QUEENSLAND COMPETITION AUTHORITY

Draft Report

SunWater
Irrigation Price Review: 2012-17
Volume 2
Eton Distribution System

November 2011

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SUBMISSIONS

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

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

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

Confidentiality

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

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

Public access to submissions

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

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

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GLOSSARY

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

EXECUTIVE SUMMARY

Ministerial Direction

The Authority has been directed by the Minister for Finance and The Arts and 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 Eton Distribution System for the 2012-17 regulatory period are outlined in Table 1, together with actual prices since 1 July 2006.

Table 1: Medium Priority Prices for the Eton Distribution System ($/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*
Bulk (Unbundled)											
Fixed (Part A)	n/a	n/a	n/a	n/a	n/a	n/a	24.74	25.36	25.99	26.64	27.30
Volumetric (Part B)	n/a	n/a	n/a	n/a	n/a	n/a	4 22	4.32	4.43	4.54	4.66
Channel (Unbundled)											
Fixed (Part C)	n/a	n/a	n/a	n/a	n/a	n/a	19.71	22.25	24.91	27.69	30.59
Volumetric (Part D)	n/a	n/a	n/a	n/a	n/a	n/a	27.19	27.87	28.57	29.28	30.02
Channel (Bundled)											
Fixed (Part A)	38.64	39.76	41.68	43.80	48.44	52.20	nr	nr	nr	nr	nr
Volumetric (Part B)	14.86	15.29	16.03	16.85	18.64	19.31	nr	nr	nr	nr	nr

Note: nr - not relevant. Prior to 2012-17, channel tariffs were a bundled price for bulk and distribution services. Source: Actual Prices (SunWater, 2011al) and Recommended Prices (QCA, 2011).

Prices for the Eton WSS bulk costs for 2012-17 are presented above. The review of the underlying bulk costs is set out in detail as part of a separate report on the Eton WSS. As there are no regulated river users in the Eton WSS, only channel customers, it is not feasible to determine unbundled bulk water and distribution system charges for the 2006-12 price path.

Termination fees for the permanent transfer of allocations from the channel to the river do not apply in the Eton Distribution System.

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 Eton Water Supply Scheme.

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. ETON DISTRIBUTION SYSTEM

1.1 System Description

The Eton Distribution System has 307 customers. High A (equivalent to high priority) and High B (equivalent to medium priority) priority water access entitlements (WAE) are outlined in Table 1.1.

There is also 504 ML of Risk WAE. However, this is not identified as a separate tariff group in the scheme's Network Service Plan (NSP) (SunWater, 2011). SunWater holds WAEs for distribution losses which also attract bulk water charges.

Table 1.1: Water Access Entitlements (ML)

Customer Group	*Irrigation WAE*	*Total WAE*
High A Priority	0	700
High B Priority	52,673	52,675
Risk	504	504
Distribution Losses High A	3,048	3,089
Distribution Losses High B	6,212	6,295
Total	**62,438**	**63,263**

Source: Synergies Economic Consulting (2010).

1.2 Distribution System Infrastructure

The Eton Distribution System is located southwest of Mackay near the town of Eton. Water is supplied from Kinchant Dam[1] located on Sandy Creek. The system is comprised of the following assets.

Oakenden Main Channel

The Oakenden Main Channel starts at the Kinchant Dam outlet and continues for 35 km to the Mt Alice offtake. The channel is sub-divided into regulated control sections: the design capacity for the first section is 553 ML/day and the design capacity for the next section is 173 ML/day. The channel incorporates a balancing storage which helps even the differences between supply and demand.

Oakenden Operational System

The Oakenden Operational System consists of the Oakenden Pump Station, the Oakenden Balancing Storage and buried pipelines. The Oakenden Pump Station pumps from the Oakenden Main Channel into the Oakenden Rising Main which ends at the 3 ML capacity Oakenden Balancing Station. The Pump Station has two pumps each with a capacity of 19 ML/day.

[1] The Kinchant Dam and other bulk water infrastructure are described in the Eton Water Supply Scheme (WSS) (Volume 2) Report.

Brightley Operational System

The Brightley Operational System has two pump stations and three balancing storages. Brightley Pump Station 1 pumps from the Oakenden Main Channel into a rising main that ends at the 0.8 ML capacity Brightley Balancing Storage 1. Next it gravitates through another pipeline to the 8.0 ML capacity Brightley Balancing Storage 2 and from there re-lifts water into the 50 ML capacity Brightley Balancing Storage 3. Brightley Pump Station 1 has three pumps and is rated 62 ML/day. Brightley Pump Station 2 has two pumps and is rated 19 ML/day.

Victoria Plains Operational System

The Victoria Plains Operational System consists of the Victoria Plains Pump Station, the Victoria Plains Balancing Storage and associated pipelines. The Victoria Plans Pump Station has two pumps and is rated 82 ML/day. The Victoria Plans Balancing Station holds 25 ML when full.

Marwood Operational System

The Marwood Operational System draws up to 100 ML/day from the Oakenden Main Channel and is a pipeline gravity system.

Munburra Operational System

The Munburra Operational System is located at the eastern end of the Oakenden Main Channel. It is a full gravity system drawing directly from the Oakenden Main Channel.

Mt Alice Operational System

The Mt Alice Operational System is located at the eastern end of the Oakenden Main Channel. It consists of a pump station, rising main, balancing storage and distribution pipelines. The Mount Alice Pump Station has three pumps and is rated 120 ML/day. The Mt Alice Balancing Storage holds 3 ML when full.

Abingdon Operational System

The Abingdon Operational System is the only system in the Eton WSS that does not draw from the Oakenden Main Channel. Instead it draws directly from Kinchant Dam through the Abingdon Pump Station. The Abingdon Pump Station has two pumps. It is rated 32 ML/day and pumps into the Abingdon balancing storage which is an excavated earth tank located on the top of a nearby hill and holds 1 ML when full.

The location of the Eton Distribution System and key infrastructure is shown in Figure 1.1.

Figure 1.1: Eton Distribution System Locality Map

Source: SunWater (2011).

1.3 Network Service Plans

The Eton Distribution System NSP presents SunWater's:

(a) existing service standards;

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

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

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

1.4 Consultation

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

(a) invited submissions from interested parties;

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

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

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

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

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

The Authority has also received a number of submissions from stakeholders on matters such as capacity to pay, rate of return on existing assets, contributed assets, 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 paths, the Eton WSS Tier 2 group indicated that they were in favour of retaining the existing price cap regulatory arrangement. The price cap was continued 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 Eton Distribution System:

(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 or energy efficient regulation that results in a net increase in costs;

(c) the introduction of water planning and management charges in respect of SunWater's distribution loss entitlements for channel distribution systems;

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

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

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

(g) outbreak of noxious weeds.

Other Stakeholders

Mackay Irrigation Stakeholders (MIS, 2010) expressed support for the continuation of the price cap as the form of price control.

Eton Irrigators Advisory Committee (EIAC, 2011a) submitted that:

(a) metering costs for new metering standards will be a risk to irrigators as SunWater will pass on the cost, probably through renewals with an adjustment in the next price path;

(b) any levy or charge in relation to the Authority regulation of prices should be presented at the start of the next price path, not mid-period; and

(c) weeds and algae in channels impact irrigators' supply but, since SunWater provides no guarantee of supply, there should no risk associated with the issue.

2.3 Authority's Analysis

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

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

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

Source: QCA (2011).

Consistent with the Authority's allocation of risks (Table 2.1), it is proposed that risks identified by SunWater in items (a), (b), (d), (f) and (g) above will be dealt with as an end-of-period adjustment or price trigger or cost pass through upon application by SunWater or customers. Any costs of the nature of (c) would be passed through, subject to a consideration of their materiality.

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 MIS, the Authority notes that a price cap will provide SunWater with an incentive to reduce costs, at least until prices are reset in the future.

In response to EIAC, meter upgrades (d) are outside the scope of the investigation. No levies or charges (f) are to be applied by the Authority as a result of this irrigation price review.

3. PRICING FRAMEWORK

3.1 Tariff Structure

Introduction

For the 2006-11 price path, tariffs for distribution system customers incorporated bulk and distribution costs into a bundled two-part tariff. During the 2005-06 price negotiations, it was generally agreed to adopt a 70:30 ratio of fixed to variable costs. However, due to the prevailing Government policy that there should be no real price decreases, the tariff structure was set to recover 80% of the required revenue through a fixed (Part A) charge and 20% of revenue through a variable (Part B) charge.

Stakeholder Submissions

SunWater

For the 2012-17 regulatory period, SunWater proposed to unbundle charges so that the recovery of distribution costs is separated from bulk water costs.

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

Other Stakeholders

MIS (2010) expressed support for a two-part tariff structure which reflects the fixed and variable costs of the scheme, and submitted that the postage stamp pricing arrangements (single tariff grouping under which the scheme was established) be retained.

During Round 1 Consultation, stakeholders noted that water availability is an issue for the scheme as full allocations are typically granted at the end of the season when the crop demand is reduced. Hence irrigators are penalised by fixed (Part A) charges when the actual availability does not match the required availability.

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.

Unbundling of tariffs further promotes cost-reflectivity of charges.

In response to Round 1 consultation comments, the Authority notes that under current legislative and contractual arrangements (and the Ministerial Direction), customers must bear all the costs of water supply incurred by SunWater, irrespective of whether it is made available or not (provided the costs of supply are efficient and prudent).

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, 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 Eton WSS (including the Distribution System) are identified in Table 3.1.

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

	2002-03	*2003-04*	*2004-05*	*2005-06*	*2006-07*	*2007-08*	*2008-09*	*2009-10*
Permanent	0	0	0	587	456	80	152	1,063
Temporary	11,433	9,094	4,934	5,095	599	223	349	649

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

Annual volumes of temporary trade are generally material when viewed against the total WAE in the scheme and therefore play an ongoing role in the efficient allocation of water for this scheme.

The Authority recognises that a change in the tariff structure may impact the value of entitlements, and therefore affect the irrigators' incentives to trade. This matter is addressed further below in the context of pricing recommendations.

The Authority's analysis of which service delivery costs are fixed and which are variable is addressed in a subsequent chapter.

3.2 Water Use Forecasts

Introduction

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

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

For the Eton Distribution System, SunWater (2006b) assumed a water usage forecast of 65% of the WAE in the channel system. Water usage for High A and High B priority irrigation WAE was not separately identified.

Stakeholder Submissions

SunWater

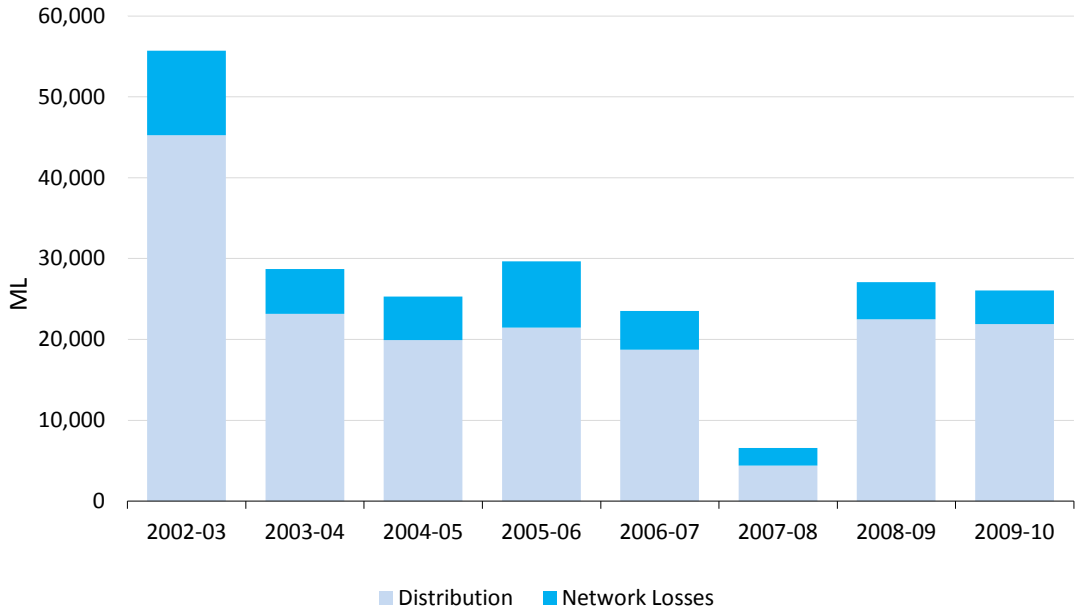
The available supply of water is determined by the announced allocations which are set according to rules contained in the Pioneer Valley Resource Operations Plan (ROP).

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 2006-11 price path. The forecast for the distribution system is 50% of current WAE and High B and Risk priority.

Figure 3.1 shows the historic usage information for the Eton WSS. SunWater stated that over the past eight years, total water use in the distribution system has been 41% of current WAE.

Figure 3.1: Water Usage for the Eton Distribution System



Source: SunWater (2011).

Other Stakeholders

No other stakeholders have commented on this matter.

Authority's Analysis

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

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

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

3.3 Tariff Groups

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

SunWater proposed that the tariff group nominated for the 2006-11 price path Eton (Channel) be retained.

In accordance with the Direction, the Authority will adopt the proposed tariff group. The Authority also notes that there are separate pricing arrangements for the small number of irrigators who hold Risk WAEs. This is addressed in the Eton WSS report.

3.4 Distribution Losses

Introduction

Distribution losses are incurred in the delivery of water to Eton Distribution System customers. SunWater holds WAEs to account for losses involved in delivering water to customers in the distribution system.

