QUEENSLAND COMPETITION AUTHORITY

Draft Report

SunWater
Irrigation Price Review: 2012-17
Volume 2
Lower Fitzroy Water Supply Scheme

November 2011

Level 19, 12 Creek Street Brisbane Queensland 4000
GPO Box 2257 Brisbane Qld 4001
Telephone (07) 3222 0555
Facsimile (07) 3222 0599

general.enquiries@qca.org.au
www.qca.org.au

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:

Queensland Competition Authority
GPO Box 2257
Brisbane QLD 4001
Telephone: (07) 3222 0557
Fax: (07) 3222 0599
Email: water.submissions@qca.org.au

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.

TABLE OF CONTENTS

GLOSSARY

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 (WSS) from 1 July 2012 to 30 June 2017 (the 2012-17 regulatory period). A copy of the Ministerial Direction forms **Appendix A** to Volume 1.

Summary of Price Recommendations

The Authority's recommended irrigation prices to apply to the Lower Fitzroy 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 Lower Fitzroy WSS ($/ML)

	Actual Prices						*Recommended Prices*				
	2006-07	***2007-08***	***2008-09***	***2009-10***	***2010-11***	***2011-12***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Fixed (Part A)	0.26	2.92	5.84	8.88	10.88	11.28	11.40	11.68	11.97	12.27	12.58
Volumetric (Part B)	0.00	0.00	0.00	0.00	0.00	0.00	1.31	1.34	1.38	1.41	1.45

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. LOWER FITZROY WATER SUPPLY SCHEME

1.1 Scheme Description

The Lower Fitzroy water supply scheme (WSS) is located near Rockhampton. An overview of the key characteristics of this WSS is provided in Table 1.1.

Table 1.1: Key Scheme Information for Lower Fitzroy WSS

	Lower Fitzroy WSS
Business Centre	Biloela
Irrigation Uses of Water	Water is used for irrigation of pastures (for cattle grazing) and other crops
Industrial Water Supplies	The primary use for the scheme is to supply cooling water via the Stanwell Pipeline to the Stanwell Power Station.

Source: Synergies Economic Consulting (2010)

The Lower Fitzroy WSS has a total of 24 bulk customers. Medium and high priority water access entitlements (WAE) are outlined in Table 1.2.

Stanwell Corporation is the main customer with 24,002ML of high priority allocation used to supply cooling water via the Stanwell Pipeline to the Stanwell Power Station. Other customers, including a quarry and stock and domestic customers, source high priority water from the Stanwell Pipeline.

The Stanwell Pipeline is the subject of a separate service contract and is not part of the bulk infrastructure for Lower Fitzroy WSS. Irrigators hold 3,101ML of medium priority allocation from the regulated section below Eden Bann Weir.

Table 1.2: Water Access Entitlements

Customer Group	***Irrigation WAE (ML)***	***Total WAE (ML)***
Medium Priority	3,101	3,101
High Priority	0	25,520
Total	**3,101**	**28,621**

Source: SunWater (2011am).

1.2 Bulk Water Infrastructure

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

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

Table 1.3: Bulk Water Infrastructure in the Lower Fitzroy WSS

Storage Infrastructure	*Capacity (ML)*	*Age (years)*
Eden Bann Weir	35,900	19

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

The scheme has only one key asset, the Eden Bann Weir, which is located on the Fitzroy River.[1] The weir is fitted with a hydraulically actuated fish lock which operates unattended in auto mode. Its outlet gate is actuated with a portable power drive, which is stored on site (SunWater, 2011).

The location of the Lower Fitzroy WSS and key infrastructure is shown in Figure 1.1.

1.3 Network Service Plans

The Lower Fitzroy 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 relevant to the NSP and possible reset triggers.

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

1.4 Consultation

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

(a) invited submissions from interested parties;

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

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

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

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

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

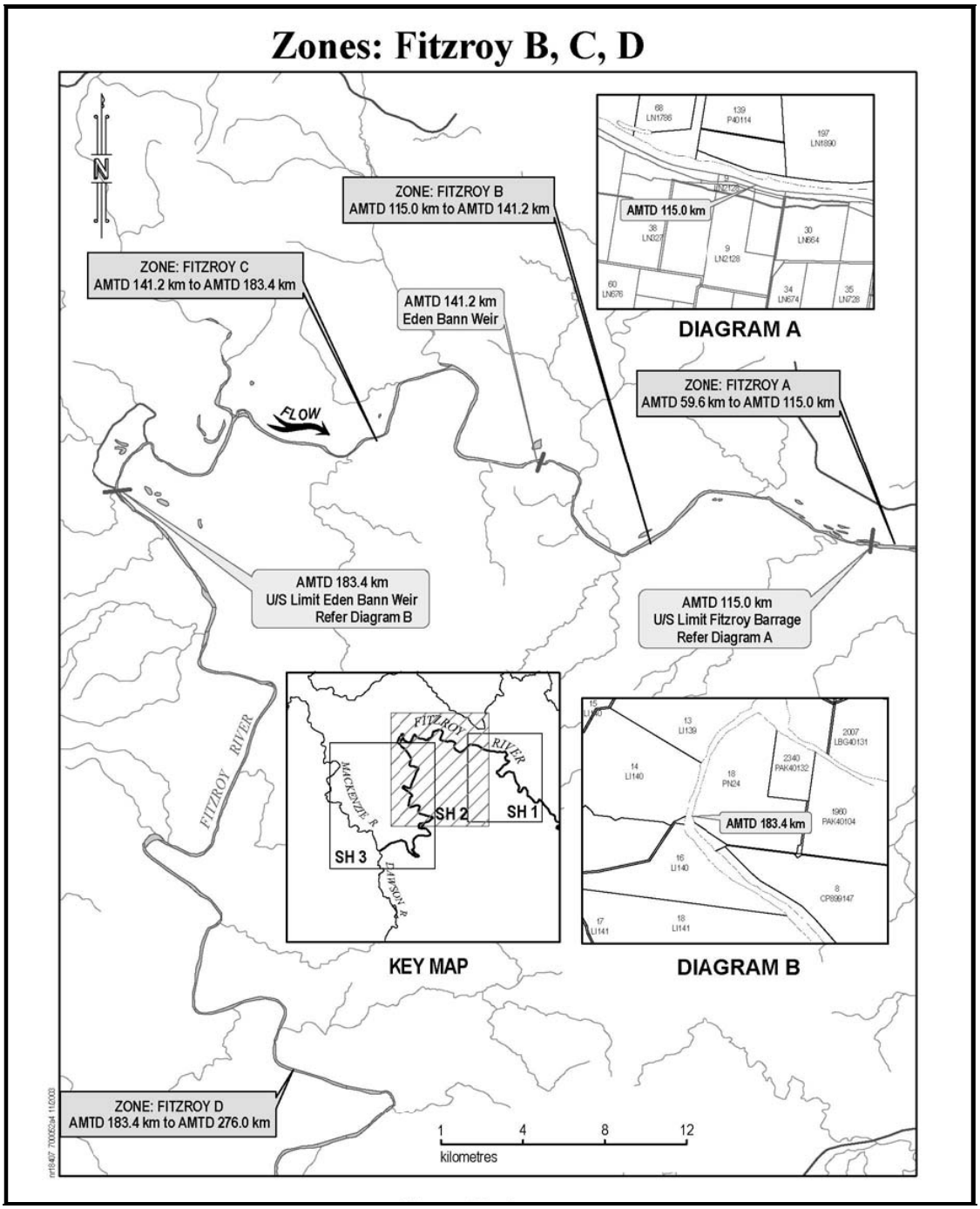
The Authority has also received a number of submissions from stakeholders on matters such as capacity to pay, rate of return on existing assets, contributed assets, dam safety upgrades, nodal pricing, national metering standards and whether or not to recover recreation management costs from SunWater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

[1] Other assets include the Stanwell Pump Station, the 28km Stanwell Pipeline and the land on which they stand, however, these assets have been excluded from the Authority's review as they are not relevant to irrigators. These assets have not been included in the Lower Fitzroy NSP or in SunWater's costs for the scheme.

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

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

Figure 1.1: Lower Fitzroy WSS Locality Map



Source: SunWater (2011).

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 Lower Fitzroy WSS Tier 2 group indicated that they were in favour of retaining the existing price cap regulatory arrangement. In the 2011-12 interim 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 Lower Fitzroy WSS:

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

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

(c) outbreak of noxious weeds; and

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

2.3 Authority's Analysis

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

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) and (c) above will be dealt with as an end-of-period adjustment, or price trigger or cost pass through upon application by SunWater or customers.

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

3. PRICING FRAMEWORK

3.1 Tariff Structure

Introduction

In the 2006-11 price path a case was identified for a 70:30 ratio of fixed to variable costs for general application to schemes. The Tier 1 reference tariffs for Lower Fitzroy WSS were originally based on such a structure assuming 50% water usage. However, irrigators subsequently agreed to a tariff structure recovering 100% of revenues from the Part A fixed charge, as this enabled a lower headline charge.

Stakeholder Submissions

SunWater

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

Other Stakeholders

Other stakeholders generally submitted that the volumetric charge ratio should be increased:

(a) during Round 1 consultation (April 2010), stakeholders submitted that irrigators currently face all Part A charges, yet use very little water for irrigation purposes;

(b) similarly, during Round 2 consultation (April 2011), stakeholders submitted that the Part A tariff is still charged even if there is no water available. They further added that a more equitable tariff structure should be considered; and

(c) G Hinchliffe, P Hinchliffe and G Farmer (2011) submitted that at the very least, irrigators in the Lower Fitzroy WSS should only be paying for the actual volume of water used as it is used at such infrequent times and only when deemed necessary.

Since there are only five Medium Priority WAE customers in the Lower Fitzroy WSS and no one uses their water on a regular basis, irrigators cannot offset the cost of water by trading, leasing or selling water within the scheme.

Authority's Analysis

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

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

In response to stakeholder comments regarding the ratio of the Part A charge, 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.

The tariff structure signals the full fixed costs of holding WAE. In the Lower Fitzroy WSS, the Authority acknowledges that there is limited scope for trade (as indicated in the number of

trades identified in Table 3.1) but also notes this is consistent with the legislative and contractual arrangements in place.

Table 3.1: Volume of Permanent and Temporary Water Traded (ML)

	2002-03	*2003-04*	*2004-05*	*2005-06*	*2006-07*	*2007-08*	*2008-09*	*2009-10*
Permanent	0	0	0	2	140	0	24	0
Temporary	1	36	13	4	91	83	6	160

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

3.2 Water Use Forecasts

Introduction

During the 2006-11 price paths, water use forecasts played an essential role in the determination of the tariff structure, although this was not the case for Lower Fitzroy WSS which agreed to a 100% Part A charge 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 Lower Fitzroy WSS, SunWater (2006b) did not finalise an irrigation water usage forecast as there was no Part B charge. Water usage for high and medium priority WAE was not separately identified (2006b).

