Submission

QCA review of irrigation prices

Response to Draft Report

23 December 2011

Contents

1 Introduction

The Queensland Competition Authority (QCA) has been directed to recommend irrigation prices for SunWater's water supply schemes and distribution systems. The QCA released its Draft Report in November, 2011[1] and has called for submissions by 23 December, 2011.

This is SunWater's response to the Draft Report, and is structured as follows:

- Section 2 discusses the key issues and outcomes of the QCA's report and sets out the key themes for this submission;
- Section 3 responds to the Draft Report's recommendations for the regulatory framework;
- Section 4 responds to the recommendations about pricing framework;
- Section 5 sets out SunWater's response to the renewals annuity chapter;
- Section 6 responds to the operating cost chapter; and
- Section 7 sets out SunWater's response to the proposed prices in the draft prices chapter.

Eight attachments are also provided:

- Attachment 1 provides a detailed response to the Indec report: Qualitative Framework and Assessment of Fixed and Variable Cost drivers;
- Attachment 2 presents a detailed response to QCA's findings about past and future renewals annuity projects;
- Attachment 3 sets out SunWater's response to the QCA's forecast of electricity prices;
- Attachment 4 presents information about SLFI savings, as requested by the QCA;
- Attachments 5 presents responses to scheme-specific issues;
- Attachment 6 responds to the proposed weighted average cost of capital;
- Attachment 7 presents SunWater's proposed prices where in schemes where prices were to be maintained in real terms; and
- Attachment 8 is an advice from Cardno on the additional costs of performing options analysis on renewals projects as suggested in the Draft Report.

[1] QCA (2011). Draft Report. SunWater Irrigation Price Review: 2012-17. Volume 1.

SunWater accepts a number of the QCA's recommendations in the Draft Report. This submission focuses on those matters with which SunWater does not agree, and in general SunWater has proposed an alternative approach.

2 Key issues and outcomes

This section summarises the key issues in a policy context, and discusses outcomes of the Draft Report.

Policy context

National water reform agenda

A key aspect of the water reform agenda since 1994 was ensuring prices paid by irrigators achieved a minimum level of cost recovery, so that service providers could be financially sustainable. This requirement was re-affirmed in the National Water Initiative (NWI) agreement, which requires that prices achieve the 'lower bound' level of cost recovery, being the operations, maintenance and administration costs, asset refurbishment/replacements, tax or tax equivalents, interest on any debt, and externalities (if charged).[2]

Constraining prices to lower bound cost recovery has significant financial implications for rural water businesses, because revenues are effectively set to recover the very minimum costs of supplying irrigators, below which the business (on a stand alone basis) becomes financially unsustainable[3]. Indeed, the NWI definition refers to lower bound pricing as the minimum level at which prices need to be set for businesses to be viable.

Irrigation pricing in Australia is unique among other utility services in so far as charges typically do not recover a return of, or a return on, the substantial past capital investment in water storage and distribution infrastructure (otherwise known as upper bound pricing). This also presents a unique challenge for price regulators, as regulation is usually employed to prevent owners of monopoly assets setting charges that include an inappropriately high rate of return. Prices set at such levels are inefficient and have undesirable social and other impacts. However, lower bound pricing, by definition, is well below the level at which regulators become concerned about excessive prices. In short, prices that are set below the 'normal' level applied by regulators (upper bound) would generally be seen as acceptable.

At the same time, there are specific Government policy requirements for irrigation charges to be set below the upper bound, which are reflected in the Direction Notice to the QCA.

[2] Refer to *Intergovernmental Agreement on a National Water Initiative*. June 2004, paragraphs 64 and 65.

[3] And eventually insolvent.

Direction Notice

The Ministers' Direction Notice to the QCA (the Direction Notice) requires the QCA to recommend irrigation prices from 1 July 2012 to 30 June 2017 (the regulatory period).

The Direction Notice requires the QCA to recommend prices that allow SunWater to recover efficient operational, maintenance and administrative costs and prudent and efficient expenditure on renewing and rehabilitating assets through a renewals annuity. This level of cost recovery is equivalent to the lower bound level of cost recovery outlined above.

Where current prices are already above the level required to recover lower bound costs, the Direction Notice required that water prices be maintained in real terms.

Where prices need to rise in real terms to recover lower bound costs, the QCA was required to consider the need to implement a price path to moderate price impacts on irrigators while having regard for SunWater's legitimate commercial interests.

Application and outcomes

SunWater has a number of concerns about how the QCA has applied the requirements of the Direction Notice and the outcomes that have been generated. These are discussed below, and reflected through the remainder of this submission.

Risk to business viability

While the Direction Notice requires the QCA to recommend prices that recover efficient costs, the QCA should do so having regard to the fact that prices are being set at (or near) the lower bound. In this environment, the consequences to the business from regulatory error are far more significant than would normally be the case. If errors are made that result in revenues being set unrealistically low, then the business will not be able to recover lower bound costs and affected schemes would not be financially viable.

Moreover, the consequences of erring by setting efficient costs slightly higher than lower bound to be are not the same as in an upper bound environment. This highlights the asymmetric risk of regulatory error – setting charges too low will risk business viability and threaten recovery of lower bound costs, while erring by setting charges too high will not result in prices being inefficient, as they will remain far below the upper bound.

The QCA should be attentive to this situation, and adopt a cautious and measured approach to imposing savings or reductions to proposed lower bound expenditure. There should be strong evidence to support decisions to apply such reductions, given the implications of error.

However, the QCA has not conducted this review in light of these considerations. Rather, the QCA has been particularly aggressive in its approach and has imposed reductions without evidence that inefficiencies exist. For example, the QCA has:

- imposed arbitrary savings in addition to efficiency savings identified by the QCA's consultants;
- accepted virtually all savings recommended by its consultants, even where SunWater has presented strong grounds of rebuttal;
- not allowed SunWater to recover 10% of its past renewals expenditure, despite an absence of evidence to suggest that the overall program was imprudent or inefficiently delivered. The QCA has also applied this 10% reduction to past expenditure on the basis of its assessment of future expenditure forecasts, yet the two are. The QCA's extrapolation approach was also counter to the recommendations of its consultant;
- imposed cost saving targets identified from earlier internal reviews out of context (e.g. for electricity savings with no allowance for the capital expenditure expected to be required to realise those savings);
- not accepted SunWater's proposals to pass through costs which are material yet clearly outside its control, such as annual changes to electricity tariffs; and
- accepted, without evidence, that variable costs exist beyond electricity which in turn has exposed SunWater to volume risk.

Preserving existing prices

The Direction Notice states that prices (not revenues) are to be maintained in real terms, where they were already recovering lower bound costs. The QCA has instead adopted an approach to tariff re-balancing that has 'set in stone' the low revenue outcomes of the past. If the Direction Notice required that revenues were to be maintained in real terms, it would have said so.

Consequently, SunWater's future revenues from irrigation prices will be lower than they would have been without re-balancing, based on the QCA's own water use forecasts. This means that the requirements of the Direction Notice have not been met – that is, prices (and revenues) are lower than they would otherwise have been if tariff reform did not occur.

In terms of economic efficiency, there is nothing to be gained by constructing an approach to tariff re-balancing that is orientated towards a lower-price outcome in schemes where real price rises were not required, given these prices are still well below their maximum level (upper bound).

Whilst SunWater endorses the proposed reforms to tariff structure, changes to tariff structure should simply result in the same outcome than would be expected without re-balancing.

Price signals

The QCA's tariff reforms present a far better price signal to customers than existed before. However, the application of tariff reform has meant that the volumetric charge does not signal the variable cost of supply to irrigators, despite QCA's intentions for it to do so. This is due to the erroneous application of the Indec analysis to tariffs, as the Indec variable cost percentages are not in fact variable costs, but the percentage of costs that could be saved (in Indec's view) under extended periods of low or nil water use conditions.

The following sections of this submission address the above and other matters in detail.

3 Regulatory framework

In this chapter, the QCA set out its assessment of risk and recommendations for how risks should be allocated between SunWater and customers. In general, SunWater agrees with the QCA's assessment and overall recommendations. This section of SunWater's submission deals with three issues:

1. the need for better, more certain arrangements to deal with the variations to electricity costs;
2. the QCA's recommendations about service quality monitoring; and
3. the failure of the draft prices to achieve the stated objectives of assigning volume risk to customers.

Price re-set triggers, electricity costs

SunWater previously argued that the QCA should provide for annual cost pass-through arrangements that allow for water charges to reflect actual electricity prices.

In its Draft Report, the QCA stated that, given the current uncertainty surrounding electricity prices[4], it is not considered appropriate to approve automatic pass-through of actual electricity costs where they exceed the QCA's forecasts.

Instead, the QCA noted that its decision to approve a pass-through or an automatic pass-through in the future, within the 2012-17 regulatory period will depend upon consideration of the following criteria:

- whether the impact of the change in costs on either the service provider or the customer is material;
- whether the change in costs could have been anticipated and thus managed or avoided by the service provider; and
- the extent to which allowing recovery of unanticipated costs would reduce incentives to pursue efficiency.

SunWater considers that, to the extent the franchise electricity tariff represents the most efficient electricity procurement option, automatic annual pass-through of differences between actual and forecast electricity prices should be adopted. SunWater considers that annual pass-through is consistent with:

- the requirements of the QCA and the Ministerial Direction; and
- good regulatory practice.

[4] In particular, the QCA referred to uncertainty surrounding the QCA's current review of electricity franchise tariffs and the proposed introduction of a carbon tax from 1 July 2012.

SunWater's proposal is discussed further below.

Annual adjustment of electricity prices

In its Draft Report, the QCA accepted that SunWater had carried out a sufficiently detailed review of the costs and benefits associated with a move to contestable electricity contracts, and concluded that there is insufficient incentive to change from the use of franchise tariffs.

However, the QCA noted that potential changes to electricity tariffs could change this, and for some sites moving to contestable contracts may be a lower cost option.[5] Therefore, the QCA proposed that SunWater review the cost differential between franchise and contestable electricity contracts on an annual basis commencing in 2012-13.

SunWater supports the QCA's recommendation to continue to assess the relative merits of franchise and contestable electricity tariffs, but notes that doing so is a significant exercise and each review will take time given its diversity of the load and location of various sites.

While SunWater accepts that the structure of Queensland electricity prices is currently uncertain, it notes that this uncertainty is expected to be resolved prior to the commencement of the 2012-17 regulatory period. In particular, the Ministerial Delegation regarding the review of Queensland retail electricity tariffs requires that:

> *The Authority (Queensland Competition Authority) must publish a report of its final price determination on regulated retail electricity tariffs (with each tariff to be presented as a bundled price) for the period I July 2012 to 30 June 2013, and gazette the (bundled) retail tariffs, no later than 31 May 2012.*[6]

Accordingly, SunWater will be in a position to affirm that franchise tariffs remain the optimal electricity procurement strategy (or not) prior to the application of 2012-13 water charges.[7] [8]

Similarly, it is expected that the QCA will publish actual franchise electricity tariffs on an annual basis prior to the commencement of each financial year. Assuming franchise tariffs remain optimal, water

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[5] As discussed, the QCA suggests that this uncertainty is a key reason for the rejection of an automatic pass-through of actual electricity costs.

[6] Minister for Energy and Water Utilities, 2011 Ministerial Delegation to the QCA, September, p. 3.

[7] In deciding this (and any future) procurement strategy, SunWater seeks assurance from the QCA that any assessment of its decision will be cognisant of circumstances prevailing at the time the decision was made, rather than an ex-post review based on subsequent information.

[8] While the application of actual franchise tariffs is relatively straightforward, the application of contestable arrangements will be more complicated. Where the assessment determines that contestable arrangements are the more efficient procurement option, it is likely that customer charges will take some time to develop. Accordingly, it is proposed that these contestable charges not apply until the following financial year (2013-14), with franchise tariffs to apply in the interim.

charges can be adjusted prior to the commencement of each regulatory year to accommodate any difference between actual and forecast electricity prices.

To the extent that the franchise tariff represents the most efficient procurement option, SunWater considers that annual pass-through of actual electricity prices, irrespective of the variance from forecast prices, is appropriate. That is, water charges should be adjusted annually to reflect actual, rather than forecast, franchise electricity tariffs.

If regular assessments of franchise tariffs result in a conclusion that a move to contestable is warranted, then implementing this decision would take some time. For example, a tender process would need to be established, requiring information being prepared for tenderers (e.g. load characteristics at each site), tenders lodged and then evaluated, and final terms agreed. The volumetric charge would then need to be re-set, following an independent review. Accordingly, if a decision was taken to move certain sites to the contestable market, it is likely that actual prices would not be adjusted until the year following the decision to move to contestable. It is therefore proposed that where SunWater proposes to move to contestable electricity contracts, it does so via a within-period application that includes a program plan setting out the timeframe for the procurement process and a proposal for when volumetric charges would be adjusted.

The following sets out the rationale for annual adjustments based on actual movements to the franchise tariffs, where franchise tariffs continue to be the lowest cost solution during the regulatory period.

Consistency with the requirements of the QCA and the Ministerial Direction

In its Draft Report, the QCA indicated that:

> *…where the changes (in the regulatory period) are likely driven by external factors beyond the influence of the service provider (uncontrollable costs), a suitable means for reviewing costs and resetting revenues and prices needs to be established.*[9]

and

> *A cost pass through may be appropriate when the nature of costs can be reasonably foreseen (but not quantified in advance) and the cause of the subsequent change and its magnitude (once it has occurred) are unambiguous.*[10]

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9 QCA 2011, Draft Report SunWater Irrigation Price Review: 2012-17 Volume 1, November, p. 35

10 Ibid., p. 36

SunWater notes that differences between forecast and actual franchise electricity prices meet the QCA's requirements for cost pass-through:

- franchise tariffs are currently set annually by the QCA. The components of tariffs (for example energy load) are potentially subject to significant variance from one year to the next. These variances result in unanticipated changes to annual tariffs and mean that accurate forecasting of franchise electricity tariffs is impossible. SunWater is unable to anticipate such changes or adopt strategies to mitigate against these price movements. Accordingly, SunWater has no control over franchise electricity prices and merely accepts annual prices as determined by the QCA; and
- the cause of any change in franchise tariffs and the magnitude of adjustment are unambiguous. The QCA is required to provide an annual report on the development of franchise tariffs and gazette the final tariffs prior to the commencement of each financial year. In addition, an annual adjustment to water charges to reflect differences in forecast and actual electricity prices is consistent with the Ministerial Direction. Specifically, under the Ministerial Direction, SunWater is permitted to recover its efficient electricity costs. Given actual franchise tariffs are known prior to the commencement of the financial year, their inclusion in forthcoming water charges allows SunWater to recover these costs as they are incurred.

Consistency with good regulatory practice

SunWater considers that an annual adjustment to facilitate differences between forecast and actual franchise tariffs is consistent with good regulatory practice. In particular, the annual pass-through of actual electricity prices:

- is transparent and relatively easy to administer – actual franchise tariffs are known in advance of the financial year and can be incorporated in water charges prior to the implementation of those charges. In addition, given franchise tariffs are published, the regulator or another independent party can easily verify the tariffs and any difference to those originally forecast;
- allows actual costs associated with the provision of the service to be passed-through in a timely manner. This facilitates accurate signalling of costs to customers with no disconnect between the timing of changes to input costs and associated changes to water charges (as would occur under an end of period adjustment). This allows customers to adjust consumption in response to changes in water charges as they occur;
- avoids potential price shocks at the start of the next regulatory period. For example, where actual tariffs were to differ substantially from those forecast, water charges at the next

regulatory period may require significant adjustment to ensure that costs are returned to/recouped from customers;

- reduces the potential risk of non-recovery of electricity costs by SunWater. To the extent that government policy or other factors change during the regulatory period, SunWater is concerned that it may be unable to recoup its legitimate electricity costs incurred during the regulatory period. This risk is minimised by the adoption of an annual pass-through process, rather than an end of period adjustment; and
- reduces potential financial impacts on SunWater. Given the application of lower bound pricing, failure to provide for the timely recovery of legitimate costs can have a significant impact on SunWater's business. An annual pass-through process facilitates the recovery of costs as they are incurred.

Review of service quality monitoring

The QCA recommended that the current approach to monitoring service quality should be reviewed, in consultation with customers, before the next pricing review period.[11] This appears to have been driven by a view that SunWater could arbitrarily reduce service standards, and hence costs, during the regulatory period:[12]

> *The success of either revenue or price caps will depend on the service standards being precisely defined and monitored. SunWater's current performance regime, being based on delivery response to requests from customers, could prove ineffectual if SunWater can fail to meet the service standards without penalty or change the standards unilaterally.*

However, service standards relate to a broad range of indicators, are measured and reported annually, and cannot be changed unilaterally.

SunWater has set out its current service standards in each Network Service Plan (NSP). These standards encompass measures other than delivery response times, and include:

- timing for notification of planned and unplanned shutdowns;
- duration of unplanned shutdowns;
- maximum time to repair meters for faults causing supply interruptions;
- maximum number of supply interruptions per year; and

[11] QCA (2011). p38

[12] QCA (2011). p35

- processing times for water trading transactions.

As indicated in each NSP, SunWater has developed systems to monitor performance against these standards and report performance in its Annual Report.

In each NSP, SunWater stated that it reviews these service standards in consultation with customers. Indeed, the standard water supply contract requires SunWater to revise service targets from time to time, after considering customer needs determined through customer consultation. SunWater is obliged to consult fairly and reasonably and allow each customer the opportunity to participate in such consultation.[13]

Clearly, SunWater cannot unilaterally change the service standards without consulting with customers and taking into account changes in customer needs.

Accordingly, SunWater does not agree that there is a need to review the current approach for service quality monitoring over and above the mechanisms that already exist, and the QCA appears to have made recommendations that are unnecessary and subject to pre-existing contractual arrangements.

In closing, there is no evidence to support the QCA's recommendations and SunWater submits that the existing service quality monitoring regime does not require review.

Volume risk

The Draft Report recommended that short term volume risk should be assigned to customers through a tariff structure that recovers fixed costs through fixed charges and variable costs through variable charges.[14]

The Indec review and its application to draft tariffs is discussed in more detail in Attachment 1.

In order for this principle to apply in practice, fixed and variable costs must be properly characterised. The QCA commissioned Indec to review SunWater's costs and make recommendations about costs that vary with water use.[15] The QCA then adopted Indec's recommended percentages for fixed and variable costs, and applied this to draft tariffs.

SunWater disputes the Indec assessment of fixed and variable costs, and its recommended percentages of variable and fixed costs.

The Indec percentages do not relate to costs that vary with water use, but are instead an assessment (in Indec's view) of the costs that could be avoided or deferred if water use was very low or nil for an

[13] Refer to Section 3 of Supply Contract River, Standard Conditions (Schedule 3, Version 2)

[14] QCA (2011). p32

[15] Indec (2011). Final Draft Report. Qualitative Framework and Assessment of Fixed and Variable Cost Drivers.

extended period (notwithstanding the fact that such deferrals may not be consistent with the long term interests of users). However, the Indec percentages have been applied on the presumption that the cost savings are linear and proportional to declining water use.

At best, the variable (non-electricity) costs identified by Indec are fixed until water use reaches a point at which the cost-saving measures suggested by Indec could be employed. This means that SunWater continues to bear volume risk until the point at which water use is so low, and occurs for so long (and can be expected to continue into the future), that SunWater can take cost-saving measures. SunWater then bears the risk that Indec's cost saving measures can in fact be achieved.

Indec's findings were, by its own admissions, judgement-based and are presented in broad percentage terms and hence cannot be taken as accurate. The savings largely involve shifting costs between schemes or deferring costs to later years, and were not assessed in terms of the overall least-cost approach to service provision.

SunWater does not agree with the Indec savings (refer Attachment 1).

In the Draft Report, the QCA stated that tariff structures that align with fixed and volumetric costs will better manage volume risk as well as send efficient price signals. However, the report goes on to give greater emphasis to managing volume risk over the term of the regulatory period:[16]

> *In the current circumstances, a key reason for the adoption of two-part tariffs is to manage volume risks over the 2012-17 price path… It is therefore considered that, in order to manage the volume risks over the five-year price path, it is more appropriate to define variable costs in terms of those costs which can be expected to vary with water usage over the five years of the proposed price paths.*

This suggests that the QCA intended for the variable charge to reflect the extent to which cost would vary with water use over a five-year period, which may arguably involve more variable costs than the electricity costs for pumping.

This five-year approach also suggests that costs will change over a five-year timeframe in response to changes in water use. This does not reflect the reality of irrigation demands, which are highly volatile and unpredictable, as evidenced by demands over the previous price path period. In any case, the Indec variable cost percentages do not represent the relationship between cost and water use over a five year period. As stated above, the percentages simply represent the savings that could be made under a low or no water use scenario. Moreover, such a low use scenario may never happen in a five year period – for example this did not occur in many SunWater schemes in the previous price path,

[16] QCA (2011). p51.

despite extended drought and a year of major flooding, although water use may still have averaged below forecast.

SunWater submits that Indec has not established that there are variable costs over and above electricity (as suggested by SunWater) that are variable. Indeed Indec stated that the only variable cost was electricity, with other costs being fixed or semi-variable. The Indec analysis cannot be used for tariff setting purposes because its variable cost percentages do not represent a relationship between water use and consumption, which is the intent of the variable charge. By applying the Indec variable cost percentages as the basis for the volumetric charge, the QCA has inadvertently exposed SunWater to volume risk, contrary to the intentions of the regulatory (and pricing) framework as costs will not vary in the manner suggested by the volumetric tariffs.

The ‘savings’ have not been established with any precision or in any detail.

In closing, SunWater submits that the regulatory framework should be applied in a way that meets the QCA’s objectives - that is for customers (rather than SunWater) to bear volume risk. The QCA should avoid adopting simplistic or irrelevant measures of variable costs to avoid inadvertently exposing SunWater to volume risk. Moreover, SunWater submits that consequences of regulatory error are likely to lead to a failure to recover the very minimum level of costs (lower bound costs), contrary to the Direction Notice.

4 Pricing framework

The Draft Report adopts many of SunWater's proposals in relation to tariff structure and other matters, and SunWater supports the QCA's recommendations in this regard. However, SunWater is concerned about specific aspects of the application of the tariff structure to prices, as set out below.

Application of the Indec report to tariff structure

As set out above, SunWater is concerned about the way the QCA has applied the Indec assessment of fixed and variable costs for pricing purposes.

In Chapter 4 of its Draft Report, the QCA articulated the rationale for its two part tariff and the volumetric charge in particular:[17]

> *Of particular relevance, the rationale for using a two-part tariff is that the volumetric charge should, when set to equal the anticipated costs of using an additional unit of water (the marginal cost), promote informed decisions by users. Customers will irrigate until the marginal benefit of irrigation outweighs SunWater's variable cost. That is, it makes clear the cost of supplying the additional unit of water and requires customers to establish whether the benefit of using it exceeds its costs.*

This suggests that the volumetric charge should be set to recover, and only recover, those costs that vary with each ML of water taken. SunWater had proposed that these variable costs were limited to electricity costs associated with pumping.

This is supported by the fact that Indec found that electricity was the only variable cost. Neither Indec nor the QCA could establish a causative relationship between water use and other costs (indeed these were referred to as semi-variable or fixed). In fact the QCA had to derive the volumetric charge by dividing the costs that could be saved in times of low demand by a forecast use assumption.[18]

Accordingly, the recommended volumetric charges do not send appropriate price signals to irrigators, as the volumetric charge overstates the marginal cost impacts from an irrigator's decision to use (or not use) water. Adopting the Proserpine River WSS as an example, irrigators will face a $3/ML volumetric charge for each ML of water used however there is no evidence to suggest that additional use will impose a $3/ML cost to the scheme at the margin. Conversely, an irrigator may choose to not

[17] QCA (2011). p49.

[18] The draft report stated that SunWater's NSPs did not indicate a volumetric based amount for the costs that could be saved in times of low demand (Indec's variable costs). This is because there is no such basis for setting a volumetric charge.

take water and save $3/ML, in which case there is no evidence to suggest that by doing so the scheme will save (or avoid) an additional $3 in cost at the margin.

These inappropriate price signals will distort irrigators' decision making, as the consumption charge now overstates the marginal cost of taking water and could discourage efficient water use.[19]

Termination fees apply to the fixed charge. Because of the approach to setting the volumetric charge, the fixed charge has now been reduced by the amount of savings recommended by Indec in a low water use scenario. This amount will go unrecovered in the termination fee into the future.

SunWater submits that if the QCA is to retain its current volumetric charges, the termination fee is revised.

In closing, by adopting the Indec percentages the QCA has failed to achieve its economic efficiency objectives, and its specific objective of sending efficient price signals to customers.

Distribution losses

The Draft Report concludes that the costs relating to the total distribution loss water access entitlements (WAE) should be recovered in distribution system prices, even where those WAEs appear excessive. SunWater has interpreted the Draft Report as therefore accepting its position that WAEs for losses are conferred on it by DERM, and that it faces significant constraints in reducing the amount of these losses.

SunWater also notes the QCA suggested two cost-reducing opportunities exist for distribution losses:[20]

- implementing permanent efficiency gains that would satisfy DERM's requirements and enable distribution loss WAE to be converted and traded; and
- optimise its portfolio of WAEs held for distribution losses, and explore selling WAEs and buying water through temporary trades when needed.

The QCA noted that such strategies are only viable where there is demand for additional WAEs that would be subsequently traded. Moreover, SunWater bears the risk of the revenues received from the trade of any converted WAEs.

The QCA recommended that, to ensure least cost service delivery, SunWater should explore cost reducing opportunities for distribution loss WAE. The QCA also recommended that DERM review loss WAEs to ensure they were not excessive.

[19] This very issue was raised by the ACCC in considering tariff structure. Attachment 1 provides more detail.

[20] QCA (2011). pp 69-70

The QCA also recommended that SunWater bear the risk of improvements to distribution losses and retain the benefits:[21]

> *Further opportunities to provide an improved quality of service or additional supplies should be pursued where commercially viable. SunWater needs to be provided with an incentive to seek out such opportunities and upgrade and modernise distribution systems (such as through channel lining to reduce losses) when the benefits of saved water outweigh the expenditure required.*
>
> *The risks associated with such improvements should be borne by SunWater as SunWater is best able to manage them…*
>
> *The exclusion of [the proceeds of selling distribution loss WAE] from the MAR and their retention by SunWater should provide sufficient incentive for SunWater to pursue such opportunities. Such arrangements, once established, should not require further regulatory adjustment within the regulatory period. It would be essential to ensure that any such arrangements prohibit SunWater from 'double charging' through annual water charges.*

On the one hand, the QCA requires SunWater to explore opportunities to reduce losses while on the other it has provided SunWater with the discretion to implement measures where it is in its commercial interests to do so.

Assessments of permanent savings to distribution losses involve significant cost, and SunWater should not be compelled to undertake any such reviews unless it is able to recover these costs. SunWater assumes that it would bear these costs, as it would also retain the income from any trade of WAEs that were converted as a result. To do otherwise would result in 'double dipping' as customers would bear the cost of the review, but SunWater would retain the sale proceeds of any converted WAE.

At the same time, customers will benefit from a reduction to any loss WAE (all other things being equal) as there will be less cost for loss WAE in each distribution system. However, the QCA has not suggested that irrigators bear the costs or the risks of any efficiency initiatives pursued by SunWater.

Accordingly, SunWater should not be compelled to undertake such reviews where it bears the cost of doing so, and the QCA should recognise that commercial incentives have been provided to SunWater to explore such opportunities regardless. SunWater submits that the recommendations about exploring such opportunities be removed to better reflect the overall regulatory framework, by recognising that SunWater would only perform such reviews where it is satisfied that there is a business case for doing

[21] QCA (2011). p33

so. Otherwise, the distribution loss WAE conferred to SunWater by DERM should continue to apply and all costs associated with that WAE continuing to be recovered from distribution system customers.

On this matter, SunWater notes the QCA's recommendations about a DERM review of loss WAE. While this is a matter for DERM to decide, SunWater will be concerned about changes that lead to inadequate distribution losses and put at risk its ability to provide distribution services over the long-term and in a wide range of water supply conditions.

Drainage charges

The QCA found there was a strong case to set a separate drainage fee, based on the associated costs of the service, and that there should be a review of drainage charges, initiated at the completion of the current price investigation. The QCA recommended that SunWater identify its drainage system costs from 1 July, 2012.

SunWater accepts these recommendations.

However, for clarity the report should consider whether a separate drainage charge should apply in the Mareeba-Dimbulah Distribution System, as no separate drainage charge currently exists. While the costs of providing the drainage service in this system can be captured over the forthcoming period, the QCA should note these historical arrangements, and also note that there is no legal mechanism for setting and charging a drainage levy in the Mareeba Dimbulah system at the current time. The cost of implementing such a charge may also be significant, particularly if the charge was to be levied on a per hectare basis. As a minimum, additional information would need to be gathered about area served and the existing landholdings affected, and whether those landholders were existing customers or not. This will not be a trivial task.

SunWater therefore submits that any future QCA recommendations to establish a separate drainage charge in Mareeba-Dimbulah should take account of benefits and administrative and other costs of doing so. A charge should only apply if SunWater has a legally enforceable mechanism to apply a charge and recover it from the landholder.

In the meantime, SunWater will capture drainage costs as recommended by the QCA.

5 Renewals annuity

This section presents SunWater's response to various matters raised by the QCA and its recommendations in relation to the renewals annuity.

Treatment of surplus ARR balances

SunWater proposed a methodology for unbundling ARR balances into discrete bulk water supply and distribution system components. SunWater's overall methodology was accepted by the QCA. The purpose of this methodology was to establish unbundled prices. An important aspect of this methodology was to split the ARR balances but ensure the aggregate balance was preserved. This meant that neither SunWater nor customers in aggregate were better or worse off simply as a result of the unbundling.

SunWater expected that this principle was uncontroversial.

SunWater put forward what it considered to be a reasonable approach. In applying this approach, two anomalies arose which meant the positive balances assigned to bulk water in Mareeba and Dawson Valley led to negative renewals annuities. In other words, specific circumstances in these schemes meant that these balances were unnecessarily high for bulk water, and arguably too low for distribution.

To address this, SunWater assigned part of the high balance from bulk water to distribution to the extent required to generate a positive renewals annuity. This adjustment was highlighted and made transparent to the QCA. Importantly, this adjustment did not change the aggregate ARR balance, meaning that the renewals income collected was still applied, in total, towards future renewals expenditure. The alternative was to leave the balances as they fell from the methodology, which would have resulted in perverse outcomes and a negative annuity for bulk, yet a higher, positive annuity for distribution.

The QCA characterised this as an arbitrary adjustment, and did not allow SunWater's proposed transfer of the ARR balance. The Draft Report then went on to state:[22]

> *… such a transfer is inappropriate. Rather, such surplus funds should be returned to the contributing customers unless they wish to maintain those funds in the ARR for future contingencies.*

[22] QCA (2011). pp 104-105

In making this statement, the QCA implies that the positive (excessive) balances have occurred because renewals annuity collections have been too high. This is not the case. Rather, in aggregate the renewals annuity collected from bundled channel charges have not been excessive.

Instead, the QCA has adopted an aggressive stance that penalises SunWater and exposes it to a cash payment of some $900,000 which would not have arisen if unbundling did not occur. Moreover, the QCA's recommendation will mean that the aggregate ARR balance would be $900,000 less in both schemes, for no reason. This results in a reduction to the aggregate ARR simply as a result of the QCA's approach to unbundling. Perversely, the QCA's approach would also increase the renewals annuity to bulk water customers (or reduce the extent to which it is negative), which would in turn increase the lower bound cost in that scheme.

A failure to adjust for high ARR balances (where these occur simply due to the unbundling methodology) will also have the effect of increasing the renewals annuity in the distribution system, as the opening balance will be lower. Allowing for the high bulk water balances to be passed back to customers will simply introduce administrative cost and complexity for no overall benefit. That is, SunWater will have to 'return' ARR balance to customers, while the same customers face an increase to the renewals annuity in the distribution system as the opening ARR balance will be lower. [23]

SunWater therefore submits that where excessive balances arise (or appear to arise) due to the unbundling methodology for the ARR balance, that there is either an adjustment made (as proposed by SunWater) to produce more sensible pricing outcomes, or at worst those balances are preserved for future contingencies. There should be no provision to reduce the aggregate ARR balance due to the unbundling approach by refunding annuity collections in the manner suggested by the QCA.

SunWater also notes that the annuity calculated by the QCA for Mareeba-Dimbulah is now positive, and the Dawson Valley becomes positive in 2016-17. Accordingly there may longer any basis for allowing customers to claim back previous annuities paid.[24]

Adjustments to past renewals expenditure

The QCA reviewed past renewals expenditures and imposed a 10% saving on past projects that were not reviewed or where there was insufficient information.[25] Only one of the sampled projects (in

[23] There are also significant administrative problems with this suggestion – for example by calculating the 'excessive' contributions paid by individual customers and dealing with turnover in the customer base.

[24] Depending on the final renewals annuity.

[25] Although in practice, it appears this 10% has been applied to past projects also found to be prudent and efficient, perhaps in error. Refer below.

SunWater's view) was found to be inefficient. This arbitrary 10% reduction across the past expenditure means that SunWater cannot recover its past lower bound costs.

SunWater submits that the QCA has been unduly aggressive and applied arbitrary savings to past expenditure, even though there is no evidence to suggest that the renewals program, in total, was inefficient.

This section examines the prudency and efficiency of past renewals at a high level, and then goes on to respond to the QCA's decision to apply a 10% reduction to past renewals expenditure.

Attachment 2 sets out SunWater's response to each past renewals item in detail.

