QUEENSLAND COMPETITION AUTHORITY

Draft Report

SunWater
Irrigation Price Review: 2012-17
Volume 2
St George 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

Direction Notice

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

Summary of Price Recommendations

The Authority's recommended irrigation prices to apply to the St George Distribution System for the 2012-17 regulatory period are outlined in Table 1 together with actual prices since 1 July 2006.

Table 1: Draft Prices for the St George 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 Water Charge (Unbundled)											
Fixed (Part A)	13.56	14.44	15.12	15.60	16.08	17.64	18.73	19.19	19.67	20.17	20.67
Volumetric (Part B)	2.81	3.00	3.14	3.24	3.34	3.46	1.06	1.09	1.12	1.14	1.17
Channel (Unbundled)											
Fixed (Part C)	13.16	15.00	15.76	16.24	16.72	18.32	21.83	24.42	27.14	29.06	29.79
Volumetric (Part D)	6.84	7.63	8.01	8.26	8.52	8.82	5.33	5.46	5.59	5.73	5.88
Channel (Bundled)											
Fixed (Part A)	26.72	29.44	30.88	31.84	32.80	nr	nr	nr	nr	nr	nr
Volumetric (Part B)	9.65	10.63	11.15	11.50	11.86	nr	nr	nr	nr	nr	nr

Note: nr – not relevant. Prior to 2012, channel tariffs were a bundled price for bulk and distribution services (St George channel tariffs were unbundled in 2011-12). Thus, the fixed Part C tariffs for 2006-11 represent a notional unbundled channel price calculated by deducting Part A Regulated Section prices from Part A Channel prices. The same process was applied to determine Part D prices. Source: Actual Prices (SunWater, 2011a!) and Recommended Prices (QCA, 2011)

Although prices for the bulk costs of the St George WSS are presented above, the review of the underlying bulk costs is set out in detail as part of a separate report on the St George WSS.

The Authority's recommended termination fees to apply to the St George Distribution System in 2012-17 are outlined in Table 2 together with actual termination fees since 1 July 2008.

Table 2: Draft Termination Fees ($/ML)

	2008-09	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Termination fee (inc. GST)	141.10	139.33	157.77	201.52	378.29	387.75	397.44	407.38	417.56

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

The Authority's recommended drainage and drainage diversion charges to apply to the St George Distribution System in 2012-17 are outlined in Tables 3 and 4 together with actual drainage and drainage charges since 1 July 2006.

Table 3: Draft Drainage Charges ($/ha of land)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Drainage Charge	18.75	19.33	20.25	20.85	21.45	22.20	22.76	23.32	23.91	24.50	25.12

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

Table 4: Draft Drainage Diversion Charges ($/ML)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Drainage Diversion Charges (metered)	9.09	10.02	10.50	10.83	11.16	12.06	12.36	12.67	12.99	13.31	13.64
Drainage Diversion Charges (pump)	8.22	8.46	8.87	9 15	9.43	9.77	10.01	10.26	10.52	10.78	11.05

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

The Authority's recommended water harvesting charges to apply to the St George Distribution System in 2012-17 are outlined in Table 5 together with actual water harvesting charges since 1 July 2006.

Table 5: Draft Distribution System Water Harvesting Fees & Charges ($/ML)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Lease Fee	3.00	3.09	3.24	3.34	3.44	3.56	To be set by SunWater				
Distribution & Consumption Charge	9.65	10.63	11.15	11.50	11.86	12.28	5.33	5.46	5.59	5.73	5.88
DERM Water Charge	na	na	na	na	3.70	3.80	To be set by DERM				
Total	**12.65**	**13.72**	**14.39**	**14.84**	**19.00**	**19.64**	-	-	-	-	-

Note: na = not applicable as DERM did not levy a charge until the commencement of the ROP in 2010. Source: SunWater (2011).

Draft Report

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

Volume 2, which comprises scheme specific reports, should be read in conjunction with Volume 1. Also relevant is the Draft Report on St George WSS.

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. ST GEORGE DISTRIBUTION SYSTEM

1.1 System Description

The St George Distribution System has 51 customers. Medium and high priority water access entitlements (WAEs) are detailed in Table 1.1. To deliver water to these customers, SunWater owns WAEs for distribution losses.

Table 1.1: Water Access Entitlements for St George Distribution System

Customer Group	*Irrigation WAE (ML)*	*Total WAE (ML)*
Medium Priority	50,788	50,788
Medium Priority Distribution Losses[1]	6,701	6,701
High Priority	0	0
High Priority Distribution Losses[1]	3,000	3,000
Total	**60,489**	**60,489**

Note: St George Distribution System WAE is included in the total St George water supply scheme (WSS) WAE of 84,575 ML. All distribution customers in St George are irrigators hence there is no difference between irrigation and total WAEs. Source: SunWater (2011).

1.2 Distribution System Infrastructure

The St George Distribution System diverts water from Beardmore Dam. The two main channels, Buckinbah channel and St George main channel, draw water from Buckinbah Weir and Jack Taylor Weir respectively. The system includes 112 km of channels and 99 km of drains. All channels – with the exception of the rising main from the St George Pump Station – are open earth channels with manually operated gravity flow control structures.

Buckinbah Main Channel, including Regulator and Pump Station

About 90% of the water used in the St George Irrigation Area is supplied from the Thuraggi Watercourse through the Buckinbah Regulator and Buckinbah Main Channel.

The Buckinbah Regulator and Pump Station, which transfers water from Buckinbah Weir in the Thuraggi Watercourse into the Buckinbah Main Channel, has four gravity outlets and four pumped outlets. The gravity outlets are used whenever possible. When the storage level gets too low to generate an adequate flow through the gravity outlets, pumps are used.

St George Main Channel and Pump Station

The remaining 10% of the water used in the St George Irrigation Area is supplied from the St George Pump Station through the St George Main Channel. St George Pump Station is located on the left bank of the Balonne River about 0.5 km upstream from Jack Taylor Weir, just inside the St George residential area. It was commissioned in the late 1950s.

[1] SunWater holds the medium priority and high priority WAEs for distribution losses.

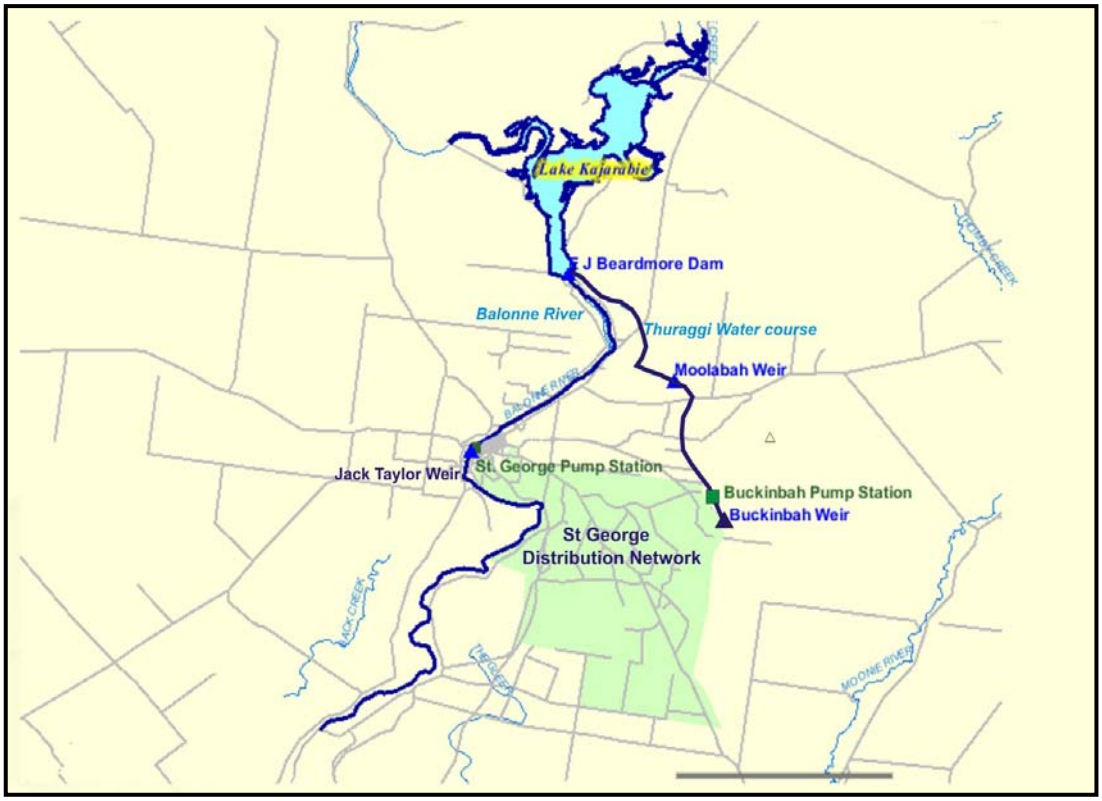
St George Low Level Pump Station

The St George Low Level Pump Station consists of four diesel driven pumps. The pump station is activated when the water level in the Beardmore Dam drops below the outlet into Thuraggi Watercourse when there is 12,000 ML in the dam. On average, this happens once every three years.

