QUEENSLAND COMPETITION AUTHORITY

Draft Report

SunWater
Irrigation Price Review: 2012-17
Volume 2
Macintyre Brook Water Supply Scheme

November 2011

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SUBMISSIONS

This report is a draft only and is subject to revision. Public involvement is an important element of the decision-making processes of the Queensland Competition Authority (the Authority). Therefore submissions are invited from interested parties. The Authority will take account of all submissions received.

Written submissions should be sent to the address below. While the Authority does not necessarily require submissions in any particular format, it would be appreciated if two printed copies are provided together with an electronic version on disk (Microsoft Word format) or by e-mail. Submissions, comments or inquiries regarding this paper should be directed to:

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The **closing date** for submissions is **23 December 2011**.

Confidentiality

In the interests of transparency and to promote informed discussion, the Authority would prefer submissions to be made publicly available wherever this is reasonable. However, if a person making a submission does not want that submission to be public, that person should claim confidentiality in respect of the document (or any part of the document). Claims for confidentiality should be clearly noted on the front page of the submission and the relevant sections of the submission should be marked as confidential, so that the remainder of the document can be made publicly available. It would also be appreciated if two copies of each version of these submissions (i.e. the complete version and another excising confidential information) could be provided. Again, it would be appreciated if each version could be provided on disk. Where it is unclear why a submission has been marked "confidential", the status of the submission will be discussed with the person making the submission.

While the Authority will endeavour to identify and protect material claimed as confidential as well as exempt information and information disclosure of which would be contrary to the public interest (within the meaning of the *Right to Information Act 2009 (RTI))*, it cannot guarantee that submissions will not be made publicly available. As stated in s187 of the *Queensland Competition Authority Act 1997* (the QCA Act), the Authority must take all reasonable steps to ensure the information is not disclosed without the person's consent, provided the Authority is satisfied that the person's belief is justified and that the disclosure of the information would not be in the public interest. Notwithstanding this, there is a possibility that the Authority may be required to reveal confidential information as a result of a RTI request.

Public access to submissions

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

Information about the role and current activities of the Authority, including copies of reports, papers and submissions can also be found on the Authority's website.

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GLOSSARY

Refer to Volume 1 for a comprehensive list of acronyms, terms and definitions.

EXECUTIVE SUMMARY

Direction Notice

The Authority has been directed by the Minister for Finance and The Arts and the Treasurer for Queensland to recommend irrigation prices to apply to particular SunWater water supply schemes (WSS) from 1 July 2012 to 30 June 2017 (the 2012-17 regulatory period). A copy of the Ministerial Direction forms **Appendix A** to Volume 1.

Summary of Price Recommendations

The Authority's recommended irrigation prices to apply to the Macintyre Brook WSS for the 2012-17 regulatory period are outlined in Table 1 together with actual prices since 1 July 2006.

Table 1: Prices for the Macintyre Brook WSS ($/ML)

	Actual Prices						***Recommended Prices***				
	2006-07	***2007-08***	***2008-09***	***2008-10***	***2010-11***	***2011-12***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Fixed (Part A)	20.28	21.24	22.88	24.44	25.44	28.36	30.30	33.11	36.04	39.09	42.28
Volumetric (Part B)	7.23	7.58	8.17	8.72	9.09	9.42	3.46	3.55	3.63	3.73	3.82

Note: 2011-12 prices include the interim increase of $2/ML in addition to CPI. Source: Actual Prices (SunWater, 2011al) and Recommended Prices (QCA, 2011)

Draft Report

Volume 1 of this Draft Report addresses key issues relevant to the regulatory and pricing frameworks, renewals and operating expenditure and cost allocation, which apply to all schemes.

Volume 2, which comprises scheme specific reports, should be read in conjunction with Volume 1.

Consultation

The Authority has consulted extensively with SunWater and other stakeholders throughout this review. Consultation has included: inviting submissions from, and meeting with, interested parties; the commissioning of independent reports on key issues; and, publication of Issues Papers.

Comments on the Draft Report are due by **23 December 2011.** All submissions will be taken into account by the Authority in preparing its Final Report due by 30 April 2012.

1. MACINTYRE BROOK WATER SUPPLY SCHEME

1.1 Scheme Description

The Macintyre Brook water supply scheme (WSS) is centred near the town of Inglewood. An overview of the key characteristics of this WSS is provided in Table 1.1.

Table 1.1: Key Scheme Information for the Macintyre Brook WSS

	Macintyre Brook WSS
Business Centre	Toowoomba
Irrigation Uses of Water	Lucerne, citrus, stone fruit, vines, olives and cereal.
Urban Water Supplies	The town of Inglewood and the bowls and golf clubs.
Industrial Water Supplies	Stock intensive industries such as feedlots and chicken production companies.

Source: Synergies Economic Consulting (2010).

The Macintyre Brook WSS has a total of 90 bulk customers. Medium and high priority water access entitlements (WAEs) are detailed in Table 1.2.

Table 1.2: Water Access Entitlements

Customer Group	***Irrigation WAE (ML)***	***Total WAE (ML)***
Medium Priority	23,719	24,509
High Priority	0	488
Total	**23,719**	**24,997**

Source: SunWater (2011).

1.2 Bulk Water Infrastructure

Bulk water services involve the management of storages and WAEs in accordance with regulatory requirements, and the delivery of water to customers in accordance with their WAE.

The full supply storage capacity and age of the key infrastructure are detailed in Table 1.3.

Table 1.3: Bulk Water Infrastructure in the Macintyre Brook WSS

Storage Infrastructure	***Capacity (ML)***	***Age (years) (2011)***
Coolmunda Dam	69,000	43
Ben Dor Weir	734	57
Whetstone Weir	506	60
Greenup Weir	370	53

Sources: SunWater (2011) and QCA (2011).

The characteristics of the bulk water assets are:

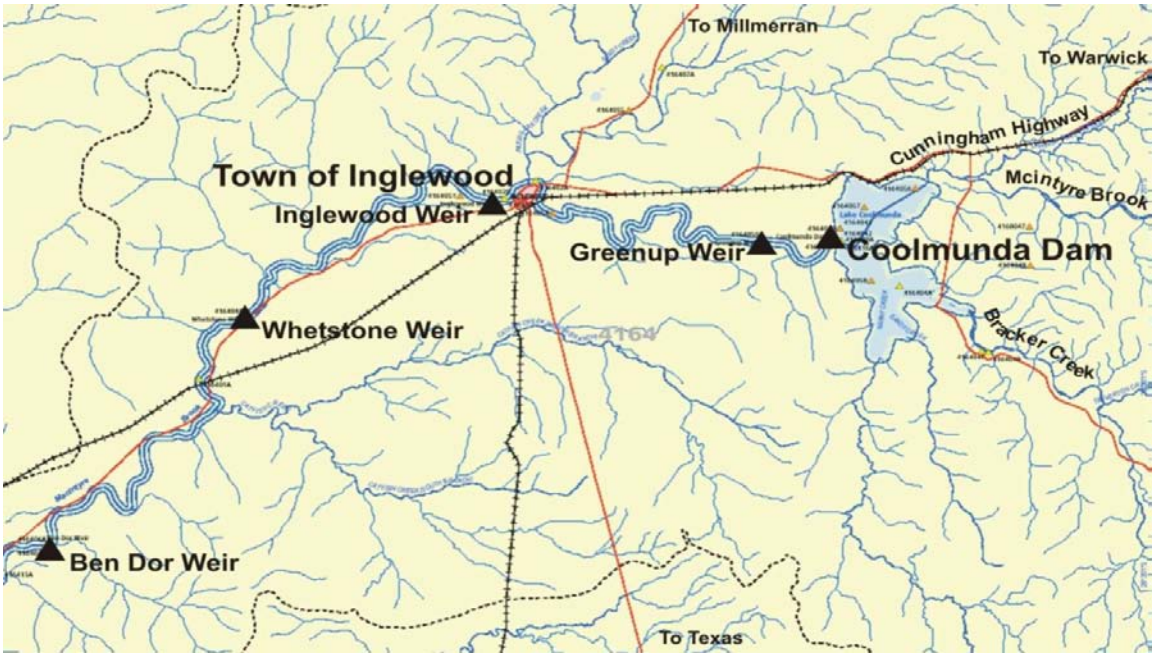
(a) Coolmunda Dam is an earth and rock-fill wall structure with a gated concrete spillway;

(b) Greenup Weir and Whetstone Weir are timber piled structures; and

(c) Ben Dor Weir is a mass concrete structure with modest flows regulated via outlet works (SunWater, 2011).

The location of the Macintyre Brook WSS and key infrastructure is shown in Figure 1.1.

Figure 1.1: Macintyre Brook WSS Locality Map



Source: SunWater (2011).

1.3 Network Service Plans

The Macintyre Brook WSS network services plan (NSP) presents SunWater's:

(a) existing service standards;

(b) forecast operating and renewals costs, including the proposed renewals annuity; and

(c) risks relevant to the NSP and possible reset triggers.

SunWater has also prepared additional papers on key aspects of the NSPs and this price review, which are available on the Authority's website.

1.4 Consultation

The Authority has consulted extensively with SunWater and other stakeholders throughout this review on the basis of the NSPs and supporting information. To facilitate the review the Authority has:

(a) invited submissions from interested parties;

(b) met with stakeholders to identify and discuss relevant issues (two rounds of consultation);

(c) published notes on issues arising from each round of consultation;

(d) commissioned independent consultants to prepare Issues Papers and review aspects of SunWater's submissions;

(e) published all issues papers and submissions on its website; and

(f) considered all submissions and reports in preparing this Draft Report for comment.

The Authority has also received a number of submissions from stakeholders on matters such as capacity to pay, rate of return on existing assets, contributed assets, dam safety upgrades, nodal pricing, national metering standards and whether or not to recover recreation management costs from SunWater customers.

Following the amendment to the original Ministerial Direction of 19 March 2010 and further advice from the Minister of 23 September 2010 and 9 June 2011, these issues are outside the scope of the current investigation and have therefore not been addressed.

The Ministerial Direction forms **Appendix A** to Volume 1.

2. REGULATORY FRAMEWORK

2.1 Introduction

Under the Ministerial Direction, the Authority must recommend the appropriate regulatory arrangements, including price review triggers and other mechanisms, to manage the risks associated with identified allowable costs.

During the negotiations that preceded the 2006-11 price path, the Macintyre Brook WSS Tier 2 group decided to adopt a revenue cap (SunWater, 2006b). Under this approach, a carry-over adjustment from the previous price path is to be made at the start of the regulatory period to correct for any under- or over-recovery of the cumulative Part B revenues. In the 2011-12 interim price period, the revenue cap arrangement was continued.

SunWater (2011) submitted within its NSP that the carry-over balance for 2011-12 was projected to be (based on the four years of the previous price path) $21,790. In other words, SunWater collected more than projected and included this figure as a revenue off-set for the forthcoming regulatory period. However, SunWater subsequently advised that the carry-over balance as at 1 July 2011 was negative $71,741.

2.2 Stakeholder Submissions

SunWater

SunWater identified a range of generic risks considered relevant to allowable costs across all schemes (see Volume 1). SunWater also considered that it should not bear the risk of water availability (volume risk). The following are scheme specific risks identified by SunWater in the NSP associated with the Macintyre Brook WSS:

(a) potential removal of regulated electricity tariffs which could have an impact on the cost of electricity;

(b) the introduction of schemes relating to the reduction of greenhouse gases that may have implications for electricity prices;

(c) damage to SunWater's assets, to the extent that such damage is not recoverable under insurances;

(d) levies or charges made in relation to the regulation of irrigation prices by the Authority;

(e) metering costs related to changes in regulatory standards and

(f) outbreak of noxious weeds.

Other Stakeholders

Cotton Australia/Queensland Farmers' Federation (QFF) (2011a) questioned SunWater's statement that customers demand is a risk that cannot be managed by SunWater. Cotton Australia/QFF further submitted that they agree that SunWater cannot be expected to take on all the risk of demand in any one year, but to suggest that SunWater has no role in the demand risk into the future is inappropriate. Cotton Australia/QFF suggested that managing demand may be best addressed by setting prices based on 20% higher usage than historical averages.

2.3 Authority's Analysis

The Authority has, in Volume 1, analysed the general nature of the risks confronting SunWater and recommended that an adjusted price cap apply to all WSSs. The proposed allocation of risks and the means for addressing them are outlined in Table 2.1 below.

The adjustments required to transition from a revenue to a price cap regulatory arrangement are addressed in a subsequent chapter.

Table 2.1: Summary of Risks, Allocation and Regulatory Response

Risk	*Nature of the Risk*	*Allocation of Risk*	*Authority's Recommended Response*
Short Term Volume Risk	Risk of uncertain usage resulting from fluctuating customer demand and/or water supply.	SunWater does not have the ability to manage these risks and, under current legislative arrangements, these are responsibility of customers. Allocate risk to customers.	Cost-reflective tariffs.
Long Term Volume Risk (Planning and Infrastructure)	Risk of matching storage capacity (or new entitlements from improving distribution loss efficiency) to future demand.	SunWater has no substantive capacity to augment bulk infrastructure (for which responsibility rests with Government). SunWater does have some capacity to manage distribution system infrastructure and losses provided it can deliver its WAEs.	SunWater should bear the risks, and benefit from the revenues, associated with reducing distribution system losses.
Market Cost Risks	Risk of changing input costs.	SunWater should bear the risk of its controllable costs. Customers should bear the risks of uncontrollable costs.	End of regulatory period adjustment for over- or under-recovery. Price trigger or cost pass-through on application from SunWater (or customers), in limited circumstances.
Risk of Government Imposts	Risk of governments modifying the water planning framework imposing costs on service provider.	Customers should bear the risk of changes in water legislation though there may be some compensation associated with National Water Initiative (NWI) related government decisions.	Cost variations may be immediately transferred to customers using a cost pass-through mechanism, depending on materiality.

Source: QCA 2011

Consistent with the Authority's allocation of risks (Table 2.1), it is proposed that risks identified by SunWater in items (a), (b), (c) and (f) above will be dealt with an end-of-period adjustment, or price trigger or cost pass through upon application by SunWater or customers.

It should be noted that anticipated prudent and efficient electricity costs are reviewed as part of the Authority's analysis of efficient operating costs, and it is only if they are materially different to those forecast would there be a case to consider price triggers or cost pass throughs.

Metering upgrades (e) are outside the scope of the investigation. No levies or charges (d) are to be applied by the Authority as a result of this irrigation price review.

The Authority notes Cotton Australia/QFF's proposed method to address demand risk. This proposal would require that the tariffs depart from the underlying costs, which allocate volume risk to SunWater which SunWater is not able to manage.

Rather than estimating future demand the Authority recommends that short term volume risks should be assigned to customers through a tariff structure that recovers all fixed costs through fixed charges and variable costs through the volumetric charges. Costs that vary with water use (variable) are addressed in more detail in the chapter on operating expenditures.

To seek to impose an arbitrary risk on SunWater of the magnitude suggested may place an unacceptable level of risk upon SunWater. Moreover, SunWater may simply respond by seeking to reduce costs in a manner which reduces the standard of service at the scheme level. The establishment of a two-part tariff that aligns the costs and prices better manages risk and avoids these complications.

3. PRICING FRAMEWORK

3.1 Tariff Structure

Introduction

During the 2005-06 price negotiations, it was generally agreed to adopt a 70:30 ratio of fixed costs to variable costs. However, to ensure that the total community service obligation (CSO) funding for the scheme be equal to the amount that was agreed by the Macintyre Brook WSS Tier 1 group, the Part A fixed charge was set at 80% and Part B variable charges at 20% of total revenues in this scheme.

Stakeholder Submissions

SunWater

SunWater (2011d) submitted that the fixed charge should recover fixed costs and the variable charge should recover variable costs.

Other Stakeholders

The participants of the Round 2 consultation and Macintyre Brook Irrigators' Association (MBIA, 2011) considered that the high fixed tariff is reflective of the revenue-cap form of regulation previously applied to this scheme. They accepted that high fixed costs are not an issue of concern.

MBIA (2011) and the participants of the Round 2 consultation indicated it is unclear what the implications of continuous sharing will be for prices within the scheme. They queried as to whether prices will vary across the three scheme segments to reflect differences in loss provision.

MBIA (2011) submitted that the pricing issues outlined provide no incentive for SunWater to perform its services in this scheme. MBIA questioned as to how focus can be placed on giving incentives to SunWater and its employees to perform at a level that stimulates innovation and provides satisfactory customer outcomes. They submitted that this focus needs to be some form of reward to SunWater and its employees for achieving outcomes, which drive the business forward and change its culture.

Cotton Australia (2011a) submitted that if SunWater charges for 100% of bulk WAEs, it should be charged in arrears and not in advance as is currently the case.

Authority's Analysis

The Authority has, in Volume 1, analysed the tariff structure and the efficiency implications of the tariff structure to apply to SunWater's schemes.

The Authority considers that, in general, aligning the tariff structure with fixed and variable costs will manage volume risk over the regulatory period and send efficient price signals. To signal the efficient level of water use, the Authority recommends that all, and only, variable costs be recovered through a volumetric charge.

In response to the Round 2 consultation comments and MBIA's submission, the Authority agrees that a fixed charge that recovers all (and only) fixed costs will apportion short term volume risk to customers, similar to the effects of a revenue cap.

The Authority notes that under current legislative and contractual arrangements (and the Ministerial Direction), customers must bear all the costs of water supply incurred by SunWater, irrespective of whether it is made available or not (provided the costs of supply are efficient and prudent).

In response to questions regarding whether prices will vary in accordance with the three scheme segments to reflect differences in loss provisions, the Authority notes section 1.1 d) of the Ministerial Direction, which requires the Authority to adopt SunWater's proposed tariff groups. This requires that the existing postage stamp pricing arrangements are to apply to the 2012-17 regulatory period.

Moreover, the Authority also recognises that tariff structures are only part of a mix of institutional arrangements in Queensland designed to direct water to its highest and best use from the overall community perspective. In addition to these institutional arrangements, normal commercial profit motives and water trading are relevant to ensuring water is directed to its highest and best use.

The volumes of permanent and temporary water traded for the Macintyre Brook WSS are identified in Table 3.1.

Table 3.1: Permanent and Temporary Water Traded (ML)

	2002-03	*2003-04*	*2004-05*	*2005-06*	*2006-07*	*2007-08*	*2008-09*	*2009-10*
Permanent water traded	0	0	0	0	0	15	175	260
Temporary water traded	3,571	3,033	9,885	16,068	5,199	11,809	6,337	2,560

Source: SunWater (2003–2010g), and Queensland Valuation Services (2010).

In response to MBIA's submission that SunWater has no incentive to deliver water to customers, the Authority considers that, in a commercial environment, a service provider will continue to increase supply until the marginal cost and marginal revenue are equal. In a regulatory environment with the volumetric charge set to equal variable costs, the incentive to increase supply only occurs where the service providers envisages that cost per unit may decrease with increased supply, or where further cost savings are identified as being feasible.

Notwithstanding the particular characteristics of the variable costs in particular instances, the Authority notes that, under the prevailing legislative framework and contractual arrangements, SunWater has an obligation to supply existing customers with water under the announced allocation (consistent with the terms and conditions of the specified level of service agreement).

The Authority's analysis of whether service delivery costs are fixed or variable is addressed in a subsequent chapter as are the cost allocation rules.

In response to Cotton Australia, the Authority notes that if SunWater charges for 100% bulk WAEs in arrears, rather than in advance, the additional financing costs arising from an increased need for working capital will need to be included in prices. Therefore, the Authority proposes to retain the existing arrangements of charging Part A in advance.

3.2 Water Use Forecasts

Introduction

During the 2006-11 price paths, water use forecasts played an essential role in the determination of tariff structure.

In the previous review, up to 25 years of historical data was collated for nominal WAEs, announced allocations and volumes delivered. The final water usage forecasts were based on the long term average actual usage level. Where there was a clear trend away from the long term average, SunWater adjusted the forecast in the direction of that trend. Usage forecasts also took into account SunWater's assessment of future key impacts on water usage, such as changes in industry conditions, impacts of trading and scheme specific issues (SunWater, 2006a).

For the Macintyre Brook WSS, SunWater (2006b) assumed a water usage forecast of 70% of WAEs. Water usage for high and medium priority irrigation WAEs was not separately identified (SunWater, 2006b).

Stakeholder Submissions

SunWater

The available supply of water is determined by the announced allocations which are set according to rules contained in the Resource Operations Plan (ROP).

SunWater (2011d) has noted that demand forecasts are not relevant for price setting under SunWater's proposed tariff regime.

SunWater's usage forecasts for 2012-17 are made with regard to historic averages over an eight-year period and the usage forecast applied for the 2006-11price path. However, SunWater advised that usage of high priority and medium priority irrigation water cannot be separately identified, as holders of high priority WAEs also hold medium priority WAEs which passes through the same meter.