Prudency

Of the projects reviewed, only one was found to be not prudent – namely the Marian Weir outlet works. SunWater strongly refutes the findings that this project is not prudent, which is predicated on a non-infrastructure solution that is not valid nor technically feasible (refer Attachment 2).

Efficiency

Only two projects were found to be inefficient, namely:

- Palm Tree Creek which involves a very complex and unique technical problem that has proven difficult to overcome; and
- Whetstone Weir, which related to an issue specific to that project. Moreover, SKM originally concluded that the overall cost of the works is within range of their cost estimate and considered it to be efficient. SKM originally noted there were inefficient aspects of the project, as detailed above but these are not considered material when the project is viewed as a whole. SunWater does not accept that the Whetstone Weir project should be adjusted (refer Attachment 2).

The QCA also found that 50% of past fencing costs should be excluded on the basis that SunWater should have obtained a 50% contribution to fencing costs from neighbouring landholders. This approach does not recognise:

- some of the fencing costs related to land owned by SunWater on either side of the fence, and hence there was no third party to obtain a contribution from; and
- SunWater may be entitled to seek 50% of the costs of a 'standard' fence in a rural setting, and not the cost of a safety fence to protect assets or prevent public access. Hence the amounts recoverable are far less than 50% of the actual cost.

Even where additional contributions could have been made, the savings will be immaterial given contributions will be capped at 50% of a standard fence.

SunWater therefore submits that the savings applied to past fencing costs are removed as they will be immaterial, or if they are to remain, adjusted to reflect the factors set out above.

Importantly, the above projects are not indicative of a systematic deficiency with the past renewals program. Indeed, the QCA noted in its Draft Report that the reviewing consultants made a number of positive observations about SunWater's project procurement and delivery practices.[26] While the consultants made a number of suggestions in relation to renewals planning, no shortcomings were identified in relation to efficient project delivery.

It is also important to note that the entire $12.4M Intersafe program, which involved a large range of projects, was found to be prudent and efficient. This is further evidence that inefficient project delivery is the exception, rather than the norm.

SunWater therefore submits that there is no evidence to support a conclusion that past renewals expenditure was, in general:

- not prudent – given only one reviewed project was found to be not prudent, and this finding is highly contentious and in SunWater's view, wrong; and
- inefficient – given the overall views expressed by the reviewing consultants, and given all but one project was found to be efficient (once fencing and Whetstone Weir are excluded). This one project – Palm Tree Creek outlet – was subject to exceptional and project-specific circumstances.

The following section examines the methodology and assumptions used when applying this adjustment retrospectively.

10% adjustment to past renewals expenditure

As set out above, the QCA applied a blanket 10% saving to historic renewals expenditure.[27] This was based on a sample of past and forecast renewals projects.

As noted in the Draft Report, 21 past projects were examined. Of these, the Intersafe project and Marian Weir outlet works project were excluded from the QCA's sample used to calculate the 10% adjustment. In table 5.9 of the Draft Report, the total value of past projects sampled is described as

[26] QCA (2011). pp110-111

[27] It appears this 10% has been applied to all projects, perhaps in error. Refer below.

$6,315,000, and that the average savings identified for these projects was 13.1%, or $825,000. SunWater understands this comprises:

- Whetstone Weir – $220,000;
- Palm Tree Creek – $391,000;
- Fairbairn Dam Right Bank Outlet Works Upgrade – $115,000; and
- Fabridam post-deflation costs - $99,000.

In relation to this sample, the QCA has included projects that were found to be prudent and efficient (Fairbairn Dam[28]) or were excluded from the overall review pending legal action (Fabridam post-deflation), as indicated in Appendix D to the Draft Report. SunWater also disputes that the cost for Whetstone Weir was inefficient in overall terms.

These items should be removed if the QCA is to continue to apply its extrapolation approach.

Secondly, the QCA has calculated its 10% adjustment based on an overall assessment of past and future renewals projects. By adopting this approach, the QCA has confused an assessment of forecast expenditure with actual expenditure. The two are quite distinct:

- past expenditure reviews involves an assessment of decision-making processes for projects as to their prudency, as well as an assessment of the efficiency of the project's delivery; whereas
- forecast expenditure involves a review of planning processes for projects as to their prudency, as well as an assessment of how the costs for that project have been estimated.

This exposes SunWater's past expenditure to the risk of how it forecasts future expenditure. In other words, if SunWater is found to have erred in forecasting particular projects over the 20-year planning window, this error will be transferred to past, actual expenditure. This is an extremely aggressive position, which deprives SunWater of the ability to recover past expenditure simply because of adverse findings about forecast projects in a 20-year planning horizon.

Finally, the QCA decided to exclude the Intersafe program from the sample, on the basis that "SunWater's assessment was atypical of the process adopted for other renewals expenditures". This has the effect of reducing the sample size and increasing the percentage of savings to be applied. However, the QCA's rationale can only apply in relation to the prudency of projects – that is, the Intersafe program was only atypical in so far as its scope and standard was determined through a compliance, rather than asset renewal, driver. The efficiency of the delivered projects remains

[28] We refer to SKM's report on this project provided to SunWater, which found the project to be both prudent and efficient.

relevant, because there is nothing atypical about the procurement and delivery of an Intersafe project as compared with any other project. Hence it is not correct to exclude this project when calculating averages for past, actual expenditure.

In closing, SunWater submits that the QCA has not established that past renewals expenditure was systematically imprudent or inefficient, and consequently there is no basis to apply an arbitrary 10% saving to non-sampled projects. If the QCA is to persist in applying an arbitrary saving, then it should re-examine the saving percentages taking into account the matters above.

Adjustments to future renewals expenditure

The QCA applied a 10% saving to all non-sampled future renewals expenditure.

In doing so, the QCA has chosen to extrapolate from a sample of projects reviewed across the entire 20 year program. The QCA justified this as follows:[29]

> *Because of time and information limitations, the Authority was unable to comprehensively review past or forecast renewals expenditure for prudency and efficiency.*
>
> *Only some 18% of expenditure was reviewed in some detail.*
>
> *This raises the issue of what to do about forecast and past expenditure that was not able to be reviewed in appropriate detail. To address this, the Authority has drawn on the results of consultant reviews adjusted to exclude outliers (large one-off projects and items not reviewed in detail)…*

This issue should have been anticipated, given the number of water supply schemes and distribution systems reviewed and the 25 year timeframe for the renewals annuity. That is, this problem would have arisen regardless of the amount of information available to consultants on individual projects, or the time available for the review.

There are a number of solutions to this issue that have been applied by regulators in the past. In essence, SunWater expects that the QCA would only apply program-wide adjustments where it found evidence that the underlying process for forecasting and costing projects was flawed. This evidence could be obtained through a review of the forecasting process, as well as a review of individual projects.

[29] QCA (2011). p127

As indicated above, the consultants found that SunWater's planning processes were sound, and while improvements were suggested, there was no suggestion that the underlying approach to the forecasts was flawed or producing inflated outcomes.

Instead, the QCA has adopted an extrapolation approach, contrary to the advice of its consultants. For example Halcrow stated:[30]

> *It should be noted that extrapolation of the proposed adjustments across the whole of the Renewal and Rehabilitation program is not considered appropriate.*

SunWater is concerned that the QCA did not address Halcrow's recommendation, given the significance of extrapolation to determining future lower bound costs and SunWater's recovery of past, lower bound expenditure. Moreover, extrapolating from a sample gives rise to significant scope for error, including:

- the representativeness of the sample;
- sample size; and
- bias in assumptions, for example by assuming the forecast cost of projects can only reduce or stay the same, and not increase (even if it is delivered efficiently).

The QCA has attempted to address these issues in its methodology for setting the 10% saving. Nonetheless, the 10% saving has been calculated using a series of compounding assumptions which at best can only be coarse approximations, and at worst, are unfounded. For example:

- there is an assumed acceptance that each of the consultants' findings are accurate, often despite SunWater's submissions to the contrary, and without recognition that long-range forecasts will have a large error range;
- project costs are only overstated or accurate, and none will involve a forecast error that understates their cost or that unforeseen or new projects will need to be added;
- the sample itself is contentious – for example, past projects are not indicative of the prudence or efficiency of the forecast, and the sample is focussed on larger projects and items that were of concern to irrigators. The sample itself is also wrong, as it includes projects that were found to be prudent and efficient, and excludes major projects (e.g. Intersafe) that were found to be efficiently delivered;

[30] Halcrow (2011). SunWater-Biloela Water Supply Schemes (Cluster 3). Review of Price Paths 2011-2016. p242

- the QCA has had to make assumptions about the scope for cost variation for smaller and larger projects, and then assume the mix of small to large projects over the entire program; and
- the QCA calculated a wider range of the potential savings, from 3% to 15%, and assumed the mid-point should apply. The QCA then rounded this mid-point (9.5%) to 10%.

While SunWater does not accept that a percentage adjustment should be applied in any case, in a lower bound pricing environment the rationale for subjecting the business to such an arbitrary reduction to expenditure and consequently the renewals annuity is not clear, particularly when SunWater's underlying forecasting methodology is sound.

In closing, SunWater submits that an arbitrary percentage saving to renewals forecasts should only be set if the QCA is satisfied that SunWater's forecasting methodology is fundamentally unsound and led to an inflated renewals profile.[31] This is clearly not the case, as evidenced by the various consultants' reports. If the QCA is to persist with setting a percentage saving, then it should do so having regard to the significant scope for error in extrapolation as well as the consequences of error in a lower bound pricing environment. This would suggest that the QCA should adopt the lower end of any range rather than the mid-point, if it is to continue with the approach set out in the Draft Report.

Inflatable rubber dam replacement costs

SunWater set out the regulatory compliance requirements that required it to reinstate the lost storage space in its earlier submission.[32]

The QCA's has disallowed past and forecast expenditure in relation to reinstatement of the storage capacity of the inflatable rubber dams pending the outcome of ongoing legal action on the basis that the "outcomes of legal action are likely to be an important factor in determining whether SunWater was prudent and efficient and where the risks and costs should lie. Any insurance payments can offset any costs that should be passed through to irrigators."[33] 1

The above is not a valid position for not allowing the expenditure as the legal action will not be considering the prudence or efficiency of reinstating the lost storage capacity. The legal action concerns liability for the Bedford incident under the Workplace Health & Safety Act 1995, not any replacement options. The legal action will not result in a situation where a party other than SunWater becomes responsible for re-instating the lost storage capacity in the Upper Burnett, Pioneer or Nogoa-Mackenzie WSSs.

[31] After considering wither forecast error could just have easily understated the program.

[32] SunWater Paper - Treatment of costs related to Inflatable Rubber Dams (Sept 11)

[33] QCA Draft report Upper Burnett WSS p19

If the QCA is to maintain its position that the costs of reinstating future storage capacity will be determined at a later time, it should, as a minimum, include in the current renewals annuity the replacement cost for the inflatable rubber dams that would have occurred if not for the Bedford Weir incident. This is important for two reasons:

- it preserves the 'status quo' and provides a baseline from which decisions can be made following the legal action; and
- it ensures the renewals annuity is not set artificially low, and also avoids a potential price shock once future expenditure on storage restoration is included.

The like for like replacement cost for the inflatable rubber dams is estimated to total $13.7M. The following data is provided should the Authority proceed in this manner. The following costs ($2012), which we not included in renewals data provided to date, are sourced from SunWater asset database.

Table 1. Baseline inflatable Rubber Bag replacement program

Scheme	Weir	Year	Cost
Upper Burnett	Claude Wharton - 1	2014	$1,616,632
	Claude Wharton - 2	2015	$1,616,632
Nogoa Mackenzie	Bedford – 1	2013	$1,596,424
	Bedford – 2	2014	$1,539,542
Pioneer	Dumbleton - 1	2013	$2,044,913
	Dumbleton - 2	2014	$2,044,913
	Mirani	2013	$2.044,913

SunWater's Industrial Special Risk (ISR) policy is limited to the replacement value of the Bedford inflatable rubber dam as at the date of the incident, less the deductible and it is unlikely that any substantial positive return would result from an insurance claim. The policy will not respond to reinstating the lost storage capacity associated with the four inflatable rubber bags.

Forecast costs of reinstating storage capacity

An independent engineering consultancy has been retained to provide expert technical assistance with options analysis of potential structural and non-structural solutions available to SunWater for application at the Bedford, Claude Wharton, Mirani and Dumbleton Weirs.

Following an extensive assessment of benefits, costs and risks by both the expert consultant and SunWater it was concluded that non-structural options were not viable.

The independent consultant, following an extensive review and consultation process, identified eight (8) structural solutions as potentially suitable for the Weirs. These included Obermeyer Gates, Tilting

Crest Gates, Torque Tube, Conventional Crest Gates, Vertical Gates, Lift (Undershot) Gates, Overshot (Drop) Gates and Fuse Gates (Hydroplus Limited). The independent consultant developed and applied an initial filtering process to short list three structural options for further analysis. The three structural options short listed for detailed analysis were:

- Obermeyer Gates;
- Tilting Crest Gates; and,
- Overshot (Drop) Gates

The IRD replacement cost for each weir has been estimated at approximately $9m per weir. This is based on preliminary design of Obermeyer Gates fitted on Claude Wharton and Bedford Weirs. SunWater's has not yet finalised a position on the two weirs in the Pioneer (Dumbleton and Mirani), however the costs will be similar to the above.

SunWater has not excluded any of the shortlisted structural options. SunWater intends to go to the market with a design and construct contract. The competitive procurement process will ensure the final IRD replacement costs are efficient.

SunWater current estimate of project phasing is presented in the table below.

Table 2. Project phasing cost estimates

Weir	Phase	2012	2013	2014	2015	2016
Bedford	Design	$20,000	$600,000			
	Supply/Install		$1,600,000	$2,500,000	$4,500,000	
Claude Wharton	Design	$20,000	$600,000			
	Supply/Install		$1,600,000	$2,500,000	$4,500,000	
Pioneer	Design	$40,000	$1,200,000			
	Supply/Install				$7,000,000	$9,000,000
		$80,000	$5,600,000	$5,000,000	$16,000,000	$9,000,000

In closing, SunWater does not agree with the QCA's approach to treat the projects as either end of period or mid period adjustments. Rather SunWater considers it prudent to include the efficient cost of reinstating the lost storage capacity into the renewals profile as indicated above. SunWater requests that the QCA allow the past and future costs associated with identify replacement options and reinstating the lost storage capacity of the four weirs in the renewals annuity calculation.

SunWater accepts the draft finding that legal cost for 2012-17 be carried forward until insurance claims relating to legal fees are finalised before being attributed to the schemes.

Flood Repair Cost Estimates for 2012-2014

SunWater wrote to the QCA in March 2011 to highlight the estimated unplanned renewals cost associated with repairing flood damage caused by the floods of summer 2010/11. Since then, the QCA has been provided with actual renewals spend for 2011, including the spend on flood damage repairs. The table below shows the actual 2011 spend on flood repairs and also the estimated flood repair costs for 2012, which are required adjustments to the renewals annuity calculation.

Service Contract	2011	2012
Barker Barambah Bulk Supply	$239,146	$87,495
Bowen Broken Bulk Supply	$125,634	$222,822
Boyne Bulk Supply – Boondooma Spillway	$88,256	$1,488,378
Bundaberg Bulk Supply	$777,673	$914,997
Bundaberg Distribution	$626,553	$123,491
Burdekin Bulk Supply	$56,744	$46,740
Burdekin Distribution	$232,632	$600
Callide Bulk Supply	$-	$-
Chinchilla Weir Bulk Supply	$5,156	$-
Cunnamulla Weir Bulk Supply	$-	$-
Dawson Bulk Supply	$213,972	$515,838
Emerald Distribution	$167,182	$6,000
Eton Bulk Supply	$91,282	$37,819
Eton Distribution	$72,593	$-
Lower Fitzroy Bulk Supply	$63,801	$130,000
Lower Mary Bulk Supply	$14,014	$-
Lower Mary Distribution	$49,985	$-
Macintyre Brook Bulk Supply	$294,076	$-
Maranoa Bulk Supply	$-	$-
Mareeba Bulk Supply	$28,457	$-
Mareeba Distribution	$-	$-
Nogoa Bulk Supply	$231,749	$202,659
Pioneer Bulk Supply	$134,544	$126,987
Proserpine Bulk Supply	$31,191	$8,419
St George Bulk Supply	$277,292	$20,000
St George Distribution	$71,423	$-
Theodore Distribution	$741,154	$202,624

Service Contract	2011	2012
Three Moon Bulk Supply	$-	$-
Upper Burnett Bulk Supply	$414,257	$989,050
Upper Condamine Bulk Supply	$234,232	$54,530
Total ($nominal)	**$5,282,995**	**$5,178,449**

In addition to the flood damage presented in the table above, major refurbishment works are required at Boondooma Dam in the Boyne River WSS to ensure that the service life of the spillway is consistent with the life of the dam. The spillway at Boondooma dam was constructed as an unlined rock channel. The 2010/11 flood event exposed significant weak zones in the rock that are highly erodible. The expenditure recorded in the flood damage table will stabilised the spillway in the short term. These repairs will not be sufficient to ensure the stability of the spillway in the long term. In order to ensure that the spillway remains serviceable for the life of the dam it is necessary to concrete line the spillway channel and construct an energy dissipater at the downstream end of the spillway channel. The detailed engineering to define the scope of works is in progress, however a preliminary engineering assessment has determined the refurbishment outlined above as the most likely option. SunWater has costed this work and requires that the following amount be added to the renewals profile for the water supply scheme:

- 2013 – $8.88M
- 2014 - $6.73M

Errors in adjustments to renewals balances

As set out above, the QCA has made adjustments to past renewals expenditure to calculate the opening ARR balance. SunWater has detected an error in these adjustments, as they have applied the entire reduction to a project cost to ARR irrigation balance, without any sectoral adjustment. This has resulted in 100% of the adjustment being deducted, instead of that proportion that relates to the irrigation sector. This is inconsistent with the accounting approach for these ARR balances generally, which only accounts for irrigation revenues and irrigation share of renewals expenditure.

SunWater has already alerted the QCA to this error, which will have significant impacts on the QCA's adjusted opening ARR balances in some schemes.

Secondly, SunWater has detected a possible error in the application of the 10% savings, as it appears to apply to sampled projects as well as non-sampled projects. This has the effect of reducing projects that were sampled and found to be prudent and efficient by 10%, contrary to the QCA's intentions.

Renewals forecasting methodology

The QCA recommended that SunWater undertake high-level options analysis for all material renewals expenditure and review its planning process to adopt the QCA's consultants' suggested improvements.

SunWater accepts the merits of options analysis for material renewals projects that are included in forecasts, however this is not a costless exercise and in a renewals environment options are generally limited to replacement of the same asset component. In response to this recommendation, SunWater engaged Cardno to identify the costs of undertaking options analysis, based on the current renewals program. Cardno examined the renewals items that would need to be reviewed under the QCA criteria, and estimated the annual cost of performing options analysis at $0.445M.

Accordingly, SunWater submits that this additional expenditure is included as an operating cost. Moreover, there is an argument that this cost, which is solely a requirement for irrigation renewals, should be 100% attributable to irrigation prices.

Cardno also commented on the practical application of the QCA's requirements, and observed that a strict interpretation may exclude items with large expenditure where the expenditure in the scheme as a whole is high, and conversely capture very small items in schemes with low forecast spend. For example, Cardno found that in one scheme, the QCA's threshold would be $2,319. Cardno then went on to examine alternative criteria that would address this and other potential problems, however these alternatives involve a review of a far larger sample. Cardno estimated that the cost of options analysis for these larger samples was up to $1.7M. SunWater does not propose that such a larger sample should be adopted; however the QCA should be attentive to these costs if it is to review its criteria. The Cardno report is provided as Attachment 8.

The QCA has also recommended that SunWater adopt the consultants' recommendations about improvements to planning processes, despite those consultants commenting favourably on its general approach.[34] SunWater accepts that opportunities for improvement should always be explored, however it should not be bound to adopt each of the recommendations without giving each item due consideration. Many of the issues raised by the consultants have merit, however they all involve additional cost and a judgement is required about whether the benefits outweigh the costs. Moreover, SunWater is not convinced that some of those measures are necessary or desirable, and that some recommendations are not required[35].

[34] Refer also to Cardno's comments on SunWater's approach, in Attachment 8.

[35] For example, reviewing escalation rates used for BOM.

Instead, SunWater submits that the QCA recommends that the consultants recommendations are considered by SunWater as it updates and improves its planning processes and when making any further submissions to the QCA in any subsequent price reviews. SunWater should not be bound to adopt those recommendations unless they have been proven beyond doubt to be beneficial or indeed necessary.

Customer consultation and information provision

The QCA recommended that SunWater's Statement of Corporate Intent (SCI) be amended to require SunWater to consult with customers in relation to, and publish on its website, updated NSPs commencing prior to 30 June 2014. These NSPs should be enhanced to provide options analysis for material renewals expenditure and details of renewals expenditure, accounting for significant differences between forecast and actual projects that are material. The QCA also recommended that customer submissions in response to those NSPs and annual updates should be published on SunWater's website alongside SunWater's responses and related decisions.

While this is ultimately a matter for SunWater shareholders, this recommendation will involve costs in preparing additional NSPs, publishing material and preparing responses.

In making this recommendation, the QCA has not established the benefits of such a requirement being imposed, beyond simply stating "the QCA values the inputs of customers into asset management planning as an indicator of its prudence and efficiency" and that broad-based customer support is not evident.[36]

SunWater submits that if the QCA is to recommend a change to legislation, then the QCA should demonstrate that such a change is needed and the benefits outweigh the costs (similar to what would be required under a regulatory assessment statement).[37]

Moreover, while a formal, legislative requirement to consult may improve communication and understanding among a small group of interested irrigators, the benefits in terms of more prudent or efficient expenditure are not self-evident and have not been established by the QCA in its Draft Report. Rather, the report seems to advocate consultation for its own sake.

There also appears to be a suggestion that there should be broad-based customer support for asset management, despite the QCA's consultants generally concluding that SunWater's asset management planning practices were generally sound.[38]

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[36] QCA (2011). p135

[37] Refer in particular to the guidelines published by the Queensland Office for Regulatory Efficiency, which can be found at http://www.treasury.qld.gov.au/office/knowledge/docs/ras-system-guidelines/ras-system-guidelines.pdf

As indicated in earlier submissions,[39] SunWater is willing to provide additional information to customers about renewals projects and expenditure through the course of the next regulatory period. SunWater indicated that an annual report could be prepared setting out the annuity restoration reserve balance and comparing renewals expenditure to the forecasts used for pricing purposes. Specifically, SunWater submitted that:

- it must have control over decisions for the renewals program, and accepts that it is accountable for these decisions in terms of the service or compliance outcomes, and the efficiency of the expenditure through regulatory reviews of expenditure; and
- while noting that customer research and past experience has found only a very small proportion of customers are interested in renewals information, SunWater is willing to provide further information on actual versus forecast renewals expenditure and reserve balances, through the course of the regulatory period.

Accordingly, SunWater submits that the QCA consider the above and instead recommend that SunWater adopts this proposal rather than recommending certain requirements be set in legislation.

SunWater also disagrees with a number of observations and statements made in the Draft Report, namely:

- Broad-based customer support for asset management is an explicit requirement of the ACCC as SunWater is a Tier 2 operator – a Tier 2 operator is required to seek and respond to customer feedback, but there is no requirement to obtain customer support. Moreover, a Tier 2 operator is subject to a price monitoring regime, not price determination as is the case in this current QCA review. The ACCC does not require entities subject to price determination to publish consultation plans nor seek customer feedback.[40]
- The Charter for Irrigation Advisory Committees allows SunWater to unilaterally change service targets, with limited consultation – as set out in earlier sections, SunWater's standard supply contract, not the Charter, governs the way in which service targets are set and adjusted. The standard contract requires SunWater to revise service targets from time to time, after considering customer needs determined through customer consultation. SunWater is obliged

[38] QCA (2011). p113.

[39] Refer to http://www.qca.org.au/files/W-SunWater-SubIrrigationPricesSunWaterSchemes11-16-CustInvolvementRenewalExpSupBGPaper-0311.pdf

[40] Refer to http://www.qca.org.au/files/W-SunWater-SubIrrigationPricesSunWaterSchemes11-16-CustInvolvementRenewalExpSupBGPaper-0311.pdf

to consult fairly and reasonably and allow each customer the opportunity to participate in such consultation.[41]

- Broad-based customer support for asset management is an implicit requirement of the Charter - this is not true. The Charter does not provide or require that customer support is a pre-requisite for asset management or indeed a renewals program or item of expenditure.
- There is a broad-based customer call for more information – in SunWater's earlier submission on this matter, SunWater advised the QCA that it has previously provided more detailed, written information to consultative groups and irrigators individually through scheme annual reports or newsletters mailed to customers. This was discontinued in 2005 amidst informal customer feedback that those reports were not valued.

WACC

The QCA has proposed a post-tax nominal WACC of 7.62% for the purpose of calculating the renewals annuity. SunWater notes that the risk-free rate and debt margin will be updated prior to the Final Report.

SunWater has two main concerns with the QCA's recommended WACC.

First, as set out in its submission on WACC dated February 2010 ('Weighted Average Cost of Capital – Renewals Annuity Background Paper'), SunWater does not agree with the QCA's practice of estimating the risk-free rate and debt margin based on a term to maturity that matches the length of the regulatory period. SunWater maintains that a ten year term to maturity should be used, consistent with the long-term, forward-looking horizon of investors in regulated assets. It is recognised that this issue may be considered by the QCA as part of its industry-wide WACC review, although the timing and scope of this remains unknown.

Second, the proposed equity beta reflects a reduction in the asset beta (to 0.3) compared to the outcome determined for the Burdekin-Haughton scheme in 2003. It also represents that lowest equity beta outcome for a regulated water business in Australia, assuming 60% gearing (reference is made to Table 1 in SunWater's February 2010 submission).

SunWater has set out its concerns in more detail in Attachment 6.

[41] Refer to Section 3 of Supply Contract River, Standard Conditions (Schedule 3, Version 2)

6 Operating Costs

The QCA reviewed SunWater's operating costs and applied certain savings to direct and non-direct costs. SunWater's response to these savings, and other related recommendations is set out below.

Efficiency savings – non-direct costs

In its Draft Report, the QCA recommended that SunWater achieve labour productivity gains of 1.5% per annum over the period 2012-17. These gains were derived on the basis of the difference between the QCA's forecast increase in salaries and wages over the period (4.0% per annum) and the forecast increase proposed in SunWater's regulatory submission (2.5% per annum).

The QCA also concluded that SunWater should achieve savings to non-direct non-labour costs in line with the productivity gains expected for labour costs. As a consequence, the QCA recommended a 1.5% per annum (compounding) efficiency gain be applied to SunWater's proposed total non-direct costs for 2012-17.

SunWater considers that the QCA has erred in:

- applying a 1.5% efficiency gain to non-direct labour costs over the forecast period; and
- extending the proposed efficiency gain to total non-direct costs over the forecast period.

These issues are discussed below.

Identification of labour efficiency gain

As part of its regulatory submission, SunWater indicated that:

> *Salaries and wages are projected to increase in nominal terms at 4% per annum until the completion of SunWater's current Enterprise Bargain Agreement (EBA) in June 2012.*
>
> *After that time, the expenditure forecasts assume that salaries and wages will rise in line with inflation (2.5%). Any wage increases above inflation have been assumed to be offset through productivity improvements.*[42]

On 12 October 2011, the QCA wrote to SunWater requesting clarification of its proposed labour forecasts and the application of efficiencies.[43]

In response, SunWater noted that its forecast was conservative (low), and that wage rates were likely to continue to increase in real terms over the remainder of the regulatory period. SunWater also

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42 SunWater 2011, Background Paper: Cost Forecasting Assumptions, January, p. 2.

43 Email correspondence from Rick Stankiewicz (QCA) dated 12 October 2011.

indicated that it would need to achieve further productivity savings to offset the (expected) real increase in labour costs in future years if its forecast of labour escalation was accepted by the QCA.[44]

However, SunWater acknowledged that a more transparent and correct forecasting approach would be to:

- escalate labour at the rate expected based on labour market forecasts (that is, above inflation), and for that expected rate to be tested by the QCA. SunWater noted that this is similar to the approach for materials and contractors, where SunWater proposed a 4% increase which was then tested by the QCA; and
- as a separate exercise, examine the extent to which efficiency savings should be factored into the cost base going forward. If the QCA were to recommend an efficiency saving, this would then be applied to an appropriate baseline.

In doing so, SunWater supported an approach whereby the actual expected increase in labour rates are included in the forecast, which SunWater suggested would be higher than inflation (that is, higher than the assumed 2.5%).[45]

In the QCA's Draft Report, the majority of the QCA's consultants concluded that SunWater had significantly understated the likely increases in labour costs over the forecast period.[46] In particular, a recent report by Deloitte Access Economics suggests increases in labour costs facing Queensland's utilities sector of 4.2% per annum between 2012-13 and 2016-17.[47]

In its Draft Report, the QCA accepted the advice of its consultants and concluded that:

> *…labour costs in Queensland are likely to rise by around 4% per annum, and probably more than this in regional Queensland where the continuation of strong growth in the resources sector is likely to maintain upward pressure on labour (and other) costs.*[48]

Despite acknowledging that labour costs are likely to rise by considerably more than inflation, the QCA has seen fit to recommend that the difference between SunWater's original labour cost forecast (2.5%) and its own (4%) be borne by SunWater via "productivity gains" in addition to other savings.

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44 Email correspondence to Angus MacDonald dated 13 October 2011.

45 Ibid.

46 QCA 2011, Draft Report SunWater Irrigation Price Review: 2012-17 Volume 1, November p. 248

47 Deloitte. 2011, Forecast Growth in Labour Costs: Update of December 2010 Report. A Report Prepared for Australian Energy Regulator, April, p. 46.

48 QCA 2011, Draft Report SunWater Irrigation Price Review: 2012-17 Volume 1, November, p.252.

SunWater considers that, to the extent the QCA or its consultant has better information on which to base future increases in labour costs, this information should be incorporated in the cost estimates. That is, the forecast 4% per annum growth in labour costs should form the new baseline estimate of wages growth over the regulatory period. Similarly, where the QCA identifies savings (as it has through the Deloitte review), these should be applied against the 4% baseline.

As discussed above, SunWater clarified its position with respect to its labour cost forecasts and the application of efficiency savings in previous correspondence to the QCA.[49] The QCA appears to have ignored this advice and instead applied the "productivity gains" approach, effectively locking SunWater to its original 2.5% per annum forecast and applying an annual 1.5% efficiency.

SunWater confirms that the appropriate escalation rate for labour costs over the forecast period is 4% per annum, with no efficiency gain applied (unless explicitly identified by the QCA (see discussion below)).

Notwithstanding the above, SunWater notes that the QCA has already proposed a reduction in SunWater staffing levels as a result of the Deloitte review.[50] The QCA's recommendation to further reduce labour costs extends well beyond the efficiency gains identified by that review, and is effectively double counting the labour savings identified by Deloitte. The QCA has not explained the relationship between the efficiencies identified by Deloitte and those proposed by itself, nor has it explained how it expects SunWater to achieve these "super" efficiencies.

Further, the QCA's approach differs to that in its recent Gladstone Area Water Board (GAWB) pricing report. In that report, the QCA identified potential areas for efficiency gains on the basis of detailed advice from its consultants (Davwil Designs and Management Services and Halcrow).[51] Unlike the SunWater review, the QCA did not seek to apply additional (arbitrary) efficiencies to GAWB on top of those identified by its consultant.

SunWater suggests that if the QCA considers additional efficiency gains can be achieved within the proposed 4% per annum forecast these should be explicitly identified and their relationship to those proposed by Deloitte explained.

If the QCA persists with its proposed approach, it will deny SunWater the ability to recoup its legitimate and efficient operating costs (both the QCA and its consultants confirm that 4% per annum represent an efficient increase in SunWater's labour costs over the forecast period). This treatment is inconsistent with the requirements of the Ministerial Direction requiring the QCA to recommend a

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49 Email correspondence to Angus MacDonald dated 13 October 2011.

50 QCA 2011, Draft Report SunWater Irrigation Price Review: 2012-17 Volume 1, November, p. 182

51 QCA, 2010, Final Report: Gladstone Area Water Board: Investigation of Pricing Practices, June, p. x.

revenue stream that allows SunWater to recover efficient operational, maintenance and administrative costs to ensure the continuing delivery of water services.

SunWater considers that the QCA is being unnecessarily aggressive in its pursuit of cost savings. Given SunWater is limited to the recovery of lower bound costs, unnecessary or ill-considered cost savings imposed by the QCA will lead to prices being set below the efficient lower bound cost of supply.

Accordingly, SunWater suggests that, as per the Ministerial Direction, the QCA should target efficient costs (which are not necessarily equivalent to the lowest costs) and give adequate consideration to SunWater's commercial interests when contemplating any reduction to those costs.

Application of proposed labour efficiency gains to non-labour costs

In its Draft Report, the QCA notes that:

> *… labour costs are the primary driver of potential efficiency gains that should apply to total non-direct costs.*[52]

On this basis, the QCA recommended that:

> *…SunWater should achieve savings to non-direct non-labour costs in line with the productivity gains expected for labour costs. The Authority, therefore, recommends a 1.5% per annum (compounding) efficiency gain be applied to SunWater's proposed total non-direct costs for 2012-17.*[53]

Notwithstanding SunWater's rejection of the QCA's proposed 1.5% productivity gain (see above), SunWater considers that the QCA's proposal to extend labour productivity gains to non-labour costs is unsubstantiated. In particular, the QCA has not presented a compelling argument in support of its proposal. Rather, the QCA's argument consists of simply stating an implied relationship between labour and non-labour costs. In doing so, the QCA fails to:

- provide evidence that a relationship exists between these costs. For example, there is no evidence to suggest that the QCA has examined the impact of changes to labour on the various non-labour costs. In particular, non-labour costs such as occupancy costs and insurance are generally fixed and therefore unaffected by changes to labour costs. Similarly, other non-labour costs such as legal services are not driven by changes in labour. Accordingly, it is inappropriate for the QCA to assume that efficiencies in labour will translate to equivalent efficiencies in non-labour activities within the business; and

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52 Ibid.

