	169,067,327
TOTAL	**4,330,332,660**	**158,940,344**	**0**	**0**	**1,264,455**	**4,490,537,459**

3. Capital Contributions

The QCA has previously considered contributed assets and capital contributions in its review of irrigation prices in the Burdekin-Haughton water supply scheme. SunWater has previously provided a background paper to the QCA setting out the scope of potential contributed assets to be considered, and has since gathered data on the nature and extent of those contributions.

This section sets out SunWater's approach to identifying this value and its treatment of the contribution for pricing.

3.1 General approach

The QCA made a number of recommendations and findings in relation to contributed assets and capital contributions in the Burdekin-Haughton scheme. These are referenced in the following sections.

While SunWater did not, and still does not, accept many of those findings the precedent is acknowledged.

As such, SunWater has considered other similar instances where water allocations were sold and has applied a similar approach.

Scope of contributions

A major component to the capital contributions considered by the QCA in its review of the Burdekin-Haughton scheme related to farm sales associated with the development of an irrigation area. Other distribution systems were developed on a similar basis with land resumed, distribution infrastructure constructed, and irrigation farms subdivided and released. This development (and any associated revenue from farm sales) relate to the distribution system rather than bulk water assets. Hence these have not been considered for the opening RAB for bulk water assets.

The QCA also considered treatment of water allocation sales (nominal allocation charges). Prior to the establishment of SunWater and passing of the *Water Act 2000*, these water allocations could be purchased by irrigators for the payment of a nominal allocation charge. These charges were approved by Governor in Council and prescribed in the *Water Resources (Rate and Charges) Regulation*. In other documentation, these charges were referred to as capital charges.

The QCA found that revenues from these charges should be considered as capital contributions in its Burdekin-Haughton review.[30] Accordingly, SunWater has sought to quantify the revenues from the sale of these allocations. In the Burdekin-Haughton scheme, SunWater has adopted the values determined by the QCA.

SunWater has assumed that government funding for bulk water assets does not need to be considered, given the QCA's findings for the Burdekin-Haughton scheme[31]:

> *Historical reasons for Government investments in other irrigation developments are considered relevant but not binding forever.*

The QCA went on to highlight that[32]:

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[30] Queensland Competition Authority. Burdekin Haughton Water Supply Scheme: Assessment of Certain Pricing Matters relating to the Burdekin River Irrigation Area (April 2003). pp 27-28

[31] Ibid. p38.

> *… in the absence of any actual or implied contractual arrangements, the government has the power to alter existing pricing arrangements even though they may adversely impact on a particular individual or group of individuals. The Authority's legal advice is that, following a review of past and current water legislation and the representations made by the State during the relevant period, the relevant Ministers are not constrained in specifying water charges for BRIA irrigators and that they have a broad discretion in setting such charges. This broad discretion includes the ability to require that SunWater recover a rate of return in such charges.*

Depreciation of the contributions

Contributions do not need to be depreciated, which is consistent with SunWater's proposal to set the opening RAB based on an undepreciated value (ORC).

Indexation

SunWater has indexed the contributions to 1 July, 2011 using published CPI indices (Brisbane All Groups) and assuming inflation at 3% for 2009/10 and 2.5% for 2010/11.

Period of contributions

Trades made after 2000 occurred alongside the broader development of water markets which enabled all irrigators to trade water separate from land. Prices for trades were not set via subordinate legislation, but rather through bilateral dealings between SunWater and the purchaser, executed via a contract. Trades also occurred within a broader market setting, referenced to the value of the entitlement. Accordingly, revenue from trading activity after 2000 is not considered to constitute a contributed asset.

Tax adjustment

SunWater notes that the QCA has previously acknowledged the need to account for the taxation impacts of capital contributions in its prior GAWB investigations.[33]

SunWater has not adjusted the contributions to account for any tax timing impacts. These contributions were received before corporatisation in 2000. While SunWater notes there is a case to adjust the contributions for the tax timing impact regardless, it has chosen not to do so at this stage.

Treatment of contributions in prices

SunWater notes the Authority has previously stated a preference to reflect capital contributions through price adjustments to the contributor, rather than altering the RAB. However, for the Burdekin-Haughton, the QCA determined that contributions should be deducted from the RAB:

> *Although information on certain individual contributions is available, the Authority considers that the administration and compliance costs of applying differential pricing arrangements on an individual farm basis over time would neither be practical nor cost effective.*

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[32] Ibid. p112.

[33] Queensland Competition Authority. Gladstone Area Water Board: Investigation of Price Practices (2005). p70.