Drainage Infrastructure

The St George WSS drainage system includes of a network of channels and drains that services the left bank of the Balonne River, extending 32km south east of St George. Customers are required to discharge water from their farm blocks through the drain inlet provided. Figure 1.1 shows the location of the St George Distribution System and key infrastructure.

Figure 1.1: St George Distribution System Locality Map



Source: SunWater (2011)

Appendix A provides a more detailed map of the distribution and drainage system.

1.3 Network Service Plans

The St George Distribution System network service plan (NSP) presents SunWater's:

(a) existing service standards;

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

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

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

1.4 Consultation

The Authority has consulted extensively with SunWater and other stakeholders throughout this review. 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;

(f) considered all submissions and reports in preparing Draft Reports for comment; and

(g) provided relevant stakeholders the opportunity to correct any factual errors in the Draft Report where time permitted.

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

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

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 negotiations that preceded the 2006-11 price paths, the St George WSS Tier 2 group (including representatives from the St George Distribution System) indicated that they were in favour of retaining the existing price cap regulatory arrangement. In the 2011-12 interim price period the price cap arrangement was continued.

2.2 Stakeholder Submissions

SunWater

SunWater identified a range of generic risks considered relevant to allowable costs across all schemes (see Volume 1). SunWater also considered that it should not bear the risk of water availability (i.e. volume risk). The following are scheme specific risks identified by SunWater in the NSP associated with the St George Distribution System (SunWater, 2011):

(a) possible developments driven by the Murray-Darling Basin (MDB) Plan[2] that is currently being developed. This plan, or subsequent changes over time, may have cost implications for the scheme or change the underlying assumptions used for forecasting;

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

(c) the introduction of schemes relating to the reduction of greenhouse gases that may have implications for electricity prices, or energy efficiency regulation that results in a net increase in costs;

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

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

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

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

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

(i) outbreak of noxious weeds;

(j) low level pumping – additional costs associated with installing and operating the low level pump station to supply the distribution customers in the Thuraggi water course and St George channel system; and

(k) St George pump station – the suction lines to the St George pump station are severely corroded and approaching the end of their economic life. A staged replacement for the

[2] The MDB Authority is charged with developing a draft Basin Plan for the consideration of the Commonwealth Minister for Water and Federal Parliament by early 2012.

pump station is proposed. The initial stage will be to construct a wet well with temporary suction lines to the existing dry well. Detailed scoping and designs have not yet been prepared. However initial estimates indicate a cost in the vicinity of $3,000,000, equivalent to an increase in the renewals annuity by $200,000 to $300,000 per annum.

The renewals program includes expenditure on investigation for the refurbishment of these pump stations. The timing and cost of the replacement is dependent on the outcome of the investigation and consultation with customers.

2.3 Authority's Analysis

General Risks

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 WSS. The proposed allocation of risks and the means for addressing them are outlined in Table 2.1 below.

Table 2.1: Summary of Risks, Allocation and the 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 responsibility of customers. Allocate risk to customers.	Cost-reflective tariffs.
Long Term Volume Risk (Planning and Infrastructure)	Risk of matching storage capacity (or new entitlements from improving distribution loss efficiency) to future demand.	SunWater has no substantive capacity to augment bulk infrastructure (for which responsibility rests with Government). SunWater does have some capacity to manage distribution system infrastructure and losses provided it can deliver its WAEs.	SunWater should bear the risks, and benefit from the revenues, associated with reducing distribution system losses.
Market Cost Risks	Risk of changing input costs.	SunWater should bear the risk of its controllable costs. Customers should bear the risks of uncontrollable costs.	End of regulatory period adjustment for over- or under-recovery. Price trigger or cost pass through on application from SunWater (or customers), in limited circumstances.
Risk of Government Imposts	Risk of governments modifying the water planning framework imposing costs on service provider.	Customers should bear the risk of changes in water legislation though there may be some compensation associated with National Water Initiative (NWI) related government decisions.	Cost variations may be immediately transferred to customers using a cost pass-through mechanism, depending on materiality.

Source: QCA (2011).

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

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

Any costs of the nature of (d) would be passed through, subject to a consideration of their materiality.

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

The renewal expenditure associated with (j) and (k) will be considered in a subsequent chapter. However, where the actual costs associated with renewal expenditure differ from the forecast costs, an adjustment will be made to the future renewal annuity when prices are reset, where actual renewal expenditures are prudent and efficient.

The Authority notes that the St George Distribution System has continuous sharing arrangements in place. These arrangements assist irrigators manage supply risk by providing irrigators with access to a range of water products such as automatic full carry-over of water account balances at the conclusion of each year and enhanced seasonal assignment options.

3. PRICING FRAMEWORK

3.1 Tariff Structure

Introduction

In the 2006-11 price paths, tariffs 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. The St George Tier 2 group accepted a tariff structure to recover 70% of required revenue through the fixed (Part A) charge and 30% of revenue through the 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 variable charge should recover variable costs.

Other Stakeholders

Stakeholders' submissions relating to tariff structures are addressed in the St George WSS Draft Report.

Authority's Analysis

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

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

Unbundling of tariffs further promotes cost reflectivity of charges.

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

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

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

Table 3.1: Permanent and Temporary Water Traded (ML)

	2002-03	*2003-04*	*2004-05*	*2005-06*	*2006-07*	*2007-08*	*2008-09*	*2009-10*
Permanent	0	0	0	0	0	0	0	0
Temporary	8,301	5,191	10,797	9,585	12,446	6,799	12,054	8,501

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

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

3.2 Termination (Exit) Fees

Introduction

SunWater charges termination fees when a distribution system WAE is permanently transferred to the river. Without a termination fee, SunWater would have insufficient revenue to cover that customer's share of fixed costs.

Stakeholder Submissions

SunWater

In 2011-12, SunWater charged the exiting user the present value of 10 years of annual fixed distribution charges or 9.4 times the distribution system fixed charge, which SunWater submitted is consistent with the Australian Competition and Consumer Commission (ACCC) guidelines. SunWater treated such fees as revenue offsets for 10 years with any subsequent revenue shortfall recovered from remaining distribution system customers.

Other Stakeholders

No other stakeholders have commented on this matter.

Authority's Analysis

In Volume 1, the Authority noted that the purpose of a termination fee is to ensure that a customer's departure does not result in a financial cost to SunWater or, as currently occurs, to remaining customers. SunWater currently treats such fees as revenue offsets over a 10-year period with any revenue shortfall subsequent to this period, being recovered from remaining distribution customers. Volume 1 also indicates that in structuring the termination fee there should be an incentive for SunWater to reduce costs following a customer's departure.

As proposed by SunWater, the Authority recommended a planning period of 20 years for the calculation of the renewals annuity and an annual rolling (recalculation of the) annuity (discounted by the Authority's recommended weighted average cost of capital (WACC)). Consistent with this approach, the Authority recommended that the termination fee for each year will reflect 20 years of fixed costs (which include forecast renewals and fixed operating expenditure), although due to the rolling annuity approach over the five-year regulatory period, 24 years of data will be incorporated.

The Authority has recommended that costs not recovered via the termination fee are not to be passed on to customers in the form of higher (future) annual water charges. By not recovering all fixed costs, SunWater has an incentive to reduce costs or seek out new customers.

As also outlined in Volume 1, the ACCC recommended that for water service providers affected by the MDB Agreement (which includes SunWater's administration of the St George Distribution System), the exit fee should constitute a maximum multiple of 10 times the nominal annual fixed distribution system charge. Consistent with SunWater's current approach, any revenue shortfall subsequent to this period is to be recovered from remaining distribution customers.

The Authority's recommended approach results in a multiple of about 13.8 times[3] the unbundled Part C cost-reflective tariff for the distribution system. This compares with the ACCC's guidance of up to 11 times the nominal annual fixed distribution system charge[4] and with SunWater's 2011-12 termination fees which reflect 11.0 times the 2011-12 distribution system fixed charge. These multiples all include GST.

SunWater's past termination fees and the Authority's recommended termination fees, including annual increases and fixed multiples, are detailed in Table 3.2. The Authority's recommended approach results in a multiple of the recommended Part C tariff for the distribution system as shown below.

Table 3.2: Draft Termination Fees ($/ML)

	Actual Prices				***Recommended Prices***				
	2008-09	***2009-10***	***2010-11***	***2011-12***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Exit Fee ($/ML)	141.10	139.33	157.77	201.52	378.29	387.75	397.44	407.38	417.56
Change from previous year (%)		-1.3%	13.2%	27.7%	87.7%	2.5%	2.5%	2.5%	2.5%

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

3.3 Water Use Forecasts

Introduction

During 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 was 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 (SunWater, 2006a).