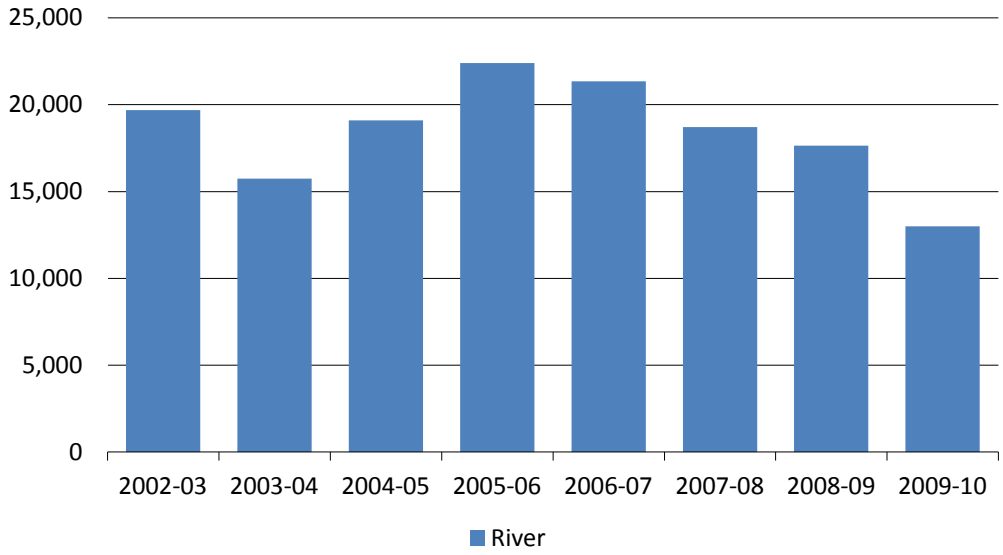
Based on the last eight years observations, SunWater has forecast use as follows:

(a) at a whole scheme level (all sectors) – an average of 74% of total WAE (including SunWater's WAE); and

(b) for the irrigation sector only – an average of 75% of irrigation WAE. This compares with the use assumption adopted in the 2006-11 price paths of 70% of WAE.

Figure 3.1 shows the historic usage information for the Macintyre Brook WSS submitted by SunWater (2011). The river category includes all irrigation and other usage sourced from the river.

Figure 3.1: Water Usage for the Macintyre Brook WSS (ML)



Source: SunWater (2011).

Other Stakeholders

No other stakeholders have commented on this matter.

Authority's Analysis

As noted in Volume 1, the Authority does not consider that water use forecasts are relevant to establishing cost-reflective prices for SunWater.

Nonetheless, the Authority has considered past water use in calculating cost-reflective volumetric charges that recover variable costs (see Chapter 6 – Draft Prices).

Under the Direction, the Authority must recommend prices that maintain revenues in real terms where current prices are above the level required to recover prudent and efficient costs. For this purpose, the Authority has considered forecast irrigation water use (see Chapter 6 – Draft Prices).

3.3 Tariff Groups

The amended Ministerial Direction specifically directs the Authority to adopt the tariff groups proposed in SunWater's NSPs.

The 2006-11 SunWater Irrigation Price Paths Final Report (SunWater, 2006b) nominated one tariff group, the River tariff group, for the Macintyre Brook WSS.

SunWater proposed in its NSP that the current tariff groups continue.

In accordance with the Ministerial Direction, the Authority will adopt the proposed tariff group for this WSS.

3.4 Continuous Sharing Arrangements

Continuous sharing arrangements commenced in the Macintyre Brook WSS on 1 July 2008, replacing the announced allocations approach.

The Authority notes Part 2 of the Border Rivers ROP prescribes specific formulae (and associated parameters) to apply when administering continuous sharing arrangements including calculating continuous share volumes. These parameters include storage factors which are to be applied in certain circumstances to calculate losses experience in the scheme's three zones.

4. RENEWALS ANNUITY

4.1 Introduction

Ministerial Direction

Under the Ministerial Direction, the Authority is required to recommend a revenue stream that allows SunWater to recover prudent and efficient expenditure on the renewal and rehabilitation of existing assets through a renewals annuity.

The Ministerial Direction also requires the Authority to have regard to the level of service provided by SunWater to its customers.

Previous Review

In 2000-06 and 2006-11, a renewals annuity approach was used to fund asset replacement for SunWater WSSs.

As discussed in Volume 1, the renewals annuity for each WSS was developed in accordance with the Standing Committee for Agriculture and Resource Management (SCARM) Guidelines (Ernst & Young 1997) and was based on two key components:

(a) a detailed asset management plan, based on asset condition, that defined the timing and magnitude of renewals expenditure; and

(b) an asset restoration reserve (ARR) to manage the balance of the unspent (or overspent) renewals annuity (including interest).

The determination of the renewals annuity was then based on the present value of the proposed renewals expenditure minus the ARR balance.

The allocation of the renewals annuity between high and medium priority users was based on water pricing conversion factors (WPCFs).

Issues

In general, a renewals annuity seeks to provide funds to meet renewals expenditure necessary to maintain the service capacity of infrastructure assets through a series of even charges. SunWater's renewals expenditure and ARR balances include direct, indirect and overhead costs (unless otherwise specified).

The key issues for the 2012-17 regulatory period are:

(a) the establishment of the opening ARR balance (at 1 July 2012), which requires:

  (i) an assessment of the prudency and efficiency of renewals expenditure incurred during the previous price path (i.e. 2006-11);

  (ii) the extension of the opening ARR balance (calculated for 1 July 2011) to 1 July 2012 to account for the adjusted timelines specified in the amended Ministerial Direction;

(b) the prudency and efficiency of SunWater's forecast renewals expenditure;

(c) the methodology for apportioning renewals between medium and high priority WAEs; and

(d) the methodology to calculate the renewals annuity.

The Authority's general approach to addressing these issues is outlined in Volume 1.

The Authority notes that SunWater has estimated that it has under management about 50,000 assets relevant to irrigators and, given this number of assets, has developed an asset planning methodology designed to cost-effectively identify assets requiring renewal or refurbishment.

Some of the assets were renewed during the 2006-11 price paths. Others are eligible for renewal over the 2012-17 regulatory period. Depending on their asset life, some are renewed several times during the Authority's recommended 20-year planning period.

It is therefore not practicable within the time available for the review, nor desirable given the potential costs involved, to assess the prudency and efficiency of every individual asset.

The Authority initially relied on its four principal scheme consultants: Arup, Aurecon, GHD and Halcrow to identify and comment upon SunWater's renewals expenditure items. However, the Authority's four consultants expressed concerns about the lack of timely information relating to the past and proposed expenditures at the time of their reviews.

Subsequently, the Authority liaised directly with SunWater to obtain further information, and commissioned Sinclair Knight Merz (SKM) to address material expenditure items (that is, which represented more than 5% of the present value of forecast expenditure) and/or those of particular concern (usually in response to customers' submissions). Across all schemes, a total of 31 past and forecast renewals items were reviewed by SKM.

The Authority's assessment of the prudency and efficiency of proposed renewals expenditures therefore draws upon the contributions of all of these sources as detailed below.

4.2 SunWater's Opening ARR Balance (1 July 2006)

The 2006-11 price paths were based on the opening ARR balance at 1 July 2006.

SunWater submitted that the opening balance for the Macintyre Brook WSS was $336,000.

In Volume 1, the Authority noted that the opening ARR balance at 1 July 2006 is not subject to review for the 2012-17 regulatory period.

4.3 Past Renewals Expenditure

As noted in Volume 1, the Authority has reviewed the prudency and efficiency of selected renewals expenditures over the 2006-11 price path. The Authority has also sought to compare the original expenditure forecasts underlying the 2006-11 price path with actual expenditure, to establish the accuracy of SunWater's forecasts.

Submissions

SunWater

SunWater (2011) submitted actual renewals expenditure for the Macintyre Brook WSS for 2006-11 as outlined below in Table 4.1 in real terms as at 2010-11. This expenditure included indirect and overhead costs which are subject to a separate review by the Authority (see Chapter 5). SunWater advised that it was unable to provide the forecast renewals expenditure (approved for the 2005-06 review) for this period.

Table 4.1: Past (Actual) Renewals Expenditure 2006-11 (Real $'000)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*
Direct Costs	143	534	701	614	349
Indirect & Overheads Costs	45	140	166	262	197
Total	***188***	***674***	***867***	***877***	***545***

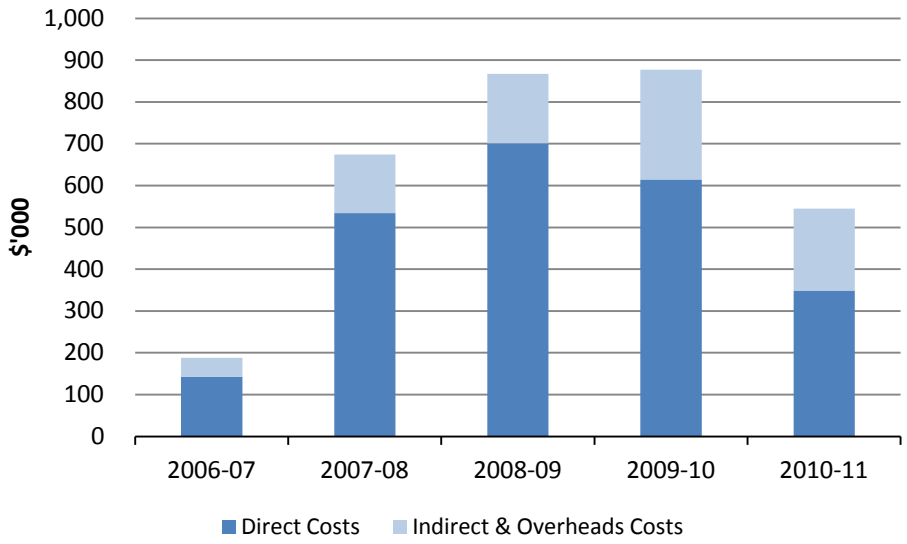
Source: SunWater (2011an).

Authority's Analysis

Total Renewals Expenditure

The total renewals expenditure over 2006-11 is detailed in Figure 4.1 below. Indirect and overhead costs are addressed in a following chapter.

Figure 4.1: Past (Actual) Renewals Expenditure (Real $'000)



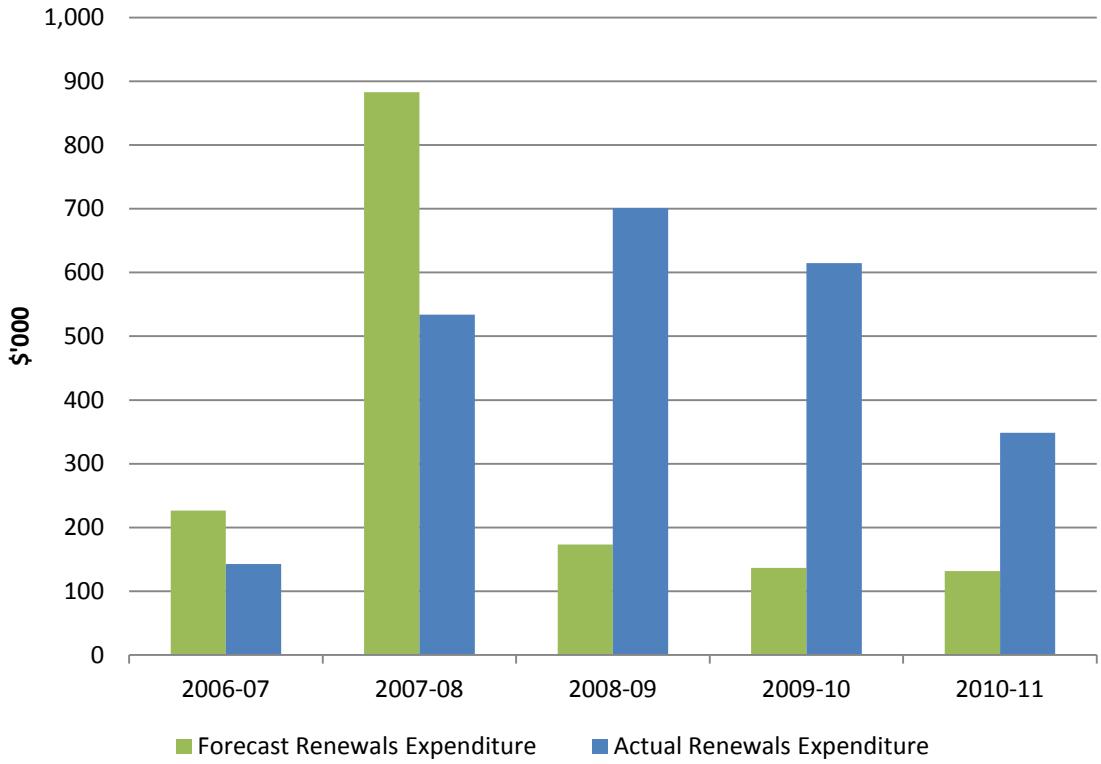
Source: Indec (2011d).

Comparison of Forecast and Actual Costs

The Authority was able to source details of forecast direct renewals expenditure from Indec, who undertook the analysis for the 2005-06 review.

A comparison of forecast and actual direct renewals expenditure in the Macintyre Brook WSS for 2006-11 is shown in Figure 4.2.

Figure 4.2: Direct Renewals Expenditure 2006-11 (Real $'000)



Source: Forecast (Indec, 2011d) and Actuals (SunWater, 2011k).

Actual expenditure exceeded forecast expenditure over the period by $789,831 (direct costs). The difference was attributable primarily to a cost overrun on planned expenditure on Whetstone Weir (this item of renewals expenditure is reviewed in more detail below).

GHD was appointed to review the prudency and efficiency of past renewals projects.

As noted in Volume 1, GHD adopted a different approach to the other scheme consultants and undertook a high level process review of a large number of projects rather than a more detailed review of a smaller number of projects.

GHD found SunWater's asset planning process to generally meet good industry practice (as did the other consultants in general). Nevertheless, as a result of the lack of detailed review of any specific renewals expenditure items, the Authority has applied a general 10% cost saving to SunWater's proposed renewals expenditure items reviewed by GHD.

In the absence of forecast renewals expenditure (as noted above) and detailed information on all renewals expenditure for 2006-11 from SunWater, GHD sought to examine a sample of renewals expenditure items to assess whether the item was justified by the appropriate drivers, was within a reasonable cost range for the scope of the works and completed within an appropriate timeframe.

On this basis, the following projects, completed between 2005-06 and 2010-11, were reviewed in Systems, Applications and Products (SAP) Plant Maintenance (PM) and Works Management System (WMS) and assessed as prudent and efficient based on the information provided by SunWater's staff and GHD's analysis using engineering experience and judgement. These projects were identified by GHD as including (costs include indirect and overheads):

(a) 2006-07 – relocation of power supply to Coolmunda Dam ($40,809);

(b) 2007-08 – risk assessment/study ($64,144);

(c) 2008-09 – Gate 1: paint downstream face ($76,721);

(d) 2008-09 – risk assessment/study ($57,109);

(e) 2010-11 – establishment of toe drain on downstream embankment ($40,265);

(f) 2010-11 – refurbishment of downstream face of spillway Gate 2 at Coolmunda Dam ($56,085);

(g) 2010-11 – refurbishment of downstream face of spillway Gate 7 at Coolmunda Dam ($56,085); and

(h) 2010-11 – five-yearly dam safety inspection ($78,064).

Expenditure on Whetstone Weir was subject to more detailed review by GHD and SKM as set out below.

Item Reviews

Item 1: Whetstone Weir

SunWater

SunWater indicated that a preliminary cost estimate of the up-graded project was prepared in June 2009 for a total project cost of $1.229 million +/- 25%. The estimate did not include geotechnical investigation or design costs. The project was then approved to proceed at a cost of $1.611 million, but the budget was later revised to $2.229 million. The final 2009-10 approved budget was $1.924 million. SunWater has not provided details of reasons for cost variations.

Although SunWater conceded that its initial scoping and estimate of the required works at Whetstone Weir were deficient, it claimed that the expenditure that ultimately was undertaken was necessary and prudent.

Other Stakeholders

MBIA (2011) and the participants of the Round 2 consultation considered that renewals expenditure incurred in 2006-07 associated with Whetstone Weir must be subject to detailed investigation.

MBIA (2011) submitted that the Weir upgrading was sought by irrigation customers to enhance water delivery downstream. Its purpose was to implement a more efficient means of water distribution utilising existing assets at what they deemed to be an appropriate level of costs per ML for irrigation customers. They submitted that the project was proposed by irrigators and was not a refurbishment project. Further, they submitted that the SunWater position prior to the agreement with irrigators was to let the operation of the weir go and not maintain the structure effectively writing it off at an agreed cost.

The participants at Round 2 consultation suggested that irrigators had agreed to this expenditure on the basis of the original estimate of costs proposed by SunWater – i.e. $744,000. No further consultation was held regarding costs until recently, when the project was underway after being significantly delayed, and when significant cost blow outs were identified. The participants considered that the project would not have been supported at increased costs.

MBIA submitted that it is not the responsibility of the MBIA as the client to cover the cost of the poor management and planning exhibited by SunWater in the delivery of this project.

MBIA (2011) submitted that the Whetstone Weir cost overrun has resulted in a very significant increase in the renewals negative balance and therefore on the proposed level of pricing in the upcoming price path. Without some adequate analysis of base costs, irrigators will have little confidence in prices.

MBIA (2011) submitted that the cost of this project into the future far outweighs any of the benefits of the weir upgrading. MBIA submitted that irrigators would not have approved the project had the cost impact been known.

Consultants' Reviews

GHD Review

SunWater advised GHD that the $744,000 cost estimate referred to by irrigators appeared to be the replacement cost of the original timber weir only, based on historic estimates that were not indexed forward.

GHD reported that this was in contrast to a Structural Stability Analysis and Inspection undertaken in May 2005 that concluded that the weir was in poor condition and should be encased in concrete.

GHD noted that there were a number of problems with the project, including:

(a) a lack of, or no, options analysis or cost benefit analysis;

(b) a lack of understanding of the costs of works in the preliminary cost estimate;

(c) a lack of cost control mechanisms or procedures; and

(d) lack of communication with irrigators as the project progressed.

GHD advised the Authority that the initial estimate of costs of $744,000 to be incurred in 2008-09 do not reflect the extent of costs required to maintain the service capability of Whetstone Weir.

GHD did not conclude on the prudency and efficiency of this expenditure.

SKM Review

(a) Introduction

SKM reported that this item 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 there on.

The drought that the surrounding area experienced in the 1990s highlighted the value of this weir and its use to be managed as part of the Macintyre Brook WSS. 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.

(b) Available Information

SKM reviewed SunWater's SAP-WMS, and asset condition and risk assessment policy and procedures. In particular, SKM referred to the Whetstone Weir Refurbishment Document prepared by SunWater. The document contains the following Appendices:

(a) Project Brief – Whetstone Weir –Analysis of Structural Stability;

(b) Structural Stability Analysis and Inspection Report;

(c) Memo requesting additional funding – July 2005;

(d) Business Case – Modernisation of SunWater Infrastructure in the Murray Darling Basin – December 2008;

(e) Memo requesting additional funds for cost escalation – June 2009;

(f) Request for approval of expanded project to SunWater Board;

(g) SAP Governance Records; and

(h) Revised costed SAP PM asset list for the refurbished weir.

(c) Prudency Review

A brief history of the project, showing cash flow, is presented in the Table 4.2 below:

Table 4.2: Project History

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	2007-08	Expenditure		
4.1		Procure Steel Piling		368,753
4.2		SunWater Construction Monitoring Cost		21,751
4.3		SunWater Procurement Cost		27,864
4.4		Additional Design Works		7,748
5	2008-09	Expenditure		
5.1		Installation of Steel Piling		117,555
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		6,393
5.5		Sundry Cost		(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	2009-10	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	2010-11	Expenditure		
9.1		Drafting (SunWater)		2,748
10		Total	2,350,064	1,867,395

Note: 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. A total of $43,687 was back charged in 2008-09, predominantly associated to the design of the capping of the weir. Source: SKM (2011)

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 the renewals expenditure submitted for the 2007-08 fiscal year (being $799,064). The documentation that SunWater has provided to SKM detailed some of the

factors that contributed to the final project cost being more than double the original annuity value.

Asset Replacement/Refurbishment Date Determination

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, stated that 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 recommended that 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.

In the absence of available SAP records of any condition or risk assessments, SKM 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, SKM considered it was due for replacement or refurbishment.

Options Evaluation

SunWater did not indicate any other options that it may have investigated as part of the design process. However, SKM considered 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 be noted that the outlet works did not form part of the original scope.

The outlet works were only included in the scope of this project as part of an unsuccessful application for Commonwealth funding. The SKM review encompasses the full scope of the project, including the outlet works. SKM consider the outlet works to be necessary to allow for inclusion of the required flow meter.

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, SKM considered the timing of this refurbishment to have been prudent.

Conclusion on Prudency Evaluation

SKM concluded that the timing and need for the project, including the inclusion of the outlet works, was prudent.

(d) Efficiency Evaluation

Renewal/Replacement Project Cost Evaluation

SKM noted that the original annuity value was only $799,064 compared to the final cost of $1,876,395 or more than double the original value. SKM identified potential reasons as being:

(a) the original budget included only the contractors cost and not the indirect cost incurred by SunWater. For future projects, SunWater allows between 38% and 45% of the contractors cost to cover indirect costs;

(b) the budget included only the concrete capping and steel piling component. No allowance was made for the outlet works refurbishment;

(c) rise in material cost; and

(d) additional cost associated with a contractor not performing and not having leverage from a contractual aspect.