SunWater has adopted this approach generally for all contributions.

However, SunWater has adjusted the RAB for these contributions *after* it has been apportioned between medium and high priority water access entitlements.

The following sections set out how the above approach has been applied, by first carrying forward the Authority's prior decisions in the Burdekin-Haughton, and secondly in adopting an equivalent approach for other water supply schemes.

3.2 Burdekin-Haughton Scheme

In its review of prices in the Burdekin-Haughton, the QCA calculated a net contribution of $30.7M comprising $17.4M from the sale of allocations associated with land auctions (after accounting for favourable financing terms), and $13.3M from nominal allocation sales outside of the auction process. The QCA also identified the headworks contribution from retention farms as a contributed asset, as well as meters, as being relevant to the river part of the scheme.

Table B.3 of the report set out the non-depreciated capital contributions, allocated to various parts of this scheme. This is reproduced below.

Table 7. Total (Non-Depreciated) Capital Contributions (October $2000)

	Channel ($000)	**River ($000)**	**Other ($000)**	**Total ($000)**
Retention Farms (Headworks Contribution)	8,331	1,103	-	9,434
Auction Sales of Land	29,342	6,523	-	29,342
Water Sales	20,398	10	3,787	30,708
Meters and Barratta Main Channel Upgrade	2,113	-	30	2,153
TOTAL	**60,184**	**7,636**	**3,817**	**71,637**

Source: Queensland Competition Authority. Burdekin-Haughton Water Supply Scheme. Assessment of Certain Pricing Matters relating to the Burdekin River Irrigation Area (April 2003). Appendix B, Table B.3. Page 139

The QCA defined various parts of the scheme used for allocating costs and capital contributions as follows[34]:

- *channel assets*, including water supply assets associated with taking water from the Burdekin River and distributing it via the channel system to customers on both the left and right banks of the river. It includes the pump stations on the river and a component of the Clare Weir;
- *river assets*, including water supply assets other than the channel assets associated with taking water direct from the Burdekin River. This segment includes riparian pumpers and the North and South Water Boards; and
- *other assets*, including assets associated with supply to the Haughton River for riparian pumpers, and supply to the Giru and Reedbeds systems to support groundwater use. This includes the remaining share of the Clare Weir not allocated to channel assets.

[34] Ibid. pp 68-69.

The scope of bulk water assets includes both river assets and other assets, and as such the capital contributions from both these segments are relevant. It is noted that the QCA previously allocated some channel asset costs to Clare Weir, and it is conceivable that a portion (likely to be very small) of the capital contributions identified for channel assets also related to Clare Weir. However, Clare Weir is now categorised as a bulk water asset in its entirety. SunWater has not attempted to calculate that portion of the channel asset contributions that should be transferred to bulk water (in relation to the Clare Weir component) as it does not have the source data used by the QCA, but acknowledges that it would be appropriate to do so. At the same time, it should be acknowledged that the basis of cost allocation for the upcoming price review may be very different to that adopted by the QCA in 2003.

Given the size of the contributions relative to the bulk water asset value, and the difficulties in re-creating the cost allocation used by the QCA, SunWater has accepted the 2003 report allocations and applied the aggregate of river and other contributions to bulk water assets.

These un-depreciated amounts have been indexed from October 2000 to 1 July, 2011, resulting in a capital contribution of $15,852,112.

As set out above, the QCA did identify a significant amount of capital contributions in the channel system and determined an "Opening RAB" value and rate of return for the distribution network. Given the QCA Ministers' have now directed to the QCA to value distribution assets at $zero there is no longer any value to offset these contributions against.

3.3 Nominal allocation sales in other schemes

Due to the time that has elapsed, the nature of the transactions and various changes to information and billing systems, SunWater has not been able to identify the actual revenues from water allocation sales before 2000. Instead, SunWater has examined past annual reports to identify increases in nominal allocations between 1989 and 2000, and then assumed that the increases would have attracted the gazetted nominal allocation charges at the time.

The table below sets out the amounts identified, to be treated as a capital contribution.

Table 8. Total Nominal Allocation Sale revenue ($ 1 July, 2011)

Scheme	Amount ($)
Barker Barambah	307,153
Bowen Broken Rivers	-
Boyne River and Tarong	20,239
Bundaberg	-
Callide Valley	-
Chinchilla Weir	-
Cunnamulla	-
Dawson Valley	20,565
Eton	47,379
Lower Fitzroy	-
Macintyre Brook	-
Maranoa River	-

Scheme	Amount ($)
Mareeba Dimbulah	6,263,473
Mary River	708,192
Nogoa Mackenzie (Medium)	7,649,451
Nogoa Mackenzie (High)	
Pioneer River	413,500
Proserpine River	57,991
St George	-
Three Moon Creek	-
Upper Burnett	-
Upper Condamine	-
TOTAL	**15,487,944**

3.4 Water auctions

Water auctions were held in St George, Nogoa Mackenzie and Mareeba-Dimbulah water supply schemes[35].