For the St George Distribution System, SunWater (2006b) assumed a water usage forecast of 95% of the WAE in the channel system. Water usage for high and medium priority irrigation WAEs was not separately identified

[3] The 13.8 figure represents the NPV of 20 years of the Part C tariff.

[4] As outlined in Volume 1, SunWater may need to seek ACCC approval to adopt the Authority's recommended approach for the St George Distribution System given potential inconsistencies with the Murray-Darling Basin Agreement.

Stakeholder Submissions

SunWater

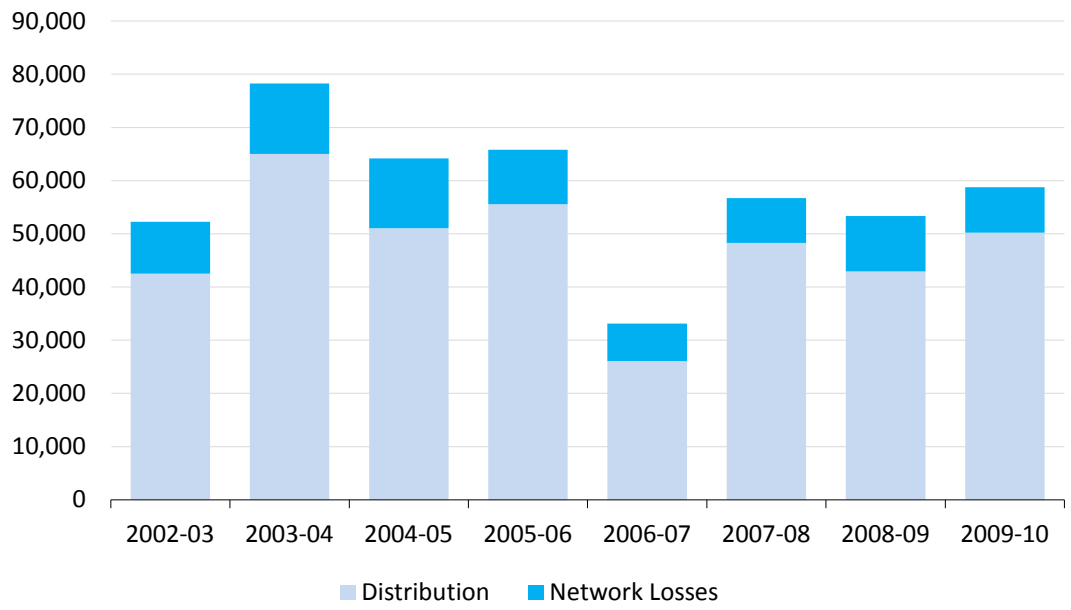
The available supply of water is determined by the announced allocations which are set according to rules contained in the Condamine and Balonne Resource Operations Plan (ROP).

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

SunWater's usage forecast for 2013-2017 are made having regard to historic averages over an eight-year period and the usage forecast applied for the current price path. The forecast use for the distribution system is 85% of current WAEs and medium priority distribution losses, plus 100% of high priority losses.

Figure 3.1 shows the historic usage information for the St George Distribution System submitted by SunWater (2011). SunWater stated that over the past eight years, total water use in the distribution system has been 84% of current WAEs.

Figure 3.1: Water Usage for the St George Distribution System (ML)



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).

Distribution losses are addressed further below.

3.4 Tariff Groups

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

The previous SunWater Irrigation Price Paths Final Report (SunWater, 2006b) nominated one tariff group, the Channel tariff group, for the St George Distribution System.

SunWater proposed in its NSP that it does not intend to change the current tariff group, other than unbundling bulk water and distribution charges.

In accordance with the Ministerial Direction, the Authority will adopt the proposed designated single tariff group. The allocation of costs for this purpose is discussed further below.

3.5 Distribution Losses

Introduction

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

Previous Review

In the previous price path, the costs of distribution losses were allocated to distribution users (SunWater, 2006a).

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.

The projected usage for distribution losses in the NSP is based on the assumption that 100% of high priority loss WAEs is used each year and that medium priority loss WAEs reflect the same usage percentage as other medium priority WAEs in the distribution system. Therefore, in the case of the St George Distribution System, high priority loss WAE is assumed to be 3,000 ML per annum and medium priority loss WAE is estimated at 85% of 6,701 ML or 5,696 ML per annum.

Other Stakeholders

Participants at the Round 2 consultation considered that distribution losses in the scheme reflect actual losses and that there is no significant excess allocation for losses.

St George Irrigators (2011) submitted that their calculations indicate that the cost of channel water will increase by more than 50% in real terms, resulting mainly from the passing on of

distribution losses to channel users. St George Irrigators suggested that SunWater absorb the full cost of distribution losses from the distribution system.

Cotton Australia/Queensland Farmers' Federation (QFF) (2011a) submitted that if SunWater is going to recover bulk charges for distribution losses allocation, they would not have any incentive to reduce losses. It was not intended that losses allocation could be traded unless water savings have been proven within the sections that the losses were allocated. Cotton Australia/QFF further stated that these losses are then resold to users as drainage diversion charges.

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, 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 scheme specific issues raised by stakeholders:

(a) the Authority agrees with the participants at the Round 2 consultation that distribution losses in the scheme reflect actual losses and that there is no significant excess WAEs for losses. This alignment between actual and nominal loss WAE in St George is noted in Volume 1. Over the eight-year period 2002-03 to 2009-10, average actual distribution losses were approximately 104% of distribution loss WAEs. Table 3.3 shows the actual amount of water loss compared with loss WAEs.

Actual losses in any one year can exceed total loss WAEs as evidenced in 2002-03, 2003-04, 2004-05, 2005-06 and 2008-09. This occurs when a loss adjustment is applied to temporary trades to accommodate the greater losses that could occur depending on the location the water is traded to – such as those located further from Beardmore Dam. In these instances, these losses are temporarily transferred to SunWater's loss account;

Table 3.3: Combined Medium and High Priority Distribution Loss (ML)

Item	*2002-03*	*2003-04*	*2004-05*	*2005-06*	*2006-07*	*2007-08*	*2008-09*	*2009-10*
Loss WAE*	9,721	9,721	9,721	9,721	9,721	9,721	9,721	9,721
Actual Loss	9,771	13,224	13,172	10,227	7,049	8,462	10,422	8,511
Actual loss as % of loss WAE	101%	136%	136%	105%	73%	87%	107%	88%
Water use as % of WAE	78%	93%	101%	106%	51%	68%	85%	74%

*Note: * The Authority asked SunWater to clarify the discrepancy between this loss WAE (9,721) and that previously identified by SunWater and reported in Table 1.1 (9701). SunWater had not responded as at the Draft Report. Source: SunWater (2011).*

(b) 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; and

(c) in response to Cotton Australia, the Authority has recommended that SunWater retain the revenues from the sale of additional (formerly loss) WAEs and thereby has an incentive to reduce distribution losses. If SunWater did sell distribution loss WAEs then the total losses paid for by customers would decrease over time.

Drainage diversion charges are dealt with separately below.

As discussed in more detail in Volume 1, the Authority does not consider that bulk customers should contribute to the costs of distribution losses. The water planning framework prescribes loss WAEs needed to deliver the distribution system service, and does not recognise any benefit or right to any excess loss WAEs to river customers.

3.6 Drainage Charges and Drainage Diversion Charges

Introduction

Drainage charges apply in the St George Distribution System. SunWater provides the St George drainage system to remove water (farm run-off and storm water) from irrigation properties. Customers are required to discharge water from their farms through the drain inlet provided and they are charged for this facility.

Previous Review

In the previous review, drainage charges were calculated on a scheme basis. The St George Tier 2 group decided that the drainage rate be retained (for channel irrigators) as a separate charge on a per hectare basis. The Tier 2 group also undertook to explore the merits of converting to a per ML charge to potentially apply to the subsequent regulatory period. For 2010-11, the drainage charge for the St George Distribution System was $21.45 per hectare (from August 2010) of irrigable land. The drainage charge for 2011-12 remained $21.45 per hectare of irrigable land.

Drainage diversion charges are calculated in one of two ways. Some installations are metered and pay $11.16 per ML of metered use. Others, not metered, pay a fixed charge of $9.43 per ML based on the assumed annual diversions. These charges applied for 2010-11. For 2011-12, charges increased to $12.06 per ML of metered use and $9.77 per ML for use not metered.

Stakeholder Submissions

SunWater

SunWater (2011d) proposed that the existing drainage tariff groups be retained, with St George Distribution System being one of the four distribution systems continuing to receive a separate drainage charge.

SunWater proposed to maintain the already established arrangements and charges, whereby revenues from drainage and drainage diversion charges are treated as a revenue offset against total costs for this service contract. Further, SunWater submitted that this arrangement should be reviewed at the end of the 2012-17 regulatory period, with a view to incorporating drainage costs into a combined fixed charge for the distribution system. SunWater's submission (2011d) on drainage charges is set out in more detail in the Volume 1 report.