The total spent by component is presented in Table 4.3, together with SKM's cost estimate per component, based on 2010-11 rates, to use as reference.

Table 4.3: Cost Breakdown by Component and SKM Estimated Cost

No.	*Description*	*Total SunWater Expenditure ($)*	*SKM Cost Estimate (2010-11 Base Year)*	*Difference from SKM Estimate (%)*
1	SunWater Overheads and Labour Component[1]		459,780	-40%
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**	**1,912,141**	**-2.3**

Note: [1]SKM's estimate is based on 45% of SKM's proposed construction cost of the concrete capping and steel piling component (i.e. 45% of ($635,640 + $386,093). [2]SKM's 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. Source: SKM (2011).

From Table 4.3 above, it can be seen that the overheads and internal labour cost of SunWater is only 23.6% of the construction cost. This figure is about 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. SKM 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 that due to the transition of the majority of the Ipswich SunWater staff to Seqwater 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. The design and drafting cost, Item 1.3, shown in Table 4.3 above includes remedial works design and drafting of the As-constructed details.

The steel piling cost estimate prepared by SKM 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 SKM's level 4 estimating range of +30%/-20%. The additional cost can partly be attributed to significant delays experienced in the driving of the sheet piling, due to on-site conditions, inadequate hammer size and inexperience of the driving contractor. It was 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 consisted of the following, as referenced in the documentation:

(a) additional hire of pumps and diesel - $45,000;

(b) additional contract labour, accommodation and travel costs of $85,000 due to the extended contract duration and loss of internal labour; and

(c) rise in steel cost - $90,000. A 40% rise of steel prices within two years.

SKM considered that the above over-runs 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:

(a) contractor's experience level or performance results, being able to terminate the contract should the contractor fail to attain set performance results;

(b) extended timeframes to completion, being more clear on what grounds an extension of time would be warranted;

(c) penalty clauses for late completion; and

(d) 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 SKM with a cost breakdown for the outlet works. SKM were therefore unable to provide comments on the makeup of the cost, although it included indirect cost and design cost components.

Summary and Conclusions

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

SKM concluded that the overall costs are within range of SKM's cost estimate. However, SKM considered that the costs arising from the additional works relating to driving of the sheet piling, some $220,000, are not efficient as they arise from additional contractor costs that were passed on to SunWater as a result of insufficient risk being passed to the contractor in the contract between SunWater and the contractor.

Authority's Analysis

The Authority notes SKM's analysis which confirms that, based on the Structural Analysis and Inspection Report, the extent of works undertaken at Whetstone Weir (including the outlet works) to be an appropriate solution based on asset condition and risk. SKM acknowledged the decision made by SunWater not to let Whetstone Weir run to failure.

In response to stakeholder comments on cost overruns, the Authority notes SKM's analysis that:

(a) the original budgeted figure in 2006-07 for the project of $799,064 did not include overheads (such as design/drafting and construction monitoring);

(b) the updated budgeted figure in 2009-10 of $2,350,064 included overheads *plus* costs associated with outlet works (which were not originally considered); and

(c) the actual expenditure incurred between 2006-07 and 2010-11 totalled $1,867,395.

The Authority also notes that SKM attributes the increase from the original to the update budgeted figure, not only on the inclusion of overheads and costs associated with outlet works, but also to an unforeseen increase in the cost of materials. SKM also considered that additional costs were incurred due to underperformance of the contractor tasked with refurbishing Whetstone Weir. SKM noted the majority of these costs were passed on to SunWater under the provisions of the contract (at that time)[1].

The Authority considers that standard commercial practice requires risks associated with unforeseen increases in the cost of materials and the under-performance of a contractor, to be borne by the contractor as opposed to SunWater. As outlined previously, SKM concluded these costs to be $220,000.

The Authority notes SKM's recommendation that although actual expenditure incurred was prudent (including expenditure associated with the outlet works), this expenditure was not efficient. Accordingly, the Authority recommends that $220,000 not be passed on to irrigators on this basis.

This reduces the total cost from $1.867 million to $1.647 million. This remains substantially higher than the $744,000 cost originally understood by irrigators and the updated SunWater June 2007 $799,000 cost-estimate.

[1] Documents cited by SKM confirm that contract conditions were subsequently revised to protect SunWater's interests.

However, much of this difference is explained by the $426,000 cost of the outlet works that were not originally specified in the renewals expenditure. Further, the indirect costs not originally specified accounted for a further $275,000.

SKM has not reviewed the outlet works cost and this should be regarded as a separate item. Accordingly, the amount subject to review by SKM for Whetstone Weir refurbishment alone was effectively $1.441 million (the total of $1.867 million less $426,000 for the outlet works). The efficient cost was assessed as $1.222 million.

Conclusion

The Authority notes that past expenditure on the Whetstone Weir was subject to detailed review by SKM who found that the expenditure to be prudent but not efficient.

As noted in Volume 1, the Authority has applied a 10% saving to non-sampled and sampled items for which there was insufficient information.

In total, the Authority recommends that past renewals expenditure be adjusted as outlined in the table below.

Table 4.2: Review of Past (Direct) Renewals Expenditure 2006-11 (Real $'000)

Item	*Date*	*SunWater*	*Authority's Findings*	*Recommended*
Whetstone Weir	various	$1,441	Prudent but not efficient.	$1,222
Other Past Renewals Items	various	various	Insufficient information	10% saving applied

Source: SunWater (2011), GHD (2011) and SKM (2011).

4.4 Opening ARR Balance (at 1 July 2012)

SunWater indicated that the renewals opening ARR balance for 1 July 2011 was negative $2,056,000 for the Macintyre Brook WSS. This estimate reflects the most recent information provided by SunWater to the Authority in September 2011 and may differ from the NSP.

Other Stakeholders

No other stakeholders made comment regarding this item.

Authority's Analysis

Based on the Authority's assessment of the prudency and efficiency of past renewals expenditure, the recommended opening ARR balance for 1 July 2011 for Upper Condamine WSS is negative $1,631,000.

The Authority calculated the opening ARR balance at 1 July 2011:

(a) adopting the opening balance as at 1 July 2006;

(b) adding 2006-11 renewals annuity revenue;

(c) subtracting 2006-11 renewals expenditure; and

(d) adjusting interest for the period consistent with the Authority's recommendations detailed in Volume 1.

To establish the closing balance ARR balance as at 30 June 2012 of negative $1,716,000, the Authority:

(a) added forecast 2011-12 renewals annuity revenue;

(b) subtracted forecast 2011-12 renewals expenditure; and

(c) adjusted for interest over the year.

The closing ARR balance for 30 June 2012 is the opening ARR balance for 1 July 2012.

4.5 Future Renewals Expenditure

Planning Methodology

The Authority has reviewed SunWater's Asset Management Planning Methodology in Volume 1 and recommended improvements to their current approach, including:

(a) high-level options analysis for all material projects expected to occur over the Authority's recommended planning period, with a material project being defined as one which accounts for 5% or more in present value terms of total forecast renewals expenditure; and

(b) detailed options analysis (which also take into account trade-offs and impacts on operational expenditures) for all material projects expected to occur within the first five years of each planning period.

In Volume 1, the Authority also reviewed and accepted a planning period of 20 years.

Prudency and Efficiency of Forecast Renewals Expenditure

Submissions

SunWater

Table 4.5 presents the renewals program for the five-year regulatory period. SunWater has provided details in July 2011 dollars.

Table 4.5: Forecast Renewals Expenditures 2011-17 ($'000)

	2011-12	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Ben Dor Weir	5	-	-	-	-
Coolmunda Dam	170	357	170	-	72
Coolmunda Dam (WTP)	1	-	-	-	6
Macintyre Brook (Distribution)	48	-	27	-	109
Total	**224**	**357**	**198**	-	**187**

Note: includes indirect and overhead costs. Source: SunWater (2011).

The major items are:

(a) Coolmunda Dam –

(i) 2012-13 – painting of bulkheads and replacement of seals ($83,000);

(ii) 2013-14 – repainting of all downstream faces ($69,000);

(iii) 2013-14 – regrading the drain downstream face of embankment;

(iv) 2015-16 – five-yearly dam safety inspection;

(b) 2012-13 – head water gauge installation at Whetstone Weir ($48,000); and

(c) 2015-16 – replacement of three gauging stations ($109,000).

The major items of renewals expenditure from 1 July 2017 are, by year:

(a) 2020-21 – dam safety review ($125,000);

(b) 2025-26 – replacement of safety rails at Coolmunda Dam ($61,000);

(c) for 2030-31 and 2031-32 – refurbishment of bulkhead and replacement of seals at Coolmunda Dam ($86,000);

(d) for 2030-31 and 2031-32 – refurbishment of downstream face of two gates at Coolmunda Dam ($141,000); and

(e) 2034-35 – refurbishment of pipe-work at Coolmunda Dam ($235,000).

SunWater's forecast renewal expenditure items greater than $10,000 in value, for the 2011-36 period are provided in **Appendix A**.

Other Stakeholders

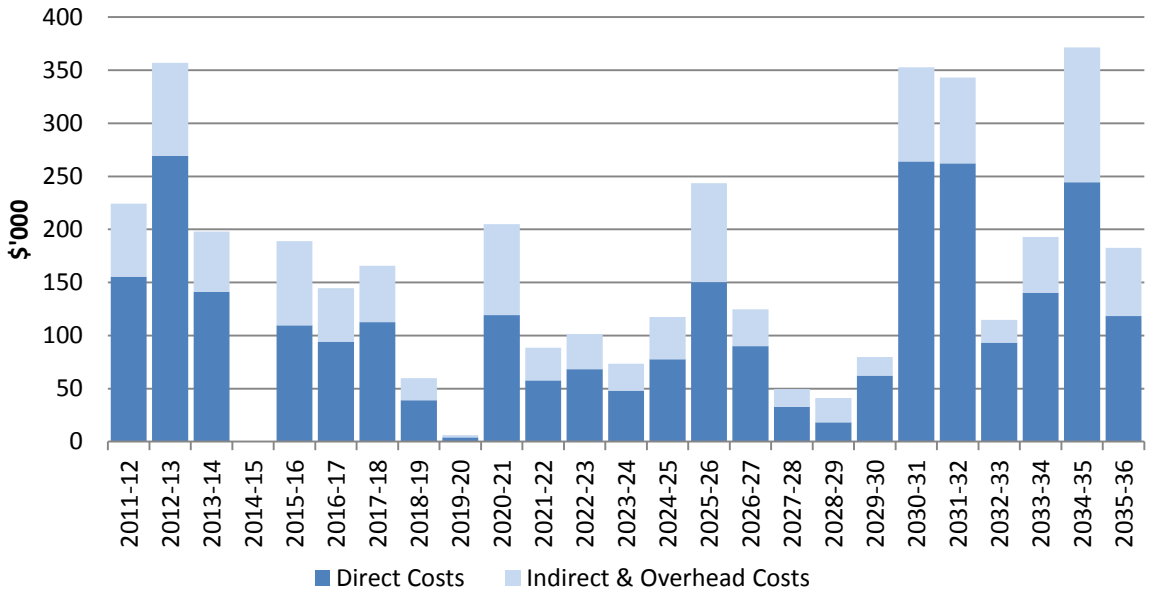
MBIA (2011) and participants of the Round 2 consultation expressed concern that irrigators have not been consulted regarding proposed renewals expenditure. Participants suggested that the standard of consultation with the scheme advisory committee has been poor and has declined significantly over the current price path.

Authority's Analysis

Total Costs

SunWater's proposed renewals expenditure for 2011-36 for the Macintyre Brook WSS is shown in Figure 4.3. This reflects the most recent renewals information provided by SunWater to the Authority in September 2011, and differs from the NSP. The Authority has identified the direct cost component of this expenditure, which is reviewed below. The indirect and overheads component of expenditure relating to these projects are reviewed in Chapter 5 – Operating Costs.

Figure 4.3: Forecast Renewals Expenditure 2011-36 (Real $)



Source: SunWater (2011am).

Project Reviews

As for past renewals expenditure, GHD and SKM have reviewed the prudency and efficiency for a sample of projects.

Item 1: Coolmunda Dam 2011-2016 various refurbishments

SunWater

SunWater proposed the following renewal items for the Coolmunda Dam over 2011-16 (Table 4.6).

Table 4.6: Coolmunda Dam 2011 to 2016

Item	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Refurbish Downstream Face	54	-	-	-	-
Paint Bulkheads/replace seals	-	83	-	-	-
Paint downstream of gate structure	54	-	-	-	-
Reseal/inspection/repair/repaint	-	23	-	-	-
Paint exterior surface	-	-	49	-	-
Refurbish top trash rack	-	-	-	22	-
Refurbish/repaint all downstream face	-	-	-	49	-
Repaint all U/Sand D/S Faces	-	-	69	-	-
Study – refurbish cables	-	-	-	28	-
Regrade and clear toe drain of embankment	-	-	80	-	-
5-year comprehensive inspection	-	24	-	-	-
5-year dam safety inspection	-	-	-	-	52

Note: includes indirect and overhead costs. Source: GHD (2011).

Other Stakeholders

MBIA (2011) and participants at the Round 2 consultation questioned the need for, and value of, proposed renewals expenditure to improve the outlet works at Coolmunda Dam.

Consultant's Review

GHD reviewed these items as described in SunWater's SAP-PM and WMS system.

GHD found that over the next five years, major renewals expenditures include the refurbishment of the gates, floats and bulkheads at Coolmunda Dam and installation of three gauging stations within the scheme.

Although GHD found that the drivers for these items were sound, and the timing and costs appeared to be prudent, GHD considered that the refurbishment work be reviewed with a view to deferring the projects by two years. According to GHD, the impact of this rescheduling will be a reduction in the annuity by approximately 2.5%.

GHD visited the Coolmunda Dam on 1 March 2011 and observed that the Dam was generally in good condition; however, detailed inspection of the spillway gates was not carried out. The Dam operator was taken ill and access was not available to all parts of the Dam. Three of the gates have been refurbished and the dam has generally been well maintained. Removal of vegetation on the embankment slopes is required to facilitate inspection of the slopes. The embankment upstream slope is lacking larger sized rip rap in the upper section and the requirement for larger sized rip rap at, or near, the dam crest should be reviewed.

GHD considered that the site inspections verified the following items in the forward works program:

(a) refurbishment of the embankment downstream face;

(b) paint bulkheads and replace seals;

(c) paint D/S of gate structure;

(d) refurbish trash racks. This appeared to have been completed as a new trash-rack was in place for the gate intake water;

(e) regrade and clear toe drain; and

(f) dam safety inspections.

Authority's Analysis

As noted above, the Authority has applied a general 10% saving to items reviewed by GHD alone.

Item 2: Coolmunda Dam Radial Gates Painting

SunWater

SunWater has forecast renewals annuity items for the painting of the following radial gates on Coolmunda Dam (Table 4.7):

Table 4.7: Coolmunda Dam Radial Gate Painting

Asset	*Cost*	*Internal Labour and Overhead*	*Total Cost*	*Year of renewal*
Radial Gate 3	$53,400	$10,145	$63,545	2012-13
Radial Gate 4	$32,000	$16,133	$48,333	2011-12
Radial Gate 5	$32,000	$16,332	$48,333	2011-12
Radial Gate 6	$34,429	$9,196	$43,625	2013-14

Source: GHD (2011).

Consultant's Review

GHD reviewed these items as a general assessment of Coolmunda Dam renewals and refurbishments and concluded them to be prudent and efficient (Item 1). Nevertheless, a more detailed review was also undertaken by SKM.

(a) Available Information

SKM accessed and viewed SunWater's SAP WMS, and asset condition and risk assessment policy and procedure. SKM drew on the following replacement/refurbishment reports produced by SunWater for this review and SunWater asset management policy documents (Table 4.8):

Table 4.8: SunWater Reports and Policy Documents

Document No.	*Document Name*	*Document Title*	*Date*
1108378	1108378 v1A Coolmunda Dam Radial Gates Painting – Gate 3	MacIntyre Brook Water Supply – Coolmunda Dam – Paint Downstream of Gate Structure (MAB-COOL-SPW-GT03-GATE)	8 August 2011
1108434	Coolmunda Gate 4	GTO4-GATE	
11084441	Coolmunda Gate 5	GTO5- GATE	
11084441	Coolmunda Gate 6	GTO6-GATE	

Source: SKM (2011).

SKM indicated that these annuity items are for the repainting of the downstream face of existing dam radial gate structures. These assets were initially installed in 1972 and have run to failure asset lives of 100 years and a refurbishment period of 20 years.

SKM considered both the run-to-failure asset life and refurbishment period to be appropriate for this asset type.

(b) Prudency Review

Asset Replacement/Refurbishment Date Determination.

SKM considered that SunWater has largely followed the policies and procedures that it has in place to determine annuity item replacement/refurbishment dates and costs.

SunWater has applied its risk evaluation method to this asset and determined that it has a production/operations risk criterion consequence rating of critical (score 100). This, together with a probability (likelihood of occurrence) score of 1 results in an overall risk score of 100 which places this asset in a medium risk category. For this asset type, an overall risk category of Medium reduces the run to failure asset life from 100 years to 88 years and the refurbishment period from 20 years to 18 years.

SKM noted that the critical score is as a result of a potential catastrophic failure arising from the possibility of the 'gates falling off'. It could be argued that this failure mode could be applied to any asset of this type and, as such, the argument for allocation of a medium risk score is not sufficiently robust on its own to justify a change in asset life or refurbishment period. However, given that the change in refurbishment period is only two years, risk rating will not materially alter the annuity amount arising from this annuity item value.

The last condition assessment, as recorded in WMS for Gates 3, 4 and 5, was undertaken in 2006. The maximum condition rating was a 4 (Significant deterioration with substantial refurbishment required to ensure ongoing reliable operation) for coating cracking/failure. Gates 4 and 5 also had desktop condition assessments in 2005 which gave a rating of 3 (moderate deterioration with refurbishment required).

For Gate 6, SunWater applied its risk evaluation method to this asset and determined, in 2005, that it Does Not Require Risk Assessment giving it a risk category of Low. Hence, for this asset the refurbishment frequency has not been adjusted from the standard for this asset of 20 years.

This risk rating is at odds with the risk assessments for identical gates 4 and 5 which assess the risk consequence as 'Critical' and likelihood as low giving an overall risk assessment of

Medium. This difference in assessment rating does not impact on the prudency of the timing of the refurbishment but it does suggest that SunWater's procedures are not being applied consistently across all assets which may result in some asset replacement/refurbishment being brought forward earlier than should be the case, or, vice versa, later than should be the case. Given the large portfolio of assets, it may be argued though that the net effect on the annuity value will be zero, provided this inconsistency does not result in a skew in the overall assessments.

SunWater applies AS/NZS 2312:2002 as a basis for assessing the severity of corrosion on coated steel surfaces. This standard recommends refurbishment when more than 2% of the surface coating has been damaged, exposing the steel surface. SunWater calculated that there is a 20% reduction in refurbishment costs if refurbishment is undertaken with 2% surface coating failure rather than 50% surface coating failure. SKM considered this approach to be reasonable and based on good engineering practice as defined in the standard.

Timing of Renewal/Refurbishment

Based on the in operation date, SunWater has assumed (due to lack of records) that the last refurbishment of gates was undertaken in 1992 (1972 plus 20 years). This places the next refurbishment date, assuming the asset condition score is appropriate for the years of operation since last refurbishment at 2012. The planned refurbishment date within the WMS is recorded as 2013. The painting of Gate 3 should coincide with the painting of Gate 4.

Although the last refurbished date is an assumed date, the condition score is consistent with the condition of an asset nearing the end of its refurbishment period and, as such, SKM considered the timing of this refurbishment to be prudent.

(c) Efficiency Evaluation

For relatively minor works such as the refurbishment of these radial gates, SunWater's planning team drew on actual costs for similar activities undertaken recently. Given the volume of annuity items that SunWater's planning team are engaged with at any point in time, this approach was considered reasonable and in accordance with good industry practice, where the management of a large portfolio of assets is concerned.

As noted above, the timing of the project should coincide with the timing for Gate 4. There are cost benefits that could be expected by tendering and administering the two gates as one tender.

SKM sighted the as built drawings for the radial gates and reviewed the dimensions of the gates and considered that the costs projected by SunWater for refurbishing the gates are reasonable. SKM estimated costs as being in the region of $50-60,000 per gate for 12.8m x 11.5m gates when considering probable all up surface area, intricacy, mobilisation, access, preparation, in-situ work etc.

In addition, SKM noted that the SunWater proposed cost of $63,545 for the refurbishment annuity value which is based on the actual cost incurred by SunWater in refurbishing radial gates 2 and 7 during 2009-10. Table 4.9 captures the 2009-10 cost data in SunWater's SAP-WMS and projects a present value cost (2010-11) cost by applying an indexation rate based on consumer price index (CPI) (June 2010 to June 2011) of 3.84% and compares this to the SunWater estimate for refurbishment of Gate 3.