For the 2006-11 price path, the cost of distribution losses were allocated to distribution users (SunWater, 2006b).

Stakeholder Submissions

SunWater

SunWater (2011w) submitted that distribution loss WAEs should be assigned bulk water costs (and water charges) due to the need to store these entitlements using headworks like any other types of WAEs. It also submitted that these costs should be recovered from customers of the distribution system (by including them in that system's revenue requirement) on the basis that they are needed to provide the distribution service.

SunWater did not estimate the (dollar) costs of distribution losses in its NSP costs, stating that these cannot be determined until the Authority establishes the level of the bulk water charges.

The projected usage for distribution losses in the NSP are based on the assumption that 100% of High A priority loss WAEs are used each year and that High B priority loss WAEs reflect the same usage percentage as other High B entitlements in the distribution system. Therefore, in the case of the Eton Distribution System, usage against the High A loss WAE is assumed to be 3,089 ML per annum and usage against the High B priority loss WAE is estimated at 50% of 3,148 ML per annum.

Other Stakeholders

EIAC (2011a) submitted that there is a number of leakage areas along the Oakenden Main channel that not only impact on adjoining farms, but are a cost to the scheme with additional water delivery required to cover these losses. EIAC advised that SunWater has claimed that these losses cannot be evaluated until water metering is improved; however, EIAC disagree with this claim and noted that the technology for evaluating losses from open channels is available. Further, the channel will still leak even if new meters are installed.

Authority's Analysis

As noted in Volume 1, the Authority's general view is that distribution customers should pay for all distribution losses as identified in the distribution loss WAEs. Furthermore, that all distribution customers benefit from high priority losses, as these are released to fill the channel for all users and are not (solely) used to deliver high priority water.

In response to the specific issues raised by stakeholders, the Authority recommends that SunWater evaluate Oakenden Main Channel leakages, and in consultation with irrigators, identify options to address the leakage problem.

SunWater's proposed forward renewals programme does not appear to include any expenditure to address leakage. Provided a cost-effective response can be identified (that is, the benefits in leakage savings outweigh the costs in present value terms), the cost of required works should be incorporated into renewals. Any such works can be evaluated on an ex-post basis and taken into account in the next review.

The Authority's proposed treatment of distribution losses is consistent with that of the preceding 2006-11 price path. Therefore, there is no particular increase in prices as a result of the approach adopted by the Authority in respect of distribution losses.

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 distribution system 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 (where applicable);

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

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

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

(d) the methodology to calculate the renewals annuity.

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

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

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

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

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

Subsequently, the Authority liaised directly with SunWater to obtain further information, and commissioned Sinclair Knight Merz (SKM) to address material expenditure items (that is, those renewals items which represented more than 5% of the present value of forecast expenditure) and/or those of particular concern (usually in response to customers' submissions). Across all schemes, a total of 36 past and forecast renewals items were reviewed by SKM.

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

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

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

SunWater submitted that the opening balance for the Eton Distribution System (including the Eton Bulk WSS) was negative $188,000.

The Authority has accepted SunWater's unbundled opening ARR balance for the Eton Distribution System (excluding Eton Bulk WSS) of negative $103,000.

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 prudency and efficiency of selected renewals expenditures over the 2006-11 price path. The Authority has also sought to compare

the original expenditure forecasts underlying the 2006-11 price path with actual expenditure, to establish the accuracy of SunWater's forecasts.

Submissions

SunWater

SunWater (2011) submitted actual renewals expenditure for the Eton Distribution System 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 (Actual) Renewals Expenditure 2006-11 (Real $'000)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*
Past Renewals Expenditure	29	41	289	745	624

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

Other Stakeholders

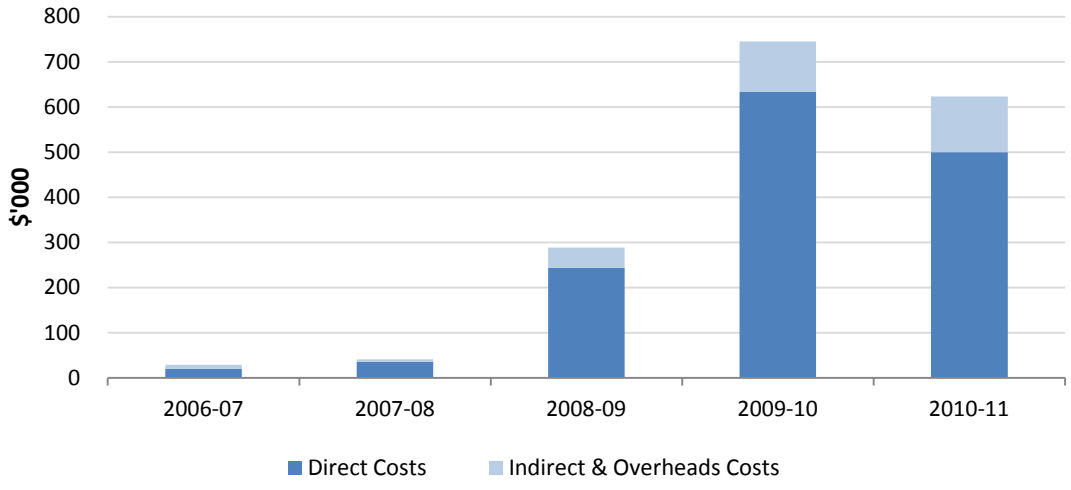
Stakeholder comments in regard to specific renewals expenditure items are summarised below.

Authority's Analysis

Total Renewals Expenditure

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

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



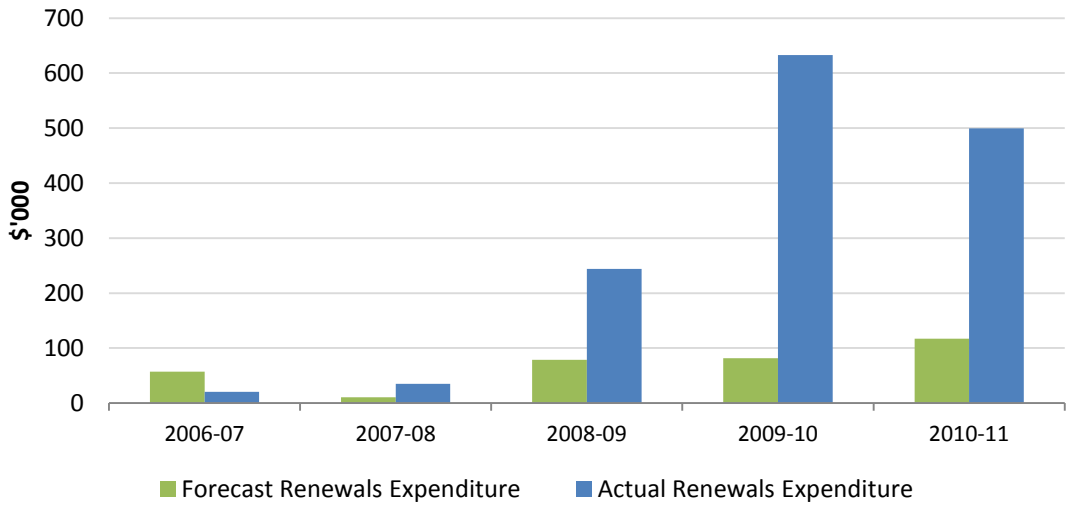
Note: The estimates reflect the most recent information provided by SunWater to the Authority in September 2011.
Source: Indec (2011d).

Comparison of Forecast and Actual Costs

The Authority was able to source forecast direct renewals expenditure at a scheme level from Indec, who undertook the analysis for the 2005-06 review.

A comparison of forecast and actual direct renewals expenditure in the Eton Distribution System for 2006-11 is shown in Figure 4.2.

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



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

Actual renewals expenditure was $1,086,515 (direct costs) above that forecast over the period, partly attributable to:

(a) unplanned expenditure on Intersafe of $330,360 (nominal total costs, including non-direct costs); and

(b) unplanned expenditure on flood damage repairs of $90,610 (nominal total costs, including non-direct costs).

Arup was appointed to review the efficiency (and prudency where not previously approved) of past renewals expenditure items (items). Arup stated that a review of the projects undertaken over the 2006-11 period revealed:

(a) assets being refurbished are strictly irrigation assets, required to be maintained to meet the required service regimes of irrigators, regulators and good corporate practice;

(b) assets are Treasury approved for assessment;

(c) project costs are only updated in the year they are scheduled to be undertaken. This is reasonable to ensure price estimations are current, alternative options are meaningful and allow for variance in asset life conditioning;

(d) there is project expenditure, which would not have been projected at the start of the 2006-11 pricing path. Such projects included approximately $100,000 for flood damage repairs, $320,000 for workplace health and safety (WHS) structures and some $138,000 to install fencing as part of the fencing policy;

(e) Arup has read SunWater's position papers on the Fencing Policy and the investment to upgrade the WHS structures to reduce risks to SunWater's field personal. Arup believed both papers are appropriate responses to these matters and they represented prudent and cost effective expenditures; and

(f) the $414,000 negative balance is largely related to an opening negative balance from 1 July 2006 and the unbudgeted renewals expenditure outlined above.

Arup did not comment on the prudency and efficiency of specific past renewals expenditure for Eton Distribution System.

However, Halcrow and SKM made some general comments about the Intersafe program, which are provided below as there was expenditure in this scheme.

Item 1: Intersafe

SunWater

SunWater indicated that this project was not included in the 2006-11 price paths. However, the SunWater Board decided to undertake the work following a report from Intersafe Group Pty Ltd recommending that SunWater take action to reduce the safety risk to staff.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Arup

Arup noted that the program which is being extended across Queensland is considered necessary to ensure that all workers are able to undertake their duties in a safe environment. SunWater has applied due process in evaluating sites where there is a medium to high risk and prioritising works at these sites. This work follows on from an initial pilot study and is now being rolled out across the state. Arup considered that the financial risk to the SunWater business is greater in the long term than the short term cost of assessing and rectifying high risk assets. SunWater has demonstrated a great deal of rigour in undertaking this work including:

(a) development of standardised solutions and risk assessment templates;

(b) training regional staff in risk assessments; and

(c) establishment of procurement contracts for standardised solutions

Given the procedures adopted Arup considered this to be a prudent and efficient expenditure.

Halcrow

Halcrow (2011) supported SunWater's submission (above) that the SunWater Board approved the work to reduce the safety risk to staff.

As noted in Volume 1, the Authority has accepted Halcrow's (2011) findings on the overall Intersafe Program (actual expenditure of $13.6 million) which found that:

(a) the expenditure was prudent on the basis that SunWater has a legal obligation to ensure the workplace health and safety of its employees in accordance with the provisions of the *Workplace Health and Safety Act 1995* (the WHS Act);

(b) costs represent market rates as SunWater sought competitive tenders and used contractors to deliver the program; and

(c) the program was completed on time and within budget.

SKM

SKM (2011) concluded that:

(a) SunWater's procedures were robust and, by developing standard infrastructure, implementation costs will have been reduced through economies of scale; and

(b) given the nature of the works, it was appropriate for SunWater to develop a program of works to implement the identified solutions as swiftly as reasonably possible; and

(c) the costs incurred by SunWater in implementing the works have been subjected to competitive forces and hence can be considered as market costs.

Authority's Analysis

The Authority accepts the recommendation of its consultants that expenditure on Intersafe was prudent and efficient.

Item 2: Public Safety Strategy (Fencing Policy)

SunWater

SunWater indicated that this item was also not included in the 2006-11 price paths.

Other Stakeholders

No other stakeholders have commented on this item.

Arup's Review

Arup noted that costs associated with the installation of fencing during 2006-11, in response to SunWater's Fencing Policy, were approximately $138,000.

Arup considered the relevant documents regarding SunWater's Fencing Policy and considered that the item represents prudent and cost effective response.

Authority's Analysis

As outlined in Volume 1, SunWater has advised that compliance with the WHS Act is the driver of the Public Safety Strategy.

The Authority notes SunWater's submission that Public Safety Strategy is an organisational commitment aimed at reducing the risk of injury or damages to people (or property) that access or use land controlled by SunWater and its water supply infrastructure and assets.

The Public Safety Strategy has a framework that is comprised of policies and standards that includes: the Hazard Warning Signing Manual, the Storage Marker Buoy Policy, the Flooding and Inundation of Public Roads Standard and the Fencing Policy.

SunWater have indicated that the Fencing Policy will be fully implemented by 30 June 2012 with higher risk sites prioritised (e.g. channel systems adjoining residential properties).

The Authority notes that it is the Public Safety Strategy, as opposed to the Intersafe Project, that requires fencing to limit access to channels.

The Authority notes that SunWater's Fencing Policy document specifies that the *Dividing Fences Act 1953* requires both parties to contribute an equal share towards fencing costs. It is unclear from the information that SunWater has provided whether the renewals expenditure included a 50% land holder contribution. Therefore, although Arup have concluded that costs associated with the Fencing Policy are prudent and efficient, the Authority recommends that 50% of fencing costs be removed from the calculation of the renewals annuity, pending SunWater confirming the basis of its fencing costings.

In summary, the Authority accepts the recommendation of Arup that expenditure on the Fencing Policy was prudent and efficient. However, the Authority recommends that 50% of fencing costs incurred in 2010-11 be removed, pending SunWater confirming that 50% of total costs incurred have been off-set and not passed on to irrigators.

