QUEENSLAND COMPETITION AUTHORITY

Draft Report

SunWater
Irrigation Price Review: 2012-17
Volume 2
Dawson Valley Water Supply Scheme

November 2011

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SUBMISSIONS

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

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

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

Confidentiality

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

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

Public access to submissions

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

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

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GLOSSARY

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

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 Dawson Valley WSS for the 2012-17 regulatory period are outlined in Tables 1 and 2 together with actual prices since 1 July 2006.

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.

Table 1: Prices for the Dawson Valley WSS ($/ML)

	Actual Prices						***Recommended***				
	2006-07	***2007-08***	***2008-09***	***2009-10***	***2010-11***	***2011-12***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
River											
Fixed (Part A)	9.16	9.44	9.88	10.20	10.48	10.88	16.09	16.49	16.90	17.33	17.76
Volumetric (Part B)	9.23	9.50	9.96	10.27	10.58	10.96	1.63	1.67	1.71	1.75	1.80
River – at Glebe Weir											
Fixed (Part A)	0.00	2.60	5.44	8.40	10.48	10.88	14.36	14.72	15.08	15.46	15.85
Volumetric (Part B)	6.24	6.47	6.84	7.11	7.40	7.66	1.63	1.67	1.71	1.75	1.80

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

Table 2: Termination Fees ($/ML)

	Actual Prices				*Recommended Prices*				
	2008-09	***2009-10***	***2010-11***	***2011-12***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Dawson River to Dawson River at Glebe Weir	39.75	15.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: nd means no data. Source: Actual Prices (SunWater, 2011am) and Recommended Prices (QCA, 2011).

1. DAWSON VALLEY WATER SUPPLY SCHEME

1.1 Scheme Description

The Dawson Valley water supply scheme (WSS) is located near the town of Theodore. An overview of the key characteristics of this WSS is provided in Table 1.1.

Table 1.1: Key Scheme Information for the Dawson Valley WSS

	Dawson Valley WSS
Business Centre	Biloela
Irrigation uses of water	Cotton, fodder, cereal, wheat, barley, oats, maize, mung beans, soybeans, sunflowers, sorghum and peanuts.
Urban Water Supplies	Townships of Theodore, Moura, Baralaba and Duaringa
Industrial uses	Coal mines, ammonium nitrate plants and a gold mining venture.

Source: Synergies Economic Consulting (2010).

The Dawson Valley WSS has a total of 146 bulk customers (some of whom are also customers of the Theodore Distribution which draws its supply from Dawson Valley). Medium and high priority water access entitlements (WAE) are outlined in Table 1.2.

Table 1.2: Water Access Entitlements

Customer Group	***Irrigation WAE (ML)***	***Total WAE (ML)***
Medium Priority	52,366	56,358
High Priority	20	5,579
Total	**52,386**	**61,937**

Source: SunWater (2011am).

SunWater advised that the 20 ML of high priority WAE for irrigation in Dawson is for stock and domestic supply. It is held in small lots of 1ML (except for one lot of 6 ML) and is covered by the minimum charge arrangements. SunWater has not made a separate Tariff for this group.

1.2 Bulk Water Infrastructure

Bulk water services involve the management of storages and WAEs in accordance with the 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 is detailed in Table 1.3.

Table 1.3: Bulk Water Service Infrastructure in the Dawson Valley WSS

Storage Infrastructure	*Capacity (ML)*	*Age (years)*
Glebe Weir	17,700	40
Gyranda Weir	16,500	24
Orange Creek Weir	6,780	79
Theodore Weir	4,760	81
Moura Offstream Storage	2,820	12
Moura Weir	7,700	65
Neville Hewitt Weir	11,300	35

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

The characteristics of the bulk water assets are:

(a) Glebe Weir is a concrete and steel sheet pile structure which was built in 1971;

(b) Gyranda Weir is a cascading steel sheet pile structure which was built in 1987. The weir gates are controlled remotely from the Theodore service centre. The Weir also includes a nearby anabranch[1] weir;

(c) Orange Creek Weir is a concrete reinforced timber piled structure which was built in 1932. It was modified after the 1983-84 floods and refurbished in 2005. Releases are made by overtopping the weir. The Weir includes a nearby anabranch weir;

(d) Theodore Weir is a timber piled structure which was built in 1930. It was reinforced with concrete in 1984 and refurbished in 2001. The Weir requires further upgrade. It incorporates a timber pile anabranch weir;

(e) Moura Offstream Storage is a referrable dam. It was built to supplement the Moura Weir pond. The structure was completed in 1999 with a storage capacity of 2,820 ML. The Storage includes a pump station comprising two 86 ML/day submersible pumps;

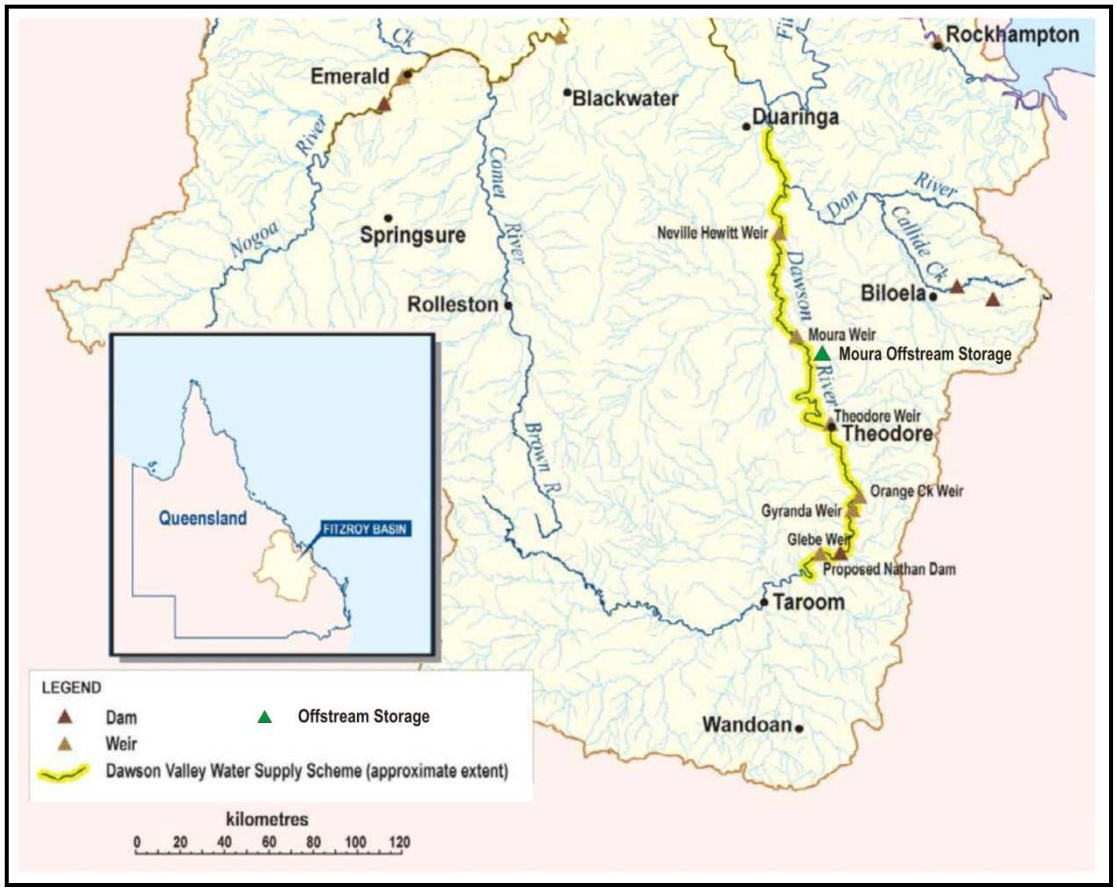
(f) Moura Weir is a timber structure incorporating a bridge and was built in 1946. In 1984, the bridge was decommissioned, the crest was raised and the weir was reinforced with steel piling and concrete buttresses. It was refurbished and raised by a further 300mm in 2000 to store extra water for the Woorabinda Aboriginal Shire Council. The Weir incorporates a fishway; and

(g) Neville Hewitt Weir is a concrete structure which was completed in 1976. It is filled from the Dawson River and Mimosa Creek. The Weir supplies water for the town of Baralaba, the Benleith Rural Water Supply Area and river irrigators from the upper limits of the weir storage to the downstream end of the Bookburra Waterhole over a length of 74 km (SunWater, 2011).

[1] An anabranch is a section of a river or stream that diverts from the main channel or stem of the watercourse and rejoins the main stem downstream. Local anabranches can be the result of small islands in the watercourse. In larger anabranches, the flow can diverge for a distance of several kilometres before rejoining the main channel. The anabranch weir is designed to capture the water in the anabranch.

The location of the Dawson Valley WSS and key infrastructure is shown in Figure 1.1.

Figure 1.1: Dawson Valley WSS Locality Map



Source: SunWater (2011).

1.3 Network Service Plans

The Dawson Valley WSS network services plan (NSP) presents SunWater's:

(a) existing service standards;

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

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

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

1.4 Consultation

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

(a) invited submissions from interested parties;

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

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

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

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

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

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

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

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

2. REGULATORY FRAMEWORK

2.1 Introduction

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

During the negotiations that preceded the 2006-11 price path, the Dawson Valley WSS Tier 2 group indicated that they were in favour of retaining the existing price cap regulatory arrangement. In the 2011-12 interim price period, the price cap arrangement was continued.

2.2 Stakeholder Submission

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 Dawson Valley WSS:

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

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

(c) the possible removal of regulated electricity tariffs which could have a significant impact on the cost of electricity;

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

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

(f) outbreak of noxious weeds.

Other Stakeholders

During Round 1 consultation in May 2010, stakeholders submitted that there is a need to take into account any impact on SunWater's incentives to supply water.

2.3 Authority's Analysis

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

Table 2.1: Summary of Risks, Allocation and Authority's Recommended Response

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

Source: QCA (2011).

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

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

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

In response to comments made by stakeholders during Round 1 consultation, the Authority notes that under the prevailing legislative framework and contractual arrangements, SunWater has an obligation to supply existing customers with water under the announced allocation (consistent with the terms and conditions of the specified level of service agreement). The standard supply contract between SunWater and its customers attributes risk to WAE holders.

That is, this contract requires SunWater to supply water to its customers to satisfy customer requirements when there is sufficient level of water availability. SunWater is allowed under Section 12.1(d) of the standard supply contract to suspend or restrict releases of water due to force majeure, including drought.

In managing this risk, the Authority proposes that volume risk be addressed through a tariff structure that recovers all fixed costs through fixed charges based on the WAEs and variable costs through the volumetric charges. Other efficiency implications are addressed further in the following chapter.

3. PRICING FRAMEWORK

3.1 Tariff Structure

Introduction

During the 2005-06 price negotiations, it was generally agreed to adopt a 70:30 ratio of fixed costs to variable costs. However, due to the prevailing Government policy that there should be no real price decreases, the Dawson River Part A fixed charge was set at 62% and Part B variable charge at 38% of revenue. Dawson River Part A and Part B charges were held constant (in real terms) during the previous price path.

For the other tariff group – Dawson River at Glebe Weir[2] – in 2005-06 the Part B tariff generated 100% of scheme revenues. Over the previous price path, the Part A charge was increased to achieve lower bound cost recovery in 2010-11, at which point the Part A charge in both tariff groups was the same. Thus, the Part A charge in the Dawson River at Glebe Weir tariff was set to recover 70% of revenue in year five of the price path, with the Part B charge to recover the remaining 30% of revenue.

Stakeholder Submissions

SunWater

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

Other Stakeholders

Dawson Valley Irrigators Group (DVIG) (2010) submitted that when establishing tariff structures, all revenue streams must be taken into account. The scheme information document refers only to revenue derived from Part A and Part B Charges. Other revenue streams received by SunWater in the Dawson Valley include: drainage diversion licences; infrastructure land leases; drainage charges; storage rental charge; transfer adjustment fees; exit fees; delivery of High Priority water; distribution losses allocation sales; and seasonal assignment of SunWater allocation.

DVIG (2010) also submitted that the two-part tariff structure adopted in the Dawson Valley WSS includes a Part A that reflects SunWater's fixed costs and a Part B that represents the cost of SunWater's water delivery. They further submitted that with the age of the Dawson Valley WSS, the Part B charge is the only driver for SunWater to deliver the water efficiently and that a lower Part A and higher Part B charge would encourage SunWater to operate the scheme more efficiently.

During Round 1 consultation in May 2010, stakeholders submitted that the tariff structure needs to account for high and medium priority users.

During Round 2 consultation in April 2011, stakeholders submitted that variable costs are recovered by SunWater regardless of the level of efficiency of water delivery and that electricity costs need to correlate with water use.

[2] The Dawson River at Glebe Weir tariff group relates to three irrigators with 1,160ML of WAE, pumping directly from the Glebe Weir pondage area (see section 3.4).

Authority's Analysis

The Authority has, in Volume 1, analysed the tariff structure and the efficiency implications of the tariff structure, to apply to SunWater's schemes. All revenue streams have been taken into account (see also the Draft Prices chapter).

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.

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

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

Table 3.1: Permanent and Temporary Water Traded (ML)

	2002-03	*2003-04*	*2004-05*	*2005-06*	*2006-07*	*2007-08*	*2008-09*	*2009-10*
Permanent water traded	375	0	678	1,385	287	390	340	0
Temporary water traded	2,788	7,950	7,125	7,324	9,925	4,829	6,711	10,493

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

In response to DVIG, the Authority specifically addresses drainage diversion charges, drainage charges, storage rental fees, exit [termination] fees, high priority water and distribution loss WAE.