Table 4.9: Coolmunda Radial Gates – Projected Costs ($)

Cost Item	*Gate 2,7 Average Cost 2009*	*SKM Projected 2011/2012 Cost*	*SunWater Projected Cost*		
			Gate 3	*Gates 4, 5*	*Gate 6*
Contractors	43,110	46,480	53,400	32,000	34,429
Internal Labour	2,349	2,533	3,450	6,600	3,450
Internal Overhead	5,013	5,405	6,695	9,533	5,746
Materials	1,784	1,993			
Plant Equipment	550	593			
Service Charges	2,384	2,570			
Total	**$55,189**	**$59,504**	**$63,545**	**$48,333**	**$43,625**
Variance (%)			**+6.8%**	**-19%**	**-27%**

Source: SKM (2011).

SKM was unclear how SunWater arrived at different cost estimates for the gates, given that they are all identical structures. However, SKM found SunWater's forecast costs for Gates 4, 5 and 6 were below SKM's estimated and the costs for Gate 3 were only 7% higher. Overall, SKM considered the costs to be efficient. There could be cost benefits in tendering Gate 3 and 4 within the same tender.

(d) Summary and Conclusions

SKM was satisfied that SunWater's robust procedures for determining the timing of refurbishment of a renewals expenditure item have been followed and hence that the timing and need for refurbishment of this item is prudent.

Given that SunWater has used costs incurred in a similar asset item refurbishment from 2009-10 in its submission for this asset refurbishment, SKM considered the cost of the refurbishment to be efficient.

The Authority's Analysis

The Authority accepts SKM's finding that the painting of Radial Gates 3, 4, 5 and 6 at Coolmunda Dam is prudent and efficient.

Item 3: Whetstone Weir – head water gauge

SunWater proposed the expenditure of $48,000 in 2012-13 for installation of head water gauge.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

GHD reviewed this item as described in SunWater's SAP-PM and WMS system.

GHD found that the drivers for this item were sound, and the timing and costs appeared to be prudent.

GHD visited the Whetstone Weir on 1 March 2011 and observed the following:

(a) the weir has recently been upgraded and is a substantial concrete structure, which appears to be somewhat over-designed for its function. Details of the construction were not available to confirm this and discussions with SunWater indicated that the weir comprises a timber pile structure with concrete overlay. The weir and bypass pipework were nearly new and in excellent condition. Silt deposition at the pipe flow mechanism was occurring and will require cleaning out. Similarly, the intake structure trashrack is working well but was partly blocked by debris. Minor erosion of the bank protection rip rap has occurred on both abutments and will require preventive maintenance;

(b) the operation of the weir requires opening and closing of the butterfly valve on the left bank river release pipeline. This valve is fitted with a Rotork actuator, but is operated manually as the site does not have an electrical power. The need for automation of this valve is questionable given the low frequency of flow adjustments required to maintain the environmental flow releases; and

(c) the adjoining landowner had been using the upstream apron of the weir as an access road to their farm, since the downstream crossing had been washed away in the recent floods. Whether the apron had been designed to accommodate vehicle loads was questioned and the safety of using the apron without edge markers does not appear to have been considered. The capacity of the apron should be checked and edge markers installed before agreeing to this arrangement. SunWater advised that this practice was not permitted and took immediate steps to close access to the apron.

Authority's Analysis

As noted above, the Authority has applied a general 10% saving to all items reviewed by GHD.

Item 4: Macintyre Brook Gauging Stations

SunWater proposes costs of $109,000 in 2015-16 for three gauging stations at Bracker Creek at Terraine, Macintyre Brook at Barongarook and at Coolmunda Dam headworks. A further $27,000 is proposed for the installation of a tailwater gauge at Coolmunda Dam in 2013-14.

SunWater submitted that they are required to maintain these gauging stations, either in response to formal ROP requirements or to ensure the safe operation of the storage.

Other Stakeholders

MBIA (2011) and participants at the Round 2 consultation commented on the proposed renewals expenditure associated with replacing three of the gauging stations. Specifically, the participants did not understand the need for, or value of, these works and questioned why these costs are being charged to irrigators rather than the DERM or the Bureau of Meteorology (BoM).

Consultant's Review

GHD reviewed these items as described in SunWater's SAP-PM and WMS system.

GHD found that the drivers for these items were sound, and the timing and costs appeared to be prudent.

Authority's Analysis

The Authority noted that irrigators do not consider that renewals expenditure to replace the three gauging stations in 2015-16 is justified.

SunWater maintains a series of gauging stations throughout Queensland. These gauging stations are used to monitor flows to ensure water allocation security objectives and environmental flow objectives, as prescribed by the respective ROPs, are met. Operating and maintaining these gauging stations is typically a requirement of SunWater's Resource Operations Licences (ROLs) and Interim Resource Operations Licences (IROLs).

The Authority notes that funding has been provided to SunWater by BoM in accordance with the Federal Government's Modernisation and Extension of Hydrologic Monitoring Systems Program (the Program). The Program provides assistance to water service providers/regulators (such as SunWater and DERM) to off-set costs incurred in the development of a national water information service. Information provided by gauging stations funded by the Program is shared amongst BoM and SunWater.

The Authority notes that, in accordance with the Program, funds have been provided to refurbish several gauging stations associated with the Macintyre Brook WSS, including at the Coolmunda Dam release channel. However, no funds have been made available to off-set costs associated with replacing the three gauging stations.

SunWater has advised the Authority that the Coolmunda Dam headworks gauging station is a requirement of the Border Rivers ROP and that the Bracker Creek at Terraine and Macintyre Brook at Barongarook stations are inflow sites which assist in the safe operation of the storage. This is confirmed by the ROP which requires that daily flow data be maintained for Coolmunda Dam inflows.

DERM has confirmed that SunWater's Macintyre Brook WSS ROL requires that the three relevant gauging stations remaining operational is a condition of authorising the licensee (i.e. SunWater) to interfere with the flow of water in the Macintyre Brook WSS as detailed in the Border Rivers ROP. The ROP requires the licensee to undertake specific monitoring and reporting.

Upon review of the replacement of these three gauging stations, GHD stated that the installation of gauging stations is driven by operational requirements and is estimated at $109,000. Furthermore, GHD concluded that the drivers for these projects were sound, with the timing and cost of the works appearing to be prudent.

The Authority notes DERM's position that the three gauging stations are required to comply with ROP compliance requirements.

As noted above, the Authority has applied a general 10% cost saving to renewals items reviewed by GHD.

Item 5: Renewals Projects From 2015-16

GHD also gave consideration to major forecast renewals expenditure for 2015-16 to 2035-36. Details of these major items, scheduled to occur at Coolmunda Dam, are outlined in Table 4.10 below.

Table 4.10: Review of Forecast Renewals Expenditure 2015-36 ($'000)

Item	*2030-31*	*2031-32*	*2034-35*
Refurbish downstream gate face	158	-	-
Paint bulkheads/replace seals	130	-	-
Installation buoy line	-	152	-
Repaint Downstream Faces	-	104	-
Refurbishment of pipe-work	-	-	378

Note: includes indirect and overhead costs. Source: GHD (2011).

Other Stakeholders

No other stakeholders have commented on these items.

Consultant's Review

Specifically, GHD considered whether the forecast expenditures were required and whether the timing was appropriate. As a consequence, GHD consider that all of the projects have been scheduled based on the planned maintenance frequency or useful life of the asset. While the projects' forecast cost are within an acceptable order of magnitude based on engineering judgement, the detailed information on each project was not available to complete a detailed analysis of the cost estimates.

Authority's Analysis

As noted above, the Authority has applied a general 10% cost saving to renewals items reviewed by GHD.

Conclusion

In summary, various items for the Macintyre Brook WSS were sampled. Of these:

(a) SKM was able to conduct a detailed review of the proposed painting of radial gates at Coolmunda Dam which was found to be prudent and efficient; and

(b) a general 10% saving has been applied to all other renewals expenditure items.

As noted in Volume 1, after a consideration of all its consultants' reviews, the Authority has applied a 10% saving to non-sampled and sampled items for which there was insufficient information.

Therefore, the Authority recommends that forecast renewals expenditure should be adjusted as noted in Table 4.11.

Table 4.11: Review of Forecast Renewals Expenditure 2011-36 (Real $'000)

Item	*Year*	*SunWater*	*Authority's Findings*	*Recommended*
Sampled Projects				
1. Coolmunda Dam	various	587	Insufficient information	10% saving applied
2. Coolmunda Dam Gates 3, 4, 5 & 6 painting	various	204	Prudent and efficient	204
3. Whetstone Weir	2011-12	48	Insufficient information	10% saving applied
4. Macintyre Brook Gauging Stations	various	135	Insufficient information	10% saving applied
5. Various items	various	922	Insufficient information	10% saving applied
Non Sampled Projects				10% saving applied

Note: Source: SunWater (2011), GHD (2011), SKM (2011) and QCA (2011)

4.6 SunWater's Consultation with Customers

Submissions

SunWater

SunWater (2011b) submitted that through Irrigator Advisory Committees (IACs), customers are:

(a) able to offer suggestions on planned asset maintenance which are considered by SunWater in the context of asset management planning;

(b) consulted on various operational and other aspects of service provision, including the timing of shutdowns and managing supply interruptions; and

(c) provided with information about renewals expenditure, particularly where supply interruptions may result.

Nonetheless, SunWater noted opportunities for greater consultation with irrigators do exist.

Other Stakeholders

The participants of the Round 1 consultation were concerned that recent capital expenditure has exceeded levels agreed to by irrigators and that this cost will be passed on to irrigators as part of the prices going into the future. They suggested that irrigators may not have agreed to this maintenance initiative if the costs were known. The participants further queried whether this assessment takes into account recent capital expenditure that has exceeded levels previously agreed to by irrigators.

Authority's Analysis

In Volume 1, the Authority noted customers' concerns about the lack of involvement in the planning of future renewals expenditure has been raised by irrigators and their representatives.

The Authority recommends that there be a legislative requirement for SunWater to consult with its customers about any changes to its service standards and proposed renewals expenditure program. SunWater should also be required to submit the service standards and renewals expenditure program to irrigators for comment whenever they are amended and that irrigators' comments be documented and published on SunWater's website and provided to the Authority.

4.7 Allocation of Renewals Expenditure According to WAE Priority

Previous Review

For the 2006-11 price path, the renewals costs for Macintyre Brook water infrastructure were apportioned between priority groups using converted nominal water allocations. The conversion to medium priority WAE was determined by the Border Rivers ROP conversion factor (2:1); that is, one ML of high priority WAE was considered equivalent to 2 ML of medium priority WAE.

Stakeholder Submissions

SunWater

For the 2012-17 regulatory period, SunWater proposed that renewals costs for bulk water infrastructure be apportioned in accordance with the share of utilisable storage headworks volumetric capacity dedicated to that priority group – as measured by the headworks utilisation factor (HUF).

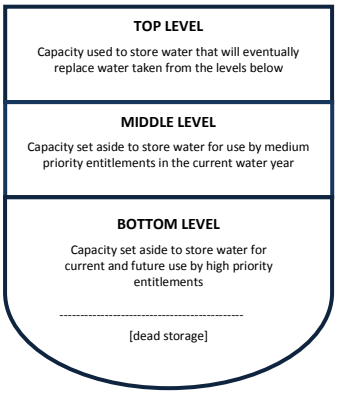
SunWater submitted that, in general, the HUF allocates a greater proportion of capital costs per ML to high priority WAE. Specifically, the HUF methodology takes into account water sharing rules, critical water supply arrangements (CWSA) and other operational requirements that typically give high priority entitlement holders exclusive access to water stored in the lower levels of storage infrastructure.

SunWater (2010d) submitted a detailed outline of the HUFs methodology, outlining its derivation and application for each scheme. This methodology, discussed in detail Volume 1, can be summarised as follows.

Step 1: Identify the water entitlement groupings for each scheme (as listed in DERM's Water Entitlement Register) and establish which groups are considered high priority (HP) and medium priority (MP) for the purposes of the HUFs calculation[2].

Step 2: Determine the volumes associated with the high and medium priority groupings identified in Step 1, taking into account any allowable conversion from medium to high priority under the scheme's ROP.

Step 3: Determine the extent to which water sharing rules, CWSAs and other operational requirements give the different water entitlement priority groups exclusive or shared access to capacity components of the storage infrastructure.



This step divides the storage infrastructure into three levels: the bottom layer, which is exclusively reserved for high priority; the middle layer, which is effectively reserved for medium priority;

[2] If more than two priority groups exist, water sharing rules and other differentiating characteristics are taken into account to determine whether they are included in the high or medium priority grouping, or neither.

and the top layer, which is shared between the medium and high priority groups.

Step 4: Assess the hydrological performance in 15-year sequences of each layer identified in (3) to determine the probability of each component of headworks storage being accessible to the relevant priority group.

Step 5: Calculate the percentage of storage headworks capacity to which medium priority users have access for each of the 15-year sequences analysed in Step 4:

$$\frac{MP\ Utilised\ Capacity}{Total\ Utilised\ Capacity} = \frac{MP_{1(utilised)} + MP_{2(utilised)}}{MP_{1(utilised)} + HP_{1(utilised)} + MP_{2(utilised)} + HP_{2(utilised)}}\ (\%)$$

Set the HUF_{mp} equal to the minimum of these values to reflect the worst 15-year period (HUF_{hp} = 1-HUF_{mp}).

If more than two types of water entitlements were aggregated in Step (1) these are then disaggregated.

The parameters used for determining the HUFs for the Macintyre Brook WSS are summarised in Table 4.12. As the Macintyre Brook WSS scheme operates under continuous water sharing arrangements, Steps 3 and 4 of the HUF methodology outlined above do not apply. Instead, the continuous water sharing rules from the Border Rivers ROP are used.

The HUFs for this scheme (SunWater, 2010d) are 87% for medium priority and 13% for high priority.

Table 4.12: Application of HUFs Methodology

STEP 1: Water Entitlement Groups (DERM's Water Allocation Register)			
Nominal Group	**(ML)**	**HUF Group**	**(ML)**
Medium Priority	24,509	MP_A	24,509
High Priority	488	HP_A	488
STEP 2: ROP Conversion Factor Adjustment			
Conversion Factor: ROP_{CF}			N/A
Maximum volume of HP: $HP_A max$			488
Corresponding volume of MP: $MP_A min = MP_A-(HP_A max-HP_A)*ROP_{CF}$			24,509
STEP 3: Water Sharing Rules & Operational Requirements			
The scheme operates under Continuous Sharing water sharing rules.			
Refer to the Border Rivers ROP (Table 3) for details of continuous sharing parameters			
STEP 4: Hydrologic performance of headworks storage			
Utilised Capacity (ML)			
$MP_u = MP_{1u} + MP_{2u} = 60,137$			
$HP_u = HP_{1u} + HP_{2u} = 9,300$			
STEP 5: Calculation of HUFs for each Water Entitlement Group			
Formula		**HUF Group**	**Nominal Group**
MP_A: $MP_u / (MP_u+HP_u) = 60,137 / (60,137 + 9,300)$		$HUF_{mp} = 87\%$	Medium Priority = 87%
HP_A: $HP_u / (MP_u+HP_u) = 9,300 / (60,137 + 9,300)$		$HUF_{hp} = 13\%$	High Priority = 13%

Source: SunWater (2011d).

Other Stakeholders

Participants of the Round 1 consultation considered that some irrigators involved in water trading activities in this scheme subsidise other irrigators trading water due to storage factors applied to the trade. Allocation of costs that considers these storage factors will need to be considered.

Authority's Analysis

The Authority commissioned Gilbert & Sutherland (G&S) to conduct an independent review of SunWater's proposed HUFs methodology. G&S (2011) concluded that the input data and model sources were appropriate, calculations were accurate to the method and input data utilised, the methodology exhibits rigour and is generally robust in providing consistent outcomes. G&S also recommended some amendments to SunWater's approach.

As discussed in Volume 1, the Authority endorsed SunWater's proposed approach for the allocation of capital costs, subject to the incorporation of the following from G&S that the method for apportioning the top layer of storage between medium and high priority be modified to reflect the ratio of nominal volumes rather than ratio of MP_1:HP_1

SunWater (2011x) accepted these recommendations and submitted recalculated HUFs for each scheme. However, since the Macintyre Brook WSS operates under continuous water sharing

arrangements, the recommendations made by G&S do not affect the HUF values for this scheme.

In response to irrigators' comments regarding the need to consider how storage factors influence the allocation of costs, the Authority notes Chapter 3 of this report which confirms that continuous sharing arrangements apply to this scheme. As outlined in the Border Rivers ROP, storage factors are to be applied in certain circumstances to accommodate losses experienced in the scheme's three zones.

In the context of applying the HUF methodology, the Authority notes that the headworks storage attributable to each water entitlement priority group is directly inferred from continuous share volumes calculated in accordance with the parameters prescribed by the ROP.

The Authority also notes that in calculating a continuous share volume, losses are taken into consideration. Given that there is a single medium priority HUF group these losses are shared equally throughout the three zones. For the allocation of costs to reflect the different losses experienced in the schemes three zones, three medium priority HUF groups and tariff groups would need to be established.

The Authority also notes:

(a) the Ministerial Direction requires the Authority to adopt the single tariff group as proposed in SunWater's NSP;

(b) SunWater has proposed a single medium priority HUF group for the Macintyre Brook WSS which will ensure losses (in the context of cost allocation associated with the HUF) are shared throughout the scheme's three zones; and

(c) SunWater (2011n) has commented that the Macintyre Brook IAC participated extensively in the development of detailed water sharing and accounting rules associated with continuous sharing arrangements required for inclusion in the ROP.

Accordingly, the Authority considers that the allocation of costs to accommodate the different losses that are experienced in the scheme's three zones in beyond the scope of the Authority's review.

The Authority estimates that based on the HUF methodology, the conversion for medium priority to high priority would be 7.5:1. This compares with the water pricing conversion factor of 2:1 used for 2006-11 price paths. Further, the Authority notes that under the HUF approach, medium priority irrigators will now pay 87% of renewals costs whereas previously irrigators paid 96%.

4.8 Calculating the Renewals Annuity

In Volume 1, the Authority recommends an indexed rolling annuity, calculated for each year of the 2012-17 regulatory period.

For the Macintyre Brook WSS, the recommended renewals annuity for the 2012-17 regulatory period is shown in Table 4.13 in real terms as at 2010-11. The table shows the total renewals annuity recommended by the Authority and the component amounts for high and medium priority customers. Also presented for comparison is SunWater's total renewals annuity for 2006-11 and SunWater's proposed total annuity for 2012-17. SunWater did not submit a disaggregation between high and medium priority customers.

Table 4.13: Macintyre Brook WSS Renewals Annuity* (Real $000)

	Actuals						*Recommended*				
	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Total SunWater	163	161	153	145	139	362	361	356	353	352	352
Total Authority	-	-	-	-	-	-	266	261	258	259	256
High Priority	-	-	-	-	-	-	33	32	32	32	32
Medium Priority	-	-	-	-	-	-	233	229	226	227	224

** Includes indirect and overhead costs relating to renewals expenditure, which is discussed in Chapter 5*
Source: Actuals (SunWater 2011) and Recommended (QCA, 2011).

5. OPERATING EXPENDITURE AND ADMINISTRATION COSTS

5.1 Background

Ministerial Direction

The Ministerial Direction requires the Authority to recommend a revenue stream that allows SunWater to recover efficient operational, maintenance and administrative (that is, indirect and overhead) costs to ensure the continuing delivery of water services.

Issues

To determine SunWater's allowable operating costs for 2012-17, the Authority considered the following:

(a) the scope of operating activities for this scheme;

(b) the extent to which previously anticipated cost savings (identified prior to the 2006-11 price paths) have been incorporated into SunWater's total cost estimates for the purpose of 2012-17 prices;

(c) the prudency and efficiency of SunWater's proposed operating expenditures including direct and non-direct costs and escalation factors; and

(d) the most appropriate methodologies for assigning operating costs to service contracts and to different priority customer groups (within each service contract).

5.2 Total Operating Costs

Operating costs are generally classified by SunWater as either non-direct or direct.

Non-direct costs are classified as either:

(a) overhead costs – allocated to all of SunWater's 62 service contracts for services that support the whole business (for example, Board, CEO and human resource management costs); and

(b) indirect costs – allocated to more than one service contract (but not all service contracts) for specialised services pertaining to a particular type of asset or group of service contracts (for example, asset management strategy and systems).

Direct costs are those readily attributable to a service contract (for example, labour and materials employed directly to service a scheme asset) and have been classified as operations, preventive maintenance (PM), corrective maintenance (CM), electricity and other costs.

In its NSP, SunWater described the scope of its operating activities for this scheme to include service provision, compliance, insurance, recreation and other supporting activities (these were not classified by direct and indirect costs). SunWater noted that:

(a) a Service Manager and 13 specialist operations staff are located at the Toowoomba depot and are responsible for the day-to-day water supply management and for delivery of the programmed works for all users in the region;

(b) service provision relates to:

(i) water delivery – scheduling and releasing bulk water from storages, surveillance of water levels and flows in the river and monthly meter reading; and

(ii) customer service and account management – managing enquiries about accounts and major transactions, providing up to date online data on WAE, water balances and water usage, and managing transactions such as temporary trades, transfers and other scheme specific transactions;

(c) compliance requirements to provide the bulk service include those relating to:

(i) the ROP and ROL – a major part of which is gathering and reporting information data at quarterly and annual intervals on water sharing rules, ROP amendments and modifications, water accounting and reporting on stream flow, water quality and other data (see Table 5.1 below).

