QUEENSLAND COMPETITION AUTHORITY

Draft Report

SunWater
Irrigation Price Review: 2012-17
Volume 2
Upper Burnett 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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Refer to Volume 1 for a comprehensive list of acronyms, terms and definitions.

EXECUTIVE SUMMARY

Ministerial Direction

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 (WSSs) 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 Upper Burnett 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 Upper Burnett 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***
Upper Burnett (Regulated Section of the Nogo/Burnett River)											
Fixed (Part A)	12.16	14.16	16.60	18.88	21.08	21.84	26.07	26.72	27.39	28.08	28.78
Volumetric (Part B)	7.46	8.67	10.14	11.55	12.92	13.38	3.30	3.38	3.47	3.55	3.64
John Goleby Weir											
Fixed (Part A)	14.08	14.48	15.16	15.64	16.12	16.68	24.93	25.56	26.19	26.85	27.52
Volumetric (Part B)	19.18	19.74	20.69	21.34	21.99	22.78	3.30	3.38	3.47	3.55	3.64

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. UPPER BURNETT WATER SUPPLY SCHEME

1.1 Scheme Description

An overview of the key characteristics of the Upper Burnett water supply scheme (WSS) is provided in Table 1.1.

Table 1.1: Key Scheme Information for the Upper Burnett WSS

	Upper Burnett WSS
Business Centre	Bundaberg
Irrigation Uses of Water	Citrus, small crops and dairy farming.
Urban water supplies	The towns of Eidsvold, Mundubbera and Gayndah are supplied from the scheme.
Industrial Water Supplies	na

Source: Synergies Economic Consulting (2010).

The Upper Burnett WSS has a total of 156 bulk customers. Medium and high priority water access entitlements (WAE) are shown in Table 1.2.

Table 1.2: Water Access Entitlements

Customer Group	***Irrigation WAE (ML)***	***Total WAE (ML)***
Medium Priority	26,870	27,170
High Priority	0	1,720
Total	26,870	28,890

Source: SunWater (2011am).

1.2 Bulk Water Infrastructure

Bulk water service involves 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 Upper Burnett WSS

Storage Infrastructure	*Capacity (ML)*	*Age (years)*
Wuruma Dam	165,400	32
Claude Wharton Weir	12,800	23
Kirar Weir (Burnett Water)	9,540	5
Jones Weir	3,720	49
John Goleby Weir	1,690	24

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

The characteristics of the bulk water assets are:

(a) Wuruma dam is a referable dam situated approximately 48 km northwest of Eidsvold on the Nogo River;

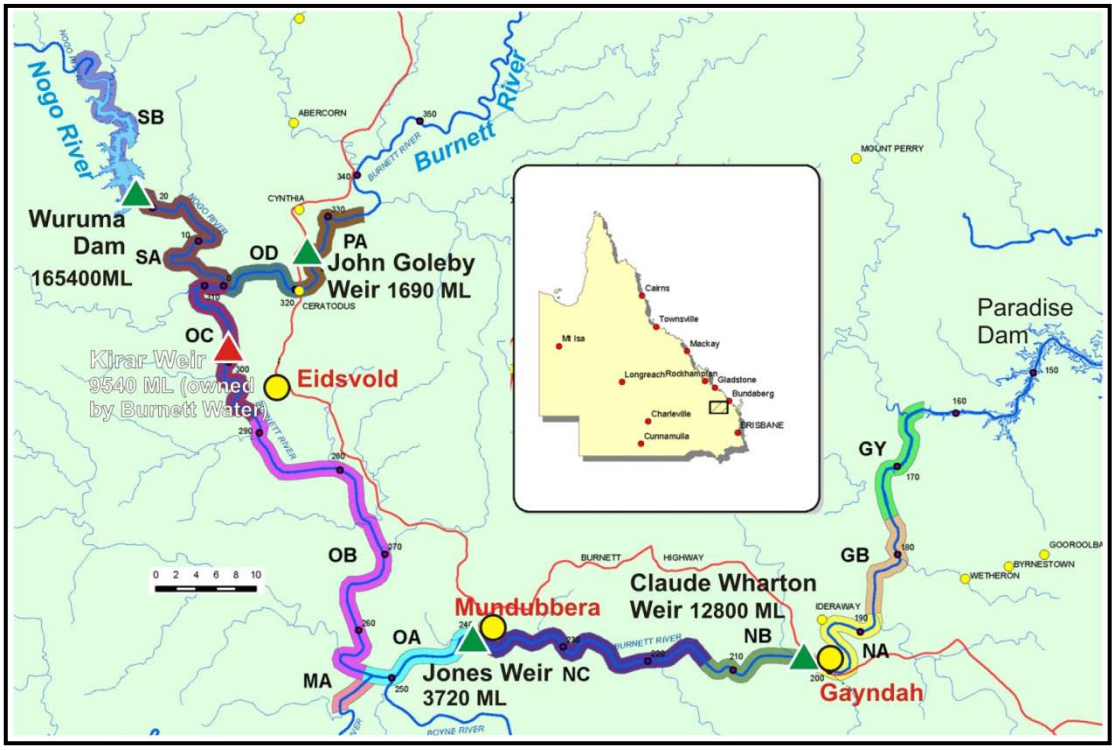
(b) John Goleby Weir is located on the Burnett River and was completed in 1986 and holds 1,690 ML when full;

(c) Jones Weir is located on the Burnett River at the town of Mundubbera. It was completed in 1951 and has a capacity of 3,720 ML when full; and

(d) Claude Wharton Weir is located on the Burnett River at the town of Gayndah. The weir consists of a mass concrete wall. In 1992 the wall was fitted with an inflatable rubber crest which raised the storage level by 1.5 m and raised the storage volume from 8,080 ML to 12,800 ML. The weir was fitted with a fish lock in 2008. The weir has a high and low-level outlet and can release up to 3,380 ML/day. The inflatable rubber dam is currently deflated following the failure of a fabri-dam at Bedford Weir in the Nogoa-Mackenzie WSS.

The location of the Upper Burnett WSS and key infrastructure is shown in Figure 1.1.

Figure 1.1: Upper Burnett WSS Locality Map



Source: SunWater (2011).

1.3 Network Service Plans

The Upper Burnett WSS Network Service Plan (NSP) presents SunWater's:

(a) existing service standards;

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

(c) risks 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 specifically 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 Upper Burnett Tier 2 group indicated that they were in favour of retaining the existing price cap regulatory arrangement. In the 2011-12 interim price period the price cap arrangement was continued.

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 Upper Burnett WSS.

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

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

(c) metering costs related to changes in regulatory standards;

(d) unplanned frequency of installing and operating pumps to access low storage levels;

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

(f) the availability of chemicals to control submerged weeds and algae in channels;

(g) outbreak of noxious weeds; and

(h) replacement of Claude Wharton Weir inflatable rubber dam subject to the outcome from current workplace health and safety (WHS) investigations[1];

Other Stakeholders

No other stakeholders have commented on this matter.

2.3 The Authority's Analysis

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

[1] In November 2008, an inflatable rubber dam on top of the Bedford Weir (Nogoa-Mackenzie WSS) failed and an unexpected release of water downstream resulted in a fatality. The Government subsequent directed that all rubber fabridams in the state be deflated.

Table 2.1: Summary of Risks, Allocation and Authority's Recommended 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 the 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), (d), (f) and (g) (in stakeholder submissions above) will be dealt with via 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.

Meter upgrades (c) are outside the scope of the investigation. No levies or charges (e) are to be applied by the Authority as a result of this irrigation review. The replacement of the Claude Wharton Weir inflatable rubber dam (h) is addressed in Chapter 4.

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. For the 2006-11 price path, the Nogo/Burnett River tariff group adopted the agreed 70:30 ratio in Part A and Part B tariffs. However, tariffs in the John Goleby Weir tariff group were above lower bound cost.

Due to the prevailing Government policy that there should be no real price decreases, the John Goleby Weir tariff group Part A fixed charge was set at 51% and Part B variable charges set at 49% of total revenues.

Stakeholder Submissions

SunWater

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

Other Stakeholders

A Voss (2011) stated that there needs to be a very low Part A and a reasonable Part B charge because of wet and dry year extremes. In some years water availability is nil excluding beds and water [aquifer water accessible from a riverbed according to the rules set out in the Resource Operations Plan (ROP)] and the cost of extraction exceeds potential returns of primary production.

During the Authority's first round of consultations (May 2010), concerns were raised that the current tariff structure does not provide sufficient incentive to SunWater to sell available water.

K McDonald (2010) submitted that her family holds WAE despite disposing of the land. However, SunWater would not let her sell the licence to a different zone and they are therefore forced to pay the quarterly bill [fixed Part A charges] for keeping the water licence. She noted that if SunWater would let them sell into a different zone they could quickly sell it, but due to SunWater owning water from Kirar Weir, SunWater has not permitted this.

During the first round of stakeholder consultations (2010), irrigators submitted that the current process for deciding actual allocations penalises efficient water users by imposing relatively larger reductions which remove incentive to pursue more efficient irrigation practices. The irrigators also noted that the Authority's review was being undertaken prior to finalisation of ROP and Water Asset Management Plan (WAMP) which will impact future water allocations and availability.

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 respect to concerns relating to water unavailability, 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). SunWater is entitled to recoup all the costs of meeting its obligations even in dry years (these being fixed costs). Those costs which vary with water delivery will vary with delivery (these being the variable costs).

As SunWater must deliver the required quantum of water under the announced allocation (consistent with the terms and conditions of the specified level of service agreement), the issue of incentive is not relevant in this regard. The Authority also notes that where SunWater holds WAEs, high fixed tariffs will provide SunWater with the incentive to sell those WAEs because fixed costs associated with SunWater's WAE are not paid for by other customers and thus represent holding costs for SunWater.

In relation to any trading envelope (or area) restrictions, the Authority understands that DERM imposes such restrictions as part of the water planning process and that this is not a matter in which SunWater has discretion. The Authority has been advised by DERM that it is currently reviewing Ms McDonald's application, made under the *Water Act 2000*, to move Ms McDonald's water allocation to another zone. This matter is outside the scope of the Authority's SunWater irrigation pricing review.

The Authority notes that volumes of permanent and temporary water traded for the Upper Burnett 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	384	10	1,348	896	509	496	679
Temporary water traded	1,800	2,107	4,007	3,207	1,351	1,046	2,166	1,899

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

The Authority notes that the relevant ROP and WAMP which will impact future water allocations and availability are yet to be finalised. The nature of any changes and their implications for prices are outside the scope of the current pricing review.

3.2 Water Use Forecasts

Introduction

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

In the previous review, up to 25 years of historical data was collated for nominal WAE, 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, impact of trading and scheme specific issues (SunWater, 2006a).

For the Upper Burnett, the SunWater, (2006b) assumed a water usage forecast of 70% of WAE in the river system.