In response to DVIG's submission and customer consultation that a lower Part A tariff and a high Part B tariff should be used to provide SunWater with an incentive to be efficient, the Authority notes that:

(a) an adjusted price cap provides SunWater with an incentive to reduce costs at least until revenues are reset in the future;

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

(c) to increase the volumetric component above variable costs would impose volume risks that SunWater is not able to manage. In response to this, SunWater may seek to reduce costs at the scheme level unnecessarily when viewed against a desired level of service.

The Authority has assessed the prudency and efficiency of SunWater's proposed costs. Having regard to the centralisation of many of the costs of service delivery by SunWater, organisation-wide efficiency targets, if considered necessary, would seem more appropriate –

and would provide SunWater with the maximum flexibility necessary to achieve such cost savings. The nature of the cost savings considered relevant is addressed further below.

The Authority notes that pricing implications for high and medium priority water are also discussed in later chapters.

3.2 Termination (Exit) Fees

Introduction

SunWater usually charges termination fees when a distribution system WAE is permanently transferred to the river. However, in some bulk services, such as in Dawson Valley WSS, termination fees have applied when a WAE is transferred from a relatively higher cost bulk tariff group to a relatively lower cost bulk tariff group.

Up until 2010-11, termination fees were charged for sales from the Dawson River to the Dawson River at Glebe Weir.

Authority's Analysis

In Volume 1, the Authority noted that the purpose of a termination fee is to ensure that a customer's departure does not result in a financial cost to SunWater or remaining customers. Further, it should provide an incentive to SunWater to reduce costs following a customer's departure.

The same rationale also applies to the transfer of WAE between bulk tariff groups where there is a price difference. If WAE exited a higher cost bulk tariff group to a lower cost bulk tariff group then SunWater would either not recover its fixed costs, or the higher cost tariff group would need to increase, if a termination fee did not apply. Consequently, the Authority recommends that a termination fee may apply between bulk tariff groups, if there is a difference between the tariffs.

During the 2006-11 price paths the Part A tariff for the Glebe Weir tariff group transitioned upwards to align with Part A tariff for the Dawson River. Therefore, from 2010-11 onwards there was no difference between the part A tariffs, and therefore, no termination fee. Table 3.2 refers.

Table 3.2: Dawson River to Dawson River at Glebe Weir Termination Fees ($/ML)

	Actual Prices				***Recommended Prices***				
	2008-09	***2009-10***	***2010-11***	***2011-12***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Termination Fee (Nominal $/ML)	39.75	15.44	0	0	Nil	Nil	Nil	Nil	Nil
Change from previous year (%)		-61.2%	-100%	0%					

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

The Authority has recommended the same cost-reflective tariffs for both Dawson WSS tariff groups therefore no termination fee applies in this scheme.

3.3 Water Use Forecasts

Introduction

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

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

For the Dawson Valley WSS, SunWater (2006b) assumed a water usage forecast of 60% of WAE in the river system. Water usage for high and medium priority irrigation WAE were not separately identified (SunWater, 2006b).

Stakeholder Submissions

SunWater

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

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

SunWater's usage forecasts for 2012-17 are made having regard to historic averages over a seven-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.

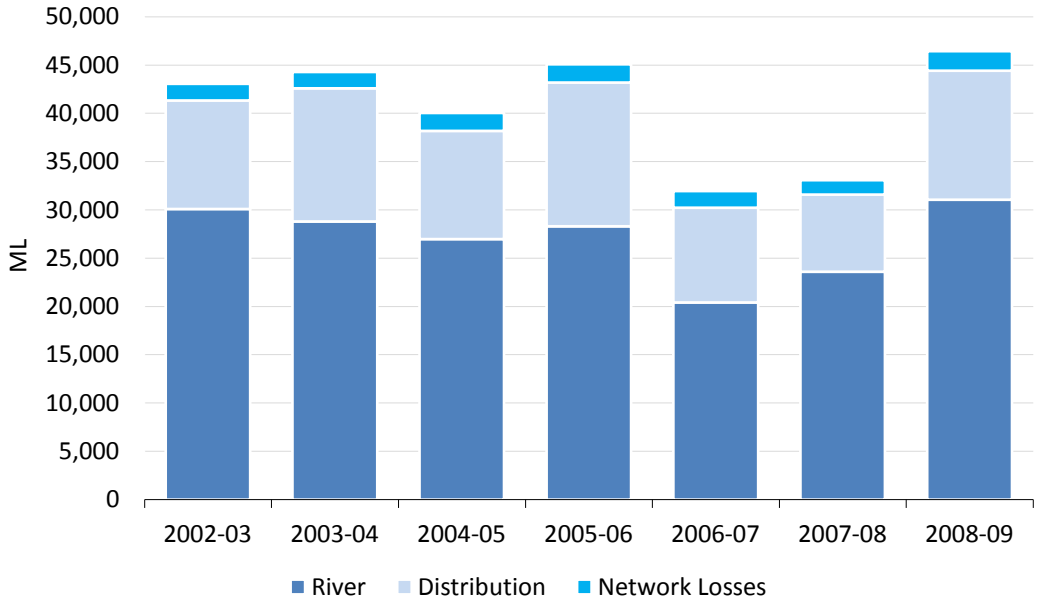
Based on the last seven years observations, SunWater forecast use as follows:

(a) at a whole scheme level (all sectors) – an average of 66% of total WAE; and

(b) for the irrigation sector only – an average of 68% of irrigation WAE. This compares with the use assumption adopted in the 2006 price paths of 60% of WAE.

Figure 3.1 shows the historic usage information for the Dawson Valley WSS submitted by SunWater (2011). The river category includes all irrigation and other usage sourced from the river. Distribution volumes refer to irrigation use only.

Figure 3.1: Water Usage for the Dawson Valley WSS



Source: SunWater (2011).

Other Stakeholders

During Round 1 consultation in May 2010, irrigators submitted that:

(a) the timing of SunWater's irrigation water releases often does not coincide with the time water is most required for cotton crops;

(b) the conversion of medium reliability water to high reliability water and associated conversion factors needs to be addressed; and

(c) the Authority's review is being undertaken prior to the finalisation of ROP and Water Allocation and Management Plan (WAMP) which will impact future water allocations and availability.

However, DVIG (2010) submitted that the water use forecast has recently been established through reliability forecasts from ROP, Water Resource Plan (WRP) and Integrated Quality and Quantity Model (IQQM).

DVIG (2010) also stated that the water use data published on the Authority's website for the Dawson scheme description are strongly disputed.

Stakeholders, during the Round 2 consultation in April 2011, submitted that SunWater promised delivery of 1,000 ML of water per year but only delivered 500 ML. Thus, they need a more accurate prediction of its water delivery.

P and B McLellan (2011) submitted that after the Neville Hewitt Weir was built, water from the scheme was oversold leading to nil allocations in the dryer times.

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).

In relation to the concern that the timing of SunWater's irrigation water releases often does not coincide with the time water is most required for cotton crops, the Authority notes that SunWater releases water within the ROP rules. Moreover, SunWater cannot influence water availability (including timing of water release) in the short term in that it cannot influence rainfall or hydrology, which are two main variables contributing to water availability.

The Authority is unable to comment in regard to hydrological matters such as the conversion of medium reliability water to high reliability water and associated conversion factors, the level of announced allocations, the reliability of SunWater's forecasts and the impact on supply reliability of additional allocations released with the completion of Neville Hewitt Weir. The pricing implications of costs for higher and medium priority customers are, however, addressed. Such matters are relevant to DERM for consideration in the finalisation of the Fitzroy Basin ROP.

The Authority's notes that its review is being undertaken prior to the finalisation of ROP and WAMP which will impact future water allocations and availability.

3.4 Tariff Groups

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

The previous SunWater Irrigation Price Paths Final Report (SunWater, 2006b) nominated two tariff groups for the river segment of the Dawson Valley WSS:

(a) River; and

(b) River – at Glebe Weir.

The Glebe Weir tariff group relates to three irrigators with 1,160ML of WAE, pumping directly from the Glebe Weir pondage area.

In the previous price path, costs were not differentiated between these two groups. Glebe Weir prices were transitioned to lower bound cost recovery in 2010-11. Dawson River prices were above lower bound and maintained in real terms.

Stakeholder Submissions

SunWater

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

SunWater advised that the lower tariff for the Glebe Weir irrigators is a legacy arrangement whereby customers upstream of Glebe Weir, that is, sourcing water from the Glebe Weir pondage, pay slightly lower charges on the basis that water is often not available at their foot valves after releases from the Weir are made for downstream users.

SunWater submitted that there is no case for differentiating costs in supplying water to the upstream Glebe Weir customers as opposed to customers downstream who pay the base Dawson River charge. SunWater has not forecast separate costs for this group.

Other Stakeholders

During Round 1 consultation in May 2010, stakeholders submitted that there is a need to consider implications for different parts of the scheme (i.e. between the upper and lower Dawson Valley).

Authority's Analysis

In accordance with the Ministerial Direction, the Authority must adopt the proposed tariff groups for this WSS.

In reviewing the history of the Glebe Weir price arrangements, the Authority found that, prior to 2005-06, the upstream Glebe Weir customers' tariff comprised only a Part B volumetric charge that was 30% less than the Dawson River Part B charge. Before 1999-00, the Part B charge was 60% less than the Dawson River Part B charge.

In the 2006-11 review, it was decided that a full Part A charge would be introduced on a transitional basis over the five-year period so that the upstream Glebe Weir customers now pay the same Part A charge as Dawson River users. While the 30% discount on the Part B charge remains in place this arose as Dawson River prices were above lower bound and required to be maintained in real terms.

The Authority notes SunWater's view that there is no cost differential in providing services to Glebe Weir irrigators. Thus, under cost-reflective pricing, there would be no difference in prices.

However, it is accepted that the level of service may differ for weir irrigators and those downstream. However, it is difficult to quantify and there are likely to be both positives and negatives in being a weir irrigator. When weir levels are low, irrigators from the weir may be unable to access water as easily as downstream irrigators and they may need to equip pumps to manage varying water levels. However, they have reduced pumping costs when the weir is full.

The Authority notes that there are no other examples among SunWater schemes where irrigators from pondage areas have a lower charge. In addition, irrigators can temporarily trade their WAE even when they cannot access it.

The Authority considers there is no basis to differentiate costs between Dawson River and Glebe Weir irrigators, and has proceeded on the basis that the scheme has a single cost category.

However, as the Direction requires above lower bound prices to be maintained in real terms and this may maintain legacy price differentials.

The Authority notes that any adjustments to tariffs to reflect service quality can be negotiated between SunWater and the irrigators concerned.

3.5 Storage Rental Fees

Introduction

Storage rental (carry-over) fees are charged in the Dawson Valley WSS. The original intent of these fees was to provide disincentives for irrigators to carry over water when they do not intend to use the water in the future, as the collective amount of carry-over available is capped by the ROP.

Previous Review

The previous review did not review storage rental fees but did require that the expected revenue from these fees be used as revenue offset.

In 2010-11 the storage rental fee for the Dawson Valley WSS was $2.30 per ML and the average annual revenue between 2005-06 and 2009-10 was $8,000. In 2011-12, the fee was rolled forward to $2.38 per ML.

Stakeholder Submissions

SunWater

For the three schemes (Dawson Valley, Callide Valley and Nogoa-Mackenzie) with storage rental fees, SunWater submitted that it assumed [if the proposed tariff structure reforms are adopted by the Authority] that storage rental fees would no longer apply. However, SunWater indicated that it is not opposed to a charge for a storage rental should the Authority recommend the continuation of this approach. SunWater's (2011o) submission on storage rental fees and carry over water is analysed in more detail in the Volume 1.

Other Stakeholders

During Round 2 consultation in April 2011, stakeholders queried whether the carry-over charge will continue into the 2012-17 regulatory period.

Authority's Analysis

The Authority has, in Volume 1, proposed to accept SunWater's proposal to cease charging storage rental fees. The Authority considers that a cost-reflective tariff structure with high fixed costs will signal the costs of holding a WAE and provides sufficient incentive to minimise the carry-over of water. The cost of delivering carry-over water will be met by the Part B variable tariff for bulk water.

Essentially, therefore, there will be no revenues from this source to be taken into account.

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.

Stakeholder Submissions

DVIG (2010) noted that the current price path is based on a renewals annuity approach which growers support as it has worked well.

Issues

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

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

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

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

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

(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 Dawson Valley WSS at 1 July 2006 (including the Theodore Distribution System) was $2,920,000. Excluding the Theodore Distribution System, SunWater submitted that the opening balance for Dawson Valley WSS at 1 July 2006 was $1,086,000.

In creating its opening ARR balances for 2006-11, SunWater sought to identify if any of the unbundled balances appeared to be spurious. SunWater considered that the Dawson Valley WSS unbundled ARR as at 30 June 2006 to be inappropriate and subjectively adjusted the balance by $800,000.

SunWater transferred $800,000 from the distribution system to the bulk service contract on the basis that not doing so would result in excess accrued funds in the distribution system ARR.

Indec (2011c) considered that the adjustments should be rejected on the grounds that they were not consistent with the general methodology adopted by SunWater for unbundling bulk and distribution tariffs and introduced an unacceptable degree of subjectivity.

The Authority notes that SunWater has sought to transfer funds not required for foreseeable future renewals expenditures in distribution systems to bulk schemes. The Authority considers that such a transfer is inappropriate. Rather, such surplus funds should be returned to the contributing customers unless they wish to maintain those funds in the ARR for future contingencies.

The Authority recommends an unbundled opening ARR balance for Dawson Valley (excluding the Theodore Distribution System) of $1,886,000, compared to SunWater's $1,086,000.

In October 2011, Indec advised that it had uncovered actual renewals expenditure for 2000-06. The Authority has not been able to review this information or quality assure it for the purposes of the Draft Report, but intends to do so for the Final Report.