Other Stakeholders

Participants at the Round 2 consultation considered that although drainage charges are about $150,000 annually, less than this amount is being spent on maintaining drainage infrastructure and as a result, drains have a tendency to block. They considered that drainage charges need review because SunWater has collected these charges during the current price path but has not undertaken needed clearing and maintenance of drainage channels.

Authority's Analysis

In Volume 1, the Authority recommended cost-reflective tariffs. Further, the Authority recognised that changes in farm practices have occurred such that some irrigators may not require drainage services to the same degree as previously. In St George, irrigators have indicated that the service is required.

SunWater advised the Authority that it does not separately identify drainage or drainage diversion costs within its accounts, and it would not be possible to generate renewals cost information for the planning period.

Without such cost information, the Authority is unable to recommend specific cost-reflective tariffs in this review.

In response to comments made in round 2 consultation, the Authority was been unable to ascertain actual drainage costs. In the circumstances, the Authority recommends that the current drainage and drainage diversion charges be maintained in real terms and that all revenue collected be treated as a revenue off-set for distribution costs.

The Authority also recommends that SunWater collect detailed information on drainage (and drainage diversion) costs over the course of the 2012-17 regulatory period to inform cost-reflective charges prior to the next pricing review.

3.7 Channel Water Harvesting Charges

Introduction

The Ministerial Direction requires the Authority to review distribution system water harvesting charges. Distribution system water harvesting entitlements are over and above the water available to a customer under their WAE.

Water harvesting is the practice of water extraction from a river during authorised or announced high flow periods (e.g. flooding) that are specified in the Condamine and Balonne ROP. Water harvesting occurs in the St George Distribution System, with SunWater delivering water harvesting water through the established distribution network.

Previous Review

In the previous review, SunWater set the charge for channel water harvesting as the total of a lease fee, a government charge associated with water harvesting entitlements and a charge associated with using distribution channels for the purpose of water harvesting (see Table 3.4).

Stakeholder Submissions

SunWater

SunWater (2011d) submitted that the same pricing arrangements for water delivered in the Distribution System should apply regardless of how a customer has sourced water.

In addition, SunWater charges a lease fee for each ML of harvested water delivered in the St George Distribution System. SunWater has advised that like an access charge, the lease fee relates to access to the entitlement itself and should continue to be set within a market setting and is therefore outside the scope of regulatory oversight.

Other Stakeholders

Participants at the Round 2 consultation considered that a fixed fee for water harvesting is not justified. Participants believed that SunWater should not have ownership and control of water harvesting in the scheme.

St George Irrigators (2011) also considered that irrigators should have direct pro-rata ownership of the channel water harvesting licence so they can use or trade this water for maximum benefit. They submitted that SunWater has no natural rights to water harvesting and that the channel water harvesting licence should be returned to irrigators.

Authority's Analysis

The price for distribution system water harvesting should reflect the marginal costs associated with its delivery.

The Authority agrees with Round 2 consultation comments that a fixed fee for water harvesting is not justified as there are no fixed costs associated with distribution system water harvesting and no capacity installed for that purpose.

The Authority notes that in 2011-12, the Part B charge was $12.28. In addition, SunWater is required to pay DERM $3.80/ML of extraction but appear to only charge irrigators $3.70/ML for this component.[5] SunWater also levy a lease fee of $3.56/ML. The total charge for distribution system water harvesting in 2011-12 is therefore $19.54/ML.

The Authority notes that:

(a) the water harvesting charge represents a pass through of DERM's charge for the unsupplemented water. Therefore, it is appropriate for SunWater to collect this DERM charge from customers on a volumetric basis (as it is imposed on the basis of water usage);

(b) in the 2006-11 price paths, the aim of the Part B volumetric water charge was to recover the additional pumping and incremental maintenance costs. This, generally, equalled the marginal cost of supply[6]. As for other distribution delivery services, the Authority considers that the charge for distribution system water harvesting should reflect the marginal cost of supply; and

[5] Under the *Water Regulation 2002*, DERM levy a fee of $3.80/ML for water harvesting associated with the Lower Balonne Water Management Area for 2011-12. The Authority notes, however, that SunWater's *Fees & Charges Schedule 2011/12* for the St George Distribution System only impose a Regulators Water Charge of $3.70/ML. In addition, SunWater commenced levying the DERM water charge in 2010-11 which coincided with the implementation of the Condamine and Balonne ROP. The Condamine and Balonne ROP commenced on 12/12/2008 and amended to include the Lower Balonne Water Management Area on 26/03/2010.

[6] Tier 1 Working Paper No.15 – Channel Water Harvesting states channel harvesting results in incremental, but marginal, variable costs associated with operating the channel system.

(c) a question arises as to whether SunWater is entitled to receive a margin over these costs. SunWater considers it can do so as it is similar to the revenue SunWater received from other leased WAEs or a temporary transfer. The Authority has previously indicated its support for SunWater to have an incentive to sell its other WAEs and retain the revenues received in the market place. The price for these WAEs is determined in the (trading) market[7]. Accordingly, the lease fee for water harvesting WAEs should also be set in the market place and therefore the Authority accepts SunWater's submission that the level of the lease fee should not be prescribed by the Authority.

The ownership and channel water harvesting entitlements are a matter for DERM, SunWater and irrigators. The Authority notes that DERM is working towards implementing the Commonwealth Government's Water Trading Rules which may result in a transfer of water harvesting WAEs from SunWater to customers.

Table 3.4 outlines the specific fees and charges levied by SunWater and the Authority's recommended fees and charges to apply to the 2012-17 regulatory period.

Table 3.4: Distribution System Water Harvesting Fees & Charges ($/ML)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Lease Fee	3.00	3.09	3 24	3.34	3.44	3.56	To be set by SunWater				
Distribution & Consumption Charge	9.65	10.63	11.15	11.50	11.86	12.28[8]	5.33	5.46	5 59	5.73	5.88
DERM Water Charge	na	na	na	na	3.70	3.80	To be set by DERM				
Total	**12.65**	**13.72**	**14.39**	**14.84**	**19.00**	**19.64**	-	-	-	-	-

Note: na = not applicable. Source: SunWater (2011).

3.8 Thuraggi Watercourse

The Thuraggi Watercourse is a natural watercourse regulated by releases from Beardmore Dam. Releases to the Thuraggi Watercourse are primarily for supply to the Buckinbah channel system, with Moolabah and Buckinbah Weirs providing sufficient water levels to enable gravity diversion to the channel systems. Water is pumped from Buckinbah Weir when water levels are low. Riparian extractions also occur along the length of Thuraggi Watercourse.

Submissions

SunWater

SunWater (P McGahan 2011, pers. comm. 3 August) submitted that there is currently no justification to undertake any major maintenance program on Thuraggi Watercourse. SunWater also submitted that any such maintenance program that could be justified would be conditional

[7] SunWater submits that, given SunWater owns the WAEs, the lease fee is a return SunWater makes on the value of the water harvesting WAEs and is similar to the revenue made on a leased WAE or a temporary transfer. Where SunWater own the WAEs, a lease fee is charged to users who negotiate to use the WAEs or trade the entitlement in the temporary market. Revenue from lease fees and temporary trades are not offset against lower bound costs. Accordingly, the lease fee is beyond the scope of the Authority's review.

[8] The charge for 2011-12 is based on the combined Part B – Bulk Water Charge ($3.46) *plus* the Part B – Channel Distribution Charge ($8.82) although it is acknowledged that no bulk infrastructure is required in providing channel harvesting.

on securing agreement with relevant irrigators as to the nature/extent of the maintenance program, and the associated implications on tariffs.

SunWater submitted that any future maintenance program would be aimed at ensuring the integrity of Thuraggi Watercourse in providing water for existing water harvesters and channel customers in accordance with its current standards of service. In this context, costs would constitute genuine renewals expenditure and be recovered through renewals annuities.

Other Stakeholders

Participants at the Round 2 consultation (April 2011), St George Irrigators (2011) and Cooinda Cotton (2011) have sought clarity on the allocation of responsibility for the on-going maintenance of Thuraggi Watercourse. Currently, irrigators along the Thuraggi Watercourse pay the same bulk water charge as Balonne River irrigators (SunWater 2011ab).

Participants at the Round 2 consultation (April 2011), St George Irrigators (2011) and Cooinda Cotton Co. (2011) considered that neither DERM nor SunWater are taking responsibility for the on-going maintenance of Thuraggi Watercourse. Participants at the Round 2 consultation suggested that major expenditure is currently required to address the risk that Thuraggi Watercourse will be congested through weed infestation, compromising the entire channel system.

Cooinda Cotton (2011) has submitted that the maintenance of Thuraggi Watercourse is being ignored by SunWater in preference for projects that are chosen by Brisbane-based managers without consultation with local stakeholders. Cooinda Cotton (2011) is concerned that a dispute exists between DERM and SunWater over responsibility for maintaining Thuraggi Watercourse and urge that this issue be resolved before the commencement of the next regulatory period (Cooinda Cotton 2011).