The outcomes of SunWater's research of the proceeds of these auctions are set out below.

St George.

An auction was held in the 1989/90, where 3,000ML was sold for an average price of $386/ML. The statements made about the auction were similar to those relied upon by the QCA in its Burdekin-Haughton review in forming the view that certain revenues should be treated as capital contributions.

SunWater notes that the water allocations purchased are tradable assets under the *Water Act 2000*, and have grown substantially in value during this time. For example, the average prices for water entitlements being purchased in the Government's buyback in the Murray Darling Basin is between $1,600/ML and $1,800/ML. [36] Published prices in the same catchment, in the Macintyre Brook and Border Rivers schemes are around $2,200/ML.[37]

Nonetheless, SunWater acknowledges the precedent set by the QCA in its Burdekin-Haughton review.

The value of the contributions, indexed to June 2011, is $2,045,224.

Nogoa Mackenzie

An auction was held in 1997/98 for 7,000ML of medium priority water allocation, and 3,000ML of high priority water allocation. The average prices paid were $870/ML for medium priority, and $1,600/ML for high priority.

These allocations were made available as a result of the raising of Bedford Weir. SunWater has reviewed the auction material and concluded that the statements made

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[35] In its earlier Background Paper, SunWater had indicated that a water auction may have been held in the Macintyre Brook water supply scheme. However, further research has confirmed that this was not the case. Rather, an auction was held in the Dumareq River scheme, which is part of the Border Rivers and not owned by SunWater and as such is not relevant to this investigation.

[36] Refer to www.environment.gov.au/water/policy-programs/entitlement-purchasing/index.html#ave

[37] Refer to ww.derm.qld.gov.au/water/trading/pdf/trading_reports/report_supp_2008_09.pdf

were similar to those relied upon by the QCA in concluding that certain revenues would be treated as contributed assets in the Burdekin-Haughton.

The value of the proceeds of the auction is $16,061,542 ($1 July, 2011), comprising:

- Medium priority auction sales ($2011) - $8,968,370
- High priority auction sales ($2011): $7,093,172

It is proposed to apply this contribution as an offset to the opening RAB for bulk water, for each of the medium and high priority share of value.

A further raising occurred for Bingegang Weir, generating additional high priority WAE. While the Bedford Weir auction was limited to irrigation bidders, the Bingegang Weir water allocations were offered to urban and industrial users, and hence are not relevant to irrigation pricing.

Mareeba

Two auctions were held in the Mareeba Dimbulah scheme. These related to water made available through improvements to distribution efficiencies in the channel system. These improvements were made possible through investments in channel infrastructure and improved control systems.

The auction revenues (where allocations were sold for an average price of $223/ML) are therefore not related to bulk water assets. Furthermore, the QCA Ministers' have directed to the QCA to value distribution assets at $zero, and hence there is no value to offset.

3.5 Meters

SunWater has excluded the value of meters from the RAB on the basis that many have been funded by customers.

4. RAB Apportionment

Bulk water assets service different types of water access entitlement products, usually differentiated by priority. These are generally termed medium and high priority, with high priority access entitlements effectively commanding a greater proportion of storage (relative to the nominal volume).

Irrigators mostly own medium priority access entitlements.

Accordingly, the bulk water RAB needs to be apportioned between the different types of entitlement. SunWater has proposed headworks utilisation factors (HUFs) which are calculated to reflect the proportion of storage (headworks) capacity that is dedicated to each of high and medium priority access entitlements as a group.

The details surrounding SunWater's approach and its reasoning are described in and in responses to the issues paper on this topic published by the QCA.

The table below sets out the RAB attributable to medium priority access entitlements, taking into account the adjustment for capital contributions. Please note these totals do not include the value of third party assets discussed in earlier sections. Capital contributions are applied to the relevant priority group.