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 Dawson Valley WSS for 2007-11 (Table 4.1) in real terms as at 2010-11. This expenditure included indirect and overhead costs which are subject to a separate review by the Authority (see Chapter 5 – Operating Costs). SunWater advised that it was unable to provide the forecast renewals expenditure (approved for the 2005-06 review) for this period.

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

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

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*
Past (Actual) Renewals Expenditure	149	142	103	131	275

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

Other Stakeholders

During Round 2 consultation in April 2011, stakeholders submitted that:

(a) budget on renewals such as fences are Board-approved but are a massive overspend and need some justification from SunWater;

(b) irrigators do not fully understand what SunWater does with unspent budget for renewals; and

(c) the benchmarking needs more water utilities for comparison.

DVIG (2010) submitted that past investment decisions for maintenance and upgrade of very old Dawson scheme assets have resulted in poor functioning of the scheme.

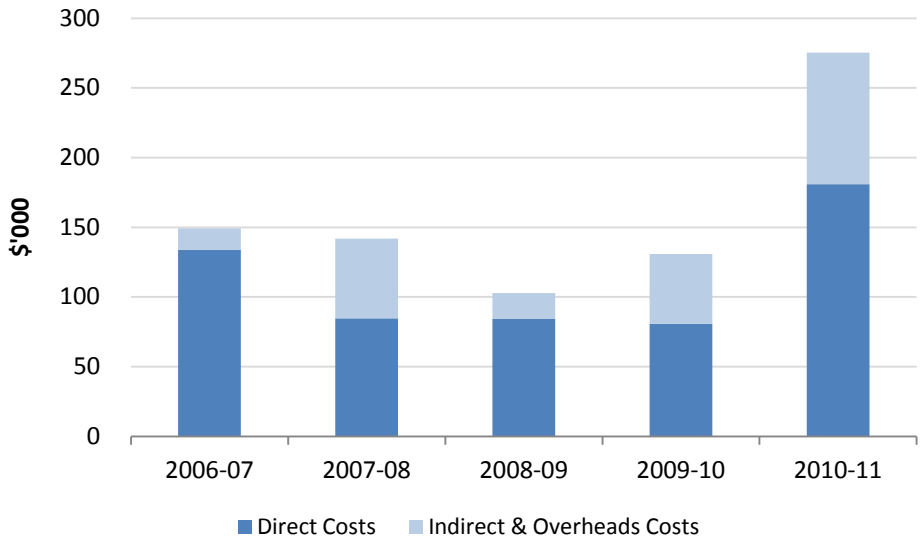
B McLellan (2011) stated that they were told that once the weir was paid for the irrigators would not be charged anymore.

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)



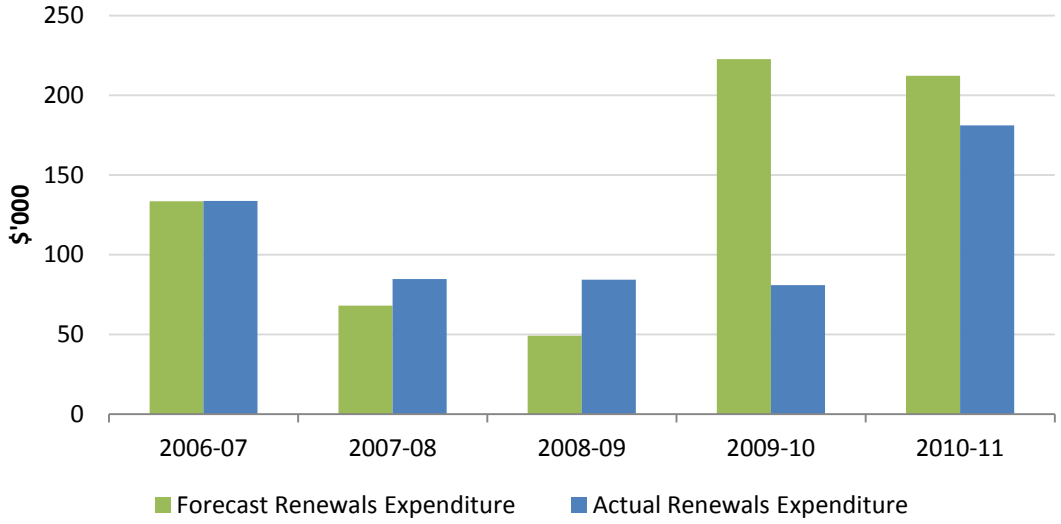
Note: The estimates reflect the most recent information provided by SunWater to the Authority in September 2011. Source: SunWater (2011an).

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 Dawson Valley 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 $120,873 (direct costs) below that forecast over the period.

Notwithstanding this, the Authority notes that in 2009-10, there was unplanned expenditure to repair flood damage at Neville Hewitt Weir costing $36,313 (nominal, total costs, including indirect).

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 (at the time of Halcrow's review), Halcrow sought to identify variances between annually budgeted and actual expenditure for certain items.

From the information available, Halcrow stated that most items were delivered at or below budgeted expenditure, although some items exceeded the original Board approved budget, or were not originally budgeted. Further, Halcrow noted that based on the item title description and available overview information in respect of the structures involved, the expenditure does not appear excessive.

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

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

In regard to additional stakeholder comments raised above:

(a) SunWater's unspent annuities budget is retained in the reserve for the scheme and can be used to offset future refurbishment or replacement costs;

(b) past investment decisions that have consequences for the poor functioning of the scheme should be addressed by SunWater. The Authority's role is limited to assessing the prudency and efficiency of the last five years of expenditure, as well as forward looking expenditure; and

(c) under lower bound pricing, irrigators are required to meet the cost of upkeep of the scheme and to maintain operations. Hence, to the extent there was any capital contribution by irrigators, this does not offset ongoing operating and maintenance costs.

4.4 Opening ARR Balance (at 1 July 2012)

SunWater indicated that the renewals opening ARR balance as at 1 July 2011 was $1,687,000 for the Dawson Valley 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, and the proposed methodology for unbundling ARR balances, the recommended opening ARR balance for 1 July 2011 for Dawson Valley is $3,137,000.

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

(a) adopting the opening balance as at 1 July 2006 (backing out SunWater's subjective adjustment as per section 4.2);

(b) adding 2006-2011 renewals annuity revenue;

(c) subtracting 2006-2011 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 $3,228,000, 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 Dawson Valley 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*
Dawson River Distribution	4	-	-	-	24
Glebe Weir	9	-	-	-	-
Gyranda Weir	12	12	93	-	-
Moss Pump Station	12	12	-	105	46
Moura Offstream Storage	48	-	87	21	-
Moura Weir	-	-	10	14	18
Neville Hewitt Weir	33	-	10	-	-
Orange Creek Weir	-	136	-	-	-
Theodore Weir	-	-	-	12	-
Total	**118**	**160**	**199**	**153**	**89**

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

The major items incorporated in the above estimates are:

(a) Gyranda Weir – replacement of electric actuators at an estimated cost of $83,000 in 2013-14; and

(b) Moura Offstream Storage (MOSS) – repairs at an estimated cost of $87,000 in 2013-14. This involves restoring the rock mattress at the spillway and re-profiling the spillway slope.

The major expenditure items from 2016-17 are:

(a) replace outlet gates and strengthen downstream protection works at Moura Weir at an estimated cost of $260,000 in 2016-17;

(b) replace outlet valve at Glebe Weir at an estimated cost of $209,000 in 2016-17;

(c) replace hydraulic system and part refurbishment of fishway at an estimated cost of $446,000 in 2020-21;

(d) replace control equipment at Neville Hewitt Weir at an estimated cost of $333,000 in 2030-31;

(e) replace Theodore Anabranch Weir at an estimated cost of $642,000 in 2033-34; and

(f) replace control equipment at Moss Pump Station and Moura Weir at an estimated cost of $434,000 in 2035-36.

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

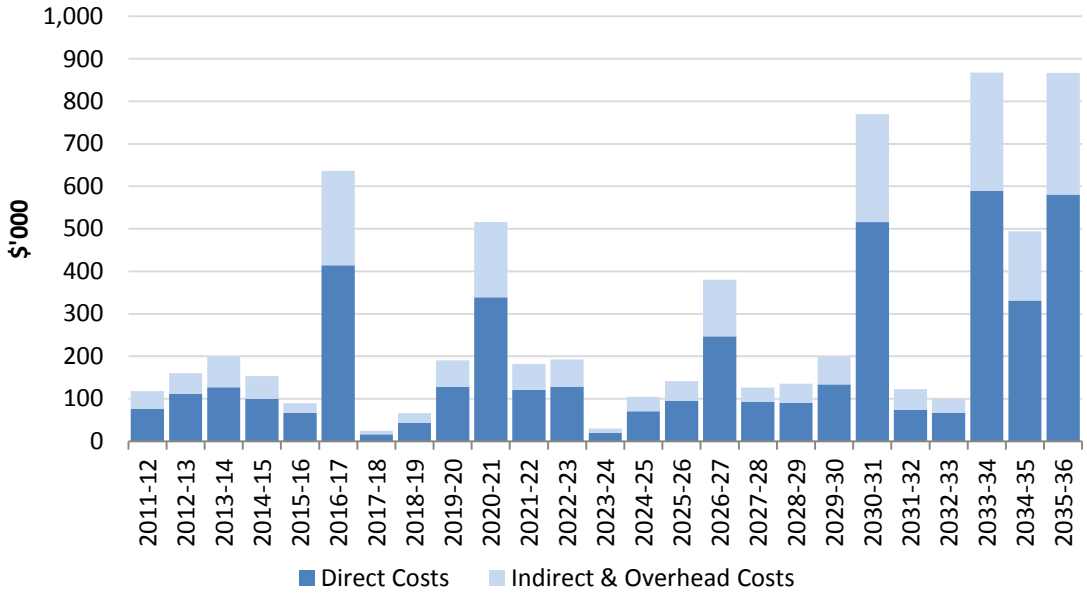
During Round 1 consultation in May 2010, stakeholders stated that they were concerned about the age of existing assets, the cost of replacing existing assets, upgrades to meet new dam safety and environmental requirements, and the allocation of these costs to customers.

Authority's Analysis

Total Costs

SunWater's proposed renewals expenditure for 2011-36 for the Dawson Valley 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 review 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).

In response to stakeholder submissions, the Authority notes that it engaged consultants to review the prudency and efficiency of a sample of SunWater's proposed renewals items.

Further, expenditure related to compliance with new dam safety legislation and environmental requirements are considered prudent, however, the expenditure must be demonstrated to be efficient.

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: LBD/1 - Gyranda Weir – Refurbish Gate1: Seals, Guides, Corrosion and Actuator

SunWater

This item is planned for 2011-12 at a cost of $12,000 ($8,000 direct costs). It involves the refurbishment of Gate 1 which is scheduled to reoccur on a 10-yearly basis.

Gyranda Weir is a cascading steel sheet pile structure built in 1987. The Weir has a three-level inlet tower. The first inlet has a 900 x 900mm sluice gate (Gate 1) with invert level at RL 156.32 m AHD, the second a 1060 x 1060 sluice gate with invert level at RL 153.14m AHD and the third a 1500 x 1500 sluice gate with invert level at 150.08m AHD. The outlet is a 1600 x 1600 mm box culvert.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Halcrow noted that there are three Gates, each of which is scheduled to be refurbished every 10 years, however Gates 2 and 3 are scheduled on a +/- five-year cycle to Gate 1. Gates 2 and 3

are scheduled to be serviced in 2016-17 ($16,000 direct cost for both gates) and every 10 years after that.

Halcrow stated that no information was provided to explain why refurbishment of the gates has been staggered in this way, although it may be for operational reasons (e.g. ability to maintain flow control at all times). Halcrow also noted that the condition assessment of Gates 2 and 3, undertaken in 2008-09, indicated minor defects only. This assessment is slightly better than the condition assessment of Gate 1, recorded in 2007-08. (However, Halcrow did not specifically recommend a change in timing of this renewals item.)

Halcrow considered that the expenditure to refurbish the gates was considered to be prudent. However, Halcrow noted that there may be some benefit in aligning the refurbishment of Gates 1, 2 and 3 so that they occur in the same year, provided there are no operational limitations to do so.

Halcrow also considered that the direct cost of $8,000 per gate for full refurbishment to be of the right order and therefore efficient.

Authority's Analysis

The Authority accepts Halcrow's recommendation that the item is both prudent and efficient.

Item 2: LBD/2 - Gyranda Weir – Replace Electric Actuator – Iq20F Rotork

SunWater

This renewals item is planned for 2013-14 at a cost of $55,000 ($35,000 direct costs). It is scheduled to reoccur on a fifteen yearly basis.

The Iq20F Rotork electric actuator forms part of the Gyranda Weir gate control. The actuator has been in operation since October 1999 and has been assigned a life of 15 years.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Halcrow stated that an asset condition assessment was undertaken in 2009 which recorded a minor defect for the operation of the actuator. Halcrow noted that a comment was recorded within the Systems, Applications and Products (SAP) Works Management System (WMS) indicating that a small leak exists when the gate is closed. The actuator was recorded to have used between 50 and 75% of its refurbished life.

Halcrow considered that the expenditure was prudent, given that the remaining life correlates broadly to the proposed replacement timing.

In the absence of further details, Halcrow deemed the forecast cost to be efficient, particularly taking into account access to the inlet tower.

Authority's Analysis

The Authority accepts Halcrow's recommendation that the item is both prudent and efficient.

Item 3: Moura Off-stream Storage (MOSS) Pump Station – LBD/3 10DVA05 - Refurbish PUN2

SunWater

This renewals item is scheduled for 2015-16 at a cost of $46,000 ($38,000 direct). It is scheduled to reoccur every six years thereafter.

The MOSS Pump Station has been in operation since 1999. The pump station contains two pumps. The pump has an asset life of 30 years and is scheduled to be replaced in 2028-29.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Halcrow noted that a condition assessment undertaken in October 2009 found that the pump exhibited minor defects only. Further, Halcrow stated that this condition assessment was undertaken following refurbishment in August 2009 at a total cost of $31,229 (including indirect and overhead costs).