Table 5.1: DERM's Water Quality Monitoring Requirements of SunWater

Storage	***Monthly Monitoring Requirements***			
	Inflow	***Head Water***	***Tail Water***	***BGA***
Coolmunda Dam	Yes	Yes	Yes	Yes
Whetstone Weir	No	Yes	Yes	No
Ben Dor Weir	No	Yes	Yes	No

Includes sampling for the following variables: dissolved oxygen, electrical conductivity, pH, temperature, total nitrogen, phosphorus and BGA. Source[i] (SunWater, 2011)

(ii) dam safety – as Coolmunda Dam is a referable dam under the *Water Act 2000*, SunWater is required to have a program in place to minimise the risk of dam failure, which involves documenting, recording and reporting on dam safety. Audits and thorough inspections are carried out annually.

Routine dam safety inspections are carried out monthly on Coolmunda Dam and quarterly on the weirs. Specific dam safety inspections are required at Coolmunda Dam, which include monitoring of embankments, piezometers, seepage and the general condition of the storages as defined in the dam surveillance specification.

(iii) environmental management to comply with the ROP and *Environmental Protection Act 1994* which require SunWater to have policies and procedures in place to deal with a range of environmental risks such as fish deaths, chemical usage, pollution, contamination and approvals for in-stream works.

(iv) land management (weed and pest control, rates and land tax, security and trespass and access to land owned by SunWater) as well as other obligations in relation to workplace health and safety, financial reporting and taxation and irrigation pricing;

(d) insurance is obtained on a portfolio basis and allocated to the scheme;

(e) SunWater has sought to transfer the management and cost of recreation activities to private operators or Government. However, recreation facilities at Coolmunda Dam

continue to be operated and maintained by SunWater (the cost of which is outlined further below); and

(f) other supporting activities include central procurement, human resources and legal services.

Previous Review

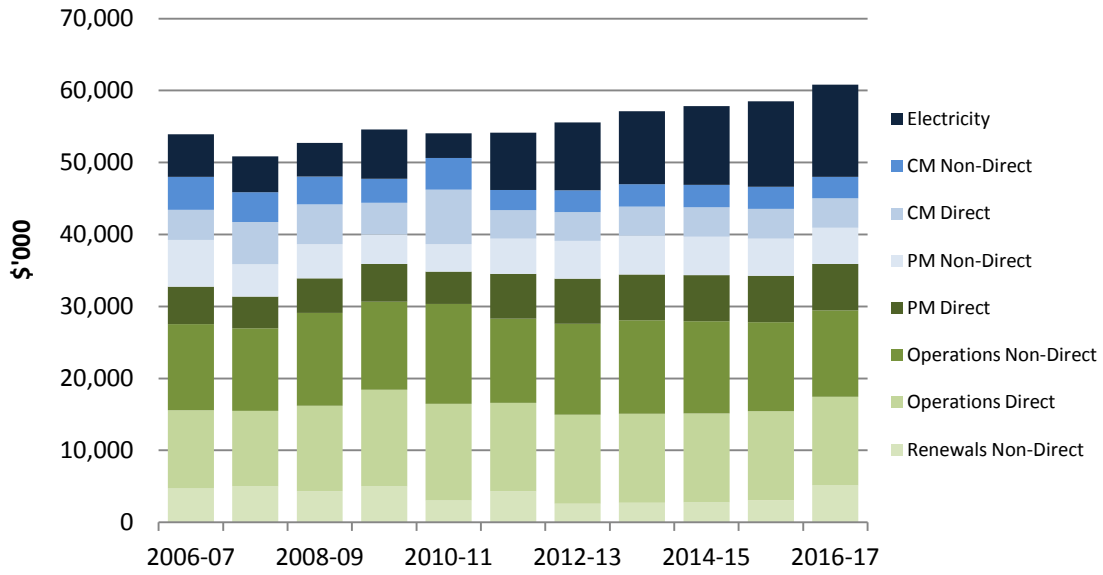
For the 2006-11 price paths, Indec identified annual cost savings of between $3.8 million and $5.5 million (2010-11 dollars) or 7.5% to 9.9% of total annual costs, which SunWater was to achieve during the 2006-11 price paths (SunWater, 2006a). See Volume 1.

Stakeholder Submissions

SunWater

SunWater's past and forecast total operating costs for its irrigation service contracts (all sectors) are summarised in Figure 5.1 below. SunWater's allocation of non-direct costs to activities (including renewals) is also identified. These estimates reflect SunWater's most recent information (including that received by the Authority in October 2011) and differ from SunWater's NSP as noted in Volume 1.

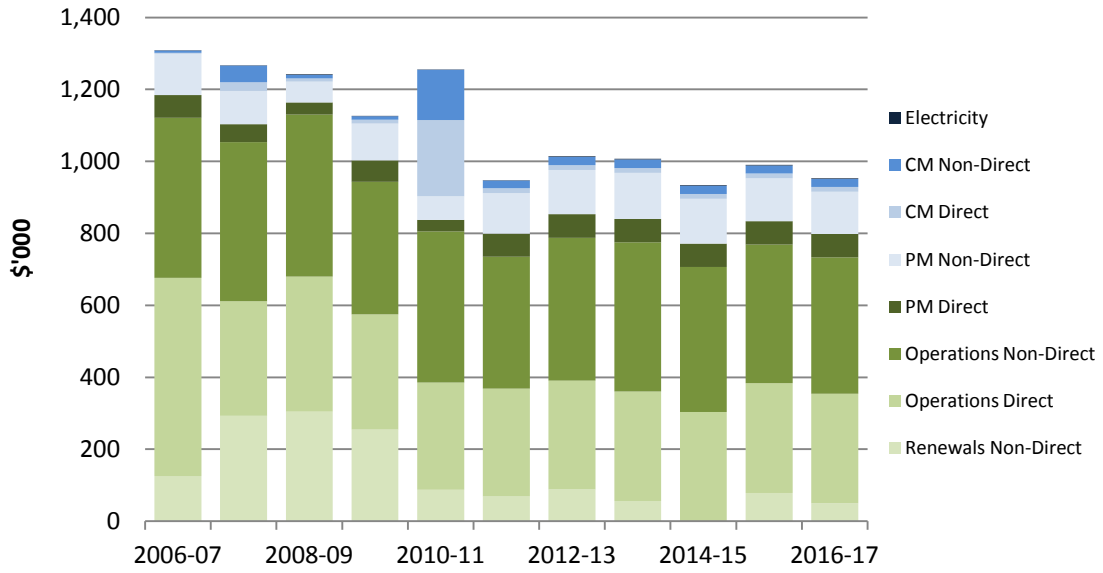
Figure 5.1: SunWater's Total Operating Costs (Real $'000) – All Service Contracts



Note: Renewals direct costs are discussed in the previous chapter. Renewals non-direct costs are the non-direct operating costs allocated to renewals. Totals vary from NSP due to the inclusion of renewals non-direct costs, SunWater's revised approach to insurance and electricity, exclusion of revenue offset (which is dealt with in the following chapter) and rounding. The estimates also reflect the most recent information provided by SunWater to the Authority in October 2011. Source: SunWater (2011ap) and SunWater (2011ao)

Expenditure by activity in Macintyre Brook WSS (all sectors) is shown in Figure 5.2 and Tables 5.2 and 5.3.

Figure 5.2: Total Operating Costs – Macintyre Brook WSS (Real $'000)



Note: Renewals direct costs are discussed in the previous chapter. Renewals non-direct costs are the non-direct operating costs allocated to renewals. Totals vary from NSP due to the inclusion of renewals non-direct costs, SunWater's revised approach to insurance and electricity, exclusion of revenue offset (which is dealt with in the following chapter) and rounding. The estimates also reflect the most recent information provided by SunWater to the Authority in October 2011. Source: SunWater (2011ap) and SunWater (2011ao).

Table 5.2: Expenditure by Activity (Real $'000)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations	995	761	825	689	718	666	700	718	706	690	683
Electricity	1	1	1	1	1	1	2	2	2	2	2
Preventive maintenance	178	142	91	162	97	177	188	193	190	184	182
Corrective maintenance	9	70	19	20	351	35	37	38	37	36	36
Renewals non-direct	125	293	305	255	87	69	88	57	0	79	50
Total Operating costs	**1,309**	**1,267**	**1,242**	**1,127**	**1,255**	**948**	**1,014**	**1,007**	**935**	**991**	**953**

Note: Renewals direct costs are discussed in the previous chapter. Renewals non-direct costs are the non-direct operating costs allocated to renewals. Totals vary from NSP due to the inclusion of renewals non-direct costs, SunWater's revised approach to insurance and electricity, exclusion of revenue offset (which is dealt with in the following chapter) and rounding. The estimates also reflect the most recent information provided by SunWater to the Authority in October 2011. Source: SunWater (2011ap) and SunWater (2011ao).

Table 5.3: Expenditure by Type (Real $'000)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Labour	241	230	251	237	264	258	262	262	262	262	262
Electricity	1	1	1	1	1	1	2	2	2	2	2
Materials	35	24	15	15	47	14	14	14	14	15	15
Contractors	251	20	27	23	133	18	18	19	19	19	19
Other	91	118	126	116	98	87	87	88	87	88	88
Non-direct	691	874	822	735	712	570	631	623	550	605	568
Total Operating Costs	**1,309**	**1,267**	**1,242**	**1,127**	**1,255**	**948**	**1,014**	**1,007**	**935**	**991**	**953**

Note: Renewals direct costs are discussed in the previous chapter. Non-direct costs include the non-direct operating costs allocated to renewals. Totals vary from NSP due to the inclusion of renewals non-direct costs, SunWater's revised approach to insurance and electricity, exclusion of revenue offset (which is dealt with in the following chapter), and rounding.. Source: SunWater (2011ap)

In its NSP, SunWater submitted that the operating costs for this scheme averaged $950,000 per year over the period of the current price path. [Operating costs as defined in the NSP exclude the indirect and overhead costs allocated to renewals expenditure.] The projected efficient average operating costs outlined in the NSP for 2012-16 are $899,000 per annum.

Other Stakeholders

No other stakeholder made a submission on this matter.

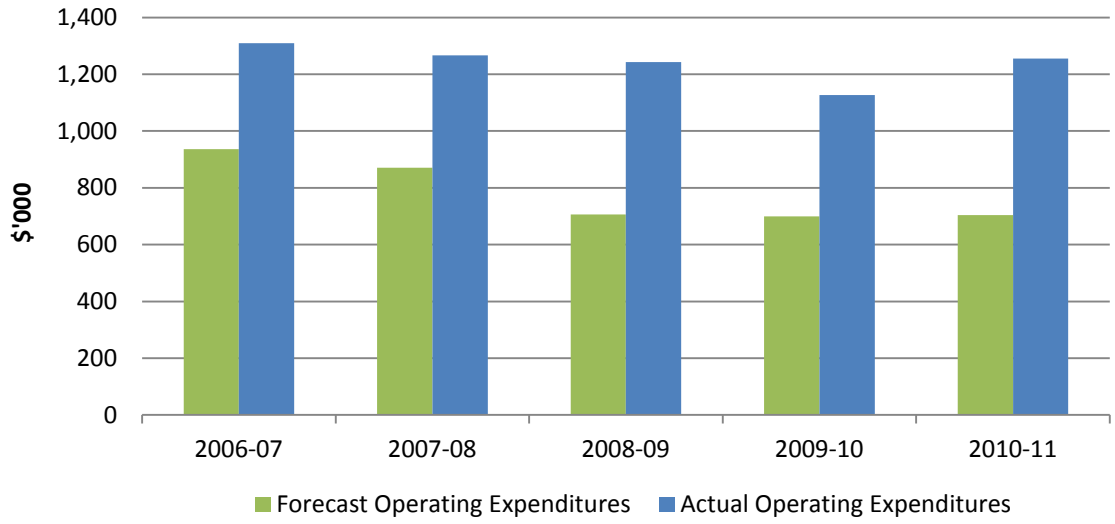
Authority's Analysis

The Authority has sought to review the extent to which previously anticipated cost savings (identified prior to the 2006-11 price paths) have been incorporated into SunWater's total cost estimates for the purpose of 2012-17 prices.

In Volume 1, the Authority noted that during the beginning of the 2006-11 price paths, SunWater's total operating costs increased above those previously forecast. In response, in July 2009 SunWater instigated a program to reduce costs by $10 million (the Smarter Lighter Faster Initiative (SLFI)). SunWater submitted that these savings should be fully realised by 30 June 2012.

In 2011, the Authority engaged Indec to assess whether SunWater achieved the cost savings forecast in 2005-06. A comparison of forecast and actual operating costs for the Macintyre Brook WSS is shown in Figure 5.3 below. For this scheme, SunWater's actual operating costs were more than Indec's forecast efficient operating costs by $2.285 million over the period.

Figure 5.3: Forecast and Actual SunWater Operating Expenditure 2006-11 (Real $'000)



Source: SunWater (2011ap) and Indec (2011f)

Indec has not, however, inferred from its analysis that SunWater should alter its costs over the 2012-17 regulatory period to the level of efficient costs determined for 2011. It observed that further analysis would be required to justify and support such an inference (see Volume 1). The Authority has engaged other consultants to address potential scheme specific cost savings.

5.3 Non-Direct Costs

Introduction

Since structural reforms were implemented, SunWater has become a more centrally organised business. SunWater's strategic operational management (for example, Finance, Strategy and Stakeholder Relationships) is provided centrally. This arrangement seeks to ensure that appropriate systems and processes are in place, are being applied in a consistent manner, are addressing key regulatory compliance and business requirements; and to ensure a high degree of flexibility across SunWater's workforce.

Some specialist operations staff with expertise in key operational areas, such as communication systems (Supervisory Control and Data Acquisition or SCADA), may be located either in Brisbane or regional locations. Their specialist expertise is applied to technical problems and issues in support of local operators.

Operational works planning and maintenance scheduling is provided by regional management, although all staff positions and budgets are managed centrally. For example, spare capacity in one region will be diverted (and billed) to regions with higher demand. Similarly, staff may be assigned to either irrigation or non-irrigation service contracts.

The nature of these non-direct activities is detailed in Volume 1.

As noted above, SunWater categorises non-direct costs as either overheads or indirect costs.

Previous Review

As noted above, in the previous review, Indec reviewed SunWater's non-direct costs for 2006-11.

Non-direct costs were allocated to schemes on the basis of total direct costs.

Stakeholders

SunWater

As noted in Volume 1, SunWater submitted that it will incur $23.5 million in total non-direct costs in 2012-13 (Table 5.3). SunWater's approach to the forecasting of non-direct operating expenditures is detailed in Volume 1.

In brief, SunWater forecast non-direct costs for 2010-11 and then escalated these forward using indices applied to the components of these costs. The costs in 2010-11 were based on actual costs over the past four years (excluding spurious costs) and adjustments for known or expected changes in costs. In particular, SunWater proposed that salaries and wage costs generally will rise by 4% per annum. However, SunWater has forecast that its total salaries and wages will rise by only 2.5% per annum, with the difference (1.5% per annum) being accounted for by (unspecified) productivity improvements.

SunWater proposed that total direct labour costs (DLCs) be used to allocate non-direct costs between service contracts.

Total non-direct costs and those allocated to the Macintyre Brook WSS which include indirect renewals, are outlined below Table 5.4.

Table 5.4: SunWater's Actual and Proposed Non-Direct Costs (Real $'000)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
SunWater	27,831	25,097	25,872	24,579	21,130	23,770	23,512	24,244	24,055	23,708	25,089
Macintyre Brook WSS	691	874	822	735	712	570	631	623	550	605	568

Source: SunWater (2011ap)

The non-direct costs for this scheme include a portion of SunWater's total overhead costs (for example, HR, ICT and finance), as well as a share of Infrastructure Management costs for each region (South, Central, North and Far North) and a share of the overhead costs of SunWater's Infrastructure Development Unit.

Other Stakeholders

No submissions were received from other stakeholders on this matter.

Authority's Analysis

As noted in Volume 1, the ratio of non-direct to total costs reflects the structure of the organisation. A more centralised organisation can be expected to have a higher ratio of non-direct to direct costs.

In seeking to establish prudency and efficiency, the Authority commissioned Deloitte Touche Tohmatsu (Deloitte) to review SunWater's non-direct costs. Deloitte carried out benchmarking to assess where potential efficiencies within SunWater may be achieved. Deloitte identified savings of $495,314 (in 2010-11 real terms) per annum in finance, human resources, information technology, and health, safety, environmental and quality areas (for the whole of SunWater).

Deloitte was unable to draw any definitive conclusions from an attempt to benchmark against Pioneer Valley Water Board (PVWater) and other Australian rural water service providers. Deloitte noted that PVWater Board's non-direct costs were higher than those of SunWater as a percentage of total operating costs – but that there are differences between PVWater and SunWater which can make comparisons unreliable.[3]

The Authority accepted that $495,314 of full time equivalent (FTE) staff costs were not efficient and should be excluded from SunWater's total non-direct costs (of which an amount of approximately $297,189 relates to irrigation service contracts under SunWater's proposed cost allocation methodology). See Volume 1.

In addition, the Authority recommends that SunWater's forecast total non-direct operating costs should be reduced by a compounding 1.5% per annum (based on the Authority's view that non-labour productivity gains are achievable in line with labour productivity gains).

The Authority has also reviewed the allocation of non-direct costs to irrigation service contracts.

SunWater's proposed use of DLCs is on the basis that it: best reflects activity and effort; is a proxy for other drivers; and provides consistency across service contracts.

Deloitte reviewed SunWater's proposal and identified alternative cost allocation bases (CABs). On the basis of this analysis, the Authority concludes that no alternative CAB is superior to DLC and that the introduction of any alternative would likely be costly and complex.

On this basis, the Authority has therefore accepted SunWater's proposed DLC methodology with two exceptions recommended by Deloitte:

(a) the overhead component of Infrastructure Management (Regions) should be allocated directly to the service contracts serviced by each relevant resource centre (South, Central, North and Far North), on the basis of DLC from each respective resource centre (that is, targeted DLC); and

(b) the overhead component of the Infrastructure Development unit should be allocated (on the basis of DLC) to service contracts receiving services from that unity (that is, targeted DLC).

This adjustment ensures that schemes are paying for the overhead costs from those resource centres that are most directly related to their schemes and not, for example, for Infrastructure Management overhead costs from the other three regions.

The Authority's recommended level of non-direct costs to be recovered from the Macintyre Brook WSS (from all customers) is set out in Table 5.5 below. The allocation of these costs between high and medium priority customers is also discussed below.

[3] For example, PVWater have only four FTE staff. For the benchmarking exercise, PVWater needed to estimate the proportions of staff time spend on administration versus operations and maintenance activities, which varies considerably depending on weather conditions and workloads. Deloitte found it difficult to compare PVWater's estimated apportionments with SunWater, who have around 500 staff assigned to specific projects or centralised functions.

Table 5.5: Recommended Non-Direct Costs (Real $'000)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
SunWater	691	874	822	735	712	570	631	623	550	605	568
Authority	-	-	-	-	-	-	612	597	519	563	519

Source: SunWater (2011ap)

Insurance and labour utilisation rates (which affect non-direct and direct costs) are addressed in Volume 1.

5.4 Direct Costs

Introduction

SunWater classified its operational activities into operations, preventive maintenance, corrective maintenance and electricity. SunWater's operating costs were forecast using this classification. The nature of these activities and costs are identified further below.

With the exception of electricity, SunWater has disaggregated each of the above activities into the following cost types:

(a) labour – direct labour costs attributed directly to jobs , not including support labour costs such as asset management, scheduling and procurement, which are included in administration costs;

(b) materials – direct materials costs attributed directly to jobs, including pipes, fittings, concrete, chemicals, plant and equipment hire;

(c) contractors – direct contractor costs attributed directly to jobs, including weed control contractors, commercial contractors and consultants; and

(d) other – direct costs attributed directly to service contracts, including insurance, local government rates, land tax and miscellaneous costs.

Stakeholder Submissions

SunWater

SunWater estimated the costs of each activity in 2010-11, based on actual costs over the past four years (excluding spurious costs) with adjustments for known or expected changes in costs. Adjustments were also made to preventive maintenance in line with the Parsons Brinckerhoff (PB, 2010) review. These estimates were then escalated forward for the 2012-17 pricing period. Further details are outlined in Volume 1.

SunWater's forecast direct operating expenditure by activity is set out in Table 5.7 below. These estimates reflect SunWater's most recent positions and differ from the NSP. The estimates also reflect the most recent information provided by SunWater to the Authority in October 2011.

Table 5.6: SunWater Direct Operating Expenditures by Activity (Real $'000)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations	551	319	375	320	299	300	303	304	304	305	305
Preventive maintenance	63	49	34	60	32	64	65	65	65	65	65
Corrective maintenance	3	24	9	11	212	13	13	13	13	13	13
Electricity	1	1	1	1	1	1	2	2	2	2	2
SunWater Direct Operating Costs	**618**	**393**	**420**	**392**	**543**	**378**	**383**	**384**	**384**	**385**	**385**

Note: Totals vary from NSP due to SunWater's revised approach to insurance and electricity, exclusion of revenue offset (which is dealt with in the following chapter), and rounding. The estimates also reflect the most recent information provided by SunWater to the Authority in October 2011. Source: SunWater (2011ap) and SunWater (2011ao)

Table 5.7 presents the same operating costs developed by SunWater on a functional basis.