Stakeholder Submissions

SunWater

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

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

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

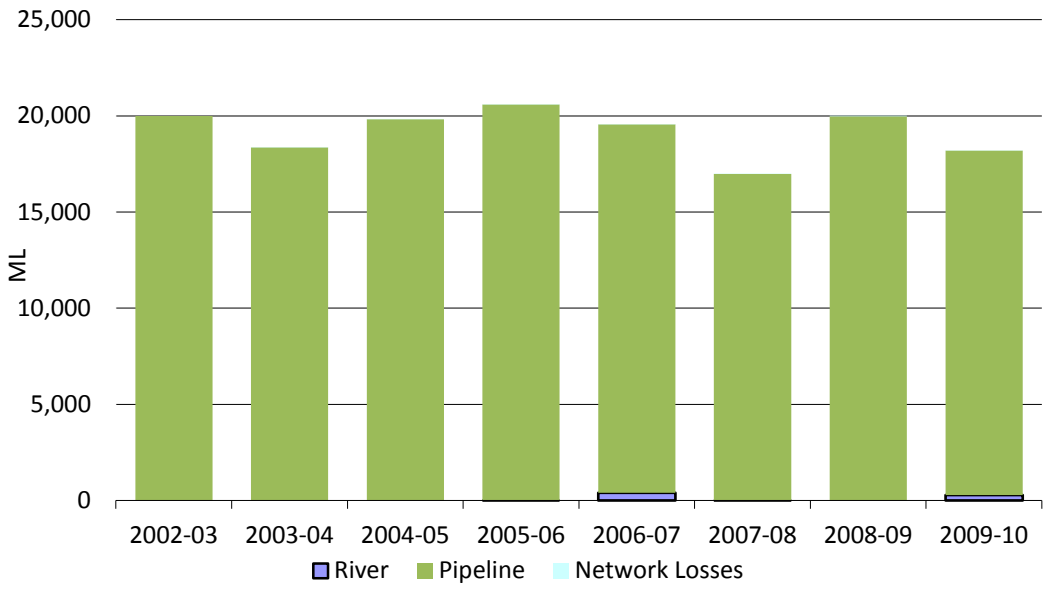
Based on the last eight years of observations, SunWater has forecast use as follows:

(a) at a whole scheme level (all sectors) – an average of 67% of WAE (including SunWater's distribution loss WAE and its other WAE); and

(b) for the irrigation sector only – an average of 4% of irrigation WAE.

Figure 3.1 shows the historic usage information for the Lower Fitzroy WSS submitted by SunWater (2011). The river category includes all irrigation and other usage sourced from the river. Pipeline volumes refer to volumes sold from the Lower Fitzroy WSS to industrial and other customers supplied by the pipeline.

Figure 3.1: Water Usage for the Lower Fitzroy WSS



Source: SunWater (2011).

Other Stakeholders

During the Round 2 consultation in April 2011, stakeholders submitted that the scheme has been established primarily to provide water to Stanwell Corporation and not irrigators. Further, irrigators have been provided with very modest water supply over the years as a result.

In particular, G Hinchliffe, P Hinchliffe and G Farmer (2011) submitted that there is no crop irrigation in the area. Instead, water is used for fodder cropping, fattening and drought relief for cattle. No one used water on a regular basis and as medium priority WAE holders they believe they are paying more than is fair for a lower grade commodity.

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 (SunWater, 2006b) nominated one tariff group for the river segment of the Lower Fitzroy WSS: River.

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

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

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). Separate ARR balances were not identified for bulk and distribution systems.

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 2006-11 was prudent and efficient. This affects the opening ARR balance for the 2012-17 regulatory period;

  (ii) the unbundling of the opening ARR balance for bulk and distribution systems (where applicable);

  (iii) 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 bulk and distribution 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, to assess the prudency and efficiency of every individual asset.

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

Subsequently, the Authority liaised directly with SunWater to obtain further information, and commissioned Sinclair Knight Merz (SKM) to address material expenditure items (that is, those renewals items 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 Lower Fitzroy WSS was $0.

The Authority has accepted SunWater's opening ARR balance for Lower Fitzroy WSS of $0.

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 Lower Fitzroy 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***	***2001-11***
Past (Actual) Renewals Expenditure	10	4	90	28	93

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

Other Stakeholders

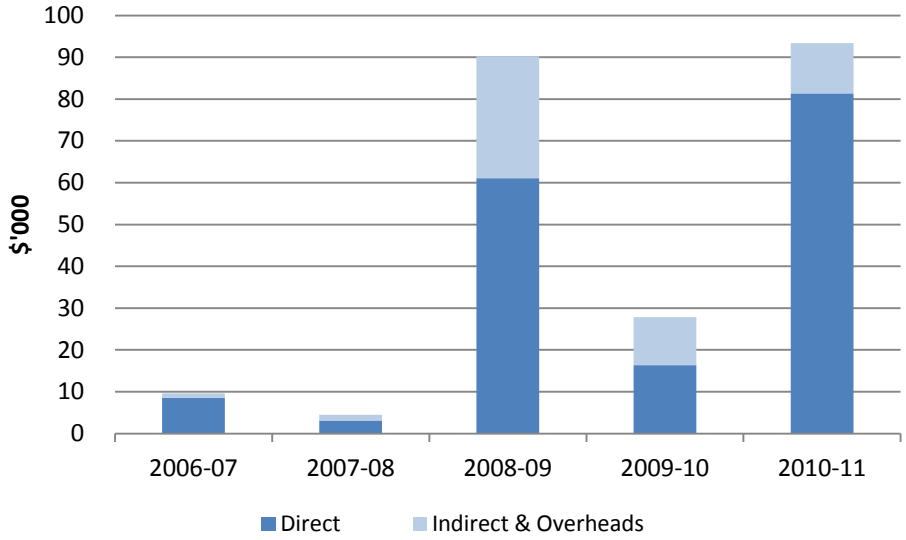
No other stakeholders have commented on this item.

Authority's Analysis

Total Renewals Expenditure

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

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



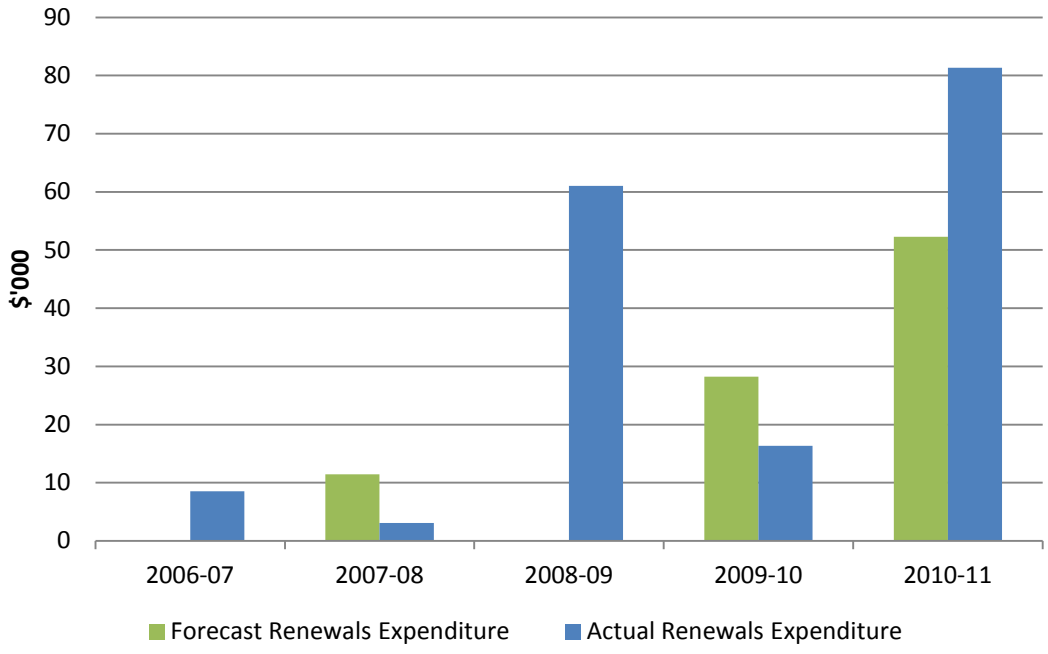
Note: The estimates reflect the most recent information provided by SunWater to the Authority in September 2011. Source: SunWater (2011an).

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 Lower Fitzroy 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: SunWater (2011an).

Actual renewals expenditure was $78,366 above the forecast over the period. A number of the actual items for 2010-11 did not form part of the revised budget but were subsequently approved.

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

In the absence of forecast renewals expenditure for 2006-11 from SunWater (as noted above), Halcrow sought to identify variances between annually budgeted and actual expenditure for certain items. However, due to information deficiencies, Halcrow was unable to conclude on the prudency and efficiency of past renewals expenditure.

Conclusion

The Authority notes Halcrow's finding that there was insufficient information to review the past renewals expenditure items for this scheme. As noted in Volume 1, the Authority has applied a 10% saving to non-sampled and sampled items for which there was insufficient information.

In total, The Authority recommends that past renewals expenditure be adjusted as in Table 4.2.

Table 4.2: Review of Past (Direct) Renewals Expenditure 2006-11

Item	*Date*	*SunWater*	*Authority's Findings*	*Recommended*
Past Renewals Items	Various	Various	Insufficient Information	10% saving applied

Note: SunWater (2011), Halcrow (2011), SKM (2011).

4.4 Opening ARR Balance (at 1 July 2012)

SunWater indicated that the renewals opening ARR balance as at 1 July 2011 was negative $4,000 for the Lower Fitzroy WSS. This estimate reflects the most recent information provided by SunWater to the Authority in September 2011 and may differ from the NSP.

Based on the Authority's assessment of the prudency and efficiency of past renewals expenditure, the recommended opening ARR balance as at 1 July 2011 for Lower Fitzroy is $3,000.

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 renewals expenditure; and

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

To establish the closing ARR balance as at 30 June 2012 of negative $14,000, 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

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

(a) high-level options analysis for all material renewals expenditures expected to occur over the Authority's recommended planning period (20 years), with a material renewals expenditure 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.

Prudency and Efficiency of Forecast Renewals Expenditure

Submissions

SunWater

SunWater's proposed renewals expenditure for the Lower Fitzroy 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*
Eden Bann Weir	68	24	32	-	40
Lower Fitzroy River Distib	-	-	-	-	7
Scheme	-	-	31	12	-
Total	**68**	**24**	**63**	**12**	**47**

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

The major expenditure items from 2016-17 are:

(a) replacing the hydraulic system at Eden Bann Weir at an estimated cost of $283,000 in 2022-23; and

(b) replacing cables at Eden Bann Weir at an estimated cost of $163,000 in 2030-31.

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 Round 2 consultation in April 2011, stakeholders questioned the prudency of proposed renewals expenditure as they do not derive a benefit from the scheme.

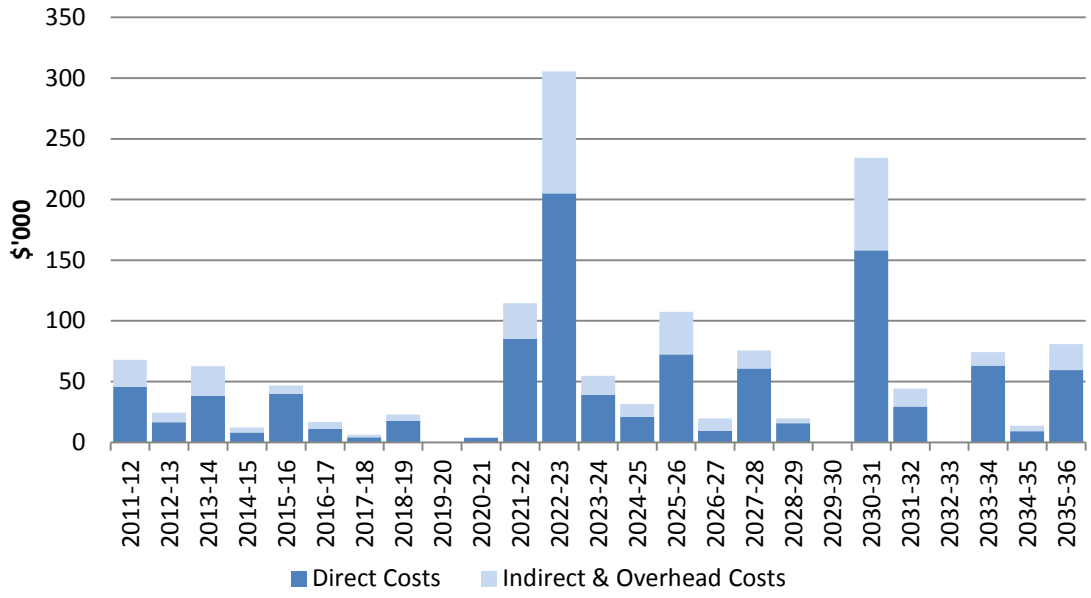
G Hinchliffe, P Hinchliffe and G Farmer (2011) submitted that irrigators do not have supporting infrastructure associated to the Weir and only relies on single-phase power and diesel pumps for irrigation. They also stated that all associated infrastructure is paid for by individual owners including water meters installed under SunWater's instructions.

