QUEENSLAND COMPETITION AUTHORITY

Draft Report

SunWater
Irrigation Price Review: 2012-17

Volume 2

Mareeba-Dimbulah
Water Supply Scheme

November 2011

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

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

SUBMISSIONS

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

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

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

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

Confidentiality

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

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

Public access to submissions

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

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

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GLOSSARY

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

EXECUTIVE SUMMARY

Ministerial Direction

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

Summary of Price Recommendations

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

Table 1: Prices for the Mareeba-Dimbulah WSS ($/ML)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Access Charge^	475.40	489.20	512.76	528.88	545.00	564.48	578.59	593.06	607.88	623.08	638.66
River (Tinaroo Falls/Barron) – Medium Priority											
Fixed (Part A)	2.80	2.88	3.00	3.12	3 20	3.32	14.36	14.72	15.09	15.47	15.86
Volumetric (Part B)	14.06	14.47	15.16	15.64	16.11	16.69	0.74	0.76	0.78	0.80	0.82

Note: ^Annual fixed charge per customer. Source: Actual Prices (SunWater, 2011al) and Recommended Prices (QCA, 2011).

Draft Report

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

Volume 2, which comprises scheme specific reports, should be read in conjunction with Volume 1. Also relevant is the Draft Report on the Mareeba-Dimbulah Distribution System.

Consultation

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

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

1. MAREEBA-DIMBULAH WATER SUPPLY SCHEME

1.1 Scheme Description

The Mareeba-Dimbulah water supply scheme (WSS) is located on the Atherton Tablelands. Table 1.1 provides an overview of the key characteristics of the scheme.

Table 1.1: Scheme Overview

	Mareeba-Dimbulah WSS
Business Centre	Mareeba
Irrigation uses of water	Sugarcane, mangoes, bananas, pawpaw, citrus, avocados, other horticulture and coffee.
Industrial uses	The Tinaroo Falls dam releases water to the Barron Gorge Hydroelectric Power Station at Kuranda
Urban Water Supplies	A number of towns and townships are served by the scheme including Tinaroo, Walkamin, Mareeba, Kuranda, Mutchilba, Dimbulah and Yungaburra

Source: Synergies Economic Consulting (2010).

The scheme has a total of 1,136 bulk water customers. Medium and high priority water access entitlements are detailed in Table 1.2. Of the irrigation water access entitlements (WAEs), 28,069 ML is located in the Supplemented Streams and Walsh River and 8,355 ML is in the Relift section.

Table 1.2: Water Access Entitlements (ML)

Customer Group	***Irrigation WAE***	***Total WAE***
Medium Priority	150,469	190,398
High Priority	0	14,026
Total	150,469	204,424

Source: SunWater (2011am).

1.2 Bulk Water Infrastructure

The bulk water service involves the management of storages and WAEs in accordance with regulatory requirements, and the delivery of water to customers in accordance with their WAE.

Stakeholder Submissions

SunWater

Table 1.3 details the full supply storage capacity and age of the key infrastructure. Figure 1.1 shows the location of the Mareeba-Dimbulah WSS and key infrastructure.

Table 1.3: Water Service Infrastructure

Storage Information	*Capacity (ML)*	*Age (years)*
Tinaroo Falls Dam	438,920	53
Bruce Weir	970	62
Collins Weir	600	58
Solanum Weir	345	60
Dulbil Weir	271	61
Leafgold Weir	260	59
Granite Creek Weir	244	63

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

The characteristics of the bulk water assets are:

(a) Tinaroo Falls Dam has two release points, one into the Barron River and one into the West Barron Main Channel;

(b) Dulbil and Granite Creek Weirs consist of a concrete gravity wall with two spillways; and

(c) Collins, Bruce, Leafgold and Solanum Weirs have a mass concrete gravity wall and a central spillway.

Other Stakeholders

CANEGROWERS (2011b) and the Mareeba-Dimbulah Irrigation Area Council (MDIAC, 2011) noted that the Bruce, Collins, Leafgold and Solanum Weirs are listed as assets in the Bulk Network Service Plan (NSP), yet there is renewals expenditure listed against these assets in the Distribution System NSP.

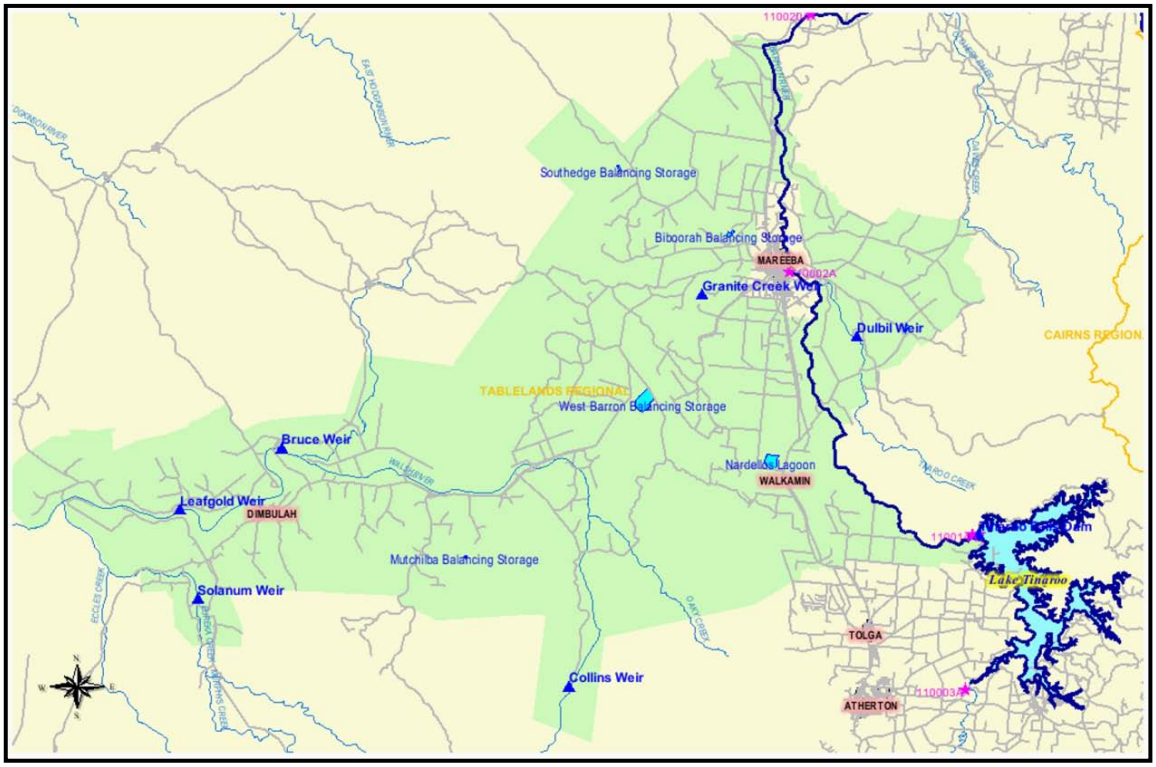
Authority's Analysis

The Bruce, Collins, and Leafgold Weirs are located on the Walsh River and the Solanum Weir is on Eureka Creek, one of the many other supplemented streams. These streams are substantially supplied through the channel system.

SunWater has advised that these weirs should be classified as distribution system assets and relevant costs have been included in the Mareeba Dimbulah Distribution NSP.

This issue is discussed in detail in Section 1.2 of the Mareeba-Dimbulah Distribution report. The Authority has prepared draft prices on the current NSPs and cost information. That is, the assets are being treated as distribution system assets for the purposes of the Draft Report.

Figure 1.1: Mareeba-Dimbulah Water Supply Scheme Locality Map



Source: SunWater (2011).

1.3 Network Service Plans

The Mareeba-Dimbulah WSS NSP presents SunWater's:

(a) existing service standards;

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

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

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

1.4 Consultation

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

(a) invited submissions from interested parties;

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

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

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

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

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

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

Following the amendment to the original Ministerial Direction of 19 March 2010 and further advice from the Minister of 23 September 2010 and 9 June 2011 these issues are outside the scope of the current investigation and have therefore not been 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 Mareeba-Dimbulah Tier 2 group indicated that they were in favour of retaining the existing price cap regulatory arrangement. This arrangement was retained for the 2011-12 interim price period.

2.2 Stakeholder Submissions

SunWater

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

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

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

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

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

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

Other Stakeholders

MDIAC (2010) submitted that SunWater needs to better manage for the impact of demand variability on revenue through the implementation of efficiency measures to reduce variable costs. MDIAC also considered that a risk-free revenue stream would discourage SunWater from implementing efficiency measures to reduce costs and will shift the risk solely onto irrigators.

MDIAC (2010) recommended that the current price cap form of regulation be retained as it provides stable tariffs, thus allowing irrigators to plan their crop rotations and forecast irrigation costs with some degree of certainty.

Tableland Canegrowers (2010) suggested that calculations should be carried out to compare whether a price cap or a revenue cap would be more appropriate for the Mareeba-Dimbulah WSS.

2.3 Authority's Analysis

In Volume 1, the Authority 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.

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

Meter 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 price 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 MDIAC, the Authority considers that short-term volume risks are best managed by customers rather than SunWater, while the associated risks of revenue adequacy and price volatility are best managed by establishing a cost-reflective tariff structure that aligns with fixed and variable costs.

In response to Tableland Canegrowers, the Authority concluded in Volume 1 that the nature of risks is essentially the same in each scheme and, as a result, the same regulatory arrangements are recommended to apply to each scheme. Rather, the Authority concluded that the apportionment of risks is best addressed through the setting of cost-reflective tariff structures for each scheme.

3. PRICING FRAMEWORK

3.1 Tariff Structure

Introduction

During the price negotiations for the 2006-11 price path, it was generally agreed to adopt a 70:30 ratio of fixed to variable costs. However, the Mareeba-Dimbulah Tier 2 group adopted a three-part tariff structure including an access charge for each WAE holder in addition to the Part A and B charges.

This tariff structure is a continuation of historical tariff arrangements and was set to recover 28% of the required revenue in the fixed (Part A) charge and access fee, and 72% of revenue in the variable (Part B) charge for the Tinaroo/Barron tariff group.

The charge structures varied from the 70:30 revenue mix because of an agreement that, should revenues be above lower bound (as at 1 July 2006), a modified tariff mix would apply such that the portion of revenue that is above lower bound would be recovered in the Part B charge. This arrangement was to ensure that SunWater would only receive the above lower bound revenue if water was delivered to the customer.

Stakeholder Submissions

SunWater

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

SunWater did not make any specific proposals in regard to continuation of the fixed access charge in the Mareeba-Dimbulah WSS.

Other Stakeholders

CANEGROWERS (2010a) submitted that water charges should provide both growers and SunWater with an incentive to be efficient, for SunWater to deliver water and the charge to reflect the cost. CANEGROWERS considered that the current tariff split provides SunWater with a small incentive to deliver water, whereas a 100% Part A tariff would provide no incentive.

MDIAC (2010) expressed support for a two-part tariff structure in which Part A reflects fixed costs and Part B reflects variable costs, however the ratio of charges should be no more than has been applied to each segment of the scheme under the current price path. MDIAC also recommended that the current access charge be retained as it supports the existing declining block tariff in the channel system.