Conclusion

In summary, two items were reviewed by the Authority for prudency and efficiency. The Intersafe expenditure was considered to be prudent and efficient. However, SunWater's expenditure on the Fencing Policy was considered to be prudent but not efficient (pending a response from SunWater).

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. The Authority recommends the expenditure be adjusted by as summarised in Table 4.2.

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

Item	*Date*	*SunWater ($'000)*	*Authority's Findings*	*Recommended ('000)*
Sampled Items				
1. Intersafe	2009-10	$330,000	Prudent and efficient	$330,000
2. Fencing Policy	2009-10	$138,000	Prudent but not efficient	$69,000
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)

SunWater indicated that the renewals opening ARR balance for 1 July 2011 was negative $434,000 for the Eton Distribution System. This estimate reflects the most recent information provided by SunWater to the Authority in September 2011 and may differ from the NSP.

Based on the Authority's assessment of the prudency and efficiency of past renewals expenditure, and the proposed methodology for unbundling ARR balances, the recommended opening ARR balance for 1 July 2011 for Eton Distribution System is negative $252,000**.**

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

To establish the closing ARR balance as at 30 June 2012 of negative $80,000 the Authority:

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

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

(c) adjusted for interest over the year.

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

4.5 Forecast Renewals Expenditure

Planning Methodology

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

(a) high-level options analysis for all material renewals expenditure expected to occur over the Authority's recommended planning period, with a material renewals expenditure being defined as one which accounts for 10% or more in present value terms of total forecast renewals expenditure; and

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

Prudency and Efficiency of Forecast Renewals Expenditures

Submissions

SunWater

SunWater's forecast renewals expenditure for 2011-16 for the Eton Distribution Scheme, 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 Expenditures for 2011-16 (Real $'000)

Facility	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Abingdon Distribution	-	-	1	3	-
Abingdon Pump Station	43	34	116	23	57
Brightley No 1 Distribution	-	-	-	6	13
Brightley No 2 Distribution	-	-	3	-	6
Brightley Pump Station No 1	-	37	1	83	94
Brightley Pump Station No 2	135	-	32	-	18
Marwood Distribution	-	-	-	-	15
Mt Alice Distribution	-	-	-	6	-
Mt Alice Pump Station	68	224	1	-	122
Munbura Distribution	1	-	-	-	-
Oakenden Distribution	5	-	-	-	6
Oakenden Main Channel Distribution	68	36	135	126	95
Oakenden Pump Station	24	159	7	66	257
Victoria Plains Distribution	15	-	-	10	20
Victoria Plains Pump Station	-	144	-	34	34
Total	**359**	**634**	**297**	**357**	**737**

Source: SunWater (2011).

The major items incorporated in the above estimates are:

(a) Brightley Pump Station No 2 – this involves replacing cabling and the switchboard at a cost of $135,000 in 2011-12. The switchboard at Brightley Pump Station No. 2 will be replaced due to the age of the components and the unavailability of spares and vendor support;

(b) Mt Alice Pump Station – this involves replacing motor starters and overhaul pump unit 1 and 3 at a cost of $224,000 in 2012-13. The starters for the three pumps at this pump station require replacement due to their age and risk to service;

(c) Abingdon Pump Station – this involves replacing motor starters and supply panels at a cost of $116,000 in 2013-14;

(d) Oakenden Main Channel – this involves the refurbishment of regulating gates, screens and replacement of child proof fence at a cost of $135,000 in 2013-14 and $126,000 in 2014-15;

(e) Mt Alice Pump Station – this involves the refurbishment of pump no 2 and replacement of valve actuator and control console at a cost of $122,000 in 2015-16; and

(f) Oakenden Pump Station – this involves the overhaul of pump no 2 and replacement of compressed air system, vacuum priming pumps, priming valves and associated miscellaneous items at a cost of $159,000 in 2012-13 and 257,000 in 2015-16.

The major expenditure items from 2016-17 are:

(a) replace submerged disk valves, air valves and isolating valves in Mt Alice distribution system at a cost of $691,000 in 2027-28; and

(b) replace Avis gates in Oakenden Main Channel distribution system at a cost of $681,000 in 2033-34.

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

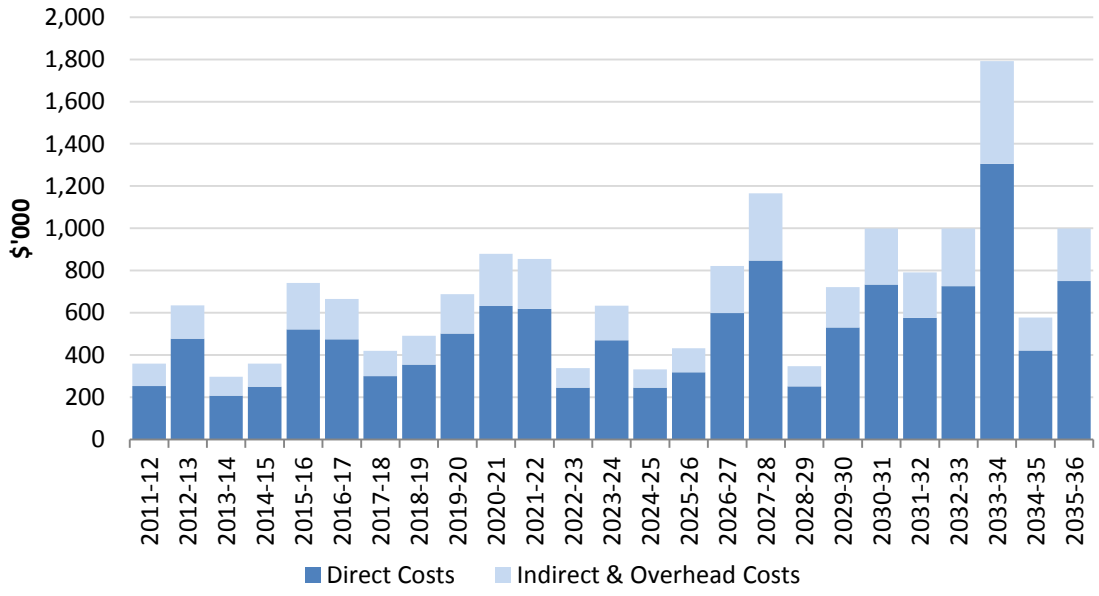
EIAC (2011) submitted that most of the pump stations in Eton Distribution are over 30 years old and it is trusted that all replacements of pumps, motors and associated electrics adopt modern equivalent methodology. This would ensure that the most efficient pumping infrastructure is provided.

Authority's Analysis

Total Costs

SunWater's proposed renewals expenditure for 2011-36 for the Eton Distribution Scheme 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 $)



Source: SunWater (2011am)

Item Review

Arup and SKM reviewed the prudency and efficiency of a sample of future renewals expenditure items.

Each of the sampled items is discussed below.

Item 1: Replacement of Starter Pump Units - Victoria Plains Pump Station

SunWater

This renewals item involves the replacement of two starter pump units at Victoria Plains Pump Station in 2011-12, costing $67,340 each. These pump units have a nominated asset life of 20 years and have been in operation from 1989.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Arup noted that the replacement of the starter pump units was originally scheduled for 2008-09, when a condition assessment at the time indicated that the time for replacement could be shifted to 2011-12. Further, Arup stated that the methodology of reviewing renewals items in the year of replacement or year prior (as was historically done) does ensure that priority is shifted to assets which have a higher risk rating.

Arup considered that the methodology regarding the identification of this asset for replacement is prudent.

With regards to costing, SunWater stated that costing is based on replacement cost, previous projects and in conjunction with local staff. Arup stated that they were not able to conclude whether the costing is appropriate. However, Arup noted that the cost of replacement of is based on the cost for a single pump unit (i.e. $67,340). It would seem that SunWater have simply applied the cost to the two pump units not accounting for any economies of scale for installation at the same site.

Authority's Analysis

The Authority notes Arup's recommendation that this item is prudent but there was insufficient information available to determine its efficiency.

Item 2: Replacement of switchboard at Brightly Pump Station

SunWater

This renewals item involves the replacement of a switchboard at the Brightly Pump Station in 2012-13 at a cost of $100,000.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Arup noted that this switchboard has been in operation from 1980 and although SunWater has indicated an asset life of 35 years it has been included in the program for 2012-13, two years

ahead of schedule. The condition assessment assigned a score of 5, indicating that there has been evidence of overheating.

Arup also noted that the replacement of the switchboard was reviewed as part of the audit of electrical sites undertaken by Parsons Brinkerhoff (PB) where the switchboard at Brightly pump station was identified as being of concern due to age and the availability of spare parts. This specific switchboard was shown to pose an extreme risk and was identified as failing to meet the requirements of section 7.4.2 of AS/NZS 3439.1:2002 – Protection against direct contact. Based on this, Arup agreed that this is a prudent expenditure item.

With regards to costing, Arup noted that SunWater has stated that costing is based on replacement cost, previous projects and in conjunction with local staff. However, Arup require a more in-depth explanation with regards to costing and in the absence of this Arup stated that they were not able to conclude whether this is efficient expenditure.

Authority's Analysis

The Authority notes Arup's recommendation that this item is prudent but there was insufficient information available to determine its efficiency.

Item 3: Repair Fencing at Oakenden Distribution

SunWater

This renewals item involves repairing fencing at Oakenden distribution in 2011-12 at a cost of $6,000. This item was raised as a side issue during a condition assessment undertaken in September 2010 and specifically relates to the repair of a gate.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

SunWater noted that although it was given a condition of 2, it was identified as posing a security risk by enabling access to unwanted parties. Arup stated that this highlights the need to restrict access to various parts of the system to minimise liability to SunWater and its customers.

Arup considered this expenditure to be prudent.

SunWater has said the cost is based on fencing contractor engagement, however, Arup stated that they have not been provided further evidence to indicate if this was obtained through a formal quotation. Arup stated that they require further details on the basis of this costing before classifying it as efficient.

Authority's Analysis

The Authority notes Arup's recommendation that this item is prudent but there was insufficient information available to determine its efficiency.

Item 4: Brightly Pump Station Low Voltage Cable Replacement

SunWater

The renewals item relates to the replacement of low voltage aboveground cable at Brightley Pump Station in the Eton Irrigation Area.

The asset has been in operation since 1980. SunWater submitted that the replacement of the existing cable is expected to cost $21,435 and is scheduled to occur in 2011-12.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

SKM reviewed information relating to this item by accessing and viewing SunWater's works management system (WMS), and asset condition and risk assessment policy and procedures.

(a) Available Information

In particular, SKM drew on the following annuity item specific replacement/refurbishment report produced by SunWater for this review (Table 4.4)

Table 4.4: Documents Reviewed Specific to the Brightly Pump Station Low Voltage Cable Replacement

Document No.	*Document Name*	*Document Title*	*Date*
1108993	1108993-v1 Brightley PSTN 2 replace cables	Eton Irrigation Area – Brightley PSTN 2 Replace Cable	8th August 2011

Source: SKM (2011)

(b) Prudency Review

SKM noted that in SunWater's Whole of Life Maintenance Planning Tool (Master), SunWater has allocated a standard run to failure asset life of 35 years and a maximum condition assessment frequency of every five years. SKM considered the standard run to failure asset life to be towards the low end of what may be expected for above ground LV cable. For example, most electrical distribution utilities in Australia would apply an asset life of 45 to 60 years for above ground LV cable depending on whether it is operated in dry or wet (tropical) conditions. SKM considered the condition assessment frequency applied to this asset type to be reasonable.

SKM stated that they viewed the WMS record for this asset which confirmed that the asset has been in service since 1980.

SunWater has applied its risk evaluation method to this asset and determined, during the most recent risk assessment in 2005, that it has a financial risk criterion consequence rating of moderate (score 18). This, together with a probability (likelihood of occurrence) score of 1 results in an overall risk score of 18 which should, under SunWater's risk assessment method, place this asset in a Low risk category. An overall risk category of Low should not trigger any reduction in the standard run to failure asset life of this type of asset.

However, SKM noted that in SunWater's report (1108993-v1 Brightley PSTN 2 replace cables), SunWater stated that the resultant risk rating is Medium and not Low and that the standard run to failure asset life should be reduced to 31 from 35 in keeping with this risk rating. SKM also noted that in the SAP-WMS, the run to failure asset life for this asset has been reduced to 31.

Neither of these is in keeping with SunWater's procedure for risk based adjustment of asset life in that, on this risk assessment of Low, the asset life should be the standard run to failure asset life of 35 years, not 31 years. However, given that the difference between the two is only four

years, it does not have a material impact on the inclusion of the replacement renewals item value in the overall renewals value determination.

The last condition assessment was undertaken in 2009 and SunWater advised that the condition assessment was "within date at the time the NSPs were compiled." The worst case criterion score condition assessment in 2009 was 5 based on the age criterion. SKM questioned the use of age as a criterion for assessing condition given that asset age is implicit and inherently built into the standard asset condition decay curve. By using age as a criterion for a particular asset precludes the option of extending the run to failure asset life of that asset in circumstances where its condition is superior to that which the decay curve would predict.

In this instance, and taking a pragmatic approach, SKM considered that it would be prudent for SunWater consider extending its standard life for this cable by 10 years and plan to replace this cable in 2024-25, i.e. within this price reset renewals period. This would make the asset life in keeping with the lower of the standard lives adopted by network utilities for this asset type of 45 years.

SKM has not sighted any option analysis for replacement of this item. However, given that this is a low cost asset, it is appropriate that a like for like replacement is adopted as standard.