53 Ibid.

- demonstrate the strength of any relationship between labour and non-labour costs. If the QCA were able to substantiate that a relationship exists, the QCA should provide analysis to quantify the relationship. In proposing that the full 1.5% per annum labour cost efficiency be passed on to non-labour costs, the QCA implies that a 1:1 relationship exists between labour and non-labour costs.

  SunWater considers that the 1:1 relationship proposed by the QCA is unrealistic. As discussed above, there are a range of non-labour costs that are unrelated to labour. Thus a reduction in labour costs is unlikely to impact these costs. In addition, it is possible that reductions in labour may result in offsetting increase in non-labour costs. For example, a reduction in labour may necessitate an increase in ICT costs or asset management costs in order to ensure efficient delivery of services.

In closing, SunWater submits:

- that the application of a 1.5% efficiency gain to non-direct labour costs over the forecast period is inappropriate. As per previous correspondence to the QCA, SunWater confirms that no such efficiency saving was identified by SunWater. SunWater also reiterates its support for the approach whereby the actual expected increase in labour rates (4%) are included in the forecast;
- notwithstanding the rejection of the QCA's proposed 1.5% labour efficiency gain, that the QCA's proposal to extend these gains to non-labour costs is unsubstantiated and should not apply; and
- given the application of lower bound pricing, unnecessary cost savings imposed by the QCA are likely to significantly impact SunWater's financial viability or its ability to deliver services. Consequently, any proposal by the QCA to reduce forecast costs should be supported by rigorous analysis.

Efficiency savings – direct costs

The QCA adopted an overall reduction to direct operating costs (excluding electricity) of 2.43%, based on the fourteen service contracts considered by Halcrow and Aurecon.

The QCA then applied a 0.75% efficiency saving for each year of the price path, based on the labour productivity gains discussed above.

Rationale for applying a 2.43% saving

The QCA applied the 2.43% saving across all schemes unless greater savings were identified in individual schemes on the basis that these general savings were not able to be quantified and that not all schemes or cost items could be sampled:

> *The consultants reported that, for their review of direct operating costs, there was insufficient information provided by SunWater to quantify all potential savings. Consequently, in the absence of sufficient information, the Authority proposes that the quantified 2.43% of direct operating cost savings be applied in 2012-13 across all service contracts, except where higher cost savings were identified.*
>
> *The Authority considers that the application of the 2.43% average … is appropriate on the basis of the consultants' concerns about insufficient information. That is, for many schemes there were substantive unsampled direct operating costs to which further savings should be applied.*

In adopting this approach, the QCA has first accepted Aurecon and Halcrow's assessment, and then assumed that the potential for savings in direct costs exists across all schemes. The QCA chose to exclude the GHD and ARUP reports on the basis that "they identified opportunities for savings but were unable to quantify those savings".[54]

This effectively meant that no account was taken of those reports. SunWater has separately submitted that there was in fact sufficient information for the consultants to conduct their assessments, and the main problem stemmed from the consultants insisting on reviewing cost data at the sub-activity level despite the fact that SunWater did not forecast at this level of detail. The QCA noted SunWater's arguments in its Draft Report:[55]

> *… SunWater argues that, by trying to assess the prudency and efficiency of operations costs at the sub-activity level, the consultants have failed to recognise the way in which the operations activity is resourced. Any assessment of costs at the sub-activity level will be more to do with the assumptions about how employees' time has been split among sub-activities than any meaningful assessment of efficient costs.*

[54] QCA (2011). p212.

[55] QCA (2011). p206

The QCA also acknowledged that budgeting at a lower level of detail may not be warranted:[56]

> *Although the Authority concedes that forecasting workloads at the sub-activity level may be difficult, and may not be warranted, it nevertheless considers that SunWater needs to further improve the transparency of the forecasting of its costs by type...*

The vast majority of 'savings' identified by Halcrow, and to a lesser extent Aurecon, occurred because the consultants could not reconcile SunWater's forecasts at the activity level, with more detailed cost information that the consultants had obtained at the lower, sub-activity level[57]. This accounts for around two-thirds of the 'savings' that comprise the 2.43%.

However, an absence of information at the sub-activity level is not, of itself, evidence that the proposed expenditures are not prudent or efficient. Indeed such reconciliation was never going to be achieved because SunWater did not forecast its costs in this way.

Aurecon and Halcrow also identified specific cost efficiencies, such as savings to Acrolien (Halcrow) and reductions to hours of work required for preventative maintenance activities (Aurecon), which account for about one third of the 'savings' identified. While SunWater's response is noted in the QCA's Draft Report, there is no evidence that the points raised have been considered in arriving at the 2.43% saving.

Finally, it is not clear to SunWater why Barker Barambah has been included at $2.55k, when the consultant concluded that SunWater's costs in that scheme were prudent and efficient.

In closing, SunWater submits that:

- it should not be penalised because the consultants chose to review costs at the sub-activity level and did not instead apply a more workable methodology;
- the QCA should not simply accept the 'savings' recommended by Aurecon and Halcrow, and the final report should clearly address SunWater's responses to the 'savings' identified;
- in a lower bound pricing environment, the QCA should be cautious about imposing savings without clear evidence that inefficiencies exist. Any regulatory error will mean a failure to recover the very minimum level of costs required for the financial sustainability of each scheme. SunWater also notes that it's costs compare favourably in comparison to other similar entities, including State Water; and

[56] QCA (2011). p206

[57] For example, findings about preventative maintenance where the consultants looked to reconcile the Parsons Brinkerhoff recommendations for servicing with other sub-activity aspects of preventative maintenance, against the total.

- the QCA clarify the basis for including Barker Barambah savings of $2.55k, and this should be removed if no such savings were found by the consultants.

0.75% Labour Productivity

The QCA noted that "SunWater has proposed a labour productivity gain of 1.5%"[58] and on that basis, applied a 0.75% annual saving to direct operating costs based on labour comprising 50% of direct costs.

As set out above, SunWater did not propose a labour productivity gain of 1.5%, but did acknowledge that instead of indexing labour at 2.5% per annum as originally proposed (after the current EBA), a more transparent and correct forecasting approach would be to:

- escalate labour at the rate expected (that is, above inflation), and for that expected rate to be tested by the QCA. SunWater noted that this is similar to the approach for materials and contractors, where SunWater proposed a 4% increase which was then tested by the QCA; and
- as a separate exercise, examine the extent to which efficiency savings should be factored into the cost base going forward. If the QCA were to recommend an efficiency saving, this would then be applied to an appropriate baseline.

The QCA has chosen to apply a 1.5% productivity saving on labour to direct costs, on top of the 2.43% savings identified above. The QCA has not presented any evidence to support an annual adjustment to direct opex at 0.75%, as is also the case for non-direct costs (refer above).

SunWater submits that the 0.75% adjustment be removed as there is no supporting evidence to suggest that such an adjustment is required for the forecast direct costs to be efficient.

Electricity forecast

In Section 3, SunWater set out its arguments for an annual pass-through of actual changes to franchise electricity tariffs.

However, should the QCA choose to retain the approach proposed in the Draft Report, then the choice of escalator directly affects the level of prices and the resulting adjustments that will occur from year-to-year.

SunWater believes the QCA may have inadvertently understated their electricity price escalator because they have under-forecast the expected increases for network costs and retail operations costs.

[58] QCA (2011). p213

In particular, the QCA does not appear to have accounted for the impact of load on electricity price increases. The QCA has proposed a forward-looking escalator of 7.41% which is well below SunWater's estimate of 10.5%. This issue is addressed in more detail in SunWater's detailed analysis of electricity cost issues in Attachment 3.

SLFI

The draft report requests that SunWater reconcile its non-direct costs (by expenditure type) with staffing (including SLFI targets) from 2008-09 for the QCA's consideration prior to the Final Report.

SunWater's response to this request is provided in Attachment 4.

Management processes

The QCA recommends that SunWater needs to improve the usefulness of its information systems. In particular, SunWater needs to document any access relevant information necessary to:

- attain greater operating efficiency;
- achieve greater transparency;
- facilitate future price reviews; and
- promote more meaningful stakeholder engagement.

SunWater has previously provided supplementary information to the QCA about how it developed its operating cost forecasts for the 2012-17 regulatory period.[59] This stemmed from certain criticisms the QCA's consultants made about their ability to assess the prudency and efficiency of SunWater forecast expenditure. SunWater also raised concerns about the approach some of the QCA's consultants adopted in assessing its forecast expenditure.

SunWater emphasises that the QCA's consultants noted it has robust internal information systems and processes. As a result, we assume that the QCA's recommendation is not requiring SunWater to report on proposed improvements to a range of internal management and operational processes. This would entail the QCA effectively micro-managing SunWater's business. SunWater is not aware of the QCA or other Australian regulators previously engaging in this type of micro-management.

Rather, SunWater assumes that the QCA is requiring SunWater to provide better documentation of the way in which it develops and presents expenditure forecasts to the QCA, its consultants and stakeholders more broadly. This would better enable the QCA to assess the prudency and efficiency of

[59] SunWater, QCA review of irrigation prices, Supplementary information, Response to issues – operating cost forecasts, September 2011

SunWater's proposed expenditure, while allowing it to establish an organisational structure and operational processes consistent with SunWater's commercial objectives.

SunWater notes that information provision, while a necessary feature of any regulatory pricing review, is not a costless exercise. As a result, SunWater believes that the guiding principle of information provision in this context should be that it is justified in terms of the relative costs to SunWater and benefits to other stakeholders. SunWater would be concerned if it was required to prepare and present expenditure forecasts in a particular form that is potentially very costly, particularly where significant changes to existing operational systems and practices were also required. SunWater believes that the starting point for any information provision is recognition of the existing operational systems and processes of the regulated business.

In this context, SunWater is happy to work with the QCA over the next year to agree an approach to the preparation of supporting documentation and presentation of its expenditure forecasts in any future regulatory pricing reviews that facilitates the QCA's assessment of the prudency and efficiency of that expenditure.

As SunWater has previously argued, it does not believe that the QCA's consultants were provided with insufficient information to form a view about SunWater's expenditure forecasts in the current regulatory pricing review. Rather, some of these consultants were not prepared to adapt their approach to the available information. On the other hand, some of the QCA's consultants were able to do so. SunWater has previously conceded that the documentation of its forecasting approaches could have been better and will work to improve this situation. SunWater also notes that this is its first regulatory review, and there are lessons to be taken into any subsequent reviews.

SunWater also notes that one of the QCA's consultants (ARUP) commented that it was not provided with formal criteria regarding the prudency and efficiency tests it was asked to apply. This is a matter the QCA may wish to give consideration to and advise SunWater and its own consultants of its expectations on this fundamental point.

7 Draft tariffs

This section responds to the methodology use by the QCA in developing draft tariffs.

Application of the Indec report for setting tariffs

The volumetric charge has been set based on the variable cost percentages recommended by Indec. As set out in earlier sections, SunWater does not agree with this approach and submits that the Indec percentages should not be used as the basis for setting tariffs. Instead, volumetric charges should be set to reflect variable costs (that is, costs that vary with water use), and the only variable cost is electricity required for pumping water to meet demand. [60]

Attachment 1 presents SunWater's arguments in more detail.

Tariff re-balancing where prices are not to go down

The Direction Notice states that prices are to exclude any rate of return on existing rural irrigation assets, unless:

> … *current prices are already above the level required to recover [efficient lower bound costs], in which case water prices are to be maintained in real terms based on an appropriate measure of inflation as measured by the Authority*

Due to tariff reform (which SunWater strongly supports), the fixed and variable components to water prices need to be re-balanced. This requires a mechanism to adjust tariffs while meeting the requirements of the Direction Notice in schemes where prices are not to go down in real terms.

In the Draft Report, the QCA has instead adopted an approach to tariff re-balancing that is set to maintain historic revenues, not prices:[61]

> *On the basis of guidance received from relevant agencies Treasury and DERM, the Authority has interpreted the Ministerial Direction to require the Authority to maintain water revenues (rather than prices) in real terms, consistent with those achieved [by] the end of the 2006-11 price path.*

This guidance is not published in the Draft Report or the QCA's website. In any case, this approach is inconsistent with the Direction Notice. Simply put, the Direction Notice requires that future prices should not go down in real terms where current prices are above the level required to recover efficient lower bound costs. It does not state that historic revenue should be maintained in real terms.

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[60] Indeed as set out above, Indec also acknowledged that electricity was the only variable cost, and all other costs were either fixed or semi-variable.

[61] QCA (2011). p317

Given this clarity, it is surprising that the QCA sought guidance from agencies, as the approach that should have applied would appear to be clear and unambiguous: that is expected future revenues that would have otherwise occurred under the existing prices should be preserved and instead recovered through the changed tariff mix. This is consistent with the Direction Notice which clearly requires a forward-looking approach when maintaining prices, as it states water prices are to be maintained in real terms, and even requires a forward-looking index to be applied (being an appropriate measure of inflation as recommended by the Authority).

The key assumption required to perform this calculation is water use over the period. The QCA has already satisfied itself of a reasonable forecast to be applied for this purpose, when it adopted a 10-year average to set the volumetric charge under the new tariff structure:[62]

> *… the average irrigation water use over the last five years was low due to drought impacts… The Authority considers that the use of a longer-term average water use will provide the most meaningful estimate of likely future revenues.*

It is also important to note that the past five years is not representative of average or normal conditions and differs materially from the forecast that the QCA has already accepted in another context. Indeed, the QCA acknowledged that a 5-year average would tend to underestimate average water use due to the predominance of drought over this period. However, SunWater now bears the financial impacts of the past five years (which were unusual) into the future.

The QCA's approach also offends broader regulatory principles that prices should be forward looking. For example, in its Statement of Water Pricing Principles, the QCA states:

> *These pricing principles largely reflect outcomes associated with the operation of competitive markets but also seek to take account of a wide range of other public interest matters. Prices should be cost reflective, forward looking, ensure revenue adequacy, promote sustainable investment, ensure regulatory efficiency and take into account relevant public interest matters.*

In closing, SunWater submits that the Direction Notice, as well as good regulatory practice, requires a forward-looking approach to tariff re-balancing. This should be applied by adjusting the tariff mix to achieve the same outcomes that would have occurred if tariffs and prices remained the same in real terms, which is the outcome that would have otherwise applied if not for tariff reform. In making this adjustment, SunWater submits that the QCA adopt its forward-looking water use estimate, being the 10-year average, as the QCA has already satisfied itself that this is the most appropriate assumption to

[62] QCA (2011). pp319-320

use for forecasting demands and revenues into the future. Attachment 7 sets out SunWater's proposed prices using the 10-year average.

Additionally, SunWater understands that the QCA has indexed all values to 2012-13 from 2011-12 using assumed inflation at the mid-point of the target range for the RBA, at 2.5%. This is a long-term measure of inflation, and should not be used where better information exists. The RBA has published short-term inflation forecasts, and these should be adopted when indexing prices/revenues to 2012-13. In the RBA's November 2011 Statement of Monetary Policy, the forecast for inflation in 2011/12 is 2.625 %. SunWater submits this should be used instead of the 2.5% adopted by the QCA.

Price paths

The Direction notice requires that, where the QCA recommends real price increases are required:

- it must consider the need to implement a price path for the introduction of the price increase to moderate price impacts on irrigators, and that has regard for SunWater's legitimate commercial interests;
- a price path may be longer than one price path period, however the QCA must provide its reason for the longer timeframe; and
- if the QCA recommends not to implement a price path, it must give its reasons.

This indicates that the QCA must consider the need for a price path, and that it is not intended that a price path would automatically apply. There is no evidence in the Draft Report to suggest that the QCA has in fact considered the need to implement a price path (as required in the Direction Notice), but has instead assumed that a price path will automatically apply:[63]

> *Where scheme current revenues are below the assessed level of efficient costs (that is charges are below lower bound), the Authority is required to recommend a price path for the 5-year period…*

SunWater submits that the QCA should satisfy the requirements of the Direction Notice, and for transparency set out its considerations in concluding that a price path is to apply.

Secondly, the QCA has decided to apply a price path that is not revenue neutral to SunWater. This contrasts to the QCA's approach when considering the matter of transitional price paths in its recent review of the Gladstone Area Water Board (GAWB): [64]

[63] QCA (2011). p326

[64] QCA (2010). Gladstone Area Water Board: Investigation of Pricing Practices. p187

> *The Authority considers that, as a general principle, any transitioning arrangement should be revenue neutral to ensure that there is no permanent impact on GAWB's revenue, but at the same time should not result in future prices that may create by-pass opportunities.*

Clearly, the QCA saw the need for GAWB to recover its costs, which were set in an upper bound pricing environment, as commercially legitimate and in fact essential for the business' viability. There is no evidence that the QCA has made a similar assessment when recommending price paths for SunWater, and indeed the QCA has adopted a more aggressive approach to SunWater despite price rises being required simply to achieve lower bound costs.

The QCA's recommended approach means that unless SunWater receives a Community Service Obligation (CSO) payment for the shortfall, SunWater will not be able to recover the lower bound costs of supply. The QCA has apparently adopted this approach without any assurance or information that a CSO would apply:[65]

> *The price path is to provide a revenue stream that allows SunWater to eventually recover lower bound costs. However, the Authority understands that the price paths do not have to be revenue neutral. In other words, any revenue shortfalls in early years from prices being below lower bound do not have to be offset in net present value terms by higher revenues from prices above lower bound in later years.*
>
> *Instead, the Authority's recommended price paths are to approach and ultimately achieve the level of cost reflective price, with any shortfall in revenue … not being recovered from irrigators. This may have CSO implications but that is a matter for SunWater and the Government. It is not considered by the Authority as part of this review.*

It is not apparent that the QCA has had regard to SunWater's legitimate commercial interests as required in the Direction Notice, as the price paths will not enable SunWater to recover its basic costs of supply (lower bound costs) if a CSO is not obtained for the shortfall. While a CSO is likely to occur, a better approach would be for the QCA to satisfy itself that a CSO would in fact be payable to SunWater before recommending that price paths are not to be revenue neutral. That is, the CSO payment is clearly a matter for the QCA's review if it is to set a price path that does not recover lower bound costs. SunWater therefore submits that the QCA should satisfy itself that a CSO would be payable for the shortfall before recommending price paths that do not recover lower bound costs.

[65] QCA (2011). p326

Finally, the Direction Notice requires the QCA to provide its reasons for recommending price paths that extend beyond the forthcoming regulatory period. Such price paths were recommended in a number of schemes, where the QCA stated:[66]

> … *the Authority considers that, in the absence of capacity to pay assessments, the most appropriate revenue path is one consistent with that approved by Government in the last review ($2/ML per annum).*

The QCA's reasons for applying such a price path appear to be based on an assumption it was not to consider irrigators' capacity to pay, preventing it from making an assessment of the rate of increase that could be sustained by irrigators in those schemes:[67]

> … *the Authority notes that the original Ministerial Direction was amended to exclude consideration of capacity to pay from the Authority's brief.*

It therefore appears that the QCA's reasons for the $2/ML price are based on it not having any better information available to recommend a different rate of increase. This contrasts to the QCA's approach when considering price paths for GAWB, where it considered a range of issues including the impacts on GAWB's cash flows and the broader implications for pricing:[68]

> … *given that the higher prices reflect GAWB's efficient costs and that any delay in implementation may impact significantly on GAWB's cash flows, the Authority recommends a short transition period, with a significant proportion of the required increase in the first year.*
>
> *The Authority considers that a 10-year transition as suggested by CPM is too long and, under the revenue neutral approach, would result in an accumulation of unrecovered amounts resulting in a price at the end of the period much higher than the required price.*

SunWater has not proposed a specific price path for schemes below lower bound cost recovery, but has a legitimate expectation (based on the terms of the Direction Notice and regulatory practice generally) that the QCA will recommend a price path that ensures SunWater has a reasonable opportunity to recover lower bound costs. In closing, SunWater submits that the QCA revise its Draft Report and price path recommendations with a view to ensuring this will occur.

[66] QCA (2011). p327

[67] QCA (2011). p326

[68] QCA (2010) p187.

Distribution tariff unbundling

The QCA has unbundled distribution tariffs into fixed and variable components for bulk water and distribution. SunWater supports this reform.

However, in applying this change, the QCA has considered those tariffs on a bundled revenue basis, and applies any above-lower-bound component in the bulk water charge towards cost recovery in the distribution system:[69]

> *…the Authority has taken, in effect, a bundled or total-revenue approach (that is, it has combined all revenues paid by distribution system customers) to addressing this question.*
>
> *That is, the proportion of revenue above efficient costs that is paid by distribution system customers for their share of bulk services is used to offset their larger distribution system revenue requirement. In effect, if a distribution system is below efficient cost recovery on a bundled basis, the bulk charge paid by distribution customers is reduced, but remains at least the cost reflective charge.*
>
> *The Authority notes that river only customers in such schemes would still pay bulk charges in excess of the efficient bulk revenue requirement, consistent with the Government's policy of maintaining real revenues.*

The prices in Table 7.27 of the Draft Report have the same bulk water price for distribution system customers (Part A and Part B) as for bulk water customers (Table 7.26). SunWater has therefore interpreted the QCA's approach as meaning a single bulk water price will apply regardless of whether a customer has a distribution service or not. SunWater strongly endorses this approach as to do otherwise will distort water markets and the valuation of water access entitlements that are otherwise homogeneous.

However, the QCA's approach also results in distribution tariffs being set below lower bound costs, (defined as cost reflective tariffs in the Draft Report).

The QCA states this approach is based on guidance from Treasury and DERM that requires it to maintain water revenues in real terms on a tariff group basis. While the calculation of those revenues as they are applied to re-balancing tariffs is contentious (as noted above), SunWater accepts that Government may have a view about how unbundling should be applied to meet its policy objectives, and this view should be adopted. As noted above, this guidance has not been published in the Draft Report.

[69] QCA (2011). p327.

Notwithstanding the above, if the QCA's approach is to be adopted then it should examine the consequences of this approach and consider how to best manage any adverse implications. There are three issues in particular that need to be considered:

- implications for termination fees at St George;
- impacts on efficient price signals; and
- renewals accounting.

Termination fees – St George

The QCA has recommended termination fees that apply where a customer surrenders access to the distribution network. These are to apply in all distribution systems, except for the St George Distribution System which lies within the Murray Darling Basin and is subject to price and other regulation. These rules require that termination fees must be set at multiples of the access fee, and do not allow for the termination fee to be set based on a different access fee that reflects the fixed costs of supply (referred to as a shadow access fee). In recommending this rule, the ACCC stated;[70]

> *Calculating termination fees based on the full cost of providing access services (the shadow access fee) where access fees are below full cost recovery distorts the decisions of irrigators to terminate or retain access, and dilutes price signals to operators about rationalisation and the efficient level of service provision.*

However, the QCA has set tariffs that are not cost reflective in the St George Distribution system, as the lower bound access fee (Part C) is $21.83/ML in 2012-13, whereas the cost reflective tariff is $27.51. This means that termination fees in St George, applied according to ACCC requirements, will not be cost reflective as SunWater cannot set this fee at the cost reflective charge as this is effectively a shadow-access fee.

There is no apparent solution to this problem given the dual regulatory arrangements in the St George Distribution System.

Price signals

In the Draft Report, the QCA highlighted the need to unbundle tariffs so that prices could send efficient price signals about the separate costs of bulk water supply and distribution:[71]

> *The Authority accepts SunWater's proposal to unbundle bulk and distribution systems tariffs. In addition to SunWater's reasoning for unbundling, the Authority considers that*

[70] ACCC. (2008) Water Charge (Termination Fee) Rules, Final Advice. p54

[71] QCA (2011). p50

> *unbundled tariffs will signal to customers the relevant bulk and distribution system costs that will encourage efficient levels of water use in the bulk and distribution systems. The unbundled tariffs will provide efficient price signal to customers as they considering enterprise (farming) options, levels of water use, on farm investments, permanent and / or temporary water trading, and exit from or entry into distribution systems.*

However, unbundled tariffs in Distribution Systems do not represent the relevant distribution system costs to irrigators, as they are effectively still bundled with the bulk water charge (i.e. they are considered together).

This also creates a problem where termination fees reflect lower bound costs, yet the actual Part C tariff paid is set at a lower rate. The ACCC highlighted the problem of setting access charges on a different basis to termination fees: [72]

> *… calculating termination fees based on a shadow access fee breaks the nexus between the fees payable upon termination of access and fees payable on retaining access. This may distort irrigators' decisions whether to retain, trade or terminate water delivery rights as the present value of ongoing access fees is likely to be less than the equivalent termination fee. As both represent a cost to irrigators in their decisions to continue irrigating or to terminate access and trade, the greater the disparity between actual access fees and shadow access fees (and therefore between termination fees), the more likely that irrigators' decisions will be distorted.*

Assuming the QCA's approach is to be accepted, then it is important that irrigators receive information about the costs of the distribution system. As a minimum, the cost-reflective Part C and Part D tariffs should be provided to irrigators on their invoice.

On balance, SunWater supports the need for a single bulk water charge for all water access entitlements and accepts that this may have implications for the price signals for distribution system access. It is far more important that bulk water prices do not distort water trading or undermine the allocative efficiency benefits of recent reforms. At the same time, SunWater intends to publish the cost reflective tariffs in distribution systems, although a lower unbundled distribution price may apply.

Renewals accounting

The treatment for renewals accounting needs to be determined so that renewals annuity revenue from distribution prices can be properly applied to the Asset Restoration Reserve (ARR). SunWater

[72] ACCC (2008). p54

proposes that it works with the QCA prior to the final report to develop a renewals accounting protocol that addresses this and other issues.

Attachment 1

Response to Indec Analysis

Indec were engaged by the QCA to "provide a view on which of SunWater's costs are most likely to vary with water use to assist in the determination of the most appropriate tariff structure for the 2012 to 2017 Irrigation Price Paths".[73] This report has been used to determine the consumption (Part B) component to irrigation tariffs, which is meant to reflect variable costs.

This attachment submission provides a response to the Indec report, and its application by the QCA for pricing purposes.

SunWater's submission

SunWater had submitted that the only variable cost was the variable cost of electricity where pumping to meet customer demand was required. SunWater submitted that volumetric charges should therefore be based on these variable electricity costs, being the only costs that varied with consumption.

Indec's findings

Indec first conducted a qualitative assessment of costs, and concluded that there were a number of cost drivers that influence key processes and activities and related costs, and that in times of fluctuating demand it may be possible to vary some processes and sub-activities using an optimal management approach. It characterised electricity as a variable cost, and other sub-activities as semi-variable.

Indec then conducted quantitative analysis, which confirmed that electricity was the only variable cost. Indec conducted statistical analysis which found that other costs have varied, to some extent, with water use but this was the result of past pro-active management by SunWater in response to variations in water use. That is, Indec concluded there was no causative relationship between costs and water use, except for electricity.

Indec also acknowledged its statistical analysis (referred to as Stage 2 analysis) was not conclusive. Importantly, Indec's findings about non-electricity costs related to SunWater's management responses in times of low water availability. Indec did not assert there was an automatic relationship between non-electricity costs and water use at all times:[74]

> *Any direct and indirect water use dependencies of activities and expense types highlighted in the foregoing analysis of historic costs are the result of past pro-active management by SunWater in response to variations in water use.*

[73] Indec (2011). Qualitative Framework and Assessment of Fixed and Variable Cost Drivers. p1.

[74] Indec (2011). p48

Indec's stage 3 analysis then assessed the 'optimal approach' for managing fluctuations in water demand:[75]

> *The optimal approach is Indec's recommended outcome applying its judgement of SunWater's capabilities to respond to varying levels of water use…*

While the methodology is not entirely clear from the report, it appears that Indec established the proportion of costs that would be fixed under a high water use scenario and the proportion of costs that could be saved under an extended low water use scenario. Neither the low or high scenarios are explained or defined in any detail in the report.

In all cases, Indec assumed that 100% of costs under their high use scenario were fixed, including electricity. The high use scenario appears to assume the water use forecasts provided in SunWater NSPs, as this also formed the baseline for their cost analysis. It also appears that the low use scenario assumed nil water use, as in distribution systems, Indec assumed there were no electricity costs (0%), implying that there was no pumping hence no water use in this scenario.

This means that the variable percentages represented Indec's views about the proportion of costs that could be saved if water use was nil for an extended period, compared to a scenario where water use was as per more normal conditions (as per SunWater's NSP estimates).

Using the Macintyre Brooke WSS as an example, Indec found that 6% of costs were variable. This was based on its assessment that 20% of operations, preventative maintenance and corrective maintenance costs and 1% of the renewals annuity could be saved in a period of low or nil demand compared to the NSP forecasts. This translated to some $96,000 of costs out of a total of $867,000 that could be saved if there was no or very low water use.

This suggests that the 11% identified by Indec as a variable cost, is in fact a savings target when water use has been low or nil for an extended period under Indec's 'optimal' management approach. Indec set out strategies for how these savings could be achieved, which are addressed below.

The QCA stated it had conducted its own analysis which broadly confirmed the Indec findings. This QCA analysis is not presented in the Draft Report, and hence cannot be addressed in this submission.

QCA's application of the Indec findings

Despite noting a number of shortcomings to the Indec analysis, the QCA accepted Indec's recommended fixed and variable proportions for each service contract, noting that Indec's

[75] Indec (2011). p50

econometric analysis provides some basis for the proposed tariff structures.[76] In applying Indec's recommendations, the QCA noted:[77]

> *Indec's analysis indicated that a portion of SunWater's renewals and operating costs have a semi-variable nature and could be expected to vary in response to water volumes over a period of time.*

This is not an accurate or correct characterisation of the Indec analysis. In relation to its stage 2 quantitative analysis, Indec clearly set out the results were not definitive: [78]

> *The stage 2 analysis of historical costs demonstrates that SunWater has to some extent varied costs other than electricity expense with water use. However, the results of the historic cost analysis are somewhat inconsistent and tenuous.*

More significantly, Indec's variable cost percentages do not suggest that operating costs will vary in response to changes in water use over a period of time, and Indec has not found a causal relationship between water use and cost (apart from electricity). The Indec variable cost percentages are simply its assessment of the savings that could be made if there was very low or no water use for an extended period. However, the QCA has imputed a cost relationship by setting aside a notional percentage of total costs as variable based on the Indec report, and then converted this portion of costs to a volumetric charge.

This means the volumetric charge has effectively been set as a quasi-efficiency incentive, and SunWater must now find cost savings where water use is below the forecast, even where that use is only slightly lower than forecast. In short, the QCA's approach has meant that SunWater will need to find savings in proportion to reductions to water use, despite there being no evidence to suggest a causal relationship between water demand and cost, apart from electricity.

The QCA's approach also provides SunWater with additional revenue in times when demand is above forecast. The implication of this approach is that as water use increases above forecast, SunWater will bear additional cost. This is clearly not the case, and neither the Draft Report nor Indec's analysis considered whether these semi-variable costs would increase if water use was high. This emphasises the failings of the assessments and the irrelevance of applying the Indec findings to setting a volumetric charge.

[76] QCA (2011). p299

[77] QCA (2011) p302.

[78] Indec (2011). p49

This raises the question of what is the purpose of the volumetric charge and the QCA's objectives in setting the volumetric charge.

Purpose of the volumetric charge

The volumetric charge serves a dual purpose: as a price signal to irrigators and as a measure to assign volume risk to customers. This is discussed below.

Price signal

In Chapter 4 of its Draft Report, the QCA articulated the rationale for its two part tariff and the volumetric charge in particular:[79]

> *Of particular relevance, the rationale for using a two-part tariff is that the volumetric charge should, when set to equal the anticipated costs of using an additional unit of water (the marginal cost), promote informed decisions by users. Customers will irrigate until the marginal benefit of irrigation outweighs SunWater's variable cost. That is, it makes clear the cost of supplying the additional unit of water and requires customers to establish whether the benefit of using it exceeds its costs.*

This suggests that the volumetric charge should be set to recover, and only recover, those costs that vary with each ML of water taken. SunWater had proposed that these variable costs were limited to electricity costs associated with pumping.

This is an important concept when considering the Indec report and its application for pricing.

The Indec report did not consider variable costs under this framework, but rather considered cost savings from an efficiency perspective.

There is no evidence in the Indec report that suggests that the cost reductions were proportional to demand or were meant to represent the marginal cost of supply, and Indec did not examine the extent to which those costs changed at the margin, as water use increased or decreased.

The QCA's application of the Indec report has meant that volumetric charges have not been set on the basis of causation or marginal costs, as they also incorporate 'semi-variable' costs and are based on a qualitative assessment of costs that could be reduced or deferred in times of low demand.

This is further evidenced by the failure of the analysis to establish the marginal costs arising from the use of water. For example, a marginal cost relationship could be established on a per ML basis for electricity, as there was clear evidence that for each ML pumped and delivered, an additional cost was incurred. Neither Indec nor the QCA could establish a similar relationship for these other costs, and

[79] QCA (2011). p49.

instead had to derive the volumetric charge by dividing the costs that could be saved in times of low demand (Indec's variable costs) by a forecast use assumption.[80]

Accordingly, the recommended volumetric charges do not send appropriate price signals to irrigators, as the volumetric charge overstates the marginal cost impacts from an irrigator's decision to use (or not use) water.