MDIAC (2011) subsequently submitted that the fixed charge (Part A) should not account for more than 70% of costs, as above this level there is no incentive for SunWater to provide an acceptable level of service. Further, as true fixed costs will never be ascertained (due to the tight timeframes imposed by government and the lack of information that has been forthcoming to the consultants) it would not be appropriate to charge irrigators a Part A charge based on 100% fixed costs.

MDIAC (2011) submitted that the Part A charge should be paid in arrears.

Tableland Canegrowers and Mareeba District Fruit and Vegetable Growers Association (2010) expressed support for the retention of a two-part tariff under the current Part A/Part B ratio.

D McColl (2010a) noted that a flat annual administration fee is charged and submitted that the size of operation/water allocation should be taken into account.

D McColl (2010b) submitted that a pricing system should reward growers for introducing water efficiency measures and for watering less. While an advocate for a sustainable and prosperous agricultural sector, McColl advised that he is not comfortable with personally subsidising or offsetting growers' irrigation costs and would support a reduction in fixed costs and an increase in variable charges.

D Stewart (2010) submitted that there is insufficient disclosure of the sale price of permanent water transfers.

Authority's Analysis

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

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

The Authority recommends that the access charge be continued to recover part of the required fixed costs, on the basis that:

(a) compared to other SunWater WSS, the Mareeba-Dimbulah WSS has a large number of irrigation customers, with an average WAE of only around 130ML. It could therefore be expected that costs incurred per customer are higher than other schemes;

(b) the current level of the charge is generally in line with the minimum charge imposed in other SunWater channel schemes. For example, the Bundaberg Distribution System has a minimum charge of $507 per channel customer bill regardless of the volume of WAE or usage; and

(c) the access charge has the support of irrigators. If it was removed, an increase in the Part A charge would be required.

The access charge is proposed to be determined as part of the recovery of fixed costs (see Chapter 6 – Draft Prices)

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 Mareeba-Dimbulah WSS are identified in Table 3.1.

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

	2002-03	*2003-04*	*2004-05*	*2005-06*	*2006-07*	*2007-08*	*2008-09*	*2009-10*
Permanent	0	0	25	484	2,492	2,409	280	815
Temporary	27,041	16,787	10,171	9,689	16,608	13,206	14,351	11,620

Note: The trading data above reflects total trading in the bulk and distribution system combined. Source: SunWater (2003-2010g) and Queensland Valuation Services (2010).

The Authority recognises that a change in price structure may impact the value of entitlements, and therefore affect the irrigators' incentives to trade. This matter is addressed further below in conjunction with the analysis of fixed and variable costs.

In relation to issues raised by stakeholders:

(a) the proposed tariff structure is cost-reflective and should provide appropriate incentives for SunWater to deliver water efficiently. The Authority's approach does not result in a 100% fixed charge;

(b) an access charge of the nature of that is in place in the Mareeba-Dimbulah WSS would normally reflect the costs that are fixed on a per customer basis. The Tier 1 Report (SunWater, 2006a) and supporting documents did not indicate that the access fee was intended as an offset for revenue effects of a declining block tariff structure currently in place in the non-relift distribution system;

(c) in regard to the payment of Part A charges in arrears, the Authority notes that if SunWater charges in arrears rather than in advance, the additional financing costs through increased working capital will need to be included in prices. Therefore, the Authority proposes to retain the existing arrangements of charging Part A in advance;

(d) the Authority does not consider that the annual access fee can practically be set on the basis of farm size; and

(e) disclosure of sale prices of permanent water transfers is a matter for SunWater. The Authority considers that greater transparency can lead to more informed and liquid markets.

The Authority's analysis of whether service delivery costs are fixed or variable is addressed in a subsequent chapter as are the cost allocation rules. The Authority's analysis of the three-part tariff structure for channel (outside of re-lift) customer is addressed in the Mareeba-Dimbulah Distribution System Draft Report.

3.2 Water Use Forecasts

Introduction

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

In the 2005-06 review, up to 25 years of historical data were 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 same direction as that trend. Usage

forecasts also took into account future key impacts on water usage, such as changes in industry conditions, impacts of trading and scheme specific issues (SunWater, 2006a)

For the Mareeba-Dimbulah WSS, an annual water usage of 50% of WAE in the river system was assumed (SunWater, 2006b). Water usage for high and medium priority irrigation WAE were not separately identified.

Stakeholder Submissions

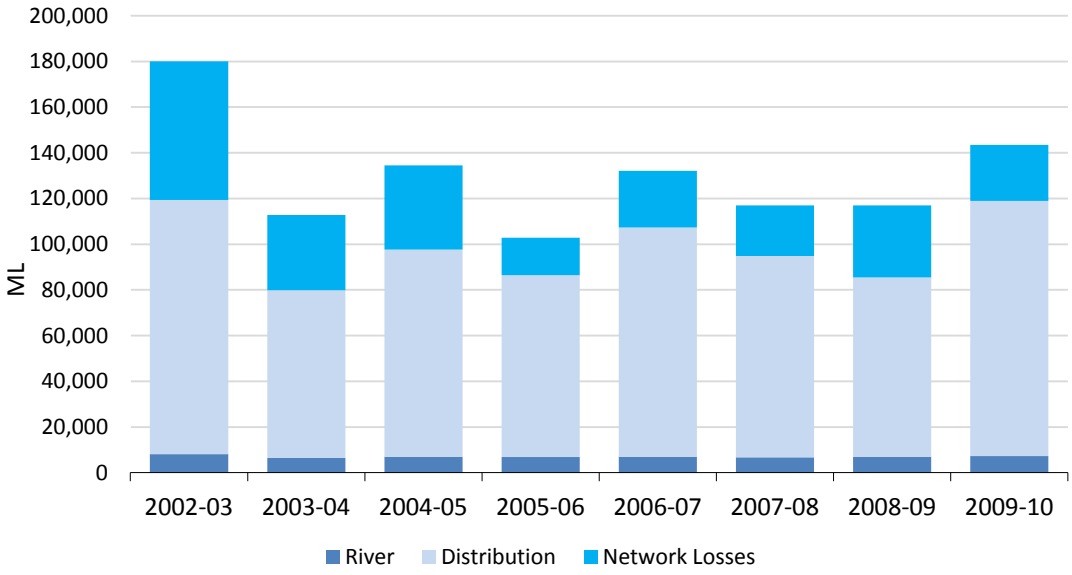
SunWater

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) noted that demand forecasts are not relevant for price setting under SunWater's proposed tariff regime. SunWater's usage forecasts for 2012-17 are made having regard to historic averages over an eight-year period and the usage forecast applied for the current price path.

Figure 3.1 shows the historic usage information for the Mareeba-Dimbulah WSS submitted by SunWater (SunWater, 2011). The river category includes all irrigation and other usage sourced from the river. Distribution volumes refer to irrigation use only. SunWater stated that over the past eight years, total water use in the river system has averaged 64% of WAE at a scheme level and 62% for irrigation WAE.

Figure 3.1: Water Usage for the Mareeba-Dimbulah WSS



Source: SunWater (2011).

SunWater forecast average usage in the irrigation sector of 60%, for both bulk and distribution.

Other Stakeholders

Tableland Canegrowers and Mareeba District Fruit and Vegetable Growers Association (2010) submitted that water use forecasts need to be reviewed for the scheme.

MDIAC (2010) submitted that water demand forecasting should be based on historical data over the last seven years, but if there is a significant increase in demand over two consecutive years

that yields a revenue windfall to SunWater the prices charged to irrigators in the following years of the price path should be adjusted down.

Authority's Analysis

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

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

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

3.3 Tariff Groups

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

In the previous review (SunWater, 2006b) two tariff groups for the river segments of the Mareeba-Dimbulah WSS were nominated:

(a) River (Supplemented Streams & Walsh River); and

(b) River (Tinaroo/Barron).

For the 2012-17 regulatory period, the Walsh River and supplemented streams are included in the Mareeba Distribution System NSP as these are supplied through the channel system. For the bulk supply system therefore, there is effectively only a single tariff grouping, that is, River (Tinaroo/Barron). There are 109 irrigators in this tariff group.

SunWater (2011) proposed in its NSP that the current bulk tariffs be retained.

In accordance with the Ministerial Direction, the Authority has adopted the existing tariff groups.

3.4 Barron Falls Hydro facility – Cost Allocation

For the 2006-11 price path, a proportion of lower bound costs was attributed to the Barron Falls hydro facility, equivalent to a volume of 30,000 ML per year.

Submissions

SunWater

SunWater proposed that a cost allocation in relation to releases made for the Barron Falls hydro facility is required.

For renewals, SunWater proposed that a provision be allowed in the Headworks Utilisation Factor (HUF) calculation, based on the maximum release volumes allowed for under the Barron River ROP. SunWater advised that under the HUF calculation, the hydro share was included in high priority (HP_1). Of the 53% high priority amount in the HUF, the hydro share was 24,700 ML (as detailed in the ROP). This gives a proportion of 20% for hydro (24,700/124,421 ML of HP_1).

For operating costs SunWater has reviewed data on release made for the hydro facility over the three years 2007-08 to 2009-10 and determined that an average of 20% of the volume of releases from Tinaroo Falls Dam are for the hydro facility.

Therefore SunWater proposed that 20% of the bulk water cost (opex) should be assigned to the hydro releases.

SunWater noted that the proportion of 20% for hydro was by coincidence the same for renewals and opex, even though they were derived using different methods.

Other Stakeholders

CANEGROWERS (2011b) questioned whether the 20% allocation to hydro was sufficient and considered that this should be scrutinised.

D Stewart (2011) submitted in regard to a number of issues related to hydro releases:

(a) irrigators have in the past paid the entire cost of operating Tinaroo Dam and the Mareeba-Dimbulah WSS. Stanwell hydro have been using an undeclared amount of unallocated water for many years, affecting the nominal allocation that irrigators receive;

(b) Stanwell has only ever used 600ML of temporary transfer water (to his knowledge), but SunWater has indicated that Stanwell is using environmental releases. Given that Tinaroo Dam is high up in the Barron catchment, there is less need for environmental releases; and

(c) irrigators hold 'insurance water' because of long cycle cropping and pay the full amount of the Part A charge on nominal WAE. This means that Stanwell hydro is using water that has had the Part A charge already paid by irrigators.

D Stewart submitted further emails to the Authority on the above issues as well as other matters unrelated to the Authority's investigation of irrigation water prices.

Authority's Analysis

On the basis of ROP requirements, the Authority accepts that an allocation of costs to the Barron Falls hydro facility is required. While environmental releases to meet ROP river flow requirements can be used to generate hydro-electricity, additional releases for hydro purposes may be made.

For renewals, the Authority accepts SunWater's cost allocation approach, on the basis of release volumes defined in the ROP.

For opex, SunWater's estimate of 20% was an average of the hydro releases as a proportion of total water taken under WAEs for the three years 2007-08 to 2009-10. Average annual hydro release volume over the three years was 31,660 ML. SunWater further advised that only a three-year average was used as the ROP came into force in 2005 and, prior to 1 July 2007, no agreement was in place with the operator (Stanwell) to cover releases.