The timing of the replacement of the asset is driven by the use of an age criterion in the condition assessment method for this type of asset. Putting age aside, the score of the next work condition criterion indicates that the cable is in good condition. SKM considered that it would be prudent for SunWater consider extending their standard life for this cable by 10 years placing it in line with power distribution utility industry norms and plan to replace this cable in 2024-25.

(c) Efficiency Evaluation

Normally, for assets that are planned to be replaced within five years of the planning date, SunWater uses a bottom up approach to determine the asset replacement renewals value, or draws on recent experience of pricing/outturn costs of replacing similar renewals items. However, in this case, given the low cost of the renewals item and in absence of recent project data, SunWater has applied its renewals item replacement cost method that it applies to renewals items that are planned to be replaced more than five years hence of the planning date.

As such, SunWater's planning team has applied SunWater's method for calculating replacement renewals values for those assets replaced more than five years after the start of the renewals period. In this method, the renewals item replacement value was calculated by applying 1996-97 unit rates for the components making up the asset to as installed bill of materials (BoM) quantities, escalated by a multiplier determined by Cardno to provide 2007-08 costs and then adjusted by an 'Indirect' multiplier to capture renewals item specific cost factors relating to location, project management etc. Given the volume of renewals items that SunWater's Planning Team is engaged with at any point in time and given the relatively low value of this asset and its impact on the overall renewals value, this approach is considered reasonable and in accordance with good industry practice.

SKM benchmarked the renewals item replacement costs proposed by SunWater against their database costs for a modern equivalent electrical asset. The comparison is provided in Table 4.5 below.

Table 4.5: SKM Estimate of Costs

SunWater Estimate $2009-10	*SKM Estimate $2009-10*	*Variance*
21,435	24,240	-11.6%

Source: SKM (2011)

Based on this estimated cost of a modern equivalent asset and given that the asset standard run to failure life is 35 years, SKM considered the proposed renewals item value of $21,435 to be efficient.

Authority's Analysis

The Authority accepts SKM's recommendation that this item is both prudent and efficient but should be deferred to 2024-25.

Item 5: Mt Alice Pump Station Pump Unit 3 Overhaul

SunWater

This renewals item relates to the refurbishment (overhaul) of a large centrifugal pump at (Pump Unit No. 3) at the Mt Alice Pump Station. The pump has been in operation since 1988 and was last overhauled in 2001-02.

SunWater submitted the item is expected to cost $25,000 and is scheduled to occur in 2012-13.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

SKM reviewed information relating to this project by accessing and viewing SunWater's WMS, and asset condition and risk assessment policy and procedures.

(a) Available Information

In particular, SKM drew on the following renewals item specific replacement/refurbishment report produced by SunWater for this review (Table 4.6).

Table 4.6: Documents Reviewed Specific to Mt Alice Pump Station Pump Unit 3 Overhaul

Document No.	*Document Name*	*Document Title*	*Date*
1110122	1110122 QCA Justification – Mt Alice Pump Station – Refurbish PUN3	Mt Alice Pump Station: Pump Unit 3 Overhaul	26th August 2011

Source: SKM (2011)

(b) Prudency Review

SKM noted that SunWater has allocated a standard refurbishment life of 15 years and a maximum condition assessment frequency of every two years for this asset type. SKM considered the refurbishment life and condition assessment frequency to be reasonable and in keeping with good industry practice.

SunWater has applied its risk evaluation method to this asset and determined, during the most recent risk assessment in 2007, that it has a Production/Operations and Stakeholder/Relations criterion consequence rating of minor (score 8). This, together with a probability (likelihood of occurrence) score of 10 results in an overall risk score of 80 which, under SunWater's risk assessment method, places this asset in a Low risk category. SKM viewed the WMS record for this asset and confirmed that it has been allocated a Low risk rating. An overall risk category of Low should not trigger any reduction in the standard run to failure asset life of this type of asset and we confirm this to be the case for this asset. Hence the risk adjusted run refurbishment life for this asset is 15 years (as per the standard refurbishment life).

The next stage of SunWater's method for determining asset refurbishment timing is by means of adjusting the risk adjusted run to failure asset life according to the variance of the condition score of the asset, at the time the last condition assessment was undertaken, with the condition that the standard asset condition decay curve predicts at that time.

The last condition assessment, a Field assessment, was undertaken in 2008 with the highest scoring condition criterion: Pump Unit (Age (% of refurbishment life) being allocated a score of 3 (Moderate deterioration with minor refurbishment required to ensure ongoing reliable operation). SKM questioned the use of age as a criterion for assessing condition given that asset age is implicit and inherently built into the standard asset condition decay curve. By using age as a criterion for a particular asset precludes the option of extending the run to failure asset life of that asset in circumstances where its condition is superior to that which the decay curve would predict. SKM noted that all of the other condition assessment criteria have been scored 2 (Minor Defects only).

Inputting a 2008 condition score of 2, a risk adjusted refurbishment life of 15 years and last refurbishment date of 2002 into SunWater's condition based refurbishment life adjustment modelling tool yields a projected refurbishment life of 34 years and a recommended condition based refurbishment date of 2035-36. This date is beyond the planned replacement date for the pump and it can be assumed that the planning tool is not reliable for adjusting refurbishment life against such a condition score.

SunWater has advised that a 'strip down' condition assessment on pump unit no. 2 in 2008, which has the same operating environment as pump number 3, indicated that a condition score of 4 is appropriate for pump number 3. On this basis, and having viewed the condition inspection report for pump unit No 2, SKM concurred that the standard refurbishment life of 15 years should be maintained.

SKM agreed with SunWater's planned refurbishment date for this renewals item of 2012-13. As such SKM considered the refurbishment timing to be prudent.

(b) Efficiency Evaluation

For this asset, SunWater has relied on the costs provided by an external contractor for refurbishing an identical pump (pump unit No 2) that has experienced a similar, if not identical, operating history and is located at the same pump station as Pump Unit Number 3.

The contractors quote for refurbishing Pump Unit No 2, based on a strip down inspection is $17,168. SunWater has used this quote as a proxy quote for determining the cost of refurbishment Pump Unit No 3 and included a contractor's cost item of $15,500 for refurbishment of Pump Unit No 3. SunWater has added a further $9,606 to cover internal labour and overhead costs, resulting in a total renewals value of $25,106 (see Table 4.7). The renewals value submitted to the Authority is $25,000.

SKM reviewed the work proposed for pump number 2, and although SKM considered this to be a reasonable proxy for the likely refurbishment work required for pump no. 3, SKM believed that not all of the refurbishment items are required.

SKM recommended that the bearings be replaced, the end cap replaced, the packing gland be cleaned and the packing replaced, gaskets and O-rings be replaced, then the assembly be balanced, both statically and dynamically. As the gland packing seals were replaced with mechanical seals in 2001-02 in pump unit No 3 SKM did not consider it appropriate to include for these to be replaced or the shaft machined in the planned refurbishment. The pump unit (pump unit No. 2) for which the refurbishment report was used as a proxy for pump unit No 3 had packed glands and hence the work and costs associated with replacing these with metal seals is not relevant or appropriate for pump unit No. 3.

SKM estimated that this will reduce the contractor's cost of the refurbishment by approximately $6,000. Accordingly, SKM estimated a cost of $19,100 compared to SunWater's $25,106.

SunWater has developed a planning order for this renewals item replacement which details the following breakdown of costs between contractors, overheads and materials as is shown in Table 4.7.

Table 4.7: Breakdown of Costs – Mt Alice Pump Station Pump No. 3 Refurbishment

Cost Item	***Planned Costs***
Contractors	$15,500
Internal Labour Transfer	$4,076
Internal Overhead Transfer	$5,530
Materials	$0
Service Charges	$0
Total	**$25,106**

Source: SKM (2011)

SunWater advised that Internal Overhead Transfer relates to corporate overhead costs that are allocated to this renewals item replacement activity.

SKM concluded that, given the uncertainty in contractor costs arising from the fact that the actual refurbishment requirements can only be determined when the pump is stripped down for inspection, the SunWater proposed renewals item value of $25,000 was considered to be efficient.

Authority's Analysis

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

Conclusion

In summary, five items for the Eton Distribution System were sampled. Of these:

(a) three items were assessed as being prudent but there not sufficient information available to assess efficiency;

(b) two items 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 expenditure be adjusted as shown in Table 4.8.

Table 4.8: Review of Forecast Renewals Expenditure 2011-36 (Real $'000)

Item	*Year*	*SunWater ($'000)*	*Authority's Findings*	*Recommended ($'000)*
Sampled Items				
1. Replacement of Starter Pump Units - Victoria Plains Pump Station	2012-13	135	Prudent but insufficient information available to assess efficiency	10% saving applied
2. Replacement of switchboard at Brightly Pump Station No 2	2011-12	100	Prudent but insufficient information available to assess efficiency	10% saving applied
3. Repair fencing at Oakenden distribution	2011-12	6	Prudent but insufficient information available to assess efficiency	10% saving applied
4. Brightly Pump Station Low Voltage Cable Replacement	2011-12	21	Prudent and efficient but deferred to 2025	21
5. Mt Alice Pump Station Pump Unit 3 Overhaul	2012-13	25	Prudent and efficient.	25
Non-Sampled Items				10% saving applied

Note: SunWater (2011), Arup (2011) and SKM (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

No other stakeholders have commented on this matter.

Authority's Analysis

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

The Authority recommends that there be a legislative requirement for SunWater to consult with its customers about any changes to its service standards and proposed renewals expenditure program. SunWater should also be required to submit the service standards and renewals expenditure program to irrigators for comment whenever they are amended and that irrigators' comments be documented and published on SunWater's website and provided to the Authority. The Authority's recommendations are detailed in Volume 1.

4.7 Allocation of Distribution Renewals Costs According to WAE Priority

Previous Review

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

Stakeholder Submissions

SunWater

SunWater (2011i) submitted that the allocation of the renewals annuity is a matter for tariff setting by the Authority, but that the Headworks Utilisation Factor (HUF) methodology should not be used because the HUF is not relevant to the allocation of fixed renewals costs in distribution systems which do not provide storage.

In determining a basis for allocating fixed distribution system costs to customers in general (rather than specifically between customer priority groups), SunWater submitted that current WAEs should be adopted. SunWater stated that current WAEs represent the best available means of determining customers' current share of distribution system capacity.

Other Stakeholders

No other stakeholders have commented on this matter.

Authority's Analysis

As noted in Volume 1, the Authority considers that distribution system costs should be allocated according to the relevant cost drivers. The Authority does not consider the HUF methodology to be an appropriate cost driver for distribution system costs.

In principle, the Authority considers that distribution system capacity is the relevant cost driver for fixed renewals expenditure. In general, the best measure of capacity share is the

instantaneous or peak flow rate. However, neither DERM's regulatory framework nor SunWater's contracts currently specify a peak flow rate or share of system capacity.

As discussed in Volume 1, the Authority recommends that nominal WAEs be used for the allocation of fixed distribution system costs between priority groups. That is, on the basis of current WAE held, irrespective of priority type, with no conversion. Under this approach, high and medium priority WAE are allocated the same costs per ML. This reflects the view that medium and high priority users have the same share of distribution system capacity per ML of nominal WAE, as submitted by SunWater.

The Authority also recommends that, at the conclusion of this review, SunWater commence a review of a more appropriate means for allocating fixed renewals costs in distribution systems.

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 Eton Distribution System the recommended renewals annuity for the 2012-17 regulatory period is shown in Table 4.9. 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 4.9: Eton Distribution System 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	302	182	221	347	320	594	597	602	621	619	619
Total Authority	-	-	-	-	-	-	545	553	581	578	584
High Priority	-	-	-	-	-	-	7	7	8	8	8
Medium Priority	-	-	-	-	-	-	538	546	573	570	577

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

5. OPERATING COSTS

5.1 Background

Ministerial Direction

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

Issues

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

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

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

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

(d) the most appropriate methodologies for assigning operating costs to service contracts[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 system to include service provision, compliance, insurance and other supporting activities (these were not classified by direct and indirect costs). SunWater noted that:

(a) a Service Manager and 10 staff are located at the Eton 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 – receiving and collating water orders, scheduling the diversion of bulk water into the distribution system, monitoring channel flows and operating regulating structures 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 distribution service include those relating to:

(i) the ROP – water accounting and managing and reporting to DERM on the distribution loss WAE;

(ii) 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, contamination and the discharge of water from channels and drains into the environment; and

(iii) 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; and

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

Previous Review

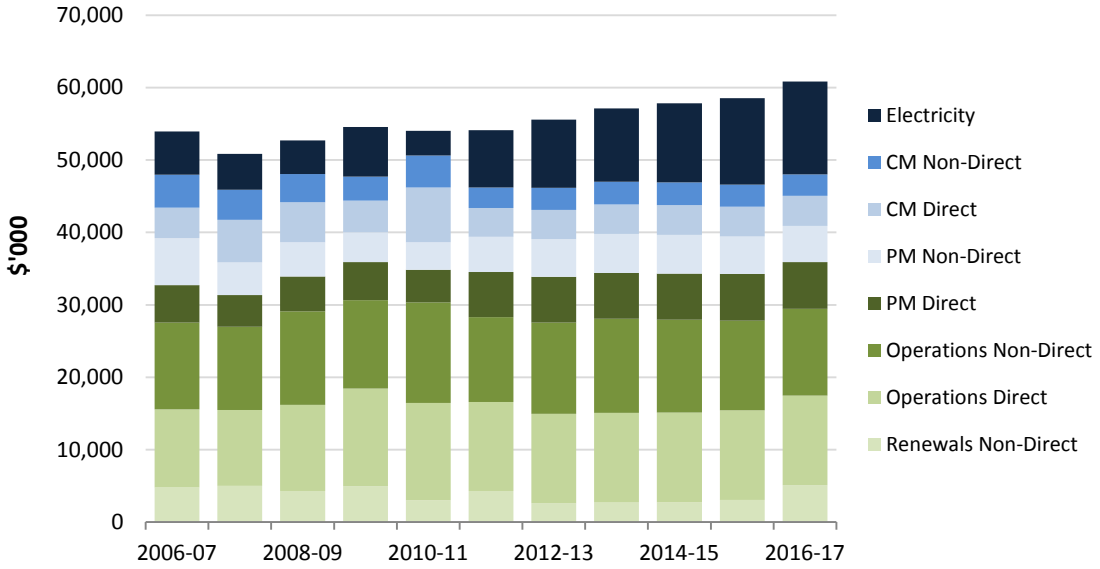
For the 2006-11 price paths, Indec identified annual cost savings of between $3.8 million and $5.5 million (2010-11 dollars) or 7.5% to 9.9% of total annual costs, which SunWater was to achieve during the 2006-11 price paths (SunWater, 2006a). See Volume 1.