This will distort decision making, as the consumption charge now overstates the marginal cost of taking water. This has implications for economic efficiency as set out in SunWater's submission, where it referenced the ACCC:[81]

> *The value assigned to an additional ML of water consumed by a bulk water customer within the basin reflects the market price of water (assuming that customer can trade their water) plus the cost of the storage and delivery services at the margin. Hence, the variable component of the bulk water charge should be set with reference to the marginal cost of storage and delivery.*
>
> *As a result, the structure of delivery charges should reflect the underlying cost of providing the service, that is, volumetric charges should recover variable costs and fixed charges should recover fixed costs…*
>
> *A pricing structure where the volumetric charge exceeds the actual variable cost of supply will generally result in under utilisation of the service, since the price for delivery of an additional unit (ML) of water exceeds the marginal cost of delivery.*

In closing, the QCA's approach for setting the volumetric tariff fails to achieve its economic efficiency objectives, and its specific objectives about sending efficient price signals to customers.

Volume risk

In the Draft Report, the QCA stated that tariff structures that align with fixed and volumetric costs will better manage volume risk as well as send efficient price signals. However, the report goes on to give greater emphasis to managing volume risk over the term of the regulatory period:[82]

> *In the current circumstances, a key reason for the adoption of two-part tariffs is to manage volume risks over the 2012-17 price path… It is therefore considered that, in*

[80] The draft report stated that SunWater's NSPs did not indicate a volumetric based amount for the costs that could be saved in times of low demand (Indec's variable costs). This is because there is no such basis for setting a volumetric charge.

[81] Australian Competition and Consumer Commission (2010). ACCC pricing principles for pricing approvals or determinations under the Water Charges (Infrastructure) rules, Draft. p44-45

[82] QCA (2011). p51.

order to manage the volume risks over the five-year price path, it is more appropriate to define variable costs in terms of those costs which can be expected to vary with water usage over the five years of the proposed price paths.

This suggests that the QCA intended for the variable charge to reflect the extent to which cost would vary with water use over a 5-year period, which may involve more costs than the electricity costs for pumping. SunWater submits that costs do not vary in this way or over these sorts of timeframes.

This 5-year approach also suggests that costs will change over a 5-year timeframe in response to changes in water use. This does not reflect the reality of irrigation demands, which are highly volatile and unpredictable, as evidenced by demands over the previous price path period. In any case, the Indec variable cost percentages do not represent the relationship between cost and water use over a five year period. As stated above, the percentages simply represent Indec's view of the savings that could be made under a low or no water use scenario, compared to 'normal' water use. Moreover, a low or nil water use scenario may never happen in a five year period – for example this did not occur in many SunWater schemes in the previous price path, despite extended drought, although water use may still have averaged below forecast.

The Indec report did not suggest that if there was a small reduction to demand, SunWater could reduce its costs. However, this has been imputed in the way the QCA has applied the report to tariffs.

Even if the Indec analysis of cost savings in low use scenarios is accepted, the application of the Indec percentages to tariffs has consequently had the effect of exposing SunWater to volume risk, because costs do not vary proportional to water use. SunWater would only not bear volume risk where water use was so low that it could adopt the savings identified by Indec (again accepting those savings are realistic or achievable which SunWater does not).

Consider for example a bulk water supply scheme (without any electricity costs) where the volumetric charge was set to recover $100,000 based on a QCA use forecast of 10,000ML / annum, translating to a volumetric price of $10/ML. If actual water use is slightly below this level, say at 8,000ML, then SunWater will suffer reduced revenues of $20,000 per annum. The QCA's approach would require that SunWater to find savings of $20,000 in order to meet its cost recovery target. The Indec percentages are not calculated in a way that supports this outcome. Instead, SunWater will bear the volume risk and will not be able to recover its fixed costs as they will not change with a modest reduction to water use.

Many of the savings recommended by Indec involved deferring costs. There may be an argument that SunWater can offset these losses in revenues when demand is higher than forecast (and its costs do not change) at a later point in time. This may be true, however the fact remains that SunWater bears the risk of this occurring, which is not the intent of the regulatory or pricing frameworks.

In closing, the volumetric tariffs expose SunWater to volume risk contrary to the QCA's objectives of the pricing and regulatory arrangements. This occurs because the QCA has applied Indec's variable cost percentages on the assumption that costs will decline in a linear fashion under all demand scenarios in accordance with the savings recommended by Indec under the low use or no use scenario alone. This is not the case, and is not supported by any evidence in the Indec report.

Legitimacy of the Indec cost savings

The variable cost percentages are based on Indec's assessment of the proportion of savings that could be achieved in a low demand scenario, where that demand continued for an extended period. The types of savings are set out in Chapter 5 of the Indec report, and mostly relate to deferring work or re-allocating resources.

SunWater has a number of concerns with this analysis. First, the assessment is very high level and based on Indec's judgements. It has resulted in highly subjective and course assessments of cost savings, which appear to be based on rule of thumb rather than a detailed analysis.

Examples of the crude assumptions made include:

- if water use is low for an extended period, that SunWater has the foresight to see that water use will continue to be low into the future. This simply cannot be predicted as it is affected by changes in climatic conditions. Nonetheless, the Indec savings assume that a decision can be taken to incur cost and re-deploy resources or defer work with some confidence that water use will remain low for an extended period;
- the recommended percentages simply reflect the mid-points of a range of seemingly arbitrary assumptions. For example, the savings in the optimal scenario is typically the mid-point between the high and low scenario, and the variable percentages are the mid-point between the high and low water use scenario;
- the savings are highly subjective and not substantiated. Indec have not explained how the measures identified translate to cost savings. The savings are presented in broad percentage terms, without any supporting empirical data;
- an assumption that 25% of renewals expenditure could be removed from the program or deferred for two years, which has been translated to an assumption that 1% of the renewals annuity (not the expenditure) could be saved (or, in turn, is considered variable). This assumption has been applied to every distribution system and water supply scheme. No analysis or supporting calculations are provided to support this assertion;
- the savings have not been discussed in any detail, nor has any individual measure been quantified. No commentary is provided as to the extent to which each saving would apply in

the optimal scenario – for example Indec states that its 'optimal' approach does not reduce service levels, yet it mentions selective delegation of certain operational activities (unspecified) to water users as a savings strategy – which of itself is a change in service standards; and

- Moreover, the savings themselves are contentious, as indicated in the table below.

SunWater's commentary on Indec's cost saving strategies

Strategy	Comment
Selective delegation of certain operational activities to users	Indec is not specific about which activities would be delegated. This would not be feasible without changes to customer standards of service. Many measures are not practical – for example allowing customers to read their own meters in times of severe shortage is not prudent management of scarce water resources and will invite mis-reporting. Indec has not set out what costs would be reduced under this strategy, and if they are in addition to or a pre-requisite for the other savings outlined below.
Re-allocation of personnel to other service contracts	This simply results in a shift in cost to another scheme, and assumes there is a need for additional personnel at those service contracts that is not being met. It also assumes that other schemes are not also affected by drought or low water demand. SunWater would then need to recover the additional costs in the other service contract.
Re-allocation of operations personnel to O&M or R&E activities that would otherwise be carried out by contractors	This assumes that the arrangements with those contractors can be varied or suspended without cost, or that those personnel have the skills and equipment to carry out the tasks previously performed by the contractor. For example, it is not possible to substitute a mowing or weed control contractor with SunWater personnel without the necessary plant and equipment, and without appropriate training. This opportunity would be limited to short-term projects only, as water demands in the 'home' scheme could change quickly meaning the personnel will need to return or customers would face a decline in service. This limits the types of projects that these personnel can substitute contractors for. There is no information in the Indec report that suggests they have considered the specific types of contract work that could be substituted, taking account of the above issues.
Reduction of direct bookings by corporate staff during period of low demand	This suggests that corporate staff book time to a scheme for the sake of it, and is a gross simplification of what occurs in reality. This implies that corporate staff would not book time to a scheme, and therefore not provide a service to that scheme, despite there being a need for it. This will have implications for standards of service as well as compliance. If it is intended that corporate staff do not book time (but carry out work regardless), then more cost will be allocated to other schemes.
Reduction in overtime or TOIL	There may be a reduction in overtime, however the saving will be capped by the overtime that occurs under normal (or 'high') conditions. It is not clear whether Indec have assessed the level of overtime that occurs in the high scenario as the baseline for any savings. A reduction in TOIL can only be a saving if this reduces or offsets costs elsewhere, such as overtime by staff filling in while another staff member is on TOIL. It is not clear how Indec have quantified such saving, if at all.

Strategy	Comment
Deferment of non-essential maintenance	This is only a saving where it does not impact on service standards, and the shift can occur without cost. This saving should be calculated using net present value analysis, examining the costs of deferment (e.g. risk to failure, creation of future peak in workload, having less discretion over the timing of future expenditure). The benefit is limited to the present value of the net savings. It is not clear how Indec have calculated these savings, if at all, and whether the above has been taken into account.

For renewals, Indec suggested costs could be reduced through deferring projects, reviewing the planned scope of work in a year or phasing renewals over a longer period. These strategies do not reduce cost, but defer cost. Moreover, Indec have not considered the savings that can occur by carrying out renewals works during periods of low or no demand, as costly measures to minimise supply interruptions can be avoided. Nor has Indec considered the cost and service implications that will arise when the renewals program has to be accelerated to 'catch up', which may increase the cost of the work and/or involve greater supply interruptions to customers.

The savings from these strategies will be limited to the deferral value, rather than an absolute saving. It appears that Indec has not considered the change in present value from deferral when calculating the variable percentages, but instead assumed that the total cost of the project can be 'saved'. Indeed, the costs of deferring the project (as indicated above) may exceed the savings (in present value terms) – however Indec has simply assumed that deferring a project is of itself a desirable outcome.

Conclusion

The Indec report simply represents its views of savings that could be achieved if no or very little water was used in a scheme, compared to a 'normal' year.

SunWater does not agree with Indec's assessment of the costs savings that can be made. Most of these 'savings' are simply a re-allocation of resources or deferral of work, and none of these 'savings' have been substantiated with any rigour and quantitative analysis. Instead, SunWater – which can only recover the lower bound costs of supply – is now exposed to Indec's high-level and judgement-based assessment of costs. As a consequence draft tariffs have been set that will not enable SunWater to recover the basic lower bound costs of supply if water use is below the forecast used for pricing purposes.

Moreover, the QCA's application of the Indec analysis will not achieve its objectives of efficient water use and tariffs that signal the variable cost of supply, and SunWater is now exposed to volume risk contrary to the QCA's stated objectives.

SunWater submits that the Indec analysis cannot be used for setting a volumetric charge, and that the only cost that can used to set the volumetric charge is the truly variable cost of electricity, as originally proposed by SunWater.

Attachment 2

Response to renewals projects

SUNWATER'S RESPONSE TO REVIEWED PAST AND FUTURE RENEWALS EXPENDITURE ITEMS DEEMED TO BE NOT PRUDENT OR EFFICIENT

Table 1: Past Renewals

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*QCA Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Estimate ($,000)*
Bowen Broken Rivers	Rectification of Gattonvale Off Stream Storage Embankment Cracks	2010, 2011	82	Prudent and efficient	82		
Boyne River and Tarong WSS	Nil						
Bundaberg Distribution	Woongarra Point Pump Station – Replacement of Electrical Control System	2011	61	Prudent and efficient	61		
	Monduran Pump Station – Roof and Gutter Replacement	2009	280	Prudent and efficient	280		
Bundaberg WSS	Ben Andersen Barrage – refurbish shutters	2008	62	Prudent and efficient	62		

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*QCA Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Estimate ($,000)*
	Ben Andersen Barrage – refurbish shutters	2010	57	Prudent and efficient	57		
Burdekin Haughton WSS	Clare Fishlock	2012	274	Prudent and efficient	274		
Burdekin-Haughton Distribution	Intersafe	2010, 2011	501	Prudent and efficient	501		
	Fencing	2007	49	Prudent but not efficient	25	SunWater understands that fencing expenditure has been adjusted on the basis that half of the costs should be recovered from adjoining landholders under the Dividing Fences Act. However, in some cases the fencing is internal and there is no adjoining land holder, and in any case the Act allows SunWater to recover half the cost of standard fencing only. In the rural setting a standard fence equates to a 3 strand stock fence – well short of that required for public safety and in many cases existing stock fences in good condition are replaced. It would not be reasonable for SunWater to recover half the cost of safety fences from adjoining landholders, nor is it reasonable for the Authority to adjust fencing expenditure in this arbitrary manner.	49

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*QCA Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Estimate ($,000)*
Callide Valley WSS	Callide Gauging Stations – Install Air Compressors	2008	12	Prudent and efficient	12		
	Callide Dam Inlet Tower – Install Fall Arrest System to Ladder	2008	22	Prudent and efficient	22		
	Replace Hoist Ropes – Callide Inlet Tower	2010	29	Prudent and efficient	29		
	Undertake Comprehensive Risk Assessment – Kroombit Dam	2010	52	Prudent and efficient	52		
	Replace Switchboard – Main Switch House and Callide Dam	2011	92	Prudent and efficient	92		
	Intersafe	2011	51	Prudent and efficient	51		
	Public Safety Strategy (Fencing Policy)	2009	59	Prudent but not efficient	30	Refer to SunWater's response to the Authority's fencing adjustment above.	59
Emerald Distribution	Intersafe Gated	2010	1,100	Prudent and efficient	1,100		
	Selma Drains De-silt	2008 2009 2010	164	Prudent and efficient	164		
Eton Distribution	Intersafe	2010	330	Prudent and efficient	330		

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*QCA Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Estimate ($,000)*
	Fencing Policy	2010	138	Prudent but not efficient	69	Refer to SunWater's response to the Authority's fencing adjustment above.	138
Eton WSS	Intersafe Program	2010	147	Prudent and efficient	147		
	Fencing Policy	2008	54	Prudent but not efficient	27	Refer to SunWater's response to the Authority's fencing adjustment above.	54
Lower Mary Distribution	Investigate Seepage at Walker Point Balancing Storage	2010	41	Prudent and efficient	41		
	Electrical Component Upgrade of the Owanyilla Pump Station	2011	404	Prudent and efficient	404		
Lower Mary River WSS	Repair protection works and concrete crest, Mary Barrage	2010	66	Insufficient Information	61	SunWater does not accept this arbitrary 10% adjustment. There is no evidence of systematic and endemic problems with past renewals management. The project was deemed necessary by experienced engineers during the 2005 5yearly comprehensive inspection and is therefore prudent. The inspection report was available to QCA consultants, however the consultants did not avail themselves of the opportunity to review the report. The project was delivered under budget and the result considered efficient.	66

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*QCA Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Estimate ($,000)*
	Marker Buoys, Mary Barrage	2009	17	Prudent and efficient	17		
Macintyre Brook WSS	Whetstone Weir (SKM)	2007	1,441	Prudent but not efficient	1,222	The QCA's consultant SKM submitted a report on 7 Sept 2011 and concluded that the Whetstone Weir refurbishment project was both prudent and efficient. Refer to Appendix 3 - the relevant SKM report. Subsequent to 7 September SKM changed their report. SunWater maintains that the original wording of the SKM report was correct. The original SKM report stated that "*The overall cost of the works is within range of our cost estimate and we therefore consider it to be efficient. There are inefficient aspects of the project, as detailed above but these are not considered material when the project is viewed as a whole*."	1,441
Mareeba-Dimbulah WSS	Tinaroo Falls Dam	2011	110	Insufficient Information	102	SunWater does not accept this arbitrary 10% adjustment. There is no evidence of systematic and endemic problems with past renewals management, as evidenced by consultant's finding across project like Intersafe and other past renewals projects reviewed by SKM and Halcrow	110
Mareeba-Dimbulah Distribution	Intersafe	2010, 2011	3,102	Prudent and efficient	3,102		

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*QCA Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Estimate ($,000)*
Nogoa-Mackenzie WSS	Intersafe Project	2011	144	Prudent and efficient	144		
	Fabridam Post Deflation Incident 23 November 2008 (Bedford Weir)	2011	99	Excluded, pending legal action and insurance payout	0	Refer to main submission	99
	Fairbairn Dam Right Bank Outlet Works Upgrade (SKM)	2007-2011	1,482	Prudent and Efficient	1,482		
Pioneer River WSS	Palm tree Creek outlet valve (SKM)	2008-2010	1,303	Prudent but not efficient	912	The QCA's consultant (SKM) identified that cost savings of 20% to 30% could have been achieved. The QCA is proposing a 40% saving that is significantly higher than that identified by the consultant. It is SunWater's view that the reduction of 20% should be adopted. Refer also to Appendix 2 of this Attachment where the need for further expenditure on the valve is outlined.	1,042 on 2008-10 and 770 across 2012 and 2013

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*QCA Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Estimate ($,000)*
	Marian Weir (SKM)	2008 - 2012	4,844 total (2,084 to date)	Not prudent	0	The project is a ROP requirement and compliance is not optional for SunWater. SKM, in finding to project not prudent, failed to understand the ROP requirements. SKM's alternatives are neither technically feasible nor appropriate. Refer to Appendix 1 of this Attachment	4,844 (remaining spend of 2,760 in 2013)
	Mirani Weir and Dumbleton Weir – Fabri Dam	2009, 2011	216	Removed pending outcome of legal investigation	0	Refer to main submission	216
St George Distribution	Intersafe Program	2011	1,654	Prudent and efficient.	1,654		
	Fencing	2010	57	Prudent but not efficient.	29	Refer to SunWater's response to the Authority's fencing adjustment above.	57
	Channel meter replacements (GHD)	2007	27	Prudent and efficient	24	SunWater does not accept this arbitrary 10% adjustment applied despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with past renewals management. All past distribution system renewals projects reviewed were found to be prudent and efficient.	27

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*QCA Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Estimate ($,000)*
	Install 3 diesel motors (GHD)	2009	23	Prudent and efficient	21	SunWater does not accept this arbitrary 10% adjustment applied despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with past renewals management. All past distribution system renewals projects reviewed were found to be prudent and efficient.	27
	Repair access cross (St George Main Channel) (GHD)	2010	6	Prudent and efficient	6	SunWater does not accept this arbitrary 10% adjustment applied despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with past renewals management. All past distribution system renewals projects reviewed were found to be prudent and efficient.	6
	Repair crossing channel B2 (GHD)	2010	25	Prudent and efficient	23	SunWater does not accept this arbitrary 10% adjustment applied despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with past renewals management. All past distribution system renewals projects reviewed were found to be prudent and efficient.	25

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*QCA Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Estimate ($,000)*
	Repair access crossing CHB-2 (GHD)	2010	23	Prudent and efficient	21	SunWater does not accept this arbitrary 10% adjustment applied despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with past renewals management. All past distribution system renewals projects reviewed were found to be prudent and efficient.	23
	emergency repairs access crossing AC06 (GHD)	2010	38	Prudent and efficient	34	SunWater does not accept this arbitrary 10% adjustment applied despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with past renewals management. All past distribution system renewals projects reviewed were found to be prudent and efficient.	38
	emergency repairs access crossing (GHD)	2010	217	Prudent and efficient	196	SunWater does not accept this arbitrary 10% adjustment applied despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with past renewals management. All past distribution system renewals projects reviewed were found to be prudent and efficient.	217

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*QCA Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Estimate ($,000)*
	repair access cross (St George Main Channel) (GHD)	2011	29	Prudent and efficient	26	SunWater does not accept this arbitrary 10% adjustment applied despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with past renewals management. All past distribution system renewals projects reviewed were found to be prudent and efficient.	29
St George WSS	Refurbish Beardmore Dam Gate 12	2007	59	Insufficient Information	53	SunWater does not accept this arbitrary adjustment. There is no evidence of systematic and endemic problems with past renewals management.	59
	Refurbish Beardmore Dam gates No 8, 9 and 10	2010	88	Insufficient Information	80	SunWater does not accept this arbitrary adjustment. There is no evidence of systematic and endemic problems with past renewals management	88
	Install Buoy-lines at Jack Taylor Weir and Beardmore Dam	2010	140	Insufficient Information	130	SunWater does not accept this arbitrary adjustment. There is no evidence of systematic and endemic problems with past renewals management	140
	Removal of contaminated material, Jack Taylor Weir	2010	52	Insufficient Information	47	SunWater does not accept this arbitrary adjustment. There is no evidence of systematic and endemic problems with past renewals management	52

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*QCA Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Estimate ($,000)*
	Thuraggi Outlet modifications	2007	59	Insufficient Information	53	SunWater does not accept this arbitrary adjustment. There is no evidence of systematic and endemic problems with past renewals management. Refer to Appendix 9 of this attachment where further information is provided.	59
Theodore Distribution	Intersafe program	2007	146	Prudent and efficient	146		
	Public Safety Strategy (Fencing Policy)	2009	67	Prudent but not efficient	34	Refer to SunWater's response to the Authority's fencing adjustment above.	67
Upper Burnett WSS	Wuruma Dam – butterfly valve	2008 to 2010	133	Insufficient Information	121	SunWater does not accept this arbitrary adjustment. There is no evidence of systematic and endemic problems with past renewals management.	133
	Claude Wharton Weir – Fabri Dam options development	2011 to 2012	147	Not included pending resolution of legal matters	0	Refer to main submission	147

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*QCA Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Estimate ($,000)*
Upper Condamine WSS	Leslie Dam Painting of the conduits (GHD)	2007	74	Prudent and efficient	67	SunWater does not accept this arbitrary 10% adjustment applied despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with past renewals management. More information is provided in Appendix 5 of this attachment	74

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*QCA Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Estimate ($,000)*
	Leslie Dam - replacement of the right hand guard valve (GHD)	2007	129	Prudent and efficient	117	SunWater does not accept this arbitrary 10% adjustment applied despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with past renewals management. Existing guard valves have been found to not be able to be closed under full head conditions. Therefore, these valves need to be replaced to maintain operability. SunWater has developed a program for replacement of these type of valves based on an assessment of the risk if the valve fails to be operable. There is a clear need for this project given the hazard of this type of valve failing which would result in the unacceptable risk of loss of control over the dam. SunWater's procurement processes were applied. This required procurement on a competitive basis. It is also noted that in the GHD report it was stated that "The replacement of the guard valve also had a good project description that allowed the reviewer to gain a sound understanding of the project scope and to verify the cost elements in the project cost summary."	129

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*QCA Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Estimate ($,000)*
	Yarramalong Pump Station - overhaul Control System (GHD)	2007	67	Prudent and efficient	61	SunWater does not accept this arbitrary 10% adjustment applied despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with past renewals management.	67
	Leslie Dam - Replacement of hand guard valve (GHD)	2008	138	Prudent and efficient	125	SunWater does not accept this arbitrary 10% adjustment applied despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with past renewals management. Refer to comment on above regarding the right hand valve.	138
	Yarramalong Pump Station – Refurbish a pump and motor (GHD)	2010	62	Prudent and efficient	56	SunWater does not accept this arbitrary 10% adjustment applied despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with past renewals management.	62

Note: Where insufficient information was provided by the QCA's consultants, the Authority applied a broad efficiency gain adjustment, based on 10% of direct costs. The 10% adjustment was also applied by the QCA to items that were considered by GHD to be prudent and efficient, on the basis that GHD did not review items in detail. SunWater does not accept this arbitrary finding in the absence of any indication of systematic and endemic problems with management of past renewals projects.

The QCA's consultants concluded for some projects that insufficient information existed to assess either or both the efficiency or prudence of past renewals projects. SunWater is happy to provide further information prior to the QCA's final report, however the precise information requirements are not entirely clear. SunWater therefore proposes that it be provided with the specific information deficiencies and be given further opportunity to respond.

Table 2: Forecast Renewals

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
Barker Barambah WSS	Silverleaf Weir – 09BBAo5 Manufacture/Install Inlet Structure (SKM)	2012	337	Prudent and efficient	337		
	Bjelke-Petersen Dam – Replace Cables, Cableways	2022	327	Prudent and efficient	327		
Bowen Broken Rivers	Stabilise embankment and replace embankment protection	2012-2015	417	Prudent and efficient	417		
	Toilet Block	2023	450	Prudent but not efficient	225	Accept	
	Gattonvale pump station	2035	1,650	Insufficient information	1,485	SunWater does not accept this arbitrary adjustment. There is no evidence of systematic and endemic problems with forecasting renewals expenditure. This is a standard end of life replacement of 3 major pumps. The standard life is consistent with the methodology reviewed by SKM and found to be best practice. The replacement cost is based on historical supply and install costs which were the result of a competitive tender process and thus reflective of market price	1,650

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
Boyne River and Tarong WSS	Boondooma Dam – Replacement of Sealer in Upstream Slope (SKM)	2017	171	Not prudent	0	SKM recommended that this project be removed from the forecast spend pending further in investigation into timing. SKM found the forecast spend to be efficient. The work has been identified in the Dam Safety inspections and must be undertaken and certainly cannot be delayed until beyond the 20 year planning period. In fact it will need to be undertaken within the five years SunWater requests that the Authority re-instate this expenditure in the year 2017.	171
	Boondooma Dam – Replace Water Level Recorder	2017	165	Prudent, but insufficient information to establish efficiency	149	SunWater does not accept this arbitrary 10% adjustment. There is no evidence of systematic and endemic problems with forecasting renewals expenditure.	165
	Boondooma Dam – Replace Cables and Cableways	2032	561	Prudent and efficient	561		
Bundaberg Distribution	Woongarra Point Pump Station – Replacement of Electrical Control System (2012)	2012	262	Prudent and efficient	262		

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Woongarra Balancing Storage - Refurbish Control Gate and Replace Weed Screen	2012	45	Prudent and efficient	45		
	Dinner Hill Pump Station - Replace Electrical Control System	2012, 2013	224	Prudent and efficient	224		
	Bingera Distribution - Replace Screens	2034	217	Prudent but insufficient information to establish efficiency	195	There are 8 separate screens schedule for replacement; replacement value per screen is conservatively estimated at $27,000. The expenditure should be allowed.	196
	Bingera Distribution – Replace Concrete Lining	2033, 2035	5,066	Prudent but insufficient information to establish efficiency	4,560	Accepted	4,560
	Bullyard Distribution – Replace Meter Outlet Structures	2033	797	Prudent and efficient	797		
	Don Beattie Pump Station – Replace Common Controls (SKM)	2019	1,220	Prudent but not efficient	910	Accepted	910

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Bucca Weir – Refurbishment of Trash Racks and Guides	2013	72	Transferred to the Bundaberg WSS	65	Transfer to Bundaberg WSS is accepted. However the QCA has applied a 10% reduction to the forecast cost, on no basis. That is, the project was found to be prudent and efficient. (see QCA draft distribution systems report p42)	
Bundaberg WSS	Fred Haigh Dam - Replacement of Cables and Cableways	2014 to 2015	619	Prudent and efficient, but deferred to 2020	619	Accepted	619
	Ben Andersen Barrage – Refurbish shutters	2012 to 2016	861	Prudent and efficient	861		
	Ben Andersen Barrage – Replace Hydraulic Control System	2024	238	Prudent but insufficient information to establish efficiency	214	SunWater does not accept this arbitrary adjustment. There is no evidence of systematic and endemic problems with forecasting renewals expenditure.	238
	Ben Andersen Barrage – Anode Replacement	2012	217	Prudent and efficient	217		
	Bucca Weir – Refurbishment of Trash Racks and Guides	2013	0	Transferred from the Bundaberg Distribution WSS	72	Refer above	72 to be included in Bundaberg WSS annuity calculation
Burdekin Haughton WSS	Clare Weir – Replace Valve Control Equipment	2016	103	Prudent and efficient	103		

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Val Bird Weir Outlet Works	2013	279	Insufficient information to assess prudency and efficiency	251	See Page18, Section 88 of Burdekin Basin Resource Operations Plan which requires that the ROL holder must ensure that there is a minimum stream flow at Node 2 equal to the cumulative daily flow recorded at the flow monitoring Node C and the flow monitoring Node F, up to 40ML Day. This requires SunWater to pass 40 ML Day through both Val Bird and Giru weirs when the Storage level is below the crest of the Weir. It is a legislative requirement on SunWater. There is also a requirement to make releases from Val Bird Weir to maintain the downstream storage i.e. Giru Weir at its nominal operating level of 3.00 m AHD. (Ref: Section 84 of the Burdekin Basin Resource Operations Plan)	279
	Burdekin Falls Dam – Replace High Voltage System (SKM)	2023	2,687	Prudent but not efficient	1,229	Accepted	1,229
	Burdekin Falls Dam – Replace Cable (SKM)	2024	2,547	Prudent and efficient	2,547		

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Clare Weir – Refurbishment of Hydraulic Rams	2013-2036	1,778	Insufficient information to assess prudency and efficiency	1,472	Clare weir is a large weir on the Burdekin River. The weir has 150 hydraulically operated flap gates. The system comprises of 150 hydraulic rams/cylinders, pumps, lines, storage tanks and control system. The rams have a standard life of 60 years, however in order to achieve that life a mid life refurbishment is required. It is not possible to take all 150 rams out of service at the one time, therefore a rolling program over 5 years is required to undertake the mid life refurbishment. Amend refurbishment program to 2013 – 2017 (30 cylinders/year at $2k each). Rolling program to maintain gate operations. Amend refurbishment plan to 10yr period	2013 to 2017 5 x $60K = $300k
	Replacement of cylinders at Clare Weir	2017-2021	3,745	Prudent but not efficient	2,996	The end of life replacement of the cylinders will occur as a rolling program from 2038 to 2042.	2038-2042 5*$600k = $3,000k

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Refurbish Hydraulics	2026	1,200	Insufficient information to assess prudency and efficiency	1080	Apart from the hydraulic cylinders the balance of the hydraulic system will require a mid life refurbishment and end of life replacement.	2015 $50k to scope refurb 2016 $275kfor refurb 2045 $150k to scope replacement 2046 $2,000k to replace system
Burdekin-Haughton Distribution	Barratta Channel – replace weed screen	2012,	191	Prudent but not efficient	43	In June of 2011, an alternate trial structure was devised to address the problem with weeds in the Barratta channel system. The new structure will be trialled over a number of years to determine its effectiveness in removing weed. Project has been completed in 2012 with a different scope and a final spend of $30,000.	30
	Millaroo B pump station discharge valves	2012	222	Prudent but not efficient	222		
	Elliott Pump Station, switchboard replacement (SKM)	2012	406	Prudent and efficient, but deferred to 2022	406	Accepted	406
Callide Valley WSS	LBC/1 Replace Switchboard - Bldg Serv Elec Bldg	2013	39	Prudent and efficient	39		
	LBC/2 14CVA-Refurbish Spillway Gate 1	2014 and 2032	9	Prudent and efficient	9		

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	LBC/3 10CVA01-Undertake 5yr Dam Safety Callide	5yrly from 2015	36	Prudent and efficient	36		
	LBC/4 12CVA-Replace Inlet Screens	2015	107	Prudent and efficient	107		
	LBC/5 Replace Ladders, Platforms, Handrails & Safety	2015	56	Not prudent	0	SunWater does not accept the Authority's justification for removing this project as the work is required to maintain a safe working environment as stated by the consultant.	56
	LBC/6 Replace Standby Diesel Alternator	2016	178	Prudent but not efficient and deferred to 2028	150	Accepted	150
	LBC/7 14CVA-Refurbish Electrical Installation	2017	882	Prudent but insufficient information to determine efficiency	794	SunWater does not accept the Authority's justification for adjusting this project by an arbitrary 10% because the methodology applied was the same as that applied to other projects reviewed by Halcrow and found to be efficient.	882
	LBC8/ Refurbish 1200Dia Outlet Pipe Lhs	2026	485	Prudent and efficient	485		
	LBC9/ Major Refurbishment	2029	368	Prudent and efficient	368		
	LBC/10 12CVA-Refurbish Channel Earthworks	2012	37	Prudent and efficient	37		

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	LBC11/ 12CVAXX Address Height Safety Risks CVA	2012	53	Prudent and efficient	53		
	Callide Dam – Replace Cables and Cableways (SKM)	2017	871	Prudent and efficient	871		
Chinchilla Weir WSS	Various projects from 2012 to 2016 (GHD)		87	Prudent, but insufficient information to determine efficiency	79	SunWater does not accept this arbitrary adjustment. There is no evidence of systematic and endemic problems with forecasting renewals spend.	87
	Butterfly valve for Chinchilla Weir (SKM)	2016	123	Prudent and efficient but deferred to 2024	123	Accepted	123
	Various projects from 2016 (GHD)		60	Prudent and efficient	54	SunWater does not accept this arbitrary 10% adjustment despite the projects being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	60
Cunnamulla WSS	Allan Tannock Weir refurbishment (SKM)	2014	18.65	Prudent and efficient	18.65		
	Repair or Replace Aluminium Rack	2016	12.29	Prudent and efficient	12.29		
	Refurbish Sluice Gate	2016	12.29	Prudent and efficient	12.29		
	Refurbish Sluice Gate	2026	12	Prudent and efficient	12		

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Repair or Replace Aluminium Rack	2028	12	Prudent and efficient	12		
	Replace Sluice Gate	2032	13	Prudent and efficient	13		
	Protection works	2033	36	Prudent and efficient	36		
Dawson Valley WSS	Gyranda Weir - refurbish Gate 1 seals, guides, corrosion and actuator	2012 and every 10 years thereafter	8	Prudent and efficient	8		
	Gyranda Weir - replace electric actuator	2014 and every 15 years thereafter	35	Prudent and efficient	35		
	Moura Off-stream Storage Pump Station – refurbish PUN 2	2016 and every 6 years thereafter	38	Prudent but not efficient	30	SunWater does not accept the Authority's adjustment on the basis that Halcrow's assessment of cost was not robust or forward looking and recommended a figure below the actual direct cost of the last refurbishment. Given the aging asset SunWater's original estimate should be retained.	38