Stakeholder Submissions

SunWater

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

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

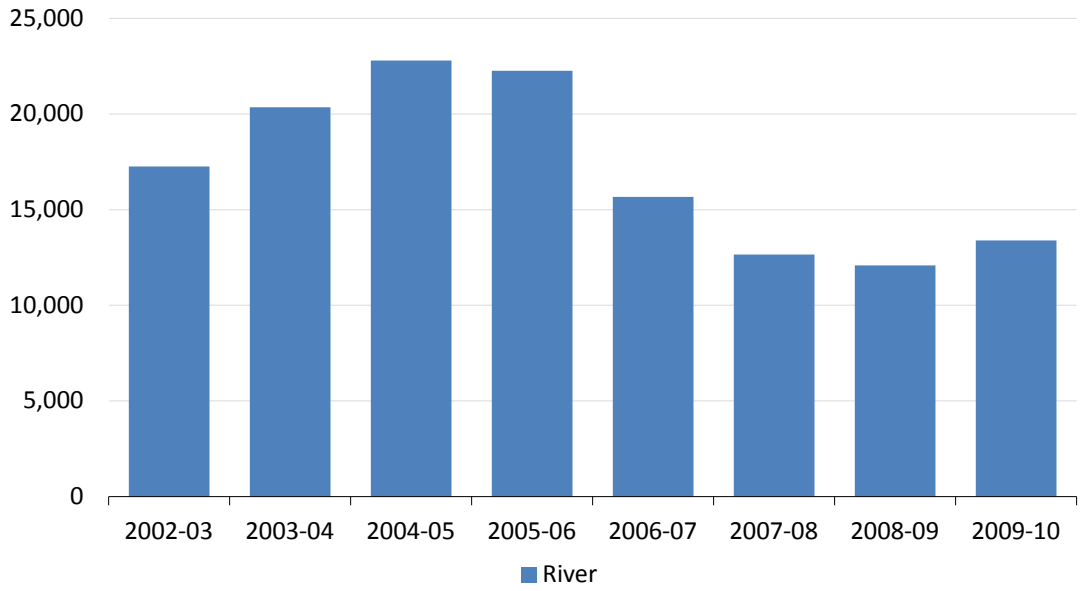
SunWater's usage forecasts for 2011-16 are made having regard to historic averages over an eight-year period and the usage forecast applied for the current price path. Based on the last eight years observations, SunWater has forecast use as follows:

(a) at a whole scheme level (all sectors) – an average of 59% of WAE; and

(b) for the irrigation sector only – 57% of WAE. This compares with the eight-year average of 70%.

Figure 3.1 shows the historic usage information submitted by SunWater.

Figure 3.1: Water Usage (ML)



Source: SunWater (2011).

The 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 as proposed in SunWater's NSPs.

The previous SunWater Irrigation Price Paths Final Report (2006) nominated two tariff groups for the river segment of the Upper Burnett WSS:

(a) River – John Goleby Weir; and

(b) River – Nogo/Burnett River.

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

In accordance with the Ministerial Direction, the Authority has adopted the proposed tariff groups for this WSS.

3.4 Free Water Allocations

Introduction

In the past, some WAE holders have been exempt from paying storage and delivery charges to SunWater in the Upper Burnett WSS.

Previous Review

During the previous review, government policy stated in the Tier 1 Report (2006) that free water allocations represented pre-existing entitlements and were a condition precedent to the establishment of the schemes in which they occur. Therefore, costs could not be allocated to these WAEs for the period of the price path.

There are currently 210ML of 'free' allocations in the Upper Burnett scheme, which did not attract any cost allocation in the current water prices.

Stakeholder Submissions

SunWater

SunWater (2011) submitted that free water allocations should be considered on the basis of their original intent. SunWater proposed the following criteria on which to base the assessment:

(a) legacy contract arrangements: these relate to agreements that were struck at arm's length on a commercial basis with particular water users; and

(b) compensation arrangements: these relate to agreements where an entity held a pre-existing right to water which needs to be preserved as a condition of the storage development or as a legislative or policy requirement.

SunWater submitted that, for legacy contracts, the commercial arrangement should remain and that it is not seeking to recover any revenue shortfall from other users. However, free water allocations arising from compensation agreements should be considered a cost of the scheme's development. These costs should be dealt with no differently than other compensation arrangements with affected parties such as landholders, railway owners, electricity distributors, and, accordingly, should be recovered from the balance of WAE holders in the scheme.

In relation to the Upper Burnett WSS, 210 ML of free water allocation was included in the 2006-12 prices. SunWater advised that no legal requirement exists to continue the free water WAE allocation. SunWater proposed to no longer treat this WAE as a free water entitlement.

Other Stakeholders

No other stakeholders have commented on this matter.

Authority's Analysis

The Authority considers that the original basis for free water of 210 ML in the Upper Burnett has not been substantiated. There is no evident legacy contractual arrangement nor a pre-existing right to water which needs to be preserved as a condition of the storage development or as a legislative or policy requirement.

Accordingly, SunWater may apply water charges to this 210 ML allocation from 1 July 2012.

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) whether renewals expenditure in 2007-11 was prudent and efficient. This affects the opening ARR balance for the 2012-17 regulatory period;

  (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 was therefore not practicable within the timeframe for the review, nor desirable given the potential costs involved, to assess the prudency and efficiency of the renewal of every individual asset.

The Authority initially relied on its four principal scheme consultants, Arup, Aurecon, GHD and Halcrow to identify and comment on 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 36 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 Upper Burnett WSS was $80,000.

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 Upper Burnett WSS for 2006-11 (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 – Operating Costs). SunWater advised that it was unable to provide the forecast renewals expenditure (approved for the 2005-06 review) for this period.

These estimates reflect SunWater's most recent information (including that received by the Authority in September 2011 relating to renewals expenditure) and differ from SunWater's NSP.

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

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*
Renewals Expenditure	223	228	107	374	655

Note: The estimates reflect the most recent information provided by SunWater to the Authority in September 2011.
Source: SunWater (2011).

Other Stakeholders

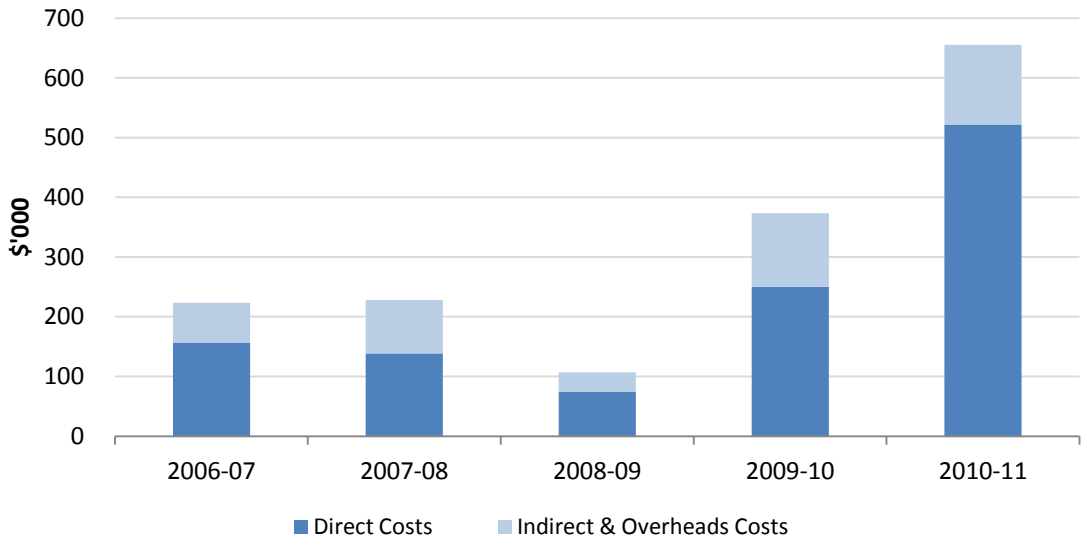
No other stakeholders have commented on these items.

Authority's Analysis

Total Renewals Expenditure

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

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



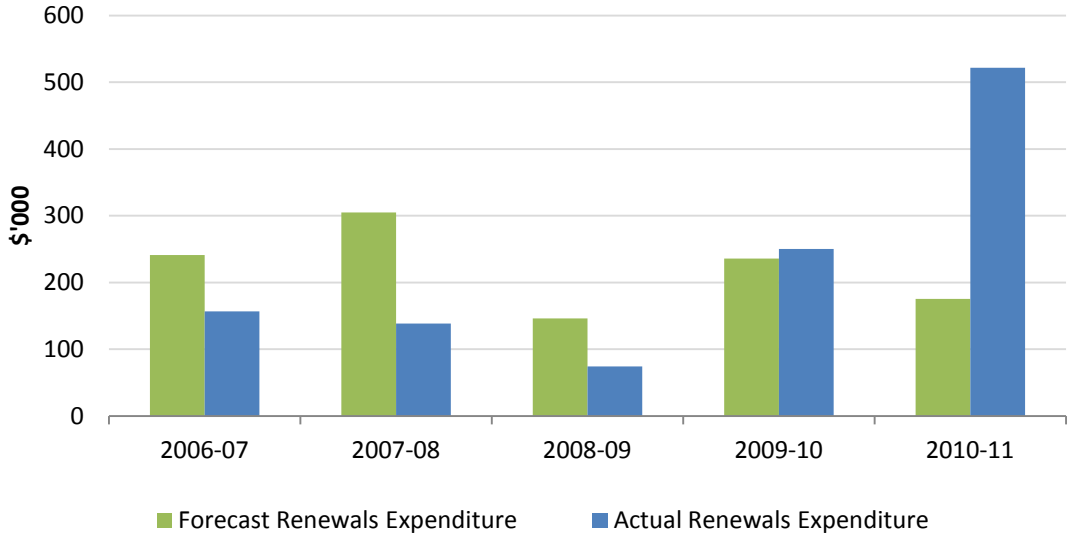
Note: The estimates reflect the most recent information provided by SunWater to the Authority in September 2011.
Source: Indec (2011d).

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 Upper Burnett WSS for 2006-11 is shown in Figure 4.2.

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



Note: The estimates reflect the most recent information provided by SunWater to the Authority in September 2011.
Source: Forecast (Indec, 2011d) and Actuals (SunWater, 2011k).

Actual renewals expenditure was $38,000 (direct costs) higher than forecast for the period.

Aurecon was appointed to review the efficiency (and prudency where not previously approved) of past renewals projects.

In the absence of forecast renewals expenditure for 2006-11 from SunWater (as noted above), Aurecon sought to identify variances between annually budgeted (Board approved) and actual expenditure for certain projects. Aurecon noted a number of limitations in the general past renewals information provided by SunWater including:

(a) no indication of the Board approved budget for all projects in 2006-07;

(b) totals include indirect and overhead costs, and any proposed changes in allocation methods by the Authority will impact renewal activity costs;

(c) many projects run over several financial years, in which the Board approved budget only appeared in the first year, and not subsequently. Further there was difficultly linking activities across years, due to the nature of the database provided; and

(d) the summation of annual totals within the database did not equate with stated renewals expenditure in the NSP[2].

In addition to recommendations on the general level of past renewals information, Aurecon assessed the prudency and efficient of one individual past renewals item.

[2] Aurecon stated that this discrepancy could be due to significant amount of renewal projects being below $10,000 in value as it requested expenditure items valued at only $10,000 and above. Despite Aurecon's request, the Authority notes that the database provided by SunWater includes some projects below $10,000, but does not equate to the figures submitted in the NSP.

Item 1: Wuruma Dam – Butterfly Valve

SunWater

This renewals item relates to the replacement of the butterfly valve at Wuruma Dam in 2007-08 to 2009-10 at a total cost of $132,963. SunWater stated that the need for this expenditure was identified during the 2006 comprehensive dam safety inspection.

SunWater provided a breakdown for 2007-08 expenditure on this item of direct costs of $64,491, comprised of:

(a) $7,976 for contractors;

(b) $1,110 for rental and hire;

(c) $75 for freight cartage and postage;

(d) $12,930 for materials (non inventory);

(e) $608 for materials (ex inventory);

(f) $1,169 plant usage charge;

(g) $8,351 travel allowance and expense; and

(h) $32,272 for local SunWater labour costs.

The total expenditure for this activity in 2007-08 was $102,274, including indirect and overhead costs.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Based on the information provided, Aurecon considered the timing of the renewal expenditure to be prudent.

Based on the investigation of other renewal projects, Aurecon noted that SunWater labour was usually employed for the removal and installation of certain asset components which Aurecon expects occurred with this activity to justify the significant SunWater labour costs incurred.

However, with regards to efficiency, Aurecon considered that insufficient information was provided and therefore it could not comment on the efficiency of the renewal expenditure.

Authority's Analysis

In addition to the $102,274 expended in 2007-08, the Authority notes that a further $12,937 and $17,752 were expended in 2008-09 and 2009-10 respectively.

The Authority accepts Aurecon's recommendation that this project is prudent, but that insufficient information was provided to assess the efficiency of the Wuruma Dam butterfly valve replacement. The Authority has therefore made no specific adjustment to this item.