Stakeholder Submissions

SunWater

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

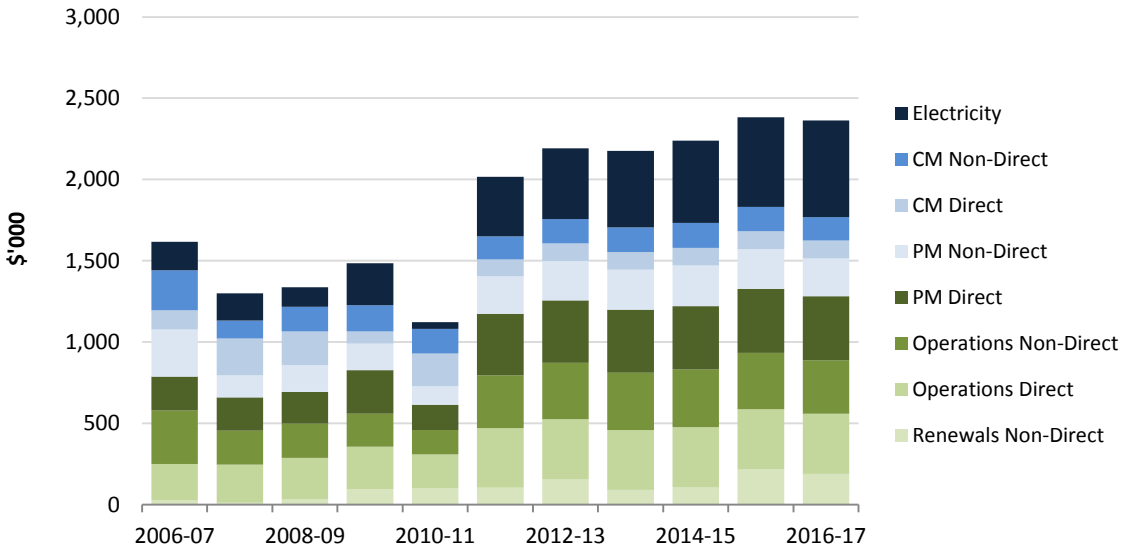
Figure 5.1: SunWater's Total Operating Costs (Real $) – All Service Contracts



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 Eton Distribution System (all sectors) is shown in Figure 5.2, Table 5.1 and Table 5.2.

Figure 5.2: Total Operating Costs – Eton Distribution System (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 5.1: Expenditure by Activity (Real $'000)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations	553	445	463	465	356	691	716	722	724	716	700
Electricity	176	166	120	258	41	368	436	470	506	551	594
Preventive Maintenance	497	340	362	431	269	607	627	634	639	637	626
Corrective Maintenance	407	402	427	421	429	428	441	447	450	450	444
Renewals Non-Direct	27	12	35	95	103	105	157	90	108	219	190
Total	**1,660**	**1,364**	**1,407**	**1,670**	**1,198**	**2,199**	**2,377**	**2,362**	**2,427**	**2,573**	**2,553**

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 offsets (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 5.2: 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	268	241	259	301	212	464	471	471	471	471	471
Electricity	176	166	120	258	41	368	436	470	506	551	594
Contractors	67	86	125	81	91	191	194	197	200	203	203
Materials	137	282	212	268	213	235	238	242	245	249	249
Other	121	120	129	139	124	140	140	140	140	140	140
Non-Direct	891	469	561	623	518	801	897	843	865	958	896
Total	**1,660**	**1,364**	**1,407**	**1,670**	**1,198**	**2,199**	**2,377**	**2,362**	**2,427**	**2,573**	**2,553**

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 offsets (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).

In its NSP, SunWater submitted that bulk water operating costs for this scheme averaged $1,563,000 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 $1,995,000 per annum.

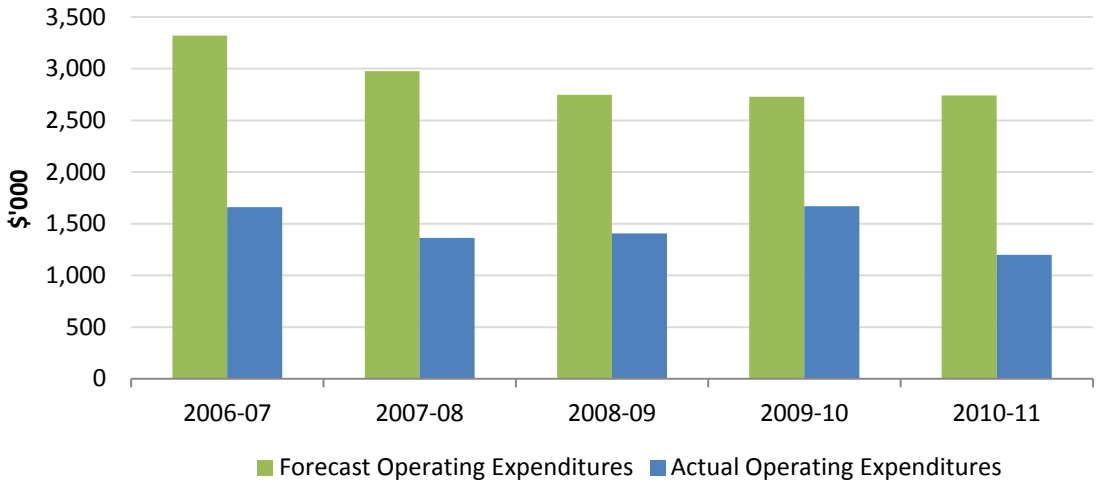
Authority's Analysis

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 2011, the Authority engaged Indec to assess whether SunWater achieved the cost savings forecast for 2005-06. A comparison of forecast and actual operating expenditure for the Eton Distribution System 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 is detailed in Volume 1. As noted above, SunWater categorises non-direct costs as either overheads or indirect costs.

Previous Review

As noted above, in the previous review, Indec reviewed SunWater's non-direct costs for 2006-11. Non-direct costs were allocated to schemes on the basis of total direct costs.

Stakeholder Submissions

SunWater

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

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

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

Total non-direct costs and those allocated to the Eton Distribution System are set out in Table 5.3.

Table 5.3: 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
Eton (Distribution)	891	469	561	623	518	801	897	843	865	958	896

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 around 30% of all operating costs for Eton, which is approximately double that of the PVWater costs, and questioned whether the presence of a local business centre is increasing overhead costs unfairly.

Authority's Analysis

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

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

[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.

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 Eton Distribution System (from all customers) is set out in Table 5.4. The allocation of these costs between high and medium priority customers is discussed below.

Table 5.4: 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	891	469	561	623	518	801	897	843	865	958	896
Authority	-	-	-	-	-	-	867	806	815	892	823

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, preventive maintenance (PM), corrective maintenance (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 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 of direct operating expenditure by activity is set out in Table 5.5. 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 5.5: 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	224	235	254	262	206	366	369	369	369	369	369
Electricity	176	166	120	258	41	368	436	470	506	551	594
Preventive Maintenance	207	204	195	267	156	378	383	387	390	394	394
Corrective Maintenance	161	290	276	261	278	287	291	294	297	300	300
Total	**769**	**895**	**845**	**1,047**	**681**	**1,398**	**1,480**	**1,520**	**1,563**	**1,614**	**1,657**

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

Table 5.6: 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	268	241	259	301	212	464	471	471	471	471	471
Electricity	176	166	120	258	41	368	436	470	506	551	594
Contractors	67	86	125	81	91	191	194	197	200	203	203
Materials	137	282	212	268	213	235	238	242	245	249	249
Other	121	120	129	139	124	140	140	140	140	140	140
Total	**769**	**895**	**845**	**1,047**	**681**	**1,398**	**1,480**	**1,520**	**1,563**	**1,614**	**1,657**

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

Other Stakeholders

EIAC (2011a) submitted that neither NSPs for Eton (Bulk and Distribution System) provided sufficient detail of proposed costs, by activity or type, to allow an informed opinion to be drawn on efficiency. EIAC noted that although SunWater states that a bottom up approach has been adopted in developing their costs, the details of this needs to be provided to allow a full assessment of proposed costs.

EIAC also submitted that there is substantial duplication in the two NSPs in the sections on Customer Service Standards, Service Costs and Compliance and it must be transparent that there is no double counting of costs for these activities.

Authority's Analysis

The Authority engaged Arup to review the prudency and efficiency of SunWater's proposed direct operating expenditure. 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 prudency 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 prudency 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 have demonstrated the adoption and integration of them into their management system. Site visits also showed that field personnel are gradually adopting these systems and processes.

Arup acknowledged that SunWater continually review 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;

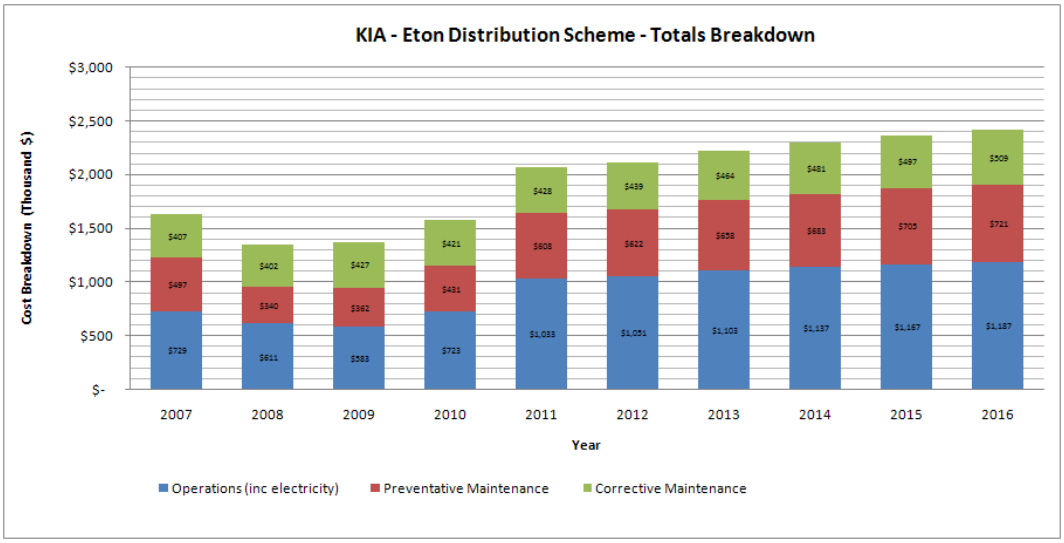
(c) facilitate future price reviews; and

(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 total operating expenditure for the Eton Distribution System is forecast to markedly increase which, upon broader investigation, has not been offset by a similar decrease for the bulk scheme. Arup advised that, to date, SunWater has not provided further explanation regarding the basis for these increases.

Figure 5.4: Total Operating Expenditure Breakdown – Eton Distribution System



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, WHS 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 5.5.

Other Stakeholders

CANEGROWERS (2011a) noted that operation costs in the Distribution System are estimated to increase by 28% over the next five years in real terms, which is a 54% in nominal terms by 2016.

EIAC (2011a) submitted that irrigators should be provided with specific examples of the services provided for the Eton Distribution System under other supporting activities to gain a better understanding of the impact of these on overall costs and if other arrangements for these services might be more appropriate.

In regards to specific cost information provided in the NSP (Table 4-3 Expenditure by Activity), EIAC submitted that forecast operations expenditure of some $700,000 per annum requires detailed explanation as the day to day description provided does not justify that level of costs.