Based on the information provided, Halcrow considered that the forecast expenditure is prudent.

However, Halcrow considered that the proposed expenditure of $38,000 (direct costs) appears high when compared to the total cost of the refurbishment of the pump in 2008-09 of $31,229. Based on historic costs, Halcrow recommended an allowance of $30,000 (direct costs) to undertake the required works. This equates to an $8,000 reduction in direct costs in 2015-16.

Authority's Analysis

The Authority accepts Halcrow's recommendation that the item is prudent and that the cost for the item should be adjusted to reflect the efficient cost of $30,000 (direct costs).

Item 4: MOSS – LBD/4 - Repairs to Spillway Return Slopes and Batters

SunWater

This renewals item is scheduled for 2013-14 at a cost of $74,000 ($47,000 direct), with a repair frequency of 50 years. SunWater's asset life guide recommends a life for earthworks channels of 150 years.

The MOSS, which has been in operation since 1999, is located on the right bank of the Dawson River near the town of Moura just upstream of Moura Weir. It was built to increase the total storage capacity near Moura due to increased demand, specifically for the Queensland Nitrates' plant. The MOSS has earthen embankments and a grassed spillway.

Water from the Dawson River is permitted to be pumped to MOSS during stream flow events in a water-harvesting style of regulation.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Halcrow noted that in 2009, a condition assessment was undertaken which recorded the waterway batter condition as having moderate deterioration with minor refurbishment required to ensure ongoing reliable operations. The replacement cost of the weir was $419,000.

Noting the proposed expenditure of $47,000 direct costs, Halcrow stated that it would appear that cut and fill, compaction and or rock protection works will be required to repair the spillway. However, no information on the scope of the proposed works has been provided.

Halcrow noted that during the second round of stakeholder consultation, stakeholders sought clarification of whether the MOSS benefits all users within the scheme or only those users that purchased entitlements following creation of the asset. SunWater confirmed that the storage is included in the announced allocation calculation for the scheme, thereby benefitting all customers. Further, Halcrow stated that as the asset is included in the listing of assets to be considered when assessing irrigation charges, it is appropriate for renewals costs associated with the MOSS to be included in SunWater's expenditure requirement.

Halcrow considered that expenditure to rehabilitate spillway slopes, return slopes and batters is prudent. However, due to limited information on the proposed works, Halcrow was unable to assess the efficiency of the expenditure.

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 5: Neville Hewitt Weir – LBD/5 - Replace Hydraulic System

SunWater

This activity involves a replacement of the hydraulic system at Neville Hewitt Weir. Expenditure of $377,000 ($248,000 direct cost) is proposed in 2020-21.

Neville Hewitt Weir is filled from both the Dawson River and Mimosa Creek. It is a mass concrete structure, constructed in 1976. The hydraulic system at the weir has been in operation since December 2000.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Halcrow noted that an asset life of 60 years has been assigned to the hydraulic system, however, the first replacement is scheduled for 2020-21.

Halcrow stated that the most recent condition assessment was undertaken in 2004 which recorded the hydraulic systems to be in perfect as new condition. Halcrow noted that SunWater's mechanical asset guide recommends hydraulic systems are assessed every 12 months, which indicates that the asset is long overdue for a revised condition assessment.

Whilst the proposed timing of the proposed replacement works is at variance to the assigned asset life, Halcrow considered replacement after approximately 20 years (45 years nominally proposed) is more appropriate. As a result, the proposed expenditure is considered prudent.

In the absence of further information, however, Halcrow stated that it was not possible to assess whether the 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 6: Theodore Weir – LBD/6 - Replace Concrete/Steel Piled Weir

SunWater

This activity involves replacement of a concrete/steel piled anabranch weir located near Theodore Weir. Expenditure of $642,000 ($430,000 direct cost) is proposed in 2033-34.

The concrete/steel piled weir refers to the anabranch weir located near Theodore Weir. This weir incorporates a timber piled Anabranch Weir and is screened by an upstream row of sheet piles. This structure has been in operation since 1929. SunWater's asset life guide recommends the life of sheet pile weirs as 75 years, which would have resulted in replacement in 2003-04.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Halcrow

Halcrow noted that SunWater's asset life guide recommends the life of sheet pile weirs as 75 years, which would have resulted in replacement in 2003-04.

Halcrow also noted that in October 2009, a condition assessment was undertaken which demonstrated minor defects. Further, perfect, as new condition was recorded for structural movement, foundations and function. A risk assessment was undertaken in 2005 for structural failure.

Halcrow stated that a detailed bill of materials (BoM) for the weir was provided, which provided units and unit rates related to clearing and grubbing, compaction, rock fill, piling, driving of piling, reinforced fabrics, concrete and concrete in slabs.

Given that the replacement has been deferred by 30 years (in comparison to the replacement date based on standard asset life), Halcrow considered planning for the expenditure to be prudent. On the basis of the costing information provided, the expenditure is also considered efficient.

SKM

SKM reviewed information relating to this item by accessing and viewing information recorded in SunWater's WMS to the value of $532,181[3].

[3] The Authority notes that the total cost (including direct and indirect) submitted by SunWater for this renewals item ($642,000) does not equate to the amount reviewed by SKM ($532,181). As discussed in Volume 1, this is because SKM's review was based on SunWater's SAP system, which uses a simplified method for calculating indirect and overhead costs than SunWater's financial system, which formed the basis of SunWater's NSPs and submissions to the Authority. However, where direct costs were reviewed by SKM this aligns with the direct costs submitted to the Authority.

Available Information

In particular, SKM has drawn on the following annuity item specific replacement/refurbishment report produced by SunWater.

Table 4.4: SKM Documentation Reviewed

Document No.	*Document Name*	*Document Title*	*Date*
1110316	1110316 – v1 – 36- QCA Justification H21 Replace Theodore Weir Anabranch 2034	Dawson Valley Water – Theodore Weir Anabranch Replace Conc/Steel Piled Weir (DVA-DAWR-THW-ANAB-WEIR)	6 September 2011

Source: SKM (2011).

Prudency Review

(a) Asset Replacement/Refurbishment Date Determination

In SKM's review of the data in SAP and the information contained in the SunWater report specified above, SKM considered that SunWater has largely followed the policies and procedures that it has in place to determine annuity item replacement/refurbishment dates and costs.

SunWater's SAP-WMS has listed the asset object type as a steel pile weir, but SunWater advised that the weir is in fact partly a timber piled weir. The 1992-93 refurbishment deferred the full replacement but was not expected to provide a full standard life for a sheet pilled structure. It was expected that the remaining timber would necessitate a full replacement at some stage.

SKM noted that only part of the weir was equipped with the steel piling. Taking the remaining unprotected timber weir portion as the 'weakest link' in respect of weir reliability, SKM believed it more appropriate to classify the weir as a timber piled weir object type. SunWater's SAP-WMS indicates that the standard run to failure life for a timber piled weir is 50 years and the standard refurbishment period is 17 years.

SKM considered the applied run to failure asset life and refurbishment period for this asset to be appropriate for this asset type and in keeping with good industry practice.

The existing risk evaluation, as recorded in SAP, determined that the asset's workplace health and safety (WHS) criterion risk is critical with a consequence rating (score 100). The consequence rating together with a probability (likelihood of occurrence) score of 1 results in an overall risk score of 100 which places this asset in a medium risk category. For this asset type an overall risk category of medium reduces the run to failure asset life from 50 years to 44 years and the standard refurbishment period from 17 years to 15 years. SKM considered this reduction in run to failure asset life and refurbishment period based on this risk assessment for asset replacement and refurbishment planning purposes to be appropriate and in keeping with good industry practice.

The reduced run to failure life of the weir implies that it should have been replaced in 1972-73. If it is assumed that the 1992-93 refurbishment acted as a full replacement, the expected replacement is due in 2036-37 in accordance with SunWater's policy and procedures.

The condition assessment interval is set at one year for this object type. The latest condition assessment as recorded in WMS for this asset was undertaken in 2010. The maximum score,

recorded in SAP-WMS, is a 4 (Significant deterioration with substantial refurbishment require to ensure ongoing reliable operation) assigned to foundations. The condition assessment also included the following note regarding the foundation: "*Need work on protection works.*"

SunWater's Asset Management Planning Methodology Paper stated that an asset with a Asset/Business Risk rating of 'Medium' should be replaced or refurbished once the maximum condition score reaches 5 (Major deterioration such that asset is virtually inoperable).

(b) Options Evaluation

SKM noted that SunWater has not provided any options for replacing the weir. The reason stated for not doing so is that the replacement is planned to take place 23 years in the future. The SunWater report, referenced above states that the next comprehensive inspection is scheduled for 2014 and that a detailed assessment of the structure will take place at this time. There may be merit in determining the suitability of investigating the following options as part of the detailed assessment of the structure:

(a) completing the steel piling for the full length of the weir and removing the affected concrete sections and replacing with new;

(b) completing the steel piling for the full length of the weir and replacing all of the existing concrete capping, could include a new design of concrete capping; and

(c) demolish existing weir and replace with new structure, the type of structure to be determined based on cost and site restrictions.

(c) Timing of Renewal/Refurbishment

SKM also noted that SunWater has not supplied sufficient information as to how they have determined the replacement to be due in 2033-34. It is speculated that the standard decay curve was used in determining the replacement date making use of the standard run to failure life of the WESP of 75 years and adjusting the curve based on the maximum condition score of 4 attained in 2009-10.

The SunWater report, noted that current indications are that 2033-34 may be optimistic. This date would change considerably should the decay curve be applied to a standard run to failure life of 50 years. SKM concluded that the weir will be due for replacement either by 2033-34 or earlier, based on the result of the detailed structural assessment. SKM therefore considered the timing of this replacement to be prudent and argued that there is merit in considering bringing this timing forward given that part of the weir is still a timber based structure.

Conclusion on Prudency Evaluation

On the understanding that SunWater's policies for adjusting refurbishment periods and assessing asset condition have been followed, SKM concluded that the need for replacement of this annuity asset has been demonstrated.

Efficiency Evaluation

For major works such as the replacement of a weir, SunWater's planning team applies a unit rate against BoM quantities for the asset in question should the replacement be scheduled more than five years hence from the planning date.

Given the volume of annuity items that SunWater's planning team are engaged with at any point in time, this approach is considered reasonable and in accordance with good industry practice, where the management of a large portfolio of assets is concerned.

(a) Renewal/Replacement Project Cost Evaluation

SKM stated that they have not sighted as built drawings for the anabranch weir at Theodore Weir nor have SKM had access to dimensions of the weir. As such, SKM were unable to develop a bench mark cost for replacing the weir.

The WMS includes nine BoM items. The quantities could not be verified. SKM have made use of rates in Rawlinsons 2010-11 to calculate a rate for each of the nine items. The cost estimate that SKM have prepared compared to that of SunWater is presented in Table 4.5.

Table 4.5: SunWater – SKM Cost Estimate Comparison

No.	*Description*	*SunWater Cost Estimate ($)*	*SKM Cost Estimate ($)*
1.1	Clearing and Grubbing – Works Area	223	185
1.2	Zone 1 – Supply, place and compact	108,047	103,879
1.3	Rock fill in Trenches	527	404
1.4	Supply sheet piling	76,326	63,972
1.5	Driving sheet piling	76,326	63,972
1.6	Reinforcement Fabric – Supply and Place	2,925,	2,540
1.7	Concrete in Slabs	33,646	50,810
1.8	Backfill Concrete	4,509	2,294
1.9	Concreted Rock fill	42,389	27,410
2	SUB-TOTAL A	344,918	315,196
3	Contractors Preliminary and General		53,583
4	SUB-TOTAL B	344,918	368,779
5	SunWater Indirect Cost (53.99%)	186,222	199,104
6	**Total**	**531,140**	**567,883**

Source: SKM (2011).

From the above comparison SKM considered the value submitted to be efficient.

Summary and Conclusions

SKM were satisfied that SunWater's robust procedures for determining the timing of replacement of an annuity item have largely been followed. Hence, SKM concluded that the timing and need for replacement of this annuity item is prudent.

SKM also concluded that the item that SunWater supplied to the Authority is substantiated and deemed efficient based on the limited information to SKM's disposal.

Authority's Analysis

The Authority accepts Halcrow and SKM's recommendation that the item is both prudent and efficient.

Further, as noted previously, the Authority notes that the total cost (including direct and indirect) submitted by SunWater for this renewals item ($642,000) does not equate to the amount reviewed by SKM ($532,181). This is because SKM's review was based on SunWater's SAP system, which uses a simplified method for calculating indirect and overhead

costs than SunWater's financial system, which formed the basis of SunWater's NSPs and submissions to the Authority. However, where direct costs were reviewed by SKM this aligns with the direct costs submitted to the Authority.

Conclusion

In summary, six items for the Dawson Valley WSS were sampled. Of these:

(a) three items are prudent and efficient and have been retained as forecast expenditure;

(b) one items was prudent but not efficient, requiring adjustment to forecast expenditure; and

(c) two items are prudent but insufficient information was provided to determine 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 4.6.

Table 4.6: Review of Forecast (Direct) Renewals Expenditure 2011-36 ($'000)

Item	*Year*	*SunWater*	*Authority's Findings*	*Recommended*
Sampled Items				
1. Gyranda Weir - refurbish Gate 1 seals, guides, corrosion and actuator	2011-12 and every 10 years thereafter	8,8,8	Prudent and efficient	8,8,8
2. Gyranda Weir - replace electric actuator	2013-14 and every 15 years thereafter	35	Prudent and efficient	35
3. Moura Off-stream Storage Pump Station – refurbish PUN 2	2015-16 and every 6 years thereafter	38,38,38,38	Prudent but efficient expenditure was deemed to be $30 000 (direct costs)	30,30,30,30
4. Moura Off-stream Storage – repairs to spillway return slopes and batters	2013-14	47	Prudent but insufficient information to assess efficiency	10% saving applied
5. Neville Hewitt Weir – replace hydraulic system	2020-21	248	Prudent but insufficient information to assess efficiency	10% saving applied
6. Theodore Weir – replace concrete/steel piled weir	2033-34	430	Prudent and efficient	430
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 submitted that SunWater needs to engage with irrigators when determining renewals.