St George Irrigators (2011) have also submitted that although Thuraggi Watercourse is, in effect, part of the St George WSS headworks, neither SunWater, nor DERM, are maintaining the watercourse as each organisation consider they are not responsible. In addition, St George Irrigators (2011) consider that DERM is better placed to maintain the watercourse as this maintenance program would constitute a social obligation.

Authority's Analysis

The key issue is whether the Thuraggi Watercourse should be treated as channel infrastructure or whether it should be considered as a regulated river section (similar to, for example, the Balonne River regulated section).

Consistent with the provisions of the Condamine and Balonne ROP, DERM has confirmed that Thuraggi Watercourse is a watercourse as opposed to a channel associated with the St George WSS[9].

The Thuraggi Watercourse is not an infrastructure asset owned by SunWater, although the Authority understands that when the St George WSS was built, the natural watercourse was modified to enhance its function as a supply system. However, this did not include any form of lining, with the result being that transmission losses are higher from the Thuraggi Watercourse when compared to the Buckinbah Channel. However, in contrast to channels, the watercourse is supplemented by direct rainfall and local catchment contributions.

[9] DERM have stated that during formal discussions with irrigators in 2006 when the ROP was being finalised, stakeholders discussed in-depth whether the Thuraggi Watercourse constituted a channel (to be managed by SunWater) or alternatively, a watercourse that was not to be subject to scheduled maintenance/renewals expenditure.

In accordance with riparian extractions under the ROP, SunWater holds a distribution operations licence to distribute unsupplemented water and interfere with the flow of unsupplemented water in Thuraggi Watercourse. Under the ROP:

(a) the Distribution Operations Licence holder must divert unsupplemented water allocations under the licence in accordance with announced periods and the flow conditions of the water allocations; and

(b) the supply of unsupplemented water by the Distribution Operations Licence holder must not impact on the delivery of supplemented water allocations by the Resource Operations Licence (ROL) holder for the St George WSS.

However, as previously discussed, releases from Thuraggi Watercourse are primarily for supply to the Buckinbah channel system. It is the ongoing viability of Thuraggi Watercourse in this context that is the subject of stakeholder submissions.

DERM confirmed that to interfere with this watercourse – such as to undertake a maintenance program aimed at removing weeds or undertake dredging to remove obstacles or works to address bank slumping – the licence holder (in this instance, SunWater), would be required to submit an application to the CEO of DERM. This application may be rejected, approved or approved with conditions set by the CEO.

In previous price reviews, the irrigators supplied by Thuraggi Watercourse have met bulk water charges only and have the same charge as irrigators on the Balonne River regulated section, that is, there is no provision of revenue for maintenance or renewal of the watercourse. However, the previous price path identified the Thuraggi Watercourse as a separate tariff grouping.

The Authority concludes that the Thuraggi Watercourse is a natural watercourse in accordance with the provisions of the Condamine and Balonne ROP. It is not a SunWater asset.

It is recognised that the watercourse may require from time to time maintenance (e.g. weed control) to enhance operations of the channel system. SunWater's NSP makes no provision for any such maintenance costs. Such additional costs would result in a differentiated charge for Thuraggi Watercourse likely to be higher than that applying for Balonne River irrigators but lower than that for channel irrigators.

The matter of responsibility for the maintenance of Thuraggi Watercourse is a matter between DERM and SunWater. Until resolved otherwise, the Authority considers that for the 2012-17 regulatory period, the bulk water charge for Thuraggi Watercourse should remain aligned with that for the Balonne River regulated section.

Should an alternative course of action be decided, additional costs can be added into charges for the Thuraggi Watercourse tariff grouping in the next regulatory period.

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. The Authority has interpreted this as 'service standards' because the term 'level of service' is defined in the *Water Act 2000 (Qld)* as applying only where customers do not hold WAEs (as for urban water).

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) as assessment of whether renewals expenditure in 2006-11 was prudent and efficient. This affects the opening ARR balance for the 2012-17 regulatory period;

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

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

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

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

(d) the methodology to calculate the renewals annuity.

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

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

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

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

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

Subsequently, the Authority liaised directly with SunWater to obtain further information, and commissioned Sinclair Knight Merz (SKM) to address material expenditure items (that is, 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 St George WSS (including the St George Distribution System) was $1.294 million.

The Authority has accepted SunWater's unbundled opening ARR balance for the St George Distribution System (excluding the St George WSS) of $457,000.

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 some years between 1999-00 and 2005-06. 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 St George Distribution System for 2006-11 (Table 4.1) in real terms as at 2010-11. This expenditure included indirect and overhead costs which are subject to a separate review by the Authority (see Chapter 5). 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***
Direct Costs	63	25	216	290	1,791
Indirect & Overheads Costs	24	12	17	70	136
Total	***87***	***36***	***233***	***360***	***1,927***

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

Other Stakeholders

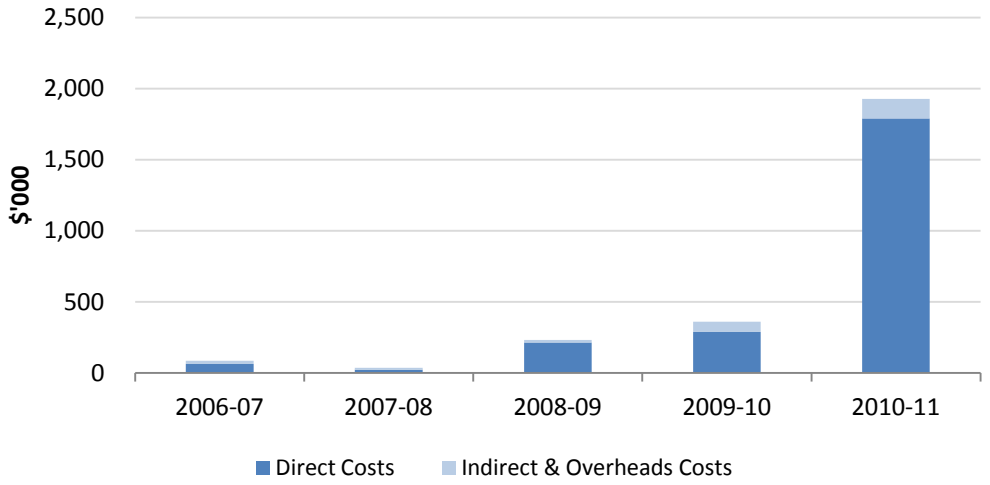
No other stakeholders have commented on these items.

Authority's Analysis

Total Renewals Expenditure

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

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



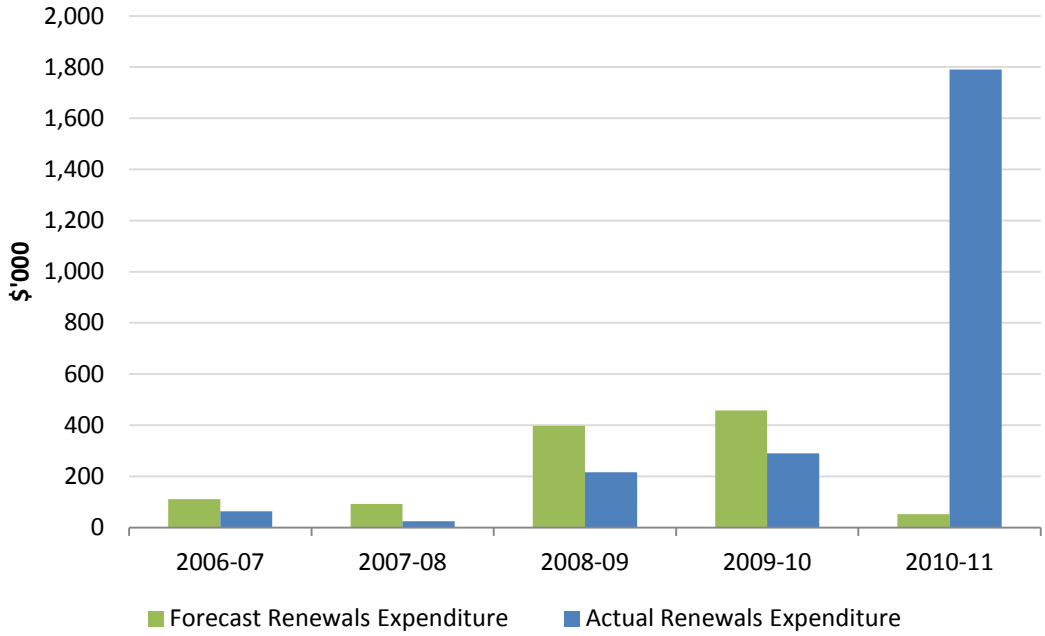
Note: The estimates reflect the most recent information provided by SunWater to the Authority in September 2011. Source: Indec (2011d).

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 St George Distribution System for 2006-11 is shown below in Figure 4.2.

Figure 4.2: Direct Renewals Expenditure 2006-11



Source: Forecast Indec (2011), Actual SunWater (2011k).

Actual (direct) renewals expenditure was $1.27 million above that forecast for the period, due in part to unplanned expenditure on the Intersafe Project in 2010-11 and the Public Safety Strategy in 2009-10.