On request, SunWater advised that 2010-11 releases of 8,756 ML were made for hydro and 98,756 ML of water taken under entitlement. Over the four-year period, the proportion used for hydro was highly variable, between 8% and 27% of total combined hydro releases and water taken under entitlement. The average over the four years was 18%.

SunWater was unable to provide any further historic information on hydro releases (prior to 2007-08).

The Authority agrees with SunWater's approach of apportioning a share of opex costs to hydro on the basis of proportional releases. In the absence of any alternative longer period information, the Authority accepts SunWater's proposed 20% allocation for opex. The 20% cost allocation is broadly consistent with the 30,000ML volume assumed for hydro in the 2006-11 review.

In relation to issues raised by D Stewart (2011):

(a) a proportion of the scheme's costs were allocated to the hydro plant in the 2006-11 price paths (SunWater, 2006b), based on a volume of 30,000 ML of releases. The Tier 2 Working Group noted that this had the effect of reducing the required price increase for irrigators over the period;

(b) the hydro plant can enter the market to purchase temporary transfer water on a needs basis. It uses environmental releases to generate electricity and has an additional provision for additional high priority volumes under the ROP. The question of whether environmental releases are necessary in the Barron catchment is a matter for DERM; and

(c) as Stanwell hydro meets a relevant share of costs for its releases above those needed for environmental releases, the Authority does not consider that there is any possibility that irrigators are contributing to the cost of hydro release water through their Part A charges. On the contrary, Stanwell's releases are treated as high priority allocation and their substantial share of costs, particularly renewals costs, assists to reduce the lower bound per ML cost for irrigators. This was recognised by the Tier 2 Working Group in 2005-06.

The respective cost allocations for renewals and operating costs are reviewed in more detail in Chapters 4 and 5.

4. RENEWALS ANNUITY

4.1 Introduction

Ministerial Direction

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

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

Previous Review

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

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

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

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

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

The allocation of the renewals annuity between high and medium priority users was based on water pricing conversion factors (WPCFs). Separate ARR balances were not identified for bulk and distribution systems.

Issues

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

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

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

  (i) an assessment of 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;

  (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 prudence 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 prudence 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 prudence 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 Mareeba-Dimbulah WSS (including the Distribution System) was $2,888,000. Excluding the Mareeba-Dimbulah Distribution System, SunWater submitted that the opening balance for Mareeba-Dimbulah WSS at 1 July 2006 was $214,000.

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 Mareeba-Dimbulah WSS unbundled ARR as at 30 June 2006 to be inappropriate and subjectively adjusted the balance by $100,000, as noted in Volume 1.

The Authority recommends an unbundled opening ARR balance for Mareeba-Dimbulah (excluding the Mareeba-Dimbulah Distribution System) of $314,000, compared to SunWater's $214,000.

The Authority's unbundled ARR balance reflects SunWater's proposed methodology for the separation of bulk and distribution system assets, which takes into account past and future renewals expenditure (see Volume 1).

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 prudence and efficiency of selected renewals expenditures over the 2006-11 price paths. The Authority has also sought to compare the original expenditure forecasts underlying the 2006-11 price paths with actual expenditure, to establish the accuracy of SunWater's forecasts.

Submissions

SunWater

SunWater (2011) submitted actual renewals expenditure for the Mareeba-Dimbulah WSS for 2006-11 (Table 4.1). This expenditure included indirect and overhead costs which are subject to a separate review by the Authority (see Chapter 5 – Operating Costs). SunWater advised that it was unable to provide the forecast renewals expenditure (approved for the 2005-06 review) for this period.

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

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

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*
Renewals Expenditure	79	34	89	39	164

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

Other Stakeholders

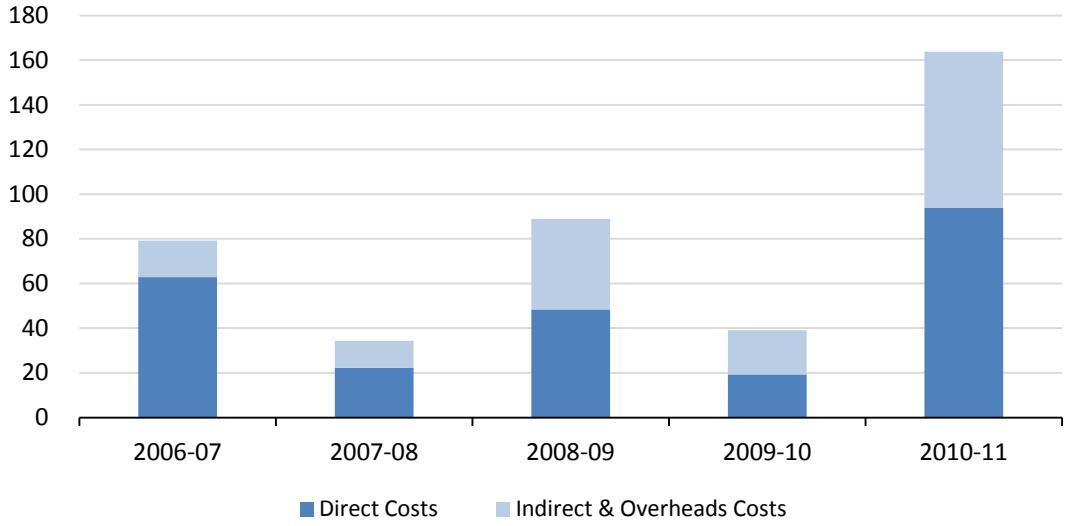
Stakeholder comments in regard to specific renewals expenditure items are summarised below.

Authority's Analysis

Total Renewals Expenditure

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

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



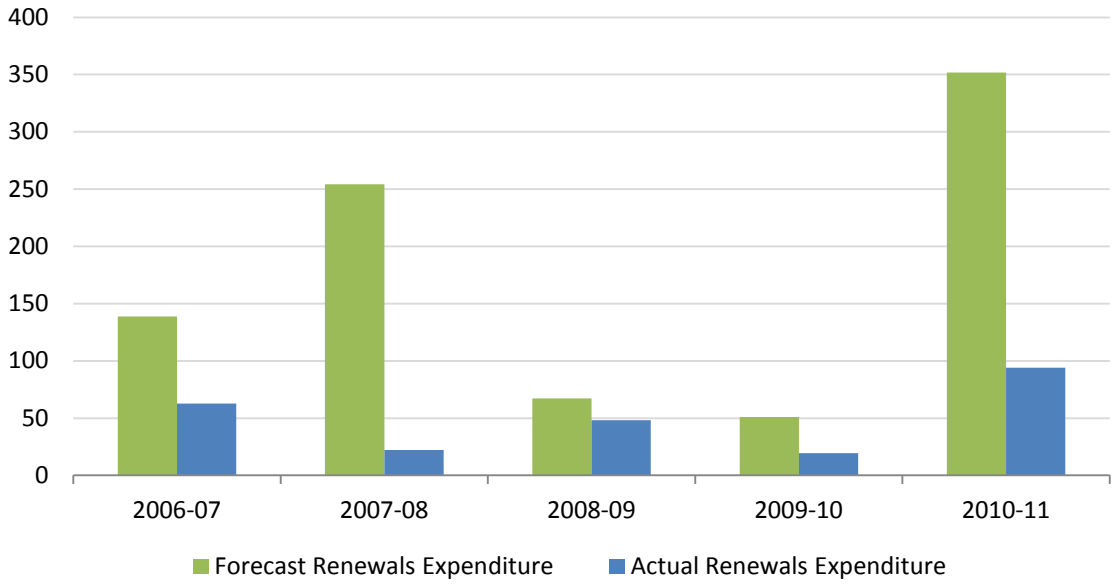
Note: The estimates reflect the most recent information provided by SunWater to the Authority in September 2011. Source: Indec (2011d).

Comparison of Forecast and Actual Costs

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

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

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



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

Actual renewals expenditure was $616,506 (direct costs) lower than forecast for the period.

Arup was appointed to review the prudence and efficiency of past renewals expenditure items. In the absence of forecast renewals expenditure for 2006-11 from SunWater (as noted above), Arup sought to identify variances between annually budgeted and actual expenditure for certain items.

Arup noted that a large component of the works related to the spillway upgrade for Tinaroo Falls Dam which started in 2008-09. Figures provided to Arup indicated that the cost of the upgrade of the spillway came in under budget for 2008-09 and 2009-10, and for 2010-11 up until the point at which the figures were released. However, spillway upgrade costs are not deducted from the annuity reserve.

Item 1: Tinaroo Falls Dam – refurbishment of bellmouth and conduit lining (2011)

SunWater

This item relates to the refurbishment of the bellmouth and conduit lining of the Tinaroo Falls Dam irrigation outlet works pipe at an estimated cost of $110,000.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Arup were provided outputs from SunWater's Systems, Applications and Products (SAP) system relating to this item. Arup considered that the system shows that regular condition assessments have been undertaken and that corrosion pits have formed under coating leading to its poor condition. The system shows that the work, originally proposed for 2009-10, has a moderate level of risk and was deferred to 2010-11 due to the upgrade of Tinaroo Falls Dam.

Authority's Analysis

Arup did not provide a specific recommendation in regard to prudence and efficiency of this item, and the Authority is therefore unable to specific recommendation.

Conclusion

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

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

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

Item	*Year*	*SunWater*	*Authority's Findings*	*Recommended*
Non-sampled Items				10% saving applied

Note: SunWater (2011), Arup (2011), Halcrow (2011), SKM (2011) and QCA (2011).

4.4 Opening ARR Balance (at 1 July 2012)

Stakeholder Submissions

SunWater

SunWater indicated that the renewals opening ARR balance for 1 July 2011 was $1,601,000 for the Mareeba-Dimbulah WSS. This estimate reflects the most recent information provided by SunWater to the Authority in September 2011 and may differ from the NSP.

Other Stakeholders

CANEGROWERS (2011a) noted that the renewals balance is $1,469,000 which is a large reduction from two years before, however the large positive starting balance means that the annuity is very low.

MDIAC (2011) submitted that while they accept the current ARR balance for the scheme is positive, it should be credited to and offset against the next five years of the annuity program. Further, while the scheme is in the fortunate position of starting the new price path with a positive renewals balance, this is either due to forecasting inaccuracy or they have not spent money on renewing assets which they should have.

Authority's Analysis

Based on the Authority's assessment of the prudence and efficiency of past renewals expenditure and the proposed methodology for unbundling ARR balances, the recommended opening ARR balance for 1 July 2011 for the Mareeba-Dimbulah Bulk WSS is $1,846,000.

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

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

(b) adding 2006-11 renewals annuity revenue;

(c) subtracting 2006-11 renewals expenditure; and

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

To establish the closing ARR balance as at 30 June 2012 of $1,668,000, 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.

In response to MDIAC, the Authority notes that SunWater is not expecting to fully expend the balance of the ARR over the coming five years. Instead, the renewals annuities should be used to fund renewals over the 20-year planning period. However, the Authority notes that a relatively large positive renewals balance which exceeds the value of expected renewals over the coming five years results in a reduced renewals annuity payment required from irrigators.

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.