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Moura Off-stream Storage – repairs to spillway return slopes and batters	2014	47	Prudent but insufficient information to determine efficiency	42	SunWater does not accept the Authority's adjustment on the basis that Halcrow's assessment did not find the project "not efficient" . The costings were prepared in the same manner as other projects found efficient by Halcrow.	47
	Neville Hewitt Weir – replace hydraulic system	2021	248	Prudent but insufficient information to determine efficiency	223	SunWater does not accept the Authority's adjustment on the basis that Halcrow's assessment did not find the project "not efficient" . The costings were prepared in the same manner as other projects found efficient by Halcrow.	223
	Theodore Weir – replace concrete/steel piled weir (SKM)	2034	430	Prudent and efficient	430		
Emerald Distribution	Selma Drainage - desilting	2012 2-yearly	60 (each desilting)	Prudent and efficient	60		
	Selma pump station – logic and control	2013, 2028	137,137	Prudent and efficient, but defer 5 years	137,137	Accepted on the proviso that work may have to be bought forward if there is a failure or parts become obsolete	137, 137 deferred for 5 years
	Selma Distribution – replace control equipment	2019-20, 2034-35	256,256	Prudent and efficient	256,256		
	Selma pump station – refurbish pump 2	2015 5-yearly	37 (each refurb)	Prudent and efficient	37		

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Selma Distribution replace Hdpe liner (2 sites)	2025	483,322	Prudent and efficient	483,322		
	Selma Distribution – concrete lining (SKM)	2032	4,279	Not prudent	0	The SKM report noted that the efficient cost should be reduced by 42%. SunWater accepts this view. However SKM stated that the prudency could not be demonstrated due to the age of the condition assessment being relied upon. SKM accepted that the condition assessment methodology was appropriate. SunWater notes that this asset will be condition assessed at least 3 times between now and the scheduled replacement. The asset replacement timing will be reviewed after each assessment. Whilst the timing may change it is certain that the asset will need to be replaced. 2032 remains the best available estimate for the replacement and is in accordance with the methodology endorsed by SKM. Funding must be allowed for that replacement	2,482

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
Eton Distribution	Replacement of Starter Pump Units - Victoria Plains Pump Station	2013	135	Prudent but insufficient information to determine efficiency	122	SunWater does not accept the Authority's adjustment on the basis that Arup's assessment did not find the project "not efficient" . The costings were prepared in the same manner as other projects found to be efficient by SKM and Halcrow.	135
	Replacement of switchboard at Brightly Pump Station No 2	2012	100	Prudent but insufficient information to determine efficiency	90	SunWater does not accept the Authority's adjustment on the basis that Arup's assessment did not find the project "not efficient". The costings were prepared in the same manner as other projects found to be efficient by SKM and Halcrow.	100
	Repair fencing at Oakenden distribution	2012	6	Prudent but insufficient information to determine efficiency	5	SunWater does not accept the Authority's adjustment on the basis that Arup's assessment did not find the project "not efficient" . The costings were prepared in the same manner as other projects found to be efficient by SKM and Halcrow.	6
	Brightly Pump Station Low Voltage Cable Replacement (SKM)	2012	21	Prudent and efficient but deferred to 2025	21	Accepted on the proviso that work may have to be bought forward if there is a failure	21 deferrer to 2025
	Mt Alice Pump Station Pump Unit 3 Overhaul (SKM)	2013	25	Prudent and efficient.	25		

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Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
Eton WSS	Replacement of switchboard – Mirani Pump Station 1	2012	226	Insufficient information to assess prudency and efficiency	204	SunWater does not accept the Authority's adjustment on the basis that Arup's assessment did not find the project "not efficient". The costings were prepared in the same manner as other projects found to be efficient by SKM and Halcrow.	226
	Refurbishment pump unit 1 – Mirani Pump Station 3	2013	75	Insufficient information to assess prudency and efficiency	68	SunWater does not accept the Authority's adjustment on the basis that Arup's assessment did not find the project "not efficient" . The costings were prepared in the same manner as other projects found to be efficient by SKM and Halcrow.	75
	Kinchant Dam – 5-yearly Dam Inspection (SKM)	2013, 2018, 2023, 2028, 2033	100, 100, 100, 100, 100	Prudent and efficient	100, 100, 100, 100, 100		
Lower Fitzroy WSS	Replace hydraulic system	2023	190	Prudent but insufficient information to determine efficiency	171	SunWater does not accept the Authority's adjustment on the basis that Halcrow's assessment did not find the project "not efficient" . The costings were prepared in the same manner as other projects found efficient by Halcrow.	190

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Refurbish fish lock fill and Drn valves	2013 and 2028	17	Prudent but insufficient information to determine efficiency	15	SunWater does not accept the Authority's adjustment on the basis that Halcrow's assessment did not find the project "not efficient" . The costings were prepared in the same manner as other projects found efficient by Halcrow.	17
	Undertake facility review	2014	20	Insufficient information to assess prudency and efficiency	18	SunWater does not accept the Authority's adjustment on the basis that Halcrow's assessment did not find the project "not efficient" . The costings were prepared in the same manner as other projects found efficient by Halcrow.	20
Lower Mary Distribution	Refurbishment of Walker Point Balancing Storage	2012	109	Not prudent	0	Aurecon found that remediation works will be required, but questioned SunWater's approach. SunWater requests that the QCA allow the expenditure in the profile, otherwise SunWater cannot fund the repair.	109

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Electrical Component Upgrade at Walker Point Pump Station	2013 to 2014	226	Excluded pending feasibility study	0	Aurecon found that remediation works will be required, but questioned SunWater's approach. SunWater requests that the QCA allow the expenditure in the profile, otherwise SunWater cannot fund the work, or the feasibility study.	226
	Electrical Component Upgrade at Copenhagen Bend Pump Station	2013 to 2014	283	Excluded pending feasibility study	0	Aurecon found that remediation works will be required, but questioned SunWater's approach. SunWater requests that the QCA allow the expenditure in the profile, otherwise SunWater cannot fund the work, or the feasibility study.	283
Lower Mary River WSS	Tinana Barrage – Concrete Skin over Rock Protection Works (SKM)	2012	59	Prudent and efficient	59	SunWater notes that the Authority took the view that this expenditure should be included in the profile on the basis that even although the exact scope of work was yet to be defined, some remedial action was required. SunWater request that this approach be applied to the adjustments made to the 3 Lower Mary Distribution renewals project above.	59

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Refurbishment and Regular Maintenance of concrete skin over Mary Barrage protection works	2014, 2019, 2024, 2029, 2034	15, 15, 15, 15, 15	Not prudent or efficient	0	Accepted on the proviso that unscheduled works may be required after flood events.	0
	5-yearly inspection of Mary Barrage and Tinana Barrage	2015, 2020, 2025, 2030, 2035	8, 8, 8, 8, 8	Prudent and efficient	8, 8, 8, 8, 8		
Macintyre Brook WSS	Coolmunda Dam (GHD)	2012-16	587	Prudent and efficient	531	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	587
	Coolmunda Dam Gates 3, 4, 5 & 6 painting (SKM)	2012-14	204	Prudent and efficient	204		
	Whetstone Weir (GHD)	2012	48	Prudent and efficient	44	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	48

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Macintyre Brook Gauging Stations (GHD)	2014 & 2016	135	Prudent and efficient	122	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	135
	Various items (GHD)	2031, 2032, 2035	922	Prudent and efficient	834	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend. Refer to Appendix 6 of the Attachment where further information is provided.	922
Maranoa River WSS	Study: five year comprehensive dam inspection (GHD)	2015	9	Prudent and efficient	8	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	9

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Refurbish: Inspect and repair damage and corrosion (GHD)	2016	15	Prudent and efficient	14	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	15
	Refurbish: Inspect and repair damage and corrosion (GHD)	2022	20	Prudent and efficient	18	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	20
	Enhance: Spillway safety rails and sign boards (GHD)	2035	44	Prudent and efficient	40	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	44
Mareeba-Dimbulah WSS	Tinaroo Falls Dam – river outlet works dispersion valve	2012	297	Prudent and efficient	297		
	Tinaroo Falls Dam – post-tensioning of wall rock bolts	2016	87	Prudent and efficient	87		

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
Mareeba-Dimbulah Distribution	West Barron Distribution – refurbishment of bracing beams	2013	213	Insufficient information to assess prudency or efficiency	193	SunWater does not accept this arbitrary 10% adjustment. There is no evidence of systematic and endemic problems with forecasting renewals spend and Arup did not find the project either "not prudent" or "not efficient".	213
	SCADA upgrade	2012	65	Insufficient information to assess prudency or efficiency	59	SunWater does not accept the Authority's justification for adjusting this project by an arbitrary 10% because the methodology applied was the same as that applied to other projects reviewed by Arup, Halcrow and SKM and found to be prudent and efficient.	65
	Southedge Irrigation – pipeline replacement	2019	192	Insufficient information to assess prudency or efficiency	173	SunWater does not accept the Authority's justification for adjusting this project by an arbitrary 10% because the methodology applied was the same as that applied to other projects reviewed by Arup, Halcrow and SKM and found to be prudent and efficient.	192
	South Walsh Main Channel – concrete bench flume replacement (SKM)	2026	1,957	Prudent and efficient	1,957		

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
Nogoa-Mackenzie WSS	Repair spillway damage	2012	231	Prudent and efficient	231		
	Refurbish right bank outlet works (SKM)	2012	486	Prudent and efficient	486		
	Refurbish baulks	2012, 2032	24,26	Prudent and efficient	24,26		
	5-year dam inspection	2013 5-yearly	63	Prudent and efficient	63		
	Refurbish lower downstream slope of embankment	2014	40	Prudent and efficient, provided confirmed by condition assessment	40		

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Refurbish hoists (2 items)	2014, 2015 8-yearly	36,32	Prudent and efficient, but with refurbishment every 10 years rather than every 8 years	36,32	SunWater accepts there is a minimum statutory requirement to inspect cranes every 10 years and undertake identified maintenance. The 10 year interval is reflected in the SunWater asset standard. However the statutory obligation is a minimum. These particular hoists are loacated on the dam outlet works. The asset risk assessment has identified more frequent intervention at 8 years. This is consistent with the SunWater methodology that was reviewed by SKM and found to be approaching best practice.	36,32, 8 yearly
	Replace level transmitter and RTU	2014, 2027	52,53	Prudent but not efficient, deferred to 2029	35,35	Halcrow relied on outdated cost estimates taken from an outdated 2006 Operational Manual, the SAP data is more reliable.	52,52 in years 2014 and 2029
	Replace Inlet Lift Gates (3 items)	2015	81	Prudent but not efficient	25,81	Accepted	25,81
	Refurbish outlet gates (2 items)	2015, 10-yearly	160	Prudent and efficient	160		

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Refurbish metalwork	2015, 2028, 2030	52	Prudent and efficient, but with consistent life of 15 years rather than 13 years for some items (replacement in 2030)	52	Accepted	52
	Replace cables and cableways	2016	75	Prudent but insufficient information to determine efficiency	68	Accepted	68
	Replace switchboards – gatehouse and inlet tower (2 items)	2016	68	Prudent and efficient	68		
	20-year dam safety review	2018	81	Prudent and efficient	81		
	Replace Selma gatehouse Control equipment	2020, 2033	75,75	Prudent and efficient, but with asset lives of 15 years rather than 13 years	75,75	Accepted	75,75
	Replace control equipment	2012, 2027	35	Prudent and efficient	35		
	Sandblast and recoat clarifiers	2012, 10-yearly	21	Prudent and efficient	21		

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Replace control equipment	2017, 13-yearly	145	Prudent and efficient but with asset life of 15 years rather than 13 years	145	Accepted	145
	Bedford Weir outlet works gate refurbishment	2012, 2027	28, 28	Prudent but not efficient	20	Halcrow compared the SunWater's forecast with those for Fairbairn Dam but failed to understand the differences in complexity associated with the greater distance from base and site specific issue such as the existence of on site hoists (or lack of at Bedford Weir).	28,28
	Bedford Weir - Replace hydraulic system	2012, 10-yearly	180	Prudent but not efficient	130	Accepted	130, 10 yearly
Pioneer River WSS	Dumbleton Weir - replacement of control equipment (SKM)	2019	382	Prudent and efficient	382		
	Palmtree Creek Pipeline – guard valve	2013	25	Prudent, but deferred to 2020	25	Refer to Appendix 2 where justification is provided for forecast expenditure on the valve.	770
Proserpine River WSS	Guard valve refurbishment	2011	20	Prudent and efficient	20		
	Kelsey Creek Pipeline – Replacement of control equipment	2014	79^	Prudent and efficient	79		

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Peter Faust Dam – Replacement of cables and cableways (SKM)	2026	1,021	Prudent and efficient	1,021		
St George Distribution	Buckinbah Pump Station (GHD)	2012 & 2016	183	Prudent and efficient	166	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	183
	Selected channels & drains 2012-16 (GHD)	various	409	Prudent and efficient	370	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	409
	St George Pump Station (SKM)	2012-13	357	Prudent and efficient, pending verification of full replacement cost	357	Refer to Appendix 4 of this attachment.	1,900 in 2013 2,100 in 2018
	Various items beyond 2016	various	3,200	Prudent but not efficient	2,880	SunWater does not accept this arbitrary adjustment. There is no evidence of systematic and endemic problems with forecasting renewals spend.	3,200

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
St George WSS	EJ Beardmore Dam Renewals Projects 2012-16 (GHD)	Various	882	Prudent and efficient	794	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend. Refer to Appendix 7 of this attachment where further information is provided.	882
	1. EJ Beardmore Dam WTP Renewals Projects 2012-16 (GHD)	Various	101	Insufficient information to assess prudency and efficiency	91	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend	101
	Jack Taylor Renewals Projects 2012-16 (GHD)	Various	721	Prudent and efficient	650	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	721

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Reinstatement of Outlet Works for Jack Taylor Weir (SKM)	2012	282	Prudent and efficient	282	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	313
	Moolabah Weir Renewals Projects 2012-16. (GHD)	2012	250	Prudent and efficient	226	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	250
	St George WSS Renewals Projects from 2016 (GHD)	Various	13,997	Prudent and efficient	12,600	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend. Refer to Appendix 10 of this attachment where further information is provided.	13,997

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
Theodore Distribution	Gibber Gunyah Pump Station -Replace Suction Pipe Pump Number 2	2014	106	Prudent but insufficient information to determine efficiency	96	SunWater does not accept this arbitrary 10% adjustment. There is no evidence of systematic and endemic problems with forecasting renewals spend. This forecast was generated in the same way as other projects deemed efficient by Halcrow.	106
	Gibber Gunyah Pump Station -Replace Suction Pipe Pump Number 3	2015	96	Prudent but insufficient information to determine efficiency	87	SunWater does not accept this arbitrary 10% adjustment. There is no evidence of systematic and endemic problems with forecasting renewals spend. This forecast was generated in the same way as other projects deemed efficient by Halcrow.	87
	Gibber Gunyah Pump Station -Replace Submersible Pump, Flygt	2019	258	Prudent but insufficient information to determine efficiency	233	SunWater does not accept this arbitrary adjustment. There is no evidence of systematic and endemic problems with forecasting renewals spend. This forecast was generated in the same way as other projects deemed efficient by Halcrow.	258

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Theodore Drainage – Replace Structure	2033	201	Insufficient information to assess prudency and efficiency	181	SunWater does not accept this arbitrary 10% adjustment. There is no evidence of systematic and endemic problems with forecasting renewals spend. This forecast was generated in the same way as other projects deemed efficient by Halcrow.	201
	Theodore Irrigation Distribution – 11DVAXX DVAXX Replace Siphon CHD TH	2012	140	Insufficient information to assess prudency and efficiency	127	The siphon will need to be replaced and SunWater's costs estimate should be used, as Halcrow did not attempt to price the work.	140
	Theodore Pump Station – Refurbish control: replace PLC, components etc; obsolescence, reliability	2014	59	Prudent and efficient but deferred to 2019	59	Accepted	59
	Theodore Pump Station – Replace Control Equipment	2027	142	Prudent and efficient but brought forward to 2026	142	Accepted	142
	Theodore Pump Station – Replace Concrete Structure	2026	146	Prudent but insufficient information to determine efficiency	132	SunWater does not accept this arbitrary 10% adjustment. SunWater's costs estimate should be used, as Halcrow did not attempt to price the work.	146
Three Moon Creek WSS	LBT/1 12TMC03-Refurb Ladders & Platforms-Inlt	2012	11	Prudent and efficient	11		

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	LBT/2 12TMCXX Refurbish Pipework - Interior/Exterior Paint	2012 and 25 yearly thereafter	33	Prudent and efficient	33		
	LBT/3 09 TMC-STUDY: 5 Year Dam Safety	2014 and 5 yearly thereafter	15	Prudent and efficient	15		
	LBT/4 Replace Cables & Cableways (SKM)	2018	206	Prudent and efficient but deferred to 2028	206	Accepted	206
Upper Burnett WSS	Claude Wharton Weir - replace Weir Control equipment	2033	196	Insufficient information to assess prudency and efficiency	177	Accepted	177
	Claude Wharton Weir - replace hydraulic actuator	2028	301	Not prudent	0	Whilst the replacement does not fit within the timeframe and has been moved out to the standard 60 year life, the 20 yearly refurbishment to achieve the 60 year life needs to be added.	60
	Claude Wharton Weir - replace Fishlock Control Equipment	2028	207	Prudent and efficient	207		

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
Upper Condamine WSS	Leslie Dam (GHD)	various	7,133	Prudent and efficient	6,420	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	7,133
	Leslie Dam Cableway (SKM)s	2019	2,076	Not prudent	0	Accepted, but it must be noted that ongoing condition monitoring may see the project undertaken prior to SKM's projected timing of 2052.	0
	Yarramalong Pump Station (GHD)	various	4,337	Prudent and efficient	3,905	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	4,337
	Yarramalong Weir (GHD)	various	862	Prudent and efficient	777	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	862

Scheme	*Sampled Item*	*Year*	*SunWater ($'000)*	*Authority Findings*	*Recommended ($'000)*	*SunWater Responses where QCA deemed not Prudent or Efficient*	*SunWater Recommendation ($,000)*
	Nangwee Weir (GHD)	2029	85	Prudent and efficient	77	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend. Refer to Appendix 8 of this attachment where further information is provided	85
	Wando Weir (GHD)	2031	131	Prudent and efficient	118	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	131
	Leslie Dam Water Treatment Plant (GHD)	various	622	Prudent and efficient	560	SunWater does not accept this arbitrary 10% adjustment made despite the project being found to be prudent and efficient. There is no evidence of systematic and endemic problems with forecasting renewals spend.	622

Note: Where insufficient information was provided by Consultants, the Authority applied a broad efficiency gain adjustment, based on 10% of direct costs. The 10% adjustment was also applied by the QCA to items that were considered by GHD to be prudent and efficient, on the basis that GHD did not review items in detail. SunWater does not accept this arbitrary adjustment in the absence of any indication of systematic and endemic problems with SunWater's methodology for forecasting renewals.

The QCA's consultants concluded that, for several projects, there was insufficient information to assess either or both of their prudence and efficiency. In all cases, renewals forecasts were generated from SunWater's asset management system, and the methodology and assumptions (including costings) are well documented and were provided to each consultant. The QCA consultants were often not specific in documenting their concerns, and hence it has been difficult for SunWater to respond. Instead, SunWater suggests that the consultants itemise the outstanding matters or particular questions, enabling SunWater further opportunity to respond prior to the final report.

Appendix 1

SUNWATER RESPONSE TO SKM REPORT REGARDING WORKS REQUIRED AT MARIAN WEIR

SunWater has reviewed the SKM report on the above matter and wishes to provide the following comments in relation to the "prudency" aspect of the works being undertaken at Marian Weir resulting from requirements in the Water Resource (Pioneer Valley) Plan (WRP) and Pioneer Valley Resource Operations Plan (ROP). The WRP and ROP requirements are the driver of the outlet works upgrade requirement, since it arises from a statutory obligation imposed on SunWater by the regulator, the Department of Environment and Resource Management.

General

The authors of the SKM report do not appear to have a clear understanding of the Water Act 2000 and its subordinate legislation, namely the Water Resource (Pioneer Valley) Plan 2002. The Pioneer WRP includes among its provisions the requirement for the operation of the Pioneer River Water Supply Scheme to meet certain Environmental Flow Objectives (refer WRP schedule 4) in addition to the Water Allocation Security Objectives (refer WRP schedule 5). Based on the statutory requirements of the WRP, the regulator (now known as the Department of Environment and Resource Management) developed the Pioneer Valley Resource Operations Plan, through an open consultative process to which SunWater contributed as the licence holder for the scheme. Other stakeholders also contributed to this processes, including the Pioneer Valley Water Board. For an overview of this process, refer to the DERM website http://www.derm.qld.gov.au/wrp/pioneer.html

In simple terms, the various rules of the ROP ensure that the WRP provisions are implemented e.g. water sharing rules, operational rules, monitoring and reporting rules, etc.

The requirement to upgrade the outlet capacity of Marian Weir mainly arises from two sections of the ROP:

- Section 83 Operating levels of storages, and the accompanying Table 5
- Section 93 Minimum flow rates, and the accompanying Table 6

Table 6 lists minimum flow rates at 'Node A' of the Pioneer River (location at AMTD 15.5 km). This is depicted on a map in Schedule 1 of the Pioneer WRP, which may be downloaded from the following website link:

http://www.legislation.qld.gov.au/LEGISLTN/CURRENT/W/WaterRePVP02.pdf As stated in Attachment 3(a) of the ROP, Marian Weir is located at AMTD 32.0 km on the same river. Hence

'Node A' is approximately 16.5km downstream of Marian Weir and flows which are required to be achieved at Node A would have to be passed through Marian Weir.

Section 93 of the ROP covers the minimum flow rate requirement and is read in conjunction with Table 6. The third row of Table 6 refers to a minimum flow requirement in the period April- July of "greater than 500 ML/ day for at least 10 days before the end of June", provided that Teemburra Dam storage volume is greater than 73630 ML. Unless the weir is spilling (overtopping) this requirement indicates that the outlet works at Marian Weir should be able to pass a flow of 500 ML/day.

At the time the ROP first came into effect (June 2005) SunWater was unable to comply with the release requirements mandated by these two ROP sections, and accordingly negotiated an Implementation Program (June 2006) with DERM. It should be noted that, without amendment to the underlying legislation (namely the Pioneer WRP), it is not possible for SunWater to seek to avoid undertaking these works. This point is reinforced by the regulator's response to the Implementation Program in a letter to SunWater dated 7 July 2006 (attached) in which it is stated that "…SunWater needs to ensure that due priority is given to these works and aim for commissioning that it is sooner than the 2009 year outlined in (the) implementation program"

The consultant's review report gives some of the project history and while it can be seen that SunWater has not completed the work within the timeframe requested by the regulator, the requirement for its completion remains in force.

In further support of the above, SunWater would like to quote the result table from a SunWater modelling report which was undertaken in October 2007.

> Several IQQM simulations were completed to estimate the size of outlet works required to meet the WRP requirements. Table 1 shows the results of the simulations.
>
> **Table 1 – Results of Investigation**

Proposed Outlet Size	EFOs Met	WASO's Met
121 Ml/d	*	*
300 Ml/d	*	*
450 Ml/d	*	✓
500 Ml/d	✓	✓

The modelling report was undertaken "to revisit the scope of the Marian Weir outlet works upgrade and determine if an increase in capacity is warranted…" The modelling was undertaken based on the regulator's official model of the Pioneer system IQQM model, case RE37. As can be seen in the extracted section, a valve size of 500ML/d is required to meet the objectives of the Pioneer WRP, namely the Environmental Flow Objectives (EFOs) and the Water Allocation Security Objectives

(WASOs). This flow rate is similar to the minimum flow rate specified in Table 6 of the ROP. The modelling report recommendation confirms that the 500ML/d valve size is required.

Suggestions made by Pioneer Valley Water Board

On page 3 of the CAPEX review report, the author(s) mentions a suggestion made by Pioneer Valley Water Board that SunWater "surrender" part of its water access entitlement (WAE) "to replace supply reliability ….". This argument is not accepted by SunWater on the following grounds:

1. This approach is not technically feasible and would not satisfy SunWater's compliance obligation. As may be gathered from the SunWater's comments above, it is not a simple matter of replacing 'reliability lost' as the Pioneer WRP requires both environmental flow objectives (EFOs) and water allocation security objectives (WASOs) to be met. Storage volume does not equate to system yield in the simple manner as suggested by the Water Board's sample calculation.

2. the QCA's approach is counter to the Direction Notice which requires the QCA to have regard to SunWater's legitimate commercial interests, as SunWater should be free to decide how to deal with its WAE. SunWater Limited holds WAE in the Pioneer River scheme. SKM have confused SunWater's service obligations as owner of the bulk water supply scheme and holder of the resource operations license, with its legitimate commercial decisions to hold and deal with its WAE as it sees fit. SunWater should be no more obliged to consider 'surrendering' its WAE as a non-infrastructure solution, than any other WAE holder, including the customers of the Pioneer Valley Water Board. If the QCA continues to uphold the SKM recommendation, despite that recommendation being technically unworkable, it is effectively forcing SunWater to deal with its WAE in a particular manner, and blur the divide between SunWater's regulated and unregulated business activities.

3. Even if SunWater were compensated for any 'surrender' of its WAE, the valuation of those WAE will be contentious, and inevitably lead to a regulatory value being ascribed to those WAE despite them being unregulated assets. Notably, those WAE <u>are not</u> (and should not be) declared for the purpose of monopoly prices oversight, and are not assets to which the Direction Notice applies. To continue to uphold the SKM recommendation would represent an expansion of scope of regulation that clearly falls outside the QCA's remit.

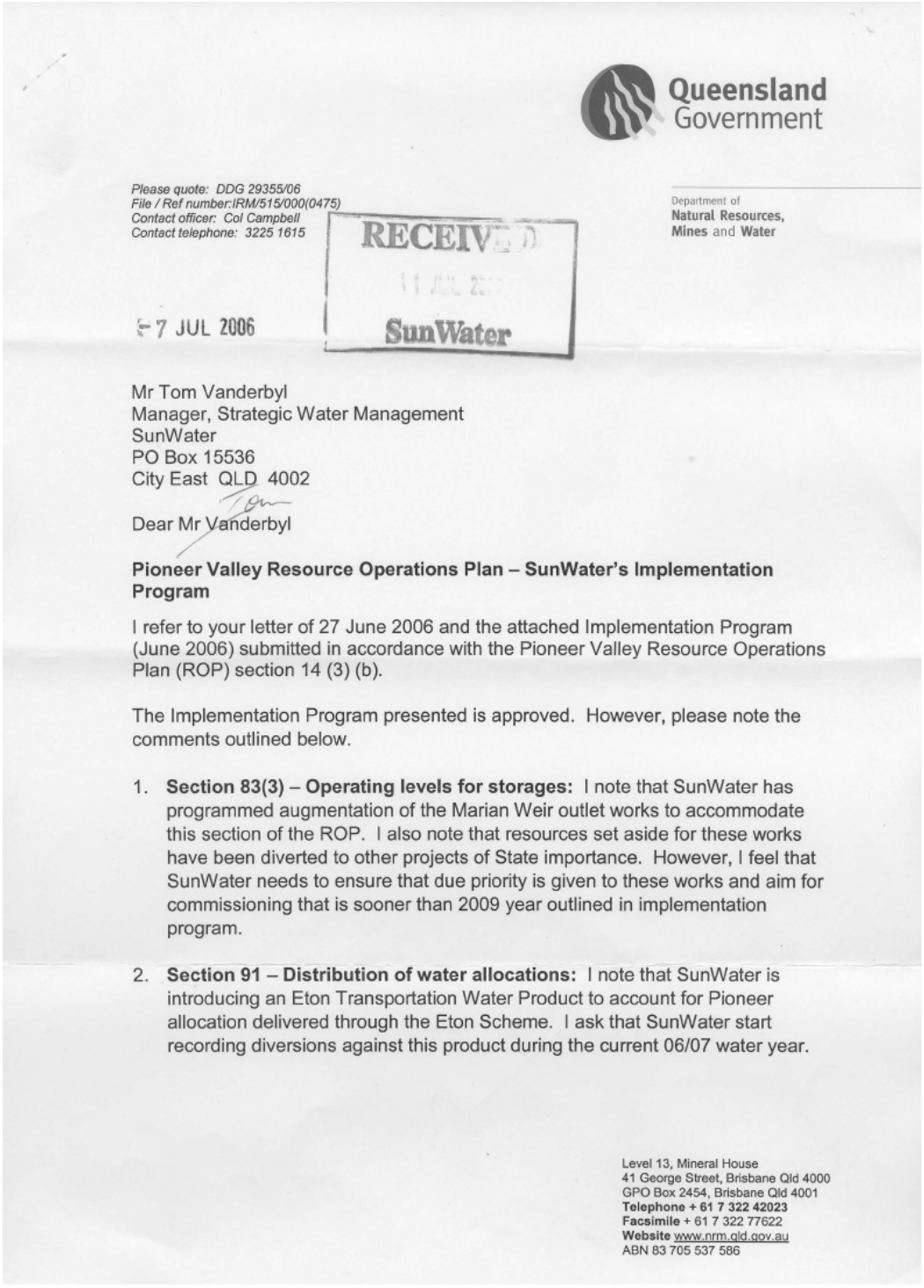
Conclusion

SunWater believes that the above response should be sufficient grounds for the report authors and or the QCA to review the conclusions contained in the review with regard to the necessity and the timing of upgrading the outlet works capacity at Marian Weir. SunWater requests the Authority review its decision to find the expenditure not prudent (and partially not efficient) and allow the past and forecast expenditure

The contract to complete the works will be awarded via tender in 2012 with final costs dependant on the contractors approach to the construction of the coffer dam. Remaining expenditure of $2.76M should be included in the renewals annuity calculation in 2012/13.

Attachment:

Correspondence from the regulator requesting priority be given to the weir upgrade project.



Queensland Government

Please quote: DDG 29355/06
File / Ref number:IRM/515/000(0475)
Contact officer: Col Campbell
Contact telephone: 3225 1615

Department of
Natural Resources,
Mines and Water

RECEIVED
11 JUL 2006
SunWater

7 JUL 2006

Mr Tom Vanderbyl
Manager, Strategic Water Management
SunWater
PO Box 15536
City East QLD 4002

Dear Mr Vanderbyl

Pioneer Valley Resource Operations Plan – SunWater's Implementation Program

I refer to your letter of 27 June 2006 and the attached Implementation Program (June 2006) submitted in accordance with the Pioneer Valley Resource Operations Plan (ROP) section 14 (3) (b).

The Implementation Program presented is approved. However, please note the comments outlined below.

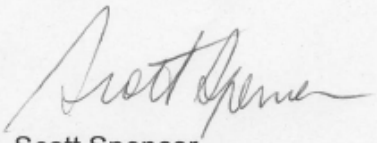
1. **Section 83(3) – Operating levels for storages:** I note that SunWater has programmed augmentation of the Marian Weir outlet works to accommodate this section of the ROP. I also note that resources set aside for these works have been diverted to other projects of State importance. However, I feel that SunWater needs to ensure that due priority is given to these works and aim for commissioning that is sooner than 2009 year outlined in implementation program.

2. **Section 91 – Distribution of water allocations:** I note that SunWater is introducing an Eton Transportation Water Product to account for Pioneer allocation delivered through the Eton Scheme. I ask that SunWater start recording diversions against this product during the current 06/07 water year.

Level 13, Mineral House
41 George Street, Brisbane Qld 4000
GPO Box 2454, Brisbane Qld 4001
Telephone + 61 7 322 42023
Facsimile + 61 7 322 77622
Website www.nrm.qld.gov.au
ABN 83 705 537 586

If you wish to discuss any item further, please contact Mr Gary Luck, Principal Project Officer, Water Planning, Central West Region by telephone on 4967 0974.

Yours sincerely



Scott Spencer
Deputy Director-General
Water and Sustainable Landscapes

Appendix 2

SUNWATER SUBMISSION REGARDING FURTHER WORKS TO PALM TREE CREEK VALVE – PIONEER WATER SUPPLY SCHEME

The purpose of this paper is to provide the QCA with justification for allowing further expenditure on the Palm Tree Creek valve replacement project. The Authority and its consultants have previously raised a number of issues regarding future expenditure on the project and these are addressed in this paper. The diagram towards the end of this paper shows the preferred solution identified through options analysis and the project will shortly proceed to detailed design phase.

Background

There has been a history of problems associated with the Palm Tree Creek outlet regulating valves as highlighted in SKM's review of past renewals expenditure.

Given the long history of difficulty, an internal multidisciplinary engineering team was established to undertake a detailed investigation into the cause of the failures, and to recommend solution options for the pipeline and valve continuing operations.

This work has now been completed, and has been peer reviewed by industry specialists. Consultation has been ongoing with the Pioneer Valley Water Co-operative.

The Engineering problem described

The engineering challenge for this project is to effectively manage the high energy generated by the dynamics of the pipeline system. The Palm Tree Creek pipeline is 1.9km in length and falls approximately 183m. The pipeline was designed for a flow rate three times more than that required for the Palm Tree Creek outlets current operating needs. The energy contained in the Glenfield valve which currently exits through four water jets is approximately 4.4MW.

At the valve the water jets exit with very high velocities through ports. As a design principle, the smaller the port the higher the velocity. In this case the exit velocity is in the order of 50m/s.

The velocity of the jets slows as it loses concentration (dissipates) through the outlet chamber that is full of water. The reduced velocity jets strike the chamber walls at about 14m/s. Because there is a lot of energy (1.1MW) contained in each narrow water jet impacting on a small surface area, this causes the vibration within the chamber walls. Similar to a drumstick beating a drum. This vibration permeates the discharge chamber causing stress to the metal components, especially the welded joints.