Item 2: Claude Wharton Weir – Fabri Dam

SunWater[3]

On 23 November 2008, there was an unexpected rapid deflation of one of the inflatable rubber dams on Bedford Weir in the Nogoa-Mackenzie WSS. In the ensuing release of water, a fatality occurred. In response to this event, SunWater has decommissioned the inflatable rubber dam on Claude Wharton Weir.

SunWater has received a complaint and summons from Workplace Health and Safety Queensland (WHSQ) alleging a failure to comply with the provisions of the *Workplace Health and Safety Act 1995* (Qld) (WHS Act) in relation to this incident. The manufacturer of the rubber dam (Trelleborg Engineered System Australia Pty Ltd) has also been charged by the WHSQ on similar terms.

SunWater advised that this matter is presently before the Industrial Magistrates Court, and it is also possible that this matter may be the subject of a coronial inquest.

SunWater advised that there were a range of total costs (in 2010-11 dollars, including direct and indirect) in relation to the incident:

(a) legal costs were incurred in responding to the charges made by WHSQ. SunWater has incurred $1.87 million in responding to this matter up to 30 June 2011, and a further $781,631 is forecast for 2011-12;

(b) incident response costs of $605,607 relating solely to the Bedford Weir. SunWater advised that no specific operating costs were incurred relating to deflation of the Fabri Dam at Claude Wharton Weir; and

(e) costs of developing and assessing options for restorative measures including legal and engineering advice, to place Claude Wharton weir in its previous position in terms of long term service levels (or water allocation security objectives), of $146,829 to 30 June 2011.

In relation to the recovery of these past costs, SunWater submitted that:

(a) legal costs should not be included in its renewals expenditures, as SunWater bears the risk of operating costs over the 2006-11 price path (and by extension for 2011-12);

(b) incident response costs should be included in the Nogoa-Mackenzie WSS renewals expenditure; and

(c) the costs of developing and assessing options for restorative measures have been treated as renewals expenditure and included in SunWater's proposed ARR balance for Upper Burnett WSS. SunWater noted that it is possible that some of these costs may be recoverable under insurance, and any future insurance proceeds will be applied as revenue offset to the ARR.

In relation to the recovery of future costs in relation to this incident, SunWater submitted that:

[3] In response to Authority requests for further information in relation to the costs of this incident, SunWater provided a background paper to the Authority in September 2011 on the Treatment of costs related to Inflatable Rubber Dams. Thus, the Authority's Draft Report includes material from SunWater's paper that was not available for Aurecon's review and was not addressed in its report.

(a) it does not accept that it should bear the risks of legal costs into the 2012-17 regulatory period, including any continuation of legal costs to the WHSQ charge or any subsequent coronial inquest. Any costs beyond 1 July 2012 should be dealt with in accordance with the arrangements set for the next regulatory period. SunWater did not specify how it intended to recover these costs, or from which schemes;

(b) there will be no future incident response costs; and

(c) more significant restoration costs will need to be incurred in future to restore the long-term service levels (or water allocation security objectives) of the scheme, as this is required under the Resource Operations Licence (ROL). SunWater advised that it is in the final stages of assessing options, and expects a decision will be made over the coming months. Once decided, SunWater submitted that consequential changes will be required to the existing renewals program.

SunWater submitted that the deflation of the Fabri-Dam on Claude Wharton Weir did not reduce customers' access to water. Although medium-priority announced allocations have been below 100% until recently, SunWater submitted that it made water available from WAE held by Burnett Water to medium priority entitlement holders free of charge. This was undertaken in accordance with a direction notice issued to SunWater by shareholding ministers.

Other Stakeholders

In the first round of consultation (2010), irrigators questioned whether prices will include Claude Wharton Weir inflatable device given it is uncertain whether this will be reactivated.

A Voss (2011) submitted that the 2027-28 expense for Claude Wharton [Fabri-dam] bag needs to be abolished and that all associated equipment should be sold. Instead, concrete should be used to make a proper weir.

Consultant's Review

Halcrow was engaged by the Authority to review costs in the Nogoa-Mackenzie WSS, including costs relating to the failure of the Fabri-Dam at Bedford Weir.

While Halcrow's sought additional information on the nature of expenditure, SunWater indicated at the time that for commercial-in-confidence reasons, it was unable to provide any information on this matter.

Halcrow questioned whether legal fees should be classified as renewals expenditure and whether some of this expenditure could be recouped through insurance coverage. However, Halcrow was unable to review the prudency or efficiency of the expenditure due to information deficiencies at the time of its review.

Authority's Analysis

As noted above, Halcrow and the Authority sought further advice from SunWater on its proposed treatment of the costs of responding to the Bedford Weir incident. SunWater provided further information subsequent to Halcrow's review and report, which has been summarised above.

After reviewing this information, the Authority concurs with SunWater's view that unexpected legal costs should not be recovered from users, as unexpected operating expenditure from 2006-12 is for SunWater to bear under the arrangements struck for the previous price path.

The Authority also notes that legal action is ongoing and insurance payments are yet to be determined.

The Authority considers that the outcomes of legal action are likely to be an important factor in determining whether SunWater was prudent and efficient and where the risks and costs should lie. Any insurance payments can offset any costs that should be passed through to irrigators.

Pending this information, the Authority is not inclined to opine at this stage on whether other (non-legal) costs relating to Claude Wharton Weir incurred as a result of the Bedford Weir incident should be recovered from users or SunWater.

Therefore, at this stage, the Authority proposes that SunWater's proposed renewal expenditures – including the costs of developing and assessing options for restorative measures and the costs of any actual restorative measures – should be excluded from prices. Past renewals expenditure should therefore be adjusted to exclude the cost of developing and assessing options for restorative measures as only these costs have been included by SunWater. The costs to be excluded were submitted by SunWater in as $44,013 in 2009-10 and $102,816 in 2010-11.

In response to A Voss (2011), the Authority notes that there is no planned expenditure for Claude Wharton Weir relating to the replacement of capacity lost due to the deflation of the Fabri-Dam in 2027-28 or any other year of the future renewals period.

When legal action and insurance payouts are resolved, any prudent and efficient costs can be addressed by an application to the Authority for an end of period adjustment, or in limited circumstances, a within period review. This approach aligns with the Authority's Volume 1 recommendation that SunWater should bear the risk of controllable costs and customers should bear the risks of uncontrollable costs.

Sufficient information would need to be provided by SunWater to substantiate its application. Any expenditure would be assessed under the Authority's prudency and efficiency criteria as adopted in this review, and after consideration of any contractual obligations and insurance payouts. The Authority notes SunWater's ability to use WAE held by Burnett Water to supplement water available to customers in the Upper Burnett WSS. The Authority encourages SunWater to consider this fact in any options analysis of capital expenditure on Claude Wharton Weir.

For further reference, the Authority provided some guidance on extraordinary circumstances in its Draft Report on General Pricing Principles for Infrastructure Investments made in Response to Extraordinary Circumstances (2004). This Report stated that, notwithstanding the need to consider the particular characteristics of each extraordinary circumstance, service providers are in general entitled to pass costs through to users to the extent that the risk is commercially relevant, the provider is (and has been) prudent, the response is cost-effective, the provider is best able to manage the risk, and there is no double charging.

In relation to any concerns on insurance, the Authority addressed some aspects of this issue in the 2009 QR Network Draft Access Undertaking (DAU), where the Authority accepted QR Network's claimed self insurance costs as being reasonable, on the basis that QR Network's claim included:

(a) the identification of the specific risks to be self-insured;

(b) quantification of the expected incidence and costs of the risks by a method consistent with an actuarial assessment;

(c) confirmation of a board resolution to self-insure;

(d) explicit confirmation that the regulated entity will not recover costs covered by self insurance through other regulatory cash-flows; and

(e) evidence that the regulated entity has the financial capacity to assume the self-insured risks.

The Authority is willing to work with SunWater to provide further guidance on the information required for such an application.

Conclusion

In summary, two projects for the Upper Burnett WSS were sampled. On the basis of the consultants review and the Authority's analysis, the Authority considers that:

(a) one project is prudent but insufficient information was available to establish efficiency; and

(b) one project has been excluded from past expenditure pending the resolution of legal matters.

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

In total, the Authority recommends the expenditure be adjusted as summarised in Table 4.2.

Table 4.2: Review of Selected Past Total Renewals Expenditure 2006-11 ($ Real)

Item	*Date*	*SunWater*	*Authority's Findings*	*Recommended*
Sampled Projects				
1. Wuruma Dam – butterfly valve	2007-08 to 2009-10	$132,963	Insufficient information.	10% saving applied
2. Claude Wharton Weir – Fabri Dam options development	2009-10 to 2010-11	$146,829	Not included until resolution of legal matters	$0
Non-Sampled Projects				10% saving applied

Source: SunWater (2011) and Aurecon (2011).

4.4 Opening ARR Balance (at 1 July 2012)

SunWater indicated that the renewals opening ARR balance for 1 July 2011 was negative $37,000 for the Upper Burnett WSS. This estimate reflects the most recent information provided by SunWater to the Authority in September 2011 and differs from the NSP.

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 Burnett is $249,000.

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

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

(b) adding 2006-11 renewals annuity revenue;

(c) subtracting 2006-11 prudent and efficient renewals expenditure; and

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

To establish the closing ARR balance as at 30 June 2012 of $163,000, 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 Forecast Renewals Expenditure

Planning Methodology

Other Stakeholders

During the second round of consultations (2011) irrigators noted that:

(a) it was not clear whether the basis of forecasts renewals is the last four years;

(b) it was not clear why the next 20 years of annuity is a concern for irrigators;

(c) budgeting beyond 12 months is difficult and that ordinary businesses only make budgets for the next 12 months; and

(d) SunWater spends a lot on forecasting renewal expenditures.

Authority's Analysis

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

(a) high-level options analysis for all material renewals expenditures expected to occur over the Authority's recommended planning period, with a material renewals expenditures being defined as one which accounts for 10% 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 renewals expenditures expected to occur within the first five years of each planning period.

The Authority recognises that more detailed planning approaches will incur costs, but this should result in a net benefit as forecasts of renewals expenditure will become more accurate.

Prudency and Efficiency of Forecast Renewals Expenditure

Submissions

SunWater

SunWater's proposed 2011-16 renewals expenditure for the Upper Burnett WSS is presented in Table 4.3 as provided in its NSP (submitted prior to the Government's announced interim prices for 2011-12).

Table 4.3: Forecast Renewals Expenditure 2011-16 (Real $'000)

Facility	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Claude Wharton Weir	11	115	157	223	
John Goleby Weir	107				90
Jones Weir	15		107	14	11
Upper Burnett Distribution	34				
Wuruma Dam	157	112	6		64
Claude Wharton Weir	11	115	157	223	
Total	**324**	**227**	**270**	**237**	**165**

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

The major items incorporated in the above estimates are:

(a) an electrical component upgrade at the Claude Wharton Weir at an estimated cost of $310,000 in 2013-14 to 2014-15. The electrical components will be upgraded due to their age and unavailability of spares. The project will provide additional capability for remote monitoring and operation; and

(b) replacing isolating valves at Jones Weir at an estimated cost of $107,000 in 2013-14. Isolating valves at Jones Weir will be replaced due to their condition and consideration of risk to service provision.

SunWater separately identified $599,000 in dam safety upgrade expenditure forecast for 2015-16.[4]

The major expenditure item from 2016-17 is the replacement of hydraulic actuator and control systems and control equipment at Claude Wharton Weir at a cost of $629,000 in 2027-28.

SunWater's forecast renewal expenditure items greater than $10,000 in value, for the years 2011-12 to 2035-36 in 2010-11 dollar terms are provided in **Appendix A**.

Other Stakeholders

During the second round of consultations (2011) irrigators noted that forecast renewals may not be realised as these may be brought forward or backward by SunWater.