Prudence and Efficiency of Forecast Renewals Expenditure

Submissions

SunWater

SunWater's forecast renewals expenditure for 2011-16 for the Mareeba-Dimbulah WSS, as provided in its NSP, is presented in Table 4.3 (this was 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*
Tinaroo Falls Dam	350	-	101	-	89
Total	**350**	**-**	**101**	**-**	**89**

Source: SunWater (2011).

The major items incorporated in the above estimates are:

(a) Tinaroo Falls Dam – replacement of dispersion valve at an estimated cost of $297,000 in 2011-12; and

(b) Tinaroo Falls Dam – mandatory five-year dam safety inspection at an estimated cost of $101,000 in 2013-14.

The major expenditure items from 2016-17 are:

(a) replacement of trash rack at Tinaroo Falls Dam river outlet at an estimated cost of $668,000 in 2022-23;

(b) replacement of cables and cableways at Tinaroo Falls Dam at an estimated cost of $547,000 in 2026-27; and

(c) replacement of trash rack at Tinaroo Falls Dam irrigation channel outlet at an estimated cost of $689,000 in 2029-30.

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

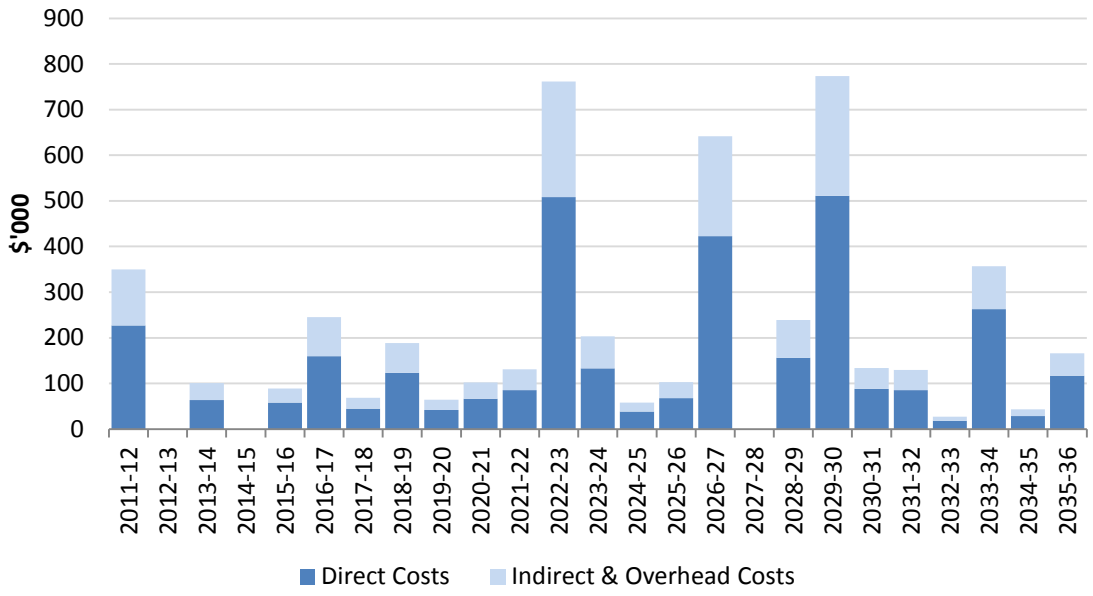
MDIAC (2011) submitted that they are not convinced that some of the large future renewals expenditure will occur.

Authority's Analysis

Total Costs

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

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



Source: SunWater (2011am).

Item Review

Arup reviewed the prudence and efficiency of a sample of forecast renewals expenditure items. Each of the assessed items is discussed below.

Item 1: Tinaroo Falls Dam – river outlet works dispersion value (2011-12)

SunWater

SunWater advised that the existing DN1350 Tinaroo Dam Cone Valve is nearing the end of its expected design life, having been installed in 1957 with a rough expected life of between 50 to 60 years. The item has an estimated cost of $297,000.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Arup were advised by SunWater that this renewals item was identified from the risk assessment and 2008-09 dam safety inspection. A site inspection revealed a number of issues including unreliable opening/closing and excessive wear of the drive train.

Arup noted that SunWater undertook a review of the refurbishment strategy for this piece of equipment investigation, both a temporary restoration and a full replacement. From a discounted cash flow analysis, and depending on the number of years that the existing valve could last, it was recommended that replacement is the best option at a total budgeted cost of $250,000.

Arup considered that the analysis and costing are sound and are based on valve manufacturer's budget costs provided by Hydro Valve Engineering Solutions Pty Ltd.

Authority's Analysis

Arup's conclusion, although not definitive, appears to confirm the prudence and efficiency of the proposed expenditure. The Authority accepts this conclusion.

Item 2: Tinaroo Falls Dam – post tensioning of wall rock bolts (2015-16)

SunWater

This item relates to the post-tensioning of wall rock bolts at the Tinaroo Falls Dam. It is to be conducted by a specialist contractor at an estimated cost of $87,000.

Other Stakeholders

No other stakeholders have commented on this matter.

Consultant's Review

Arup were advised by SunWater that the renewals item has been triggered through a physical hydraulic flood model study of SunWater's dams, where modifications were required to the Tinaroo Falls Dam to ensure safety of the structure when passing an extreme flood event. While the government funded spillway upgrade of the project is due to be completed in 2010-11, SunWater proposed to undertake post tensioning every five years as required by the Australian National Committee on Large Dams (ANCOLD) guidelines.

Arup noted that $87,000 was proposed as an initial costing estimate. However, subsequent discussion with SunWater has revealed that actual estimates had been provided by contractors in 2008-09 for testing the anchor system and were estimated at $115,000. SunWater advised that the inclusion of this cost would escalate the total item cost to $160,000

Arup were unclear on why a value of $87,000 was incorporated into the development of the NSP figures when SunWater already had a value of $115,000 in 2008-09. This would indicate that updating the system with more recent costs may take longer than required affecting the accuracy of some of the figures reported in the NSP.

Authority's Analysis

While the expenditure appears prudent on the basis of the need to meet ANCOLD guidelines, there is some uncertainty regarding the actual cost. The Authority recommends that an amount of $87,000 as originally proposed be included.

Conclusion

In summary, two items for the Mareeba-Dimbulah WSS were sampled, both of which were assessed as being prudent and efficient and have been retained as forecast expenditure.

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

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

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

Item	*Year*	*SunWater ($'000)*	*Authority's Findings*	*Recommended ($'000)*
Sampled Items				
1. Tinaroo Falls Dam – river outlet works dispersion valve	2011-12	297	Prudent and efficient	297
2. Tinaroo Falls Dam – post-tensioning of wall rock bolts	20-1516	87	Prudent and efficient	87
Subtotal		394		394
Non-Sampled Items				10% saving applied

Source: SunWater (2011), Arup (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

MDIAC (2011) submitted that the service level agreement between SunWater and irrigators needs to have a clause added which obliges SunWater to carry out an annual consultation and approval's process of the renewals program with irrigators on both the actual spent in the last 12 months and the forecast program for the next 12 months. The consultation process should include benchmarking against 'best practice' to ensure efficient investment of the renewals reserve.

Authority's Analysis

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

Arup (2011) noted that a breakdown of talks between irrigator groups and SunWater has occurred in the Mareeba-Dimbulah WSS. They observed that this is due to a lack of:

(a) communication on the part of SunWater with regards to the changes which were to take place in the region;

(b) clarity around the role of the IAC and expectations of both the irrigators and SunWater; and

(c) understanding within the irrigation community on what issues are outside of the hands of SunWater (i.e. recreational costs, ROP costs, etc).

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. The Authority's recommendations are detailed in Volume 1.

4.7 Allocation of Headworks Renewals Costs According to WAE Priority

Previous Review

For the 2006-11 price path, the renewals costs for the Mareeba-Dimbulah bulk water infrastructure were apportioned between priority groups using converted nominal water allocations. The conversion to medium priority WAE was determined a water pricing conversion factor of 1.5; that is, one ML of high priority WAE was considered equivalent to approximately 1.5 ML of medium priority WAE.

Stakeholder Submissions

SunWater

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

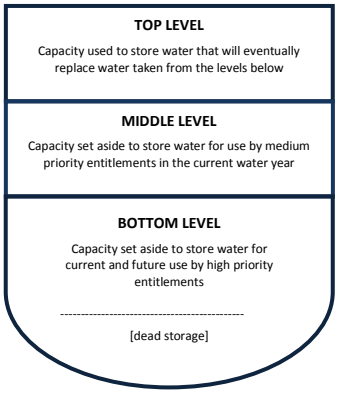
SunWater submitted that, in general, the HUF allocates a greater proportion of capital costs per ML to high priority WAE. Specifically, the HUF methodology takes into account water sharing rules, critical water sharing arrangements (CWSAs) and other operational requirements that typically give high priority 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[1].

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 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.

[1] 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.

The parameters used for determining the HUFs for the Mareeba-Dimbulah WSS are summarised in Table 4.5. They reflect revisions to nominal WAE volumes, as submitted by SunWater in Addendum Part 1 – Erratum: Errors found in HUF Input Data (SunWater, 2011x). The HUFs for this scheme (SunWater 2010d) are 47% for medium priority and 53% for high priority.

Table 4.5: Application of HUFs Methodology

STEP 1: Water Entitlement Groups (DERM's Water Allocation Register)			
Nominal Group	**(ML)**	**HUF Group**	**(ML)**
Medium Priority	190,399	MP_A	190,399
High Priority	14,026	HP_A	14,026
STEP 2: ROP Conversion Factor Adjustment			
Conversion Factor: ROP_{CF}			1/0.7
Maximum volume that can be converted to HP: $HP_A max$			33,900
Corresponding volume of MP: $MP_A min = MP_A-(HP_A max-HP_A)*ROP_{CF}$			162,008
STEP 3: Water Sharing Rules & Operational Requirements			
Water Sharing Rules			
Volume below which MP not available: $MP_0 AA$			101,021
Volume above which max. MP available: $MP_{100} AA$			329,202
CWSAs and other operational requirements			
Likely increase in volume effectively reserved for HP: MP_0			125,721
Likely increase in min. storage before maximum MP available: MP_{100}			353,902
Key Dam Level Measures			
Full Supply Level: FSV_{hwks}			438,920
Dead Storage Level: DSL_{hwks}			1,300

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 = 79,185; HP_2 = 5,833	8%	MP_{2u} = 6005; HP_{2u} = 442
Middle: $min\{(MP_{100}-MP_0),(FSV_{hwks}-MP_0)\}$	MP_1 = 228,181	41%	MP_{1u} = 94,135
Bottom: $MP_0 - DSV_{hwks}$	HP_1 = 124,421	90%	HP_{1u} = 111,540

STEP 5: Calculation of HUFs for each Water Entitlement Group		
Formula	**HUF Group**	**Nominal Group**
MP_A: $(MP_{1u}+MP_{2u}) / (MP_{1u}+HP_{1u}+MP_{2u}+HP_{2u})$ = (94,1356005) / (94,135+111,540+6005+442)	HUF_{mp} = 47%	Medium Priority = 47%
HP_A: $(HP_{1u}+HP_{2u}) / (MP_{1u}+HP_{1u}+MP_{2u}+HP_{2u})$ = (111,540+442) / (94,135+111,540+6005+442)	HUF_{hp} = 53%	High Priority = 53%

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

Other Stakeholders

MDIAC (2010) submitted that HUFs should be assessed on the basis of the daily storage levels of the scheme over the 15-year term which reflects the poorest hydrological performance. The HUFs approach should be used to allocate lower bound headworks costs.