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 Dawson Valley bulk water infrastructure were apportioned between priority groups using converted nominal water allocations. The conversion from high to medium priority WAE was determined by the Dawson Valley water pricing conversion factor (5.4:1); that is, one ML of high priority WAE was considered equivalent to 5.4 ML of medium priority WAE.

In addition, the conversion from medium A to medium priority WAE as determined by the Dawson Valley water pricing conversion factor (0.77:1), that is, one ML of medium priority A WAE was considered equivalent to 0.77 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.

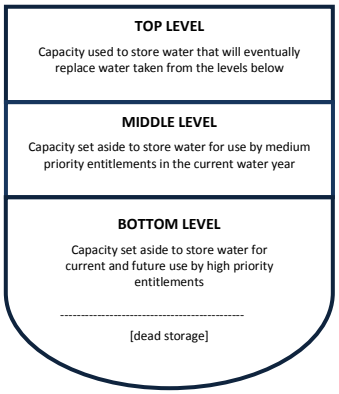
SunWater (2010d) submitted a detailed outline of the HUFs methodology, outlining its derivation and application for each scheme. This methodology, discussed in detail Volume 1, can be summarised as follows.

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 (HP) and medium priority (MP) for the purposes of the HUFs calculation[4].

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

Step 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 Dawson Valley WSS are summarised in Table 4.7. They reflect revisions to nominal WAE volumes, as submitted by SunWater in Addendum Part 1 – Erratum: Errors found in HUF Input Data (SunWater, 2011x). The HUFs for this scheme are 46% for medium priority, 24% for medium A priority and 30% for high priority.

Table 4.7: Application of HUFs Methodology

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

Nominal Group	(ML)	HUF Group	(ML)
Medium Priority	37,049	MP_A	56,358
Medium-A Priority	19,309		
High Priority	5,579	HP_A	5,579

STEP 2: ROP Conversion Factor Adjustment

Conversion Factor: ROP_{CF}	N/A
Maximum volume that can be converted to HP: $HP_A max$	5,579
Corresponding volume of MP: $MP_A min = MP_A-(HP_A max-HP_A)*ROP_{CF}$	56,358

STEP 3: Water Sharing Rules & Operational Requirements

Water Sharing Rules	
Volume below which MP not available: $MP_0 AA$	17,475
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	17,475
Likely increase in min. storage before maximum MP available: MP_{100}	60,780
Key Dam Level Measures	
Full Supply Level: FSV_{hwks}	60,780
Dead Storage Level: DSL_{hwks}	6,160

STEP 4: Hydrologic performance of headworks storage

Storage Layer	Storage Capacity (ML)	Prob. of Utilisation	Utilised Capacity (ML)
Top: $\max\{(FSV_{hwks}-MP_{100}),0\}$*	$MP_2 = 0$; $HP_2 = 0$	0%	$MP_{2u} = 0$; $HP_{2u} = 0$
Middle: $\min\{(MP_{100}-MP_0),(FSV_{hwks}-MP_0)\}$	$MP_1 = 43,305$	58%	$MP_{1u} = 24,998$
Bottom: $MP_0 - DSV_{hwks}$	$HP_1 = 11,315$	95%	$HP_{1u} = 10,705$

STEP 5: Calculation of HUFs for each Water Entitlement Group

Formula	HUF Group	Nominal Group
MP_A: $(MP_{1u}+MP_{2u}) / (MP_{1u}+HP_{1u}+MP_{2u}+HP_{2u})$ = (24,998+0) / (24,998+10,705+0+0)	HUF_{mp} = 70%	Medium Priority = 46% Medium-A Priority = 24%
HP_A: $(HP_{1u}+HP_{2u}) / (MP_{1u}+HP_{1u}+MP_{2u}+HP_{2u})$ = (10,705+0) / (24,998+10,705+0+0)	HUF_{hp} = 30%	High Priority = 30%

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

Other Stakeholders

DVIG (2010) submitted that the longer term hydrologic performance of scheme entitlements was used to assess conversion factors which are applied to allocate scheme costs between urban/industrial and rural sectors for the assessment of the current price path. Dawson irrigators no longer support this approach.

Further, DVIG (2010) stated that in previous rounds, a conversion factor for pricing was set at 2.5:1 (MP:HP). Since that time, following extensive modelling, a conversion factor has been set by DERM for the Dawson, and will be revealed in the Draft Review of the Water Resource Plan, which is soon to be released. Given the amount of research conducted by DERM in determining this conversion factor, it is appropriate that this factor be used in the utilisation of headworks pricing.

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 MP1:HP1.

SunWater (2011x) accepted these recommendations and submitted recalculated HUFs for each scheme. For the Dawson Valley WSS, there were no material changes in the HUF values for each priority group because there is not a top layer of storage to apportion.

The Authority estimates that based on the HUF methodology, the conversion for medium priority to high priority would be 4.3:1, compared to 5.4:1 used for the 2006-11 price paths.

Further, the Authority notes that under the HUF approach, medium priority irrigators will now pay 46% of the cost of renewals whereas previously medium priority irrigators paid 45%. The medium priority A will now pay 24% compared to 18%. Finally, high priority will now pay 30% compared to 37%.

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 Dawson Valley WSS, the recommended renewals annuity for the 2012-17 regulatory period is shown in Table 4.8. The table shows the total renewals annuity recommended by the Authority and the component amounts for high and medium priority customers. Also presented for comparison is SunWater's total renewals annuity for 2006-11 and SunWater's proposed total annuity for 2012-16. SunWater did not submit a disaggregation between high and medium priority customers.

Table 4.8: Dawson Valley 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	65	89	108	107	110	14	16	18	32	39	39
Authority	-	-	-	-	-	-	-63	-58	-34	-21	1
High Priority	-	-	-	-	-	-	-17	-15	-9	-6	0
Medium Priority	-	-	-	-	-	-	-42	-39	-23	-14	0
Distribution Losses	-	-	-	-	-	-	-4	-4	-2	-1	0

Note: Includes indirect and overhead costs relating to renewals expenditure, which is discussed in Chapter 5. Negative renewals annuities are addressed in Chapter 6 – Draft Pricing. 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 Dawson Valley 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[5] 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 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;

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

(b) service provision relates to:

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

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

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

(i) the ROP and ROL – a major part of which is gathering and reporting data at quarterly and annual intervals on water sharing rules, ROP amendments and modifications; water accounting and reporting on stream flow, water quality and other data (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***
Glebe Weir	Yes	Yes	Yes	Yes
Gyranda Weir	Yes	Yes	Yes	No
Theodore Weir	No	Yes	Yes	Yes
Moura Weir	No	Yes	Yes	Yes
Neville Hewitt Weir	No	Yes	Yes	Yes
Moura Offstream Storage	No	No	No	Yes

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

(ii) dam safety – The MOSS is classified as referable dam under the *Water Act 2000*. SunWater is required to have 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 monthly and quarterly on the weirs. Specific dam safety inspections are required at MOSS, which include monitoring of embankments, seepage, general condition of the storages as defined in the dam surveillance specification and condition inspections to identify and plan maintenance requirements and to provide information for management planning of water delivery assets;

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

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

Previous Review

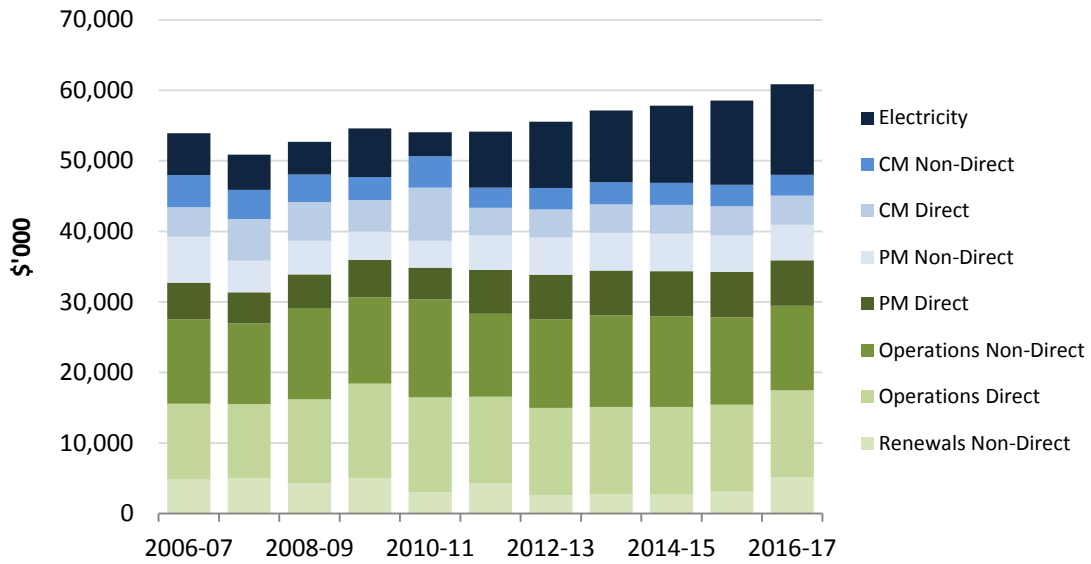
For the 2006-11 price paths, Indec identified annual cost savings of between $3.8 million and $5.5 million (2010-11 dollars) or 7.5% to 9.9% of total annual costs, which SunWater was to achieve during the 2006-11 price paths (SunWater, 2006a). See Volume 1.

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.

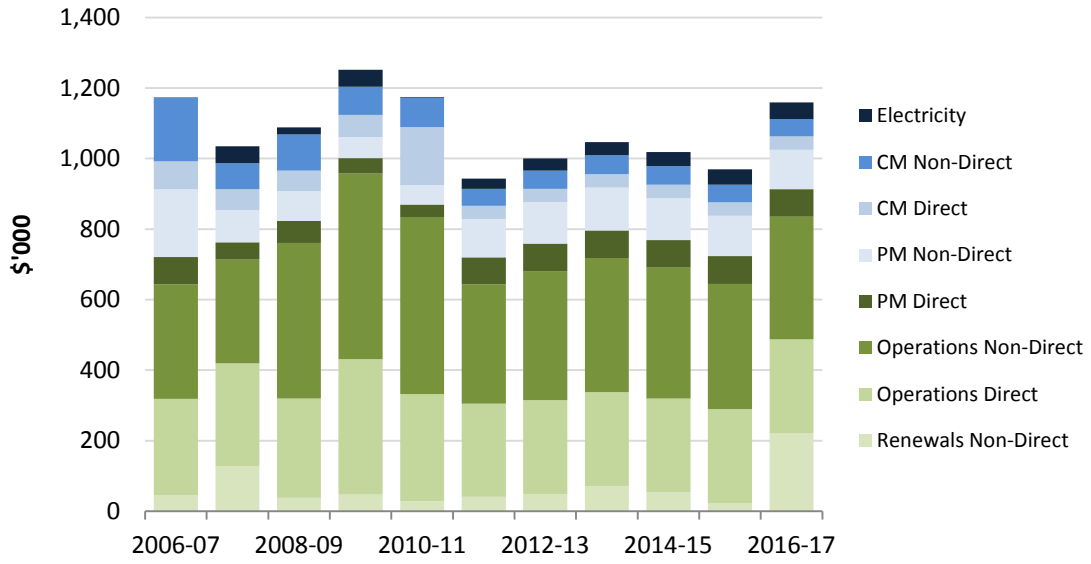
Figure 5.1: SunWater's Total Operating Costs (Real $'000) – All Service Contracts



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 Dawson Valley WSS (all sectors) is shown in Figure 5.2 and Table 5.2 and Table 5.3.

Figure 5.2: Total Operating Costs – Dawson Valley 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	598	587	722	910	806	602	632	646	637	622	614
Electricity	1	48	20	48	2	29	35	37	40	44	47
Preventive Maintenance	269	140	147	104	91	186	196	200	197	193	190
Corrective Maintenance	260	132	161	142	248	85	90	92	91	88	87
Renewals Non-Direct	45	127	38	48	28	41	49	72	53	23	221
Total	**1,174**	**1,034**	**1,088**	**1,252**	**1,174**	**943**	**1,001**	**1,047**	**1,018**	**969**	**1,159**

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	228	179	258	335	288	267	271	271	271	271	271
Electricity	1	48	20	48	2	29	35	37	40	44	47
Contractors	15	49	14	27	98	10	11	11	11	11	11
Materials	63	34	31	25	46	23	23	24	24	25	25
Other	122	139	100	103	73	77	76	76	77	77	77
Non-Direct	744	586	666	713	668	537	585	628	596	543	729
Total	**1,174**	**1,034**	**1,088**	**1,252**	**1,174**	**943**	**1,001**	**1,047**	**1,018**	**969**	**1,159**

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 $1,027,000 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 $943,000 per annum (in real terms).

Other Stakeholders

During Round 1 consultation in May 2010, stakeholders stated that:

(a) the time for review (eight months) is not sufficient to assess and value all SunWater's assets or for effective consultation;

(b) the Authority should not rely on data supplied by SunWater. Rather, it would be better to employ a local person to research and validate the information; and

(c) the allocation of costs to incidental uses such as recreation needs to be taken into account.