Table 9. Opening RAB ($ 1 July 2011) – medium priority water entitlements

Scheme	RAB ($)	HUF % for medium priority	Medium Priority share of RAB	Less capital contributions (medium priority	TOTAL ($)
Barker Barambah	216,226,403	75%	162,169,802	307,153	161,862,649
Bowen Broken Rivers	127,677,886	0%	0	0	0
Boyne River and Tarong	166,948,293	9%	15,025,346	20,239	15,005,107
Bundaberg	257,324,227	82%	211,005,866	0	211,005,866
Burdekin-Haughton	844,095,965	79%	669,017,913	15,852,112	650,983,700
Callide Valley	373,864,571	10%	36,638,728	0	36,638,728
Chinchilla Weir	16,182,488	12%	1,941,899	0	1,941,899
Cunnamulla	7,231,382	100%	7,231,382	0	7,231,382
Dawson Valley	139,843,745	70%	94,459,130	20,565	97,870,056
Eton	192,443,425	80%	153,954,740	47,379	153,907,361
Lower Fitzroy	40,131,471	7%	2,809,203	0	2,809,203
Macintyre Brook	211,116,766	87%	181,381,204	0	183,671,586
Maranoa River	17,457,850	100%	17,457,850	0	17,457,850
Mareeba Dimbulah	255,695,833	46%	117,620,083	6,263,473	111,356,610
Mary River	20,746,769	42%	8,713,643	708,192	8,005,451
Nogoa Mackenzie	545,621,209	40%	218,248,484	16,617,822	201,630,662
Pioneer River	236,150,051	44%	103,906,022	413,500	103,492,522
Proserpine River	243,213,234	27%	65,667,573	57,991	65,609,582
St George	120,214,708	94%	113,001,826	2,045,224	110,956,601
Three Moon Creek	102,318,040	60%	61,390,824	0	61,390,824
Upper Burnett	186,965,817	18%	33,653,847	0	33,653,847
Upper Condamine	169,067,326	11%	18,597,406	0	18,597,406
TOTAL	**4,490,537,459**		**2,297,432,544**	**42,353,651**	**2,255,078,892**

In the Nogoa-Mackenzie scheme, irrigators also hold high priority water entitlements. The relevant share of the RAB for these customers relates to the residual HUF

percentage for the scheme, less capital contributions for high priority entitlements. This is set out below.

Table 10. Opening RAB ($ 1 July 2011) – high priority water entitlements

Scheme	Scheme asset value	HUF % for high priority	High Priority share of RAB	Less capital contributions (high priority	TOTAL
Nogoa Mackenzie (high priority)	545,621,209	60%	327,372,725	7,093,173	320,279,553

In the Proserpine River Water Supply Scheme, Peter Faust Dam was constructed to provide specific flood mitigation benefits through a higher embankment and narrower spillway than would otherwise be required to meet standard dam safety requirements.

SunWater has conducted a desktop engineering review of the configuration and cost of a dam structure that would not provide these flood mitigation benefits. This would result in a structure with a lower embankment, but a wider spillway to meet dam safety requirements. SunWater has estimated that the savings from a lower embankment would be outweighed by the cost of a wider spillway. In other terms, the cost of the dam without flood mitigation capacity would not be lower than the cost of the current dam configuration, with flood mitigation capacity.

Accordingly, SunWater submits that it is not necessary to allocate costs to flood mitigation for Peter Faust Dam.

5. Conclusion

This background paper describes the methodology and data used to determine the RAB for bulk water assets, at their optimised replacement cost. It is important to differentiate this asset value, which is used to calculate the upper limit of revenues, from decisions about pricing and the extent of any discounting and price transitioning required to ensure that prices are within irrigators' capacity to pay.

The proposed approach recognises that the service potential of bulk water assets has been maintained since they were constructed, and will continue to be maintained through ongoing renewals expenditure, recovered through a renewals annuity.

SunWater's proposed value:

- has been developed using a bill of materials and updated schedule or rates for bulk water assets;
- assumes a $0 value for shared distribution assets in some schemes, as well as gauging stations, in accordance with the QCA Ministers' guidance;
- includes land at market value, interest during construction and an allowance for working capital;
- excludes the value of non-infrastructure assets such as IT systems.

The ORC value has been allocated to medium priority water entitlements, which is of particular interest as nearly all irrigators hold medium priority water entitlements. On a statewide basis, medium priority water entitlements are allocated, on a weighted average, around 51 of the asset value.

The establishment of this asset value is an important first step. SunWater acknowledges that further work is required by the Authority to assess irrigators' capacity to pay, and recommend discounted prices and/or transitional price paths.