This velocity induced vibration is the root cause of the premature failures of the Kvaerner and Glenfield valves used in the past.

ENGINEERING SOLUTION DESCRIBED

The energy contained within a jet of water is a function of the velocity squared. In other words should the water jet velocity double then the energy in that jet increases four-fold.

As a rule of thumb, the recommended design velocity of water in a cement lined pipe is limited to a maximum of 6m/s. The velocities as described above are certain to generate problems within any system.

The engineering challenge is managing the energy concentrated through a small number of high energy jets. The approach therefore is to change the dynamics of the problem. The most efficient answer is to increase the total area of the exit ports the water must pass through, thereby reducing the exit velocities. If the number of jets is increased significantly and also point in all directions (dispersed more uniformly) around the chamber then the velocities can be reduced to more acceptable levels.

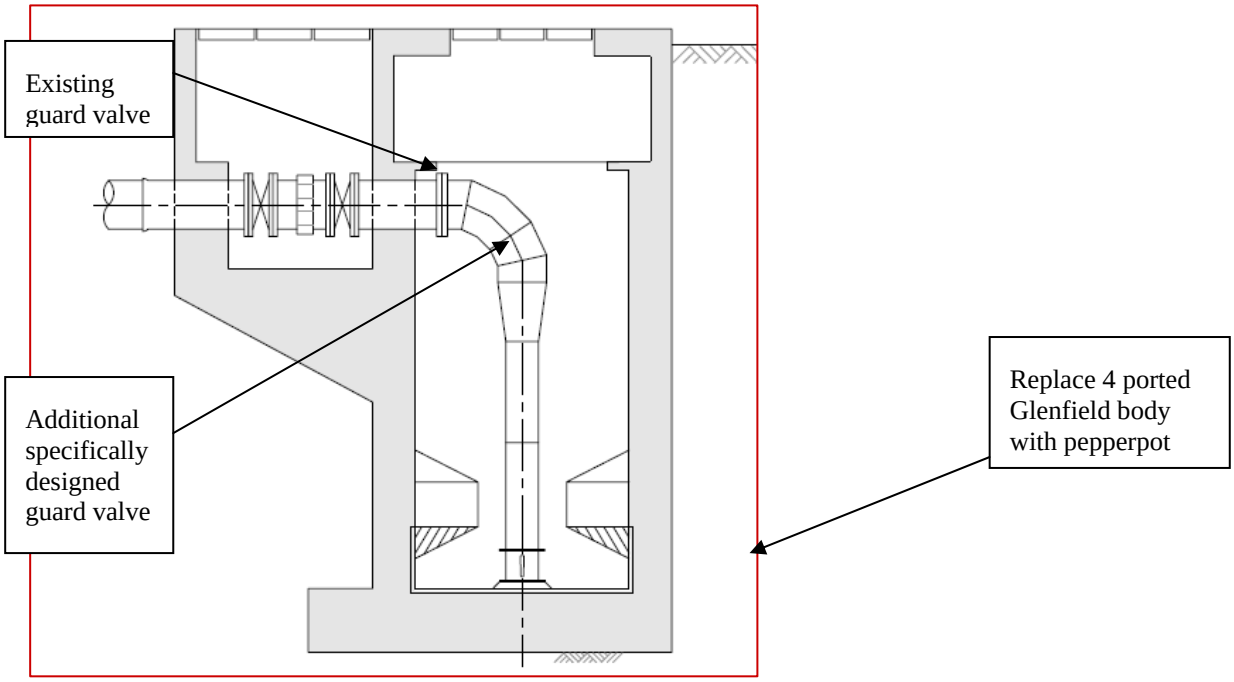
If these 2 elements are incorporated into a new design, then the resultant forces applied to the chamber walls per unit area will be reduced and the level of vibration significantly moderated.

The second source vulnerability in the design of the previous valves is the existence of moving parts and welded seams. Therefore an optimum solution should seek to eliminate these aspects.

Recommended engineering option

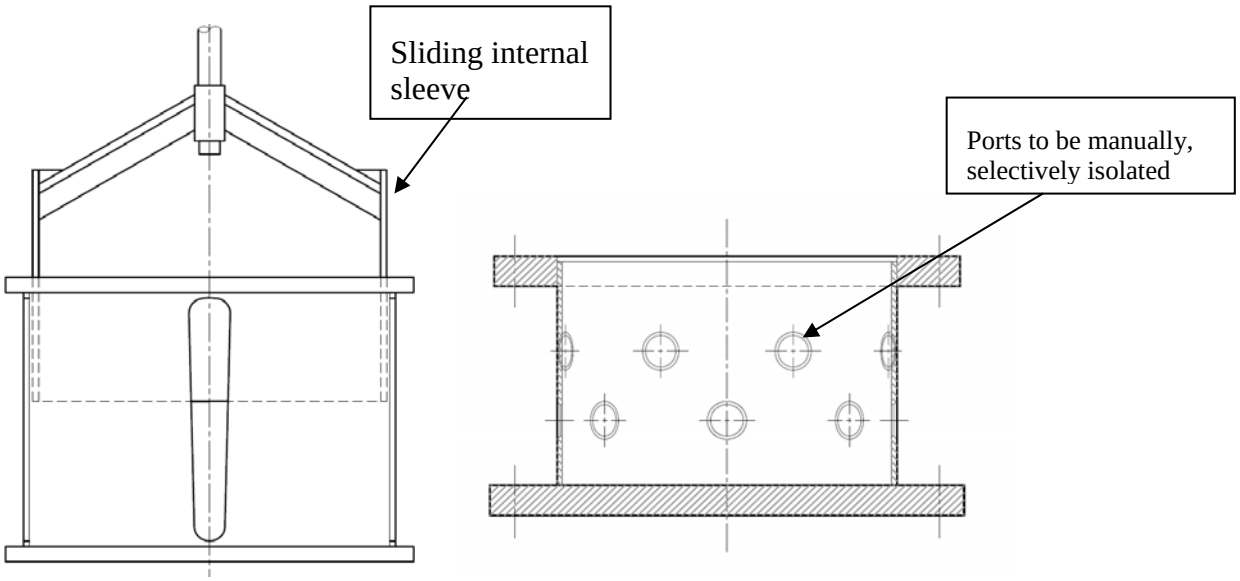
The recommended option is to install fixed 'pepperpot' ported spool in combination with an additional guard valve into the pipeline as preferred to resolve the issues.

With the existing temporary pepperpot, the releases are started by opening the existing guard valve in a mode for which it was not designed. The proposed second guard valve will be specifically designed for the purpose, thereby ensuring the integrity of the guard valve and the pipeline are maintained. The guard valve will operate in the fully open or fully closed position.



A new fixed 'pepperpot' ported spool device will be fabricated and installed at the bottom of the dissipation pit. This will enable limited incremental flow adjustment to be achieved by way of closing off selected ports, providing four possible flow rates of 50, 100, 150 or 200ML/d.

The pepperpot arrangement diffuses the concentrated powerful water jets impacting the chamber walls (~6m/s compared to ~14m/s) and will result in a greatly reduced level of vibration. By halving the velocity the kinetic energy is reduced to a quarter. The pepperpot also distributes the jets all around the chamber instead of four powerful jets targeted to the corners.



Existing Glenfield 4 ported body Proposed pepperpot arrangement

(Drawings not to the same scale)

Operational Considerations

Two 'pepperpot' spools have been used to date to deliver water from the pipeline at flow rates of 100ML/d and 150ML/d.

The disadvantage of the pepperpot is that adjustment of flow is achieved only in a limited number of discreet steps and the adjustment is a manual process. The infrequent operational changes to the flow rate require the pit to be pumped dry, this can take up to 8 hours to achieve. It is not envisaged that these changes would be required more than a few times a year.

Installation of the second valve has two major benefits. The valve provides an effective double isolation point for the outlet works and allows PVWC to continue using water without interruption should work be required within the outlet chamber. PVWC strongly support this enhancement.

SunWater also has specific requirements regarding releases to satisfy demands or fill downstream weirs within its resource operating license. A letter has been sent to DERM in December 2010 seeking approval to proceed with this arrangement. Although we have not yet received a response, it is not anticipated that DERM will be concerned with the proposal.

Project cost and timing

The current cost estimate to complete the project is $770k. The estimate is in addition to the cost to date. The cost estimate will be refined following the detailed design and procurement phases. Stages still to follow are detailed design, procurement, supply and installation and commissioning.

The time frame to complete this project is approximately 6 months from January 2012.

Conclusion

The project to replace the guard valve and reconfigure the submerged dissipater system at Palmtree Creek outlet works is considered prudent to overcome deficiencies that have potential safety implications:

1. The two valves that were previously used in this application were unsuitable due to the high energy that was being dissipated that caused extreme vibration within the chamber. A sudden uncontrolled closure of the valve would potentially cause the pipe to rupture
2. The guard valve was not capable of closing under 'open pipe flow conditions'.

By utilising the proposed arrangement in the chamber that has no moving parts allowing the energy to be widely distributed thereby reducing the level of vibration to an acceptable level and thus avoiding potentially serious consequences.

The guard valve needed to be replaced to cater for the higher duty and to allow people to work within the chamber whilst the pipe in front of the valve was full and allows Pioneer Valley Water to continue taking water simultaneously.

For this project it was very important to have a reliable robust solution that was peer reviewed by recognised experts within water-hammer and high head pipeline systems similar to ours.

The proposed engineering solution is simple, the technology is well understood and it will eliminate moving parts and welds. It can also be described as a low cost solution compared with all the other options considered.

The proposed solution has been peer reviewed, and independently endorsed.

The only disadvantage to the proposed design is that adjustment to flow is limited and will be a manual task. However the frequency of flow changes is low and it can be completed in a safe manner, typically less than 8 hours.

The proposed solution has been discussed with the PVWC, and they are supportive of the arrangement.

SunWater requests that the QCA allow the expenditure on the proposed solution in the renewals profile for the scheme.

Appendix 3

SKM'S ASSESSMENT OF WHETSTONE WEIR PAST EXPENDITURE

A.1 Whetstone Weir – Refurbishment

This sub-report should be read in conjunction with SKM's main report entitled: SunWater Price Regulation: Review of Selected Annuity Values for Refurbishment and Replacement items.

This sub-report is also subject to the limitation statement provided in the above mentioned report.

A.1.1 Introduction

This project concerns the refurbishment of the Whetstone Weir by concrete capping the timber structure, concrete works to the banks, driving a steel pile curtain upstream of the timber weir structure and replacing the outlet works. The Whetstone Weir was constructed in 1949 as a timber crib weir. With the completion of the Coolmunda Dam in 1972 an asset management decision was made to let it run to failure resulting in no maintenance scheduled from thereon.

The drought that the surrounding area experienced in the 90's highlighted the value of this weir and its use to be managed as part of the McIntyre Brook Water Supply Scheme. The weir was by that time in a rundown condition and SunWater commissioned a Structural Stability Analysis and Inspection in 2004/2005 to determine the structural capacity, condition of the weir and make recommendations as to the suitability for being refurbished.

This review concerns a review of costs incurred between 2007 and 2011, specifically it comments on the prudency and efficiency of the costs associated with the refurbishment of the various components of the weir.

A.1.2 Available Information

This sub-report has been prepared by accessing and viewing SunWater's SAP Works Management System (WMS), and asset condition and risk assessment policy and procedures. Please refer to the body of the main report for a more detailed description of these information sources.

In addition, the following information was available for this review:

1) 1116524 V1 Whetstone Weir Refurbishment Document prepared by SunWater. The document contains the following Appendices:

- Project Brief – Whetstone Weir –Analysis of Structural Stability
- Structural Stability Analysis and Inspection Report
- Memo requesting additional funding – July 2005
- Business Case – Modernisation of SunWater Infrastructure in the Murray Darling basin – December 2008
- Memo requesting additional funds for cost escalation – June 2009
- Request for approval of expanded project to SunWater Board.
- SAP Governance Records
- Revised costed SAP PM asset list for the refurbished weir

A.1.3 Prudency Review

Project History

A brief history of the project, showing the cash flow, is presented in the table below:

Table 1 Project History with Cash Flow

No.	Date	Description	Budget ($)	Actual Cost to Date ($)
1	July 2005	Adds Project to 07/08 Program of Works (Estimated Cost) after completing a structural stability analysis and inspection.	600,000 – Original Allowed (Not included in Total)	
2	June 2007	Complete Detail design of Weir Refurbishment	45,000	41,484
3	Jun 2007	Update Cost Estimate for Weir Refurbishment (Includes for Steel piling and main wall capping) – Included in the Annuity Value	799,064	
4	07/08	Expenditure		
4.1		Procure Steel Piling		368,753
4.2		SunWater Construction Monitoring Cost		21,751
4.3		SunWater Procurement Cost[1]		27,864
4.4		Additional Design Works		7,748
5	08/09	Expenditure		
5.1		Installation of Steel Piling		117,555

No.	Date	Description	Budget ($)	Actual Cost to Date ($)
5.2		Concrete capping of Weir (Estimated at 60% complete at end of fiscal year)		463,177
5.3		SunWater Construction Monitoring Cost		108,048
5.4		SunWater Procurement Cost[1]		6,393
5.5		Sundry Cost[2]		(37,623)
6	June 2009	Memorandum requesting approval for over expenditure (Current Commitments)	276,000	
7	July 2009	Request for approval of additional funds to complete concrete works and to refurbishing the outlet works	1,230,000	
8	09/10	Expenditure		
8.1		Final 40% of concrete capping of weir		216,401
8.2		SunWater Construction Monitoring Cost		87,306
8.3		Outlet Works		425,822
8.4		Design and Drafting		9,968
9	10/11	Expenditure		
9.1		Drafting (SunWater)		2,748
10		Total	2,350,064	1,867,395

1 From the cash flow presented the procurement cost is assumed to be attributed to both procuring the steel piling and getting a Contractor on site by July 2008.

2 A total of $43,687 was back charged in 2008/09, predominantly associated to the design of the capping of the weir.

From the above table it can be seen that the project cost at completion is $1,867,395 and that this value is more than double of the annuity value submitted for the 2007/2008 fiscal year (being $799,064). The documentation that SunWater has provided to SKM details some of the factors that contributed to the final project cost being more than double the original annuity value. The sections below will detail the relevant contributing factors.

Asset Replacement/Refurbishment Date Determination

The processes by which SunWater determines a replacement/refurbishment date for an annuity item is described and discussed in the main body of this report.

SunWater commissioned a structural stability analysis of the weir in 2005. The findings of the site inspection and discussions with the Operations Personnel highlighted the fact that in the five years preceding 2005 the weir had two separate incidents of piping (circular breaches in the wall). The piping was detected by vortices that formed in the storage. The last, of the two, occasions required 60 m^3 of fine sand/gravel material on the upstream side to stop the piping.

The Structural Stability Analysis & Inspection Report, dated May 2005, prepared states the following: "*The weir is in a poor state of repair and is considered to have a limited remaining service life unless significant refurbishment work is undertaken.*" The report goes further to recommend the following: "*There is an urgent need for a study to prepare conceptual designs and estimates for refurbishing the weir"*

On these recommendations SunWater commissioned the design of the weir refurbishment. The design commenced in February 2007.

No SAP records have been presented to us recording neither any condition assessments nor the asset risk. We have made use of the Structural Analysis and Investigation Report to draw conclusions to the asset condition and asset risk. Based on a condition rating of 5 (Major deterioration such that the asset is virtually inoperable) and the decision to not let the weir run to failure, according to SunWater's Policies and Procedures, we consider it was due for replacement or refurbishment.

In our review of the information presented to us, we consider that SunWater has followed the policies and procedures that it has in place, although the standard document trail was not viewed.

Options Evaluation

This review specifically focuses on the costs incurred between 2007 and 2011 associated with the refurbishment of the Whetstone Weir.

In accordance with SunWater's Policies and Procedures the Whetstone Weir was due for refurbishment. SunWater did not present to us any other options that they may have investigated as part of the design process. We consider the option of installing a concrete capping over the top of the timber crib wall and providing a steel cut-off wall on the upstream side to be an appropriate solution. It is to note that the Outlet Works did not form part of the original scope.

Timing of Renewal/Refurbishment

The timing of the replacement was driven by the recommendations and findings of the Structural Stability Analysis and Inspection Report and the requirement of water users to be able to make use of the weir. On the assumption that the maximum asset condition score is 5 (Major deterioration such that the asset is virtually inoperable) has been reached and the change of the asset management plan for the weir to not let it run to failure, we therefore consider the timing of this refurbishment to have been prudent.

Conclusion on Prudency Evaluation

We conclude that although SunWater did not present us with the documentation as required by their Policy and Procedures that the reports and other information presented support the case in evaluating the prudency and timing of the project. We consider that it was prudent to undertake this project. It is also considered to have taken place in a timely manner.

A.1.4 Efficiency Evaluation

Renewal/Replacement Project Cost Evaluation

Based on documentation provided and summarized in Table 1 above, we understand that approximately $1,867,000 has been spent to date since 2007 on the refurbishment of the Whetstone Weir.

From Table 1 it can be seen that the original annuity value was a mere $799,064 compared to the final cost of $1,876,000 more than double the original value. In our review of the documents presented by SunWater we have come to the conclusion that some of the attributing factors to the escalating cost can be ascribed to the following:

- The original budget included for only the Contractors cost and not for the indirect cost incurred by SunWater. For future projects SunWater allows between 38% and 45% of the contractors cost to cover indirect costs.
- The budget included for only the concrete capping and steel piling component. No allowance was made for the outlet works refurbishment.
- Rise in material cost.
- Additional cost associated with a contractor not performing and not having leverage from a contractual aspect.

The above attributing factors will be discussed in more detail in the sections following.

The total spent by component is presented in the table below as well as our cost estimate per component, based on 2011 rates, to use as reference.

Table 2 Cost Breakdown by Component and SKM Estimated Cost

No.	Description	Total ($)	SKM Cost Estimate (2011 Base Year)	Difference from SKM Estimate (%)
1	SunWater Overheads and Labour Component[1]		448,442	-39%
1.1	Procurement	34,257		
1.2	Construction Monitoring	217,105		
1.3	Design and Drafting	24,325		
2	Contractor Construction Cost by Component			
2.1	Concrete Capping	679,578	635,640	+7
2.2	Steel Piling	486,308	386,093	+26
2.3	Outlet Works[2]	425,822	430,628	-1.1
3	**Total**	**1,867,395**	**1,875,608**	**-0.4**

1 Our cost estimate is based on 45% of the construction cost of the concrete capping and steel piling component

2 Our cost estimate is based on the SunWater valuation contained in SAP. The scope of work in regard to the outlet works could not be determined.

From the above table it can be seen that the overheads and internal labour cost of SunWater is only 23.6% of the construction cost. This figure is roughly half of the figure used for costing purposes. For costing of future projects SunWater makes use of a figure between 38% and 53% to make provision for indirect cost. Our cost model allowed for the median of 45%.

The SunWater Construction Monitoring cost for the steel piling component is only 6% of the components construction cost; this is considerably less than the 25% attributed to construction monitoring for the concrete capping component. SunWater documentation states the following: "*...due to the transition of the majority of the Ipswich SunWater staff to SEQ Water in June 2008, external labour and project managers had to be sourced."* This is considered to be one of the attributing factors to the jump in cost as a percentage of the overall. Other factors include, but not limited to, that more time was spent on site by SunWater Site Monitoring Staff and that unaccounted time was spent on construction monitoring using internal staff for the steel piling project.

The total cost incurred on the project excludes the original design fees. Refer to Note 2 of Table 1 above. The design and drafting cost, Item 1.3, shown in Table 2 above includes for remedial works design and drafting of the "As-constructed" details.

The steel piling cost estimate prepared by us is based on driving 12 metre lengths of 74.0 kg/m steel sheet piles to the back of the weir for the full crest length of 56.7 metres and allowing 17% for the Contractors Preliminary and General Items. The steel piling component actual cost is within our level 4 estimating range of +30%/-20%. The additional cost can partly be attributed to the following issue, as described in the documentation made available to us: "*Significant delays were experienced in the driving of the sheet piling, due to on site conditions, inadequate hammer size and inexperience of the driving contractor", "...agreed that a larger driving hammer would be sourced" and "The Contractor agreed to pass on actual costs only for the additional hammer hire and transportation"* The actual cost passed on to SunWater consist of the following, as referenced in the documentation:

- Additional hire of pumps and diesel - $45,000, and
- Additional Contract Labour, accommodation and travel costs of $85,000 due to the extended contract duration and loss of internal labour.
- Rise in Steel Cost - $90,000. A 40% rise of steel prices within two years

The above figures can be attributed to a contract that did not protect the interest of SunWater.

The SunWater documentation made a recommendation to revise the contract conditions to include clauses that will protect its interest. The following aspects were not documented within the contract documentation and are proposed to be included in future contracts:

- Contractor's experience level or performance results, being able to terminate the contract should the contractor fail to attain set performance results,
- Extended timeframes to completion, being more clear on what grounds an extension of time would be warranted,
- Penalty clauses for late completion, and
- Having a provision that no additional cost would be incurred by SunWater due to late completion attributed to the contractor's fault.

The additional cost incurred for the pump hire and diesel is considered to be not efficient. The concrete capping contractor made use of a siphon to transfer the flow instead of diesel pump/s. This can be ascribed to the inexperience of the contractor.

SunWater did not provide us with a cost breakdown for the Outlet Works. We are therefore unable to provide comments on the makeup of the cost. It is to be noted that the assumption has been made that the cost submitted include for SunWater's indirect cost and design cost components.

The overall cost of the works is within range of our cost estimate and we therefore consider it to be efficient. There are inefficient aspects of the project, as detailed above but these are not considered material when the project is viewed as a whole. It is important to note that the deficiency within the contract document is to be appropriately addressed to limit the risk to SunWater's future projects.

Conclusion on Efficiency Evaluation

We conclude that the overall costs are within range of our cost estimate and we therefore consider that the overall cost is efficient, based on the information to our disposal.

A.1.5 Summary and Conclusions

We consider that the refurbishment of the weir was prudent and timely.

We consider the overall cost of the refurbishment to be efficient, based on the information to our disposal.

Appendix 4

FURTHER WORKS TO ST GEORGE PUMPSTATION

The Authority's report (p4) states:

> *St George pump station – the suction lines to the St George pump station are severely corroded and approaching the end of their economic life. A staged replacement for the pump station is proposed. The initial stage will be to construct a wet well with temporary suction lines to the existing dry well. Detailed scoping and designs have not yet been prepared. However initial estimates indicate a cost in the vicinity of $3,000,000, equivalent to an increase in the renewals annuity by $200,000 to $300,000 per annum.*
>
> *The renewals program includes expenditure on investigation for the refurbishment of these pump stations. The timing and cost of the replacement is dependent on the outcome of the investigation and consultation with customers.*

SunWater has been progressing the scoping of the replacement. It is clear that the suction lines have reached the end of their serviceable life. There is significant corrosion of the pipes and the pumps are likely to suck air if the storage on Jack Taylor weir is low. Also the timber structure supporting the suction pipes has been assessed by divers as requiring replacement. SunWater has undertaken a number of options analyses.

The like for like replacement of the suction lines is not representative of the minimum life cycle cost. The most cost effective solution is to plan to replace the pump station in two stages. The first stage will be the replacement of the suction lines whilst making provision for a future submersible pump station. This first stage is considered urgent and will proceed from 2012-13 at an estimated cost of $1.9M. Stage 2 will be the eventual replacement of the existing pumps with submersible units whilst using the existing pump station as the control building. Stage 2 is estimated to cost $2.1M.

The timing of stage 2 will be dependent on the future performance and condition of the existing pumps. The best estimated timing for stage 2 is for 2018, however SunWater will engage a specialist contractor to undertake a full internal inspection and condition assessment of the pumps before finalisation of the timing. Customers will need to be aware that given the current age of the pumps there is a significant risk that one or more pumps may fail in service before they are replaced. If this were to occur then there would be a lead time of some months whilst a new pump is procured and installed. Only restricted supplies would be available during this time.

SunWater requests that the above expenditure be included in the renewals annuity calculation for the St George distribution system.

Appendix 5 PROJECT DETAILS - Leslie Dam – Painting of the conduits

Name	Leslie Dam – Painting of LHS 914mm river conduits	**Scheme**	Upper Condamine WSS
Project Number	IPS07UCO08	**Drivers**	

PROJECT EXPENDITURE PROFILE

2007
74,000

PROJECT DESCRIPTION

This project involved the sand blasting and painting large diameter pipes, and removing and replacing a 500mm diameter manhole.

NEED FOR PROJECT

Painting of this conduit is required to maintain the structural integrity and operability of the pipeline. The paint protects the steel pipeline from corrosion. The works to replace the manhole were required to allow safe access and egress.

PRUDENCE ASSESSMENT

There is a clear need for these works. Painting protects the steel pipeline and extends it useful life. The manhole is required for safe access.

SOLUTION AND COST DEVELOPMENT

Option development

Painting is an essential maintenance activity to prevent corrosion. There are no acceptable alternatives other than allowing the pipeline to corrode and be replaced.

Standards

The paint used was Jotamastic 87 which has been assessed by SunWater as the most appropriate for this application. This product is approved under the Australian Paint Approval Scheme (APAS) which is the Australian Standard developed by CSIRO.

Cost development

SunWater's procurement processes were applied. This required procurement on a competitive basis.

EFFICIENCY ASSESSMENT

The installed solution satisfies the QCA's criteria for efficiency.

SUMMARY

Based on the evidence detailed, this expenditure satisfies the QCA's criteria for prudence and efficiency and therefore no adjustment to the historical expenditure can be justified.

Appendix 6: PROJECT DETAILS – Various items (at Coolmunda Dam in 2031, 2032, 2035)

Name	Various items (at Coolmunda Dam in 2031, 2032, 2035)	**Scheme**	Macintyre Brook WSS
Project Number	Various	**Drivers**	Condition and risk assessments; WoL maintenance plans

PROJECT EXPENDITURE PROFILE

Past 2031 ($k)
922

PROJECT DESCRIPTION

This item is a collection of numerous individual works to replace or refurbish assets at Coolmunda Dam. The main components are:

- 11MAB01 REFUBISH D/S GATE FACE $158k 2031
- 13MABXX PAINT BULKHEADS/ REPLACE SEALS $130k 2031
- 12MABXX INSTALL BUOY LINE $152k 2032
- 14MABXX REPAINT ALL U/SAND D/S FACES $104k
- Replace Pipework $378k 2035

The project code (e.g. 11MAB01) in front of each item demonstrates that the proposed expenditure is based on projects that have been confirmed as being required, with this expenditure being rolled forward based on refurbishment/replacement life. For example the refurbishment of the downstream gate face (11MAB01) is a project that was completed in 2011/12, as recorded in SAP. Under SunWater's Whole of Life Maintenance Plan these works have a 20 year refurbishment life and therefore have been scheduled for 2031, 20 years later.

NEED FOR PROJECT

These refurbishment and replacement works are required to maintain assets in working condition and thereby maintain service.

PRUDENCE ASSESSMENT

The GHD report notes that there is insufficient information to complete a detailed analysis of the expenditure and therefore determine whether the works are prudent or otherwise.
However, these works are cyclic refurbishments and replacements that have been scheduled using SunWater's Whole of Life Maintenance Plan. While age has been used as the basis for scheduling, the assets will be inspected and Condition Assessed routinely (typically every 1-5years). Therefore, the timing will be revisited before the expenditure is committed for these works.
The proposed works are prudent as there is a clear need for them to maintain service. The timing is based on an appropriate age based approach which will be refined with condition assessment prior to the expenditure being committed (in 20 years time).
The corresponding works proposed for 2011 – 2014 have not been questioned, therefore it is surprising that these works have been questioned.

SOLUTION AND COST DEVELOPMENT

Option development

For these works, planned refurbishment or like for like replacement are the only possible alternatives.

Standards
The works planned will satisfy relevant Australian Standards.
Cost development
SunWater's procurement processes will be applied which will ensure that these assets are procured on a competitive basis. The allowed costs are based on actual costs of similar projects.

EFFICIENCY ASSESSMENT

The proposed solution satisfies the QCA's criteria for efficiency. Therefore, the project cost is efficient.

SUMMARY

Based on the evidence detailed, this expenditure satisfies the QCA's criteria for prudence and efficiency and therefore no adjustment to the proposed expenditure can be justified. The GHD investigation failed to recognise that this expenditure is cyclical refurbishment and replacement of works recently completed or planned for the next few years.

Appendix 7 PROJECT DETAILS – EJ Beardmore Dam Renewals Projects 2012-16

Name	EJ Beardmore Dam Renewals Projects 2012-16	**Scheme**	St George WSS
Project Number	Various	**Drivers**	Condition and risk assessments; regulatory compliance

PROJECT EXPENDITURE PROFILE

Past 2031 ($k)
882

PROJECT DESCRIPTION

This item is a collection of numerous individual works to replace or refurbish assets at E.J. Beardmore Dam. The main components are:

- 12SGAXX Replace Gate $217k 2013
- Refurbish: Upstream Face full paint and CP maintenance $150k 2016
- 13SGAXX Study: 5yr Dam Safety Inspection Compliance $88k 2013

The works include replacement, refurbishment and inspections.

NEED FOR PROJECT

Gates are required to maintain the functionality of the dam. These assets are refurbished but must be replaced at the end of their useful life.
Dam Safety Inspections are required to be undertaken at given frequencies as specified by DERM.

PRUDENCE ASSESSMENT

SunWater has undertaken condition assessments of all gates at E.J. Beardmore Dam in 2009 and 2010. This condition information has been used to schedule the refurbishment and replacement works. Therefore, there is a clear need for the works to maintain service, and the timing is prudent based on condition assessment.
The Safety Inspection is prudent as SunWater must meet the requirements of DERM as the safety regulator.

SOLUTION AND COST DEVELOPMENT

Option development

For the gate works, planned refurbishment or like for like replacement are the only possible alternatives. These are custom made items.
For the Dam Safety inspections, the scope is determined by DERM (as per condition DS11 of the Dam Safety condition schedules).

Standards

The refurbishment and replacement works planned will satisfy relevant Australian Standards.
The Safety Inspection is in accordance with the relevant standard, the Dam Safety condition schedule.

Cost development

SunWater's procurement processes will be applied which will ensure that these assets are procured on a competitive basis. The allowed costs are based on actual costs of similar projects. Costs for replacement items have been based on an asset revaluation undertaken by Cardno during 2008.

EFFICIENCY ASSESSMENT

The proposed solution satisfies the QCA's criteria for efficiency. Therefore, the project cost is efficient.

SUMMARY

Based on the evidence detailed, this expenditure satisfies the QCA's criteria for prudence and efficiency and therefore no adjustment to the proposed expenditure can be justified. The Safety inspection is required by DERM. Other consultant have review SunWater's dam safety inspection costs and found them prudent and efficient. The replacement and refurbishment works are scheduled based on Condition Assessment.

Appendix 8: PROJECT DETAILS – Nangwee Weir – Various Projects (various)

Name	**Nangwee Weir – Various Projects**	**Scheme**	Upper Condamine WSS
Project Number	TBA	**Drivers**	Condition and risk assessments; asset age

PROJECT EXPENDITURE PROFILE

Various
85K

PROJECT DESCRIPTION

The various items are:

2014	$7429	Refurbish: regrade Road in easement and accross top of Weir.
2017	$4000	Study: WEIR PROGRAM - 5 Year Comprehensive inspection
2017	$10557	Replace Outlet Gate
2019	$464	Replace Sign, 900Mm X 1200Mm Safety
2019	$464	Replace Sign, 900Mm X 1200Mm Safety
2022	$4000	Study: WEIR PROGRAM - 5 Year Comprehensive inspection
2027	$4000	Study: WEIR PROGRAM - 5 Year Comprehensive inspection
2029	$44384	Replace Access Road
2032	$4000	Study: WEIR PROGRAM - 5 Year Comprehensive inspection
2037	$4000	Study: WEIR PROGRAM - 5 Year Comprehensive inspection
2039	$7429	Refurbish: regrade Road in easement and across top of Weir.
2042	$4000	Study: WEIR PROGRAM - 5 Year Comprehensive inspection

NEED FOR PROJECT

The inspections permit SunWater's asset management team to plan non-routine maintenance based on the findings of the engineering report produced by the inspection team. This ensures that the weir is kept in optimal condition.
A fully functioning outlet gate is required to regulate releases from the weir in accordance with operating requirements.
The access road replacement is required maintain access to the weir.

PRUDENCE ASSESSMENT

The comprehensive inspections allow SunWater to monitor and assess the condition of the weir which permits their engineers to plan non-routine maintenance. A condition and risk assessment of the outlet gate in 2009 indicated that the gate is difficult to operate and seals badly (poor condition) but when combined with its low risk assessment, replacement in 2017 is deemed to be prudent.

SOLUTION AND COST DEVELOPMENT

Option development
An options analysis/condition assessment will be performed prior to the scheduled replacement date to ascertain the scope and cost of works to be performed.
Standards
The refurbishment and replacement works planned will satisfy relevant Electrical standards and SunWater standards.
Cost development
SunWater's procurement processes will be applied which will ensure that the materials required will be procured on a competitive basis. The cost of the gate replacement is efficient as it has been adjusted based on the 2008 Cardno revaluation ($7,200), with indirect costs (46.62%) added.

EFFICIENCY ASSESSMENT

The proposed solution satisfies the QCA's criteria for efficiency. Therefore, the project cost is efficient.

SUMMARY

Based on the evidence detailed, this expenditure satisfies the QCA's criteria for prudence and efficiency and therefore no adjustment to the proposed expenditure can be justified.