During Round 2 consultation in April 2011, stakeholders stated that:

(a) irrigators are concerned that there is not sufficient cost details in the NSP and in the consultants' reports for them to comment on, making it difficult to provide submissions. On a related issue, irrigators questioned why SunWater did not provide the consultant sufficient cost information, especially for the last five years. SunWater as a licence holder has responsibility to provide cost information like every licence holder;

(b) too many asset and business planning systems of SunWater are costly to irrigators;

(c) irrigators are not comfortable paying for operating costs for services that may not eventuate; and

(d) the Government has provided funding for SunWater to improve efficiency but nothing has happened. Further, the scope of study is not detailed enough to identify efficiencies.

SunWater needs to show there are operational efficiencies that need to be achieved and the Authority needs to look at efficiency of dollars spent compared to benefits derived.

DVIG (2010) submitted that a full efficiency review of SunWater was conducted for the development of the current price path but did not include structural efficiency issues at Scheme level. DVIG asked whether the Authority will conduct an efficiency assessment at least comparable to that undertaken for the current price path and will such analysis be made fully transparent. DVIG also asked whether SunWater will consult with the local advisory committee to prepare a NSP and document efficient operating costs and to what degree will this plan address scheme based efficiency issues including such issues as impediments in the scheme to making efficiency gains.

Further, DVIG (2010) questioned whether the Authority is endeavouring to investigate the efficient costs of SunWater. Lower bound costs data should be separated to clearly identify maintenance and administrative costs.

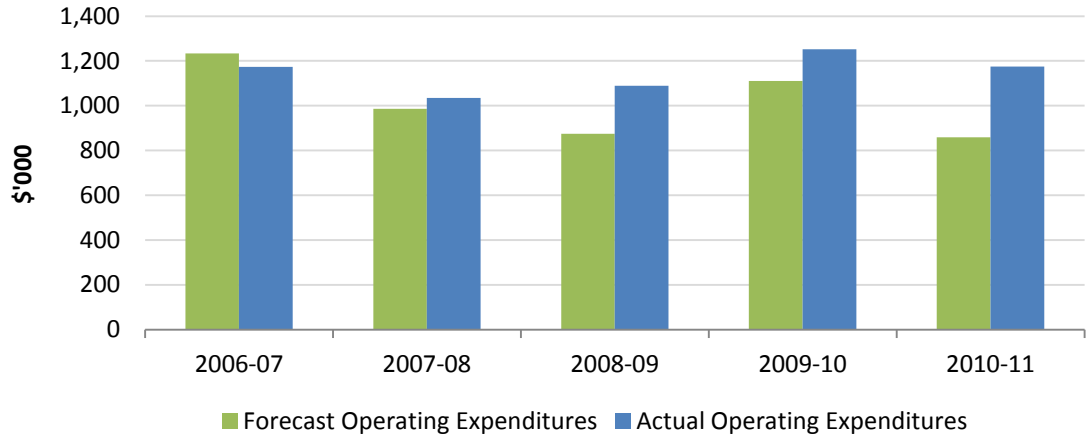
Authority's Analysis

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 Dawson Valley 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 $659,000 over the period. Indec noted that anomalies could arise for the service contracts from linked bulk and distribution systems and the solution was to combine them into bundled schemes. See Volume 1.

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 Round 1 stakeholder comments, the Authority notes that:

(a) the limited time for review has limited the extent to which the Authority can investigate detailed issues in each scheme;

(b) consultants have been engaged to assess the prudency and efficiency of SunWater's operating expenditure for each scheme. Further, SunWater is required to demonstrate that its expenditure is required and is not excessive; and

(c) there are no recreational management costs for the Dawson Valley WSS.

In relation to Round 2 comments, the Authority notes that:

(a) SunWater's NSPs did not contain a sufficient level of detail for review. However, the Authority and its consultants have to the extent possible identified costs to a more detailed level for the information of stakeholders. This includes comparisons of the past five-years performance with forecast costs as detailed above;

(b) asset and business planning systems are to some extent a compliance requirement of SunWater. Planning is necessary to ensure ongoing service provision and ensure that assets are maintained in a timely manner. The Authority has subjected SunWater's asset and business planning activities to an efficiency test; and

(c) operating costs are largely fixed and will be incurred whether or not water is able to be provided to irrigators.

In regard to efficiency of operating costs, as raised in Round 2 consultations and by DVIG, the Authority's review is intended to identify scheme level efficiency gains and to document these in a transparent manner.

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 Dawson Valley 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
Dawson Valley WSS	27,831	25,097	25,872	24,579	25,152	23,770	23,512	24,244	24,055	23,708	25,089

Source: SunWater (2011ap).

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

Other Stakeholders

During Round 2 consultation in April 2011, stakeholders stated:

(a) indirect costs are too high at about 75% of costs mainly from corrective maintenance. Head office costs are up to 60% of area costs, and is not acceptable for both bulk and distribution; and

(b) they required an explanation as to why the scheme incurs 75% of overhead and indirect costs. Further, stakeholders questioned why SunWater put indirect and overheads in one bucket with schemes getting a share of indirect costs and overheads of other schemes.

Authority's Analysis

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

In seeking to establish prudency and efficiency, the Authority commissioned Deloitte Touché Tohmatsu (Deloitte) to review SunWater's non-direct costs. Deloitte carried out benchmarking to assess where potential efficiencies within SunWater may be achieved. Deloitte identified savings of $495,314 (in 2010-11 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.[6]

The Authority accepted that $495,314 of full time equivalent 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

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

(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 Dawson Valley 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.

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	744	586	666	713	668	537	585	628	596	543	729
Authority							568	601	562	502	670

Source: SunWater (2011ap).

In response to Round 2 stakeholder comments, the Authority notes that:

(a) over the last six years, non-direct costs have averaged 59% of total operating costs excluding renewals. This ratio is broadly in line with other schemes of a similar size to Dawson Valley WSS. The Authority's review has scrutinised non-direct costs to ensure that they are as efficient as possible; and

(b) the cost allocation approach adopted by the Authority based on SunWater's DLCs approach with slight modifications as detailed above is considered to provide the most cost reflective approach to cost allocation.

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

5.4 Direct Costs

Introduction

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

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

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

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

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

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

Stakeholder Submissions

SunWater

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

SunWater's forecast direct operating expenditure by activity is set out in Table 5.6 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*
Operation	273	293	282	384	304	263	266	266	267	267	267
Electricity	1	48	20	48	2	29	35	37	40	44	47
Preventive Maintenance	77	49	63	44	36	77	78	78	78	78	78
Corrective Maintenance	79	59	58	62	165	37	38	38	38	38	38
Total	**429**	**448**	**423**	**539**	**506**	**406**	**415**	**419**	**423**	**427**	**430**

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	228	179	258	335	288	267	271	271	271	271	271
Electricity	1	48	20	48	2	29	35	37	40	44	47
Contractors	15	49	14	27	98	10	11	11	11	11	11
Materials	63	34	31	25	46	23	23	24	24	25	25
Other	122	139	100	103	73	77	76	76	77	77	77
Total	**429**	**448**	**423**	**539**	**506**	**406**	**415**	**419**	**423**	**427**	**430**

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.

Halcrow'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 Dawson Valley Bulk WSS include scheduling and delivery of water, reading meters, water quality monitoring, compliance reporting, management of the MOSS, site inspections, security management, and environmental management.

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

Other Stakeholders

During Round 1 consultation, stakeholders noted their concern that compliance costs associated with new environmental requirements and for assets not relevant to irrigation, such as fish ladders, will be included.

During Round 2 consultation, stakeholders further noted that:

(a) fish gates do not benefit irrigators. The community, which benefits from these, should bear the costs; and

(b) costs for fish ladders are excessive at $46,000 for each ladder.

DVIG (2010) stated that current prices to irrigators cover the cost of providing and maintaining recreational facilities at storages. Recreational costs should be allocated on a user-pays system. The biggest use made of the recreational facility is by urban and industrial consumers. However, irrigators continue to contribute the biggest portion of recreational facility costs. Costs could easily be apportioned by reference to population demographics.

Authority's Analysis

Consultant's Review

Halcrow noted that the Dawson Valley Bulk WSS has seven major storages. The ROP includes rules in relation to minimum levels that storages can be drawn down to and the passing of river flows. Operations staff work to keep water levels in these storages at or above the nominal operating levels. The storage management process involves balancing upstream releases with water travel times, downstream releases, water losses and water taken.

Regulations for the operation of the Moura Fishway and the Neville Hewitt Fishlock are also described in the ROP. The Fishways may be operated at any time as long as the volume of overflow/ROP required releases are sufficient to operate the fishway successfully.

The ROP lists the volumetric and quality monitoring that SunWater is obligated to undertake at six of the storages in the Dawson Valley Water Supply Scheme. Monitoring the presence of Blue Green Algae is also undertaken as required at four of the weirs as well as the MOSS.

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.

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

Table 5.8: Historical Operations Expenditure (Real $'000)[7]

Sub-Activities	*2006-07*	*2007-08*	*2008-09*	*2009-10*
Customer Management	39	7	-	28
WHS	-	41	8	20
Environmental Management	99	73	77	77
Water Management	7	3	66	99
Scheme Management	142	356	391	524
Dam Safety	4	7	33	31
Schedule/Driver	306	62	96	84
Metering	-	37	43	28
Facility Management	-	-	8	18
Other	1	1	-	1
Total	**598**	**587**	**722**	**910**

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

The table above shows that the key elements of operations expenditure relate to scheme management, water management and scheduling and delivery of water. There is also significant expenditure in respect of environmental management.

Table 5.9 provides a breakdown of historical and forecast expenditure on operations at the Dawson Valley Bulk WSS.

[7] SunWater has indicated the data contains some incorrect codings to sub-activities; and that 2006-07 has the majority of anomalies because many expenses were retrospectively re-categorised to fit into the Business Operating Model structure and this was not completely precise. The table is shown here to provide a general outline of the expenditure associated with sub-activities.

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	147	114	181	265	180	182	185	185	185	185
Materials	7	3	1	10	6	6	6	6	10	6
Contactors	9	42	9	16	5	5	5	5	5	5
Other	110	134	90	93	66	66	66	66	66	66
Total Direct Costs	**273**	**293**	**282**	**384**	**256**	**259**	**262**	**262**	**262**	**262**
Indirects	154	158	240	238	156	157	181	192	185	172
Overheads	171	136	201	288	180	181	185	187	190	183
Total	**598**	**587**	**722**	**910**	**592**	**598**	**628**	**642**	**641#**	**618**
Annual Change	-	(2%)	23%	26%	(35%)	1%	5%	2%	-	(4%)
Change Since 2007	-	(2%)	21%	52%	(1%)	-	5%	7%	7%	3%

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.

Halcrow noted that SunWater provided some high level explanations for key movements in historical expenditure:

(a) SunWater indicated that the reason for the significant movement in labour expenditure in the period 2006-07 to 2009-10 was due to an increase in environmental management, water management and scheme management costs as a result of water inflow; and

(b) SunWater noted that the amendment to the Fitzroy Basin ROP in 2008-09 included many scheme operation and management rules, some of which have led to additional responsibilities and increased compliance costs. The most significant include new arrangements to manage environmental, stock and domestic water and flow event management rules, and additional water quality monitoring to meet DERM's Water Monitoring Data Collection Standard.

Halcrow noted these may account for some of the increase in labour expenditure in 2009-10, although given the forecast drop in expenditure on labour from 2010-11, the impact of these increased responsibilities on labour expenditure is not readily apparent.

SunWater also explained that between 2009-10 and 2010-11, there was a realignment of expenditure classified as Operations to Preventive Maintenance. It noted that operations surveillance was moved to Preventive Maintenance as a result of the PB review. Halcrow noted that SunWater's forecast expenditure on Preventive Maintenance has increased, reflecting (in part) this adjustment.

The average expenditure on labour over the period 2006-07 to 2009-10 was $177,000, which is approximately in line with forecast expenditure.

In its NSP, SunWater stated that it undertook a review of work practices in 2010 which resulted in revised work instructions upon which the cost forecasts are based. SunWater did not provide the results of the review of work instructions, but provided an extract of its resource planning tool used to develop labour forecasts for 2011-12.

Based on this extract, Halcrow confirmed 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 indicated that the direct labour charge for operations to the Dawson Valley Bulk WSS in 2011-12 is based on 2,868 hours per annum for operations staff from the Central resource centre and the Asset Management resource centre. This accounts for approximately $145,000 per annum of the labour expenditure. This is equivalent to approximately two full time equivalent (FTE) staff working on operations.

Halcrow considered that this allowance appears reasonable, although more information on the review of work practices and how these have driven allowances for labour hours would be required to enable an assessment of prudency and efficiency to be undertaken.

Halcrow further noted that:

(a) 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, but account for approximately $34,000 per annum of direct labour expenditure; and

(b) 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 four% nominal for 2011-12 and 2012-13).

SunWater forecast a reduction in other expenditure to $66,000 in 2010-11. Expenditure is forecast to remain steady thereafter. SunWater noted that this change is driven by:

(a) 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 $45,000 per annum;

(b) an allowance of $14,000 for Local Authority Rates, in line with historical expenditure. SunWater is required by law to pay Local Authority Rates and this expenditure is therefore deemed both prudent and efficient; and

(c) allowances of $7,000 per annum for telephone, and $1,000 per annum for freight. The allowance of $5,000 per annum for contractors relates to water monitoring.

Although Halcrow has been unable to undertake a detailed review of SunWater's operations expenditure, on the basis of the information provided by SunWater, Halcrow is generally satisfied that the expenditure appears to be reasonable. A definitive assessment of prudency and efficiency has not, however, been possible from the information provided.

Conclusion

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

The Authority notes that Halcrow concluded that the expenditure appears to be reasonable, however, it was unable to draw definitive conclusions on the prudency and efficiency of proposed expenditures due to the insufficient information provided by SunWater. The Authority also notes that Halcrow did not recommend any adjustments to SunWater's operations costs.