Authority's Analysis

Total Costs

SunWater's proposed renewals expenditure for 2011-36 for the Lower Fitzroy 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 items are reviewed in Chapter 5 – Operating Costs.

Figure 4.3: Forecast Renewals Expenditure 2011-36 (Real $'000)



Source: SunWater (2011am).

As noted above, under the current legislative and contractual arrangements, irrigators are customers of the scheme, and are therefore required to pay for their share of SunWater's cost to maintain the scheme. Irrigators do benefit when water is made available.

The Eden Bann Weir does store water which can be supplied to irrigators via the Fitzroy River. It is this expectation which has formed the basis of the current contracts.

Item Review

Halcrow and SKM reviewed the prudency and efficiency for a sample of items. The conclusions in relation to the items reviewed are detailed below.

Item 1: Eden Bann Weir – Replace Hydraulic System

SunWater

This item relates to the replacement of the hydraulic system on Eden Bann Weir and is expected to cost $283,000 (approximately $190,000 is expected to be direct costs). The works are scheduled to be undertaken in 2022-23.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Halcrow considered that replacement of the hydraulic system in 2022-23 to be prudent. However, Halcrow advised that there was insufficient information provided to assess whether the proposed expenditure is efficient.

Authority's Analysis

The Authority accepts Halcrow's recommendation that the item is prudent. However, there was insufficient information provided for Halcrow to determine the efficiency of the item. The Authority has applied a 10% saving to sampled items for which there was insufficient information.

Item 2: Eden Bann Weir - Refurbish Fishlock Fill and Drn Valves

SunWater

Expenditure of approximately $24,000 is proposed to be incurred in 2012-13 and 2027-28 to refurbish the fishlock's valves. Approximately $17,000 of this expenditure is forecast to be direct costs in each of these years meaning a total of approximately $34,000 in direct costs.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Halcrow noted that the fishlock will likely require significant refurbishment to remain in operation until 2012-13, when the hydraulic system will be replaced.

Halcrow considered that the proposed expenditure to refurbish the valves is prudent. However, Halcrow did not have sufficient information to comment on whether the proposed expenditure is efficient.

Authority's Analysis

The Authority accepts Halcrow's recommendation that the item is prudent. However, there was insufficient information provided for Halcrow to determine the efficiency of the item. The Authority has applied a 10% saving to sampled items for which there was insufficient information.

Item 3: Eden Bann Weir – Undertake facility review

SunWater

This renewals item is forecast to occur in 2013-14 at a total cost of $31,000 ($20,000 of which are direct costs).

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Due to insufficient information, Halcrow has been unable to determine the nature or scope of this item or whether the expenditure is prudent and efficient.

Authority's Analysis

As there was insufficient information provided for Halcrow to determine the prudency and efficiency of the item. The Authority has applied a 10% saving to sampled items for which there was insufficient information.

Conclusion

In summary, three items for the Lower Fitzroy WSS were sampled. Of these:

(a) two items were prudent but insufficient information was provided to assess efficiency, requiring adjustment to forecast expenditure; and

(b) one item had insufficient information to determine their prudency and efficiency.

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 direct renewals expenditure be adjusted as shown in Table 4.4.

Table 4.4: Review of Forecast (Direct) Renewals Expenditure 2012-36 ($'000)

Item	*Year*	*SunWater*	*Authority's Findings*	*Recommended*
Sampled Items				
1. Replace hydraulic	2022-23	190	Prudent but insufficient information to assess efficiency	10% saving applied
2. Refurbish fish lock fill and Drn valves	2012-13 and 2027-28	17	Prudent but insufficient information to assess efficiency	10% saving applied
3. Undertake facility review	2013-14	20	Insufficient information	10% saving applied
Not Sampled Items				10% saving applied

Source: SunWater (2011), Halcrow (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 Round 2 consultation in April 2011, stakeholders stated that they were unaware that the IAC existed and questioned whether it has ever met.

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 Lower Fitzroy bulk water infrastructure were apportioned between priority groups using converted nominal water allocations. The conversion to medium priority WAE was determined by the Fitzroy River ROP conversion factor (1.5:1) for the combined Fitzroy Barrage and Lower Fitzroy; that is, one ML of high priority WAE was considered equivalent to 1.5 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).

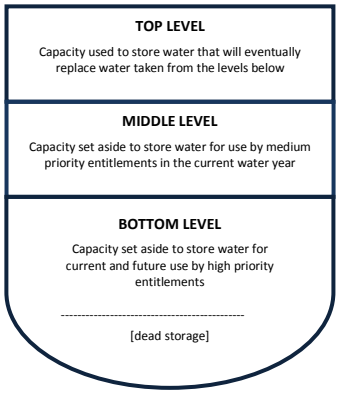
SunWater submitted that, in general, the HUF allocates a greater proportion of capital costs per ML to high priority WAE. Specifically, the HUF methodology takes into account water sharing rules, critical water sharing arrangements (CWSAs) and other operational requirements that typically give high priority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

SunWater (2010d) submitted a detailed 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 and medium priority for the purposes of the HUFs calculation[2].

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

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



This step divides the storage infrastructure into three levels: the bottom layer, which is exclusively reserved for high priority; the middle layer, which is effectively reserved for medium priority; 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 Lower Fitzroy WSS are summarised in Table 4.5. The HUFs for this scheme (SunWater 2010d) are 7% for medium priority and 93% for high priority.

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

Table 4.5: Application of HUFs Methodology

STEP 1: Water Entitlement Groups (DERM's Water Allocation Register)			
Nominal Group	**(ML)**	**HUF Group**	**(ML)**
Medium Priority (Lower Fitzroy WSS)	3,101	MP_A	14,711
Medium Priority (Fitzroy Barrage WSS)	11,610		
High Priority (Lower Fitzroy WSS)	25,520	HP_A	76,003
High Priority (Fitzroy Barrage WSS)	50,483		
STEP 2: ROP Conversion Factor Adjustment			
Conversion Factor: ROP_{CF}			1.5
Maximum volume of HP: $HP_A max$			77,000[3]
Corresponding volume of MP: $MP_A min = MP_A-(HP_A max-HP_A)*ROP_{CF}$			13,216[4]
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: $MP_{100} AA$			N/A
CWSAs and other operational requirements			
Likely increase in volume effectively reserved for HP: MP_0			40,500
Likely increase in min. storage before maximum MP available: MP_{100}			41,600
Key Dam Level Measures			
Full Supply Level: FSV_{hwks}			117,200
Dead Storage Level: DSL_{hwks}			31,550

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 = 8,275; HP_2 = 67,325	88%	MP_{2u} = 7,311; HP_{2u} = 59,487
Middle: $\min\{(MP_{100}-MP_0),(FSV_{hwks}-MP_0)\}$	MP_1 = 1,100	100%	MP_{1u} = 1,096
Bottom: $MP_0 - DSV_{hwks}$	HP_1 = 8,950	100%	HP_{1u} = 8,943

STEP 5: Calculation of HUFs for each Water Entitlement Group		
Formula	**HUF Group**	**Nominal Group[5]**
MP_A: $(MP_{1u}+MP_{2u}) / (MP_{1u}+HP_{1u}+MP_{2u}+HP_{2u})$ = (1,096+73,11) / (1,096+8,943+73,11+59,487)	HUF_{mp} = 11%	Medium Priority (Lower Fitzroy) = 7%
HP_A: $(HP_{1u}+HP_{2u}) / (MP_{1u}+HP_{1u}+MP_{2u}+HP_{2u})$ = (8,943+59,487) / (1,096+8,943+73,11+59,487)	HUF_{hp} = 89%	High Priority (Lower Fitzroy) = 93%

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

[3] Consisting 25,800 ML for Lower Fitzroy and 51,200 ML for Fitzroy Barrage
[4] Consisting 2,562 ML for Lower Fitzroy and 10,580 ML for Fitzroy Barrage
[5] Fitzroy Barrage HUFs not reported

Other Stakeholders

Other Stakeholders

No other stakeholders have commented on this matter.

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. For the Lower Fitzroy WSS, the changes resulted in the HUF_{mp} value rising from 7% to 10%, and the HUF_{hp} value falling from 93% to 90% (Table 4.6).

Table 4.6: Revised HUF Calculations

STEP 4: Hydrologic performance of headworks storage

Storage Layer	Storage Capacity (ML)	Prob. of Utilisation	Utilised Capacity (ML)
Top layer			
Initial	MP_2 = 8,275; HP_2 = 67,325	88%	MP_{2u} = 7,311; HP_{2u} = 59,487
*Revised**	MP_2 = 12,260; HP_2 = 63,340	no change	MP_{2u} = 10,833; HP_{2u} = 55,966
Middle Layer	MP_1 = 1,100	100%	MP_{1u} = 1,096
Bottom Layer	HP_1 = 8,950	100%	HP_{1u} = 8,943

STEP 5: Calculation of HUFs for each Water Entitlement Group

	Initial	Revised	Nominal Group
HUF_{mp}	11%	16%	Medium Priority (Lower Fitzroy) = 10%
HUF_{hp}	89%	84%	High Priority (Lower Fitzroy) = 90%

**Apportioned between MP2 and HP2 using the ratio of nominal volumes (MP_A:HP_A) Source: SunWater (2010d).*

The Authority estimates that based on the HUF methodology, the conversion for medium priority to high priority would be 1.1:1. This compares with the WPCF of 1.5:1 used for 2006-11 price paths. Further, the Authority notes that under the HUF approach, medium priority irrigators will now pay 10% of the cost of renewals whereas previously medium priority irrigators paid 7%.

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 Lower Fitzroy 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 2012-16 is also presented for comparison.

Table 4.7: Lower Fitzroy 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	0	0	0	0	93	46	46	45	46	45	45
Authority	-	-	-	-	-	-	49	48	48	47	47
High Priority	-	-	-	-	-	-	44	43	43	42	43
Medium Priority	-	-	-	-	-	-	5	5	5	5	5

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 the Lower Fitzroy WSS;

(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 21 staff are located at the Biloela depot and are responsible for the day-to-day water supply management and for delivery of the programmed works for all users in this region;

[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 Resource Operations Licence (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 (see Table 5.1 below).