Appendix 9: PROJECT DETAILS – Thuraggi Outlet Modification

Name	Thuraggi Outlet Modification	**Scheme**	St George WSS
Project Number	07SGA27	**Drivers**	

PROJECT EXPENDITURE PROFILE

2007
59,000

PROJECT DESCRIPTION

This project involved modifications to the Thuraggi watercourse to allow it to accept flows from the Beardmore Dam low level pump station. The works included extension of the inlet by 3m, construction of a 5.7m long lip and installation of two gates.

NEED FOR PROJECT

A number of dam safety inspections had identified sand boils downstream of the Thuraggi outlet structure. This was an indication of internal erosion processes and represented a dam safety concern. This project addressed this erosion issue and was required to protect the structure and maintain service.

PRUDENCE ASSESSMENT

This work is justified by the need to maintain the operability of the gate and therefore is prudent.

SOLUTION AND COST DEVELOPMENT

Option development

The installed solution was designed by SunWater's Engineering Services team (now Infrastructure Development). The design was approved by the Chief Design Engineer who is an RPEQ. This provides confidence that the best solution was adopted.

Standards

The design was completed to relevant Australian Standards and approved by an RPEQ.

Cost development

SunWater's procurement processes were applied. This required procurement on a competitive basis.

EFFICIENCY ASSESSMENT

The installed solution satisfies the QCA's three criteria for efficiency. Therefore, the project cost is efficient.

SUMMARY

Based on the evidence detailed, this expenditure satisfies the QCA's criteria for prudence and efficiency and therefore no adjustment to the historical expenditure can be justified.

Appendix 10: PROJECT DETAILS – St George WSS Renewals Projects from 2016

Name	St George WSS Renewals Projects from 2016	**Scheme**	St George WSS
Project Number	Various	**Drivers**	Condition and risk assessments

PROJECT EXPENDITURE PROFILE

Past 2016
13,997

PROJECT DESCRIPTION

This item is a collection of numerous individual works to replace or refurbish assets at E.J. Beardmore Dam and Jack Taylor Weir. The majority of the expenditure ($12.9M) is for replacement of winches. Therefore, replacement of these elements is focused on here.

NEED FOR PROJECT

Winches are used to operate gates at headworks structures. Therefore, they are integral to both normal operation of headworks and for safely passing flood waters.

PRUDENCE ASSESSMENT

There is a clear need to maintain the operability of winches that justifies their end of useful life replacement.
The GHD report noted that there was insufficient information to support this expenditure. However, SunWater undertakes regular (at least every 5 years) condition assessment of these winches. This is a requirement of Workplace Health and Safety Queensland for all lifting devices. The findings of these condition assessments have been used to estimate the required timing of the works. Therefore, replacement is planned on a condition basis.
For example, Spillway Gate 1 was assessed in September 2011 by an external expert (NQ Cranes) as being in Condition Grade 5 (asset virtually inoperable) and therefore in need of works. Similarly, the findings of inspections have been recorded and support the planned replacement date.
On the basis of the criticality of the winches, and the condition assessments undertaken, this expenditure is prudent.

SOLUTION AND COST DEVELOPMENT

Option development
Because of the specific function of winches, like for like replacement is the only alternative.
Standards
The winches planned to be installed will satisfy relevant Australian Standards for lifting devices.
Cost development
SunWater's procurement processes will be applied which will ensure that this asset is procured on a competitive basis. The allowed cost is based on the Bill of Materials which incorporates up to date costs.

EFFICIENCY ASSESSMENT

The proposed solution satisfies the QCA's criteria for efficiency. Therefore, the project cost is efficient.

Attachment 2: SunWater's Response to Reviewed Past and Future Renewals Expenditure Items Deemed to be not Prudent or Efficient

SUMMARY

Based on the evidence detailed, this expenditure satisfies the QCA's criteria for prudence and efficiency and therefore no adjustment to the proposed expenditure can be justified. The GHD investigation failed to take into account the condition data on the winches that is available.

Attachment 3

Adjustments to Electricity Costs

In its draft report on SunWater's Irrigation Price Review[83] the QCA has recommended changes to the electricity price assumptions and to the load forecasts made by SunWater.

In the area of prices, the QCA has produced an estimate of the BRCI escalation of 7.41%. SunWater believes this escalator for BRCI is well below market expectations for electricity price increases over the price path and presents an alternative forecast of expected BRCI increases based on the latest available data. However, SunWater's preference remains that the electricity contribution to the volumetric component of prices should be escalated by the known BRCI increases before the pricing year begins. This would remove the need to estimate electricity price increases thereby eliminating any unders and overs which in turn gives greater price certainty to the irrigators.

On the issue of load, the QCA made the following recommendation:

> *The Authority proposes to incorporate SunWater's targeted 1% electricity reduction to 30 June 2015 together with specific adjustments recommended by the Authority's engineering consultants (mainly relating to pumping).*

SunWater believes the QCA has erred when it included the 1% per year electricity efficiency benefit without considering that this program is still in the preliminary stages, it is aimed primarily at non-irrigation pipelines, no benefits have been realised to date and no capital costs have been allowed for the implementation of this program.

SunWater also disagrees with the specific adjustments made to electricity forecasts based on the recommendations of the QCA's consultants. These ad hoc adjustments are no longer required under SunWater's improved electricity forecasting methodology.

[83] Page 211, QCA Draft Report SunWater Irrigation Price Review: 2012-17, Volume 1.

QCA's Recommended Electricity Cost Escalator

Instead of accepting SunWater's approach to electricity cost escalation, the Authority proposed an alternative, forward-looking electricity escalator drawn on the experience of the BRCI and the known forward decisions of the Australian Energy Regulator (as interpreted by the QCA). The Authority calculated an escalator of 7.41%, as compared to SunWater's escalator of 10.5%. SunWater believes that electricity costs should be escalated by the actual BRCI that is published prior to each financial year. This is a simpler approach to that proposed by the QCA which will give greater price certainty to the irrigators.

Electricity tariff increases represent risks that are beyond SunWater's control. SunWater's indexation of prices by the estimated BRCI has been implemented in an attempt to reduce the potential unders and overs claim by SunWater through the proposed pass-through arrangements. However, SunWater had proposed in an earlier paper that the actual BRCI increase be applied to the volumetric component of irrigation tariffs before each year begins. This approach would remove the electricity price risk thereby increasing price certainty for irrigators, as well as eliminating the costs of administering the unders and overs process. The option of pre-escalation of electricity costs is available to the irrigation pricing process because the BRCI is unique in that it is determined before the start of each financial year. To facilitate this proposed process, the QCA would need to publish the electricity contribution to the volumetric prices for each tariff group when they recommend irrigation prices. Escalation of irrigation prices in advance of the financial year remains SunWater's preferred option for managing electricity price increases.

QCA's Proposed Electricity Cost Escalator

Should the QCA choose to retain the approach of retrospective adjustment of irrigation prices in response to electricity cost unders and overs, then the choice of escalator directly affects the level of prices and the resulting adjustments that will occur from year-to-year. It is not in the irrigator's interests to either under-estimate or over-estimate the electricity escalator as both types of error will contribute to unnecessary price volatility. The QCA has proposed a forward-looking escalator of 7.41% which is well below SunWater's estimate of 10.5%.

Replication of Table 6.32 from the QCA Draft Report

	Unweighted Increase	Weighting	Weighted % Increase
AER Network	6.82%	38.56%	2.63%
AER Powerlink	6.00%	10.74%	0.64%
Energy Costs	8.75%	41.33%	3.61%
Retail Operations	3.40%	4.37%	0.15%
Retail Margin	7.41%	5.00%	0.37%
	Grand Total	**100.00%**	**7.41%**

SunWater agrees with the chosen weightings and accepts the increases forecast for energy costs and transmission costs (Powerlink); SunWater also accepts the QCA's approach to applying retail margin. However, SunWater believes the QCA may have inadvertently understated the expected increases for network costs and retail operations costs. In particular, the QCA does not appear to have accounted for the impact of decreasing load on electricity prices. Also, given that the carbon price legislation has now been passed by Federal Parliament, an allowance for carbon price impacts on retail electricity costs should logically be included in the escalator.

Expected Increase in Network Charges

The regulated retail tariff review has changed the calculation of electricity prices so that the network component will no longer be based on a mix of Energex and Ergon network costs but instead will be based entirely on Energex's network costs. Under the National Electricity Rules, Energex must publish their expected network costs for the remainder of the regulatory period. Energex estimates that their network costs will increase by an average of 12.35% in the period 2012 to 2015 due to large increases in the AER-approved revenue combined with significant drops in overall electricity consumption[84] (the combined Energex and Ergon increase is 11.25% for the same period). In the past few years, increased revenue has been spread over ever-decreasing consumption leading to extraordinary price increases that have largely driven the large increases in regulated retail prices.

Expected Increase in Retail Operations

The QCA has adopted the 60/40 WPI/CPI escalator for retail costs from the BRCI process. However, this escalator represents only one input into the escalation of retail operations under the BRCI. Other factors, such as growth in customer numbers, changes to load and imposition of regulatory fees are

[84] http://www.energex.com.au/__data/assets/pdf_file/0018/42129/20110609-2011-12-Statement-of-Price-Trends.pdf

also taken into account in determining retail cost changes. There are significant differences between the 60/40 escalator used by the QCA in the BRCI process and actual retail cost increases determined by the QCA under the BRCI methodology, as shown in the following table for 2007 to 2012.

Annual Increases in Retail Costs under the BRCI

Cost Type	2008	2009	2010	2011	2012	average
WPI	4.3%	4.0%	2.8%	3.8%	4.1%	
CPI	5.1%	2.0%	3.2%	3.8%	2.5%	
60/40 blended index	4.7%	3.2%	3.0%	3.8%	3.4%	3.60%
QCA BRCI Increases in Retail Costs	12.1%	27.0%	5.4%	14.1%	8.0%	13.32%

Consequently, SunWater believes that the 60/40 escalator does not capture the entire increase in retail costs therefore suggests that a more accurate representation of expected increases in retail costs is given by the average of past increases in retail costs, which is 13.32% per year.

Updated Electricity Escalator

Applying the expected increases in network costs and retail operations costs and using the QCA's weightings gives a base electricity escalator of 9.98% per year.

Updated Calculation of Electricity Escalator

	Unweighted Increase	Weighting	Weighted % Increase
AER Network	12.35%	38.56%	4.76%
AER Powerlink	6.00%	10.74%	0.64%
Energy Costs	8.75%	41.33%	3.62%
Retail Operations	13.32%	4.37%	0.58%
Retail Margin	7.41%	5.00%	0.37%
	Grand Total	**100.00%**	**9.98%**

Expected Increase due to the Carbon Tax

The introduction of carbon pricing will cause increases in electricity retail prices above the expected increases due to the BRCI components. Federal Treasury has predicted that there will be a 10% increase in retail electricity prices in 2013, followed by a 1% in 2016 when carbon trading is introduced. SunWater believes these increases should be added to the electricity escalator in the applicable years.

The 1% Energy Efficiency Target

SunWater believes the QCA has erred when it included the 1% per year electricity efficiency benefit without considering that these savings were not included in SunWater's forecasts for a range of reasons, including:

- this program is still in the preliminary stages;
- it is aimed primarily at non-irrigation pipelines;
- the program is an aspirational target and no efficiency savings have been established yet; and
- SunWater (or the QCA) made no allowance for capital costs associated with the implementation of this program.

The 1% Efficiency Target

SunWater set an internal energy efficiency target aimed to reduce electricity consumption across SunWater by 1% per year beginning in 2011 through to 2015. The identified savings opportunities are still in the "under investigation" phase of the program and many of these will be eliminated once a full business case has been assessed. When SunWater submitted its cost forecasts to the QCA, there was no certainty that this target could be achieved, and if it could be achieved, at what sites and at what cost. This target is simply part of the process that any efficient business would undertake, in seeking out possible efficiencies and evaluating opportunities to achieve savings. As at December 2011 SunWater is yet to achieve any savings. On this basis alone saving applied up to and including 2012 should be backed out of the QCA's prices.

The QCA has not identified inefficiencies in SunWater's existing electricity costs but rather is trying to hold SunWater to an internal aspirational target that is yet to be realised. SunWater believes that the QCA should not incorporate internal targets or assume that efficiency initiatives will be successful, particularly where there is no evidence to suggest that electricity costs are currently inefficient.

Indeed, by imposing this 1% saving, the QCA removes incentives for regulated businesses investigate potential efficiencies for fear of being held to any internal target. In this instance, SunWater would have been better off not commencing a project to identify saving opportunities given electricity costs were found to be efficient.

The QCA has also applied the 1% efficiency saving across the board and many bulk water schemes use little electricity and there is no capacity to reduce energy consumption. These savings applied by the QCA should be backed out of the QCA's prices.

Commercial Pipeline Savings are Irrelevant to Irrigation Pricing

The majority (~75%) of SunWater's electricity consumption is in the non-irrigation pipelines. SunWater believes that the most promising efficiency opportunities are associated with these commercial pipelines. Savings from commercial operations will have no impact on the irrigation sector. Indeed an aggregate saving of 1% across all SunWater assets could be achieved without any savings at irrigation sites.

Cost-Benefit of the Efficiency Program still to be Determined

There has been no allowance for the cost side of potential efficiency savings in the QCA's reduction in SunWater's forecast of irrigation electricity load. SunWater will be developing business cases for electricity efficiency opportunities to determine whether it is prudent to progress ideas to implementation. Until this is done, it is unclear whether any electricity efficiency savings can be prudently implemented in the irrigation service contracts.

Implementation Capital Costs will be Funded from Renewals Program

Any capital costs associated with implementation of energy efficiency initiatives will need to be included in the renewals spend. Given the program's infancy, it is unclear whether there will be any initiatives implemented in the irrigation service contracts, so no allowance has been made for electricity efficiency implementation in SunWater's renewals forecasts. The QCA is effectively recommending in their draft report that SunWater implement electricity efficiency initiatives without knowing the prudency or efficiency of the spend required to achieve the 1% target.

One response to imposing a 1% saving on SunWater, where the costs of achieving that saving are yet untested, will be to compel SunWater to invest in measures that will achieve this outcome at irrigation sites, and then seek to recover that cost via the renewals program.

Inefficient outcomes will arise because some (or perhaps all) of any such investments may not stand on cost-benefit grounds. However applying a 1% saving will require those investments regardless. Accordingly, if the QCA is to retain its 1% saving then it should also be bound to approve any renewals expenditure made to achieve that saving.

Issues with Specific Adjustments Recommended by the Consultants

Many of the specific adjustments recommended by the Authority's consultants were by-products of SunWater's previous electricity forecasting methodology or misunderstandings of individual service contract operating regimes. SunWater has modified its forecasting methodology to address the consultants' concerns and therefore believes no further adjustments are required. The QCA has accepted SunWater's improved electricity forecasts but one adjustment remains: Emerald electricity costs have been inappropriately reduced by $95k in 2013 and 2014 based on Halcrow's recommendations made against the previous forecasting methodology. SunWater has raised this issue in an earlier submission[85] but, for completeness, will re-cap the main points again in this paper.

Emerald Distribution

The discussion around SunWater's Emerald electricity forecast is based on the forecast presented in the NSP however this forecast has been replaced by the re-forecast of September 2011. Therefore, the financial figures presented in Table 5.16 of the QCA's draft report for Emerald Distribution and the accompanying discussion are based on a forecast that is no longer used by SunWater in its cost forecasts. Halcrow's concerns with SunWater's Emerald forecast, including the issue of Fairbairn Dam levels, were addressed in detail by SunWater in the electricity cost re-forecast submission of September 2011, which is on the QCA website[86].

Unfortunately, the analysis contained in this submission has not been referenced and appears not to have been taken into account in the preparation of the QCA's Emerald draft report. The forecast figures displayed by the QCA in this section of their draft report[87] have all been replaced by the electricity re-forecast and are therefore no longer relevant to the QCA's decision-making. Halcrow's suggested adjusted of $95k to the electricity forecast in 2013 and 2014 was based on this superseded forecast.

As explained in SunWater's earlier submission, the forecasting methodology has been improved in response to Halcrow's criticisms and no longer employs the "average year" approach but instead uses the entire five year period from 2007 to 2011 as the basis for forecasting. Additionally, SunWater effectively forecasts electricity on a kWh basis as suggested by Halcrow and therefore has "eliminate[d] the impact of the movement in historical expenditure resulting from tariff increases". Therefore, the cost figures quoted at the bottom of page 67 and the top of page 68 in the QCA's draft

[85] SunWater, Background Paper on Electricity Cost Re-Forecast, September 2011.

[86] SunWater, Background Paper on Electricity Cost Re-Forecast, September 2011.

[87] QCA Draft Report SunWater Irrigation Price Review: 2012-17, Volume 2 – Emerald Distribution System.

report for Emerald[88] are no longer relevant given the updated electricity forecasts that have been provided to and used by the QCA in their determination of draft water tariffs.

Halcrow's approach to making the $95k adjustment is both factually incorrect, in terms of the amount of savings they have attributed to high dam levels at Fairbairn Dam, and also methodologically flawed as an approach to forecasting.

SunWater's electricity costs for Emerald don't drop to zero as was assumed by Halcrow in their analysis. Even when Fairbairn Dam is at 100% there are still significant costs associated with the relift pumps in the Selma section that operate regardless of the dam level. In fact, the average annual cost for electricity has been $53k since January 2008, when the Fairbairn Dam has been above the 66.8% level. This is well above the $15k for 2013 and $16k for 2014 recommended by the QCA.

In any case, SunWater's improved forecasting methodology appropriately accounts for the various levels of Fairbairn Dam experienced historically and expected to be experienced over the next 20 years; this includes the current high dam levels that Halcrow is attempting to adjust for. It is not appropriate to make an ad-hoc adjustment for the first two years of a 20 year forecast because this artificially lowers the forecast costs below the expected average of the entire 20 years and inappropriately distorts the expected outcomes. In effect, Halcrow has modified the forecasting methodology for the first two years but has not applied the same approach to the remaining 20 years of forecast used by the QCA for pricing purposes. Again, this point is covered in more detail in SunWater's electricity re-forecast submission, which can be found on the QCA's website.

Conclusion

SunWater believes that electricity costs should be escalated by the actual BRCI that is published prior to each financial year. This is a simpler approach to that proposed by the QCA and it will eliminate price risk and reduce administration costs to the irrigators.

In any case, the 7.41% electricity escalator proposed by the QCA has been inadvertently understated. SunWater has estimated the expected BRCI increase by applying the QCA's approach with appropriate corrections. The resulting electricity escalator is 9.98%.

The carbon price impacts of 10% in 2013 and 1% in 2016 should be re-applied to SunWater's electricity cost forecasts now that the carbon pricing legislation has been passed.

That QCA has inappropriately included the 1% electricity efficiency target in the cost forecasts. The QCA has not identified inefficiencies in SunWater's existing electricity costs but rather is trying to count a potential efficiency saving from the next price path, ahead of time. This is not appropriate under the

[88] QCA Draft Report SunWater Irrigation Price Review: 2012-17, Volume 2 – Emerald Distribution System.

regulatory framework. If the 1% efficiency impost is retained by the QCA then the logical conclusion for SunWater is to pursue these savings irrespective of the prudency and efficiency of the spend required to achieve the reductions in electricity consumption.

That the $95k adjustment made to the 2013 and 2014 electricity cost forecasts for Emerald Distribution be removed because they are not consistent with SunWater's updated electricity forecast and are based on a flawed analysis by Halcrow.

Attachment 4

Explanation of SLFI savings

Background paper
QCA review of irrigation prices
Impact of SLFI Savings on Irrigation Non-direct Costs

December 2011

Contents

Pricing Note

All financial figures in this paper are reported in nominal dollars.

1 Introduction

In its draft report on SunWater's Irrigation Price Review[89], the QCA questioned why the savings from the SLFI[90] initiative could not be separately indentified in SunWater's irrigation non-direct costs[91]. SunWater believes the QCA has taken the SLFI savings out of context, incorrectly making assertions about the expected impact on irrigation non-direct costs which weren't put forward by SunWater and which have led to some confusion in the QCA.

The QCA's selected consultant, Deloitte, extensively analysed SunWater's non-direct costs and documented their findings in a 136 page report[92]. Deloitte's analysis showed that SunWater's administrative resource centres are efficient, to the extent that Deloitte struggled to identify even a 1% efficiency opportunity. The reason Deloitte were unable to identify FTE inefficiencies in SunWater's non-directs is that SunWater had undertaken a major review of its non-direct cost areas and implemented these reforms ahead of the Deloitte work.

SunWater has achieved the planned SLFI savings and this is evident in the low FTE numbers and efficient costs forecast by SunWater in the NSPs and confirmed by Deloitte in their analysis.

This paper provides further supporting information to the QCA regarding the attribution of the $10m in savings within SunWater and why these are unable to be directly translated to reductions in irrigation non-direct actual historic costs compared with forecasts.

- The SLFI target of $10m was set in the last quarter of 2008/09 against the already established 2009/10 budget as reported in the 2010 Statement of Corporate Intent. The first action by management toward meeting the savings target was to freeze all vacancies, thereby ensuring that the impact on staff was minimised as actual areas of savings were identified. This early action by management meant that that the 2009/10 actuals were $5m below budget against which the savings target was set;

[89] Page 211, QCA Draft Report SunWater Irrigation Price Review: 2012-17, Volume 1.

[90] Smarter Lighter Faster Initiative

[91] Indirects and overheads combined.

[92] Deloitte, SunWater Administration Cost Review Phase 2, August 2011.

- SunWater has historically under-recovered non-direct costs, however as business efficiencies have improved (due to SLFI) non-direct recoveries have increased. This accounts for a further $3m of the SLFI savings that have been absorbed by improved non-direct recoveries;
- SLFI targets were set and measured in 2009/10 dollars. The financial impact in real dollar terms has been eroded due to real increases in labour costs caused by above CPI wages increases and increment creep. These two factors are estimate to account for around $0.6m pa;
- Irrigation represents around half of SunWater's business, meaning that on average around $0.7m of the remaining SLFI savings would be expected to impact irrigation service contracts; and
- The actual allocation of non-direct costs to irrigation service contracts is determined according to SunWater's cost allocation methodology, which uses Direct Labour Costs as the primary allocator. These allocations vary from year to year depending on the mix of work performed across the whole of SunWater. The variation in business conditions from year-to-year introduces further noise into the analysis of SLFI impacts on actual costs to irrigators.

It should be noted that it was never proposed by SunWater that SLFI efficiency savings should be examined in isolation from SunWater's forecast costs and certainly there is no such concept as "SLFI cost savings" in SunWater's financial systems. Clearly though the SLFI savings are evident in SunWater's staff numbers and can be seen in the overall reduction in the non-direct cost pool compared to the 2009/10 budget. This cost pool is allocated to irrigation service contracts using a cost allocation methodology that has been extensively reviewed by the QCA's consultants and subsequently endorsed by the QCA.

Importantly, the staff savings achieved from the implementation of SLFI have been incorporated into the SunWater Financial Model and this forms the basis of SunWater's cost forecasts, so SunWater has assumed the full benefits of SLFI when forecasting costs for the 2012-17 price path. If the QCA were to conclude that the benefits of SLFI have been overstated, then the implication is that SunWater has under-forecast its cost base for 2012-17 and SunWater would then need to re-forecast (increase) costs with the QCA's conclusions taken into account.

2 SLFI Impacts on Staff Numbers

The table below shows that the staff numbers in FTEs (full time equivalents) have dropped by 97 since SLFI was implemented. The full benefits of SLFI were built into the cost forecasts that were produced for the Irrigation Pricing Review using the SunWater Financial Model (SFM) and this model has been used by the QCA to produce the irrigation prices.

FTE	2008 actual	2009 actual	2010 budget	2010 actual	2011 actual	2012 SFM	Overall change 09/10 budget to 2012
Staff	573	562	599	494	470	521	
Contractors	111	72	37	87	71	18	
Total	684	634	636	581	541	539	-97

3 SLFI Impacts on Costs

3.1 SLFI Targets set against 2009/10 Budget

SLFI was implemented in response to the budget produced for the 2009/10 SCI. If this budget had been followed as originally planned then there would have been an additional $5m of non-directs in the actual costs for 2009/10. So half of the SLFI "savings" were costs that were avoided.

	2008	2009	2010 budget	2010	2011 SFM	2012 SFM	SLFI Benefit
Non-directs	$51m	$50m	$52m	$47m	$45m	$45m	$5m

3.2 Improved Non-direct Recoveries Absorbed some SLFI Savings

SunWater has been running with a net unrecovered non-direct amount each year. This practice has been explained to the QCA's consultants and is included in the costing model used to produce the NSPs, which the QCA has relied on for tariff calculation. The reduction in unrecovered amounts between 2009 and the forecasts produced in the NSPs accounts for around $3m in the SLFI savings.

	2008	2009	2010 budget	2010	2011 SFM	2012 SFM	SLFI Impact
Non-directs under-recovery	-$6m	-$5m	-$7m	-$3m	-$2m	-$2m	$3m

3.3 Inflation and Increment Creep have Eroded Savings

SLFI targets were set and measured in 2009/10 dollars. While the targeted labour savings were achieved, the remaining non-direct labour costs increased in real terms due to above CPI wage increases and the affect of increment creep, where staff progress through pay bands by satisfying performance criteria. SunWater estimates that these two factors contribute approximately $600k per year in total to real increases in non-directs.

3.4 Non-directs Distributed using the Cost Allocation Methodology

Around $1.4m of SLFI savings remain to be accounted for after the above factors are taken into account. The net impact on irrigation service contracts depends on other changes that have occurred to non-direct costs and then on how the non-direct costs are allocated to the irrigation contracts.

Irrigation represents around half of SunWater's business, meaning that on average approximately $0.7m of the remaining SLFI savings would be expected to impact irrigation service contracts. The actual allocation of non-direct costs to irrigation service contracts is determined according to SunWater's cost allocation methodology, which uses Direct Labour Costs as the primary allocator. Allocations vary from year to year depending on the mix of work performed across the whole of SunWater.

The SunWater cost allocation methodology has been extensively reviewed by Deloitte in their 136 page review of administration costs and also received 24 pages of analysis in the QCA's draft report. SunWater believes allocation of non-direct costs has been adequately covered elsewhere and does not warrant further analysis in this paper. Suffice to say that the QCA has thoroughly reviewed SunWater's cost allocation methodology and approved the approach with only minor adjustments.

4 SLFI Implications for Forecast Costs

The staff and cost savings achieved from the implementation of SLFI have been incorporated into the SunWater Financial Model that forms the basis of SunWater's cost forecasts. This costing model has been thoroughly reviewed by the QCA and its consultants and has been relied upon by the QCA in the development of prices.

SunWater has been completely transparent with its forecast non-direct costs and has assumed the full benefits of SLFI in the forecasts. Deloitte extensively reviewed SunWater's forecast non-direct costs, acknowledged that SLFI had been implemented and judged that SunWater's administration costs were efficient[93].

SunWater has assumed the full benefits of SLFI when forecasting costs for the 2012-17 price path. If the QCA concludes that the benefits of SLFI have been overstated in SunWater's cost forecasts, then the implication is that SunWater has under-forecast its cost base for 2012-17 and SunWater would then need to re-forecast costs with the QCA's conclusions fully taken into account.

[93] The QCA interpreted Deloitte's analysis as showing SunWater's non-direct costs were 1% inefficient.

5 Conclusion

SunWater has fully implemented the SLFI program resulting in $10m of savings as measured against the 2009/10 budget baseline. The fact that SLFI was targeted against budget means that half of the identified savings will not show in an analysis of actual costs. In addition, $3m of the savings were absorbed by improved recovery of non-direct costs. The final impact on irrigation costs is determined by the cost allocation methodology that has been extensively analysed and approved by the QCA.

Deloitte has extensively reviewed SunWater's non-direct cost forecasts, with SLFI savings fully included, and judged these costs to be efficient.

Attachment 5

Other scheme-specific issues

This attachment sets out responses to specific reports for individual water supply schemes and distribution systems, as well as the water use assumption applied for tariffs in specific schemes.

Pioneer River Water Supply Scheme

The QCA state that as diversion to Kinchant Dam is restricted to when the flow into Mirani Weir is > 250ML/d and above the fixed crest of the weir proves that the Marani Weir is an integral part of the Eton Scheme. (p13). SunWater's view is that this ROP restriction to pumping into Kinchant Dam proves exactly the opposite; that the weir is only being used as a measuring point and is not part of the Eton Scheme.

SunWater does not agree with the Authorities draft finding (p12) that "as PVWater is charging customers for the 1,002 ML there is no case for SunWater to also apply a separate charge for this purpose." If SunWater is not able to charge for the service of delivering the Pioneer River WAE then the holders of this allocation will have to access it at the river, at their own cost. This will also resolve the issue of no loss allocation being available for delivery.

Burdekin-Haughton Water Supply Scheme

The Draft Report (p312) cites the average usage across the 2006-11 price path at 54.4%. The usage percentage is used for draft tariff calculation, so it is a significant number. SunWater understands that the 2006-11 usage assumption has been understated by the Authority due to the application of usage assigned to WAE owned by the Burdekin water boards. The understatement is apart from the impact of including water use statistics from 2011, an anomalous year with usage at an all time low due to flooding.

The Burdekin water boards hold water allocation totalling 255,000ML (including free WAE). Average usage against this allocation over the 5 years to 2011 has been 163,636ML or 64.2% (or 188,408 ML and 73.9% if the flood year is excluded).

The Authority's usage analysis includes 70,000 ML of non-free WAE belonging to the water boards, but it is not known how the authority determined historical usage against this WAE. However, very low usage must have been assumed to reach the tariff group usage percentage of 54.4%.

SunWater does not agree with a methodology for adjusting tariffs based on historical water use and has presented it's case against this methodology in the main submission and in supporting submissions. However, if this methodology is to be used to recommend prices SunWater's view is that the boards should be excluded from the revenue analysis undertaken for the purposes of adjusting the

tariffs. The boards are not price path customers and continue to be invoiced under legacy arrangements. The following usage data is provided to assist the Authority to correct the error.

Historical water usage

	WAE	Usage (ML)					5-year average		Average Excluding flood year
	(ML)	2006-07	2007-08	2008-09	2009-10	2010-11	(ML)		
River	32,970	36,389	23,675	23,204	33,315	8,113	24,939	75.6%	88.4%
Channel	280,801	237,476	186,542	154,971	222,486	58,944	172,084	61.3%	71.4%
Ground water	40,184	36,731	28,950	25,470	34,267	5,636	26,211	65.2%	78.0%
Total	353,955	310,596	239,167	203,645	290,068	72,693	223,234	63.1%	73.7%
Water boards	255,000	237,008	186,020	154,943	222,486	58,944	171,880	67.4%	78.5%
		93%	73%	61%	87%	23%			
Total (including water boards)	608,955	547,604	425,187	358,587	512,554	131,637	395,114	64.9%	75.7%
Water boards non-free pro-rata	70,000	65,061	51,064	42,533	61,074	16,181	47,183	67.4%	78.5%
Total (water board pro-rata)	423,955	375,657	290,232	246,178	351,143	88,874	270,417	63.8%	74.5%

If the water boards' usage is to be included there are 3 alternative means for doing so:

- include the usage against the full 255,000 ML of the boards' WAE
- include the usage against the non-free component of the Board's allocation – however this is flawed because of the assumption that the free water is used either first or last
- Pro-rata usage on the non-free component of the boards WAE at the same average as the total WAE.

SunWater's view is that 63.1% is a more accurate 2006-11 usage assumption. And applying the Authority's methodology (and ignoring any other adjustments), the draft tariffs for the Burdekin WSS for the 2012/11 year should have been:

Part A - $11.03 compared to the Authority's $9.92

Part B - $0.47.

If the flood year of 2011 is excluded and a usage percentage of 73.7% is applied the draft tariffs should have been:

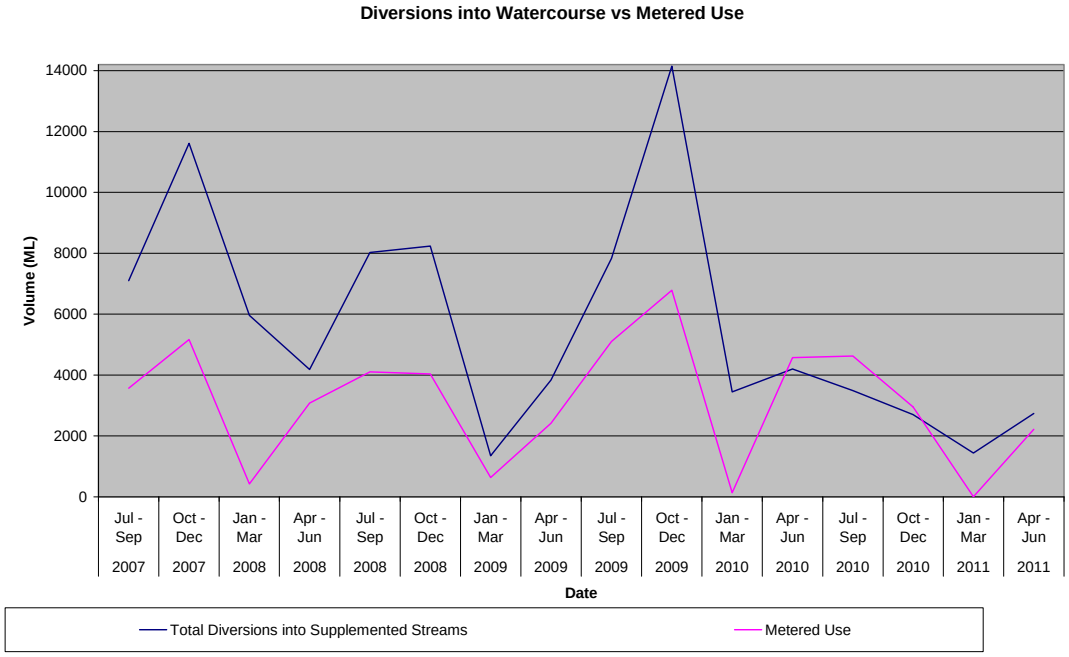
Part A - $12.55 compared to the Authority's $9.92

Part B - $0.47.