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.

Further, SunWater's forecast average annual operations costs are approximately 13% lower than the average over 2006-11.

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

In response to stakeholders, the Authority notes that the cost of environmental obligations (compliance) are a mandatory part of providing water services and the efficient level of these costs should be included in SunWater prices. The Authority further notes that the Direction explicitly states that irrigation water prices are to be set to recover efficient recreation management costs.

Item 2: Preventive Maintenance

Stakeholder Submissions

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; and

(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

During Round 2 consultations in April 2011, stakeholders stated that weed control spraying was mostly done by SunWater staff.

Authority's Analysis

Consultant's Review

A breakdown of SunWater's historical and forecast expenditure on preventive maintenance in the Dawson Valley 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	56	36	34	30	58	59	60	60	60	60
Materials	10	6	15	3	8	8	8	8	8	8
Contractors	1	2	4	1	4	4	4	4	4	4
Other	9	5	10	10	6	6	6	6	6	6
Total Direct Costs	**77**	**49**	**63**	**44**	**76**	**77**	**78**	**78**	**78**	**78**
Indirects	126	50	45	27	50	51	58	62	59	56
Overheads	67	41	38	33	58	58	59	60	60	59
Total	**269**	**140**	**147**	**104**	**184**	**186**	**196**	**200**	**197**	**193**
Annual Change	-	(48%)	5%	(29%)	77%	1%	5%	2%	(1%)	(2%)
Change Since 2007	-	(48%)	(46%)	(61%)	(32%)	(31%)	(27%)	(26%)	(27%)	(29%)

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 is forecasting an increase in preventive maintenance as compared to its historical expenditure. Of the direct expenditure, this is primarily driven by an increase in labour expenditure.

SunWater provided a breakdown of historical expenditure into condition monitoring, servicing and weed control, shown in Table 5.11. The table shows the historical fluctuations in preventive maintenance activities.

Table 5.11: Preventive Maintenance (Real $'000)

Sub-Activity	*2006-07*	*2007-08*	*208-009*	*2009-10*
Condition Monitoring	53	56	46	39
Servicing	177	50	52	38
Weed Control	39	33	49	27
Total	**269**	**140**	**147**	**104**

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

Halcrow noted that the expenditure in 2006-07 is significantly greater than the expenditure in 2007-08 to 2009-10. Halcrow understands that the reason for this is the transfer of financial data into SunWater's revised Business Operating Model (BOM) 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.

Halcrow understands 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 $35,000 per annum ($2009-10 real) on condition monitoring and servicing for the coming price path period. This is equivalent to approximately $36,100 per annum ($2010-11 real); it excludes overhead and indirect costs. The condition monitoring and servicing activities costed include meter maintenance, servicing of cranes, inspection of gauging stations, electrical and mechanical inspections and asset condition monitoring.

While Halcrow indicated that it was not provided with facility O&M manuals for the Dawson Valley Bulk WSS, SunWater provided a list of preventive maintenance work orders raised in the scheme over the period 2007-08 to 2009-10. Halcrow reviewed the listing and is satisfied that preventive maintenance activities costed by PB are consistent with the nature and required frequency of activities undertaken on the scheme.

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. 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, there is likely to be scope to achieve efficiency savings in the delivery of servicing and condition monitoring.

Accounting for the forecast expenditure developed by PB, the remaining expenditure is approximately $40,000 per annum. Halcrow noted that the forecast of 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 indicated that the forecast expenditure includes $37,000 per annum for weed control activities. This is equal to the average expenditure over the period 2006-07 to 2009-10. Further, SunWater indicated that weed control activities primarily relate to weed control around the weirs, undertaken by SunWater staff (rather than contracted out).

Halcrow requested that SunWater provide a breakdown of forecast weed control costs into labour, materials and other costs. However, SunWater indicated that although weed control costs are included within the preventive maintenance costs, they have not been separated at the sub-activity level. Although no detailed information has been provided in relation to the makeup of the expenditure, the allowance does not appear unreasonable in light of historical expenditures. An assessment of prudency and efficiency has not, however, been possible based on the information available to this review.

Halcrow noted that there remains $3,000 per annum which has not been accounted for. In the absence of justification for this amount, 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 $3,000 in preventive maintenance.

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 (2011ar) 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.

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 $3,000 of unjustified preventive maintenance expenditure. SunWater has not established the efficiency of this expenditure at the sub or activity level.

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	29	42	40	26	26	26	26	26	26
Material	46	24	14	13	10	10	10	10	10	10
Contractors	4	5	1	9	2	2	2	2	2	2
Other	3	1	-	-	-	-	-	-	-	-
Total Direct Cost	**79**	**59**	**58**	**62**	**37**	**37**	**38**	**38**	**38**	**38**
Indirects	147	40	56	36	22	22	26	27	26	24
Overheads	34	34	47	44	26	26	26	27	27	26
Total	**260**	**132**	**161**	**142**	**84**	**85**	**90**	**92**	**91**	**88**
Annual Change	-	(49%)	22%	(12%)	(41%)	1%	5%	2%	(1%)	(2%)
Change Since 2007	-	(49%)	(38%)	(45%)	(68%)	(67%)	(66%)	(65%)	(65%)	(66%)

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

Halcrow noted that expenditure on corrective maintenance in the Dawson Valley WSS has fallen significantly since 2006-07. SunWater's 2010-11 budget is significantly lower than the annual expenditure in the current price path. Expenditure is forecast to remain relatively consistent over the period to 2015-16. Halcrow also noted that the forecast expenditure on labour, materials and contractors is significantly lower than the average expenditure over the period 2006-07 to 2009-10.

Further, Halcrow noted that SunWater's forecast expenditure is based on an average of the past four years (including 2010-11), excluding outliers. SunWater has not provided Halcrow with the calculations in support of its forecast of corrective maintenance. However, a breakdown of the expenditure indicates labour charges of $26,000 relate to staff from the SunWater's Central region. The materials expenditure includes $2,000 for plant usage and $8,000 for 'materials construction'.

As part of the review, Halcrow obtained a breakdown of corrective maintenance work orders for the period 2008-09 to 2010-11 for the Dawson Valley scheme. The expenditure associated with the work orders does not specifically correspond to the expenditure in Table 5.12. Halcrow understands this is because some work orders run over different years. A review of the work orders indicates that the corrective maintenance activities undertaken are typical of what might be reasonably expected from the types of assets in the scheme.

As shown in Table 5.13 below, expenditure on corrective maintenance has typically exceeded expenditure on preventive maintenance in the period to 2009-10. However, in 2010-11 to 2015-16, SunWater has forecast that corrective maintenance will be approximately half of preventive maintenance. This is to be expected as SunWater has forecast an increase in preventive maintenance.

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	77	49	63	44	76	77	78	78	78	78
Corrective Maintenance	79	59	58	62	37	37	38	38	38	38
Total Maintenance	**156**	**108**	**121**	**107**	**112**	**114**	**115**	**116**	**116**	**116**
Annual Change	-	(31%)	12%	(12%)	5%	1%	1%	-	-	-
Change since 2007	-	(31%)	(22%)	(31%)	(28%)	(27%)	(26%)	(26%)	(25%)	(25%)
Preventive Maintenance	49%	45%	52%	41%	67%	67%	67%	67%	67%	67%
Corrective Maintenance	51%	55%	48%	59%	33%	33%	33%	33%	33%	33%

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 is yet to undertake a review of the current mix of preventive and corrective maintenance to assess whether they are appropriately optimised. Consequently, there may be some scope to achieve efficiency in the optimisation of these programs.

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.

Item 4: Electricity

Stakeholder Submissions

SunWater

SunWater submitted that electricity costs for the scheme mostly relate to the MOSS Pump Station and have been estimated based on the past three-year average. Pumping opportunity is highly variable depending on climatic conditions.

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

During Round 2 consultation in April 2011, stakeholders stated that electricity costs need to correlate with water use. This correlation needs to be discussed in the operating expenditure report.

Authority's Analysis

Consultant's Review

Expenditure on electricity in the Dawson Valley Bulk WSS is variable, accounting for between 0.5% to 5.4% of operating expenditure. SunWater has forecast that electricity costs will be $41,000 per annum in each year of the coming price path which is in line with the 2010-11 budgeted expenditure.

SunWater's approach to forecasting electricity differs between schemes, and the base data used to develop forecasts also varies. For the Dawson Valley Bulk Water Supply Scheme, the forecast expenditure has been calculated from historical (actual) expenditure reported within SAP, SunWater's financial system.

For bulk water supply schemes with off-line storages such as the Dawson Valley, SunWater has noted that electricity costs are not driven by customer demand. For schemes with off-stream storages, water is pumped during defined stream flow events, with the rules for pumping and releasing water contained in ROPs. SunWater has based its forecast on the expected 'average' expenditure in the period. This has been calculated as the average of three years of historical data, inflated by 13.29 % to account for the increase in Franchise Tariffs.

SunWater noted that electricity costs are driven by the frequency of pumping events and the rules in the ROP for the release of water from the MOSS rather than by customer demand. The pumps for the MOSS are used during defined stream flow events. Rules for pumping and releasing water are contained in the ROP. SunWater has noted that pumping is infrequent and difficult to predict. When pumping does occur, it is usually at maximum capacity. This is evident from Table 5.14, which shows that historical expenditure has varied significantly.

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	48	20	48	41	41	41	41	41	41
Annual Change	-	4700%	(58.3%)	140.0%	(14.6%)	-	-	-	-	-
Change Since 2007	-	4700%	1900%	4700%	4000%	4000%	4000%	4000%	4000%	4000%

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

Halcrow noted that the forecast electricity expenditure for the Dawson Valley scheme is based on the average electricity cost over the period 2007-08 to 2009-10 (as reported within SAP). The average has been calculated using the nominal expenditure for each year. The average expenditure has then been inflated by 13.29% to account for increases in Franchise Tariffs. When queried as to why 2006-07 costs were excluded when calculating the average, SunWater noted that 2006-07 was excluded as there was no water in the Dawson Valley.

Halcrow noted that year to date expenditure on electricity in the Dawson Valley is $905 (in nominal terms), which is significantly lower than the 2010-11 budget. SunWater explained that, as the MOSS is full, there has been no need to pump water to it. It is therefore likely that expenditure in 2010-11 will be significantly lower than the budget.

Noting the significant variability in the requirement to pump water (as reflected in the fluctuation of expenditure), Halcrow is of the opinion that an average expenditure, calculated over a longer term period, is likely to result in a more accurate reflection of actual expenditure.

If 2006-07 expenditure is included in the calculation of average expenditure, the forecast expenditure would be in the order of $33,000 per annum (calculated on a real basis). While an average based on the kWh of pumping each year would remove the impact of tariff escalation over the period, and provide a more accurate basis upon which to forecast average energy usage, this information has not been made available.

Table 5.15 outlines Halcrow's assessment of electricity expenditure.

Table 5.15: Electricity Expenditure (Real $'000)

	2011-12	*2012-13*	*2013-14*	*2014-15*	*2015-16*
SunWater Forecast	41	41	41	41	41
Halcrow Assessment	33	33	33	33	33
Difference	(8)	(8)	(8)	(8)	(8)

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

SunWater's Response

SunWater noted that Halcrow adopted a longer period to average electricity costs for the MOSS, reducing the allowance by $8,000.

SunWater noted Halcrow's concerns in relation to its original estimate and submitted that its improved forecasting approach now includes 2006-07 data, as suggested by Halcrow, and also allows for real increases in Franchise tariffs over the previous price path. SunWater submitted that these changes together have reduced the forecast for Dawson bulk to $28,000 for 2010-11 which is below the $33,000 suggested by Halcrow.

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'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 Dawson valley WSS is set out in Table 5.16.

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 5.16: Direct Operating Costs (Real $'000)

	SunWater					*Authority*				
	2012-13	***2013-14***	***2014-15***	***2015-16***	***2016-17***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Operation	266	266	267	267	267	258	258	259	260	260
Electricity	35	37	40	44	47	30	31	32	33	35
Preventive Maintenance	78	78	78	78	78	75	76	76	77	77
Corrective Maintenance	38	38	38	38	38	36	37	37	37	37
Total	**415**	**419**	**423**	**427**	**430**	**399**	**401**	**404**	**407**	**409**

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

In Round 2 consultations (April 2011), stakeholders indicated that irrigation seems to be getting charged a greater share of SunWater's indirect costs and overhead costs.

Further, stakeholders sought clarification of whether the MOSS benefits all users within the scheme or only those users that purchased entitlements following creation of the asset.

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

In response to stakeholder comment, the Authority's approach is to allocate non-direct and overhead costs on the basis of nominal WAE, except for the proportion attributable to the renewals expenditure, which is allocated on the basis of HUF.

In relation to the MOSS, SunWater confirmed that the storage is included in the announced allocation calculation for the scheme, thereby benefitting all customers. Accordingly, it is deemed appropriate that the cost of pumping to the storage is included as part of SunWater's operating expenditure requirements.

5.6 Summary of Operating Costs

SunWater's proposed operating costs by activity and type are set out in Table 5.17. The Authority's recommended operating costs are set out in Table 5.18.