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

Storage	***Monthly Monitoring Requirements***			
	Inflow	***Head Water***	***Tail Water***	***BGA***
Eden Bann Weir	Yes	Yes	Yes	Yes

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

(ii) dam safety – SunWater has a comprehensive safety management program in place comprising policies, procedures and investigations to minimise the risk of dam failure. Routine dam safety inspections are carried out quarterly on the Eden Bann Weir 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; and

(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) it does not manage any recreation facilities in the Lower Fitzroy WSS; and

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

Previous Review

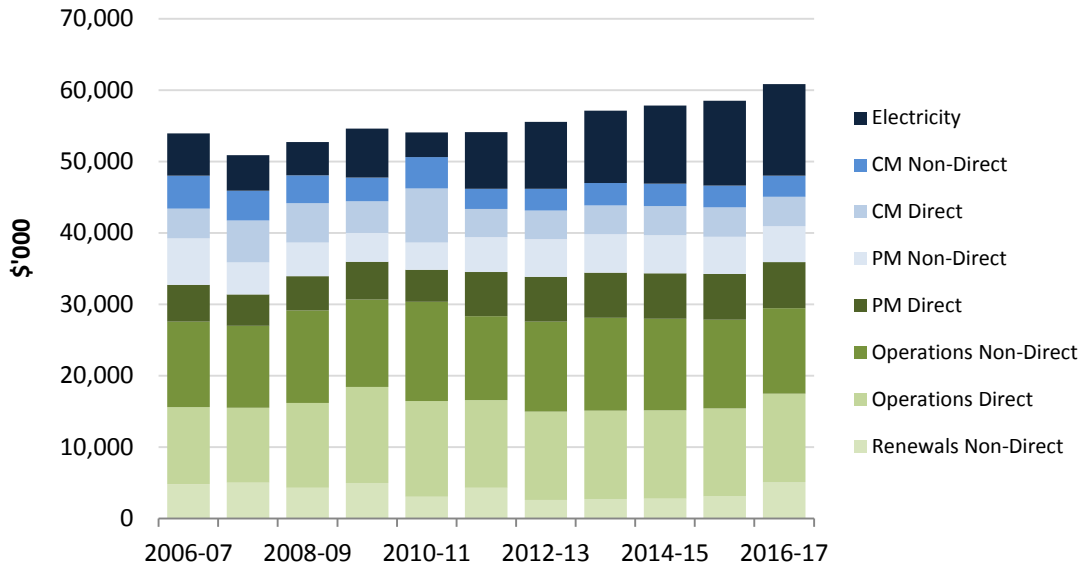
For the 2006-11 price paths, Indec identified annual cost savings of between $3.8 million and $5.5 million (2010-11 dollars) or 7.5% to 9.9% of total annual costs, which SunWater was to achieve during the 2006-11 price paths (SunWater, 2006a). See Volume 1.

Stakeholder Submissions

SunWater

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

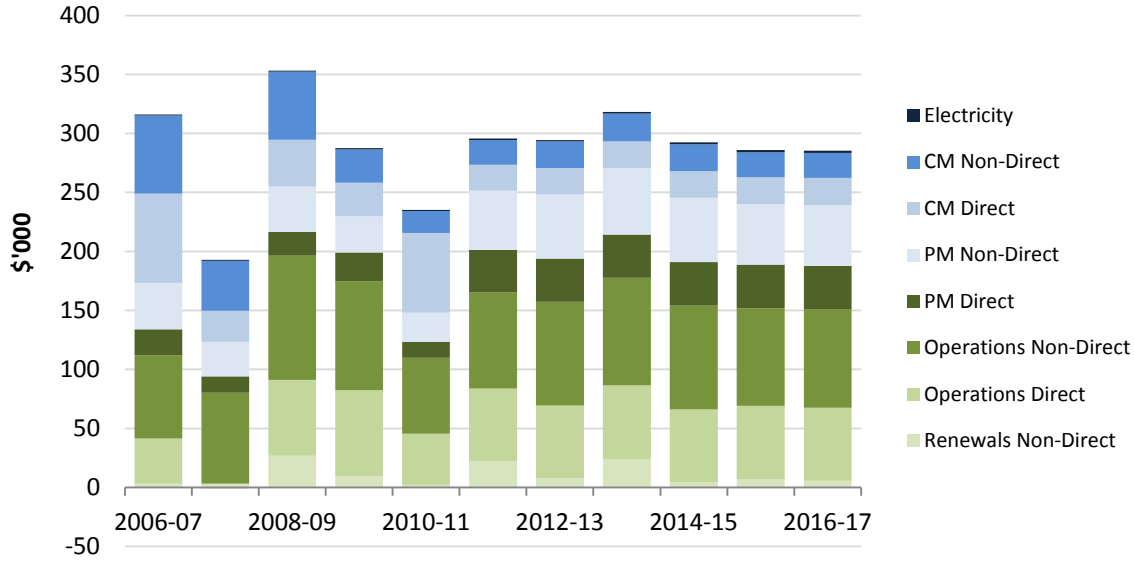
Figure 5.1: SunWater's Total Operating Costs (Real $'000) - All Service Contracts



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

Expenditure by activity in Lower Fitzroy WSS (all sectors) is shown in Figure 5.2 and Table 5.2 and Table 5.3.

Figure 5.2: Total Operating Costs – Lower Fitzroy 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	109	76	169	165	108	143	149	154	150	145	145
Electricity	1	1	1	1	1	1	1	2	2	2	2
Preventive Maintenance	61	43	59	55	38	86	91	93	91	88	89
Corrective Maintenance	142	69	97	57	86	43	45	46	45	44	44
Renewals Non-Direct	3	3	27	10	2	22	8	24	4	7	6
Total	**316**	**192**	**353**	**288**	**235**	**296**	**294**	**318**	**292**	**286**	**286**

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	73	43	82	76	48	83	84	84	84	84	84
Electricity	1	1	1	1	1	1	1	2	2	2	2
Contractors	17	3	6	10	60	10	10	10	11	11	11
Materials	35	-26	13	15	1	11	11	11	11	12	12
Other	11	19	23	24	15	16	15	16	15	16	16
Non-Direct	180	152	228	161	110	175	173	195	169	162	162
Total	**316**	**192**	**353**	**288**	**235**	**296**	**294**	**318**	**292**	**286**	**286**

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 $274,000 per year over the period of the current price path (in real terms). [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 2011-16 are $283,000 per annum (in real terms).

Other Stakeholders

G Hinchliffe, P Hinchliffe and G Farmer (2011) stated that various operating costs such as weed control could be contracted out to landholders to help recoup costs as it is a normal everyday activity which is undertaken by individuals and meters could be read and either phoned or emailed through to SunWater. SunWater could undertake a yearly audit to check on correctness of information that would save many inspections during the year.

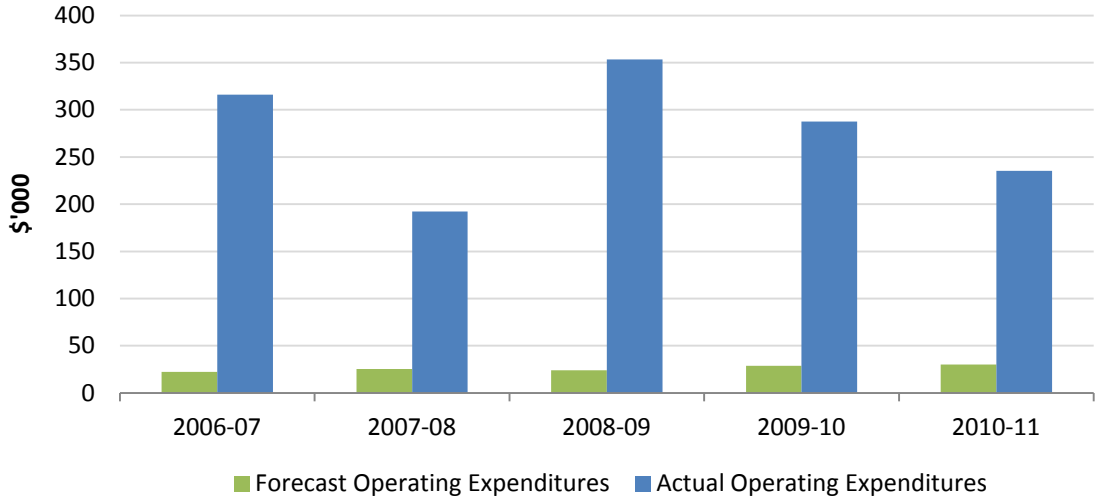
Authority's Analysis

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 Lower Fitzroy WSS is shown in Figure 5.3 below. For this scheme, SunWater's actual operating costs were greater than Indec's forecast efficient operating costs by approximately $1,254,000 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 adjust 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.

In response to stakeholder comments, the Authority notes that if landholders wish to assist with weed control and reading of the meters, it is a matter to discuss directly with Sun Water.

5.3 Non-Direct Costs

Introduction

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

Some specialist operations staff with expertise in key operational areas 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 5.3). SunWater's approach to the forecasting of non-direct operating expenditures is detailed in Volume 1.

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

SunWater proposed that 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 Lower Fitzroy WSS are in Table 5.4 below.

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
Lower Fitzroy	180	152	228	161	110	175	173	195	169	162	162

Source: SunWater (2011ap).

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

Other Stakeholders

No other stakeholders have commented on this matter.

Authority's Analysis

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

In seeking to establish prudency and efficiency, the Authority commissioned Deloitte Touche Tohmatsu (Deloitte) to review SunWater's non-direct costs. Deloitte carried out benchmarking to assess where potential efficiencies within SunWater may be achieved. Deloitte identified savings of $495,314 (in 2010-11 dollars) 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 (PV Water) and other Australian rural water service providers.

Deloitte noted that PV Water'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 approximately $297,189 relates to irrigation service contracts under SunWater's proposed cost allocation methodology). See Volume 1.

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

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

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

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

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

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

(b) the overhead component of the Infrastructure Development unit should be allocated (on the basis of DLC) to service contracts receiving services from that 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 Lower Fitzroy WSS (from all customers) is set out in Table 5.5 below. The allocation of these costs between high and medium priority customers is discussed below.

[7] For example, PVWater has 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 PV Water's estimated apportionments with SunWater, who have around 500 staff assigned to specific projects or centralised functions.

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

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
SunWater	180	152	228	161	110	175	173	195	169	162	162
Authority							168	187	160	150	148

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 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 below. These estimates reflect SunWater's most recent positions and differ from the NSP. The estimates also reflect the most recent information provided by SunWater to the Authority in October 2011.

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

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations	*38*	*-1*	*64*	*73*	*43*	*62*	*62*	*62*	*62*	*62*	*62*
Electricity	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*	*2*
Preventive Maintenance	*22*	*14*	*20*	*24*	*13*	*36*	*37*	*37*	*37*	*37*	*37*
Corrective Maintenance	*76*	*26*	*40*	*28*	*67*	*22*	*22*	*23*	*23*	*23*	*23*
Direct Operating Costs	***136***	***40***	***125***	***127***	***125***	***121***	***122***	***123***	***123***	***124***	***124***

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

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

Table 5.7: SunWater Direct Operating 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	*73*	*43*	*82*	*76*	*48*	*83*	*84*	*84*	*84*	*84*	*84*
Electricity	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*	*2*
Contractors	*17*	*3*	*6*	*10*	*60*	*10*	*10*	*10*	*11*	*11*	*11*
Materials	*35*	*-26*	*13*	*15*	*1*	*11*	*11*	*11*	*11*	*12*	*12*
Other	*11*	*19*	*23*	*24*	*15*	*16*	*15*	*16*	*15*	*16*	*16*
Direct Operating Costs	***136***	***40***	***125***	***127***	***125***	***121***	***122***	***123***	***123***	***124***	***124***

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 Halcrow to review the prudency and efficiency of SunWater's proposed direct operating expenditure for this scheme.

Halcrow (2011) noted that it sought to obtain detailed information to facilitate its assessment of prudency and efficiency. In particular, Halcrow sought to understand the basis for SunWater's expenditure forecasts, together with the key assumptions used in their development. Halcrow noted that while SunWater has provided information in response to the requests made, the data was insufficiently disaggregated to enable a detailed review of cost information. This limited Halcrow's ability to adequately assess the prudency and efficiency of the proposed 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.

Arup'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

Operational activities associated with the Lower Fitzroy Bulk WSS include releasing of water, reading meters, water quality monitoring, compliance reporting, site inspections and environmental management.

SunWater's proposed operations costs are set out in Table 5.6 above.