Table 5.7: SunWater Direct Operating Expenditure by Type (Real $'000)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Labour	241	230	251	237	264	258	262	262	262	262	262
Electricity	1	1	1	1	1	1	2	2	2	2	2
Materials	35	24	15	15	47	14	14	14	14	15	15
Contractors	251	20	27	23	133	18	18	19	19	19	19
Other	91	118	126	116	98	87	87	88	87	88	88
SunWater Direct Operating Costs	**618**	**393**	**420**	**392**	**543**	**378**	**383**	**384**	**384**	**285**	**385**

Note: Totals vary from NSP due to SunWater's revised approach to insurance and electricity, exclusion of revenue offset (which is dealt with in the following chapter), and rounding. The estimates also reflect the most recent information provided by SunWater to the Authority in October 2011. Source: SunWater (2011ap) and SunWater (2011ao)

Other Stakeholders

Participants of Round 2 consultation were concerned as to whether GHD's preliminary draft analysis needed to drill further into SunWater's data to establish whether costs are efficient. They considered that without adequate analysis of base costs, irrigators will have little confidence in prices.

MBIA (2011) submitted that the consultant must drill further into SunWater's data to provide recommendations regarding efficiency of costs. MBIA expressed its concern that scheme prices

would be based on inefficient costs as, in particular, GHD was unable to benchmark operational expenditure with other schemes.

Authority's Analysis

The Authority engaged consultants GHD to review the prudency and efficiency of SunWater's proposed direct operating expenditure for this scheme.

GHD noted that there were substantial information deficiencies relating to the information provided by SunWater. As an example, GHD report that sampling was not possible due to the level of aggregation in SunWater's SAP-WMS. GHD report that, alternatively, information was gathered via direct interviews and information sessions with analysis undertaken of the information made available. Comparisons against published benchmarks were made, where possible.

In Volume 1, the Authority recommends that SunWater undertake a review of its planning policies, processes and procedures to better achieve its strategic objectives. The Authority also recommends that SunWater needs to improve the usefulness of its information systems. In particular, SunWater needs to document and access relevant information necessary to:

(a) attain greater operating efficiency;

(b) achieve greater transparency;

(c) facilitate future price reviews; and

(d) promote more meaningful stakeholder engagement.

GHD's review of specific cost categories for this scheme and the Authority's conclusions and views on cost escalation are outlined below.

Item 1: Operations

Stakeholder Submissions

SunWater

SunWater (2011a) submit that operations relate to the day-to-day operational activity (other than maintenance) enabling water delivery, customer management, asset management planning, financial and ROP reporting, workplace health and safety (WHS) compliance, and environmental and land management. Operations costs also include recreational facility costs.

SunWater's operating expenditure forecasts have been developed on the basis of detailed work instructions and operational manuals for each scheme.

SunWater's proposed operations costs are set out in Table 5.6 above. SunWater noted that recreation facilities at Coolmunda Dam continue to be operated and maintained by SunWater (Table 5.8).

Table 5.8: Recreational Facility Costs (Real $'000)

	2011-12	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Recreational Facility Costs	75	77	81	77	84

Source: SunWater NSP (2010)

SunWater (2011m) have also submitted that continuous sharing arrangements are in place in the Macintyre-Brook WSS and, as a consequence, additional operational costs are incurred compared to schemes under announced allocations. These costs are incurred at the scheme and at Brisbane head office levels. SunWater consider that regardless of these costs, there is strong and unequivocal support for continuous sharing arrangements in the Macintyre-Brook WSS.

SunWater have also submitted that they:

(a) are not actively promoting the adoption by other water service providers of continuous sharing arrangements; and

(b) will not receive (and have not received) any revenue should continuous sharing arrangements be adopted by other water service providers.

Other Stakeholders

MBIA (2011) and participants of the Round 2 consultation considered that irrigators have been told that the additional costs incurred in administering the continuous sharing arrangements associated with this scheme are $250,000 over the five-year price path. They considered that no justification for these costs has been provided.

The participants of the Round 2 consultation further considered that the benefits associated with continuous sharing may have been overstated by SunWater given the limitations imposed by DERM on cross-seasonal take of water.

MBIA (2011) and the participants of Round 2 consultations expressed concern that SunWater may be seeking revenue from this scheme to promote continuous sharing to other water service providers, and questioned whether the continuous sharing costs should be allocated to the scheme given the project was research based for examination offshore and in southern states.

MBIA (2011) and participants of the Round 2 consultation considered that the costs associated with recreational facilities in this scheme are significant and it is unfair that irrigators have been called upon to meet these costs.

Authority's Analysis

Consultant's Review

GHD (2011) reported that an overall decrease in expenditure is forecast to occur when comparing the average of actual expenditure incurred during the 2008-11 with the average of expenditure to occur during 2012-16. Specifically, GHD report that, on average, operations expenditure is forecast to decrease by 4.4%.

GHD concluded that given regulatory requirements are unlikely to change during the 2012-17 regulatory period, the management and administration costs of the scheme would be consistent with the actual expenditure incurred during 2008-11.

GHD also considered that forecast decreases in contracts and materials are consistent with SunWater's policy of no longer maintaining certain machinery in the region and, as a result, relying on contractors to a greater degree.

Accordingly, GHD considered that the method used by SunWater for calculating forecast expenditure using actual, historic expenditure is robust and that the resulting forecasts are appropriate.

GHD commented that monthly meter reading (required in accordance with continuous sharing arrangements) is currently undertaken exclusively by SunWater. GHD concluded that having irrigators read meters and enter meter readings via the online system would be a substantial efficiency gain. GHD considered that SunWater's view that the customer may not enter the right reading is not valid on the basis that the customer requires an accurate meter reading to allow them to plan their consumption and potential for water trading.

GHD therefore recommended that irrigators read their own meter(s) on a monthly basis and provide the information collected via SunWater's online system. In this arrangement, SunWater would continue to read meters quarterly for the purpose of billing, to assess the condition of the meter and ancillary devices (solar panel, etc.) and to validate the previously recorded meter readings submitted by the irrigator.

However, GHD did not quantify the cost savings that would potentially be achieved from implementing this recommendation.

GHD also indicated that feedback from field visits indicated that irrigators:

(a) have questioned plans to automate water releases at Whetstone Weir on the basis of inefficiencies;

(b) raised concerns regarding the general decline in recent years of collaboration between SunWater and customers and suggested an efficiency gain could be achieved through an improvement in collaboration;

(c) considered monthly meter reading undertaken by irrigators to be an efficiency gain;

(d) considered introducing a carry-over cap[4], as originally proposed, to be an efficiency gain; and

(e) suggested a gauging station be installed at the end of the scheme to monitor outflows.

SunWater's Response

SunWater did not support GHD's recommendation that customers read their own meters on a monthly basis. SunWater stated in response that:

(a) given continuous sharing is partially based on a series of operational assumptions (including estimates of river transmission losses and daily evaporation rates as well as estimates of water taken versus water ordered) monthly reconciliation (which requires monthly meter reading) must be accurate; and

[4] Carry-over cap in a scheme with continuous sharing arrangements refers to an irrigator's right to carry-over part of their annual entitlement to take water in a subsequent water year providing specific conditions have been met.

(b) performing monthly reconciliations of each customer's individual water shares without timely and accurate usage data will lead to problems, including incorrect advice being provided to irrigators regarding water availability.

SunWater stated that if errors are not detected until the end of the quarter when SunWater undertakes an accurate reading, customers may have used too much water and, more importantly, used water held for other customers. If this were to eventuate, then SunWater would be in breach of its ROL.

In addition, if inaccurate information is provided, erroneous monthly reconciliations would lead to significant changes to available volumes in customers' water accounts. SunWater undertaking monthly meter reading ensures that these problems are avoided and helps to ensure that the full benefits of continuous sharing are experienced by customers.

In relation to stakeholders' concerns about the additional costs of administering continuous sharing arrangements, SunWater submitted that for a small scheme such as the Macintyre Brook, where the necessary water accounting refinements have been managed through a combination of enhancements to SunWater's Information Management System and semi-automatic spreadsheet systems, the overall difference between the cost of continuous sharing and announced allocations is 'not significant'.

In relation to whether the benefits of continuous sharing may have been overstated, SunWater has submitted that there has been strong and unequivocal support from irrigators to adopt continuous sharing arrangements in the Macintyre Brook WSS. SunWater stated that irrigators' support is evidenced by:

(a) SunWater being lobbied by the IAC to implement continuous sharing arrangements;

(b) the IAC promoting the adoption by other irrigators in the Macintyre Brook WSS of continuous sharing arrangements; and

(c) the IAC participating in the development of detailed water sharing and accounting rules required for inclusion in the ROP.

In response to stakeholders' concerns that cross-seasonal limitations imposed by DERM have restricted the potential benefits of continuous sharing arrangements, SunWater noted that it is only in the St George WSS that a mechanism is provided to carry-over part of an irrigator's annual entitlement to take water (referred to as carry-over cap).

SunWater stated that the carry-over cap, in effect, represents a relaxation of the volume of water that may be taken in any particular water year. However, in contrast to the St George WSS, the Border Rivers ROP only provides a mechanism for SunWater and irrigators of the Macintyre Brook WSS to apply to DERM for a carry-over of cap.

SunWater advised that it has previously pursued, on behalf of irrigators, the introduction of a carry-over cap in the Macintyre Brook WSS but has been unsuccessful as DERM consider that there are potential adverse impacts on downstream environmental flows.

In relation to whether SunWater is seeking revenue from this scheme to promote continuous sharing to other water service provider, SunWater advised that it is not actively pursuing, or has ever sought, any such revenue opportunities. Further, that SunWater has not and will not receive revenue from other providers on this matter.

Conclusion

The Authority notes the recommendation made by GHD that costs associated with administering continuous sharing arrangements could be reduced through customers, as opposed to SunWater, reading meters on a monthly basis. GHD recommended that SunWater reads meters quarterly to verify previously recorded readings. The Authority notes that GHD did not quantify the savings that could be achieved by doing so.

The Authority sought advice from DERM on whether SunWater was required to read meters monthly in the Macintyre Brook WSS. DERM has advised that:

(a) it is a condition of SunWater's ROL, as prescribed by s279 of the Border Rivers ROP, that SunWater record the total volume of water taken each quarter;

(b) under continuous sharing arrangements, it is a requirement of the ROP that each month (at a minimum) SunWater carries out a reconciliation of what is estimated to be in storage against what is actually in storage. While the ROP does not explicitly require monthly meter readings by any particular party, DERM noted that the reconciliation process is dependent on the volume of water delivered which is derived from meter readings; and

(c) imbalances can occur if there are errors in monthly meter readings. In addition, due to the nature of the reconciliation process there is a potential for inaccuracies to affect not just the allocation holder who has supplied incorrect information, but also other water users within the scheme.

The Authority notes that accurate monthly meter reading is required for SunWater to meet its regulatory obligations and to ensure the benefits of continuous sharing arrangements are achieved. SunWater is unable to delegate its regulatory responsibilities to irrigators.

There is therefore a risk that irrigators may provide inaccurate or not timely information to SunWater, who bears that risk. The Authority is not aware of any other irrigation service provider or regulated utility where customers provide data from their own meter reads to comply with regulatory obligations or for billing.

Accordingly, the Authority is inclined to the view that SunWater should continue to read meters on a monthly basis and not make any specific adjustment to operations costs to accommodate customer meter reads.

In relation to the benefits of continuous sharing, the Authority notes that this is outside the scope of its review. However, the Authority notes that ABARE (2009) reported irrigators' views in this scheme on continuous sharing as including:

(a) more water being made available facilitating greater on farm investment;

(b) water being made available virtually immediately after being received in the storage compared to the previous approach where estimated storage losses for the remainder of the year needed to be held in reserve;

(c) individual farms managing their water to better suit their individual risk profiles; and

(d) the promotion of more effective carry-over rights.

ABARE (2009) also reported that the adoption rate in the Macintyre Brook WSS has been significant with more than 98% of entitlements by volume operating under capacity sharing arrangements in the 2008-09 water year. The ABARE report would suggest that irrigators perceived a net benefit of continuous sharing.

Whether a carry-over cap should be introduced is a matter for DERM and is also beyond the scope of the Authority's review.

In relation to recreational facility costs, the Ministerial Direction requires the Authority to set prices that recover recreation management costs. The Authority is not aware of any specific recreational facility costs that are inappropriate and GHD has not recommended any specific adjustments to operations costs (in general).

The Authority also notes that the consultants engaged to review operations costs in other SunWater schemes (Halcrow (2011), Arup (2011) and Aurecon (2011)) also did not recommend any adjustment to operations costs.

Further, GHD report that SunWater's forecast average annual operations costs are slightly lower than the average over 2008-11[5].

On the basis of the consultants' reviews and SunWater's internal cost reductions over time, the Authority has not specifically adjusted SunWater's operations cost forecast.

Item 2: Preventative Maintenance and Corrective Maintenance

Stakeholder Submissions

SunWater

SunWater defines preventative maintenance as maintaining the ongoing operational performance and service capacity of physical assets as close as possible to designed standards. Preventative maintenance is cyclical in nature with a typical interval of 12 months or less. Preventative maintenance includes:

(a) condition monitoring – the inspection, testing or measurement of physical assets to report and record its condition and performance for determination of preventive maintenance requirements; and

(b) servicing – planned maintenance activities normally expected to be carried out routinely on physical assets.

Preventative maintenance costs are based on the updated work instructions developed for operating the scheme and an estimate of the resources required to implement that scope of work.

SunWater submitted that even with sound preventative maintenance practices, unexpected failures can occur or other incidents can arise that require reactive corrective maintenance. While these incidences are difficult to forecast with accuracy, history has shown that such events are to be expected and need to be factored into expenditure forecasts.

There are two types of corrective maintenance activities:

(a) emergency breakdown maintenance – has to be carried out immediately to restore normal operation or supply to customers or to meet a regulatory obligation (e.g. rectify a safety hazard); and

(b) non-emergency maintenance – does not have to be carried out immediately to restore normal operations, but needs to be scheduled in advance of the planned maintenance cycle.

[5] GHD compare the average of operational expenditure incurred between 2007-08 to 2010-11 ($394,250), with the average forecast to occur over 2011-12 to 2015-16 ($377,000) to identify a 4.4% fall in operations costs.

SunWater advises that it has made a provision for corrective maintenance based on past experience. This provision includes a portion of labour costs in the scheme for such events, as well as additional materials and plant hire. The corrective maintenance forecast excludes any costs of damage arising from events covered by SunWater's insurance.

SunWater's proposed preventive and corrective maintenance costs are set out in Table 5.6 above.

Other Stakeholders

No submissions were received from other stakeholders on these items.

Authority's Analysis

Consultant's Review

GHD commented that the proposed 83%/17% split between preventive and corrective maintenance appears consistent with the requirements of weed management, compliance inspections and reactive responses as required.

GHD commented that while the preventative maintenance appears disproportionally high, significant preventative maintenance is programmed to coincide with major capital expenditure associated with Coolmunda Dam's gates during the 2012-17 regulatory period.

GHD commented that the dams and weirs are typically long-lived assets that, combined with periodic maintenance programs, can be retained in service indefinitely. SunWater's forecast reflects a static preventative maintenance work program consistent with this aim.

GHD did not recommend any specific adjustments to preventative or corrective maintenance for this scheme.

Conclusion

In Volume 1, the Authority noted that most of its consultants considered that that there is scope for SunWater to achieve further efficiencies once the balance of preventive and corrective maintenance is optimised.

In Volume 1, the Authority also recommended that SunWater implement PB's earlier recommendations that:

(a) SunWater's maintenance plans and work instructions; and associated labour inputs and unit costs should be audited, including a review of sub-contracted maintenance activities;

(b) maintenance practices and costs need to be examined to identify the optimum mix of preventive and corrective maintenance activities for each scheme; and

(c) a Reliability Centred Maintenance (RCM) approach to formulating maintenance activity requirements should be adopted.

In the absence of any measure of the impact of the optimisation process, the Authority does not propose to apply any specific adjustments to this item but considers this supports a general efficiency target as outlined further below.

Item 3: Electricity

Stakeholder Submissions

SunWater

SunWater (2011a) submits that electricity costs for the Macintyre Brook WSS mostly relate to the electricity required to operate the Coolmunda Dam gates and to provide lighting and power to the dam site. SunWater currently procures electricity using franchise tariffs.

SunWater initially proposed that electricity costs increase in line with inflation with prices adjusted annually (cost pass through) to reflect the actual change in electricity costs.

SunWater subsequently proposed to escalate electricity prices by 10.5% per annum over the regulatory period reflecting the average in the Benchmark Retail Cost Index (BRCI) between 2007-08 and 2011-12, together with further adjustments in 2012-13 and 2015-16 to reflect expected increases from the introduction of the carbon tax and carbon trading scheme.

SunWater's actual and forecast electricity costs are set out in Table 5.7 above.

Other Stakeholders

No stakeholders made submissions regarding this item.

Authority's Analysis

Consultant's Review

GHD did not recommend a specific adjustment to electricity costs for this scheme.

Conclusion

In Volume 1, the Authority recommended that SunWater review the cost differential between franchise and contestable electricity contracts on an annual basis. Further, that SunWater report back to stakeholders on the success (or otherwise) of its energy savings measures, and quantify the savings that have been achieved.

As also noted in Volume 1, the Authority proposes electricity be escalated at 7.41% per annum, based on expected growth in the four key components of electricity prices – network costs, energy costs, retail operating costs and retail margin.

At this stage, the Authority does not accept an escalation rate that makes an explicit allowance for carbon price impacts prior to them becoming enacted legislation.

The Authority has adjusted proposed electricity costs as set out in Table 5.9 below.

Item 4: Cost Escalation

As noted in Volume 1, the Authority's consultants were required to examine the appropriateness of SunWater's proposed cost escalation methods (the cost escalation of electricity is dealt with above).

Direct Labour

The consultants generally agreed that SunWater's labour escalation forecast using the general inflation rate (2.5%) underestimated the likely actual movement in the cost of labour.

Evidence cited included the growth in both the Labour Price Index for the Electricity, Gas, Water and Waste Services Industry and the Labour Price Index for Queensland, which have averaged around 4% per annum in recent years, and recent forecasts by Deloitte suggesting an average increase in the labour costs facing Queensland's utilities sector of 4.3% per annum between 2011-12 and 2017-18.

The Authority recommends that labour costs be escalated at 4% per annum.

Direct Materials and Contractors

Most consultants agreed that SunWater's proposed escalation factor of 4% per annum for this component of cost was appropriate. Evidence in support included the historical analysis of Australian Bureau of Statistics (ABS) construction cost data and forecasts of industry trends. However, both Halcrow and GHD considered that SunWater had not provided sufficient rationale for its proposed escalation factor of 4% per annum for direct materials and contractor services, and that these costs should be escalated at the general rate of inflation.

The Authority recommends that direct materials and contractor costs be escalated at 4% per annum.

Other Costs

The Authority accepts SunWater's proposal to escalate other direct costs and all non-direct costs by the general inflation rate as these costs are primarily administrative and management functions.

Conclusion

A comparison of SunWater's and the Authority's direct operating costs for the Macintyre Brook WSS is set out in Table 5.9.

The Authority's proposed costs include all specific adjustments and the Authority's proposed cost escalations as noted above. As noted in Volume 1, the Authority has applied a minimum 2.43% saving to direct operating costs (excluding electricity) in 2012-13. A further 0.75% saving arising from labour productivity is also applied, compounding annually.

Table 5.9: Direct Operating Costs (Real $'000)

	SunWater					*Authority*				
	2012-13	***2013-14***	***2014-15***	***2015-16***	***2016-17***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Operations	303	304	304	305	305	293	294	295	296	296
Preventive maintenance	65	65	65	65	65	63	63	64	64	65
Corrective maintenance	13	13	13	13	13	13	13	13	13	13
Electricity	2	2	2	2	2	1	1	1	2	2
Direct Operating Costs	**383**	**384**	**384**	**385**	**385**	**371**	**372**	**373**	**375**	**376**

Note: Totals vary from NSP due to SunWater's revised approach to insurance and electricity, exclusion of revenue offset (which is dealt with in the following chapter), and rounding. The estimates also reflect the most recent information provided by SunWater to the Authority in October 2011. Source: SunWater (2011ap) and SunWater (2011ao)

5.5 Cost Allocation According to WAE Priority

It is necessary to establish a methodology to allocate operating costs to the differing priority groups of WAE.

Previous Review

For the 2006-11 price paths, all costs were apportioned between medium and high priority customers according to WPCFs in both bulk and distribution systems.

Stakeholder Submissions

SunWater

SunWater (2011j) has proposed to assign operating costs to users on the basis of their current WAE, except for non-direct costs allocated to renewals (on the basis of DLC) which are to be allocated to priority groups using HUFs.

Other Stakeholders

MBIA (2011) and participants at Round 2 consultation queried whether the costs of running the continuous share system in the scheme were included in head office or regional office costs.

Cotton Australia (2011) submitted that it should be possible to apportion recreational management costs based on usage.

Participants of the Round 1 consultation considered that the allocation of operating costs associated with providing recreational and other facilities at the dam (such as parking, housing and water treatment services) needs to be considered.