Attachment 1

Third Party Assets Identified

Water Supply Scheme	Storage	Year Commissioned	Third party assets
Barker Barambah	Bjelke-Petersen Dam	1988	No significant 3rd party assets identified, but access road of 1.4 km likely.
Bowen Broken	Eungella Dam	1969	No significant 3rd party assets identified, but access road of 34.3 km was likely to have been upgrade/ constructed.
Bowen Broken	Bowen River Weir		No significant 3rd party assets identified, but access road of 12 km was likely to have been constructed
Boyne River and Tarong Pipeline	Boondooma Dam	1983	6.5 km of existing bitumen road, 3.5m wide was reconstructed mainly on existing alignment, 3.5 km of existing unsealed road was re-constructed, plus 9.6 km of new road was constructed. Total length 19.6 km either constructed or upgraded
Bundaberg	Fred Haigh Dam	1975	Highway diversion and new high level bridge about 20 miles (32 km) north of the dam site - deviation length about 7 km.. Access road from highway into dam – 5km.
Bundaberg	Kolan Barrage and Bucca Weir	1974	No 3rd party asset identified, however upstream bridge and associated roads are likely to have been constructed
Bundaberg	Ben Anderson Barrage	1976	No significant 3rd party assets identified.
Bundaberg	Ned Churchward Weir		No Significant 3rd party asset identified.
Burdekin	Burdekin Dam	1986	120 km of access road from Mingela.(consisting of upgrading and sealing of 40 km of secondary road from Mingela to Ravenswood and construction of upgraded shire road to dam). Raising of access bridge at Scartwater Station.
Burdekin Dam	Gorge Weir		No Significant 3rd party asset identified , but 24.8 km from Dalbeg is likely
Burdekin Dam	Blue Valley Weir		No significant 3rd party assets identified, but 21.5 km from Dalbeg is likely
Callide Valley	Callide Dam	1964	Access Road 5 km from turnoff on Dawson Highway.
Callide Valley	Kroombit Dam	1993	28.8 k from Biloela to dam along Valentine Plains Rd. The existing road crossing Kroombit Creek D/S of the dam required minor re-location. The existing public road to the dam from Biloela was improved where necessary to provide access for large vehicles. This work involved minor changes to alignment, drainage and strengthening the existing unsealed pavement..
Dawson Valley	Glebe Weir		No significant 3rd party assets identified, but access road of 5 km is likely
Dawson Valley	Gyranda Weir		No significant 3rd party assets identified, but access road of 10 km likely.
Eton	Kinchant Dam	1986	Access to the site is from North Eton. Locality Map indicates approx 12 km of access road was constructed.
Macintyre Brook	Coolmunda Dam	1969	Access to right abutment is off the existing main road. Access Road length 5 km and runs D/S of the dam

Water Supply Scheme	Storage	Year Commissioned	Third party assets
			Deviations of sections of the South-Western Railway and shire roads that would be inundated.. Main Road and railway deviated about 1.5 km around right abutment of dam. Prestressed concrete road bridge over Bracker Creek.
Mareeba Dimbulah	Tinaroo Falls Dam	1959	A total length of 69km of relocated roads is indicated. in Annual Reports. Railway Deviation included bridges over Mazzlin Ck and Petersen Ck. and Barron River Bridge. The access road constructed from Kairi Rd to Dam is 8.3 km long.
Nogoa Mackenzie	Fairbairn Dam	1974	Emerald Shire Council constructed access road to site, funded by the Dam project. Length 18.4km. The Shire did contributed $20,000 for sealing this road.
Pioneer River	Teemburra Dam	1996?	Drg.105962 indicates 8 km from Pinnacle to Saddle Dam No.2 and Drg. 105148B shows extra 5 km to Main Dam – total 13 km either upgraded or constructed
Proserpine	Peter Faust Dam	1990	Access is mainly along an existing road. The 1988/89 Report mentions access roads. 9 or 10 km in length funded by the project including a bridge built by contract..
St George	Beardmore Dam	1973	Balonne Shire provided a sealed access road to site 7 km – runs off Carnarvon Highway, SunWater constructed six prestressed concrete bridges over Thuraggi watercourse for farm access
Three Moon Creek	Cania Dam	1982	The road to gorge was already in existence – total length 26 km. Monto Shire Council re-constructed the existing road for access – no details available of extent of re-construction. 1980/81 (Report p16 mentions sealing of 1.07km section to dam),
Upper Burnett	Wuruma Dam	1968	Access road from Abercorn 18 km.
Upper Burnett	Claude Wharton Weir	1987	Three upstream bridges to replace crossings inundated were completed in 1987.
Upper Condamine	Leslie Dam	1965/1986	Main access road (6.4 km involving a railway level crossing, a concrete causeway, and 4 km of new location). Alternative roads (8 km) to replace those inundated.