Other Stakeholders

No other stakeholders commented on this item.

Authority's Analysis

Consultant's Review

Halcrow noted that the ROP dictates the operation and management of Eden Bann Weir. Customers are not required to order water, and instead can take water directly from the river or from offtakes from the Stanwell Pipeline.

The Interim Resource Operations Licence (IROL) and the ROP list the volumetric and quality monitoring that SunWater is obligated to undertake. Monitoring the presence of Blue Green Algae is also undertaken as required.

A significant element of the operational activities undertaken on the scheme relates to collecting and reporting of data relating to water supply, the environment and safety. SunWater uses a range of systems to collect and report data in the required formats. Reporting requirements are identified in a number of documents and are summarised in the Scheme Operation Manual.

A breakdown of historical expenditure into key operations sub-activities is shown in Table 5.8 below. A similar breakdown for forecast expenditure has not been provided.

Table 5.8: Historical Operations Expenditure (Real $'000)

Sub-Activities	*2006-07*	*2007-08*	*2008-09*	*2009-10*
Customer Management	-	-	-	1
Workplace H&S	-	-	-	-
Environmental Management	16	20	40	18
Water Management	7	1	47	23
Scheme Management	40	31	49	85
Dam Safety	-	-	8	6
Schedule/Driver	44	23	18	23
Metering	-	1	7	8
Facility Management	-	-	-	-
Other	2	-	-	2
Total	**109**	**76**	**169**	**165**

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

As shown in Table 5.8 above, the key elements of operations expenditure relate to scheme management, water management, delivery of water and environmental management.

Table 5.9 below provides a breakdown of historical and forecast expenditure on operations at the Lower Fitzroy Bulk WSS.

Table 5.9: Historical and Forecast Operations Expenditure (Real $'000)

Type	*2006-07*	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Labour	30	16	43	47	44	44	45	45	45	45
Materials	(2)	(35)	0	3	1	1	1	1	1	1
Contactors	8	2	1	1	1	1	1	1	1	1
Other	2	16	21	22	15	15	15	15	15	15
Total Direct Costs	**38**	**(1)**	**64**	**73**	**60**	**60**	**61**	**62**	**62**	**61**
Indirects	37	24	58	42	35	37	43	51	45	38
Overheads	33	53	47	51	43	44	45	51	48	44
Total	**109**	**76**	**169**	**165**	**138**	**141**	**149**	**164#**	**154#**	**144**
Annual Change	-	(30%)	122%	(3%)	(16%)	2%	5%	10%	(6%)	(7%)
Change Since 2007	-	(30%)	56%	52%	27%	30%	37%	51%	41%	32%

Source: Halcrow (2011). Note (#) Minor differences in expenditure between this table and the NSP relates to indirects and overheads. Note: This table is based on SunWater's original NSP and may differ from more recent SunWater data.

SunWater stated that the negative expenditure on materials in 2007-08 related to a settlement error. The positive amount was allocated to the Stanwell pipeline. Further, SunWater noted that forecast expenditure is based on prior year costs, excluding the impact of such errors.

Halcrow stated that the key elements of SunWater's direct expenditure related to labour and other. Average expenditure on labour over 2006-07 to 2009-10 was $34,000, although expenditure in 2008-09 and 2009-10 was significantly greater than in 2006-07 and 2007-08. The forecast expenditure is in line with expenditure in 2008-09 and 2009-10. From the information provided to this review, it is not evident why expenditure on labour has fluctuated since 2006-07. A review of the storage volume at Eden Bann Weir indicated that storage volumes generally remained above 35,000ML over the period since 2006-07, with the exception of 2008-09, when storage fell to approximately 11,000ML. Consequently, Halcrow has been unable to verify the reason for the increase in labour expenditure on labour since 2006-07.

SunWater provided an extract of its resource planning tool used to develop labour forecasts for 2011-12. However, Halcrow has been able to confirm that the forecast labour expenditure has been built up using a bottom-up approach, by assessing the tasks required and the most efficient method of delivering the required work. The extract provided indicated that the direct labour charge for operations to the Lower Fitzroy Bulk WSS in 2011-12 is based on approximately 600 hours per annum for operations staff from the Central resource centre and the Asset Management resource centre. This accounts for approximately $33,000 per annum of the labour expenditure. This is equivalent to approximately 0.4 FTE staff working on operations. In order to assess whether this allowance is reasonable, more information is required on the reasons why labour hours have increased so significantly since 2006-07, particularly in light of the recent

organisational review to identify savings which resulted in the centralisation of services, and reductions to staff numbers.

Halcrow stated that labour hours and charges for Corporate Council, Strategy, Health & Safety and Services Delivery resource centres were not shown on the extract of the resource planning tool provided, but account for approximately $11,000 per annum of direct labour expenditure. Further, SunWater did not provide documentation detailing how this expenditure has been forecast.

Halcrow noted that the labour forecast includes real increases of 1.5% in 2011-12 and 2012-13, which is consistent with its Enterprise Agreement (of an increase of 4% nominal for 2011-12 and 2012-13). Labour is forecast to remain steady (in real terms) thereafter.

In addition, Halcrow noted that SunWater has forecast a reduction in other expenditure, to $15,000 in 2010-11, with expenditure forecasted to remain steady thereafter. SunWater noted that this is driven by a reduction in insurance costs due to the increase in asset value from other service contracts (the insurance premium calculation is based on the asset value for all SunWater assets). Insurance accounts for $12,000 per annum, whilst Local Authority rates account for $2,000. Halcrow noted that SunWater is required by law to pay Local Authority rates and Land Tax and therefore considered the expenditure is appropriate.

Conclusion

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

The Authority notes Halcrow's conclusion that more information is required to determine the reasons why labour hours increased significantly since 2006-07 but that other expenditure in relation to Local Authority rates and Land Taxis appropriate.

The Authority also notes that Halcrow did not recommend any adjustment to operations costs for this scheme.

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

On the basis of the consultants' reviews the Authority has not specifically adjusted SunWater's operations cost forecast.

Item 2: Preventive Maintenance

SunWater

SunWater defined preventive maintenance in its NSP 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;

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

Further, SunWater stated that 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 set out in Table 5.6 above.

Other Stakeholders

No other stakeholders commented on this item.

Authority's Analysis

Consultant's Review

A breakdown of SunWater's historical and forecast expenditure on preventive maintenance in the Lower Fitzroy WSS is provided in Table 5.10 below.

Table 5.10: Historical and Forecast Expenditure - Preventive Maintenance (Real $'000)

Type	*2006-07*	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Labour	17	11	16	16	27	27	28	28	28	28
Materials	3	1	4	-	4	4	4	4	4	4
Contractors	-	-	1	8	5	5	5	5	5	5
Other	2	1	-	-	-	-	-	-	-	-
Total Direct Costs	**22**	**14**	**20**	**24**	**36**	**36**	**37**	**37**	**37**	**37**
Indirects	21	17	21	14	22	23	27	28	26	24
Overheads	18	13	17	17	27	27	28	28	28	27
Total	**61**	**43**	**59**	**55**	**84**	**86**	**91**	**93**	**91**	**88**
Annual Change	-	(30%)	36%	(6%)	53%	3%	5%	2%	(2%)	(3%)
Change Since 2007	-	(30%)	(4%)	(10%)	37%	41%	48%	52%	49%	44%

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

As evident from Table 5.10 above, SunWater is forecasting a significant jump in preventive maintenance as compared to its historical expenditure. Of the direct expenditure, this is primarily driven by an increase in expenditure on labour and contractors.

Further, SunWater provided a breakdown of historical expenditure into condition monitoring, servicing and weed control, as shown in Table 5.11 below. While a similar breakdown has not been provided for forecast expenditure, the table shows the historical fluctuations in preventive maintenance activities.

Table 5.11: Preventive Maintenance (Real $'000)

Sub-Activity	*2006-07*	*2007-08*	*2008-09*	*2009-10*
Condition Monitoring	39	34	44	48
Servicing	23	9	13	4
Weed Control	-	-	2	3
Total	**61**	**43**	**59**	**55**

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

Halcrow noted that SunWater's preventive maintenance expenditure in 2006-07 is significantly greater than the expenditure in 2007-08 to 2009-10. Halcrow understood that the reason for this is the transfer of financial data into SunWater's revised Business Operating Model, which came into effect on 1 July 2008. This involved the reclassification of some activities, including some tasks previously coded as refurbishment projects to preventive maintenance codes.

Further, Halcrow understood that SunWater's condition monitoring and servicing forecast expenditure is primarily based on forecasts developed by PB, although it also includes allowances for additional servicing activities.

As part of the review undertaken by PB, it forecast expenditure of approximately $27,300 per annum ($2009-10 real) on condition monitoring and servicing for the coming price path period. This is equivalent to approximately $28,200 per annum ($2010-11 real), which excluded overhead and indirect costs. A review of the maintenance activities costed by PB indicated that some maintenance activities are associated with the Stanwell pipeline and pumping station. The expenditure associated with this is approximately $3,100 per annum ($2009-10 real), which is equivalent to approximately $3,200 per annum ($2010-11 real). As this expenditure does not relate to the irrigation scheme, it should be excluded from the forecast of expenditure. As the breakdown of forecast expenditure provided to this review splits out expenditure into labour, materials, contractors, rather than into condition monitoring, servicing and weed control, it has not been possible to confirm that the forecast appropriately excludes expenditure associated with the Stanwell pipeline and pumping station.

Halcrow is generally satisfied that the expenditure forecast developed by PB is based on appropriate drivers, taking into account both the nature and frequency of the activities to be undertaken. Excluding the expenditure associated with the Stanwell pipeline, the annual expenditure is approximately $25,000 per annum. However, Halcrow noted that this estimate is built up from SunWater's existing work instructions and its current approach to maintenance, which is yet to be optimised. Consequently, it is likely that there is scope to achieve efficiency savings in the delivery of servicing and condition monitoring activities. These savings are not currently reflected in the expenditure presented in the NSP.

Accounting for the forecast expenditure developed by PB, the remaining expenditure on preventive maintenance is approximately $11,000 per annum. Further, the forecast preventive maintenance expenditure also includes expenditure related to weed control, and "additional servicing, calibration and adjustment of equipment such as pumps, motors, regulator gates, meters and valves". SunWater has not provided any information on how it has forecast expenditure relating to these activities other than to note that it has been calculated from an average of prior years' expenditure.

The breakdown of expenditure provided by SunWater indicates an allowance of $5,000 per annum for contractors for the fish lock at Eden Bann Weir (maintenance of the fish lock is not included in the PB forecast expenditure). SunWater noted that this expenditure relates to crane hire (from Rockhampton), which is required to install the bulkhead gate to enable work on the fishlock. It noted that an excavator is also required from time to time to remove sand and silt blocking the entrance and exit to the lock. In addition, it includes $1,000 for chemicals and $3,000 for materials (construction). While the limited available information on this expenditure means that Halcrow is not able to comment in detail on its prudency or efficiency, the expenditure does not appear unreasonable.

Halcrow concluded that in the absence of justification for the remaining $2,000 per annum, an adjustment of the forecast preventive maintenance expenditure by this amount is proposed.

SunWater's Response

SunWater noted Halcrow's comments that it was unable to account for $2,000 in preventive maintenance, and that Halcrow recommended this be removed.

In response, SunWater submitted that, in reviewing its preventive maintenance activity costs, Halcrow 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 Halcrow took the PB costs and concluded that the residual relates to weed control.

Halcrow then looked to understand the basis of this residual and evaluate whether it was prudent and efficient. In some cases, Halcrow 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 Halcrow 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.

In addition, SunWater noted Halcrow's comments that preventive maintenance of some $3,000 was included for Stanwell Pipeline. This was removed by Halcrow.