Authority Analysis

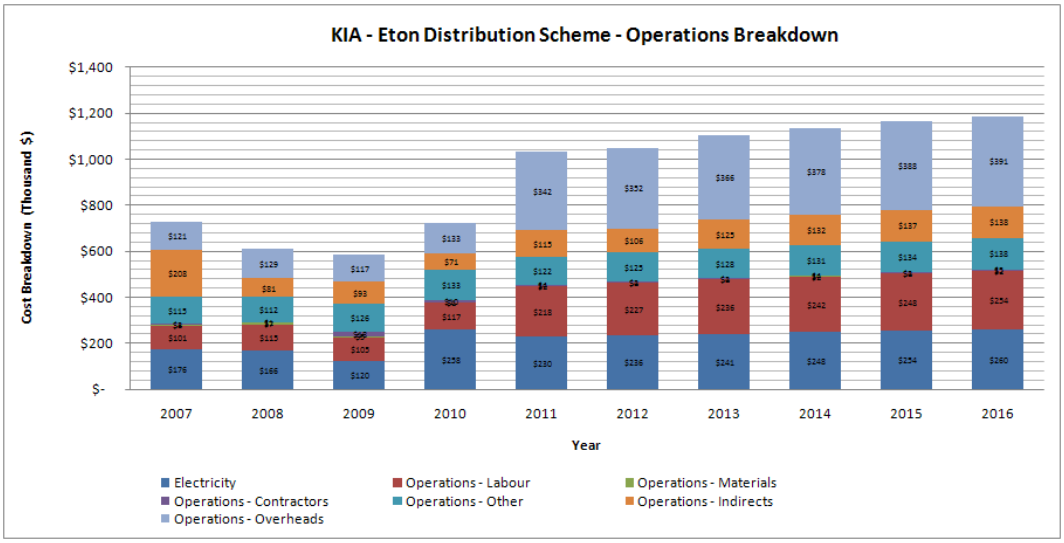
Consultant's Review

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

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 operating expenditure for the Eton Distribution System, Arup noted that the largest increases in cost are for labour and overheads (Figure 5.5). Electricity, although a large component, remains relative stable. Arup advised that an initial review of the information provided indicated that the increase could be associated with the allocation of labour costs between the bulk and distributions system – labour operational costs are forecast to decrease for bulk part of the scheme which may explain the increase in the Distribution System.

Figure 5.5: Operating Expenditure Breakdown – Eton Distribution System



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

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

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

Item 2: Preventive Maintenance

Stakeholder Submissions

SunWater

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

Preventive maintenance includes:

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

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

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

Typical examples of preventive maintenance for the Eton Distribution System are: mechanical and chemical weed control; de-silting of channels and drains; electrical and mechanical servicing of regulating gates, valves, meters and water level sensors; mechanical and electrical servicing of pumps, motors and filter systems; and servicing batteries and back-up systems.

SunWater's proposed preventive maintenance costs are set out in Table 5.5.

Other Stakeholders

EIAC (2011a) submitted that preventive maintenance in 2006-07 was high and requires explanation. Furthermore, forecast preventive and corrective maintenance is approximately $1,000,000 per annum and justification must be provided (including examples of the past experience corrective maintenance that has been used by SunWater to develop the NSP).

Authority Analysis

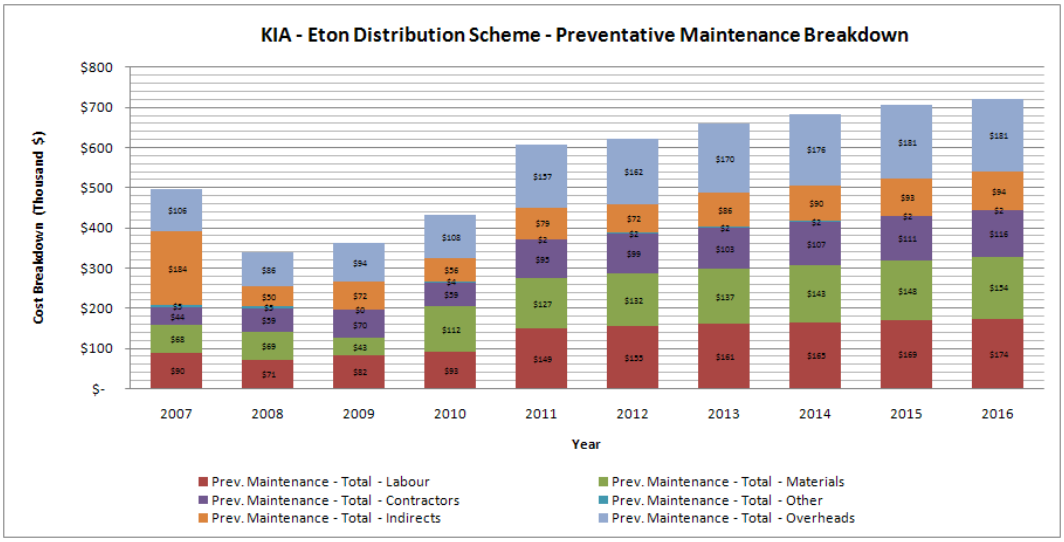
Consultant's Review

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 Eton Distribution System, Arup noted that preventive maintenance is a large share of the overall operating expenditure budget, with labour, contractors and materials the biggest components (Figure 5.6). A review of the financial numbers indicated that the spike in materials costs in 2009-10 is due to an increase in the price of Acrolein and the need for increased treatment due to the proliferation of Hymenachne, a semi-aquatic grass which was seen to be invading water bodies at a rapid pace.

Figure 5.6: Preventive Maintenance Breakdown – Eton Distribution System



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 adjustment to preventive maintenance expenditure for this scheme.

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.

On the basis of the consultants' reviews, the Authority has not specifically adjusted SunWater's operations cost 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. Typical corrective maintenance on drains and channels in the Eton Distribution System includes: erosion repairs; flow meter repairs and replacements; removing weed blockages; repairing regulating gates, pumps and control systems; and repairing pipe leaks and seals on off-take gates.

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 5.5.

Other Stakeholders

EIAC (2011a) noted that forecast preventive and corrective maintenance is approximately $1,000,000 per annum and justification of this amount must be provided.

Authority Analysis

Consultant's Review

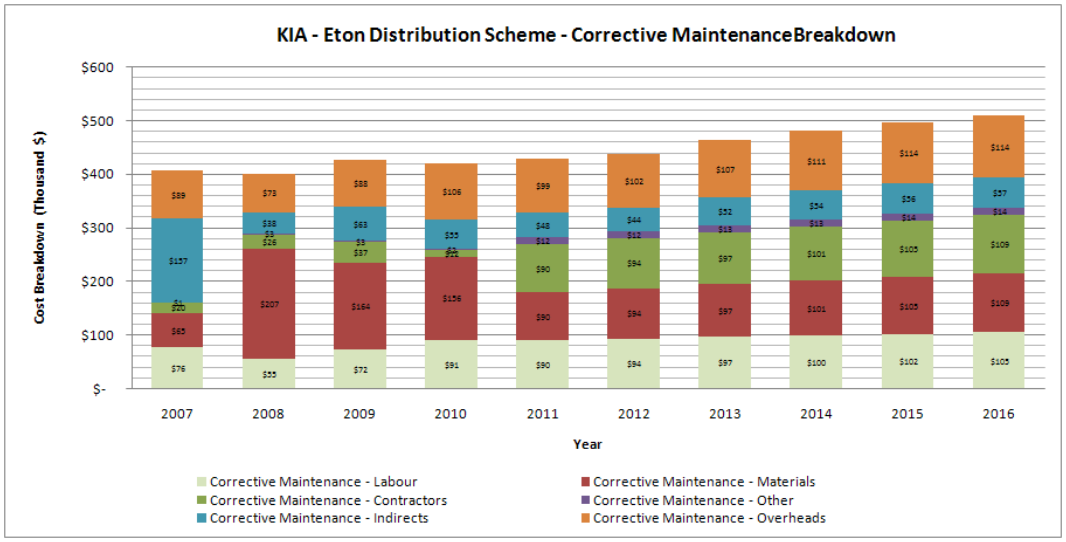
Arup noted that corrective maintenance forecasts are based on actual spends from the last four years.

Although, SunWater advised Arup that they have 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 Eton Distribution System, Arup advised that it was unclear as to why there is a large increase in the use of contractors under the corrective maintenance budget for 2011-16 (Figure 5.7).

Figure 5.7: Corrective Maintenance Breakdown – Eton Distribution System



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 adjustment to 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

The electricity costs for the Eton Distribution System relate mostly to the operation of the Oakenden, Brightley No.1, Bright No.2, Victoria Plains, Mount Alice and Abingdon Pump Stations.

SunWater submitted that electricity costs are difficult to forecast accurately because volumes pumped, electricity consumption and electricity prices cannot be reliably projected. In its NSP, SunWater initially proposed that a risk sharing approach be applied to pumping costs going forward, in which:

(a) electricity costs be forecast based on electricity prices escalated by consumer price index (CPI);

(b) volumes pumped be forecast based on projected water use volumes;

(c) reconciliations of forecast cost versus actual cost be maintained; and

(d) appropriate overs and unders price adjustment be incorporated into the next price path beginning 1 July 2016.

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

Table 5.7 sets out the average electricity cost per ML submitted by SunWater for projected deliveries in the first year of the price path in its NSP and as per its subsequent proposal.

Table 5.7: Projected Pump Station Electricity Cost for 2012

	Estimated Cost ($/ML)	*Projected Water Usage (ML pa)*	*Projected Cost ($000 pa)*
SunWater - NSP	8.13	21,190	172
Revised SunWater data	9.43	21,190	200

Source: SunWater (2011).

Other Stakeholders

CANEGROWERS (2011a) noted that electricity is a major component of costs at $13/ML for the channel and $8/ML for bulk to give a total of $21/ML used. CANEGROWERS submitted that a number of options exist to reduce electricity costs including new pumps, off peak

pumping, new balancing storages and new electricity tariffs, and these should be investigated especially for the bulk system.

EIAC (2011a) noted that electricity for 2009-10 ($258,000) is the highest for the period shown and Figure 2-3 [in the NSP] shows 2009-10 water use is comparable to 2008-09 and 2006-07. However, electricity for 2008-09 ($120,000) and 2006-07 ($176,000) are significantly less compared to 2009-10. EIAC submitted that they do not support SunWater's proposal for forecasting electricity and consider that surely the most appropriate method to determine the unit cost is to take actual electricity consumption figures from accounts and divide by actual water volumes for water meters for similar periods. This unit rate can then be applied to forecast annual volumes.

Authority Analysis

Consultant's Review

Arup noted that SunWater have undertaken extensive cost benefit analyses into when and where they 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 is dealt with above).

Direct Labour

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

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

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

Direct Materials and Contractors

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

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

Other Costs

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

Conclusion

A comparison of SunWater's and the Authority's direct operating costs for the Eton Distribution System is set out 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	369	369	369	369	357	358	358	359	359
Electricity	436	470	506	551	594	374	388	402	421	441
Preventive Maintenance	383	387	390	394	394	371	374	376	379	378
Corrective Maintenance	291	294	297	300	300	282	284	286	288	287
Total	**1,480**	**1,520**	**1,563**	**1,614**	**1,657**	**1,384**	**1,403**	**1,422**	**1,447**	**1,465**

Note: Totals vary from NSP due to SunWater's revised approach to insurance and electricity, exclusion of revenue offsets (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 water pricing conversion factors (WPCFs) in both bulk and distribution systems.

Stakeholder Submissions

SunWater

SunWater (2011j) 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.

Other Stakeholders

EIAC (2011a) submitted that the same methodology should be adopted for allocating operating and capital costs. This is particularly important in a scheme such as Eton Bulk where SunWater state that all costs are fixed and, as such, must be asset based. EIAC noted that the Pioneer River ROP does not provide an allocation conversion factor for Eton.

Authority's Analysis

In Volume 1, the Authority summarises the views of its consultants and recommends that in relation to distribution systems fixed operating costs in be allocated to medium and high priority customers using current WAEs. The Authority also recommends that for distribution systems insurance premiums are also allocated on the basis of nominal WAEs. Variable costs should be allocated to medium and high priority WAE on the basis of water use.

The effect for the Eton Distribution System 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*
Operation					
Labour	225	225	225	225	225
Materials	3	3	3	3	3
Contractors	4	4	4	4	4
Other	137	137	137	137	137
Non-Direct	347	353	354	346	330
Preventive Maintenance					
Labour	153	153	153	153	153
Materials	132	134	136	138	138
Contractors	98	99	101	102	102
Other	0	0	0	0	0
Non-Direct	243	247	249	243	232
Corrective Maintenance					
Labour	93	93	93	93	93
Materials	103	104	106	108	108
Contractors	93	94	95	97	97
Other	3	3	3	3	3
Non-Direct	150	152	153	150	144
Electricity	436	470	506	551	594
Total	**2,219**	**2,272**	**2,319**	**2,354**	**2,363**

Note: Totals vary from NSP due to the 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	218	219	221	222	224
Materials	3	3	3	3	3
Contractors	4	4	4	4	4
Other	133	132	131	130	129
Non-Direct	338	338	334	322	302
Preventive Maintenance					
Labour	149	150	151	152	153
Materials	128	129	130	131	129
Contractors	95	95	96	97	96
Other	0	0	0	0	0
Non-Direct	237	238	235	227	213
Corrective Maintenance					
Labour	90	90	91	92	92
Materials	100	100	101	102	101
Contractors	90	90	91	92	91
Other	3	3	3	3	3
Non-Direct	146	147	145	140	132
Electricity	374	388	402	421	441
Total	**2,105**	**2,125**	**2,137**	**2,135**	**2,112**

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 the relevant schemes. The cap applied to the sum of Part A and Part B real prices. In each year of the price path, the prices were indexed by CPI. Interim prices in 2011-12 were increased by CPI with additional increases in some schemes.