GHD was appointed to review the prudency and efficiency of past renewals projects.

As noted in Volume 1, GHD adopted a different approach to the other scheme consultants and undertook a high level process review of a large number of projects rather than a more detailed review of a smaller number of projects.

GHD found SunWater's asset planning process to generally meet good industry practice (as did the other consultants in general). Nevertheless, as a result of the lack of detailed review of any specific renewals expenditure items, the Authority has applied a general 10% cost saving to SunWater's renewals expenditure items reviewed by GHD alone.

Item 1: Intersafe

SunWater

SunWater indicated that expenditure on Intersafe projects were 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

St George Irrigators (2011) submitted that the St George Distribution System has been burdened with the cost of the Intersafe Project which has caused the St George Distribution System to accrue serious debt, thereby reducing both farm profitability and asset values.

St George Irrigators also considered:

(a) that this project bestows no benefits on irrigators but has left them with a massive debt that will take years to pay off. Further, it seems SunWater can acquiesce to spurious demands, safe in the knowledge that it can pass the associated costs off to water users. St George Irrigators suggested that SunWater absorb a large proportion of the cost of the 2010-11 Intersafe Project, currently being allocated to irrigators of the St George Distribution System; and

(b) that the current expenditure for safety reasons does nothing to increase yield and is clearly the responsibility of government, not irrigators.

St George Irrigators (2011) submitted that the St George WSS has been burdened by numerous Occupational Health and Safety (OHS) projects that add no value to water. Proposals must be supported by professional analysis and irrigators should have the right to veto proposals. They also suggest that some of the new OHS installations at St George are less safe than those they replaced.

Consultant's Review

Intersafe expenditure associated with the St George Distribution System at a cost of $1,654,241 in 2010-11 was not included in the 2006-11 price path for this WSS.

GHD considered this project to be prudent and efficient, based on its analysis using engineering experience and judgement.

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 (in accordance with provisions of the *Workplace Health and Safety Act 1995* (the WHS Act) to ensure the workplace health and safety of its employees;

(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.

Similarly, in its review of the Intersafe Program, 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 notes the submissions of irrigators that costs associated with the Intersafe Project should be met by, at least partially, by other parties. The Authority notes that in competitive markets, the benchmark for efficient costs, suppliers are required to comply with workplace health and safety requirements and pass these costs to customers. Further, under the Ministerial Direction, SunWater is allowed to recover the efficient costs of compliance with workplace, health and safety requirements.

The Authority has concluded that, on the basis of its consultants' findings, these costs are prudent and efficient and are required in order to comply with relevant regulatory requirements.

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

Item 2: Public Safety Strategy – Fencing

SunWater

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

Other Stakeholders

St George Irrigators (2011) submitted that GHD's report indicated that the 2011 renewals expenditure was due to the Intersafe Project – essentially a chain wire fence designed to stop pedestrian access to the main supply channel. St George Irrigators regard SunWater's decision to spend more than $2 million on the Intersafe Project in one year from the renewals reserve as unconscionable and that community safety is a shared responsibility and should not be placed on irrigators.

Participants at the Round 2 consultation considered that costs associated with the fencing of channels constituted an excessive response to OHS requirements. They expressed concern over OHS compliance costs being imposed on SunWater by Government.

GHD's Review

GHD visited the St George Channel on 2 March 2011 and observed that the St George channel has been fenced with 2.4m high chain link fencing with three strands of barbed wire to minimise the risk of accidental drowning.

GHD considered expenditure undertaken in accordance with the Public Safety Strategy, as outlined in SunWater's SAP PM and Works Management System (WMS) systems. This expenditure was assessed as prudent and efficient based on GHD's analysis using engineering experience and judgement.

Authority's Analysis

SunWater has advised that compliance with the WHS Act is the driver of the Public Safety Strategy.

SunWater's 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 has indicated that this policy will be fully implemented by 30 June 2012 with higher risk sites prioritised (e.g. channel systems adjoining residential properties).

As outlined in Volume 1, SunWater has clarified that all channel fencing aimed at protecting the public is part of SunWater's separate Public Safety Strategy (and not the Intersafe Project).

The Authority notes comments by St George Irrigators that the Intersafe Project is essentially a chain wire fence designed to stop pedestrian access to the main supply channel and has a cost of approximately $2 million.

However, the Authority also notes that it is the Public Safety Strategy, as opposed to the Intersafe Project, that requires fencing to the limit access to channels. The cost of this fencing incurred in 2009-10 (as reported by GHD) was $57,069.

The Authority notes the submissions of irrigators that community safety is a shared responsibility and should not be placed on irrigators, or that costs associated with the fencing under the Public Safety Strategy should be met, at least partially, by other parties. In response, as noted above, the Authority notes that in competitive markets, the benchmark for efficient costs, suppliers are required to comply with workplace health and safety requirements and pass these costs to customers. Further, under the Ministerial Direction, SunWater is allowed to recover the efficient costs of compliance with workplace, health and safety requirements.

The issue is therefore whether the costs are efficient.

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 GHD have concluded that costs associated with the Public Safety Strategy 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 costs.

In summary, the Authority recommends that 50% of fencing costs incurred in 2011 be removed, pending SunWater confirming that 50% of total costs incurred have been off-set and not passed on to irrigators.

Item 3: Other Sampled Expenditure

GHD's Review

GHD were also appointed to review the efficiency (and prudency where not previously approved) of past renewals items.

In the absence of forecast renewals expenditure (as noted above) and detailed information on all renewals expenditure for 2006-11 from SunWater, GHD sought to examine each item to assess whether the item was justified by the appropriate drivers, was within a reasonable cost range for the scope of the works and completed within an appropriate timeframe.

The following sample of items, completed between 2006-07 and 2010-11, were reviewed in SAP-PM and WMS and assessed as prudent and efficient by GHD, based on the information provided by SunWater and GHD's analysis using engineering experience and judgement. These items were (costs include indirect and overheads):

(a) 2006-07 – channel meter replacements ($27,428);

(b) 2008-09 – install three diesel motors ($201,493);

(c) 2009-10 – repair access cross (St George Main Channel) ($6,043);

(d) 2009-10 – repair crossing channel B2 ($25,201);

(e) 2009-10 – repair access crossing CHB-2 ($22,530);

(f) 2009-10 – emergency repairs access crossing AC06 ($38,121);

(g) 2009-10 – emergency repairs access crossing ($217,069); and

(h) 2010-11 – repair access cross (St George Main Channel) ($28,700).

Authority's Analysis

As noted above, the Authority has applied a 10% saving to items reviewed by GHD.

Conclusion

In summary, two past renewals items were subject to more detailed review. The Intersafe program was found to be prudent and efficient. A fencing item that forms part of the public safety strategy was found to be prudent but a 50% saving was applied, pending confirmation that costs were efficient.

As noted in Volume 1, the Authority has applied a 10% saving to non-sampled and sampled items for which there was insufficient information.

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

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

Item	*Date*	*SunWater*	*Authority's Findings*	*Recommended*
Intersafe	2010-11	$1,654,241	Prudent and efficient	$1,654,241
Public Safety Strategy – Fencing	2009-10	$57,069	Prudent but not efficient.	$28,534
Other Past Renewals Items	various	various	Insufficient information	10% saving applied

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

4.4 Opening ARR Balance (at 1 July 2012)

SunWater indicated that the renewals opening ARR balance for 1 July 2011 was negative $917,000 for the St George 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 the St George Distribution System is negative $840,000.

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 prudent and efficient 2006-11 renewals expenditure; and

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

To establish the closing ARR balance as at 30 June 2012 of negative $1,308,000, the Authority:

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

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

(c) adjusted for interest over the year.

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

4.5 Forecast Renewals Expenditure

Planning Methodology

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

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

being defined as one which accounts for 10% or more in present value terms of total forecast renewals expenditure; and

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

In Volume 1, the Authority also reviewed and accepted a planning period of 20 years.

Prudency and Efficiency of Forecast Renewals Expenditure

Submissions

SunWater

SunWater's proposed renewals expenditure for the St George Distribution System is presented below in Table 4.3 as provided by SunWater in its NSP (submitted prior to the Government's announced interim prices for 2011-12).

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

	2011-12	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Buckinbah Pump Station	47	-	1	-	152
St George Distribution	101	-	34	99	46
St George Drainage	98	67	-	-	-
St George Pump Station	469	406	3	-	25
Total	**715**	**473**	**38**	**99**	**223**

Source: SunWater NSP (2010).