The MDIAC (2011) further submitted in support of the use of the HUF for allocating renewals with 46% attributed to medium priority and the remainder to high priority and hydro-electric.

Authority's Analysis

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

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

SunWater (2011x) accepted these recommendations and submitted recalculated HUFs for each scheme. For the Mareeba-Dimbulah Bulk WSS, there were no material changes in the HUF values for each priority group (Table 4.6).

Table 4.6: Revised HUF Calculations

STEP 4: Hydrologic performance of headworks storage

Storage Layer	Storage Capacity (ML)	Prob. of Utilisation	Utilised Capacity (ML)
Top layer			
Initial	MP_2 = 79,185; HP_2 = 5,833	8%	MP_{2u} = 6,005; HP_{2u} = 442
*Revised**	MP_2 = 79,185; HP_2 = 5,833	no change	MP_{2u} = 6,005; HP_{2u} = 442
Middle Layer	MP_1 = 228,181	41%	MP_{1u} = 94,135
Bottom Layer	HP_1 = 124,421	90%	HP_{1u} = 111,540

STEP 5: Calculation of HUFs for each Water Entitlement Group

	Initial	Revised	Nominal Group
HUF_{mp}	47%	47%	Medium Priority = 47%
HUF_{hp}	53%	53%	High Priority = 53%

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

The Authority estimates that based on the HUF methodology, the conversion for medium priority to high priority would be 15.3:1. This compares with the WPCF of 1.5:1 used for 2006-11 price paths. This reflects the critical water sharing arrangements high priority nominal WAE accounts for only 7% of the total WAE but is allocated 53% of bulk renewals costs under HUF. Further, the Authority notes that under the HUF approach, medium priority irrigators will now pay 47% of the cost of renewals whereas previously medium priority irrigators paid 90%.

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 Mareeba-Dimbulah WSS, the recommended renewals annuity for the 2012-17 regulatory period is shown in Table 4.7. 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 4.7: Mareeba-Dimbulah 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*
Total SunWater	31	362	392	420	362	3	5	5	11	12	12
Total Authority	-	-	-	-	-	-	26	26	34	34	37
High Priority	-	-	-	-	-	-	10	10	13	13	14
Medium Priority	-	-	-	-	-	-	10	10	13	14	15
Distribution Losses	-	-	-	-	-	-	6	6	8	8	9

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

5. OPERATING COSTS

5.1 Background

Ministerial Direction

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

Issues

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

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

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

(c) the prudence 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[2] and to different priority customer groups (within each service contract).

5.2 Total Operating Costs

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

Non-direct costs are classified as either:

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

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

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

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

(a) a Service Manager and 26 staff are located at the Mareeba depot and are responsible for the day to day water supply management and for delivery of the programmed works for all users in the region.

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

(b) service provision relates to:

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

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

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

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

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

Storage	***Monitoring requirements***			
	Inflow	*Head Water*	*Tail Water*	*BGA*
Tinaroo Falls Dam	Yes	Yes	Yes	Yes
Collins Weir	Yes	Yes	Yes	Yes

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

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

Routine dam safety inspections are carried out monthly on Tinaroo Falls Dam and Collins Weir. Specific dam safety inspections are required at Tinaroo Falls Dam, which include monitoring of embankments, piezometers, seepage and the general condition of the storages as defined in the dam surveillance specification. They also include 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) SunWater has sought to transfer the management and cost of recreation activities to private operators or Government. Recreation facilities at the Tinaroo Falls Dam are currently managed by the Tablelands Regional Council; and

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

Previous Review

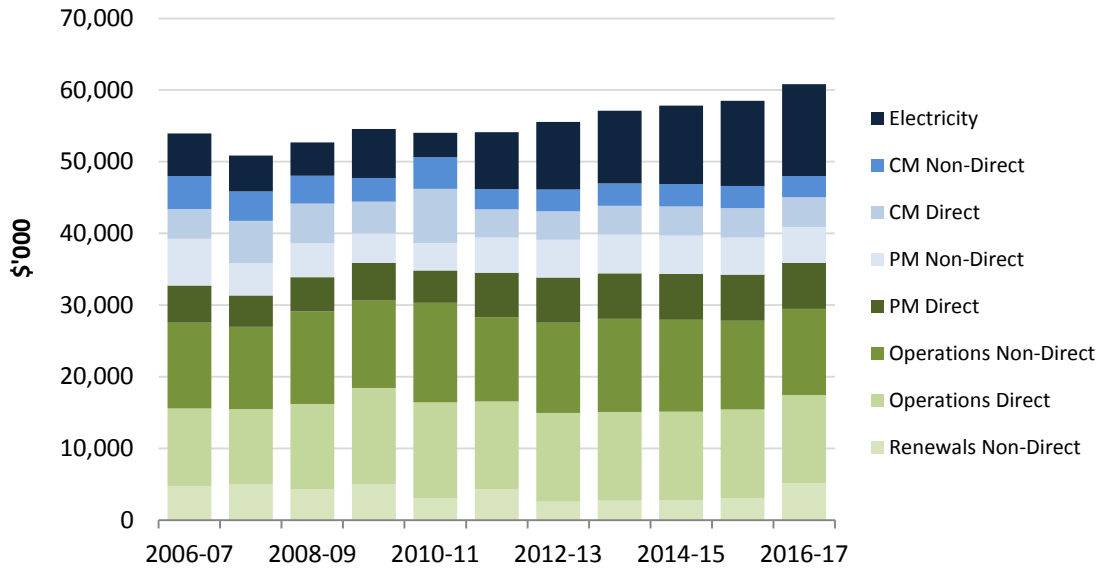
For the 2006-11 price paths, Indec identified annual cost savings of between $3.8 million and $5.5 million (2010-11 dollars) or 7.5% to 9.9% of total annual costs, which SunWater was to achieve during the 2006-11 price paths (SunWater, 2006a). See Volume 1.

Stakeholder Submissions

SunWater

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

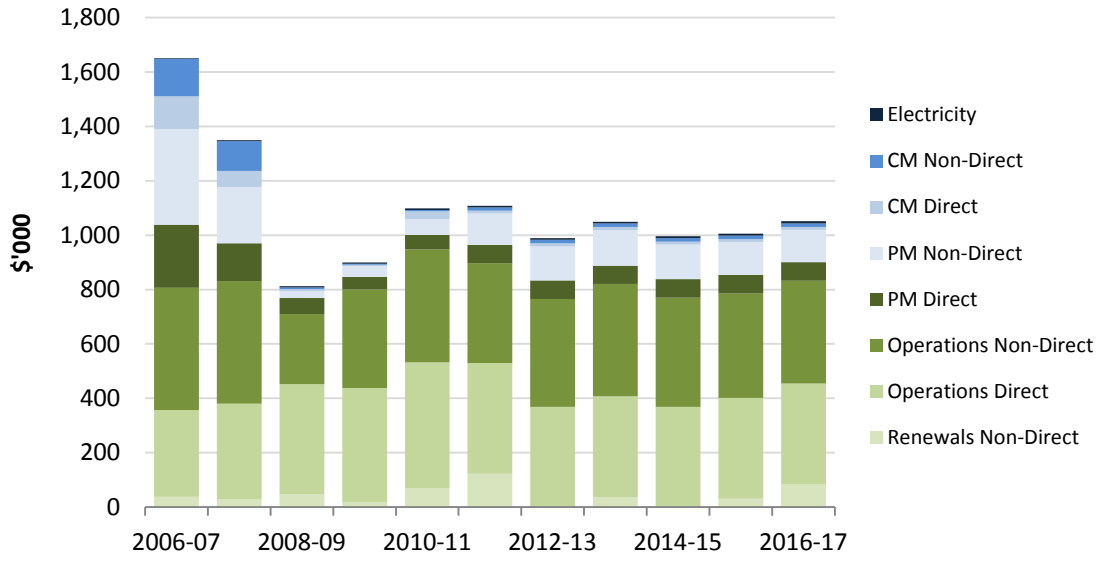
Figure 5.1: SunWater's Total Operating Costs (Real $) – All Service Contracts



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 the Mareeba-Dimbulah WSS (all sectors) is shown in Figure 5.2, Table 5.1 and Table 5.2.

Figure 5.2: Total Operating Costs – Mareeba-Dimbulah WSS (Real $)



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	***200***7-0***8***	***200***8-0***9***	***20***09-***10***	***20***10-***11***	***20***11-***12***	***20***12-***13***	***20***13-***14***	***20***14-***15***	***20***15-***16***	***20***16-17
Operations	769	802	663	781	878	775	766	782	770	754	747
Electricity	3	4	4	4	6	5	6	6	7	8	8
Preventive Maintenance	583	347	85	86	112	182	193	198	195	189	187
Corrective Maintenance	258	167	13	8	33	23	24	25	24	24	24
Renewals Non-Direct	38	29	47	20	70	123	0	38	0	31	85
Total	**1,651**	**1,349**	**812**	**899**	**1,099**	**1,107**	**988**	**1,049**	**996**	**1,006**	**1,051**

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 (2011).

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	416	280	215	202	206	252	256	256	256	256	256
Electricity	3	4	4	4	6	5	6	6	7	8	8
Contractors	25	21	12	18	22	58	18	18	18	19	19
Materials	82	50	46	5	25	13	14	14	14	14	14
Other	148	197	196	243	289	161	161	161	160	161	160
Non-Direct	976	797	339	427	550	617	534	594	541	549	594
Total	**1,651**	**1,349**	**812**	**899**	**1,099**	**1,107**	**988**	**1,049**	**996**	**1,006**	**1,051**

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: Source: SunWater (2011).

In its NSP, SunWater submitted that bulk water operating costs for this scheme averaged $1,039,000 per annum over the period of the current price path. [Operating costs as defined in the NSP exclude the indirect and overhead costs allocated to renewals expenditure.] The projected efficient average operating costs, for the new five-year period, is $935,000 per annum.