Table 5.17: SunWater's Proposed Operating Costs for Activity by Type (Real $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operation					
Labour	185	185	185	185	185
Materials	6	6	6	6	6
Contractors	5	5	5	5	5
Other	69	70	70	70	70
Non-Direct	366	380	371	355	347
Preventive Maintenance					
Labour	60	60	60	60	60
Materials	8	8	8	8	8
Contractors	4	4	4	4	4
Other	6	6	6	6	6
Non-Direct	118	122	119	114	112
Corrective Maintenance					
Labour	26	26	26	26	26
Materials	10	10	10	10	10
Contractors	2	2	2	2	2
Other	0	0	0	0	0
Non-Direct	52	54	53	50	49
Electricity	35	37	40	44	47
Total	**951**	**975**	**965**	**947**	**938**

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

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operation					
Labour	179	180	182	183	184
Materials	6	6	6	6	6
Contractors	5	5	5	5	5
Other	68	67	67	66	66
Non-Direct	357	364	350	330	317
Preventive Maintenance					
Labour	58	58	59	59	59
Materials	8	8	8	8	8
Contractors	4	4	4	4	4
Other	6	6	6	6	6
Non-Direct	115	117	112	106	102
Corrective Maintenance					
Labour	25	26	26	26	26
Materials	9	10	10	10	10
Contractors	1	2	2	2	2
Other	0	0	0	0	0
Non-Direct	51	52	50	47	45
Electricity	30	31	32	33	35
Total	**921**	**934**	**916**	**890**	**873**

Source: QCA (2011).

6. DRAFT PRICES

6.1 Background

Ministerial Direction

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

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

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

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

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

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

The Ministerial Direction also requires that:

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

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

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

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

Previous Review

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

For Dawson River, prices over 2006-11 increased by an average of $0.54/ML per annum plus CPI to achieve lower bound costs in 2010-11. In 2011-12, prices in this scheme were increased by CPI.

For Dawson River at Glebe Weir, prices over 2006-11 increased by an average of $1.82/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 Dawson Valley 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 Dawson Valley WSS (Real $'000/ML)

	Actual Costs						***Future Costs***				
	2006-07	***2007-08***	***2008-09***	***2009-10***	***2010-11***	***2011-12***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
SunWater's Submitted Costs	1,179	985	1,144	1,296	1,255	911	962	988	992	981	972
Renewals Annuity	65	89	108	107	110	14	16	18	32	39	39
Operating Costs	1,128	908	1,050	1,204	1,146	902	951	975	965	947	938
Revenue Offsets	-14	-11	-14	-14	-1	-5	-5	-5	-5	-5	-5
Authority's Total Costs	-	-	-	-	-	-	853	872	877	864	869
Renewals	-	-	-	-	-	-	-63	-58	-34	-21	1
Operating Costs	-	-	-	-	-	-	921	934	916	890	873
Revenue Offsets	-	-	-	-	-	-	-5	-5	-5	-5	-5
Return on Working Capital	-	-	-	-	-	-	1	1	1	1	1

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

6.4 Fixed and Variable Costs

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

SunWater submitted that all of its operating costs are fixed in the Dawson Valley 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; and

(d) costs that *should* vary with water use under Indec's proposed optimal (prudent and efficient) management approach (as outlined in Volume 1). On average across all SunWater's 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 Dawson Valley WSS, Indec recommended 92% of costs should be fixed and 8% variable under recommended management. The Authority notes that this ratio differs from the current tariff structure which reflects the recovery of 62% of costs in the fixed charge and 38% of costs in the volumetric charge for the Dawson River and 70% fixed charged and 30% variable for the Dawson River at Glebe Weir tariff groups.

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	785	802	807	795	799
High Priority	164	168	171	169	172
Medium Priority	570	582	584	574	576
Distribution Losses	51	52	52	51	52

Note: Net fixed costs are 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 72.2% of WAE.

6.6 Cost Reflective Prices

Cost reflective prices reflect the Authority's estimates of prudent and efficient costs, recommended tariff structures, and the allocation of costs to different priority groups.

Table 6.3: Medium Priority Prices for the Dawson Valley 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*
Dawson River											
Fixed (Part A)	9.16	9.44	9.88	10.20	10.48	10.88	11.36	11.64	11.93	12.23	12.53
Volumetric (Part B)	9.23	9.50	9.96	10.27	10.58	10.96	1.63	1.67	1.71	1.75	1.80
Dawson River at Glebe Weir											
Fixed (Part C)	0.00	2.60	5.44	8.40	10.48	10.88	11.36	11.64	11.93	12.23	12.53
Volumetric (Part D)	6.24	6.47	6.84	7.11	7.40	7.66	1.63	1.67	1.71	1.75	1.80

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

Table 6.4: Termination Fees ($/ML)

	Actual Prices				*Cost Reflective Prices*				
	2008-09	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Dawson River to Dawson River at Glebe Weir	39.75	15.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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 6.5).

For both of the tariff groups in this scheme, current revenues are above the level required to recover prudent and efficient costs (Table 6.5). Therefore, the Authority is required to recommended prices that maintain revenues in real terms for the 2012-17 regulatory period for each tariff group.

Table 6.5: 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*					
Dawson River	11.01	11.12	51,226	27,897	874,121	627,160	246,961
Dawson River at Glebe Weir	11.01	7.77	1,160	632	17,684	14,202	3,482

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 Dawson Valley WSS for 2012-17 are outlined in Table 6.6 and Table 6.7 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 6.6: Draft Medium Priority Prices for the Dawson Valley WSS ($/ML)

	Actual Prices						*Recommended*				
	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
River											
Fixed (Part A)	9.16	9.44	9.88	10.20	10.48	10.88	16.09	16.49	16.90	17.33	17.76
Volumetric (Part B)	9.23	9.50	9.96	10.27	10.58	10.96	1.63	1.67	1.71	1.75	1.80
River – at Glebe Weir											
Fixed (Part C)	0.00	2.60	5.44	8.40	10.48	10.88	14.36	14.72	15.08	15.46	15.85
Volumetric (Part D)	6.24	6.47	6.84	7.11	7.40	7.66	1.63	1.67	1.71	1.75	1.80

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

The Authority's recommended draft termination fees to apply to the Dawson Valley WSS during 2012-17 are outlined in Table 6.7 together with actual termination fees since 2008-09.

Table 6.7: Draft Termination Fees (Real $/ML)

	Actual Prices				*Recommended Prices*				
	2008-09	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Dawson River to Dawson River at Glebe Weir	39.75	15.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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).

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APPENDIX A: FUTURE RENEWALS LIST

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

Asset	*Year*	*Description*	*Value ($'000)*
Dawson River Distribution	2015-16	Replace Gauging Equipment	24
	2024-25	Replace METER, 750MM ULTS MACE	17
	2030-31	Replace Recorder Building	37
		Replace Gauging Equipment	25
	2033-34	Refurbish: Glebe Weir - Repair tailwater gauging station	30
	2035-36	Replace Gauging Equipment	75
Glebe Weir	2016-17	Replace Valve, 675Mm Gate	209
	2024-25	Replace BUOYS (5 OFF), PLASTIC FABRICATIONS	12
	2025-26	Refurbish Valve	24
	2031-32	Replace Trash Screens	41
	2035-36	Refurbish Valve	24
Gyranda Weir	2011-12	Refurbish Gate - seals, guides, corrosion, actuator	12
	2012-13	Refurbish galvanised inlet screens at mid-life	12
	2013-14	Replace Electric Actuator, Iq20F Rotork	55
		Replace Electric Actuator, Iq25F Rotork	28
	2016-17	Refurbish Gate - seals, guides, corrosion, actuator	24
	2021-22	Refurbish Gate - seals, guides, corrosion, actuator	12
	2026-27	Replace Gate, 1500X1500 Slide Vickers	71
		Replace Gate, 1060X1060 Slide Vickers	55
		Replace Gate, 900X900 Slide Vickers	28
		Refurbish Gate - seals, guides, corrosion, actuator	24
	2027-28	regalvanise @ 40 yr @ $20,000	24
	2028-29	Replace Electric Actuator, Iq20F Rotork	54
		Replace Electric Actuator, Iq25F Rotork	27
		Refurbish: Replace approx. 100m of joint sealant	12
	2031-32	Refurbish Gate - seals, guides, corrosion, actuator	12
	2034-35	Replace Control Equipment Inc Sensor	104
		Replace Switchboard & Elec Services	58
Moss Pump Station	2011-12	Recommendations-MOS 2010 Inspection.	12
	2012-13	Upgrade computers of SCADA network for Moura Offstream Storage and Moura Weir	12
	2014-15	Refurbish pump - incl. motor, seals, bearings, test, corrosion etc	49
		Refurbish Protection Works - replace rock, correct slumping/erosion as requried	19
		Enhance: Widen road and bitumen seal road in flood area	19
		Refurbish Contl - replace PLC, SCADA upgrade - obsolescence	19
	2015-16	10DVA05-REFURBISH PUN2-MOSS	46
	2016-17	Maintenance Strategy - butterfly valve major maintenance	18
	2017-18	Upgrade computers of SCADA network for Moura Offstream Storage and Moura Weir	12
	2018-19	Refurbish Contl - replace PLC, SCADA upgrade - obsolescence	18
	2019-20	Refurbish butterfly control valve at mid life.	18
		Replace 80D Dav And Butterfly Valve	18
		Refurbish butterfly control valve at mid life	18
	2020-21	Refurbish pump - incl. motor, seals, bearings, test, corrosion etc	49
	2021-22	10DVA05-REFURBISH PUN2-MOSS	46
	2022-23	Refurbish Contl - replace PLC, SCADA upgrade - obsolescence	18

Asset	*Year*	*Description*	*Value ($'000)*
		Upgrade computers of SCADA network for Moura Offstream Storage and Moura Weir	12
	2026-27	Refurbish pump - incl. motor, seals, bearings, test, corrosion etc	48
		Refurbish Contl - replace PLC, SCADA upgrade - obsolescence	18
	2027-28	10DVA05-REFURBISH PUN2-MOSS	46
		Upgrade computers of SCADA network for Moura Offstream Storage and Moura Weir	12
	2029-30	Maintenance Strategy - butterfly valve major maintenance	18
	2030-31	Replace 600 Dia B/Fly Control Valve	184
		Replace Control Equipment	108
		Refurbish Contl - replace PLC, SCADA upgrade - obsolescence	18
	2032-33	Refurbish pump - incl. motor, seals, bearings, test, corrosion etc	48
		Upgrade computers of SCADA network for Moura Offstream Storage and Moura Weir	12
	2033-34	10DVA05-REFURBISH PUN2-MOSS	46
	2034-35	Refurbish butterfly control valve at mid life	18
		Refurbish Contl - replace PLC, SCADA upgrade - obsolescence	18
		Refurbish butterfly control valve at mid life.	18
	2035-36	Replace Electrical Cabling	226
		Replace Main Switchboard	197
Moss Rising Main	2016-17	Maintenance required	12
	2019-20	Replace 100 Dav With Vnrv @ 270.6	13
		Replace 100 Dav With Vnrv @ 1828.8	13
		Replace 100 Dav With Vnrv @ 897.8	13
		Replace 100 Dav @ 2083.9	13
		Replace 100 Dav With Vnrv @ 1539.9	13
Moura Offstream Storage	2011-12	12DVAXX CARRY OUT 5 YRLY DAM SAFETY INSP	23
		Recommendations-MOS 2010 Inspection.	19
	2013-14	Repairs to spillway return slopes and batters	74
		Repairs to spillway rock mattresses	12
	2014-15	Study: Failure Impact Assessment	13
	2016-17	12DVAXX CARRY OUT 5 YRLY DAM SAFETY INSP	24
	2021-22	12DVAXX CARRY OUT 5 YRLY DAM SAFETY INSP	24
	2024-25	Study: Failure Impact Assessment	13
	2026-27	Study: 20yr Dam Safety Review (by 1 Jun 2027)	60
		12DVAXX CARRY OUT 5 YRLY DAM SAFETY INSP	23
	2031-32	12DVAXX CARRY OUT 5 YRLY DAM SAFETY INSP	23
	2034-35	Study: Failure Impact Assessment	13
Moura Weir	2015-16	Refurbish: Touch up galvanised screens	18
	2016-17	Replace D/S Protection Works	84
		Replace Slide Gate 6 Bay 54 (D/S)	62
		Replace Slide Gate 5 Bay 48 (D/S)	62
		Replace Slide Gate 7 Bay 59 (D/S)	51
		Investigate and repair waterstop leakage between two upstream bays	12
	2018-19	Replace Cable (Outlets On Fishladder)	15
	2021-22	Refurbish: Touch up galvanised screens	18
	2027-28	Refurbish: Touch up galvanised screens	18
	2031-32	Replace Fish Trap 1 - U/S Gates	19
		Replace Fish Trap 2 - D/S Gates	16
	2033-34	Refurbish: Touch up galvanised screens	18
	2034-35	Replace Control Building	84

Asset	*Year*	*Description*	*Value ($'000)*
	2035-36	Replace Control Equipment	215
		Replace Cable (Level Sensor And Valve Position)	22
Neville Hewitt Weir	2011-12	Refurbish gate and provide protective cover	12
		Refurbish exit channel (upstream) gate - patch painting	12
	2016-17	Replace Valve, 750Mm Butf Keystone	45
	2017-18	Upgrade computer of SCADA network for Neville Hewitt Weir	12
	2019-20	Inspect and refurbish MS pipework in valve pit	12
	2020-21	Replace Hydraulic System	377
		Replace Fish Trap 1 - Holding Chamber	32
		Replace Fish Trap 2 - Exit Channel	31
	2021-22	Replace Control Equipment	74
	2027-28	Upgrade computer of SCADA network for Neville Hewitt Weir	12
	2029-30	Replace Building	139
	2030-31	Replace Control Equipment	333
	2032-33	Replace Security Fence	15
		Inspect and refurbish MS pipework in valve pit	12
	2034-35	Replace Valve, 450Mm Butf	88
Orange Creek Weir	2012-13	Replace outlet dropboards with control gates (Intersafe)	61
		11DVAXX REPLACE LOW LEVEL OUTLET GATE OC	51
		Remedial works to fill voids in weir structure	24
Theodore Weir	2016-17	Replace Protection Works	21
	2022-23	Replace Protection Works	156
	2025-26	Replace Gate, 1000 X 750Mm Slide Armco	110
	2029-30	Install outlet screens *	18
	2033-34	Replace Conc/Steel Piled Weir	642