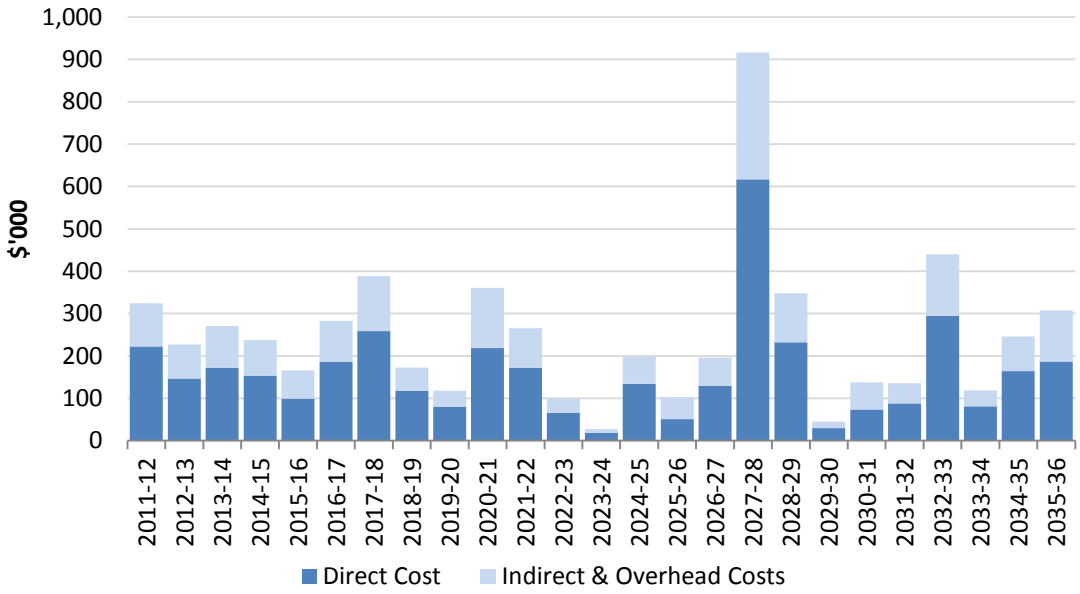
[4] Under the Direction, dam safety expenditure is to be excluded from the 2012-17 price path. The Authority notes this expenditure is not included in SunWater's proposed renewals annuity to be recovered in prices.

Authority's Analysis

Total Direct Costs

SunWater's proposed renewals expenditure for 2011-36 for the Upper Burnett 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 $'000)



Source: SunWater (2011am).

Project Review

As for past renewals expenditure, Aurecon and SKM have reviewed the prudency and efficiency of a sample of projects. Aurecon and SKM assessed the efficiency of the total costs of renewals items, that is, including indirect and overhead costs.

Item 1: Claude Wharton Weir - replace Weir Control equipment

SunWater

This renewals item is for the replacement of Control Equipment at the Claude Wharton Weir, and is forecast to cost $196,000 (direct, indirect and overhead costs) in 2032-33. SunWater indicated that the existing control equipment for the weir was installed in 1987, and has already exceeded its allocated asset life of 15 years life. SunWater's most recent condition assessments (2006) stated that the Programmable Logic Controllers (PLCs) are no longer available. Although the replacement is projected for 2032-33, SunWater is considering rescheduling the works for 2027-28 to match the Fishway Controls replacement works.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Aurecon noted that SunWater's renewals database recorded the following multiple expenses recorded against this asset at Claude Wharton Weir:

(a) complete PLC/Supervisory Control and Data Acquisition (SCADA) upgrade of $86,000 (2021-13, 2019-20, 2026-27, 2033-34);

(b) electrical Component Upgrade - Document, Drawings, Specs, Cost Estimate PLC/SCADA replacement of $124,000 (2013-14, 2020-21, 2027-28, 2034-35); and

(c) electrical component upgrade – Supply, Install, Commission PLC/SCADA of $186,000 (2014-15, 2021-22, 2028-29, 2035-36).

Aurecon was unable to reconcile the above costs with the $196,000 submitted by SunWater.

Due to the magnitude of the total expenditure associated with this asset, Aurecon recommended that additional clarification and information be sought from SunWater in relation to this asset and associated renewal expenditure. Aurecon did not provide an assessment of prudency or efficiency.

Authority's Analysis

The Authority notes that Aurecon was unable to reconcile SunWater's renewals database to analyse information relating to replacement of Claude Weir Control Equipment in 2032-33.

The Authority subsequently reviewed SunWater's renewals database and identified the relevant components of the $196,000 which appears to match the original information provided by SunWater to Aurecon. The total cost of this item in the database is comprised of contractors ($40,000), labour ($93,000), material ($40,000) and plant ($22,000).

Nevertheless the Authority has no basis on which to assess whether the expenditure was prudent and efficient. As a consequence, the Authority has not made any specific adjustment to this item.

Item 2: Claude Wharton Weir - replace hydraulic actuator

SunWater

This project is to replace six individual hydraulic actuators at Claude Wharton Weir in 2027-28. SunWater provided Systems, Applications, and Products (SAP) records to show that the total cost for this project is $301,000, including $249,517 of direct costs.

SunWater indicated that the fishlock (and hydraulic actuators) was installed in 2007-08, and should have a design life of 60 years. SunWater stated that the proposed 2027-28 renewal expenditure is associated with an error on SunWater's behalf in assigning an initial 20 year asset life, and subsequently amended the SAP live database to reflect a 60 life asset life. The NSP reflects the original 2027-28 expenditure.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Aurecon concluded that, based on SunWater's error, this proposed renewal expenditure in 2027-28 is obsolete. Aurecon recommended that the annuity renewals program for the scheme needs to be re-adjusted to accommodate this change.

Authority's Analysis

The Authority accepts SunWater's and Aurecon's recommendation, and has removed all expenditure relating to the replacement of the hydraulic actuators at Claude Wharton Weir from the renewals program.

Item 3: Claude Wharton Weir - replace Fishlock Control Equipment

SunWater

SunWater advised that this control equipment is associated with the new fishway which was installed at Claude Wharton Weir in 2007-08. SunWater estimates a total replacement cost of $207,000 in 2027-28. The prescribed standard asset life for control equipment is 15 years, meaning the asset should be replaced in 2022-23. SunWater stated that as the asset risk profile for this asset is low, the replacement date was pushed out a further five years to 2027-28.

SunWater has also indicated that prior to the proposed replacement date (2027-28) a full condition assessment of the asset will be undertaken to assess whether the asset requires replacement, or the life extended.

The existing controls at the fishway were capitalised at actual cost of $171,268 (2008 construction valuation). No bill of materials (BoM) is available.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Based on the information provided by SunWater, Aurecon viewed the proposed $207,000 renewal expenditure in 2027-28 as prudent and efficient. However, Aurecon noted an additional $196,000 of expenditure in 2032-33. Aurecon recommended that additional clarification be sought from SunWater to explain the subsequent renewal expense of $196,000 planned for this asset in 2032-33 (five years later).

Authority's Analysis

The Authority accepts Aurecon's recommendation that $207,000 of expenditure on replacing the fishlock control equipment at Claude Wharton Weir in 2027-28 is prudent and efficient.

In relation to Aurecon's suggestion to request clarification from SunWater regarding the additional $196,000 of expenditure in 2032-33, the Authority notes that this expenditure relates to the control equipment for the weir itself (see Item 1 above) and not the fishlock.

Conclusion

In summary, three projects for the Upper Burnett WSS were sampled. Of these:

(a) one project is prudent and efficient and has been retained as forecast expenditure;

(b) one project was included in error, and has been removed from forecast expenditure; and

(c) one project was unable to be assessed by the Authority's consultant.

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

In total, the Authority recommends the direct renewals expenditure be adjusted as shown in Table 4.4.

Table 4.4: Review of Forecast (Direct) Renewals Expenditure 2011-36 (Real $'000)

Item	*Year*	*SunWater*	*Authority's Findings*	*Recommended ($)*
Sampled Projects				
1. Claude Wharton Weir - replace Weir Control equipment	2032-33	196	Insufficient information to assess prudency and efficiency.	10% saving applied
2. Claude Wharton Weir - replace hydraulic actuator	2027-28	301	Not prudent	0
3. Claude Wharton Weir - replace Fishlock Control Equipment	2027-28	207	Prudent and efficient	207
Not Sampled Projects				10% saving applied

Source: SunWater (2011), Aurecon (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

During the round two (2011) consultations, the following concerns were raised by irrigators relating to consultation:

(a) that SunWater has not been consulting with them; and

(b) that consultation by the Authority is a myth and that issues brought forward by irrigators are just ignored by the Government which will ignore the Authority's price recommendations.

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 Headworks Renewals Costs According to WAE Priority

Previous Review

For the 2006-11 price path, the renewals costs for the Upper Burnett bulk water infrastructure were apportioned between priority groups using converted nominal water allocations. The conversion to medium priority WAE was determined by a WPCF of 1.9:1; that is, one ML of high priority WAE was considered equivalent to 1.9 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 sharing arrangements (CWSAs) and other operational requirements that typically give high priority entitlement holders exclusive access to water stored in the lower levels of storage infrastructure.

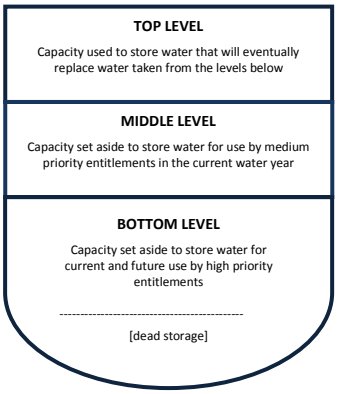
SunWater (2010d) submitted a detailed guide outline of the HUFs methodology, outlining its derivation and application for each scheme. This methodology, discussed in detail Volume 1, can be summarised as follows.

Step 1: Identify the water entitlement groupings for each scheme, as listed in DERM's Water Entitlement Register, and establish which groups are to be considered as high priority (HP) and medium priority (MP) for the purposes of the HUFs calculation[5].

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.

[5] 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.

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; 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 Step 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 Upper Burnett WSS are summarised in Table 4.5. They reflect revisions to nominal WAE volumes, as submitted by SunWater in Addendum Part 1 – Erratum: Errors found in HUF Input Data (SunWater, 2011y). The HUFs for this scheme (SunWater 2010d) are 26% for medium priority and 74% for high priority.

Table 4.5: Application of HUFs Methodology (excluding John Goleby Weir)

STEP 1: Water Entitlement Groups (DERM's Water Allocation Register)

Nominal Group	(ML)	HUF Group	(ML)
Medium Priority (SunWater)	27,170	MP_A	45,400
Medium Priority (Burnett Water)	18,230		
High Priority (SunWater)	1,720	HP_A	1,720
High Priority (Burnett Water)	0		

STEP 2: ROP Conversion Factor Adjustment

Conversion Factor: ROP_{CF}	N/A
Maximum volume that can be converted to HP: $HP_A max$	1,720
Corresponding volume of MP: $MP_A min = MP_A-(HP_A max-HP_A)*ROP_{CF}$	45,400

STEP 3: Water Sharing Rules & Operational Requirements

Water Sharing Rules

Volume below which MP not available: $MP_0 AA$	N/A
Volume above which max.MP available: $MP_{100} AA$	92,403

CWSAs and other operational requirements

Likely increase in volume effectively reserved for HP: MP_0	24,760
Likely increase in min. storage before maximum MP available: MP_{100}	92,403

Key Dam Level Measures

Full Supply Level: FSV_{hwks}	191,460
Dead Storage Level: DSL_{hwks}	2,581

STEP 4: Hydrologic performance of headworks storage

Storage Layer	Storage Capacity (ML)	Prob. of Utilisation	Utilised Capacity (ML)
Top: $max\{(FSV_{hwks}-MP_{100}),0\}$*	MP_2 = 95,411; HP_2 = 3,616	0%	MP_{2u} = 0; HP_{2u} = 0
Middle: $min\{(MP_{100}-MP_0),(FSV_{hwks}-MP_0)\}$	MP_1 = 67,643	10%	MP_{1u} = 6,741
Bottom: $MP_0 - DSV_{hwks}$	HP_1 = 22,179	87%	HP_{1u} = 19,180

STEP 5: Calculation of HUFs for each Water Entitlement Group

Formula	HUF Group	Nominal Group
MP_A: $(MP_{1u}+MP_{2u}) / (MP_{1u}+HP_{1u}+MP_{2u}+HP_{2u})$ = (6,741+0) / (6,741+0+19,180+0)	HUF_{mp} = 26%	Medium Priority (SunWater) = 18% Medium Priority (Burnett Water) = 100%
HP_A: $(HP_{1u}+HP_{2u}) / (MP_{1u}+HP_{1u}+MP_{2u}+HP_{2u})$ = (19,180+0) / (6,741+0+19,180+0)	HUF_{hp} = 74%	High Priority (SunWater) = 82% High Priority (Burnett Water) = 0%

**Apportioned between MP_2 and HP_2 using the ratio MP_1:HP_1. Source: SunWater (2010d, 2011x).*

Other Stakeholders

During the second round (2011) of consultation, Upper Burnett and Boyne River and Tarong irrigators raised the concern that HUFs are not done on a scheme basis but at the State level, and that the HUF is not better for irrigators relative to the old conversion factor.