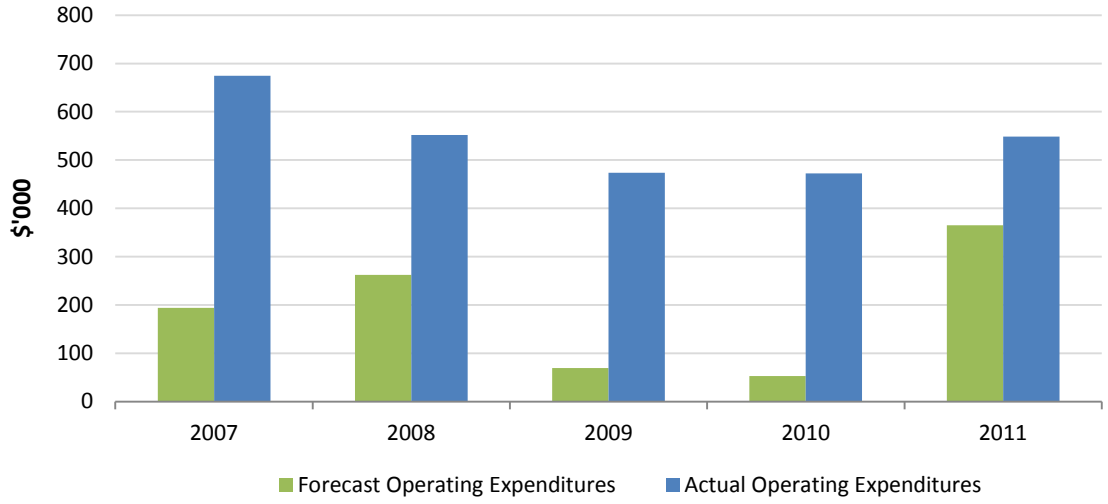
Authority's Analysis

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 2010-11, the Authority engaged Indec to assess whether SunWater achieved the cost savings forecast for 2005-06. A comparison of forecast and actual operating costs for the Mareeba-Dimbulah WSS is shown in Figure 5.3. 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 $)



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

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

5.3 Non-Direct Costs

Introduction

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

Some specialist operations staff with expertise in key operational areas 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, which SunWater categorises as either overheads or indirect 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 Mareeba-Dimbulah WSS are set out in Table 5.4.

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

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
SunWater	27,831	25,097	25,872	24,579	25,152	23,770	23,512	24,244	24,055	23,708	25,089
Mareeba-Dimbulah WSS	976	797	339	427	550	617	534	594	541	549	594

Source: SunWater (2011).

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

CANEGROWERS (2011a) noted that overheads account for 50% of total operating costs which is alarming for a distribution system.

CANEGROWERS (2011b) also submitted that there had been a decrease in the level of service since the Mareeba office had been shut down [to the public] and questioned whether costs had decreased sufficiently to compensate for loss of service.

Tableland Canegrowers and Mareeba District Fruit and Vegetable Growers Association (2010) also noted that SunWater had attempted to implement cost savings by cutting Regional Office staff numbers. They submitted that this was not a workable solution and that SunWater needed to be encouraged to look at cost savings without reducing their level of service.

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 prudence and efficiency, the Authority commissioned Deloitte Touche Tohmatsu (Deloitte) to review SunWater's non-direct costs. Deloitte carried out benchmarking to assess where potential efficiencies within SunWater may be achieved. Deloitte identified savings of $495,314 (in 2011 real terms) per annum in finance, human resources, information technology, and health, safety, environmental and quality areas (for the whole of SunWater).

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

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

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

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 (targeted DLC); and

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

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

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

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

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

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
SunWater	976	797	339	427	550	617	534	594	541	549	594
Authority	-	-	-	-	-	-	520	567	510	514	544

Source: (SunWater, 2011).

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, PM, CM and electricity. SunWater's operating costs were forecast using this classification. The nature of these activities and costs are identified further below.

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

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

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

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

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

Stakeholder Submissions

SunWater

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

SunWater's forecast direct operating expenditure by activity is set out in Table 5.6. These estimates reflect SunWater's most recent positions and differ from the NSP. The estimates also reflect the most recent information provided by SunWater to the Authority in October 2011.

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

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations	319	351	405	418	462	407	369	370	369	370	370
Electricity	3	4	4	4	6	5	6	6	7	8	8
Preventive Maintenance	232	139	58	45	52	67	68	68	68	68	68
Corrective Maintenance	120	59	7	5	28	11	11	11	11	11	11
Total	**674**	**552**	**474**	**472**	**548**	**490**	**454**	**455**	**455**	**457**	**457**

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	416	280	215	202	206	252	256	256	256	256	256
Electricity	3	4	4	4	6	5	6	6	7	8	8
Contractors	25	21	12	18	22	58	18	18	18	19	19
Materials	82	50	46	5	25	13	14	14	14	14	14
Other	148	197	196	243	289	161	161	161	160	161	160
Total	**674**	**552**	**474**	**472**	**548**	**490**	**454**	**455**	**455**	**457**	**457**

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 Arup to review the prudence and efficiency of SunWater's proposed direct operating expenditure for this scheme. Arup's review involved:

(a) site inspections and discussions with local managers to appraise the efficiency of work practices, operators' knowledge of assets and day to day operation issues;

(b) discussions with irrigators to identify, understand and verify key issues; and

(c) a desktop assessment of data provided by SunWater in order to:

  (i) compare historical actual and forecast data;

  (ii) investigate operational forecasts based on historical trends and field observations;

(iii) understand historical trends in line with actual water usage; and

(iv) understand how systems have been modified with respect to management of operating expenditure.

Arup reviewed the extent to which SunWater's operating expenditure forecasts are based on appropriate cost drivers (including water use), and the cost escalation methods and factors used to prepare them. The assessment was undertaken having regard to the conditions prevailing in relevant markets, historical trends, relevant interstate and international benchmarks, and SunWater's service standards and compliance requirements.

Arup reported, however, that SunWater's information systems were not specifically designed for the provision of information to assess prudence and efficiency. In particular, the information provided by SunWater did not sufficiently enable costs to be connected with the discharge of specific service obligations. Arup also noted that operational and procedural changes following the SLFI review and the introduction of ROPs may have made the extraction and reconciliation of such information difficult.

Arup advised that since the information provided by SunWater did not afford the ability to "drill down" into costs to adequately review prudence and efficiency, their assessment of direct operating expenditure was limited to a general review of SunWater's processes, procedures and trend.

On this basis, Arup considered that SunWater's policy and procedural documents are broadly consistent with industry practice, and that SunWater has demonstrated the adoption and integration of them into its management system. Site visits also showed that field personnel are gradually adopting these systems and processes.

Arup acknowledged that SunWater continually reviews policies and procedures to take account of changed market conditions, with the aim of streamlining operations across the organisation. While in some instances observing such changes from a regional perspective may give the impression that the changes are inefficient, Arup considered that when observed from a state wide perspective, significant efficiencies are being made.

Arup concluded that, in general, the procedures adopted are prudent and SunWater is undertaking work to make their operations more efficient.

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

(a) attain greater operating efficiency;

(b) achieve greater transparency;

(c) facilitate future price reviews; and

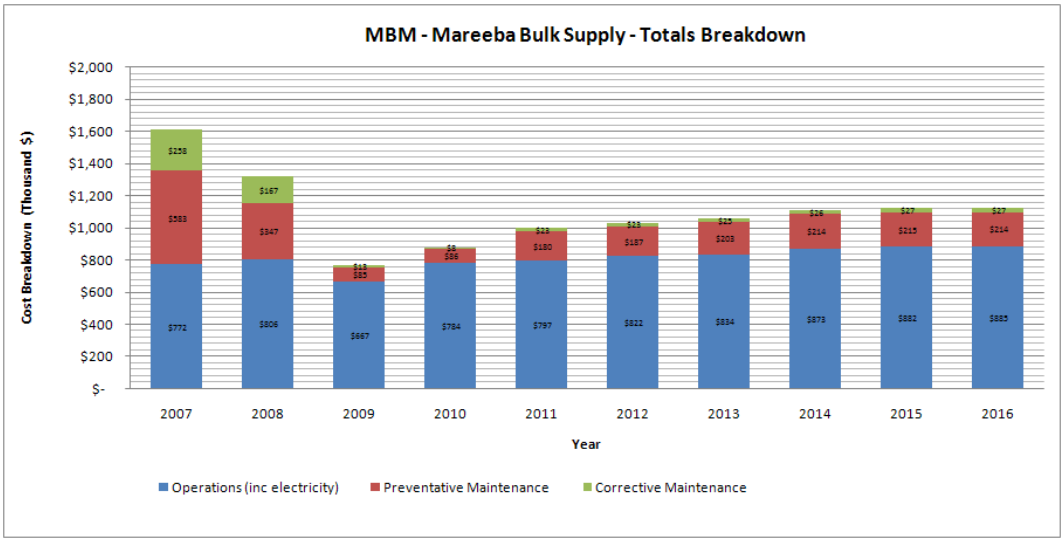
(d) promote more meaningful stakeholder engagement.

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

Arup noted that the total operating expenditure declined significantly between 2007-08 and 2008-09, particularly for preventive and corrective maintenance (Figure 5.4). Arup advised that this is largely due to the splitting of bulk and distribution system assets to fit the BOM.

Consequently the breakdown of costs between the bulk and distribution system may not accurately reflect the actual work undertaken in each system.

Figure 5.4: Total Operating Expenditure Breakdown – Mareeba-Dimbulah WSS



Note: Data in figure based on NSP and may differ from most recent SunWater data. Source: Arup 2011.

Item 1: Operations

Stakeholder Submissions

SunWater

Operations relate to the day to day operational activity (other than maintenance) enabling water delivery, customer management, asset management planning, financial and ROP reporting, workplace health and safety compliance, administration, and environmental and land management.

SunWater's operating expenditure forecasts have been developed on the basis of detailed work instructions and operational manuals for each scheme. SunWater's proposed operations costs are set out in Table 5.6.

SunWater advised that the management and associated costs of recreational facilities located at Tinaroo Falls Dam are the responsibility of the Tablelands Regional Council. DERM also maintain recreational facilities adjacent to Lake Tinaroo.

Other Stakeholders

Canegrowers (2011a) noted that operating costs in the bulk scheme are estimated to decrease by 10% over the next five years in real terms, which is an 8% increase in nominal terms by 2015-16.

MDIAC (2010) submitted that recreation costs should not be recovered from SunWater customers but from the communities and direct users that benefit from the use of these facilities and from the government as a Community Service Obligation.

Authority Analysis

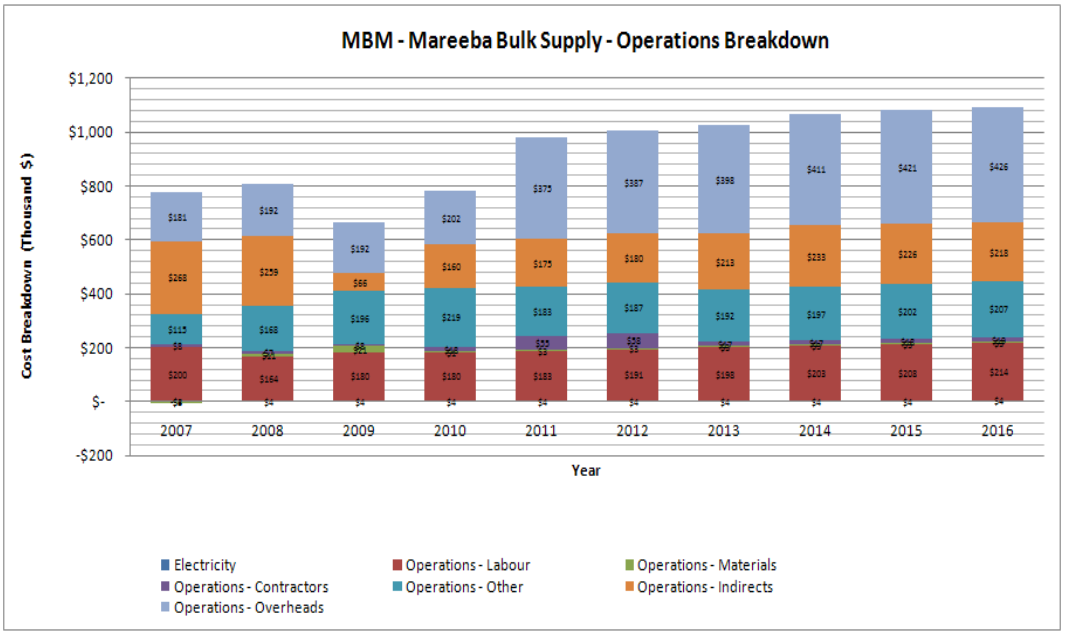
Consultant's Review

Arup noted that key drivers affecting operating expenditure include workplace health and safety, environmental obligations (such as ROLs and ROPs) and dam safety obligations.