The activities listed include the following major items:

(a) Buckinbah Pump Station – involves replacing switchboard at an estimated cost of $138,000 in 2015-16. Following assessment in 2009, this switchboard will be replaced due to the condition and age of the components and the unavailability of spares;

(b) St George Distribution System – involves refurbishing or replacing access crossings at an estimated cost of $169,000 from 2011-12 to 2015-16. Five access crossings have been identified as requiring refurbishment or replacement based on their condition;

(c) St George Pump Station – involves replacing two pumps at an estimated cost of $266,000 in 2011-12. Two pumps will be replaced based on condition assessments carried out in 2001 and 2006 which identified deterioration in this asset;

(d) St George Pump Station – involves detailed design for a pump station refurbishment at an estimated cost of $109,000 in 2011-12. A comprehensive refurbishment project is planned for this pump station. The design work will be completed in advance; and

(e) St George Pump Station – involves constructing a new suction at an estimated cost of $357,000 in 2012-13. New suction pipe-work is required as the existing lines have partially corroded meaning that they may not be able to maintain suction at low water level.

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 B.**

Other Stakeholders

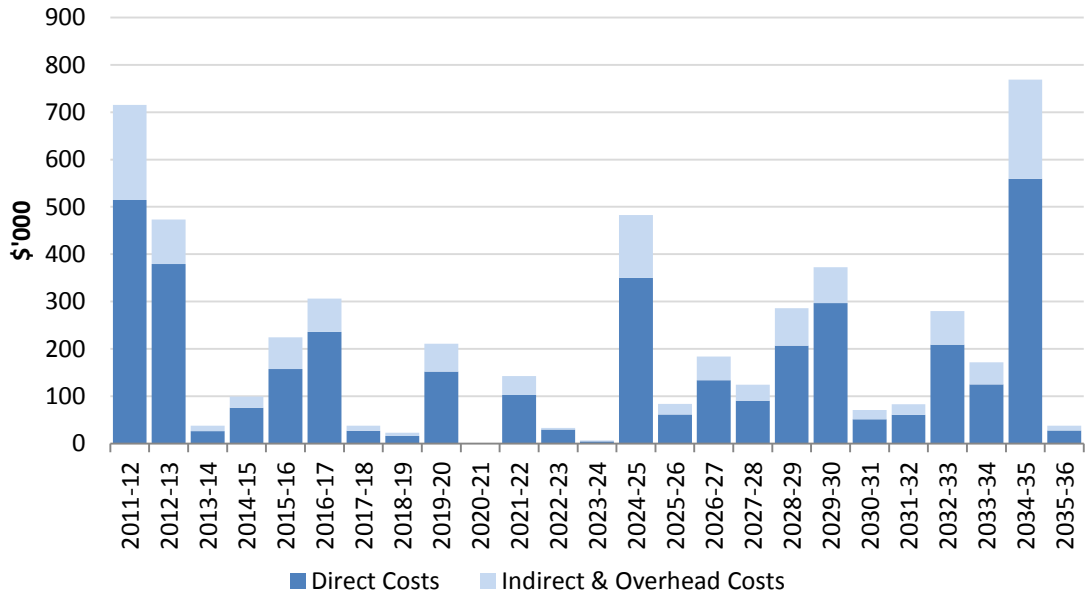
No other stakeholders have commented on these items.

Authority's Analysis

Total Costs

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

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



Source: SunWater (2011).

Review of Items

A sample of forecast items was reviewed by consultants GHD and SKM.

Item 1: Buckinbah Pump Station

SunWater

SunWater proposed the following renewals items for the Buckinbah Pump Station over 2011-16 (Table 4.4).

Table 4.4: Buckinbah Pump Station 2011-16

Item	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Paint/maintain gates and seals	$23,000	-	-	-	-
Replace main switchboard	$22,000	-	-	-	-
Replace main switchboard	-	-	-	-	$138,000

Note: Costs include indirect and overhead costs. Source: GHD 2011.

Other Stakeholders

No other stakeholders have commented on these items.

Consultant's Review

GHD noted that the repainting and maintenance of the seals at Buckinbah Weir is required to preserve the integrity of the gates. The requirement for this item and cost was verified during site inspections.

The replacement of the switchboard in 2001-02 has been instigated by a safety report. GHD can confirm that the cost is within an order of magnitude for a switchboard of that size, but cannot verify that it is required at the planned timeframe.

GHD consider that the proposed replacement of the switchboard in 2015-16 may not be necessary and subject to a subsequent investigation by SunWater into the potential decommissioning of the Buckinbah Pump Station.

GHD visited the Buckinbah Pump Station on 2 March 2011 and observed that the Buckinbah Pump Station consists of two smaller and two larger pumps mounted on a weir structure. The weir and pumps are used for providing head to the downstream canal when the upstream levels are low. The pumps were installed in 1970 and they and the switchboard are due for replacement. The concrete structure is in a fair condition with some cracking on the abutment slabs that may be associated with differential movement. The debris screens are working effectively and operation of the weir is adequate.

GHD considered that the site inspections verified the following items in the forward works program:

(a) replacement of the pumps; and

(b) repair of the cracking abutment slabs.

GHD considered that the cost for the pump and motor replacements appeared to be underestimated. SunWater advised that the future of the pump station was under review and the need to replace the switchboard may not be required.

Authority's Analysis

The Authority notes that GHD could not confirm the prudency of the expenditure as the renewals items may no longer be required. The Authority has applied a general 10% saving pending the provision of further information to confirm the prudency of this expenditure

Item 2: Selected Channels and Drainage Items 2011-12 to 2015-16

SunWater

SunWater proposed the following renewals items for channels and drainage (Table 4.5).

Table 4.5: Distribution System 2011-16

Item	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*
Implement recommendations of FNCG Audit	$42,000	-	-	-	-
Refurbish main channel	-	-	-	$31,000	-
Repair access crossing AC06	$33,000	-	-	-	-
Repair access crossing AC01	-	-	$34,000	-	-
Repair access crossing AC02	-	-	-	$34,000	-
Repair access crossing (channel B1) AC	-	-	-	$34,000	-
Repair access crossing (channel B2) AC02	-	-	-	-	$34,000
Refurbish drain access crossing AC05	$33,000	-	-	-	-
Repair access crossing (drain 3/3) AC02	-	$34,000	-	-	-
Repair concrete/stabilise headworks (drain 3/4) AC03	$33,000	-	-	-	-
Repair concrete (drain 3/4) AC04	$33,000	-	-	-	-
Repair concrete (drain 3/4) AC02	-	$34,000	-	-	-

Note: Costs include indirect and overhead costs. Source: GHD 2011

Other Stakeholders

St George Irrigators (2011) submitted that proposed OHS expenditure must be reviewed by a committee of irrigation representatives and be supported by professional analysis. This committee would be able to recommend material changes to OHS proposals, resulting in more cost effective solutions for irrigators. This committee should also be able to reject unconvincing proposals.

Participants at the Round 2 consultation considered that although drainage charges are about $150,000 annually, less than this amount is being spent on maintaining drainage infrastructure and as a result, drains have a tendency to block. They considered that drainage charges need review because SunWater has collected these charges during the current price path but have not undertaken needed clearing and maintenance of drainage channels.

Consultant's Review

GHD report that the majority of the identified items are required to address safety issues.

GHD consider the items outlined above in Table 4.5 to be in two categories – namely, works associated with maintaining channels and works associated with maintaining drains.

The channel crossings were designed and installed to previous load standards and do not have adequate safety barriers or current load carrying capabilities. GHD stated that all of these items have been reviewed through the Intersafe Project and are supported by mitigation actions from the risk assessment process. Therefore, GHD consider these items to be prudent and efficient as SunWater cannot ignore its duty of care.

In the context of drains, GHD concluded that the identified works are prudent and efficient as they are to preserve the integrity and hydraulic efficiency of the channel system.

Authority's Analysis

The Authority notes GHD's analysis which states that the majority of items are required to address safety issues.

As previously discussed, the Authority has accepted consultant Halcrow's (2011) and SKM's (2011) findings that, overall, the Intersafe Project was prudent and efficient. However, the Intersafe project is to be finalised by 2012 and therefore appears unlikely to relate to the majority of these items.

In response to the stakeholders' proposal that irrigators should have the right of veto over whether a particular proposed initiative proceeds, a legislative requirement to consult is recommended in Volume 1.

As noted above, the Authority has applied a general 10% saving to items reviewed by GHD alone.

Item 3: St George Pump Station

SunWater

SunWater proposed the following renewals items for the St George Pump Station over 2011-16 (Table 4.6).

Table 4.6: St George Pump Station 2011-12 to 2015-16

Item	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*
New suction mains	-	$357,000	-	-	-
Design of pump station refurbishment/replacement	$109,000	-	-	-	-
Replace pump 19 cusec	$134,000	-	-	-	-
Replace pump 7 cusec	$132,000	-	-	-	-

Note: Costs include indirect and overhead costs. Source: GHD 2011

SunWater in its NSP noted potential works to be undertaken at St George Pump Station at a cost of approximately $3 million. These works are additional to those described in Table 4.6 as SunWater has not included these works in renewals calculations as the ultimate timing and cost

is dependent on the outcome of detailed design (yet to be undertaken) and consultation with customers.

Other Stakeholders

No other stakeholders have commented on these items.