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 following amendment proposed by 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 (2011y) accepted these recommendations and submitted recalculated HUFs for each scheme. Although the G&S recommendation does have an impact on the values to apportion the top layer of storage, there is no change to HUF values as the probability of utilisation in the top layer is zero (Table 4.6).

Table 4.6: Revised HUF Calculations (excluding John Goleby Weir)

STEP 4: Hydrologic performance of headworks storage

Storage Layer	Storage Capacity (ML)	Prob. of Utilisation	Utilised Capacity (ML)
Top layer			
Initial	MP_2 = 95,411; HP_2 = 3,616	0%	MP_{2u} = 0; HP_{2u} = 0
*Revised**	MP_2 = 95,411; HP_2 = 3,616	no change	MP_{2u} = 0; HP_{2u} = 0
Middle Layer	MP_1 = 67,643	10%	MP_{1u} = 6,741
Bottom Layer	HP_1 = 22,179	87%	HP_{1u} = 19,180

STEP 5: Calculation of HUFs for each Water Entitlement Group

	Initial	Revised	Nominal Group
HUF_{mp}	26%	26%	Medium Priority (SunWater) = 17% Medium Priority (Burnett Water) = 100%
HUF_{hp}	74%	74%	High Priority (SunWater) = 83% High Priority (Burnett Water) = 0%

**Apportioned between MP_2 and HP_2 using the ratio of nominal volumes (MP_A:HP_A). SunWater (2011x).*

The Authority estimates that based on the HUF methodology, the conversion for medium priority to high priority would be 76.2:1. This compares with the WPCF of 1.9:1 used for 2006-11 price paths. Further, the Authority notes that under the HUF approach, medium priority irrigators (served by SunWater) will now pay 17% of the cost of renewals whereas previously medium priority irrigators (served by SunWater) paid 89%. The represents a large reduction is the apportionment of renewals costs to medium priority customers, and reflects the low level of

reliability of medium priority WAE. As shown in Table 4.6, the probability of utilisation of the top layer of Wuruma Dam is 0%.

The Authority notes that the HUF methodology presented by SunWater excludes users in the John Goleby weir tariff group. SunWater has also not separately identified costs that relate only to John Goleby weir customers. Therefore, for the purposes of the Authority's draft prices, the HUF shown in table 4.6 above (which excludes John Goleby weir WAE) has been applied to all users in the Upper Burnett WSS. The Authority recommends this issue is addressed by SunWater subsequent to the draft report, to either separately identify costs for the John Goleby weir users, or include John Goleby weir users' WAE in its proposed HUF.

In response to concerns raised by irrigators, the Authority notes that the HUF take into account scheme-specific hydrological modelling and do vary between schemes.

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 Upper Burnett WSS the recommended renewals annuity for the 2012-17 regulatory period is shown in Table 4.7. The renewals annuity for 2006-11 and SunWater's proposed annuity for 2011-16 is also presented for comparison.

Table 4.7: Upper Burnett WSS Renewals Annuity (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	296	291	226	280	319	190	188	192	191	191	191
Authority	-	-	-	-	-	-	187	192	189	190	191
High Priority	-	-	-	-	-	-	145	149	147	147	149
Medium Priority	-	-	-	-	-	-	42	43	42	42	43

Note: 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 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[6] 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 41 staff are located at the Bundaberg 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. The Service Manager is assisted by a senior operator located in Mundubbera;

[6] SunWater refers to each bulk scheme and each distribution system as a service contract. Consequently, SunWater has 22 irrigation bulk service contracts and eight irrigation distribution system service contracts.

(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 quarterly 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 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 (Table 5.1).

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

Storage	***Monthly monitoring requirements***			
	Inflow	***Head Water***	***Tail Water***	***BGA***
Wuruma Dam	Yes	Yes	Yes	Yes
John Goleby Weir	Yes	Yes	Yes	No
Jones Weir	Yes	Yes	Yes	Yes
Claude Wharton Weir	Yes	Yes	Yes	Yes

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

(ii) dam safety – as Wuruma 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 inspections are carried out monthly on Wuruma Dam and quarterly on the John Goleby, Jones and Claude Wharton Weirs. Specific dam safety inspections are required at Wuruma Dam, which include monitoring of embankments, piezometers, seepage, general condition of the storages as defined in the dam surveillance specification and condition inspections to identify and plan maintenance requirements and to provide information for management planning of water delivery assets;

(iii) environmental management to comply with the ROP and *Environmental Protection Act 1994* which require SunWater to deal with risks such as fish deaths, chemical usage, pollution, contaminants and approvals for instream 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 Wuruma 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

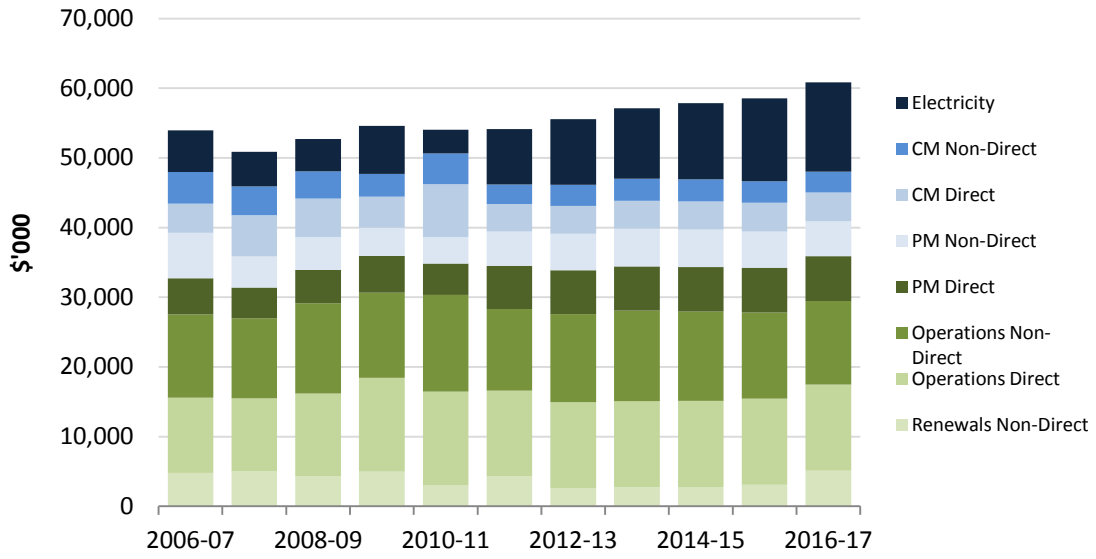
For the 2006-11 price paths, Indec identified annual cost savings of between $3.8 million and $5.5 million (2010-11 dollars) or 7.5% to 9.9% of total annual costs, which SunWater was to achieve during the 2006-11 price paths (SunWater, 2006a). See Volume 1.

Stakeholder Submissions

SunWater

SunWater's past and forecast total operating costs for its irrigation service contracts (all sectors) are summarised in Figure 5.1. 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.

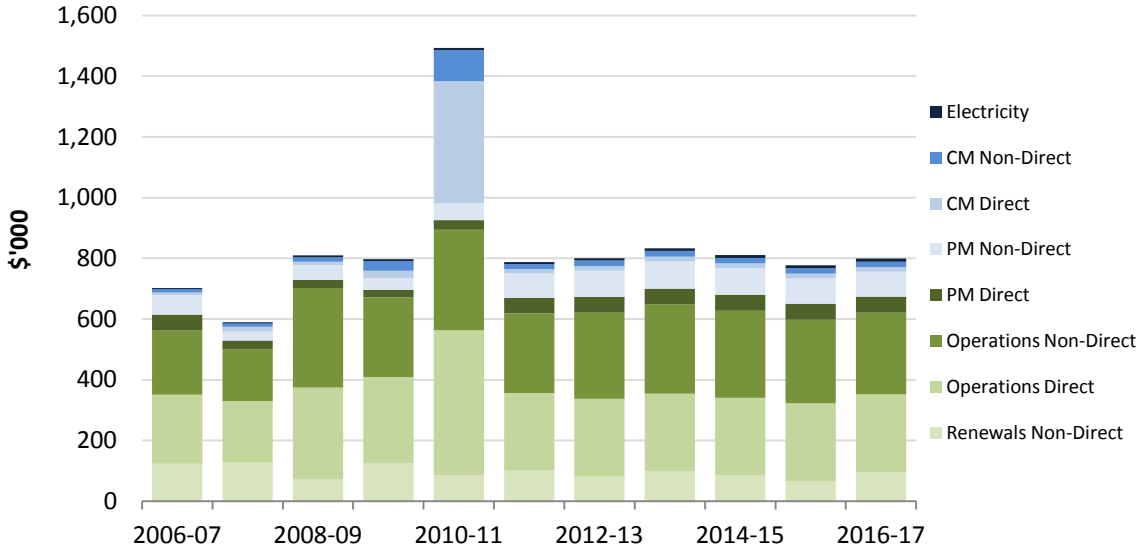
Figure 5.1: SunWater's Total Operating Costs (Real $'000) – All Service Contracts



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 Upper Burnett WSS (all sectors) is shown in Figure 5.2 and Table 5.2 and Table 5.3.

Figure 5.2: Total Operating Costs – Upper Burnett 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	438	372	629	547	809	517	540	551	544	532	526
Electricity	3	5	6	6	8	6	8	8	9	10	10
Preventive Maintenance	117	58	76	64	87	131	138	141	139	136	134
Corrective Maintenance	20	26	26	56	505	32	34	35	34	34	33
Renewals Non-Direct	123	129	72	125	85	102	81	98	84	66	95
Total	**702**	**589**	**809**	**797**	**1,493**	**788**	**800**	**833**	**810**	**777**	**799**

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).

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	164	131	158	169	201	192	195	195	195	195	195
Electricity	3	5	6	6	8	6	8	8	9	10	10
Contractors	16	16	24	22	350	15	15	15	15	16	16
Materials	12	9	12	11	249	12	12	12	12	13	13
Other	98	88	146	131	111	102	102	102	102	102	102
Non-Direct	409	340	463	458	575	461	469	500	477	443	464
Total	**702**	**589**	**809**	**797**	**1,493**	**788**	**800**	**833**	**810**	**777**	**799**

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. The estimates also reflect the most recent information provided by SunWater to the Authority in October 2011. Source: SunWater (2011ap).

In its NSP, SunWater submitted that the operating costs for this scheme averaged $616,000 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 in the NSP for 2012-17 are $701,000 per annum.

Other Stakeholders

During the first round of stakeholder consultations (2010) irrigators raised concern about the level and allocation of costs, particularly in light of recent reduction in SunWater staff numbers. Irrigators were also concerned that compliance costs for the implementation of new environmental programs would form part of the costs of operating the water assets.