Authority's Analysis

In Volume 1, the Authority has summarised the views of its consultants and has recommended that, in relation to bulk schemes:

(a) variable costs be allocated to medium and high priority WAE on the basis of water use;

(b) fixed preventative and corrective maintenance costs be allocated to medium and high priority WAE using HUFs; and

(c) for fixed operations costs, 50% be allocated using HUFs and 50% using current nominal WAEs.

The Authority recommends that within bulk service contracts, insurance premiums are allocated between medium and high priority customers on the basis of HUFs.

The effect for the Macintyre Brook WSS is detailed in the following chapter (as it takes into account other factors relevant to establishing total costs).

In the response to questions regarding the allocation of costs associated with maintaining continuous sharing arrangements, the Authority notes comments from SunWater (2011n) that the overall cost difference between administering continuous sharing arrangements as opposed to announced allocations, is not great.

The Authority notes that SunWater has commented that some costs incurred in administering continuous sharing arrangements are incurred at the scheme where continuous sharing arrangements are in place and at Brisbane head office. SunWater also comment that:

(a) schemes specific costs relate primarily to the change from quarterly to monthly meter reading; and

(b) head office costs relate primarily to processing of information to arrive at daily estimates of irrigator account balances.

The Authority notes the views of Cotton Australia and participants at Round 1 consultation that the allocation of recreational facility costs based on use should be considered. In response, the Authority notes that the Ministerial Direction requires the Authority to set irrigation water prices that recover efficient recreation management costs.

In response to comments that the allocation of operating costs associated with providing parking, housing and water treatment services needs to be considered, the Authority notes SunWater's approach (SunWater 2011q), which is to:

(a) include costs associated with maintaining parking facilities in recreational facility costs;

(b) housing costs constitute direct operations costs as they provide accommodation for the dam operator; and

(c) the water treatment plant at Coolmunda Dam treats less that 7 ML per annum with its three customers paying for potable supply at $554.80 per ML in 2010-11.

The Authority's recommended approach to allocation is dealt with above.

5.6 Summary of Operating Costs

SunWater's proposed operating costs by activity and type are set out in Table 5.10. The Authority's recommended operating costs are set out in Table 5.11.

Table 5.10: SunWater's Proposed Operating Costs for Activity by Type (Real $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations					
Labour	191	191	191	191	191
Materials	8	8	8	9	9
Contractors	17	17	17	17	17
Other	87	88	87	88	88
Non-direct	398	414	403	385	379
Preventative Maintenance					
Labour	60	60	60	60	60
Materials	4	4	4	4	4
Contractors	2	2	2	2	2
Other	0	0	0	0	0
Non-direct	123	128	124	119	117
Corrective Maintenance					
Labour	11	11	11	11	11
Materials	2	2	2	2	2
Contractors	0	0	0	0	0
Other	0	0	0	0	0
Non-direct	23	24	24	23	22
Electricity	2	2	2	2	2
Total	**928**	**951**	**935**	**913**	**904**

Note: Totals vary from NSP due to SunWater's revised approach to insurance and electricity, exclusion of revenue offset (which is dealt with in the following chapter), and rounding. The estimates also reflect the most recent information provided by SunWater to the Authority in October 2011. Source: SunWater (2011ap) and SunWater (2011ao)

Table 5.11: The Authority's Recommended Operating Costs (Real $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations					
Labour	185	186	188	189	190
Materials	8	8	8	8	8
Contractors	16	16	16	16	16
Other	84	84	83	82	82
Non-direct	387	397	380	358	346
Preventative Maintenance					
Labour	58	58	59	59	59
Materials	3	4	4	4	4
Contractors	2	2	2	2	2
Other	-	-	-	-	-
Non-direct	119	123	117	110	107
Corrective Maintenance					
Labour	11	11	11	11	11
Materials	2	2	2	2	2
Contractors	-	-	-	-	-
Other	-	-	-	-	-
Non-direct	23	23	22	21	20
Electricity	1	1	1	2	2
Total	**900**	**915**	**893**	**864**	**848**

Source: QCA (2011)

6. DRAFT PRICES

6.1 Background

Ministerial Direction

The Ministerial Direction requires the Authority to recommend SunWater's irrigation prices for water delivered from 22 SunWater bulk water schemes and eight distribution systems and, for relevant schemes, for drainage, drainage diversion and water harvesting.

Prices are to apply from 1 July 2012 to 30 June 2017.

Recommended prices and tariff structures are to provide a revenue stream that allows SunWater to recover:

(a) prudent and efficient expenditure on renewing and rehabilitating existing assets through a renewals annuity; and

(b) efficient operational, maintenance and administrative costs to ensure the continuing delivery of water services.

In considering the tariff structures, the Authority is to have regard to the fixed and variable nature of the underlying costs. The Authority is to adopt tariff groups as proposed in SunWater's network service plans and not to investigate additional nodal pricing arrangements.

The Ministerial Direction also requires that:

(a) where current prices are above the level required to recover prudent and efficient costs, current prices are to be maintained in real terms;

(b) where cost-reflective prices are above current prices, the Authority must consider recommending price paths to moderate price impacts on irrigators, whilst having regard to SunWater's commercial interests; and

(c) for certain schemes or segments of schemes [hardship schemes], prices should increase in real terms at a pace consistent with 2006-11 price paths, until such time as the scheme reaches the level required to recover prudent and efficient costs.

Price paths may extend beyond 2012-17, provided the Authority gives its reasons. The Authority must also give its reasons if it does not recommend a price path, where real price increases are recommended by the Authority.

Previous Review

In the 2006-11 price paths, real price increases over the five years were capped at $10/ML for relevant schemes. The cap applied to the sum of Part A and Part B real prices. In each year of the price path, the prices were indexed by CPI. Interim prices in 2011-12 were increased by CPI with additional increases in some schemes.

For this scheme, prices over 2006-11 increased on average by $0.56/ML per annum plus CPI to achieve lower bound costs in 2010-11. In 2011-12, prices in this scheme were increased by CPI and a further $2/ML.

6.2 Approach to Calculating Prices

In order to calculate SunWater's irrigation prices in accordance with the Ministerial Direction, the Authority has:

(a) identified the total prudent and efficient costs of the scheme;

(b) identified the fixed and variable components of total costs;

(c) allocated the fixed and variable costs to each priority group;

(d) calculated cost-reflective irrigation prices;

(e) compared the cost-reflective irrigation prices with current irrigation prices; and

(f) implemented the Government's pricing policies in recommended irrigation prices.

6.3 Total Costs

The Authority's estimate of prudent and efficient total costs for the Macintyre Brook WSS for the 2012-17 regulatory period is outlined in Table 6.1. Total costs since 2006-07 are also provided. Total costs reflect the costs for the service contract (all sectors) and do not include any adjustments for the Queensland Government's pricing policies.

Table 6.1: Total Costs for the Macintyre Brook WSS (Real $'000)

	Actual Costs						*Future Costs*				
	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
SunWater's Submitted Costs	1,327	1,100	1,076	1,004	1,294	1,230	1,276	1,296	1,277	1,253	1,244
Renewals Annuity	163	161	153	145	139	362	361	356	353	352	352
Operating Costs	1,183	974	937	872	1,168	879	928	951	935	912	903
Revenue offsets	-19	-34	-15	-13	-14	-11	-11	-11	-11	-11	-11
Authority's Total Costs	-	-	-	-	-	-	1,156	1,166	1,140	1,112	1,094
Renewals Annuity	-	-	-	-	-	-	266	261	258	259	256
Operating Costs	-	-	-	-	-	-	900	915	893	864	848
Revenue offsets	-	-	-	-	-	-	-11	-11	-11	-11	-11
Return on Working Capital	-	-	-	-	-	-	1	1	1	1	1

Note: Costs are presented for the total service contract (all sectors). Costs reflect SunWater's latest data provided to the Authority in October 2011 and may differ from the NSP. Source: SunWater (2011ap) and QCA (2011).

6.4 Fixed and Variable Costs

The Ministerial Direction requires the Authority to have regard to the fixed and variable nature of SunWater's costs in recommending tariff structures for each of the irrigation schemes.

SunWater submitted that all of its operating costs are fixed in the Macintyre Brook WSS and that only electricity pumping costs vary with water use.

As noted in Volume 1, the Authority engaged Indec to determine which of SunWater's costs are most likely to vary with water use. Indec identified:

(a) costs that would be expected to vary with water use. Indec expected that electricity pumping costs would generally be variable and non-direct costs would be fixed;

(b) all other activities and expenditure types (costs) would be expected to be semi-variable, including: labour, material, contractor and other direct costs, maintenance, operations and renewals expenditures;

(c) costs that actually varied with water use in 2006-11, by activity and by type:

  (i) by activity, Indec found that operations, preventive and corrective maintenance and renewals were semi-variable. Electricity was generally highly variable with water use in five distribution systems and two bulk schemes. In three distribution systems electricity pumping costs were semi-variable due to gravity feed;

(ii) by type, Indec found that labour, materials, contractors and other direct costs were semi-variable. Non-direct costs were fixed;

(d) costs that *should* vary with water use under Indec's proposed optimal (prudent and efficient) management approach (as outlined in Volume 1). On average across all SunWater's bulk schemes, Indec considered 93% of costs would be fixed and 7% variable. However Indec proposed that scheme-specific tariff structures should be applied to reflect the relevant scheme costs.

For Macintyre Brook WSS, Indec recommended 94% of costs should be fixed and 6% variable under optimal management. The Authority notes that this ratio differs from the current tariff structure which reflects the recovery of 80% of costs in the fixed charge and 20% of costs in the volumetric charge.

In general, the Authority accepts Indec's recommended tariff structure, for the reasons outlined in Volume 1.

6.5 Allocation of Costs According to WAE Priority

Fixed Costs

The method of allocating fixed costs to priority groups is outlined in Chapter 4 Renewals Annuity and Chapter 5 – Operating Costs. The outcome is summarised in Table 6.2.

Table 6.2: Allocation of Fixed Costs According to WAE Priority (Real $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Net Fixed Costs	1,086	1,095	1,071	1,045	1,027
High Priority	106	107	105	102	101
Medium Priority	979	988	967	943	927

Note: Net fixed costs is net of revenue offsets and return on working capital. Source: SunWater (2011ap) and QCA (2011).

These costs are translated into the fixed charge using the relevant WAE for each priority group.

Variable Costs

Variable costs are allocated to all users on the basis of water use. Volumetric tariffs are calculated using SunWater's forecast usage data, based on the eight year historical average water use data for all sectors. However, consistent with SunWater's assumed typical year for operating cost forecasts, the Authority has removed from the eight years of data, the three lowest water-use years for each service contract. Accordingly, to determine the volumetric charge, the Authority has assumed historical total water use for all sectors to be 81.1% of WAE.

6.6 Cost Reflective Prices

Cost reflective prices reflect the Authority's estimates of prudent and efficient costs, recommended tariff structures, and the allocation of costs to different priority groups. As the Macintyre Brook WSS was a revenue cap scheme, the cost-reflective Part A charge incorporates the carry-over adjustment required under the previous revenue cap arrangements (as noted in Chapter 2 – Regulatory Framework). These prices (Table 6.3) have not been adjusted to reflect the Queensland Government's pricing policies (see below).

Table 6.3: Medium Priority Prices for the Macintyre Brook WSS ($/ML)

	Actual Prices						*Cost Reflective Prices*				
	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Fixed (Part A)	20.28	21.24	22.88	24.44	25.44	28.36	40.75	41.77	42.82	43.89	44.99
Volumetric (Part B)	7.23	7.58	8.17	8.72	9.09	9.42	3.46	3.55	3.63	3.73	3.82

Source: Actual Prices (SunWater, 2011al) and Cost Reflective Prices (QCA, 2011).

6.7 Queensland Government Pricing Policies

As noted above, the Queensland Government has directed that:

(a) where current prices are above the level required to recover prudent and efficient costs, current prices are to be maintained in real terms;

(b) where cost-reflective prices are above current prices, the Authority must consider recommending price paths to moderate price impacts on irrigators, whilst having regard to SunWater's commercial interests; and

(c) for certain schemes or segments of schemes [hardship schemes], prices should increase in real terms at a pace consistent with 2006-11 price paths, until such time as the scheme reaches the level required to recover prudent and efficient costs.

Price paths may extend beyond 2012-17, provided the Authority gives its reasons. The Authority must also give its reasons if it does not recommend a price path, where real price increases are recommended by the Authority.

Authority's Analysis

To identify the relevant price path (if any), the Authority must first identify whether current prices recover prudent and efficient costs. To do so, given changes to tariff structure, the Authority has compared current revenues with revenues arising from cost-reflective tariffs, if implemented (see Volume 1). The Authority has calculated these current revenues using the relevant 2010-11 prices, current irrigation WAE and the five-year average (irrigation only) water use during 2006-11 (see Table 6.4).

For this scheme, current prices are below the level required to recover prudent and efficient costs (Table 6.4).

Table 6.4: Comparison of Current Prices and Cost-Reflective Prices

Tariff and Priority Group	*2010/11 Prices (indexed to 2012-13)*		*Irrigation WAE (ML)*	*Water Use (ML)*	*Current Revenue*	*Revenue from Cost-Reflective Tariffs*	*Difference*
	Fixed	*Variable*					
River	$26.73	$9.55	23,719	8,019	$710,538	$994,398	-$283,860

Source: SunWater (2011al), SunWater (2011ao) and QCA (2011).

In Volume 1, the Authority recommended that, after tariff restructuring, fixed charges should increase by $2/ML per annum in real terms until cost recovery is achieved. This is consistent with the average rate of increase in 2006-11 prices. Volumetric charges are to reflect variable costs from 2012-13.

After tariff rebalancing, the revenue-neutral tariff for the Macintyre Brook is a Part A charge of $28.30 per WAE and a Part B of $3.46 per ML of usage, and the $2/ML real increase is applied to the Part A fixed charge for the 2012-17 regulatory period. At this rate of increase, cost-reflective prices are not achieved during the 2012-17 regulatory period.

6.8 The Authority's Recommended Prices

The Authority's recommended prices to apply to the Macintyre Brook WSS for 2012-17 are outlined in Table 6.5, together with actual prices since 2006-07. In calculating the recommended prices, a 10-year average irrigation water use has been adopted (see Volume 1).

Table 6.5: Draft Medium Priority Prices for the Macintyre Brook WSS ($/ML)

	Actual Prices						***Recommended Prices***				
	2006-07	***2007-08***	***2008-09***	***2009-10***	***2010-11***	***2011-12***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Fixed (Part A)	20.28	21.24	22.88	24.44	25.44	28.36	30.30	33.11	36.04	39.09	42.28
Volumetric (Part B)	7.23	7.58	8.17	8.72	9.09	9.42	3.46	3.55	3.63	3.73	3.82

Source: Actual Prices (SunWater, 2011am) and Recommended Prices (QCA, 2011).

6.9 Impact of Recommended Prices

The impact of any change in prices on the total cost of water to a particular irrigator, can only be accurately assessed by taking into account the individual irrigator's water usage and nominal WAE (see Volume 1).

REFERENCES

Anderson, B. (2010). Submission re: Irrigation Prices for SunWater Schemes: 2011-16, September.

Australian Competition and Consumer Commission (ACCC). (2008a). W*ater Charge (Termination Fees) Rules Final Advice*. Canberra: Commonweath of Australia.

Australian Competition and Consumers Commission (ACCC). (2008b). *Water Market Rules.* Canberra: Commonwealth of Australia.

Australian Competition and Consumers Commission (ACCC). (2010). *Water Charge (Infrastructure) Rules (WCIR).* Canberra: Commonwealth of Australia.

Australian Sugar Milling Council (ASMC). (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Avondale Water Board (AWB). (2010). Submission re: Irrigation Prices for SunWater Schemes: 2011-16, April.

Baldwin, N. S. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, May.

Biggs, J. (2011). Submission re: Irrigation Prices for SunWater Cunnumulla Weir Scheme, April.

Bowen Broken Water Supply Scheme Irrigators. (2011). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Boyne River Irrigator Advisory Committee. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, August.

Boyne River Irrigator Advisory Committee. (2011). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Bundaberg Fruit and Vegetable Growers Cooperative Ltd. (BFVG). (2010a). Submission re: Irrigation Prices for SunWater Schemes 2011-16, August.

Bundaberg Fruit and Vegetable Growers Cooperative Limited (BFVG). (2010b). Submission re: Irrigation Prices for SunWater Schemes 2011-16, November.

Bundaberg Regional Irrigators Group (BRIG). (2010a). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Bundaberg Regional Irrigators Group (BRIG). (2010b). Submission re: Irrigation Prices for SunWater Schemes 2011-16, September.

Bundaberg Regional Irrigators Group (BRIG). (2010c). Submission re: Nodal Pricing, September.

Bundaberg Regional Irrigators Group (BRIG). (2010d). Submission re: Extended Water Pricing Consultation Period, November.

Bundaberg Regional Irrigators Group (BRIG). (2010e). Submission re: Irrigation Prices for Bundaberg Schemes 2011 to June 2016 on Issues Papers Released as at November 2010, November.

Bundaberg Regional Irrigators Group (BRIG). (2011a). Submission re: Irrigation Prices for SunWater Schemes 2011-16, February.

Bundaberg Regional Irrigators Group (BRIG). (2011b). Submission re: Irrigation Prices for SunWater Schemes 2011-16, March.

Bundaberg Regional Irrigators Group (BRIG). (2011c). Submission re: Irrigation Prices for the Bundaberg Scheme 2011 to June 2016 Following the Bundaberg Visit by Aurecon Representatives March 2011, March.

Bundaberg Regional Irrigators Group (BRIG). (2011d). Submission re: Irrigation Prices for SunWater Schemes 2011-16 Bundaberg Scheme, April.

Bundaberg Sugar. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, August.

Burdekin River Irrigation Area Committee. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, November.

Burdekin River Irrigation Area Committee. (2011a). Submission re: Irrigation Prices for SunWater Schemes 2011-16, March.

Burdekin River Irrigation Area Committee. (2011b). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Canegrowers Isis Limited. (2010a). Submission re: Bundaberg Isis Irrigation Scheme, August.

Canegrowers Isis Limited. (2010b). Submission re: The Progress of the Bundaberg - Isis Irrigation Scheme, August.

Canegrowers Isis Limited. (2010c). Submission re: Water Pricing Options for the Bundaberg WSS, August.

Canegrowers Isis Limited. (2011). Submission re: Bundaberg Water Supply Scheme and Distribution System Network Service Plans, April.

Canegrowers Proserpine Limited. (2011). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Canegrowers. (2011a). Submission re: Irrigation Prices for SunWater Schemes 2011-16, February.

Canegrowers. (2011b). Submission re: Irrigation Prices for SunWater Schemes 2011-16, March.

Canegrowers. (2011c). Submission re: Irrigation Prices for Sunwater Schemes 2011-16, April.

Central Downs Irrigators Ltd. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, August.

Central Highlands Cotton Growers and Irrigators Association (CHCGIA). (2010a). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Central Highlands Cotton Growers and Irrigators Association (CHCGIA). (2010b). Submission re: Issues Paper, August.

Childers and District Fruit and Vegetables Growers Association. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, August.

Commonwealth of Australia 2011, *Of drought and flooding rains - Inquiry into the impact of the Guide to the Murray-Darling Basin Plan*, House of Represenatives Standing Committee on Regional Australia, Canberra, May

Cooinda Cotton Co. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, July.

Cooinda Cotton Co. (2011). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Cotton Australia. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, November.

Cotton Australia/QFF. (2011a). Submission re: Irrigation Prices for SunWater Schemes 2011-16, February.

Cotton Australia/QFF. (2011b). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Council of Australian Governments (COAG). (1994). *Report of the Working Group on Water Resource Policy: Communique.* Canberra: Council of Australian Governments.

Council of Australian Governments (COAG). (2004). *Intergovernmental Agreement on a National Water Initiative.* Canberra: Council of Australian Governments.

Council of Australian Governments (COAG). (2010). *National Water Initiative Principles.* Canberra: Council of Australian Governments.

Cronin, S. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Dawson Valley Irrigators Group. (2010). Submission re: Irrigation Prices for SunWater Scheme 2011-16, July.

Department of Natural Resources and Water (DNRW). (2008). *Submission to Water Charge Rules Issues Paper for Charges Payable to Irrigation Infrastructure Operators*. Brisbane: Department of Natural Resources and Water.

Deloitte. (2011). SunWater Administration Cost Review Phase 2. A Consultancy Report Prepared for the Queensland Competition Authority, March.

Dunsdon, G. (2011). Submission re: Irrigation Prices for SunWater Schemes 2011-16 for the Cunnamulla Weir Scheme, May.

Economic Regulation Authority (ERA). (2007). Inquiry on Harvey Water Bulk Water Pricing, April.

Economic Regulation Authority (ERA). (2009). Inquiry into Tariffs of the Water Corporation, Aqwest and Busselton Water, August.

Enkelmann, P. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Enkelmann, P. (2011a). Submission from the Murgon Meeting of the 14 April 2011, April.

Enkelmann, P. (2011b). Submission re: Irrigation Water Prices 2011-16, April.

Enkelmann, P. (2011c). Submission re: Water Pricing for Barker Barambah Water Supply Scheme, April.