In response, SunWater stated that it has reviewed the work instructions and costs, and has found some $9,104 that relates to the Stanwell Pipeline (more than the $3,100 found by PB), and accepts that this should be removed from the NSP costs for Lower Fitzroy.

Conclusion

In Volume 1, the Authority accepted the basis of Halcrow's adjustments to condition monitoring and services. Further, 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.

Notwithstanding SunWater's response, the Authority considers that the approach adopted by Halcrow is reasonable as efficiency at the activity level can only be determined by assessing efficiency at the sub-activity level. The Authority recognises that efficiencies can be gained by sharing labour between activities and schemes. However, an estimate of the costs of conducting an activity necessarily requires an assessment of the costs of the component sub-activities.

The Authority accepts Halcrow's recommendation to remove $2,000 of unjustified preventive maintenance expenditure. SunWater has not established the efficiency of this expenditure at the sub- or activity level. The Authority also accepts SunWater's amended figure in relation to forecast preventive maintenance to remove $9,104 related to the Stanwell Pipeline. However, the total amount ($9,104) is not included in recommendations for direct cost savings suggested in Volume 1 or in the draft pricing section below, only the $3,200 identified by Halcrow. The additional amount will be reflected in the final report.

Item 3: Corrective Maintenance

Stakeholder Submissions

SunWater

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

There are 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 also stated that a provision has been made for corrective maintenance based on past experience. This provision includes a portion of labour costs in the scheme for such events, as well as additional materials and plant hire.

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

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

Other Stakeholders

No other stakeholders commented on this item.

Authority's Analysis

Consultant's Review

A breakdown of historical and forecast expenditure on corrective maintenance is provided in Table 5.12 below.

Table 5.12: Corrective Maintenance Expenditure (Real $'000)

Type	*2006-07*	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Labour	26	16	23	14	11	11	11	11	11	11
Material	33	7	9	11	7	7	7	7	7	7
Contractors	9	2	4	1	4	4	4	4	4	4
Other	7	2	2	2	-	-	-	-	-	-
Total Direct Cost	**76**	**26**	**40**	**28**	**22**	**22**	**22**	**23**	**23**	**23**
Indirects	34	24	32	13	9	9	11	12	11	10
Overheads	32	19	26	16	11	11	12	12	12	12
Total	**142**	**69**	**97**	**57**	**42**	**43**	**45**	**46**	**45**	**44**
Annual Change	-	(52%)	42%	(42%)	(26%)	2%	5%	2%	(1%)	(3%)
Change Since 2007	-	(52%)	(31%)	(60%)	(70%)	(70%)	(68%)	(68%)	(68%)	(69%)

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

As evident from Table 5.12 above, expenditure on corrective maintenance has fluctuated over the period, with expenditure in the coming price path period forecast to be lower than the current price path.

SunWater's forecast expenditure is based on an average of the past four years (including 2010-11), excluding outliers. The forecast expenditure on labour and materials is lower than the four-year average.

SunWater did not provide Halcrow with the calculations in support of its forecast of corrective maintenance. However, a breakdown of the expenditure indicates labour charges of $11,000 which relate to staff from the SunWater's Central region. The materials expenditure includes $3,000 for heavy plant.

As part of the review, Halcrow obtained a breakdown of corrective maintenance work orders for the period 2008-09 to 2010-11 for Lower Fitzroy. The breakdown of work orders indicated expenditure is different to that that identified in Table 5.12 above. However, Halcrow understands this is because some work orders run over multiple years. The corrective maintenance activities undertaken include repairs to the fishlock, control equipment, meters and gates. In 2009-10, SunWater incurred approximately $47,000 ($ nominal) on flood repairs at the Eden Bann Weir.

Halcrow noted that it is very difficult to accurately forecast corrective maintenance expenditure. SunWater's approach, which uses historical expenditure to forecast expenditure, is commonly adopted by water utilities. This is an appropriate methodology for forecasting expenditure. However, it is also noted that SunWater has proposed an increase in preventive maintenance expenditure over the coming price path period. Halcrow noted that increases in preventive maintenance activities should ultimately result in a reduction in corrective maintenance, as asset reliability increases.

As shown in Table 5.13 below, expenditure on corrective maintenance has typically exceeded expenditure on preventive maintenance in the period to 2009-10, and SunWater is forecasting that this trend will continue in the period to 2015-16.

Table 5.13: Maintenance Expenditure (Real $'000)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Preventive Maintenance	22	14	20	24	36	36	37	37	37	37
Corrective Maintenance	76	69	97	57	42	43	45	46	45	44
Total Maintenance	**98**	**83**	**117**	**81**	**78**	**79**	**82**	**83**	**82**	**81**
Annual Change	-	(15%)	42%	(31%)	(5%)	2%	3%	1%	(1%)	(1%)
Change since 2007	-	(15%)	20%	(17%)	(21%)	(19%)	(16%)	(15%)	(16%)	(17%)
Preventive Maintenance	22%	17%	17%	30%	46%	46%	45%	44%	45%	46%
Corrective Maintenance	78%	83%	83%	70%	54%	54%	55%	56%	55%	54%

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

Halcrow noted that it is commonly accepted that there is an optimum mix of preventive and corrective maintenance. The optimum mix represents the most economical combination of preventive and corrective maintenance activities to achieve a desired set of outcomes. SunWater's proposed mix of preventive to corrective maintenance is approximately 45%:55% (corrective:preventive).

Whilst the predominance of assets in the scheme are long life civil infrastructure, there are a number of items of mechanical and electrical equipment which would be expected to have a relatively high component of preventive maintenance as compared to corrective maintenance. In Halcrow's experience, a reactive approach to maintenance, as demonstrated by the significant proportion of corrective maintenance, is much less likely to result in efficient maintenance outcomes. Consequently, there is likely to be scope for SunWater to optimise its proposed corrective and preventive maintenance programs. However, without undertaking a detailed review of SunWater's maintenance approach, Halcrow stated that it is not possible to quantify with any certainty what savings might be achieved.

SunWater's Response

SunWater noted that Halcrow stated corrective maintenance has not been optimised to take account of the changes to preventive maintenance.

In response, SunWater submitted that the PB review focussed on costing the preventive maintenance program as it exists. The PB review did not result in major changes to the historic preventive maintenance program.

Where the PB review resulted in changes to preventive maintenance costs from the past, this was due to more accurate and updated costing, rather than a change to the preventive maintenance program itself.

In some cases, additional condition monitoring is carried out (e.g. on storages after floods/pumping equipment if minor faults occur during the peak season). In some cases, an additional allowance was included as this condition monitoring was not in the scope of the work instructions reviewed by PB.

SunWater is progressively introducing condition-based maintenance rather than the previous time-based maintenance approach. The RCM process has started but will take some time to implement due to the number of assets involves. It would not be prudent to reduce the corrective maintenance costs at this time.

Any reductions to corrective maintenance as a result of this shift will also take some time to materialise, and any savings will be difficult to predict.

Conclusion

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 recommended that SunWater formally document its processes for the development of correct maintenance expenditure forecasts.

The Authority notes Halcrow's finding (not disputed by SunWater) that there may be scope to achieve efficiency in the optimisation of these programs but these efficiencies are yet to be quantified.

In the absence of any measure of the impact of the optimisation process, the Authority does not propose to apply any specific adjustments to this measure but intends to take this into account when considering the application of a general efficiency target (as outlined below).

Item 4: Electricity

Stakeholder Submissions

SunWater

SunWater submitted that the electricity cost for the bulk supply relates mainly to the operation of Eden Bann Weir.

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 (2011h).

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

SunWater's proposed electricity costs are set out in Table 5.6 above.

Other Stakeholders

No other stakeholders commented on this matter.

Authority Analysis

Consultant's Review

Halcrow stated that expenditure on electricity is immaterial, and has remained constant at approximately $1,000 per year over the historical period, as shown in Table 5.14 below. This represents less than 0.5% of total expenditure. SunWater indicated that the electricity cost relates mainly to the operation of Eden Bann Weir, which is the only key asset within the scheme.

Table 5.14: Electricity Expenditure (Real $'000)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Electricity	1	1	1	1	1	1	1	1	1	1
Annual Change	-	0%	0%	0%	0%	0%	0%	0%	0%	0%
Change Since 2007	-	0%	0%	0%	0%	0%	0%	0%	0%	0%

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

Halcrow noted that SunWater's forecasts of electricity have been developed on the basis that it will continue to procure energy from the Franchise market. SunWater indicated that Franchise Tariffs are reviewed on an annual basis to ensure that individual sites are on the most appropriate tariff. In addition, in the Background paper QCA review of irrigation prices – electricity costs, SunWater noted that it periodically assesses the merits of moving from the franchise tariffs to the contestable electricity market to ensure the costs of electricity are minimised. SunWater argued that the variable nature of power usage associated with the supply of irrigation water means that it is not feasible to purchase electricity from the contestable market. While Halcrow accepted that this is likely to be the case, these periodic assessments do not appear to be documented.

SunWater's Board has set a target to improve energy efficiency by 1% per annum for each of the next five years. However, SunWater indicated to Halcrow that it would be very difficult to measure savings of 1% given the relative accuracy of electricity and flow meters. Halcrow understands that the savings have not been incorporated into forecast expenditures.

SunWater has based its forecast of electricity for Lower Fitzroy WSS on its 2010-11 budgeted expenditure. The 2010-11 budget is based on actual expenditure in 2009-10 ($1,130 nominal), inflated by 13.29% to account for the increase in franchise tariffs. SunWater has forecast that expenditure on electricity will remain constant in real terms over the price path. Noting that the expenditure has remained steady in the period since 2006-07, Halcrow considered SunWater's forecast expenditure to be appropriate. Halcrow noted that electricity use in this scheme is typically stable year on year, and not material when compared to other elements of operating expenditure.

Conclusion

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

As 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 notes Halcrow's conclusion that SunWater's forecast electricity expenditure appears appropriate. However, the Authority has conducted a more detailed review of SunWater's electricity expenditure. The Authority's recommended electricity costs are set out below.

Item 5: 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.

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 Lower Fitzroy WSS is set out in Table 5.15.

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 5.15: Direct Operating Costs (Real $'000)

	SunWater					***Authority***				
	2012-13	***2013-14***	***2014-15***	***2015-16***	***2016-17***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Operations	62	62	62	62	62	60	60	60	60	61
Electricity	1	2	2	2	2	1	1	1	1	1
Preventive Maintenance	37	37	37	37	37	35	36	36	36	36
Corrective Maintenance	22	23	23	23	23	22	22	22	22	22
Total	**122**	**123**	**123**	**124**	**124**	118	119	119	120	120

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

5.5 Cost Allocation According to WAE Priority

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

Previous Review

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

Stakeholder Submissions

SunWater

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

Other Stakeholders

G Hinchliffe, P Hinchliffe and G Farmer (2011) stated that:

(a) the medium priority users are paying approximately 12.3% of the overall yearly operating costs averaged out over the past five years at $274,000. This seems unfair as they only hold approximately 10.8% of the water available, of which theirs is only medium priority; and

(b) they subsidise Stanwell Power Station's maintenance costs toward SunWater. As the Weir was solely put there for Stanwell's use the stakeholders considered that Stanwell

should maintain the structure, as irrigators would not be affected if the Weir was not there.

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

In response to stakeholder comments, the Authority notes that:

(a) the Authority is unable to review past operating costs and how they were allocated. However, total revenue paid by irrigators in 2010-11 is about $34,000 (3,101ML at $10.88/ML for the Part A charge). This represents about 12% of operating costs, as suggested by stakeholders; and

(b) the Authority's proposed revised cost allocation approach will allocate a greater proportion of operating costs to high priority users than previously. Under the revised approach, irrigators share of total operating costs is about 10.4%.