During the second round of stakeholder consultations (2011) irrigators stated that it was not clear whether operating costs from NSPs presented are the same as the current price path.

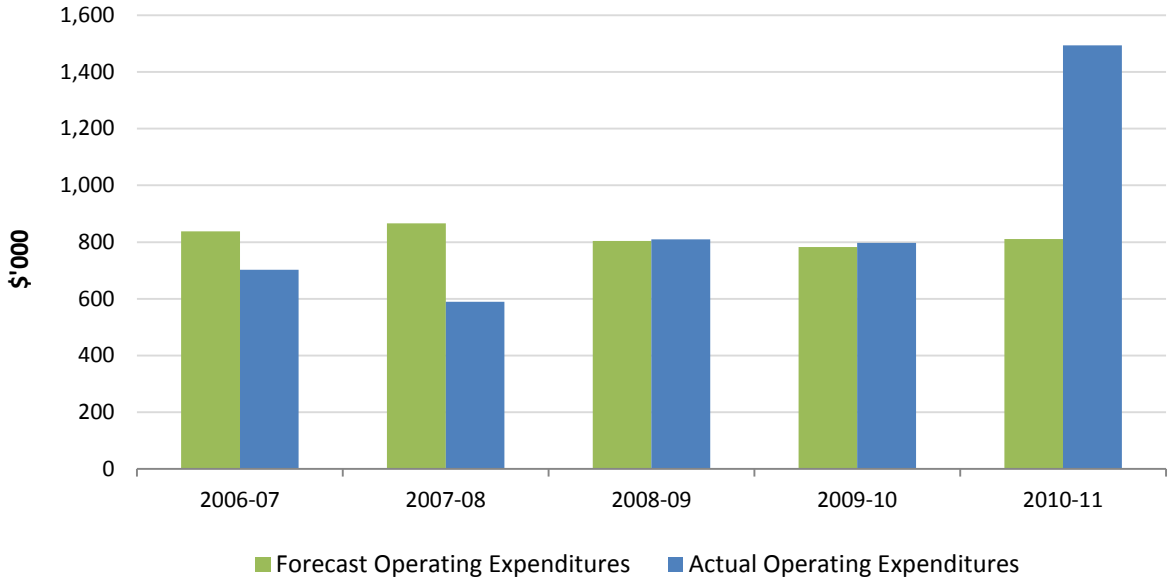
Authority's Analysis

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 Upper Burnett WSS is shown in Figure 5.3. For this scheme, SunWater's actual operating costs were greater than Indec's forecast efficient operating costs by $289,000 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 2010-11. 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.

The Authority notes that operating costs rose substantially from 2009-10 to 2010-11, reflecting a large increase in:

(a) materials costs for operations; and

(b) contractor costs for corrective maintenance.

The Authority notes that this increase in costs is only included in the data provided to the Authority in October 2011 and was not anticipated by SunWater in its Upper Burnett WSS NSP which was provided to the Authority in January 2011. However, as shown in Figure 5.2 above, this increase in expense does not persist in SunWater's forecast operating costs and therefore appears to be a once-off occurrence. Moreover, increases in operating costs above those originally forecast are SunWater's risk, as there is no carryover of these costs to the subsequent regulatory period.

In response to concerns raised by irrigators regarding environmental management costs, the Authority considers these costs are inherent in managing a water supply scheme and that irrigators should bear the efficient level of environmental management costs.

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, and 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 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, as either indirect or overhead costs, is detailed in Volume 1.

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 5.4). 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 the total direct labour costs (DLCs) of each service contract be used to allocate non-direct costs.

Total non-direct costs and those allocated to the Upper Burnett WSS are in 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	25,152	23,770	23,512	24,244	24,055	23,708	25,089
Upper Burnett	409	340	463	458	575	461	469	500	477	443	464

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

During the second round of stakeholder consultations (2011) irrigators stated that

(a) the basis for spikes in operating costs were not well explained;

(b) cost allocation of labour is difficult if staff are shared between schemes;

(c) the allocation of indirect costs and overheads is very confusing to irrigators; and

(d) some schemes incur more costs than others, and concern existed that the lower cost schemes bear the costs of the higher cost schemes.

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 Touché 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'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 made the comparison unreliable.[7]

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 $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.

[7] For example, PVWater have only four FTE staff. For the benchmarking exercise, PVWater needed to estimate the proportion of staff time spend on administration versus operations and maintenance activities, which varied 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.

Deloitte reviewed SunWater's proposed 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 unit (that is, targeted DLC).

This adjustment ensures that schemes are paying for the overhead costs from those resource centres that 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 Upper Burnett WSS (from all customers) is set out in Table 5.5. The allocation of these costs between high and medium priority customers is discussed below.

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	409	340	463	458	575	461	469	500	477	443	464
Authority							454	478	450	412	426

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 5.6. 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 5.7 presents the same operating costs developed by SunWater on a functional basis.

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	228	201	302	284	478	254	256	257	257	257	257
Electricity	3	5	6	6	8	6	8	8	9	10	10
Preventive Maintenance	53	28	27	25	31	51	52	52	52	52	52
Corrective Maintenance	9	15	11	24	402	15	15	16	16	16	16
Total	**293**	**249**	**346**	**339**	**919**	**327**	**331**	**332**	**333**	**334**	**335**

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: SunWater Direct Operating Expenditures 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	164	131	158	169	201	192	195	195	195	195	195
Electricity	3	5	6	6	8	6	8	8	9	10	10
Contractors	16	16	24	22	350	15	15	15	15	16	16
Materials	12	9	12	11	249	12	12	12	12	13	13
Other	98	88	146	131	111	102	102	102	102	102	102
Total	**293**	**249**	**346**	**339**	**919**	**327**	**331**	**332**	**333**	**334**	**335**

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).

Authority's Analysis

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

Aurecon (2011) reported that the major limitation to its review was the lack of precise information from SunWater, particularly given the tight time frames for its study. Although Aurecon found that SunWater staff were willing to provide information as requested, a number of difficulties were still encountered, including that:

(a) reports due for completion in 2010, were still incomplete during the review period;

(b) obtaining operational trend expenditure information was difficult due to the implementation of the Business Operating Model (BOM) and management accounting system;

(c) historical cost data, which had been re-coded for entry into the BOM, could not be traced or verified;

(d) the capacity of the BOM to extract specific data for analysis was limited;

(e) the incorporation of indirect and overhead costs in all activities made it difficult to assess the activity related expenditure; and

(f) retrieving information regarding individual assets was difficult.

Aurecon also noted that SunWater has developed a new electronic Asset Management System, which has greatly improved information capture and asset management data, but access to all components of this system is limited to a handful of computers and personnel located within the Brisbane office. Extracting specific asset information was extremely time-consuming for all involved.

Aurecon concluded that SunWater underestimated the level of detail and information required for the review. This impacted SunWater's capacity in many cases to provide the requested information within the required timeframes. Aurecon therefore found that significant information gaps still exist, which hindered its capacity to adequately assess the prudency and efficiency of all proposed operational expenditure.

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.

Aurecon'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

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 compliance, administration, and environmental and land management.

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. SunWater noted that recreation facilities at Wuruma 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 Cost	39	39	39	39	39

Source: SunWater (2011).

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Aurecon reviewed SunWater's Operations costs in more detail as shown in Table 5.9.

Table 5.9: Operations Expenditure by Type (Real $'000)

Type	*Actual*					*Forecast*				
	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Labour	120	105	132	132	138	139	140	141	142	141
Materials	6	3	5	4	3	3	3	3	3	3
Contractors	12	9	23	17	9	9	9	10	10	10
Other	89	85	143	130	96	96	96	96	96	96
Total Direct Costs	*227*	*202*	*303*	*283*	*246*	*247*	*248*	*250*	*251*	*250*
Indirects	82	48	177	115	120	120	138	147	140	132
Overheads	128	123	151	148	140	141	143	145	146	142
Total	**437**	**373**	**631**	**546**	**506**	**508**	**529**	**542**	**237**	**524**

Source: Aurecon (2011). Note: This table is based on SunWater's original NSP and may differ from more recent SunWater data. Totals may not add to numbers in SunWater's NSP due to rounding.

Particular observations by Aurecon were that:

(a) operations costs comprise between 75% and 88% of total operating costs;

(b) operation costs in 2007-08 were $375,000 with water usage at 55%. In 2008-09, operations costs increased substantially to $632,000 (an increase of 68%) whereas water usage was practically the same. In 2009-10, water usage increased slightly, however operations costs declined to $549,000; and

(c) cost items in the 'other' category included insurance ($61,000 in 2010-11), rates ($26,000) land tax ($2,000 in 2010-11) and other administrative costs.

Aurecon provided a summary of the Operations costs by activity for the four years 2006-10 (Table 5.10)

Table 5.10: Operations Expenditure by Activity ($2010-11, $'000)

	2006-07	*2007-08*	*2008-09*	*2009-10*
Customer Management	31	33	56	29
Workplace H&S	3	-	-	3
Environmental Management	77	26	24	4
Water Management	-	14	71	54
Scheme Management	91	103	211	272
Dam Safety	20	11	43	36
Schedule /Deliver	173	144	163	77
Metering	-	1	8	26
Facility Management	43	40	55	46

Source: Aurecon (2011) Note: includes indirect and overhead costs. This table is based on SunWater's original NSP and may differ from more recent SunWater data.

Significant items include:

(a) water management – activities related to announcement of water allocations, water quality monitoring and sampling, blue-green algae management, shoreline inspections, monitoring of groundwater levels. Contractors are used for water quality monitoring. SunWater noted that 2006-07 was a transition year in switching from the previous internal trade model to the new Business Operating Model, giving rise to comparability problems with line items;

(b) scheme management – energy management, land and property management, manual development, scheme strategies, facility contingency plans and emergency action plans, system leakage management plans (SLMPs), insurance, rates and land taxes;

(c) dam safety – routine monthly dam inspections, monitoring of embankments, piezometers, seepage surveillance, compliance documentation and reporting;

(d) schedule/deliver – scheduling, releasing, operations of pump stations and SCADA, monitoring of water entitlements, reporting of breaches, water harvesting, ROP compliance of water levels and flows;

(e) metering – costs incurred in reading meters; and

(f) facility management – cost incurred in managing recreational facilities.

Aurecon noted that the provision of disaggregated historical activity data for Operations by SunWater provided substantial insights, but identified substantial activities and issues requiring additional information and explanation from SunWater.

Aurecon noted that SunWater was not able to provide 2010-11 cost estimates for the sub-activities, which Aurecon views as critical in verifying the prudency and efficiency of these costs. Aurecon recommends that to verify the prudency and efficiency of 2010-11 expenditure, the following information and analysis is required:

(a) 2010-11 cost estimates for sub-activities be released and examined to ensure compliance with SunWater's averaging methodology, that is the preceding four years;

(b) cost estimates for metering be based on 2009-10 costs (assuming that is the first time all installed meters were read, and no labour efficiency measures are available at this stage); and

(c) the Dam Safety forecast 2010-11 costs is reduced by $5,000 to account for the transfer of activities to Preventive Maintenance.

Due to the above data limitations, Aurecon was unable to validate fully the prudency and efficiency of Operations costs.

Authority's Analysis

In Volume 1, the Authority recommended that SunWater staff continue to conduct all quarterly meter reads.

The Authority notes that Aurecon was unable to validate the prudency and efficiency of SunWater's operations costs due to insufficient information. The Authority notes that Aurecon did not recommend any adjustment to forecast operations costs, and has therefore included SunWater's proposed operations costs in its recommended tariffs.

In relation to recreation costs, the Authority notes that the Ministerial Direction requires that the Authority set prices to recover prudent and efficient recreation management costs. The Authority notes that Aurecon did not recommend any adjustments to SunWater's operations costs, including recreation costs.

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

Further, SunWater's forecast average annual direct operations costs are slightly lower than the average over 2006-11.