For the Eton Distribution System, in addition to CPI increases over 2006-11, the prices for channel customers were increased in real terms to achieve lower bound costs in 2010-11. In 2011-12, prices were increased by $2/ML and 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 Eton Distribution System 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 Eton Distribution System (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	1,923	1,508	1,580	1,909	1,401	2,684	2,812	2,870	2,936	2,969	2,978
Renewals Annuity	302	182	221	347	320	594	597	602	621	619	619
Operating Costs	1,633	1,353	1,372	1,575	1,095	2,094	2,219	2,272	2,319	2,354	2,363
Revenue Offsets	-12	-26	-14	-13	-14	-4	-4	-4	-4	-4	-4
Authority's Total Costs	-	-	-	-	-	-	2,648	2,676	2,716	2,710	2,694
Renewals	-	-	-	-	-	-	545	553	581	578	584
Operating Costs	-	-	-	-	-	-	2,105	2,125	2,137	2,135	2,112
Revenue Offsets	-	-	-	-	-	-	-4	-4	-4	-4	-4
Return on Working Capital	-	-	-	-	-	-	2	2	2	2	2

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 in the Eton Distribution System only electricity pumping costs vary with water use.

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

(a) costs that would be *expected* to vary with water use. Indec expected that electricity pumping costs would generally be variable and non-direct costs would be fixed. 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 distribution systems, Indec considered 67% of costs would be fixed and 33% variable. However Indec proposed that scheme-specific tariff structures should be applied, to reflect the relevant scheme costs.

For the Eton Distribution System, Indec recommended 72% of costs should be fixed and 28% variable under optimal management. The Authority notes that this ratio differs from the current tariff structure which reflects the recovery of 70% of costs in the fixed charge and 30% of costs in the volumetric charge.

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

6.5 Allocation of Costs According to WAE Priority

Fixed Costs

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

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

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Total Fixed Costs	1,906	1,926	1,955	1,951	1,939
High Priority	25	25	25	25	25
Medium Priority	1,881	1,901	1,930	1,925	1,914

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 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 is 55.1% of WAE.

6.6 Cost Reflective Prices

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

Table 6.3: Medium Priority Prices for the Eton Distribution System ($/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*
River (Unbundled)											
Fixed (Part A)	n/a	n/a	n/a	n/a	n/a	n/a	24.74	25.36	25.99	26.64	27.30
Volumetric (Part B)	n/a	n/a	n/a	n/a	n/a	n/a	4.22	4.32	4.43	4 54	4.66
Channel (Unbundled)											
Fixed (Part C)	n/a	n/a	n/a	n/a	n/a	n/a	42.70	43.76	44.86	45.98	47.13
Volumetric (Part D)	n/a	n/a	n/a	n/a	n/a	n/a	27.19	27.87	28.57	29.28	30.02
River/Channel (Bundled)											
Fixed (Part A)	38.64	39.76	41.68	43.80	48.44	52.20	na	na	na	na	na
Volumetric (Part B)	14.86	15.29	16.03	16.85	18.64	19.31	na	na	na	na	na

Note: River/Channel (Bundled) prices are provided for reference only. Source: Actual Prices (SunWater, 2011al) and Cost Reflective Prices (QCA, 2011).

6.7 Queensland Government Pricing Policies

As noted above, the Queensland Government has directed that:

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

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

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

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

Authority's Analysis

To identify the relevant price path (if any), the Authority must first identify whether current prices recover prudent and efficient costs. To do so, given changes to tariff structure, the Authority has compared current revenues with revenues that would arise under the cost-reflective tariffs, if implemented (see Volume 1).

The Authority has calculated these current revenues using the relevant 2010-11 prices, current irrigation WAE and the five-year average (irrigation only) water use during 2006-11 (Table 6.4). To ensure that distribution customers are not disadvantaged by unbundling, the comparison has included both bulk and distribution system revenues.

On the basis, the current revenues for the Eton Distribution System lie below the cost-reflective revenues (Table 6.4). Therefore, the Authority must consider a price path to cost recovery.

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

Tariff Group	*2010-11 Prices (indexed to $2012-13)*		*Irrigation WAE (ML)*	*Irrigation Water Use (ML)*	*Current Revenue*	*Revenue from Cost-Reflective Tariffs*	*Difference*
	Fixed	*Variable*					
Channel	$50.89	$19.58	53,177	4,712	2,798,582	3,733,915	-935,333

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

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

After tariff rebalancing, the revenue-neutral bundled tariff for the Eton Distribution System is a fixed charge of $42.45 per WAE and $31.41 per ML of usage, and the $2/ML real increase is applied to the fixed charge. At this rate of increase, cost reflective charges are not achieved by the end of the 2012-17 regulatory period. The recommended (unbundled) charge is then calculated by deducting the recommended river charge from the bundled charge. .

6.8 The Authority's Recommended Prices

The Authority's recommended prices to apply to the Eton Distribution System 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 Eton Distribution System ($/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*
River (Unbundled)											
Fixed (Part A)	n/a	n/a	n/a	n/a	n/a	n/a	24.74	25.36	25.99	26.64	27.30
Volumetric (Part B)	n/a	n/a	n/a	n/a	n/a	n/a	4.22	4.32	4.43	4 54	4.66
Channel (Unbundled)											
Fixed (Part C)	n/a	n/a	n/a	n/a	n/a	n/a	19.71	22.25	24.91	27.69	30.59
Volumetric (Part D)	n/a	n/a	n/a	n/a	n/a	n/a	27.19	27.87	28.57	29.28	30.02
River/Channel (Bundled)											
Fixed (Part A)	38.64	39.76	41.68	43.80	48.44	52.20	nr	nr	nr	nr	nr
Volumetric (Part B)	14.86	15.29	16.03	16.85	18.64	19.31	nr	nr	nr	nr	nr

Note: nr - not relevant. Prior to 2012-17, channel tariffs were a bundled price for bulk and distribution services. .
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)*
Abingdon Distribution	2016-17	Replace Security/Safety Fence	16
	2026-27	Replace Isolating Valve At 0.6M	26
		Replace Isolating Valve At 2156.9M	13
Abingdon Pump Station	2011-12	Abingdon PSTN - Overhaul Pump 1 (inc bearings, seals etc)	33
	2012-13	Abingdon PSTN - Overhaul Pump 2 (inc bearings, seals etc)	34
	2013-14	Replace Auxiliary Panel	28
		Replace Incoming Supply Panel	28
		Replace Pump Unit No. 1 Starter	28
		Replace Pump Unit No. 2 Starter	28
	2014-15	Mid Life Overhaul	11
	2015-16	Replace Discharge Valve	23
		Replace Discharge Valve No 2 Pump Unit	23
		Replace Guide Pipe	11
	2016-17	Replace Water Level Sensor	21
		Repaint and refurbish	17
	2017-18	Replace Control Equipment	172
		Abingdon PSTN - Overhaul Pump 1 (inc bearings, seals etc)	34
	2018-19	Abingdon PSTN - Overhaul Pump 2 (inc bearings, seals etc)	34
	2021-22	Replace Switchboard	165
		Replace Cable	63
	2022-23	Mid Life Overhaul	11
	2023-24	Abingdon PSTN - Overhaul Pump 1 (inc bearings, seals etc)	33
	2024-25	Abingdon PSTN - Overhaul Pump 2 (inc bearings, seals etc)	33
	2026-27	Replace Valve	17
	2029-30	Abingdon PSTN - Overhaul Pump 1 (inc bearings, seals etc)	33
	2030-31	Replace Pump No. 2	95
		Abingdon PSTN - Overhaul Pump 2 (inc bearings, seals etc)	33
		Mid Life Overhaul	11
	2031-32	Replace Pump No. 1	95
		Replace Water Level Sensor	21
	2032-33	Replace Control Equipment	170
	2033-34	Replace Pump Unit No. 1 Starter	28
		Replace Pump Unit No. 2 Starter	28
	2035-36	Abingdon PSTN - Overhaul Pump 1 (inc bearings, seals etc)	33
Brightley No 1 Distribution	2015-16	Brightley BS2 - Refurbish BPST (Blast and Paint, Bearing replacements)	11
	2019-20	Refurbish scour valves every 20yrs	36
		Refurbish Scour Valve - Condition Based	13
	2021-22	Replace Submerged Disc Valve	112
		Replace Isolating Valve At 0.8 M	26
		Replace Isolating Valve At 5644.2M	13
		Replace Isolating Valve At 7.2M	13
	2029-30	Replace Security Fence	14

Asset	*Year*	*Description*	*Value ($'000)*
	2031-32	Replace Security Fencing	42
	2032-33	Refurbish scour valves every 20yrs	36
		Refurbish Scour Valve - Condition Based	13
Brightley No 2 Distribution	2019-20	Refurbish scour valves every 20yrs	11
	2020-21	Replace Air Valves (All)	13
	2021-22	Replace Isolating Valve At 0.6 M	29
		Minor overhaul of pipework and valving, painting of metalwork.	22
		Replace Isolating Valve At 8713.2 M	13
		Replace Isolating Valve At 11.1M	11
	2026-27	Replace Scour Outlet At 472.0M	15
	2027-28	Replace Septic System	27
	2032-33	Refurbish scour valves every 20yrs	11
Brightley Pump Station No 1	2012-13	Brightley PSTN1 - Refurbish Pump Unit 1 (Major)	28
	2014-15	Replace Vacuum Priming Pump Motor No 1	21
		Replace Vacuum Priming Pump Motor No 2	21
		Replace Vacuum Priming Pump No 1	21
		Replace Vacuum Priming Pump No 2	21
	2015-16	Brightly PSTN1 - Refurbish / reseat Discharge valve 1 every 10 years	23
		Replace Priming Valve	23
		Brightly PSTN1 - Discharge piping: Patch paint piping every 10 yrs	11
	2019-20	Replace Pump	86
		Replace Motor	20
		Replace Structure Of Building	11
	2020-21	Replace Pump	87
		Replace Discharge Reflux Valve	50
		Replace Motor	20
	2021-22	Replace Motor	20
		Replace Discharge Isolation Valve	10
	2024-25	10ETO-O/H MOTOR & PUMP #2 BR #1 PS(PLAN)	24
	2025-26	Replace Control Equipment	56
		11ETO-O/H MOTOR & PUMP # 3 BRGHTLY #1 PS	25
	2027-28	Brightley PSTN1 - Refurbish Pump Unit 1 (Major)	28
	2030-31	Replace Vacuum Pump Starter	28
		Brightly PSTN1 - Refurbish / reseat Discharge valve 1 every 10 years	22
	2031-32	Replace Pump	86
	2034-35	Replace Vacuum Priming Pump No 1	20
		Replace Vacuum Priming Pump No 2	20
	2035-36	Brightly PSTN1 - Discharge piping: Patch paint piping every 10 yrs	11
Brightley Pump Station No 2	2011-12	Replace Switch Board	100
		Replace Cable	23
		Refurbish / reseat every 15 years	11
	2013-14	Brightly PSTN2 - Refurbish Pump 2 - Major refurbishment	23

Asset	*Year*	*Description*	*Value ($'000)*
	2016-17	Replace Control Equipment	144
	2017-18	Replace Pump No 1	74
	2019-20	Replace Motor No 2	12
	2020-21	Replace Reflux Valve	27
		Replace Motor No 1	12
	2021-22	Brightly PSTN - Refurbish Pump 1 - Major refurbishment	22
		Refurbish / reseat every 15 years	13
	2023-24	Replace Pump No 2	73
	2028-29	Brightly PSTN2 - Refurbish Pump 2 - Major refurbishment	22
	2031-32	Replace Control Equipment	141
		Replace Structure Of Building	45
		Refurbish / reseat every 15 years	11
Marwood Distribution	2015-16	Replace Air Valve	15
	2016-17	Service Control Valve	23
	2019-20	Refurbish/replace scour valves every 20yrs	22
	2022-23	Replace Scour Tee/Standpipe At 1077.2M	11
		Replace Scour Tee/Standpipe At 3171.6M	11
		Replace Sour Tee/Standpipe At 2037.5M	11
	2026-27	Replace Isolating Valve At 0.7M	38
		Replace Isolating Valve At 0.8M	26
		Replace Isolating Valve At 6093.3M	23
		Service Control Valve	22
		Replace Isolating Valve At 1.1M	13
		Replace Isolating Valve At 1.4M	13
		Replace Isolating Valve At 1350.9M	13
	2029-30	10ETO-RPLC P/RELIEF VLV MRWD 395/398PLAN	12
	2032-33	Refurbish/replace scour valves every 20yrs	22
		Replace Isolating Valve At 0.6M	13
	2035-36	Replace Air Valve	15
Mt Alice Distribution	2017-18	Replace Security Fence	30
	2027-28	Replace Submerged Disk Valve	213
		Refurbish/replace scour valves every 20yrs	29
		Replace Isolating Valve At 0.9M	28
		Service Control Valve	13
		Replace Isolating Valve At 0.95M	13
		Replace Isolating Valve At 1.2M	13
		Replace Isolating Valve At 1.7M	13
Mt Alice Pump Station	2011-12	Replace Discharge Valve	37
		Replace Starter Priming Pump No. 1	11
		Replace Starter Priming Pump No. 2	11
	2012-13	Replace Motor Starter No. 1 Pump Unit	56
		Replace Motor Starter No. 2 Pump Unit	56
		Replace Motor Starter No. 3 Pump Unit	56
		Mt Alice PSTN - Pump Unit 3 Overhaul (Seals and Bearings)	28
		Mt Alice PSTN - Refurbish Pump Unit 1 (Bearings and Seals)	28
	2015-16	Replace control console (as per PB report - refer HB 09-001392)	57