5.6 Summary of Operating Costs

SunWater's proposed operating costs by activity and type are set out in Table 5.16. The Authority's recommended operating costs are set out in Table 5.17.

Table 5.16: SunWater's Proposed Operating Costs for Activity by Type (Real $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operation					
Labour	45	45	45	45	45
Materials	1	1	1	1	1
Contractors	1	1	1	1	1
Other	15	16	15	16	16
Non-Direct	88	91	88	83	83
Preventive Maintenance					
Labour	28	28	28	28	28
Materials	4	4	4	4	4
Contractors	5	5	5	5	5
Other	0	0	0	0	0
Non-Direct	54	56	55	51	52
Corrective Maintenance					
Labour	11	11	11	11	11
Materials	7	7	7	7	7
Contractors	4	4	4	4	4
Other	0	0	0	0	0
Non-Direct	23	23	23	21	21
Electricity	1	2	2	2	2
Total	**287**	**294**	**288**	**279**	**280**

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

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operation					
Labour	43	44	44	44	45
Materials	0	1	1	1	1
Contractors	1	1	1	1	1
Other	15	15	15	15	15
Non-Direct	86	87	83	77	76
Preventive Maintenance					
Labour	27	27	27	27	28
Materials	3	4	4	4	4
Contractors	5	5	5	5	5
Other	0	0	0	0	0
Non-Direct	53	54	51	48	47
Corrective Maintenance					
Labour	11	11	11	11	11
Materials	7	7	7	7	7
Contractors	4	4	4	4	4
Other	0	0	0	0	0
Non-Direct	22	22	21	20	20
Electricity	1	1	1	1	1
Total	**279**	**283**	**275**	**264**	**263**

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 the consumer price index (CPI). Interim prices in 2011-12 were increased by CPI with additional increases in some schemes.

For this scheme, prices over 2006-11 increased by an average of $1.84/ML per annum plus CPI to achieve lower bound costs in 2010-11. In 2011-12, prices in this scheme 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 Lower Fitzroy 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 Lower Fitzroy 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	313	188	327	278	326	319	333	339	334	324	325
Renewals Annuity	0	0	0	0	93	46	46	45	46	45	45
Operating Costs	313	189	326	278	233	273	287	294	288	279	280
Revenue Offsets	0	-1	0	0	0	0	0	0	0	0	0
Authority's Total Costs	-	-	-	-	-	-	328	331	324	311	311
Renewals Annuity	-	-	-	-	-	-	49	48	48	47	47
Operating Costs	-	-	-	-	-	-	279	283	275	264	263
Revenue Offsets	-	-	-	-	-	-	0	0	0	0	0
Return on Working Capital	-	-	-	-	-	-	0	0	0	0	0

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

6.4 Fixed and Variable Costs

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

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

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

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

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

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

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

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

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

For Lower Fitzroy WSS, Indec recommended 92% of costs should be fixed and 8% variable under optimal management. The Authority notes that this ratio differs from the current tariff structure which reflects the recovery of 100% of costs in the fixed charge.

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

6.5 Allocation of Costs According to WAE Priority

Fixed Costs

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

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

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Net Fixed Costs	302	304	298	286	286
High Priority	259	261	255	245	245
Medium Priority	30	30	29	28	28
Distribution Losses	13	14	13	13	13

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 69.9% 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 6.1: Medium Priority Prices for the Lower Fitzroy WSS ($/ML)

	Actual Prices						***Cost Reflective Prices***				
	2006-07	***2007-08***	***2008-09***	***2009-10***	***2010-11***	***2011-12***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Fixed (Part A)	0.26	2.92	5.84	8.88	10.88	11.28	9.57	9.81	10.06	10.31	10.57
Volumetric (Part B)	0.00	0.00	0.00	0.00	0.00	0.00	1.31	1.34	1.38	1.41	1.45

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 this scheme, 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 revenues in real terms for the 2012-17 regulatory period.

Table 6.2: 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*					
River	11.43	-	3,101	137	35,447	29,868	5,579

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 Lower Fitzroy WSS for 2012-17 are outlined in Table 6.5, together with actual prices since 2006-07. In calculating the recommended prices, a 10-year average irrigation water use has been adopted (see Volume 1).

Table 6.5: Draft Medium Priority Prices for the Lower Fitzroy WSS ($/ML)

	Actual Prices						*Recommended Prices*				
	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Fixed (Part A)	0.26	2.92	5.84	8.88	10.88	11.28	11.40	11.68	11.97	12.27	12.58
Volumetric (Part B)	0.00	0.00	0.00	0.00	0.00	0.00	1.31	1.34	1.38	1.41	1.45

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

6.9 Impact of Recommended Prices

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

REFERENCES

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

Arthur Andersen. (1997).

ARUP. (2011). Review of SunWater's Network Service Plans - Cluster 4 Final Report. A Consultancy Report Prepared for the Queensland Competition Authority, July.

Aurecon. (2011). Review of SunWater's Network Service Plans Bundaberg Cluster Final Report. A Consultancy Report Prepared for the Queensland Competition Authority, August..

Australian Bureau of Statistics (ABS). (2011a). Engineering Construction Activity, Australia., cat. no. 8762. Canberra: Australian Bureau of Statistics.

Australian Bureau of Statistics (ABS). (2011b). Labour Price Index, cat. no. 6345. Canberra: Australian Bureau of Statistics.

Australian Bureau of Statistics (ABS). (2011c). Producer Price Index, cat. no. 6427. Canberra: Australian Bureau of Statistics.

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

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

Australian Competition and Consumers Commission (ACCC). (2011). Pricing Principles for Price Approvals and Determinations Under the Water Charge (Infrastructure) Rules 2010. Canberra: Commonwealth of Australia.

Australian Energy Regulator (AER). (2007). Decision: Powerlink Queensland Transmission Network Revenue Cap 2007-08 to 2011-12, Canberra: Commonwealth of Australia.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Cardno. (2008). Asset Valuation: Final Report. A Consultancy Report Prepared for SunWater, June.

Cardno-Atkins. (2008). 2008 Review of Water Prices - Assessment of Expenditure Forecasts for Southern Rural Water: Final Report. A Consultancy Report Prepared for Essential Services Commission (ESC), March.

Cardno-Atkins. (2009). Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation 2009: Final. A Consultancy Report Prepared for the Independent Pricing and Regulatory Tribunal of New South Wales (IPART), November.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Department of Environment and Resource Management (DERM). (2000). Interim Resource Operations License: Burdekin Irrigation Area. Brisbane: Department of Environment and Resource Management.

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

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

Deloitte. (2011b). SunWater Working Capital Allowance. A Consultancy Report Prepared for the Queensland Competition Authority, August..

Deloitte. (2011c). Operations Benchmarking Phase 1: SunWater and PV Water. A Consultancy Report Prepared for the Queensland Competition Authority, August.

Deloitte. (2011d). Forecast Growth in Labour Costs: Update of December 2010 Report. A Report Prepared for Australian Energy Regulator.

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

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

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

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

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

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

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

Ernst and Young. (1997). SCARM Water Industry Asset Valuation Study - Draft Guidelines on Determining Full Cost Recovery, August.

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

Essential Services Commission (ESC). (2009). Metropolitan Melbourne Water Price Review 2008-09: Final Decision, June.

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

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

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

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

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

Frontier Economics. (2005). Review of Pricing Policies: A Report Prepared for Goulburn Murray Water, March.

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

GHD. (2001). State Water Projects Distribution System Efficiency Review: Burdekin Irrigation Area. A Consultancy Report Prepared for the Department of Natural Resources.

GHD. (2009). Review of WHS Hazard Reduction Project Schedule Close-off Report, November.

GHD. (2011). Review of SunWater's Network Service Plans: Toowoomba Cluster - Operational and Capital Expenditure - Final Report. A Consultancy Report Prepared for the Queensland Competition Authority, August..

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

Goulburn-Murray Water (GMW). (2009). Goulburn-Murray Water: Water Services Committee Charter, September.

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

Halcrow. (2005). 2005 Review of Rural Water Prices Assessment of Expenditure Forecasts: Goulburn-Murray Water. A Consultancy Report Prepared for the Essential Services Commission, December.

Halcrow. (2011). SunWater - Biloela Water Supply Schemes ("Cluster 3"): Review of Price Paths 2011-2016. A Consultancy Report Prepared for the Queensland Competition Authority, June.

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

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

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

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

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

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

INDEC. (20111c). Qualitative Framework and Assessment of Fixed and Variable Cost Drivers A Consultancy Report Prepared for the Queensland Competition Authority, October.

INDEC. (2011d). SunWater Water Supply Schemes 2012-2017 Price Paths: Analysis of SunWater's 2006-07 to 2010-11 Renewals Expenditure Forecasts. A Consultancy Report Prepared for the Queensland Competition Authority, October.

INDEC. (2011e). SunWater Irrigation Pricing Data Forecasts 2003-11. Excel Spreadsheets Prepared for the Queensland Competition Authority.

INDEC. (2011e). SunWater Refurbishment and Augmentation Cash Spend Details. Excel Spreadsheets Prepared for the Queensland Competition Authority.

Independent Pricing and Regulatory Tribunal (IPART). (2004). Bulk Water Prices 2005-06 - Issues Paper, September.

Independent Pricing and Regulatory Tribunal (IPART). (2006). Bulk Water Prices for State Water Corporation and Water Administration Corporation, September.

Independent Pricing and Regulatory Tribunal (IPART). (2009a). Review of Prices for the Sydney Catchment Authority From 1 July 2009 to 20 June 2012; Water - Determination and Final Report, June.

Independent Pricing and Regulatory Tribunal (IPART). (2009b). Review of Prices for Water, Sewerage and Other Services for Hunter Water Corporation: Determination and Final Report, July.

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

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

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

InterSafe Group Pty Ltd. (2005). Report on High Risk Management Plan: SunWater Operations & Maintenance - Mareeba Works - Far North Queensland, July.

InterSafe Group Pty Ltd. (2007). Report on SunWater Ayr Region Sampled Focussed Recall, October.

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

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

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

Kavanagh, G. (2011). Submission re: Irrigation Prices for SunWater 2011-16, June.

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

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

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

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

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

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

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

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

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

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

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

MacroMonitor (2010) Australian Construction Cost Trends 2010. Viewed on 19 October 2010. http://www.macromonitor.com.au/index_files/Pages570.htm.

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

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

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

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

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

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

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

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

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

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

National Water Commission (NWC). (2009a). Australian Water Reform: Second Biennial Assessment of Progress in Implementation of the National Water Initiative. Canberra: Australian Government.

National Water Commission (NWC). (2009b). National Performance Report: Rural Water Performance Reporting Indicators and Definitions 2008-09. Canberra: Australian Government.

National Water Commission (NWC). (2010). National Performance Report 2008-09: Rural Water Service Providers. Canberra: Australian Government.

National Water Commission (NWC). (2011). National Performance Report 2009-10: Rural Water Service Providers. Canberra: Australian Government.

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

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

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

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

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

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

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

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

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

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

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

Pioneer Valley Water Co-Operative Limited (PVWCL). (2011d). Review of Irrigation Water Pricing in SunWater Schemes: Comments on SunWater Response to PVWater Submission, June.

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

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

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

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

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

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

Queensland Competition Authority (QCA). (2004). Draft Report on General Pricing Principles for Infrastructure Investments Made in Response to Exraordinary Circumstances.

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

Queensland Competition Authority (QCA). (2007). Final Decision: Advice to the Minister for Mines and Energy - Benchmark Retail Cost Index for Electricity: 2005-07 and 2007-08, June.

Queensland Competition Authority (QCA). (2009). Remade Final Decision: 2008-09 Benchmark Retail Retail Cost Index, June.