Mareeba-Dimbulah Distribution System

SunWater retains the view that the operating cost associated with Bruce, Collins, and Leafgold and Solanum Weirs should are treated as part of the distribution system's costs. The following chart illustrates the extent that channel release into the supplement streams provide customers with water.

Across the 16 quarters for which data is available, diversion by customers exceeded releases only 3 times, indicating that when natural flows briefly occur after rain, customers are not taking water and rely on channel releases for almost all of their irrigation take.



Chinchilla Weir Water Supply Scheme

The Authority has requested that SunWater supply more information about Chinchilla Beneficial Use Scheme. Considerable information is provided on SunWater's web site at: http://www.sunwater.com.au/future-developments/kenya-chinchilla-weir

The supply of treated CSG water in the beneficial use scheme is similar to other unsupplemented entitlement, for example water harvesting. Contractually (via the CSG Water Supply Agreements between SunWater and the customers), the charge of the CSG water is the same as that for the Chinchilla Weir Water Management Area (water harvesting charge - currently $3.80/ML). This is because the volume of CSG water supplied to customers is not 'guaranteed' and is totally dependent on the volume produced by the gas company providing the treated CSG water. Also it allows the irrigators to be indifferent to taking CSG water or unsupplemented water.

Contractually, the first water taken through the meter is CSG water and this water accounting approach is required to facilitate compliance with the project approvals.

There will be a monthly CSG water roster which nominates when each customer is rostered to take their share of the water (which they must take). The roster is required to ensure 100% of the CSG water in and out of the Chinchilla Beneficial Use Scheme is accounted for. Under the approvals for the beneficial use scheme, the volume of treated CSG water that enters the scheme must be taken by

customers, such that all CSG water is accounted for by the end of the scheme (including a provision for in stream losses).

Although the CSG water passes through the weir, the weir is not used to store CSG water, hence the weir is not "utilised" by the Chinchilla Beneficial Use Scheme and there is no change to the HUF calculations.

In particular the Authority sought the following information from SunWater:

> Question: Provide an overview of the contractual relationship that exists between SunWater and irrigators (this includes irrigators that have a current WAE associated with the Chinchilla Weir WSS and irrigators that do not)
>
> Response: The CSG Water Supply Agreements are contractual arrangements between SunWater and CSG customers that are totally separate from the contractual arrangements between SunWater and existing water allocation holders.
>
> Question: Provide SunWater's understanding of the implications of water being made available by the Chinchilla Beneficial Use Scheme on demand forecasts associated with the 2,871 ML irrigation WAE provided by the Chinchilla Weir WSS
>
> Response: The water sharing rules in the Condamine and Balonne ROP for the Chinchilla Weir Water Supply Scheme are such that the inclusion of CSG water does not impact the existing water allocation holders (ie CSG water does not affect the performance of existing WAEs (supplemented and/or unsupplemented). The attached list provides a comparison of the volumes of CSG water and the volumes of supplemented and unsupplemented water.
>
> The Authority found the 10 year average usage to be 48.5%, and SunWater had provided a usage forecast of 55%. Chinchilla Weir WAEs are fully tradable both permanently and temporarily and SunWater would not expect the future usage to vary significantly due to the Chinchilla Beneficial Use Scheme given the potential for trade.

CSG Volumes and Other WAEs

Scheme section	Potential Customer	CSG Water Volume (ML)	Supplemented Water Allocation Nominal Volume (ML)	Unsupplemented Water Allocation Volumetric Limit (ML)
Pipeline	Irrigator 1	100	-	-
	Irrigator 2	6,000	-	-
	Irrigator 3	100	-	-
	Irrigator 4	1,900	-	-
	Irrigator 5 (also on river)	2,250	186	-
Weir pool	Irrigator 6	750	347	-
	Irrigator 7	1,900	251	3,600
	Irrigator 8	3,000	252	48
	WDRC	900	1,160	-
	Irrigator 9	500	90	-
	*Estimated Losses**	2,700	NA	NA
Downstream of Weir	Irrigator 10	1,500	-	1,065
	Irrigator 11	300	-	1,720
	Irrigator 12	250	-	-
	Irrigator 13	200	-	173
	Irrigator 14	1,250	-	1,485
	Irrigator 15	2,000	252	1,885
	Irrigator 16	1,500	152	-
	Irrigator 17	6,000	-	10,120
	Transmission losses (25%)	3,300	NA	NA
	Total Demand Volume	**36,400**	**2,690**	**20,096**

** Seepage and evaporation loss estimated based on 7.5ML/day (assumed 50% of loss provision in Condamine and Balonne ROP).*

Question: Given that the Chinchilla Weir will, from time to time, be used to store water made available by the Chinchilla Beneficial Use Scheme, has consideration been given by SunWater to allocating costs away from existing customers of the Chinchilla Weir WSS.

Response: Operationally, the CSG water roster is designed to minimise the weir acting as a storage (i.e. customers take their CSG water when it's supplied - which is typically continuously). Consideration was given to whether it was appropriate to allocate some of the costs away from the existing customers, however as the CSG water is akin to unsupplemented water (not supplemented water) and the scheme rules were designed to avoid impacts to existing water allocation holders by not using the weir to store CSG water, it was not considered appropriate to divert costs away from existing customers of the Chinchilla Weir WSS to the CSG customers.

Attachment 6

Weighted average cost of capital

The QCA has referred to reports prepared by NERA (which was prepared for this review)[94] and Lally (which was prepared as part of the interim price monitoring review of South East Queensland distribution and retail water and wastewater businesses)[95]. Assuming benchmark gearing of 60%, NERA recommended that the equity beta of an Australian water utility should be no less than 0.8 and no higher than 1.2. This was based on a review of UK and US energy and water businesses, Australian energy companies and UK and US regulatory decisions.

The QCA appears to place reliance on Lally, who it observes has "alternative views to NERAs (sic)"[96]. SunWater observes that Lally examines betas from four industry sectors:

- 3 UK revenue-capped water utilities
- 9 US rate of return regulated water utilities
- 9 Australian electricity and gas network businesses
- 11 US rate of return regulated electricity utilities.

For reasons set out in his report, Lally considered that the estimate from the UK water utilities (which was materially lower than the others) should be given the lowest weight. If this estimate was excluded, the asset beta would be 0.35 with a debt beta of 0.11.[97]

In the Draft Report the QCA only refers to the UK water entities and the Australian energy network companies. It does not make any reference to the US water and electricity utilities also examined by Lally. SunWater notes that the two samples referred to by the QCA had the lowest beta estimates (asset betas of 0.18 and 0.24 respectively). The QCA also makes no reference to Lally's concerns regarding the UK water businesses.

In reaching its conclusion the QCA makes the following points:

- that greater weight should be given to Australian estimates rather than foreign estimates – although it does not rationalise why it has referred to the UK beta estimates but not the US ones;

[94] NERA Economic Consulting (2011). Cost of Capital for Water Infrastructure Company, Report for the Queensland Competition Authority, 28 March.

[95] M. Lally (2011). The Estimated WACC for the SEQ Interim Price Monitoring, 5 January.

[96] QCA (2011). p.385.

[97] M. Lally (2011). p.26.

- that NERA's analysis included "a recent high beta period from 2009 to 2011, but does not (fully) include the lower beta period for 1998 to 2002"98. SunWater observes that only one of Lally's samples includes data before 2004 (which was the US regulated electricity utilities). SunWater also questions whether there is sufficient evidence to warrant exclusion of the post-GFC data in estimating a forward-looking beta, noting that the QCA has dismissed having regard to the effects of the GFC in estimating other parameters, most notably the market risk premium99;
- that no adjustment should be made for any perceived bias in the Sharpe CAPM, noting that no such adjustment had been proposed; and
- that "the AER decision to adopt any equity beta of 0.8 was an important factor in NERA's recommended estimate."100 It would appear that this is only one factor and in any case, NERA explicitly states that an equity beta of 0.8 (not 0.55) should be the lower bound. The QCA states that the AER's sample suggested an asset beta of 0.3. However, the AER still applied a value of 0.8 (the AER also applies a debt beta of 0). Using the QCA's preferred Conine formula and a debt beta of 0.11, an equity beta of 0.8 equates to an asset beta of around 0.41.

The QCA comments that the impact of different regulatory environments on beta "is far from resolved"[101], however it is not clear as to what extent this has been taken into account, if at all.

The QCA also observes that "the systematic risk of SunWater's irrigation activities is less than the systematic risk of SunWater's activities as a whole."[102] The reasons for the differences (as concluded by NERA) are cited as follows:[103]

- the demand for SunWater's services by irrigation customers is largely dependent on the availability of water rather than on the level of business activity;
- the demand by urban customers is likely to have a lower than average sensitivity to changes in economic activity as this demand is strongly related to the 'essential good' characteristic of water;

[98] QCA (2011). pp.385-386.

[99] QCA (2011). p.378.

[100] QCA (2011). p.386.

[101] QCA (2011). p.385.

[102] QCA (2011). p.385.

[103] QCA (2011). p.385.

- the characteristics of the demand for the final outputs of commercial and industrial customers in combination with their holdings of high priority entitlements implies that their demand for water is likely to have a higher sensitivity to economic activity than either irrigation or urban customers.

While SunWater questions whether the low priority of irrigation entitlements makes other factors irrelevant, it does concur that the systematic risk of urban and industrial customers would be higher (particularly the latter).

Overall, SunWater does not consider that the QCA has provided robust evidence to support its proposed asset beta of 0.3. However, SunWater does agree with the QCA that the beta that would apply to urban and industrial users would be higher, with industrial users (on average) expected to have the highest systematic risk.

Attachment 7

Proposed tariffs where prices maintained in real terms

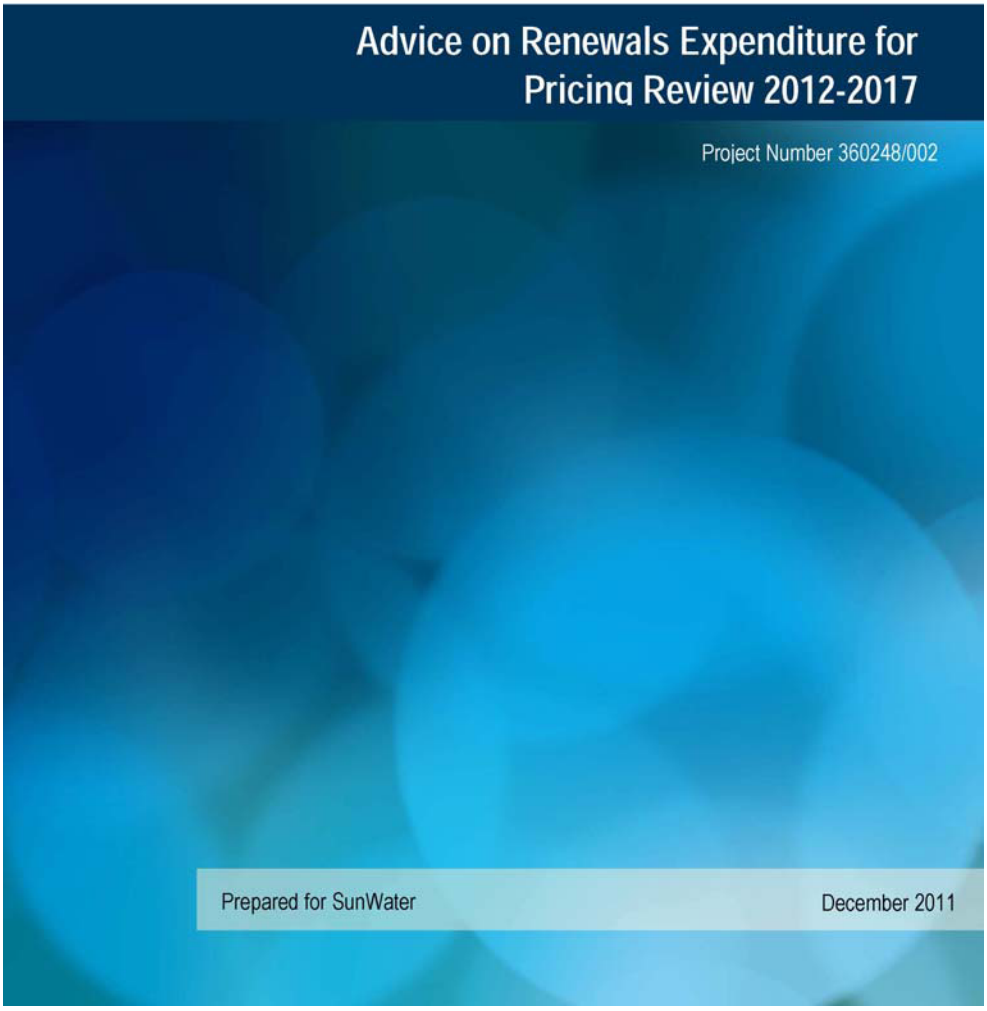
This attachment sets out SunWater's proposed prices in those schemes where prices are to be maintained in real terms.

	Current Tariff in $2012/13 at CPI (2.5% for 2 years)			QCA Proposed Prices			SunWater Proposed Prices		
Tariff Group	**Part A ($/ML)**	**Part B ($/ML)**	**Revenue at 10 yr Average Usage**	**Part A ($/ML)**	**Part B ($/ML)**	**Revenue at 10 yr Average Usage**	**Part A ($/ML)**	**Part B ($/ML)**	**Revenue at 10 yr Average Usage**
Barker Barambah	$21.81	$12.47	$791,600	$21.09	$5.12	$685,667	$24.65	$5.12	$791,600
Barker Barambah - Redgate Relift	$23.70	$29.34	$57,549	$21.86	$12.41	$43,772	$30.25	$12.41	$57,549
Bowen Broken	$9.75	$15.31	$65,943	$10.63	$5.88	$64,408	$10.90	$5.88	$65,943
Boyne River	$20.51	$14.65	$266,119	$24.38	$1.47	$237,891	$27.36	$1.47	$266,119
Bundaberg	$7.44	$11.64	$2,289,323	$11.14	$1.10	$2,154,364	$11.87	$1.10	$2,289,323
Burdekin	$2.44	$14.36	$5,277,645	$9.92	$0.47	$4,344,404	$12.12	$0.47	$5,277,645
Chinchilla Weir	$19.08	$16.76	$78,116	$26.28	$2.80	$79,349	$25.85	$2.80	$78,116
Cunnamulla	$19.50	$15.20	$72,192	$26.85	$2.75	$71,180	$27.26	$2.75	$72,192
Dawson Valley River	$11.01	$11.12	$905,208	$16.09	$1.63	$874,242	$16.69	$1.63	$905,208
Dawson - Glebe Weir	$11.01	$7.77	$18,171	$14.36	$1.63	$17,790	$14.69	$1.63	$18,171
Lower Fitzroy	$11.43	$-	$35,444	$11.40	$1.31	$35,461	$11.39	$1.31	$35,444
Lower Mary Barrage	$9.96	$10.63	$197,328	$12.61	$1.94	$192,166	$12.97	$1.94	$197,328
Lower Mary Tinana Barrage and Teddington Weir	$14.62	$10.44	$138,310	$27.53	$10.51	$236,429	$14.60	$10.51	$138,310
Mareeba - Tinaroo Barron	$3.36	$16.93	$2,115,558	$14.36	$0.74	$2,231,106	$13.59	$0.74	$2,115,558
Nogoa Mackenzie River - MP	$6.18	$8.10	$2,012,747	$10.05	$1.10	$1,778,141	$11.49	$1.10	$2,012,747
Pioneer	$10.76	$8.37	$652,257	$12.09	$1.85	$604,086	$13.11	$1.85	$652,257
Proserpine	$9.08	$9.01	$407,200	$10.51	$3.00	$345,772	$12.70	$3.00	$407,200

	Current Tariff in $2012/13 at CPI (2.5% for 2 years)			QCA Proposed Prices			SunWater Proposed Prices		
Tariff Group	**Part A ($/ML)**	**Part B ($/ML)**	**Revenue at 10 yr Average Usage**	**Part A ($/ML)**	**Part B ($/ML)**	**Revenue at 10 yr Average Usage**	**Part A ($/ML)**	**Part B ($/ML)**	**Revenue at 10 yr Average Usage**
Proserpine - Kelsey Creek Water Board	$9.08	$6.68	$131,014	$9.67	$3.00	$114,760	$11.30	$3.00	$131,014
St George - River and Thuraggi	$16.89	$3.51	$1,455,103	$18.73	$1.06	$1,431,565	$19.05	$1.06	$1,455,103
Three Moon Creek - River	$24.21	$17.29	$42,246	$27.29	$4.02	$39,238	$29.50	$4.02	$42,246
Upper Burnett	$22.15	$13.57	$760,482	$26.07	$3.30	$711,509	$27.99	$3.30	$760,482
Upper Burnett - John Goleby	$16.94	$23.10	$42,460	$24.93	$3.30	$37,836	$28.21	$3.30	$42,460
Upper Condamine - River MP	$22.69	$17.35	$438,483	$26.13	$4.64	$435,990	$26.29	$4.64	$438,483
Upper Condamine - North Branch MP	$34.67	$22.88	$294,412	$38.51	$8.55	$292,871	$38.73	$8.55	$294,412

Attachment 8

Advice from Cardno – renewals options review



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Document Control: Advice on Renewals Expenditure for Pricing Review 2012-2017					
Version	Date	Author		Reviewer	
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Version 1	December 2011	Stephen Walker		Aneurin Hughes	

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1 PURPOSE

The purpose of this short report is to:

- Provide comment on the Queensland Competition Authority's (QCA's) recommendations to SunWater regarding renewals expenditure; and
- Estimate the scope and cost of the works required by SunWater to satisfy these recommendations.

2 BACKGROUND

The QCA has been directed to recommend irrigation prices for SunWater's water supply schemes and distribution systems for the period 1 July 2012 to 30 June 2017.

The QCA released its draft report from its review in November 2011. As well as recommending irrigation prices, the draft report also makes recommendations into the extent and detail of information that SunWater should provide before the next price review. The QCA suggests that these recommendations be addressed within two years.

3 QCA RECOMMENDATIONS RELATING TO RENEWALS EXPENDITURE

A significant recommendation made by the QCA in its draft report is that SunWater undertakes more options analysis to support its renewals forecasts, as detailed following[1]:

The Authority recommends that, in forecasting renewals expenditure, SunWater undertake:

(a) high-level options analysis for all material renewals expenditures expected to occur over the Authority's recommended planning period, with a material renewal expenditure being defined as one which accounts for 10% or more in present value terms of total forecast renewals expenditure;

(b) detailed options analysis (which also take into account trade-offs and impacts on operational expenditures) for all material renewals expenditures expected to occur within the subsequent five-year regulatory period, with a material renewal expenditure being defined as one which accounts for 10% or more in present value terms of total forecast renewals expenditure over that period; and

(c) a review of its renewals planning process to adopt the Authority's consultants' suggested improvements.

The Authority also recommends that Network Service Plans (NSPs) should be updated annually to present the findings of the high-level and detailed options analyses undertaken and discussion on the variance between previously forecast expenditure and actual expenditure. Further, it is recommended that SunWater consult with customers annually on the NSPs and respond to customer comments. The specific recommendation is as follows[2]:

The Authority recommends that SunWater's Statement of Corporate Intent (and relevant legislation) be amended to require SunWater to consult with customers in relation to, and publish on its website, annually updated NSPs commencing prior to 30 June 2014. The NSPs should be enhanced to present (i) high level options analysis for all material renewals expenditures expected to occur over the Authority's recommended planning period, (ii) detailed options analysis for all material renewals expenditures expected to occur within the subsequent five-year regulatory period and (iii) details of SunWater's proposed renewals expenditure items and accounting for significant variances between previously forecast and actual material renewals expenditure items.

[1] Draft report, SunWater Irrigation Price Review:2012-17, p115
[2] Draft report, SunWater Irrigation Price Review:2012-17, p136

4 COMMENT ON SUNWATER'S APPROACH TO RENEWALS EXPENDITURE FORECASTING AND THE QCA'S RECOMMENDATIONS

We note the following regarding SunWater's approach to renewals planning as detailed in the QCA's Draft Report:

- Assets are condition assessed to determine the timing and frequency of refurbishment and replacement activities
- Prioritisation of expenditure is based on a risk assessment of assets
- Asset attribute and condition information is stored in SAP, along with renewals activities
- Detailed analysis is undertaken for expenditure that exceeds $50,000 that occurs within the next 12 months
- For renewals expenditure beyond the next 12 months, forecast expenditure is based on replacement values.

The Draft Report also notes that:

> *All consultants reviewing particular schemes were able to confirm that, in general, SunWater's process for forecasting renewals expenditure, that is, identification of the need for expenditure through condition assessments, timing, scoping and tendering for the engagement of contractors, represents a structured and efficient process*

We believe that SunWater's approach to renewals forecasting contains the important elements of leading practice most notably consideration of risk and forecasting based on condition assessment.

The QCA's recommendations request SunWater to build on this existing approach by undertaking more investigation at a high level (for long term expenditure) and in detail (for expenditure in the short term) in advance of its current 12 month planning window.

We note that there is a trade off between the cost and effort in optioneering and developing solutions for periods in advance, when circumstances are likely to change, and providing reasonable expenditure forecasts with acceptable certainty.

There is also a risk in undertaking too much options analysis in advance in that the view of renewals may become too narrow. A strategic view of the renewals program in relation to the asset base and operating environment is required. This would consider for example the possibility of introducing new technologies across groups of assets and distribution system configuration.

5 ESTIMATE OF QUANTUM OF MATERIAL RENEWALS PROJECTS

The QCA has defined material projects as those for which their forecast cost exceeds 10% of the total expenditure forecast for the period in question (i.e. the 5 year pricing path or the long term) for each service contract.

The renewals annuity model may be used to estimate how many projects meet this threshold. However, the most significant shortcoming of this approach is that the renewals annuity model is developed at a component level and this component level will frequently not correspond to how capital expenditure is developed and delivered.

For example, the renewals annuity model may have expenditure on two very similar components occurring in sequential years and therefore it would make sense from a capital delivery perspective to combine these items. Table 5-1 provides an example of where component level expenditure in the renewals annuity would logically be aggregated for capital delivery.

Table 5-1- Example of component level renewals annuity expenditure

FY	Functional Location	Equipt	FL	Description	Sort Field	Cost
2014	BRI-BURD-CLWR-FISH-CNTL	10003352	PLC	Replace Plc	CLARE WEIR	50,000
2015	BRI-BURD-CLWR-FISH-CNTL	10003353	PC	Replace Pc	CLARE WEIR	50,000

It is observed that renewals annuity items may be aggregated for capital investigation / delivery purposes on the basis of the following (among others):

- Component / equipment type
- Timing
- Location (at asset and regional level)

A materiality threshold for the asset being reached, e.g. if 50% of the asset is anticipated as requiring replacement in a short period of time then consideration will be given to a complete replacement.

Because of this logical aggregation to arrive at capital projects, it is noted that applying the QCA's materiality threshold to the renewals annuity model will lead to a bias towards underestimating the number of items that would meet the criterion if it is applied to a developed capital works program.

It is also noted that the threshold suggested by the QCA has the following shortcomings which are not believed to be intentional:

- Excluding items with large expenditure where the overall expenditure for the service contract is high. For example, no expenditure items in the Burdekin-Haughton Distribution scheme exceed the $1.6M threshold for the price path period despite there being 12 large items with value over $100k.
- Including very small items of expenditure where overall expenditure in the period is low. For example, for one scheme, the threshold equates to $2,319.

Therefore, to estimate the number of items of expenditure that are likely to meet a reasonable definition of materiality, the renewals annuity model has been analysed to determine the number of items that:

- Meet the QCA's threshold of >10% of expenditure for the period by service contract

- Have expenditure >$50k
- Have expenditure >$100k

The results of this analysis are presented in Table 5-2. Note that the total number of items meeting the given threshold has been divided by the number of years in the analysis to reach a figure that is expressed as number of items per year.

Table 5-2- Number of items (per year) meeting materiality thresholds

Period	Items meeting QCA criteria (Items/year)	Items >$50k (Items/year)	Items >$100k (Items/year)
Short term pricing period (5 years)	12	52	18
Long term (30 years)	2	96	47

Further analysis was undertaken to inspect the renewals annuity items to understand how these may be logically aggregated to form capital expenditure items. Aggregation was performed based on judgement of materiality formed in regulatory reviews similar to that which SunWater is undergoing. This aggregation is necessary due to the differences noted previously between the component level focus in the renewals annuity model and how expenditure items would be delivered in a capital works program.

This inspection was undertaken for the Burdekin-Haughton WSS and the Burdekin-Haughton Distribution schemes for the 5 year price path period. As an example, Table 5-3 shows colour coded for the Burdekin-Haughton Distribution scheme annuity items that are considered logical aggregations for capital projects. The table shows items in the 2012-2016 period sorted by value. Not all items in this scheme for the period are shown.

Table 5-3- Aggregation of Burdekin-Haughton Distribution scheme renewals annuity items by inspection

Description	Sort Field	Cost
Replace Switchboard No 1 (Pumps 1 & 2)	ELLIOT PUMP STATION	262,000
Replace Switchboard	CLARE B PUMP STATION	227,780
Tom Fenwick PSTN3 - Refurbish PUN4 (refurbish seals, impeller, bearings etc)	TOM FENWICK PUMP STATION 4/5	200,000
Replace Rotating Weed Screen	BARRATTA IRRIGATION DISTRIB	175,000
Replace Cable	CLARE B PUMP STATION	142,642
Replace Control Equipment	MILLAROO A PUMP STATION	135,584
Replace Control Equipment	ELLIOT PUMP STATION	117,836
Replace Control System	TOM FENWICK PUMP STATION 1	105,178
Replace Control Equipment	TOM FENWICK PUMP STATION 2/3	102,290
Replace Control Equipment	TOM FENWICK PUMP STATION 4/5	102,290
Replace Control Equipment	CLARE A PUMP STATION	101,729
Replace Incoming Supply Panel	CLARE B PUMP STATION	100,000
Replace Control Equipment	MILLAROO B PUMP STATION	88,709
Replace Control Equipment	CLARE B PUMP STATION	83,184
Haughton PSTN1 - Refurbish PUN 1/1 (bearing replacement, seals, rings, sleeves, impeller wear, etc)	TOM FENWICK PUMP STATION 1	80,000
Refurbish Gear Box - overhaul on condition, need stratetgy, major	TOM FENWICK PUMP STATION 4/5	75,000

Description	Sort Field	Cost
task - lube system, bearings, gears, corrosion treatment		
Refurbish Gear Box - overhaul on condition, need stratetgy, major task - lube system, bearings, gears, corrosion treatment	TOM FENWICK PUMP STATION 4/5	75,000
Elliot PSTN - Refurbish Pump 2 (mechanical seals, wear rings, bearings)	ELLIOT PUMP STATION	68,836
Replace Discharge Valve	MILLAROO B PUMP STATION	67,740
Replace Discharge Valve	MILLAROO B PUMP STATION	67,740
Replace Discharge Valve	MILLAROO B PUMP STATION	67,740
Replace Gate Control Equipment	HAUGHTON IRRIGATION DISTRIB	61,513
Replace Submersible Pump No 1	CLARE B PUMP STATION	60,000
Replace Submersible Pump No 2	CLARE B PUMP STATION	60,000
Replace Submersible Pump No 4	CLARE B PUMP STATION	60,000
Replace Meter, 750Mm Tempress Endflow	CLARE IRRIGATION DISTRIBUTION	60,000
Replace Flow Meter, 910Mm Ults Danfoss	ELLIOT PUMP STATION	60,000
Millaroo PSTNB - Refurbish Pump Unit 1 (corrosion, seals, wearing parts)	MILLAROO B PUMP STATION	56,144

Table 5-4 details the findings of this analysis and the comparison of projects per year meeting each threshold.

Table 5-4- Number of items (per year) meeting materiality threshold for selected schemes

Period	Items meeting QCA criteria (Items/year)	Items >$50k (Items/year)	Items >$100k (Items/year)	By inspection
Burdekin-Haughton WSS	0	2.6	0.4	1.2
Burdekin-Haughton Distribution	0	6	2.2	3.4

The analysis shows that:

- No expenditure items in the renewals annuity model from either scheme meet the QCA's materiality threshold despite there being numerous items considered material when the annuity model is inspected in detail.
- When considered by inspection, the material items identified total more than the number of individual items >$100k. This is because when aggregated by inspection, groupings of items exceed $100k in total.
- When considered by inspection, the material items identified total around half of the number of individual items >$50k.

Therefore, it is felt that this estimate by inspection gives the best estimate of the number of expenditure items for which SunWater should undertake detailed and high-level investigations given the observed shortcomings in the QCA criteria due to aggregation and small and large total problems when applied to the renewals annuity model.

As the total number of items considered material by inspection is around half the total of individual items with expenditure >$50k occurring each year, for the purposes of this paper, it is assumed that the number of material items will be estimated using this relationship as shown in Table 5-5.

Table 5-5- Assumed number of material items (per year)

Period	Items >$50k (Items/year)	Assumed items for which SunWater will require options analyses
Short term pricing period (5 years)	52	26
Long term (30 years)	96	48

6 RESOURCE ESTIMATE FOR PROPOSED RENEWALS PLANNING

To determine the additional resources required by SunWater to meet the QCA's recommendations regarding renewals planning, we have determined a program of activities that would be undertaken by SunWater's planning team annually.

The activities include screening to identify material items of expenditure, undertaking detailed options analysis for long term and short term projects, updating NSPs and consulting with customers on the updates.

Table 6-1 details a proposed program of activities to be undertaken by SunWater to meet the QCA's recommendations for options analysis, consultation and update to NSPs.

Table 6-1- Suggested program of activities to meet QCA recommendations for renewals

Stage	Activities	Outputs produced	Suggested Timing
1	• Additional analysis on roll-forward renewals model based on latest information	• Updated renewals projections for next 20 years • List of material projects now in 20 year projection • List of material projects now in 5 year timeframe	November
2	• High-level options analysis for material long-term projects	• Short (5-10page) options analysis for each project in 20 year projection	December
3	• Detailed options analysis for all material new projects in 5 year period	• Comprehensive business case style document for all material renewals projects	Year round
4	• Analysis of forecast v actual renewals • Update NSPs to reflect latest renewals projects and analysis	• Draft updated NSP	December – February
5	• Release draft NSP for comment (online) • One consultation meeting for each NSP to explain renewals forecast	• Summary of feedback from consultation meeting and written responses	February – March
6	• Respond to feedback received • Update NSP	• Final updated NSP • Responses to individual comments received	April - May

To then determine the resources required to complete these activities, we have estimated the number of hours required for each stage of the renewals analysis process. These estimates are based on our experience producing similar documents for water utilities to support capital expenditure.

The total resource requirement has been estimated for the following three cases that provide a range of number of analyses from low to high:

- The QCA's criterion
- The number of material projects estimated by inspection
- All projects>$50k considered material

Table 6-2 sets out the derivation of this estimate of time assuming that the work would be undertaken by an engineer under the supervision of an experienced senior engineer. In this example, the number of detailed

options analyses per year (26) and the number of high level options analyses per year (26) are those numbers estimated by our own assessment of materiality.

Table 6-2- Time estimate for completing renewals analysis activities

		Engineer					Senior Engineer				
	Activities	Qty		Time		Total	Qty		Time		Total
1	Roll-forward renewals model based on latest information	1	Item	40	hrs	40	1	Item	8	hrs	8
2	High-level options analysis for material long-term projects	48	No.	25	hrs	1200	48	No.	4	hrs	192
3	Detailed options analysis for all material new projects in 5 year period	26	No.	80	Hrs	2080	26	No.	4	hrs	104
4.1	Analysis of forecast v actual renewals	1	Item	40	hrs	40	1	Item	40	hrs	40
4.2	Update NSPs to reflect latest renewals projects and analysis	30	NSPs	8	hrs	240	30	NSPs	1	hrs	30
5	One consultation meeting for each NSP to explain renewals forecast	30	NSPs	16	hrs	480	30	NSPs	16	hrs	480
6.1	Respond to feedback received	30	NSPs	8	hrs	240	30	NSPs	1	hrs	30
6.2	Update NSPs to reflect latest renewals projects and analysis	30	NSPs	4	hrs	120	30	NSPs	1	hrs	30
	Total					4440					914

Assuming that:

- Employees are 70% productive to allow time for training, meetings and administrative tasks
- There are 48 working weeks in a year, allowing four for holidays
- Employees work 37 hours per week

then this time estimate equates to 3.3 Full Time Equivalent (FTE) engineers and 0.7 FTE of a senior engineer.

Assuming that:

- Direct salary costs for an engineer is $90k/ annum and for the senior engineer $130k/annum and
- SunWater's on-costs on direct salaries is 100%,

then this level of additional resourcing to meet the QCA's recommendations is estimated to increase annual operation SunWater's costs by a range of $450k -$1.7M as shown in Table 6-3. We note that the process may be made more efficient if SunWater adopts decision frameworks for options analysis of common assets.

Table 6-3 - Estimate of additional annual cost under different thresholds

	Material items/year		Full Time Equivalents		Estimated Total annual cost
Threshold applied	Short term	Long term	Engineer	Snr Engineer	
QCA criterion	12	2	1.7	0.5	455,148
Materiality assessed by inspection	48	26	3.6	0.7	834,009
>50k	96	52	8.2	1.0	1,721,203