Asset	*Year*	*Description*	*Value ($'000)*
		Replace Actuator, Elec Magnatek (Disch Valve)	45
		Mt Alice PSTN - Refurbish Pump Unit 2 Motor (Bearings and Windings)	17
	2016-17	Replace Main Switchboard	216
	2018-19	Replace Control Equipment	195
		Replace Fence & Gates	19
	2019-20	10ETO-REPLACE MT ALICE PSTN ROOF (PLAN)	13
		10ETO-(PLAN) REMOTE MNTRNG EQPMNT MTA PS	12
	2020-21	Mt Alice PSTN - Pump 3 discharge valve: Repaint/repairs to actuators	19
	2021-22	09ETO-MT ALICE O/HAUL P1 & P3 MTRS(PLAN)	13
	2023-24	Replace Cable	155
		09ETO-MT ALICE O/HAUL PUMP # 2 (PLAN)	29
	2027-28	Mt Alice PSTN - Pump Unit 3 Overhaul (Seals and Bearings)	28
		Mt Alice PSTN - Refurbish Pump Unit 1 (Bearings and Seals)	28
	2028-29	Replace Pump Motor	40
		Mt Alice PSTN - Refurbish Pump Unit 2 Motor (Bearings and Windings)	17
	2029-30	Replace Actuator, Elec Magnatek (Disch Valve)	87
		10ETO-REPLACE MT ALICE PSTN ROOF (PLAN)	13
		10ETO-(PLAN) REMOTE MNTRNG EQPMNT MTA PS	12
	2030-31	Replace control console (as per PB report - refer HB 09-001392)	56
		Replace Actuator, Elec Magnatek (Disch Valve)	43
		Mt Alice PSTN - Pump 3 discharge valve: Repaint/repairs to actuators	19
	2031-32	Replace Pump	120
		Replace Starter Priming Pump No. 1	11
		Replace Starter Priming Pump No. 2	11
	2032-33	Replace Pump	120
		Replace Motor Starter No. 1 Pump Unit	56
		Replace Motor Starter No. 2 Pump Unit	56
		Replace Motor Starter No. 3 Pump Unit	56
	2033-34	Replace Control Equipment	192
		Replace Pump Motor	39
	2034-35	09ETO-MT ALICE O/HAUL P1 & P3 MTRS(PLAN)	13
	2035-36	Replace Pump Motor	39
Munbura Distribution	2026-27	Replace Isolating Valve At 1.3M	20
		Replace Isolating Valve At 1427.9M	17
		Replace Isolating Valve At 0.4M	13
		Replace Isolating Valve At 0.5M	13
		Replace Isolating Valve At 0.75M	13
		Replace Isolating Valve At 3230.2M	13
		Service Control Valve	12
		Refurbish/replace scour valves every 20yrs	11
Oakenden Distribution	2019-20	Replace Fence And Gates	28
	2023-24	Replace Isolating Valve At 0.8M	13
	2029-30	Replace Plastic Storage Liner	127

Asset	*Year*	*Description*	*Value ($'000)*
	2033-34	Replace Pipe Channel (0.0Km - 0.87Km)	113
Oakenden Main Channel Distrib	2011-12	Oakenden Main Channel - Refurbish RG01: Blast and Paint, Bearings and Seals	33
		Repair / service isolation valve - OMC 20/5	16
		Repair earthworks - undermining of structure	11
	2012-13	Oakenden Main Channel - Refurbish RG03: Blast and Paint, Seals and Bearings - AVIS Type	34
	2013-14	Replace Child Proof Fence	50
		Oakenden Main Channel - Refurbish RG06 - Blast and Paint, Bearings and Seals - AVIS	34
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	31
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	10
		Refurbish: Patch paint screens every 5 yrs,($3,000)	10
	2014-15	Oakenden Main Channel - Refurbish Reg Gate RG08 - Blast and Paint, Bearings and Seals	34
		Oakenden Main Channel - Refurbish Reg Gate RG05 - Blast and Paint, Bearings and Seals	34
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	28
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	21
	2015-16	Oakenden Main Channel - Refurbish Reg Gate CR09 - Blast and Paint, Bearings and Seals	34
		Replace Air Vents (All) - OMC	20
		Replace Air Valve At 8393.9M	14
		Refurbish: Minor repairs to valve etc. every 10 yrs and mid life overhaul	12
	2016-17	Replace Fence And Gates	27
		Oakenden Main Channel - AVIS Gate CR02 Major Refurbishment (paint, seals, bearings)	11
	2018-19	Refurbish: Patch paint screens every 5 yrs, ($3,000)	30
		Oakenden Main Channel - AVIS Gate CR04 Major Refurbishment (Paint, seals and bearings)	17
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	10
		Refurbish: Patch paint screens every 5 yrs,($3,000)	10
	2019-20	Replace screen every 20 yrs ($3,000)	67
		Replace seals every 20 yrs and replace batescrew gate @ 40 yrs.	54
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	27
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	20
	2020-21	Rectify Gaps in OMC Meter Outlet Inlet Safety Screens/Walkway (WH&S)	45
		11ETO-DESILT OMC BLNCNG STG OF DRAIN	41
		Oakenden Main Channel - Refurbish RG01: Blast and Paint, Bearings and Seals	34
	2021-22	Replace handrails @ half life (40 yr)	58
		Desilting of inlet/outlet	22
		Replace Isolating Valve At 2.1M	20
		Repair / service isolation valve - OMC 20/5	17
		Replace Isolating Valve At 0.5M	13
		Replace Air Vent At 2973.4M	11
	2022-23	Oakenden Main Channel - Refurbish RG03: Blast and Paint, Seals and Bearings - AVIS Type	33
	2023-24	Oakenden Main Channel - Refurbish Reg Gate RG08 - Blast	33

Asset	*Year*	*Description*	*Value ($'000)*
		and Paint, Bearings and Seals	
		Oakenden Main Channel - Refurbish RG06 - Blast and Paint, Bearings and Seals - AVIS	33
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	30
		Replace Isolating Valve At 1.7M	14
		Replace Isolating Valve At 4.4M	13
	2024-25	Oakenden Main Channel - Refurbish Reg Gate RG05 - Blast and Paint, Bearings and Seals	33
		10ETO-BLAST & PAINT RE INSTALL REG7 PLAN	27
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	27
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	20
	2025-26	Oakenden Main Channel - Refurbish Reg Gate CR09 - Blast and Paint, Bearings and Seals	33
		Refurbish: Minor repairs to valve etc. every 10 yrs and mid life overhaul	12
	2028-29	Refurbish: Patch paint screens every 5 yrs, ($3,000)	30
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	10
		Refurbish: Patch paint screens every 5 yrs,($3,000)	10
	2029-30	Oakenden Main Channel - Refurbish RG01: Blast and Paint, Bearings and Seals	33
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	27
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	20
	2030-31	11ETO-DESILT OMC BLNCNG STG OF DRAIN	41
	2031-32	Replace Control Equip-Gate Not Fitted	39
		Repair / service isolation valve - OMC 20/5	17
		Oakenden Main Channel - AVIS Gate CR02 Major Refurbishment (paint, seals, bearings)	11
		Replace Overflow Drain	11
	2032-33	Oakenden Main Channel - Refurbish Reg Gate RG08 - Blast and Paint, Bearings and Seals	33
		Oakenden Main Channel - Refurbish RG03: Blast and Paint, Seals and Bearings - AVIS Type	33
	2033-34	Replace Avis Gate	681
		Replace Gate	97
		Oakenden Main Channel - Refurbish RG06 - Blast and Paint, Bearings and Seals - AVIS	33
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	30
		Oakenden Main Channel - AVIS Gate CR04 Major Refurbishment (Paint, seals and bearings)	17
		Replace Air Valve At 8393.9M	14
		09ETO-FNCNG CHANNEL HOUSES POLICY (plan)	14
		Replace Valve, 375Mm Sluice Batescrew	13
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	10
		Refurbish: Patch paint screens every 5 yrs,($3,000)	10
	2034-35	Oakenden Main Channel - Refurbish Reg Gate RG05 - Blast and Paint, Bearings and Seals	33
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	27
		Refurbish: Patch paint screens every 5 yrs, ($3,000)	20
	2035-36	11ETO-INSTALL OMC SECURITY FENCING	86
		Rectify Gaps in OMC Meter Outlet Inlet Safety Screens/Walkway (WH&S)	44

Asset	*Year*	*Description*	*Value ($'000)*
		Oakenden Main Channel - Refurbish Reg Gate CR09 - Blast and Paint, Bearings and Seals	33
		09ETO11-INSTAL DWLING SECURITY FNC(2011)	22
		Refurbish: Minor repairs to valve etc. every 10 yrs and mid life overhaul	12
Oakenden Pump Station	2012-13	10ETO-REPLACE OAK RETIC PS SWITCHBOARD	152
	2014-15	Oakenden Relfit PSTN - Overhaul Pump 1 inc bearings, seals, and impellor.	34
		Oakenden Relift PSTN - Overhaul Pump No.1 Motor inc bearings & rewind.	17
		Refurbish: Midlife overhaul, seals, gearbox and patch paint.	11
	2015-16	Oakenden Re-lift PSTN - Overhaul Pump 2 inc bearings, seals and impellor	34
		Replace Vacuum Priming Pump No 1	29
		Replace Vacuum Priming Pump No 2	29
		Replace Priming Valve No 1	26
		Replace Priming Valve No 2	26
		Replace Fence And Gates	23
		Replace Baseplate	18
		Oakenden Relift PSTN - Overhaul Pump 2 Motor inc bearins, rewind and paint	17
		Replace Discharge Valve Actuator	11
	2019-20	Replace Cable	73
	2024-25	Replace Pump Motor No 1	20
		Replace Pump Motor No 2	20
		Replace Discharge Valve	17
		Refurbish: Midlife overhaul, seals, gearbox and patch paint.	11
	2027-28	Replace Control Equipment	56
	2029-30	Oakenden Relift PSTN - Overhaul Pump 1 inc bearings, seals, and impellor.	33
		Oakenden Relift PSTN - Overhaul Pump No.1 Motor inc bearings & rewind.	17
	2030-31	Oakenden Re-lift PSTN - Overhaul Pump 2 inc bearings, seals and impellor	33
		Oakenden Relift PSTN - Overhaul Pump 2 Motor inc bearings, rewind and paint	17
		Replace Discharge Valve Actuator	11
	2032-33	Replace Motor Starter No 1 Pump Unit	28
		Replace Motor Starter No 2 Pump Unit	28
	2033-34	Replace Pump No 1	117
		Replace Pump No 2	117
	2034-35	Change Out Electronics - as required	28
		Refurbish: Midlife overhaul, seals, gearbox and patch paint.	11
	2035-36	Replace Vacuum Priming Pump No 1	28
		Replace Vacuum Priming Pump No 2	28
Victoria Plains Distribution	2011-12	Victoria Plains BS1 - Refurbish seals, lifting mechanism and paintwork every 10 yrs, replace/refurbish gates every 40 yrs.	15
	2015-16	Victoria Plains Offtake - Refurbish seals, lifting mechanism and paintwork every 10 yrs	16
	2017-18	Refurbish/replace scour valves every 20yrs	32

Asset	*Year*	*Description*	*Value ($'000)*
	2019-20	10ETO-RPLC VIC PINS STRG INLT GATE	15
	2020-21	Replace Control Equipment	23
	2025-26	Refurbish/replace scour valves every 20yrs	22
		Victoria Plains Offtake - Refurbish seals, lifting mechanism and paintwork every 10 yrs	16
	2029-30	Replace Structure, Meter Outlet 427A_ D Manifold	56
		Replace Fencing	17
		Victoria Plains BS1 - Refurbish seals, lifting mechanism and paintwork every 10 yrs, replace/refurbish gates every 40 yrs.	16
		10ETO-RPLC VIC PINS STRG INLT GATE	15
	2030-31	Refurbish/replace scour valves every 20yrs	31
		Replace Isolating Valve At 6740.6M	20
		Repairs/refurbish to valve and steelwork every 10 yrs, mid life replacement of valve, pipes and steelwork	17
	2035-36	Replace Control Equipment	23
		Victoria Plains Offtake - Refurbish seals, lifting mechanism and paintwork every 10 yrs	16
Victoria Plains Pump Station	2012-13	Replace Pump Unit No. 1 Starter	67
		Replace Pump Unit No. 2 Starter	67
	2014-15	Victoria Plains PSTN - Refurbish Pump Unit 1	34
	2015-16	Vic Plains PSTN - Overhaul Pump 2 including bearings, seals and impellor	34
	2017-18	Victoria Plains PSTN - Refurbish Pump # 2 Motor	23
	2018-19	Replace Valve, 400Mm Butf Dezurik	113
	2019-20	Upgrade and refurbish control equipment as required	34
		Replace Fence & Gates	11
	2020-21	Replace Switchboard	219
		Replace Control Equipment	201
	2023-24	09ETO VIC PLN DSCHRGE VL LTCH REP (PLAN)	22
		Refurbish Motor-PUN1-Victoria Plains PST	15
	2024-25	Replace Cable	22
	2027-28	Replace Valve, 400Mm Butf Dezurik	111
		Replace Pump Motor	45
		Replace Latch, Emag Qld Hydraulics	22
	2028-29	Replace Structure Of Building	92
	2029-30	Victoria Plains PSTN - Refurbish Pump Unit 1	33
		Replace Inlet Valve	10
		Replace Suction Valve	10
	2030-31	Vic Plains PSTN - Overhaul Pump 2 including bearings, seals and impellor	33
		Victoria Plains PSTN - Refurbish Pump # 2 Motor	22
	2032-33	Replace Pump Unit No. 1 Starter	67
		Replace Pump Unit No. 2 Starter	67
	2034-35	Replace Pump	216
		Replace Pump Motor	45
		Upgrade and refurbish control equipment as required	33
	2035-36	Replace Pump	216
		Replace Control Equipment	197