In meeting these obligations Arup considered that a smaller water service provided may be able to take a more relaxed approach and, in effect, accept a higher level of risk. However, for a large organisation such as SunWater, the financial risks of not meeting these obligations are significant.

In reviewing operations expenditure for the Mareeba-Dimbulah WSS (Figure 5.5), Arup noted that the labour component is fairly steady, with the majority of costs in this area taken up by activities associated with environmental management, scheduling of water delivery and general scheme management. Lesser components are workplace health and safety, customer management, meter reading and facility management.

Figure 5.5: Operations Expenditure Breakdown – Mareeba-Dimbulah WSS



Note: Data in figure based on NSP and may differ from most recent SunWater data. Source: Arup 2011.

Arup did not recommend any adjustments to SunWater's operations expenditure for this scheme.

Conclusion

The Authority notes that Arup did not recommend any adjustment to operations expenditure for this scheme.

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

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

adjustment to operations costs. Further, SunWater's forecast average annual operations costs are approximately 6% 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 expenditure forecast.

In response to MDIAC, the Authority notes that the management of recreation facilities at Tinaroo Falls Dams are the responsibility of the Tablelands Regional Council, while those adjacent to Lake Tinaroo are maintained by DERM.

Item 2: Preventive Maintenance

Stakeholder Submissions

SunWater

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

Preventive maintenance includes:

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

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

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

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

Other Stakeholders

No other stakeholders commented on this item.

Authority Analysis

Consultant's Review

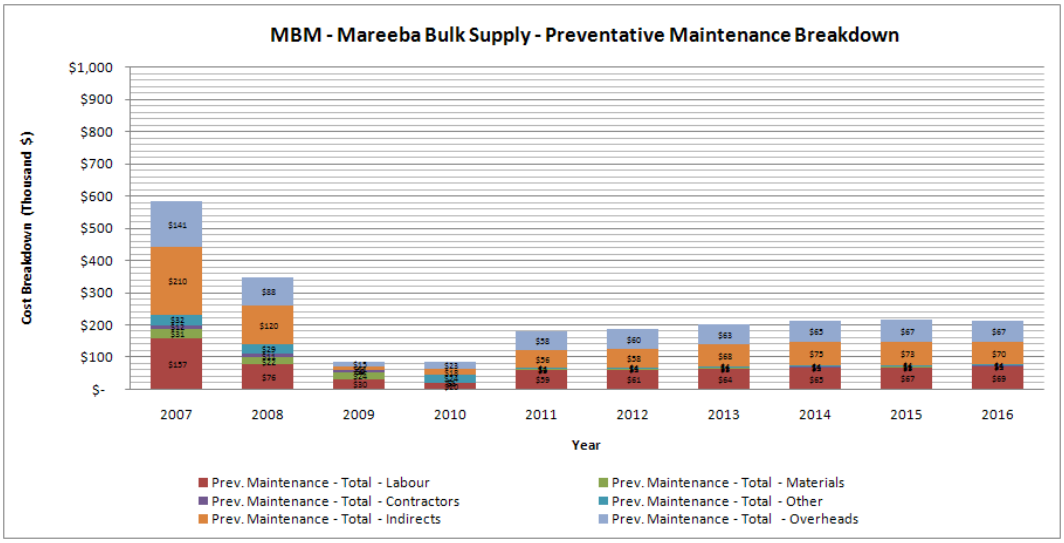
Arup noted that PB were engaged by SunWater in 2010 to assess the organisation's preventive maintenance work instructions and associated costs, and establish a confidence level of planned baseline costs for 2010-11 for all services contracts.

Arup requested a formal statement from SunWater as to how the outcomes of this assessment had been incorporated into preventive maintenance forecasts, including details of what initiatives had been or are scheduled to be put in place. However, on the basis of the information provided, Arup were not able to determine how PB's revised forecasts had been integrated into the NSP forecasts.

In reviewing preventive maintenance for the Mareeba-Dimbulah WSS, Arup noted that preventive maintenance decline significantly from 2007-08 to 2009-10 but has since plateaued. From 2010-11 onwards, labour costs are forecast to increase. One reason for this is that Tinaroo Falls Dam is a referable dam and regulations under the *Water Supply (Safety and Reliability)*

Act 2008 impose further onus on the operator with regards to dam surveillance. In particular, more frequent inspections are necessary at Tinaroo Falls Dam to monitor aspects such embankment stresses, seepage and pore pressure measurements, all of which are likely to increase costs associated with preventive maintenance.

Figure 5.6: Preventive Maintenance Breakdown – Mareeba-Dimbulah WSS



Note: Data in figure based on NSP and may differ from most recent SunWater data. Source: Arup 2011.

Arup did not recommend an adjustment to SunWater's preventive maintenance expenditure for this scheme.

Conclusion

The Authority notes that Arup did not recommend any adjustments to SunWater's preventive maintenance costs.

In Volume 1, the Authority noted that most of its consultants considered that that there is scope for SunWater to achieve further efficiencies once the balance of preventive and corrective maintenance is optimised. The Authority considered that this potential for efficiency could be addressed via the broad efficiency measures imposed on SunWater schemes (noted further below).

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

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

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

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

For this scheme, the Authority did not specifically adjust SunWater's preventive maintenance expenditure forecast.

Item 3: Corrective Maintenance

Stakeholder Submissions

SunWater

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

SunWater identifies two types of corrective maintenance activities:

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

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

SunWater has forecast corrective maintenance based on past experience. This provision includes a portion of labour costs in the scheme for such events, as well as additional materials and plant hire.

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

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

Other Stakeholders

No other stakeholders have commented on this item.

Authority's Analysis

Consultant's Review

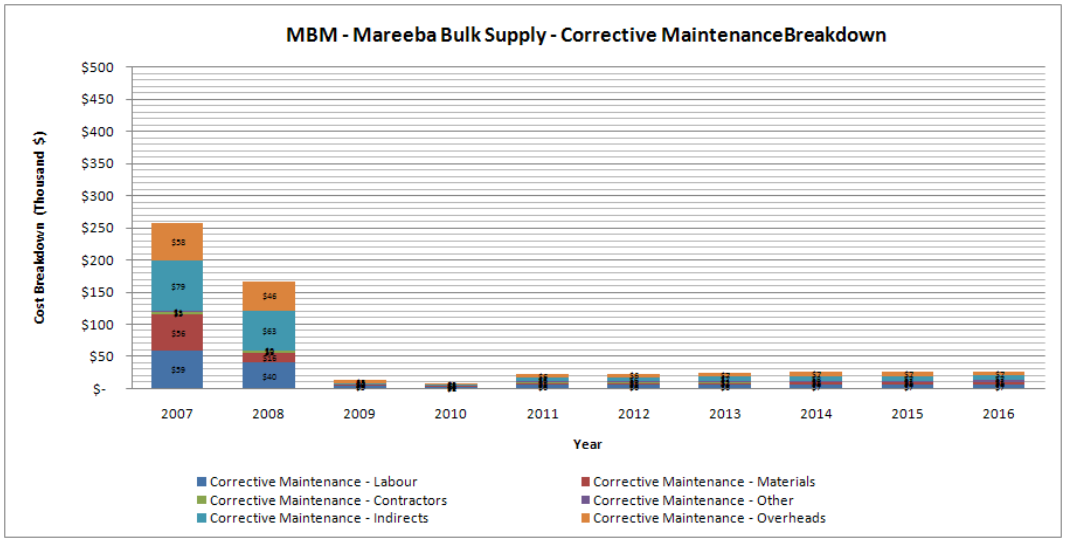
Arup noted that corrective maintenance forecasts are based on actual spends from the last four years.

Although SunWater advised Arup that it has sought to review the balance between corrective and preventive maintenance, Arup reported that they were not provided with any formal documentation indicating the exact methodology used to prepare the correctively maintenance forecasts.

Arup also noted that if adopted, the RCM approach recommended by PB (2010) would seek to optimise the process by which maintenance is undertaken and, in doing so, would also optimise the balance between preventive and corrective maintenance.

In reviewing corrective maintenance for the Mareeba-Dimbulah WSS, Arup noted that corrective maintenance is a very small component of total operations cost.

Figure 5.7: Corrective Maintenance Breakdown – Mareeba-Dimbulah WSS



Note: Data in figure based on NSP and may differ from most recent SunWater data. Source: Arup 2011.

Arup did not recommend an adjustment to SunWater's corrective maintenance expenditure for this scheme.

Conclusion

The Authority notes that Arup did not recommend any adjustments to SunWater's corrective maintenance expenditure for this scheme.

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.

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

Item 4: Electricity

Stakeholder Submissions

SunWater

SunWater submitted that the electricity costs for the bulk supply relate mainly to outlet works actuation, SCADA, gallery and crest lighting for access and security. No pump stations are included as all releases are made by gravity.

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

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

Other Stakeholders

No stakeholders made submissions regarding this item.

Authority Analysis

Arup noted that SunWater has undertaken extensive cost-benefit analyses into when and where it should adopt contestable or franchise tariffs. In particular, specialist consultants in this field have been employed to advise SunWater on such strategies and for this scheme the current advice is to run a franchise tariff.

Arup did not recommend an adjustment to SunWater's electricity expenditure for this scheme.

Conclusion

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

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

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

The Authority has adjusted proposed electricity costs as set out in Table 5.8.

Item 5: Cost Escalation

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

Direct Labour

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

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

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

Direct Materials and Contractors

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

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

Other Costs

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

Conclusion

A comparison of SunWater's and the Authority's direct operating costs for the Mareeba-Dimbulah WSS is set out below in Table 5.8.

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 5.8: Direct Operating Costs (Real $'000)

	SunWater					***Authority***				
	2012-13	***2013-14***	***2014-15***	***2015-16***	***2016-17***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Operations	369	370	369	370	370	357	358	358	358	358
Electricity	6	6	7	8	8	5	5	6	6	6
Preventive Maintenance	68	68	68	68	68	66	66	67	67	67
Corrective Maintenance	11	11	11	11	11	11	11	11	11	11
Total	**454**	**455**	**455**	**457**	**457**	**439**	**440**	**441**	**442**	**442**

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 WAE.