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: Preventive Maintenance

Stakeholder Submissions

SunWater

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

Preventive 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.

Preventive 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's proposed preventive maintenance costs are identified in Table 5.6 above.

Other Stakeholders

No other stakeholders have commented on this item.

Authority's Analysis

Consultant's Review

Aurecon observed that:

(a) in 2006-07, costs that should have been coded to refurbishment were included in preventive maintenance causing a spike in these costs. Corrective maintenance costs were likewise understated;

(b) although preventive maintenance should generally be correlated to usage, Aurecon only found a partial correlation between costs and water usage;

(c) in 2010-11, 61% of preventive maintenance costs were indirect costs and overheads, 33% was labour, 2% was materials, 2% contractors and 1.5% other. The 2010-11 cost structure was used as a basis for 2012-17;

(d) the total cost of labour at $43,000 in 2010-11 was higher than the average of $20,000 for 2007-08 to 2009-10; and

(e) weed control activities around the storages varied from $9,000 (2007-08) to $18,000 (2006-07 and 2008-09), with labour component ranging from $3000 to $6000.

Aurecon noted that SunWater's proposed labour costs for preventive maintenance of $43,000 in 2010-11 are based on a study by PB in 2010. PB proposed that for 2010-11, a total of 734 hours of labour would be required at a total cost of $43,796 for condition monitoring and servicing. This included 194 hours of new monitoring and inspection activities.

In assessing historical preventive maintenance costs, Aurecon noted the differences between 2006-07 observations and later years and undertook its analysis on the basis that 2006-07 was an outlier. However, SunWater advised that 2006-07 was a transition year in which the previous internal trade model was removed and the new BOM model developed and implemented in 2007-08. This causes difficulties in comparability over this time period.

Aurecon identified historical preventive maintenance between 2006-07 and 2009-10 at an average of 454 hours (noting that 2006-07 data is questionable) and labour cost at average of $40/hour. Aurecon recommended that that an audit of historical activities (particularly 2009-10) be undertaken to identify if all activities were previously undertaken and if coding errors resulted in these costs being allocated to other activities before accepting SunWater's proposal of 734 hours of labour input.

Aurecon also noted that the 2010-11 hourly labour rate adopted by PB ($60/hour) exceeded SunWater's actual costs in 2009-10 ($42/hour), possibly due to an assumption by PB of the utilisation of more senior SunWater staff.

Aurecon recommended that 648 hours of labour be budgeted at $50/hour at a total cost of $32,400 for these activities (882 being the average between 2006-07 and 2009-10 and 278

additional hours recommended by SunWater). Aurecon further recommended that an allowance of $5000 should be provided for the labour input to weed control costs, based on a 10% mark-up on the four-year historical average of these costs.

In total for labour for monitoring and weed control, Aurecon recommended that the $43,000 estimate projected by SunWater be revised to $37,900. Aurecon's analysis results in a reduction of $5,100 in total preventive maintenance, to be applied to each year for the next pricing period.

SunWater's Response

In relation to Aurecon's suggested reductions in labour costs related to preventive maintenance based on a four-year historical average, SunWater submitted that past data is not a reliable indicator of actual costs or work. SunWater noted that some past preventive maintenance at storages was booked to operations, rather than preventive maintenance.

SunWater considered that the PB review [which informed SunWater's submission] identified the labour effort and materials – contractor costs for each maintenance item from first principles. SunWater submitted that this was a thorough and detailed review undertaken by an independent party, is forward looking and is the best source of reliable information for operations costs forecasts.

In response to Aurecon's comments regarding the difference in wages rates between SunWater's historic costs, and those recommended by PB, SunWater responded that the costs for 2010-11 were based on information received from field staff through consultation. Each preventive maintenance job was costed by identifying the different staff required to complete the work. Depending on the level of employee, different hourly labour rates were used.

Further, SunWater submitted that, in reviewing its preventive maintenance activity costs, Aurecon (and Halcrow in its review of WSSs in the North region) tried to evaluate the costs by sub activity. This has occurred because there is information about two of the three preventive maintenance sub-activities cost, condition monitoring and servicing, which were recently reviewed and quantified by PB. SunWater noted that Aurecon took the PB costs and concluded that the residual relates to weed control.

Aurecon then looked to understand the basis of this residual and evaluate whether it was prudent and efficient. In some cases, Aurecon compared the residual to past labour costs for weed control, and used historic figures as proxy for weed control labour costs to recommend adjustments to the preventive maintenance activity costs.

SunWater stated that it is understandable that Aurecon would follow this logic given the information provided, and its frustration about the lack of data to support this residual is apparent.

SunWater submitted that its expenditure forecasts, particularly labour costs, are not intended to be viewed at the sub-activity level, and indeed examining labour costs even at the activity level should be done with some caution. This is because labour is shared between activities and schemes, and any examination of the costs will tend to be more about the assumptions about how the existing workforce will spend its time, rather than an overall assessment of efficiency.

SunWater accepted that discrepancies exist when comparing the 'residual' labour costs for weed control against historic costs for weed control. However, SunWater did not recommend examining costs at the sub activity level, given:

(a) historic costs are heavily dependent on how employees have recorded their time, and there scope for error in these entries; and

(b) forecasts were developed at the activity, not sub-activity level. Attempts to recreate a labour or other cost at the sub activity level will be fraught and misleading.

SunWater suggested that a better approach, which more closely aligns with its workforce arrangements, is to examine the labour costs for each WSS at the scheme level, and assess whether the total labour dedicated to that scheme is efficient for a given level of workload.

SunWater did not agree with recommendations made in relation to preventive maintenance costs which are made on the basis of examining labour costs at the sub activity level.

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. The Authority considered that this potential for efficiency could be addressed via the broad efficiency measures imposed on SunWater schemes (noted further below).

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.

For this scheme, the Authority notes Aurecon's suggested revisions to SunWater's preventive maintenance costs, and also SunWater's responses. As noted by SunWater, the Authority considers that Aurecon's analysis reflects the level of information provided to them. SunWater objects to Aurecon's use of historical costs to forecast labour costs to inform forecast labour costs, based on the fact that historical labour data is not reliable. However, the Authority notes that the historical cost data was provided by SunWater. The Authority does not consider that adopting SunWater's forecasts in place of those recommended by Aurecon because SunWater's historical data is unreliable provides the appropriate regulatory incentives.

In objecting to Aurecon's findings regarding weed control, SunWater submitted that costs be reviewed on a scheme-wide basis, rather than on a sub-activity basis. However, the Authority considers that it is necessary to understand the sub-activities performed by SunWater staff to be able to evaluate the efficiency of labour costs.

The Authority accepts Aurecon's recommendations, and has reduced SunWater's proposed preventive maintenance costs by $5,100 per annum in its recommended tariffs.

Item 3: Corrective Maintenance

Stakeholder Submissions

SunWater

SunWater submitted that even with sound preventive maintenance practices, unexpected failures can still occur or other incidents can arise that require reactive corrective maintenance.

SunWater identifies two types of corrective maintenance activities:

(a) emergency breakdown maintenance which refers to maintenance that 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 which refers to maintenance that does not have to be carried out immediately to restore normal operations, but needs to be scheduled in advance of the planned maintenance cycle.

SunWater has forecast 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.

Typical corrective maintenance examples on drains and channels are:

(a) erosion repairs;

(b) flow meter repairs and replacements;

(c) removing weed blockages;

(d) repairing regulating gates, pumps and control systems; and

(e) repairing pipe leaks and seals on offtake gates.

SunWater's corrective maintenance forecast does not include any costs of damage arising from events covered by insurance.

SunWater's proposed costs for this item are identified in Table 5.6 above.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Aurecon noted that corrective maintenance costs mainly related to indirect costs and overheads (53%), labour (28%), materials (9.4%), contractors (6.3%) and other (3.1%).

Aurecon noted the difficulty in forecasting corrective maintenance costs, and that SunWater's approach of using historical expenditure as a basis for forecasting is commonly used by other water utilities. On this basis, the annual average direct cost was $15,000 (excluding indirect costs and overheads). This compares to SunWater's forecast of $15,000 for the period starting at 2010-11. Aurecon considered SunWater's forecast to be prudent and efficient.

Authority's Analysis

As noted above, in Volume 1, the Authority recommended an optimal mix of preventive and corrective maintenance should be pursued by SunWater. Further, for corrective maintenance, the Authority recommends that SunWater formally document its processes for the development of correct maintenance expenditure forecasts.

For this scheme, the Authority accepts Aurecon's recommendations, and has included SunWater's proposed corrective maintenance costs in recommended tariffs.

Item 4: Electricity

Stakeholder Submissions

SunWater

SunWater submitted that the electricity costs relates mainly to the operation of the outlet works and lighting at Wuruma Dam and the weirs.

SunWater (2011h) 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 (2011ak) 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 proposed electricity costs are set out in Table 5.6 above.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Aurecon did not review SunWater's electricity costs.

Authority's Analysis

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 5: Cost Escalation

As noted in Volume 1, the Authority's consultants were required to examine the appropriateness of SunWater's proposed cost escalation methods (electricity has been 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.

Direct Electricity

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 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.

As 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.

Other Direct 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.

Non-direct costs

The Authority accepts SunWater's proposal to escalate all non-direct costs by 2.5% per annum for the 2012-17 regulatory period, and for the interim year 2011-12.

Conclusion

A comparison of SunWater's and the Authority's direct operating costs for the Upper Burnett WSS is set out in Table 5.11.

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 5.11: 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***
Operation	256	257	257	257	257	248	248	249	249	249
Electricity	8	8	9	10	10	6	7	7	7	8
Preventive Maintenance	52	52	52	52	52	50	51	51	51	51
Corrective Maintenance	15	16	16	16	16	15	15	15	15	15
Direct Operating Costs	**331**	**332**	**333**	**334**	**335**	**320**	**321**	**322**	**323**	**323**

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).

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. SunWater's proposed HUF for this scheme is set out in Chapter 4 Renewals Annuity.

Other Stakeholders

During the second round of stakeholder consultations (2011) irrigators stated that:

(a) mostly HP water was sold in the last four years to the Shire and therefore costs should be shared by HP water users;

(b) it was difficult to differentiate costs between HP and Medium Priority (MP) water users. HP users must not charge MP users their pumping costs; and

(c) the more MP water sold to HP users, the more costs will be borne by the remainder of the MP users.

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 preventive 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 Upper Burnett WSS is detailed in the following chapter (as it takes into account other factors relevant to establishing total costs).

5.6 Summary of Operating Costs

SunWater's proposed operating costs by activity and type are set out in Table 5.12. The Authority's recommended operating costs are set out in Table 5.13.

Table 5.12: SunWater's Proposed Operating Costs (Real $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations					
Labour	142	142	142	142	142
Materials	3	3	3	3	3
Contractors	9	10	10	10	10
Other	102	102	102	102	102
Non-direct	284	294	287	275	269
Preventive Maintenance					
Labour	44	44	44	44	44
Materials	5	5	5	5	5
Contractors	3	3	3	4	4
Other	0	0	0	0	0
Non-direct	86	89	87	84	82
Corrective Maintenance					
Labour	9	9	9	9	9
Materials	4	4	4	4	4
Contractors	2	2	2	2	2
Other	0	0	0	0	0
Non-direct	18	19	19	18	18
Electricity	8	8	9	10	10
Total	**719**	**735**	**726**	**711**	**703**

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

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations					
Labour	137	138	139	140	141
Materials	3	3	3	3	3
Contractors	9	9	9	9	9
Other	98	97	97	96	95
Non-direct	276	282	271	256	246
Preventive Maintenance					
Labour	42	43	43	43	44
Materials	4	5	5	5	5
Contractors	3	3	3	3	3
Other	0	0	0	0	0
Non-direct	84	86	82	78	75
Corrective Maintenance					
Labour	9	9	9	9	9
Materials	4	4	4	4	4
Contractors	2	2	2	2	2
Other	0	0	0	0	0
Non-direct	18	18	18	17	16
Electricity	6	7	7	7	8
Total	**698**	**707**	**693**	**673**	**660**

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 the regulated section of Nogo/Burnett River, prices over 2006-11 increased by an average of $2/ML per annum in real terms plus CPI to achieve lower bound costs in 2010-11.[8] In 2011-12, prices for this tariff group were increased by CPI.