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

Queensland Competition Authority (QCA) (2010b). QR Network's 2010 DAU: Final Decision, September.

Queensland Competition Authority (QCA) (2010c). Final Decision: Benchmark Retail Retail Cost Index for Electricity: 2010-11, May.

Queensland Competition Authority (QCA). (2011a). South East Queensland (SEQ) Interim Price Monitoring for 2010-11, March.

Queensland Competition Authority (QCA). (2011b). South East Queensland (SEQ) Grid Service Charges 2011-12, July.

Queensland Competition Authority (QCA) (2011c). Final Decision: Benchmark Retail Retail Cost Index for Electricity: 2011-12, May.

Queensland Competition Authority (QCA) (2011d). Approval of QR Network's Revenue Cap Adjustment Amounts 2009-10, April.

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

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

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

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

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

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

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

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

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

Southern Rural Water (SRW). (2007a). Customer-Charter: Water Supply, Version 5, August.

Southern Rural Water (SRW). (2007b). Southern Rural Water: Water Plan 2008-13.

Sinclair Knight Merz (SKM). (2000).

Sinclair Knight Merz (SKM). (2011).

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

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

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

State Water. (2008). 2008-12 Customer Service Charter Terms of Reference.

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

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

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

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

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

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

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

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

SunWater. (2006d). Statewide Irrigation Pricing Working Group: Tier 1 Report - Working Paper No. 18 (Water Entitlement Pricing Conversion Factors). Brisbane: SunWater Limited.

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

SunWater. (2008). SunWater Annual Report 2007-08. Brisbane: SunWater Limited.

SunWater. (2009). SunWater Annual Report 2008-09. Brisbane: SunWater Limited

SunWater. (2010a). QCA Review of Irrigation Prices: Public Submission Letter, May.

SunWater. (2010b). QCA Review of Irrigation Prices: Service Framework Background Paper. Brisbane, May.

SunWater. (2010c). QCA Review of Irrigation Prices: Contributed Assets Background Paper, May.

SunWater. (2010d). QCA Review of Irrigation Prices: Headworks Utilisation Factors Technical Report, September.

SunWater. (2010e). QCA Review of Irrigation Prices: Bulk Water Asset Valuation, October.

SunWater. (2010f). QCA Review of Irrigation Prices: Asset Management Planning Methodology Paper, October.

SunWater. (2010g). SunWater Annual Report 2009-10. Brisbane: SunWater Limited.

SunWater. (2010h). QCA Review of Irrigation Prices: Return of Capital Renewals or Depreciation, October.

SunWater. (2011). Lower Fitzroy Water Supply Scheme Network Service Plan, January.

SunWater. (2011a). QCA Review of Irrigation Prices: Centralised Costs Background Paper, January.

SunWater. (2011b). QCA Review of Irrigation Prices: Cost Forecasting Assumptions Background Paper, January.

SunWater. (2011c). QCA Review of Irrigation Prices: Renewals Annuity Background Paper, January.

SunWater. (2011d). QCA Review of Irrigation Prices: Pricing Principles and Tariff Structures January.

SunWater. (2011e). QCA Review of Irrigation Prices: Form of Regulation, January.

SunWater. (2011f). QCA Review of Irrigation Prices: Review and Adjustment Triggers Supplementary Information, February.

SunWater. (2011g). QCA Review of Irrigation Prices: Allocation of Centralised Costs Supplementary Information, February.

SunWater. (2011h). QCA Review of Irrigation Prices: Electricity Costs Background Paper, February.

SunWater. (2011i). QCA Review of Irrigation Prices: Water Distribution Entitlements Supplementary Information, February.

SunWater. (2011j). QCA Review of Irrigation Prices: Bulk Water Price Differentiation Supplementary Submission, February.

SunWater. (2011k). QCA Review of Irrigation Prices: Customer Involvement in Renewals Expenditure Supplementary Background Paper, February.

SunWater. (2011l). QCA Review of Irrigation Prices: Weighted Average Cost of Capital - Renewals Annuity Background Paper, February.

SunWater. (2011m). QCA Review of Irrigation Prices: Pumping Cost Reconciliation, February.

SunWater. (2011n). QCA Review of Irrigation Prices: WAE Reconciliation, February.

SunWater. (2011o). QCA Review of Irrigation Prices: Storage Rental Fees, March.

SunWater. (2011p). QCA Review of Irrigation Prices: Pricing of Distribution Losses, March.

SunWater. (2011q). QCA Review of Irrigation Prices: Estimated Flood Damage Letter, March.

SunWater. (2011r). QCA Review of Irrigation Prices: Metering and Price Model Letter, March.

SunWater. (2011s). QCA Review of Irrigation Prices: Tariff Groupings, March.

SunWater. (2011t). QCA Review of Irrigation Prices: Revenue Analysis, March.

SunWater. (2011u). QCA Review of Irrigation Prices: Electricity - Actual vs 2006 IPR Forecast, March.

SunWater. (2011v). QCA Review of Irrigation Prices: Water Harvesting Usage Summary, April.

SunWater. (2011w). QCA Review of Irrigation Prices: Headworks Utilisation Factors, Critical Periods and Bulk Water Supply Capital Cost Allocatoon, April.

SunWater. (2011x). QCA Review of Irrigation Prices: Headworks Utilisation Factors, Combined Technical Paper and Addendum, May.

SunWater. (2011y). QCA Review of Irrigation Prices: Service Delivery Strategies, May.

SunWater. (2011z). QCA Review of Irrigation Prices: Service Delivery Paper, May.

SunWater. (2011aa). QCA Review of Irrigation Prices: Drainage Data, April.

SunWater. (2011ab). QCA Review of Irrigation Prices: Response to Pioneer Valley Water Board Submission on the Pioneer River Water Supply Scheme - Network Services Plan, May.

SunWater. (2011ac). QCA Review of Irrigation Prices: Administration Costs for Bundaberg Groundwater, June.

SunWater. (2011ad). QCA Review of Irrigation Prices: Supplementary Information on Electricity Cost Management, Background Paper, August.

SunWater. (2011ae). QCA Review of Irrigation Prices: Intersafe, August.

SunWater. (2011af). QCA Review of Irrigation Prices: SunWater Analysis of Working Capital, August.

SunWater. (2011ag). QCA Review of Irrigation Prices: SunWater Submission on Deloitte Administration Cost Review Stage 2 Report, August.

SunWater. (2011ah). QCA Review of Irrigation Prices: SunWater Submission on Drainage Charges, February.

SunWater. (2011ai). QCA Review of Irrigation Prices: Background Paper on the Treatment of Costs Related to Inflatable Rubber Dams, September.

SunWater. (2011aj). QCA Review of Irrigation Prices: Supplementary Information on Response to issues - operating costs forecasts, September.

SunWater. (2011ak). QCA Review of Irrigation Prices: Background Paper on Electricity Cost Re-Forecast, September.

SunWater. (2011al). SunWater Published Water Prices 2005-06 to 2011-12, PDF files submitted by SunWater to the Queensland Competition Authority.

SunWater. (2011am). SunWater Irrigation Pricing Model.

SunWater. (2011an). SunWater Annuity Expenditures 2007-11 for all 30 Irrigation Service Contracts. Excel Spreadsheet Submitted by SunWater to the Queensland Competition Authority.

SunWater. (2011ao). SunWater Financial Model. Excel Spreadsheet Submitted by SunWater to the Queensland Competition Authority.

SunWater. (2011ap). SunWater Operating Expenditures and Renewals 2007-11. Excel Spreadsheet Submitted by SunWater to the Queensland Competition Authority.

SunWater. (2011aq). QCA Review of Irrigation Prices: Background Paper on Expenditure Update Changed Regulatory Period, September.

Sydney Catchment Authority (SCA). (2010). Sydney Catchment Authority Annual Report 2009-10. Sydney: Sydney Catchment Authority.

Synergies Economic Consulting. (2010). Rural Water Pricing Business and Scheme Overview. A Consultancy Report to the Queensland Competition Authority, January.

Tableland Canegrowers Ltd and Mareeba District Fruit and Vegetable Growers Association Inc. (TCL abd MDFVGA). (2010a). Submission re: Key Issues on Irrigation Prices for Mareeba-Dimbulah Water Supply Scheme, July.

Tableland Canegrowers Ltd and Mareeba District Fruit and Vegetable Growers Association Inc (TCL and MDFCGA). (2010b). Submission re: Tiered Pricing, August.

Tanner, J., & Tanner, S. (2011). Submission re: Irrigation Prices fro SunWater Schemes 2011-16, May.

Thomas, W. A. (2011). Submission re: Principles Relevant to Recovering Long-Run Average Costs of SunWater Schemes, April.

Voss, A. (2011). Submission re: Irrigation Prices for SunWater Schemes 2011-16, April.

Water Act 2000 (Qld).

Water Act 2007, No. 137 (Cwlth).

Water Charge (Infrastructure) Rules (Cwlth).

Water Industry Regulatory Order 2003.

Water Regulation 2002 (Qld).

Water Supply (Safety and Reliability) Act 2008 (Qld).

Workplace Health and Safety Act 1995.

Weir, T. (2010). Submission re: Irrigation Prices for SunWater Schemes 2011-16, July.

World Wildlife Fund (WWF). (2010). Submission re: Irrigatiion Prices for SunWater Schemes 2011-16, May.

APPENDIX A: FUTURE RENEWALS LIST

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

Asset	*Year*	*Description*	*Value ($'000)*
Eden Bann Weir	2011-12	Refurbishment of handrails, platforms and stairways.	29
		12LFZXX CONSTRUCT CONC BOAT RAMP EBAN	12
		Design/modify, fabricate and install solid plate covers to fishlock valve pits to prevent ingress of flood deposits	12
	2012-13	13LFZ-Refurb F'Lock Fill&Drn Valves-EDEN	24
	2013-14	14LFZ-Refurb Outlet Works Metalwork-Eden	14
	2015-16	10LFZ04-Refurb Outlet Works Screen-EDEN	27
	2016-17	Change Out Fish Trap - replace or rebuild fish trap as required	12
	2021-22	Refurbish Joints - replace filler if required(brougth forward from $40K in 2004)	49
		10LFZ04-Refurb Outlet Works Screen-EDEN	27
		Refurbish Baulks - paint & seals (CAP Item 4.2)	12
		12LFZ-Install Anodes to Outlet Gate-EDEN	10
	2022-23	Replace Hydraulic System	283
	2023-24	Replace Buoyed Warning Cable	28
	2024-25	Refurbishment of handrails, platforms and stairways.	30
	2025-26	Replace Control Equipment	102
	2026-27	14LFZ-Refurb Outlet Works Metalwork-Eden	12
	2027-28	10LFZ04-Refurb Outlet Works Screen-EDEN	27
		13LFZ-Refurb F'Lock Fill&Drn Valves-EDEN	24
	2030-31	Replace Cables	144
		Replace Cableways And Pits	29
		Replace Switchboard And Control	26
	2031-32	Provide erosion control below slab on left abutment *	24
		12LFZ-Install Anodes to Outlet Gate-EDEN	10
	2033-34	10LFZ04-Refurb Outlet Works Screen-EDEN	27
	2034-35	Replace Valve, 450Mm Butf	12
	2035-36	Refurbish Culvert - protection works, stabilise structure, cover etc as required	18
		11LFZXX GRADE ACCESS ROAD	18
Lower Fitzroy River Distrib Scheme		Replace Recorder Building	35
	2013-14	Undertake facility review	31
	2014-15	Enhancement: Signage of Confined Space labelling and restricted areas	12
	2022-23	Enhancement: Signage of Confined Space labelling and restricted areas	12
	2030-31	Enhancement: Signage of Confined Space labelling and restricted areas	12