Essential Services Commission (ESC). (2008). 2008 Water Price Review: Regional and Rural Businesses' Water Plans 2008-13 and Melbourne Water's Drainage and Waterways Water Plan 2008-13, June.

Essential Services Commission of South Australia (ESCOSA). (2010). Inquiry into the 2010-11 Metropolitan and Regional Potable Water and Sewerage Pricing Process: Final Report, October.

Eton Irrigators Advisory Committee. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Eton Irrigators Advisory Committee. (2011a). Submission re: Irrigation Prices for SunWater Schemes 2011-16, March.

Eton Irrigators Advisory Committee. (2011b). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Francis, P., & Francis, M. (2011). Submission re: Irrigation Prices for SunWater Schemes 2011-16 - Three Moon Creek Water Supply Scheme, April.

Frontier Economics. (2008). Termination Fees and Landholder Considerations. A Consultancy Report Prepared for the Australian Competition and Consumers Association, October.

Gilbert and Sutherland. (2011). Quality Assurance Assessment of a Review of SunWater's Headworks Utilisation Factors Methodology. A Consultancy Report Prepared for the Queensland Competition Authority, March.

Growcom. (2010). Submission re: Segmented Water Pricing in Bundaberg, September.

Hetherington, M. and Hetherington, K. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Hinchliffe, G., Hinchliffe, P., & Farmer, G. (2011). Submission re: Network Service Plan - Lower Fitzroy Water Supply Scheme, April.

Hubert, J. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Independent Competition and Regulatory Commission (ICRC). (2008). Water and Wastewater Price Review: Final Report and Price Determination, April.

INDEC. (2011a). SunWater Water Supply Schemes 2011-16 Price Paths: Audit and Review of SunWater's Business Operating Model (BOM). A Consultancy Report Prepared for the Queensland Competition Authority, March.

INDEC. (2011b). SunWater Water Supply Schemes 2011-16 Price Paths: Review of SunWater Pricing Model - Step 1. A Consultancy Report Prepared for the Queensland Competition Authority, March.

Independent Pricing and Regulatory Tribunal (IPART). (2010a). Review of Bulk Water Charges for State Water Corporation: Water-Final, June.

Independent Pricing and Regulatory Tribunal (IPART). (2010b). Review of Prices for the Water Administration Ministerial Corporation, July.

Independent Pricing and Regulatory Tribunal (IPART). (2011). Review of Prices for the Water Administration Ministerial Corporation, February.

Isis Central Sugar Mill. (2010a). Submission re: Irrigation Prices for SunWater Schemes 2011-16, August.

Isis Central Sugar Mill. (2010b). Submission re: Water Pricing Options, September.

Isis Sugar Partnership. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, November.

Kelsey Creek Water Board. (2011). Submission re: Irrigation Prices for SunWater Schemes, April.

Lower Boyne River Irrigators. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, August.

Lower Burdekin Water. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Lower Burdekin Water. (2011). Submission re: Irrigation Prices for SunWater Schemes 2011-16, May.

MacDonald, K. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Macintyre Brook Irrigators Association. (2011). Submission re: SunWater Price Path Issues Regarding the Macintyre Brook Scheme, April.

Mackay Canegrowers Limited and Mackay Sugar Limited. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Mackay Irrigation Stakeholders. (2010). Submission re: Irrigations Prices for SunWater Schemes 2011-16, November.

Mackenzie, R. A. (2010a). Submission re: Rate of Return, June.

Mackenzie, R. A. (2010b). Submission re: Postage Stamp Prices, June.

Mackenzie, R. A. (2010c). Submission re: Standard Supply Contracts, September.

Mareeba Dimbulah Irrigation Area Council (MDIAC). (2010). Submission re: Irrigation Prices for SunWater Schemes, November.

Mareeba Dimbulah Irrigation Area Council (MDIAC). (2011). Submission re: Irrigation Prices for SunWater Schemes, April.

Maryborough Sugar Factory (MSF). (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, November.

Maryborough Sugar Factory (MSF). (2011). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

McColl, D. (2010a). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

McColl, D. (2010b). Submission re: Irrigation Prices for SunWater Schemes 2011-16, November.

McGuigan, B. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

McLellan, P., & McLellan, B. (2011). Submission re: Irrigation Prices for SunWater Scheme 2011-2016, April.

Millar, C. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, May.

National Water Commission. (2008). N*ational Performance Report 2006-07: Rural Water Service Providers.* Canberra: Australian Government.

NERA Economic Consulting. (2010a). Form of Price Control: SunWater Water Supply Schemes. Issues Paper Prepared for the Queensland Competition Authority, August.

NERA Economic Consulting. (2010b). Single or Multiple Rate of Return: SunWater. A Consultancy Report Prepared for the Queensland Competition Authority, August.

NERA Economic Consulting. (2011). Cost of Capital for Water Infrastructure Company. A Consultancy Report Prepared for the Queensland Competition Authority, March.

O'Brien MP, J. (2010). Submission re: Irrigation Prices fo SunWater Schemes 2011-16, June.

Office for Water Security. (2010). *Water for Good.* Adelaide: Government of South Australia.

Otto, N., & Otto, M. (2011). Submission re: Irrigation Prices for SunWater Schemes, April.

Parsons Brinckerhoff (2010), Provisions of Services for Costing SunWater's Work Instructions. A Consultancy Report Preparef for SunWater, October.

Pioneer Valley Water Co-operative Limited. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Pioneer Valley Water Co-operative Limited. (2011a). Submission re: SunWater Network Service Plan - Pioneer River Water Supply Schemes, February.

Pioneer Valley Water Co-operative Limited. (2011b). Submission on Consultants Draft Report on Pioneer WSS Network Service Plan, April.

Pioneer Valley Water Co-Operative Limited. (2011c). Submission on Consultants Draft Report on SunWater Administration Cost Review, April.

PriceWaterHouseCoopers (PwC). (2010a). Pricing Principles and Tariff Sructures for SunWater's Water Supply Schemes. Issues Paper Prepared for the Queensland Competition Authority, September.

PriceWaterHouseCoopers (PwC). (2010b). Allocating Capital Costs of Bulk Water Supply Assets. Issues Paper Prepared for the Queensland Competition Authority, September.

Productivity Commission. (2011). *Australia's Urban Water Sector (Draft Report)*. Canberra: Commonwealth of Australia.

Proserpine District Canegrowers Cooperative Limited and Proserpine Co-operative Sugar Milling Association Limited. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, November.

Queensland Competition Authority (QCA). (2000). Statement of Regulatory Pricing Principles for the Water Sector, December.

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

Queensland Competition Authority (QCA). (2005). Gladstone Area Water Board: Investigation of Pricing Practices - Final Report, March.

Queensland Competition Authority (QCA). (2010). Gladstone Area Water Board: Investigation of Pricing Practices, July.

Queensland Farmers' Federation (QFF). (2010a). Submission re: Irrigation Prices for SunWater Schemes 2011-16, July.

Queensland Farmers' Federation (QFF). (2010b). Submission re: Irrigation Prices for SunWater Schemes 2011-16, November.

Queensland Valuation Services (QVAS). (2010). Permanent Water Trade.

Robertson MP, Hon Stephen. (2010a). Submission re: Nodal Pricing Arrangements, September.

Robertson MP, Hon Stephen. (2010b). Submission re: Assets Associated with Bulk Water Supply Service, September.

Roth, R. (2011). Submission re: Irrigation Prices for Sunwater Schemes 2011-16 - Three Moon Creek, March.

SAHA. (2010). Renewals Annuity or a Regulatory Depreciation Allowance: SunWater's Water Supply Schemes 2011-16 Price Paths. Issues Paper Prepared for the Queensland Competition Authority, September.

SAHA. (2011). Assessment of SunWater's Administration Costs. A Consultancy Report Prepared for the Queensland Competition Authority, January.

Simpson Farms. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, August.

SP Exports. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, August.

St George Irrigators. (2010). Perspectives on Pricing of Irrigation Water in Queensland 2011-2016, July.

St George Irrigators. (2011). St George Water Supply Scheme, Network Service Plan, 2012-2016, April.

Stewart, D. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, May.

Strathdee, B. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, May.

SunWater. (2003). *SunWater Annual Report 2002-03*. Brisbane: SunWater Limited.

SunWater. (2004). *SunWaterAnnual Report 2003-04*. Brisbane: SunWater Limited.

SunWater. (2005). *SunWater Annual Report 2004-05*. Brisbane: SunWater Limited.

SunWater. (2006a). Statewide Irrigation Pricing Working Group: Tier 1 Report. Brisbane, April: SuinWater Limited.

SunWater. (2006b). *SunWater Irrigation Price Paths 2006-07 to 2010-11: Final Report*. Brisbane: SunWater Limited, September.

SunWater. (2006c). *SunWater Annual Report 2005-06*. Brisbane: SunWater Limited.

SunWater. (2007). *SunWaterAnnual Report 2006-07*. Brisbane: SunWater Limited.

SunWater. (2008). *SunWater Annual Report 2007-08*. Brisbane: SunWater Limited.

SunWater. (2009). SunWater Annual Report 2008-09. Brisbane: SunWater Limited

SunWater. (2010a). QCA Review of Irrigation Prices: Public Submission Letter, May.

SunWater. (2010b). QCA Review of Irrigation Prices: Service Framework Background Paper. Brisbane, May.

SunWater. (2010c). QCA Review of Irrigation Prices: Contributed Assets Background Paper, May.

SunWater. (2010d). QCA Review of Irriagtion Prices: Headworks Utilisation Factors Technical Report, September.

SunWater. (2010e). QCA Review of Irrigation Prices: Bulk Water Asset Valuation, October.

SunWater. (2010f). QCA Review of Irrigation Prices: Asset Management Planning Methodology Paper, October.

SunWater. (2010g). *SunWater Annual Report 2009-10.* Brisbane: SunWater Limited.

SunWater. (2011). Macintyre Brook Water Supply Scheme Network Service Plan, January.

SunWater. (2011a). QCA Review of Irrigation Prices: Centralised Costs Background Paper, January.

SunWater. (2011b). QCA Review of Irrigation Prices: Cost Forecasting Assumptions Background Paper, January.

SunWater. (2011c). QCA Review of Irrigation Prices: Renewals Annuity Background Paper, January.

SunWater. (2011d). QCA Review of Irrigation Prices: Pricing Principles and Tariff Structures January.

SunWater. (2011e). QCA Review of Irrigation Prices: Form of Regulation, January.

SunWater. (2011f). QCA Review of Irrigation Prices: Review and Adjustment Triggers Supplementary Information, February.

SunWater. (2011g). QCA Review of Irrigation Prices: Allocation of Centralised Costs Supplementary Information, February.

SunWater. (2011h). QCA Review of Irrigation Prices: Electricity Costs Background Paper, February.

SunWater. (2011i). QCA Review of Irrigation Prices: Water Distribution Entitlements Supplementary Information, February.

SunWater. (2011j). QCA Review of Irrigation Prices: Bulk Water Price Differentiation Supplementary Submission, February.

SunWater. (2011k). QCA Review of Irrigation Prices: Customer Involvement in Renewals Expenditure Supplementary Background Paper, February.

SunWater. (2011l). QCA Review of Irrigation Prices: Weighted Average Cost of Capital - Renewals Annuity Background Paper, February.

SunWater. (2011m). QCA Review of Irrigation Prices: Pumping Cost Reconciliation, February.

SunWater. (2011n). QCA Review of Irrigation Prices: WAE Reconciliation, February.

SunWater. (2011o). QCA Review of Irrigation Prices: Storage Rental Fees, March.

SunWater. (2011p). QCA Review of Irrigation Prices: Pricing of Distribution Losses, March.

SunWater. (2011q). QCA Review of Irrigation Prices: Estimated Flood Damage Letter, March.

SunWater. (2011r). QCA Review of Irrigation Prices: Metering and Price Model Letter, March.

SunWater. (2011s). QCA Review of Irrigation Prices: Tariff Groupings, March.

SunWater. (2011t). QCA Review of Irrigation Prices: Revenue Analysis, March.

SunWater. (2011u). QCA Review of Irrigation Prices: Electricity - Actual vs 2006 IPR Forecast, March.

SunWater. (2011v). QCA Review of Irrigation Prices: Water Harvesting Usage Summary, April.

SunWater. (2011w). QCA Review of Irrigation Prices: Headworks Utilisation Factors, Critical Periods and Bulk Water Supply Capital Cost Allocatoon, April.

SunWater. (2011x). QCA Review of Irrigation Prices: Headworks Utilisation Factors Addendum, May.

SunWater. (2011y). QCA Review of Irrigation Prices: Service Delivery Strategies, May.

SunWater. (2011z). QCA Review of Irrigation Prices: Service Delivery Paper, May.

SunWater. (2011aa). QCA Review of Irrigation Prices: Drainage Data, April.

SunWater. (2011ab). QCA Review of Irrigation Prices: Response to Pioneer Valley Water Board Submission on the Pioneer River Water Supply Scheme - Network Services Plan, May.

SunWater (2011ac). QCA Review of Irrigation Prices: Administration Costs for Bundaberg Groundwater, June.

Synergies Economic Consulting. (2010). Rural Water Pricing Business and Scheme Overview. A Consultancy Report to the Queensland Competition Authority, January.

Tableland Canegrowers Ltd and Mareeba District Fruit and Vegetable Growers Association Inc. (2010a). Submission re: Key Issues on Irrigation Prices for Mareeba-Dimbulah Water Supply Scheme, July.

Tableland Canegrowers Ltd and Mareeba District Fruit and Vegetable Growers Association Inc. (2010b). Submission re: Tiered Pricing, August.

Tanner, J., & Tanner, S. (2011). Submission re: Irrigation Prices fro SunWater Schemes 2011-16, May.

Thomas, W. A. (2011). Submission re: Principles Relevant to Recovering Long-Run Average Costs of SunWater Schemes, April.

Voss, A. (2011). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Water Act 2000 (Qld).

Water Act 2007, No. 137 (Cwlth).

Water Regulation 2002 (Qld).

Water Supply (Safety and Reliability) Act 2008 (Qld).

Weir, T. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, July.

World Wildlife Fund (WWF). (2010). Submission re: Irrigatiion Prices for SunWater Schemes 2011-16, May.

APPENDIX A: FUTURE RENEWALS LIST

Below are listed SunWater's forecast renewal expenditure items greater than $10,000 in value, for the 2011-36 period in 2010-11 dollar terms.

Asset	*Year*	*Description*	*Value ($'000)*
Ben Dor Weir	2023-24	Replace Gate, 450Mm Batescrew	51
	2024-25	Replace BUOYS (2 OFF)	12
Coolmunda Dam	2011-12	12MABXX REFURBISH DOWNSTREAM FACE	54
		13MABXX PAINT D/S OF GATE STRUCTURE	54
		Study: 5yr Dam Comprehensive Inspection (5yr Review of EAP, O&M and SOPs)	24
		12MABXX REFURB RIVER OUTLET BLKHD GTE PM	16
		12MABXX REFURBISH FLOAT TIE RODS	12
	2012-13	13MABXX PAINT BULKHEADS/ REPLACE SEALS	83
		Regrade and clear toe drain downstream face of embankment	80
		14MABXX REPAINT ALL U/SAND D/S FACES	69
		13MABXX STUDY: RE-ISSUE SOP'S ($11K)	28
		13MABXX RESEAL /INSP / REPAIR /REPAINT	23
		Refurbish Float tie rods	15
		13MABXX REFURBISH FLOAT TIE RODS	14
		Refurbish: Need to put grader over and stabilize at irregular intervals. Icreased fron $5K Oct 04 KE	12
	2013-14	14MABXX PAINT EXT SURFACE,CA INT/ CCTV,	49
		14MABXX REFURBISH: REPAINT ALL D/S FACE	49
		14MABXX STUDY:REFURB ALL CABLES & CBLWYS	28
		14MABXX REFURBISH TOP TRASH RACK - jOB C	22
		Refurbish Float Tie Rods	15
	2015-16	11MAB06 5 YR DAM SAFETY INSPECTION	52
		Crest & side seals - replace at $16k @ 30yr into (2007) - side seals Teflon coated & includes bolts	20
	2016-17	Replace Switchboard	46
		Study: 5yr Dam Comprehensive Inspection (5yr Review of EAP, O&M and SOPs)	25
		Replace Radial Gate Alarm System	22
		Replace Compressor	21
		Replace Instrumentation	12
	2017-18	09MAB-Refurbish D/S Face Gate1 - Paint	71
		Replace Jib Crane	19
	2018-19	Replace Motor	47
	2020-21	Study: 20yr Dam Safety Review (by 1 Dec 2020)	125
		11MAB06 5 YR DAM SAFETY INSPECTION	52
		Replace Platform & Handrails (Vlv Hse To Gate 7)	23
	2021-22	Refurbish: Removal of yolk; Remove rust from pins ;Sandblast; also Refurbish: Full valve overhaul; increased KE Oct 04	37
		Study: 5yr Dam Comprehensive Inspection (5yr Review of EAP, O&M and SOPs)	25
		Replace Marker Fence	23
	2022-23	Refurbish Header Pipe Valve in Control Well	37
		13MABXX STUDY: RE-ISSUE SOP'S ($11K)	28
		Refurbish: Removal of yolk; Remove rust from pins	25

Asset	*Year*	*Description*	*Value ($'000)*
		;Sandblast; Full valve overhaul; increased from $5k KE oct 04	
	2024-25	Replace Pump, 300Mm Batescrew	49
		Crest & side seals - replace at $16k @ 30yr into (2007) - side seals Teflon coated & includes bolts	20
		Refurbish: Need to put grader over and stabilize at irregular intervals. Icreased fron $5K Oct 04 KE	12
		Replace BUOY LINE	12
	2025-26	Refurbish: Fence Rails; identified as deteriorating; will become a safety issue in future	61
		11MAB06 5 YR DAM SAFETY INSPECTION	50
		13MABXX RESEAL /INSP / REPAIR /REPAINT	23
		14MABXX REFURBISH TOP TRASH RACK - jOB C	22
	2026-27	09MAB-Refurbish D/S Face Gate1 - Paint	70
		Study: 5yr Dam Comprehensive Inspection (5yr Review of EAP, O&M and SOPs)	25
		09MAB-Refurbish Tie Rods	14
	2027-28	Replace Trash Racks	22
		Repair or Replace Conduit Drain Line	12
		Underwater Inspection of Bulkhead Gate Guides	12
	2028-29	11MABXX- FLOAT TIE RODS&GUIDES-GT-1 &2	38
	2029-30	10MAB05 INSTALL Floating signage	34
		12MABXX REFURBISH FLOAT TIE RODS	13
		Replace FLOWMETER, 300MM EMAG SIEMENS	10
	2030-31	13MABXX PAINT BULKHEADS/ REPLACE SEALS	86
		11MAB01 REFUBISH D/S GATE FACE	72
		11MAB02 REFUBISH D/S GATE FACE	69
		11MAB06 5 YR DAM SAFETY INSPECTION	51
		Refurbish Float tie rods	15
		13MABXX REFURBISH FLOAT TIE RODS	14
	2031-32	12MABXX INSTALL BUOY LINE	97
		12MABXX REFURBISH DOWNSTREAM FACE	56
		13MABXX PAINT D/S OF GATE STRUCTURE	56
		Study: 5yr Dam Comprehensive Inspection (5yr Review of EAP, O&M and SOPs)	25
		Replace Radial Gate Alarm System	22
		Refurbish Float Tie Rods	15
		Replace Instrumentation	12
	2032-33	14MABXX REPAINT ALL U/SAND D/S FACES	71
		13MABXX STUDY: RE-ISSUE SOP'S ($11K)	28
	2033-34	14MABXX REFURBISH: REPAINT ALL D/S FACE	49
		Crest & side seals - replace at $16k @ 30yr into (2007) - side seals Teflon coated & includes bolts	20
	2034-35	Replace Pipework	235
		Replace Trash Rack Storage Platform	47
		Study: O&M Manual: Complilation of Maintenance section and OMS Implemented	25
		Float Well Measurement: Make safe & Purchase laser measuring device	22
	2035-36	09MAB-Refurbish D/S Face Gate1 - Paint	70
		11MAB06 5 YR DAM SAFETY INSPECTION	51
Coolmunda Dam	2018-19	Replace Meter, Dulco	12

Asset	*Year*	*Description*	*Value ($'000)*
Wtp			
	2023-24	Replace Pump, 100Mm Subm Flyght	19
Macintyre Brook Distribution	2011-12	09MAB08 Install Whetstone Head Water Gauge	48
	2013-14	09MAB-Install Tail Water Gauge at Coolm	27
	2015-16	Replace 416404C Bracker Ck Terraine	36
		Replace 416409A Coolmunda Dam Hw	36
		Replace 416410A Macintyre Brook Barongarook	36
	2017-18	Replace Greenup Weir-73.4 Km	37
		Replace Whetstone Weir-38.6 Km	37
	2033-34	09MAB-INSTALL: WHETSTONE WEIR HW Gauge	49
		09MAB-INSTALL: BENDOR WEIR HW GAUGE	48
	2035-36	09MAB07 INSTALL: BENDOR WEIR HW GAUGE	33
Service Contract	2025-26	Study: Develop O&M Manual	37
	Year	Study: Develop Scheme Asset Strategies	24