[8] The average increase of $2/ML in real terms was achieved by an increase of $0.25 in the first year, $2.50 in the next three years, and $2.25 in the final year.

For John Goleby Weir, prices over 2006-11 increased by CPI. In 2011-12, prices for this tariff group were increased by CPI.

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 Upper Burnett 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 Upper Burnett 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	873	740	943	944	1,723	869	900	919	910	895	887
Renewals Annuity	296	291	226	280	319	190	188	192	191	191	191
Operating Costs	578	461	737	673	1,409	686	719	735	726	711	703
Revenue Offsets	-2	-12	-20	-9	-4	-8	-8	-8	-8	-8	-8
Authority's Total Costs	-	-	-	-	-	-	878	892	875	855	844
Renewals	-	-	-	-	-	-	187	192	189	190	191
Operating Costs	-	-	-	-	-	-	698	707	693	673	660
Revenue Offsets	-	-	-	-	-	-	-8	-8	-8	-8	-8
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.

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; and

(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 distribution systems, 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 this scheme, Indec recommended 93% of costs should be fixed and 7% variable under optimal management for both the Nogo/Burnett River and John Goleby Weir tariff groups. The Authority notes that this ratio differs from the current tariff structure which reflects the recovery of 70% of costs in the fixed charge and 30% of costs in the volumetric charge in the Nogo/Burnett River tariff group and 51% fixed and 49% variable in the John Goleby Weir tariff group (as outlined in Chapter 3 – Pricing Framework). However, there is no cost differential in the supply to these two tariff groups, as noted in Chapter 3.

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	816	829	813	795	785
High Priority	492	501	492	482	477
Medium Priority	324	328	322	313	308

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 based on SunWater's eight-year historical water usage 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 66.0% 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.

Table 6.3: Cost Reflective Prices for the Upper Burnett 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*
Nogo/Burnett River											
Fixed (Part A)	12.16	14.16	16.60	18.88	21.08	21.84	11.99	12.29	12.60	12.91	13.24
Volumetric (Part B)	7.46	8.67	10.14	11.55	12.92	13.38	3.30	3 38	3.47	3.55	3.64
John Goleby Weir											
Fixed (Part A)	14.08	14.48	15.16	15.64	16.12	16.68	11.99	12.29	12.60	12.91	13.24
Volumetric (Part B)	19.18	19.74	20.69	21.34	21.99	22.78	3.30	3 38	3.47	3.55	3.64

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 that would arise under the 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 (Table 6.4).

For both the Nogo/Burnett River and the John Goleby Weir tariff groups, current revenues are above the level required to recover prudent and efficient costs (Table 6.4). Therefore, the Authority is required to recommended prices that maintain these revenues in real terms for the 2012-17 regulatory period.

Table 6.4: Comparison of Current Prices and Cost-Reflective Prices (Real $ 2012-13)

Tariff and Priority Group	*2010-11 Prices $/ML (indexed to 2012-13)*		*Irrigation WAE (ML)*	*Irrigation Water Use (ML)*	*Current Revenue*	*Revenue from Cost-Reflective Tariffs*	*Difference*
	Fixed	*Variable*					
Nogo/Burnett River	22.15	13.57	25,459	10,881	711,532	341,173	370,359
John Goleby Weir	16.94	23.10	1,411	603	37,840	18,914	18,926

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

6.8 The Authority's Recommended Prices

The Authority's recommended prices to apply to the Upper Burnett 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 Prices for the Upper Burnett 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*
Upper Burnett (Regulated Section of the Nogo/Burnett River)											
Fixed (Part A)	12.16	14.16	16.60	18.88	21.08	21.84	26.07	26.72	27.39	28.08	28.78
Volumetric (Part B)	7.46	8.67	10.14	11.55	12.92	13.38	3.30	3.38	3.47	3.55	3.64
John Goleby Weir											
Fixed (Part A)	14.08	14.48	15.16	15.64	16.12	16.68	24.93	25.56	26.19	26.85	27.52
Volumetric (Part B)	19.18	19.74	20.69	21.34	21.99	22.78	3.30	3.38	3.47	3.55	3.64

Source: Actual Prices (SunWater, 2011al) 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).

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APPENDIX A: FUTURE RENEWALS LIST

Below are listed SunWater's forecast renewal expenditure items greater than $10,000 in value, for the years 2011-12 to 2035-36 in 2010-11 dollar terms.

Asset	*Year*	*Description*	*Value ($'000)*
Claude Wharton Weir	2011-12	11UBPXX 5Y COMPREHENSIVE INSPECTION	11
	2012-13	COMPLETE PLC/SCADA UPGRADE	86
		Refurbish Bulkhead Gate - repaint bulkhead gates, refurbish or change out sluice gates	29
	2013-14	Electrical Component Upgrade - Document, Drawings, Specs, Cost Estimate PLC/SCADA replacement	124
		Refurbish Screen - repaint & repair	19
		10Y CRANE INSPECTION - as per AS2550	14
	2014-15	Electrical Component Upgrade - Supply, Install, Commission PLC/SCADA	186
		Refurbish Outlet Gate No. 1 - blast paint and refurbish rams	37
	2016-17	Change Out Hydraulics	43
		11UBPXX 5Y COMPREHENSIVE INSPECTION	12
	2017-18	Replace Hydraulic Control Cubicle	172
		Replace Instrumentation	132
	2018-19	Replace Electrical Components	24
		Replace Ventilation System	12
	2019-20	COMPLETE PLC/SCADA UPGRADE	85
		Refurbish Screen - repaint & repair	18
	2020-21	Electrical Component Upgrade - Document, Drawings, Specs, Cost Estimate PLC/SCADA replacement	123
	2021-22	Electrical Component Upgrade - Supply, Install, Commission PLC/SCADA	183
		11UBPXX 5Y COMPREHENSIVE INSPECTION	12
	2022-23	Replace Switchboard, Low Voltage	55
		Replace Cables & Cableways	41
	2023-24	10Y CRANE INSPECTION - as per AS2550	14
	2024-25	Replace Marker Buoys	29
		Replace BUOYS (5 OFF), SAFETY BUOYAGE SYSTEMS	28
	2025-26	Refurbish Screen - repaint & repair	18
	2026-27	COMPLETE PLC/SCADA UPGRADE	85
		11UBPXX 5Y COMPREHENSIVE INSPECTION	11
	2027-28	Replace Actuator, Hydraulic	301
		Replace Control Equipment	207
		Electrical Component Upgrade - Document, Drawings, Specs, Cost Estimate PLC/SCADA replacement	121
		Refurbish: Mid life refurbishment of gate and guides	48
		Refurbish: Mid life refurbishment of gates and guides	24
	2028-29	Electrical Component Upgrade - Supply, Install, Commission PLC/SCADA	182
		Change Out Gate & Rams ($20k ram, $30k gate)	121
	2030-31	Refurbish Bulkhead Gate - repaint bulkhead gates, refurbish or change out sluice gates	29
	2031-32	Refurbish Screen - repaint & repair	18
		11UBPXX 5Y COMPREHENSIVE INSPECTION	11
	2032-33	Replace Control Equipment	196
		Replace Instrumentation	131
	2033-34	COMPLETE PLC/SCADA UPGRADE	85
		10Y CRANE INSPECTION - as per AS2550	14
	2034-35	Electrical Component Upgrade - Document, Drawings, Specs, Cost Estimate PLC/SCADA replacement	121
		Refurbish Outlet Gate No. 1 - blast paint and refurbish rams	36

Asset	*Year*	*Description*	*Value ($'000)*
	2035-36	Electrical Component Upgrade - Supply, Install, Commission PLC/SCADA	181
John Goleby Weir	2011-12	REMOVE TREES FROM DISCHARGE CHANNEL	59
		WH&S ISSUES FROM 2005 DS REPORT	48
	2015-16	REFURBISH CONDUIT - INTERNAL SURFACE	83
	2017-18	Refurbish Protection Works - reseal joints in conc slabs (refer backlog record)	55
	2018-19	10UBP03 REFURBISH VALVES	38
	2027-28	10UBP03 REFURBISH VALVES	38
	2034-35	Refurbish Protection Works - reseal joints in conc slabs (refer backlog record)	54
Jones Weir	2013-14	Replace Isolating Valves	107
	2014-15	REPAIRS TO CONCRETE WING WALL	14
	2015-16	11UBPXX 5Y COMPREHENSIVE INSPECTION	11
	2016-17	Replace Screen	103
	2020-21	11UBPXX 5Y COMPREHENSIVE INSPECTION	11
	2024-25	Replace BUOYS (4 OFF), SAFETY BUOYAGE SYSTEMS	23
	2025-26	11UBPXX 5Y COMPREHENSIVE INSPECTION	10
	2030-31	11UBPXX 5Y COMPREHENSIVE INSPECTION	10
	2035-36	11UBPXX 5Y COMPREHENSIVE INSPECTION	10
Upper Burnett Distribution	2011-12	Replace Recorder	34
	2016-17	Replace Recorder	36
	2026-27	Replace Recorder	35
	2029-30	Replace 136113A Wuruma Dam Hw	35
	2031-32	Replace Recorder	35
Wuruma Dam	2011-12	REFURBISH 915MM BUTTERFLY VALVE	55
		Manufacture and supply lifting frame to 2008 design.	35
		REFURBISH 762MM VALVE	24
		Study: 5 yr Dam Comprehensive Inspection (Review of EAP, O&M & SOPs)	23
	2012-13	REFURBISH 915MM BUTTERFLY VALVE	51
		REFURBISH 762MM VALVE	45
		Construct V-Notch Weir	16
	2015-16	11UBPXX 5Y COMPREHENSIVE INSPECTION	64
	2016-17	Study: 5 yr Dam Comprehensive Inspection (Review of EAP, O&M & SOPs)	24
		Replace Valve, 450Mm Gate John	22
		10UBP05 INSTALL SURVEY POINTS - D/S WALL	22
	2018-19	Refurbish Valves - 450 MSCL + 2 * valves in series; reduced from $50K on GH notes	24
		Replace Shelter Shed - Type 3	24
		Replace Lookout	21
	2020-21	Study: 20yr Dam Safety Review (by 1 Jun 2021)	123
		11UBPXX 5Y COMPREHENSIVE INSPECTION	64
		Refurbish Trash Racks - patch paint	25
	2021-22	Study: 5 yr Dam Comprehensive Inspection (Review of EAP, O&M & SOPs)	24
		Replace Switchboard, Main	23
		Replace Switchboard, Sub	11
	2024-25	Refurbish Road - essential access roads only, fill potholes, reconstruct drainage, spray seal.	30
	2025-26	11UBPXX 5Y COMPREHENSIVE INSPECTION	62
	2026-27	Refurbish Trash Racks - patch paint	24
		Study: 5 yr Dam Comprehensive Inspection (Review of EAP, O&M & SOPs)	24
	2027-28	Refurbish Low Level Pipe Works (reline)	101
	2030-31	11UBPXX 5Y COMPREHENSIVE INSPECTION	62
		Refurbish Pipework - patch paint	18
	2031-32	REFURBISH 762MM VALVE	25
		Study: 5 yr Dam Comprehensive Inspection (Review of EAP, O&M & SOPs)	24

Asset	*Year*	*Description*	*Value ($'000)*
Wuruma Dam Wtp	2032-33	REFURBISH 762MM VALVE	44
		Refurbish Trash Racks - patch paint	24
	2035-36	11UBPXX 5Y COMPREHENSIVE INSPECTION	62
	2017-18	Replace Reticulation System	14
	2019-20	Replace Storage Tank - Rainwater	13
	2024-25	Replace Toilet Block No 3	81
	2028-29	Replace Storage Tank No 1	11