For the purpose of allocating operating costs in the Mareeba-Dimbulah WSS, SunWater submitted that total WAE is 204,424 ML of which 190,398 (93%) is medium priority. However, a cost allocation in relation to releases made for the Barron Falls hydro facility is required before the operating costs can be assigned to medium and high priority WAE. SunWater reviewed data on releases made for the facility over the past three years and determined that an average of 20% of the volume of releases from Tinaroo Falls Dam is for the hydro facility. Therefore, SunWater proposes that 20% of the bulk water cost should be assigned to the hydro releases.

Other Stakeholders

MDIAC (2011) noted that due to tight timeframes the consultants have not been able to adequately assess whether SunWater has correctly apportioned cost to medium and high priority customers. MDIAC submitted that operating costs should be allocated between high and medium priority WAE using a 3:1 ratio.

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

5.6 Summary of Operating Costs

SunWater's proposed operating costs by activity and type are set out in Table 5.9. The Authority's recommended operating costs are set out in Table 5.10.

Table 5.9: SunWater's Proposed Operating Costs (Real $'000)

	2012-13	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Operations					
Labour	189	189	189	189	189
Materials	4	4	4	4	4
Contractors	16	16	16	16	16
Other	161	161	160	161	160
Non-Direct	396	413	401	384	378
Preventive Maintenance					
Labour	61	61	61	61	61
Materials	6	6	6	6	6
Contractors	1	1	1	1	1
Other	0	0	0	0	0
Non-Direct	125	130	127	121	119
Corrective Maintenance					
Labour	6	6	6	6	6
Materials	4	4	4	4	4
Contractors	1	1	1	1	1
Other	0	0	0	0	0
Non-Direct	13	13	13	13	12
Electricity	6	6	7	8	8
Total	**988**	**1,012**	**996**	**975**	**966**

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

	2012-13	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Operation					
Labour	183	184	185	187	188
Materials	4	4	4	4	4
Contractors	15	15	15	16	15
Other	156	155	153	152	151
Non-Direct	386	396	379	357	345
Preventive Maintenance					
Labour	59	59	60	60	60
Materials	6	6	6	6	6
Contractors	1	1	1	1	1
Other	0	0	0	0	0
Non-Direct	122	125	119	112	108
Corrective Maintenance					
Labour	6	6	6	6	6
Materials	4	4	4	4	4
Contractors	1	1	1	1	1
Other	0	0	0	0	0
Non-Direct	13	13	12	12	11
Electricity	5	5	5	6	6
Total	**959**	**974**	**951**	**922**	**907**

Source: QCA (2011).

6. DRAFT PRICES

6.1 Background

Ministerial Direction

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

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

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

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

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

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

The Ministerial Direction also requires that:

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

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

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

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

Previous Review

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

For the Mareeba-Dimbulah WSS, prices over 2006-12 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 Mareeba-Dimbulah 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 Mareeba-Dimbulah WSS (Real $'000)

	Actual Costs						*Future Costs*				
	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
SunWater's Submitted Costs	1,570	1,604	1,079	1,224	1,315	909	915	939	929	909	900
Renewals Annuity	31	362	392	420	362	3	5	5	11	12	12
Operating Costs	1,613	1,319	765	879	1,029	984	988	1,012	996	975	966
Revenue Offsets	-74	-77	-78	-75	-76	-78	-78	-78	-78	-78	-78
Authority's Total Costs	-	-	-	-	-	-	908	922	908	879	867
Renewals	-	-	-	-	-	-	26	26	34	34	37
Operating Costs	-	-	-	-	-	-	959	974	951	922	907
Revenue Offsets	-	-	-	-	-	-	-78	-78	-78	-78	-78
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: Actual Costs (SunWater, 2011ap) and Total Costs (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 Mareeba-Dimbulah WSS.

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

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

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

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

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

For this scheme, Indec recommended 90% of costs should be fixed and 10% variable under optimal management. The Authority notes that this ratio differs from the current tariff structure which reflects a three part tariff structure including an access charge for each WAE holder in addition to a fixed charge set to recover 28% and a volumetric charge set to recover 72% of revenues in the volumetric charge (as outlined in the previous Pricing Framework chapter).

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	**809**	**822**	**809**	**783**	**772**
High Priority	218	222	219	212	210
Medium Priority	403	409	402	389	383
Distribution Losses	188	192	189	182	180

Note: Net fixed costs are net of revenue offsets and return on working capital. Source: Actual Costs (SunWater, 2011ap) and Total Costs (QCA, 2011).

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

Variable Costs

Variable costs are allocated to all users on the basis of water use. Volumetric tariffs are calculated based on SunWater's eight-year historical water usage data for all sectors. However, consistent with SunWater's assumed typical year for operating cost forecasts, the Authority has removed from the eight years of data, the three lowest water-use years for each service contract. Accordingly, to determine the volumetric charge, the Authority has assumed historical total water use for all sectors to be 69.4% 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 Mareeba-Dimbulah 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*
Access Charge	475.40	489.20	512.76	528.88	545.00	564.48	578.59	593.06	607.88	623.08	638.66
River (Tinaroo Falls/Barron) – Medium Priority											
Fixed (Part C)	2.80	2.88	3.00	3.12	3.20	3.32	2.86	2.93	3.00	3.08	3.15
Volumetric (Part D)	14.06	14.47	15.16	15.64	16.11	16.69	0.74	0.76	0.78	0.80	0.82

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

6.7 Queensland Government Pricing Policies

As noted above, the Queensland Government has directed that:

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

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

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

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

Authority's Analysis

To identify the relevant price path (if any), the Authority must first identify whether current prices recover prudent and efficient costs. To do so, given changes to tariff structure, the Authority has compared current revenues with revenues 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 five-year average (irrigation only) water use during 2006-11.

For this scheme, current revenues are above the level required to recover prudent and efficient costs (Table 6.4). Therefore, the Authority is required to recommend prices that maintain revenues in real terms for the 2012-17 regulatory period.

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

Tariff Group	*2011-12 Prices (indexed to $2012-13)*		*Irrigation WAE (ML)*	*Irrigation Water Use (ML)*	*Current Revenue*	*Revenue from Cost-Reflective Tariffs*	*Difference*
	Fixed	*Variable*					
River	3.36	16.93	150,469	102,117	2,234,261	505,761	1,728,500

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

6.8 The Authority's Recommended Prices

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

Table 6.5: Recommended Medium Priority Prices for Mareeba-Dimbulah WSS ($/ML)

	Actual Prices						*Recommended Prices*				
	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Access Charge	475.40	489.20	512.76	528.88	545.00	564.48	578.59	593.06	607.88	623.08	638.66
River (Tinaroo Falls/Barron) – Medium Priority											
Fixed (Part A)	2.80	2.88	3.00	3.12	3.20	3.32	14.36	14.72	15.09	15.47	15.86
Volumetric (Part B)	14.06	14.47	15.16	15.64	16.11	16.69	0.74	0.76	0.78	0.80	0.82

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

6.9 Impact of Recommended Prices

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

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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)*
Barron River Distribution	2016-17	Replace Pao/T R10078	12
	2017-18	Replace Pao/T R10593	12
	2018-19	Replace Meter, 100Mm Pw Elster	37
		Replace Meter, 150Mm Pw Elster	12
		Replace Meter, 200Mm Pw Elster	12
		Replace Pao/T R27513 Scott	12
		Replace Meter, 80Mm Pw Elster	12
	2033-34	Replace Meter, 100Mm Pw Elster	37
		Replace 110014A Tinaroo Dam Hw	36
		Replace Meter, 150Mm Pw Elster	12
		Replace Meter, 200Mm Pw Elster	12
		Replace Meter, 80Mm Pw Elster	12
Tinaroo Falls Dam	2011-12	Replace Dispersion Valve	297
		MDA S 6-Investigation and options on the replacement of the trashscreens including inspection by divers as per dam safety requirement	24
		MDA S6-Refurbish Mwk - repaint , complete insitu	18
	2013-14	Study: 5yr Dam Comprehensive Inspection (by Dec 2013)	101
	2015-16	Conduct Post tensioning of the Dam Wall Rock Bolts to be conducted by Specialist Contractor.	87
	2016-17	Priority Trash Screen Replacements (Refer Options Analysis) - Tinaroo Falls Dam OWIR	124
		Refurbish Road - high priority (refer strategy)	25
		Replace Marker Buoys And Signs	23
		Refurbish Gate - paint, seals, fixings etc - stored in open	12
	2017-18	Refurbish Valves - body corrosion, main seal	25
		MDA S6-Refurbish Mwk - repaint , complete insitu	19
		Change Out Electronics - replace electronics, PLC, sensors etc	12
	2018-19	Study: 5yr Dam Comprehensive Inspection (by Dec 2013)	99
	2019-20	Replace Control Equipment	38
		Change Out Actuator - replace system as required	25
	2020-21	Conduct Post tensioning of the Dam Wall Rock Bolts to be conducted by Specialist Contractor.	87
		Refurbishment of trashracks - Priority Trash Screen Replacements	12
	2021-22	Replace Control Equipment	114
		Refurbish Pipework - external irrig valve pit	14
	2022-23	Replace Trash Rack Screen	688
		10MDA06-REFURBISH CONDUIT LINING	29
		Refurbish Gate - repaint, seals & fixings, floor & side repairs, protection steel painting etc	20
	2023-24	Study: 5yr Dam Comprehensive Inspection (by Dec 2013)	99
		Refurbish MWK - small diameter embedded pipework, lining if required	62

Asset	*Year*	*Description*	*Value ($'000)*
		MDA S6-Refurbish Mwk - repaint , complete insitu	19
		Replace Trash Screen Removal Device	16
	2024-25	Replace Cable And Conduit	31
		Study: O&M Manuals for Tinaroo	24
	2025-26	Conduct Post tensioning of the Dam Wall Rock Bolts to be conducted by Specialist Contractor.	85
		Refurbishment of trashracks - Priority Trash Screen Replacements	12
	2026-27	Replace Cables & Cableways	547
		Refurbish: Overhaul as per river outlet valve	49
	2028-29	Study: 20yr Dam Safety Review (by 1 Dec 2028)	123
		Study: 5yr Dam Comprehensive Inspection (by Dec 2013)	99
	2029-30	Replace Trash Rack Screen	689
		MDA S6-Refurbish Mwk - repaint , complete insitu	18
	2030-31	Conduct Post tensioning of the Dam Wall Rock Bolts to be conducted by Specialist Contractor.	86
		Refurbish Road - high priority (refer strategy)	25
		Refurbishment of trashracks - Priority Trash Screen Replacements	12
	2031-32	Replace Switchboard No.2 Valve House	42
		Replace Marker Buoys And Signs	23
		Replace Switchboard No.1 Main	21
		Replace Switchboard N0.3 River Outlet	16
	2032-33	Refurbish Valves - body corrosion, main seal	25
	2033-34	10MDA06-REFURBISH CONDUIT LINING	111
		Study: 5yr Dam Comprehensive Inspection (by Dec 2013)	98
	2034-35	Replace Control Equipment	38
	2035-36	Conduct Post tensioning of the Dam Wall Rock Bolts to be conducted by Specialist Contractor.	86
		10MDA06-REFURBISH CONDUIT LINING	29
		MDA S6-Refurbish Mwk - repaint , complete insitu	18
		Refurbishment of trashracks - Priority Trash Screen Replacements	12