GHD's Review

GHD noted that the replacement of the suction mains was identified from a condition assessment undertaken in 2008 which identified that the steel pipes have extensive external and internal corrosion. GHD considered the construction of the new suction pump to be an optimal (that is, the prudent and efficient) solution that is required to prevent damage to the pumps from air and impeller capitation.

GHD noted that the St George Pump Station is an older installation and is approaching the age where significant refurbishments, renewals and repairs are required.

Completing a detailed design to evaluate options is warranted and supported by GHD's site observations. GHD noted that the area between the motor and switchgear floor level of the pump station is a confined space for maintenance of the drive shafts and pumps within the tower. An alternative pump station using a wet well with an intake channel to the main river channel is being considered. GHD noted the use of a channel to the wet well may be questionable given likely siltation of the channel and potential for blockage of the intake. An alternative design incorporating silt separation works may be required, although the present intake pipe system appears to be working well, apart from the corrosion of the pipes, which should be replaced under corrective maintenance.

GHD visited the St George Pump Station on 2 March 2011 and observed the following:

(a) the St George Pump Station consisted of three pumps within a dry well on the banks of the Balonne River. The pumps are high flow low head pumps, which transfer water approximately one km to the St George Channel. Three suction mains were anchored within the river channel. The pumps were driven by electric motors in the upper floor of the pump station. Pump No 2 motor was newer and in better condition than Pump 1 and 3 motors. The pump station structure is sound although the access stairway is unlikely to be compliant with current OHS requirements.

(b) the area below the motor and switchgear floor level of the pump station is a confined space for maintenance of the drive shafts and pumps within the tower. An alternative pump station using a wet well with an intake channel to the main river channel is being considered. The use of a channel to the wet well may be questionable given likely siltation of the channel and potential for blockage of the intake. An alternative design incorporating silt separation works may be required, although the present intake pipe system appears to be working well, apart from the corrosion of the pipes, which should be replaced under corrective maintenance.

GHD considered that the site inspections verified the following items in the forward works program:

(a) construction of the new suction mains. The mains had been surveyed during the drought and corrosion of the external and internal surfaces were verified by thickness testing; and

(b) replacement of Pumps 1 and 3 due on age, performance and condition.

GHD recommended that SunWater consider retaining the suction system to the St George Pump Station and consider whether submersible pumps are a cost benefit over the current arrangement.

GHD noted that the replacement of the two pumps is also warranted with the cost estimates being within the order of magnitude for pumps of that size.

Authority's Analysis

The Authority notes that although the GHD report does not include a detailed analysis of efficiency, in the absence of more detailed information GHD made a judgement based on its engineering experience.

However, the Authority commissioned more detailed advice from consultants SKM on the major item of proposed expenditure – the replacement of the suction mains (see below).

SKM's Review of the Replacement of Suction Mains

Available Information

SKM have drawn on the following renewals expenditure item specific replacement/refurbishment report produced by SunWater:

Table 4.7: Documents Reviewed

Document No.	*Document Name*	*Document Title*	*Date*
1109920	1109920 – v1 – QCA Justification St George Pump Station – Intake Pipework Replacement	St George Pump Station - QCA Justification	24 August 2011
1116936	1116936 Report St George Pump Station Pipes	St George Irrigation Project Pump Station Suction Line – Condition Report	30th August 2011
1116938	1116938 Analysis Report – Analysis of Options for Replacement of St George Pump Station	The Analysis of Options for Replacement of St George Pump Station – St George Irrigation Scheme	30th August 2011

Source: SKM (2011).

Prudency – Asset Replacement/Refurbishment Date Determination

On the basis of SKM's review of the data in SAP and the information contained in the SunWater report specified above, SKM consider that SunWater has largely followed the policies and procedures that it has in place to determine item replacement/refurbishment dates and costs. Where SKM have found exceptions to this, and or data entry errors, SKM have highlighted these below together with other observations on data provided.

SunWater's SAP-WMS has listed the asset at object type as PIMSCL which has a standard run to failure life of 80 years and a standard refurbishment period of 27 years. SKM consider the applied run to failure asset life and refurbishment period for this asset to be appropriate for this type of asset and in keeping with good industry practice.

SKM have viewed the WMS record for this asset confirmed that the asset has been in service since 1957.

SunWater has applied its risk evaluation method to this asset. The risk evaluation determined that the asset's Production/Operational criterion risk is major with a consequence rating (score 40). The consequence rating together with a probability (likelihood of occurrence) score of 20 results in an overall risk score of 800 which places this asset in a 'High' risk category. The SunWater SAP contains a justification with the following comment: "Extensive work required for repairs if inlet failure occurs." SKM consider this a reasonable justification. For this asset type, an overall risk category of 'High' reduces the run to failure asset life from 80 years to 50 years and the standard refurbishment period from 27 years to 17 years. SKM consider this reduction in run to failure asset life and refurbishment period based on this risk assessment for asset replacement and refurbishment planning purposes to be appropriate and in keeping with good industry practice.

Three different condition assessments were undertaken in 2005 and in 2006. The condition assessments undertaken are: General Concrete Structures, Structures – Steel and Pipelines – Ferrous Above and B assessments. The items that were identified that have a condition score of 4 and above is listed in Table 4.8.

Table 4.8: Summary of Items with a Condition Score 4 and above

No	*Component*	*Condition Score*	*Comments*
1.0	GENERAL CONCRETE STRUCTURE CONDITION ASSESSMENT		
1.1	Operational Performance	4	
1.2	Safety Fittings	4	
1.3	Other Components	6	
2.0	STRUCTURES – STEEL CONDITION ASSESSMENT		
2.1	Steel Bolts/Coatings/Surfaces	5	Significant Deterioration
2.2	Operational Performance	5	Pitting may cause loss of suction
2.3	Safety Fittings	6	Walkway unsafe – do not use
3.0	PIPELINE – FERROUS ABOVE & B CONDITION ASSESSMENT		
3.1	Pedestals	4	
3.2	External Coating / Surfaces/ Bolts	5	
3.3	Pipe Wall	5	

Source: SKM (2011).

SunWater's Asset Management Planning Methodology Paper states that an asset with an Asset/Business Risk rating of 'High' should be replaced or refurbished once the maximum condition score reaches 4. The maximum condition score has exceeded the score of 5 and the asset is therefore, according to SunWater's Policy and Procedures, due for replacement.

Prudency – Options Evaluation

SunWater commissioned a dive condition assessment in 2006 that concluded that the suction pipeline would be fit for use for another five-year period. The condition report was made available for our viewing.

An options analysis was conducted in November 2005 to replace the St George Pump Station. This report was made available for our viewing. The options investigated included the construction of a new inlet works further upstream, differing only in size between the options. The Options Analyses Report recommends that the existing St George Pump Station be decommissioned and a new submersible pump station be constructed at an estimated cost of $1.6 million (estimated in 2005).

SunWater has not provided SKM with any other information regarding options investigated to replace the existing suction pipeline.

SKM have not sighted any documentation that documents an implementation plan should the existing suction pipeline fail between now and the commissioning of the proposed pump station. There may be merit in developing such a plan as this asset has been identified as a high risk asset. Options to be considered could include, but not limited to, the following:

(a) internal polyethylene sleeving;

(b) purchase and stock close to site sections of similar diameter pipe to enable the cutting out of a failed section and replacing with new section, fixed in place with gibaults or by welding; and

(c) manufacture sections of steel plate already bent to fit over the various outside diameters to use as a patch. Consider welding it into place or by means of strapping.

Prudency – Timing of Renewal/Refurbishment

Based on the 2005-06 condition assessments and in accordance to SunWater's Policy and Procedures, the replacement of the pump station suction line was due for replacement since 2005-06. The condition assessments that was conducted in 2005-06 confirmed that the suction pipeline has deteriorated past a score of 4 (Significant deterioration with substantial refurbishment required to ensure ongoing reliable operation). SunWater is exposed to business risk by not replacing the suction pipeline. SKM, therefore, consider the timing of this replacement to be prudent.

However, it is SKM's view, after considering the information presented, that the replacement of the suction pipeline also forms part of the planned replacement of the whole of the pump station and as such is included in the renewals expenditure submitted for the planned pump station replacement.

Conclusion on Prudency Evaluation

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

Efficiency Evaluation

For asset refurbishment works where the planned refurbishment date is less than five years from the planning date, SunWater's planning team draws on actual costs for similar activities undertaken recently or, alternatively, compiles a price from first principals. Given the volume

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

Efficiency – Renewal/Replacement Cost Evaluation

SKM have been provided with as built drawings for the suction pipeline. As such, SKM have been able to develop benchmark costs for the replacement of the suction pipe from first principles.

Although the item is due for implementation, SunWater has not developed a value based on a bottom up costing or alternate previous recent project costing approach in line with SunWater's stated processes and practice. Instead SunWater has adopted a replacement cost of $350,238 based on the 1997 Bill of Materials (BOM) rates and adjusted making use of the values derived from the 2008 Cardno Report. SKM have used the quantities from the replacement cost to undertake a bottom up calculation. The calculation is shown within Table 4.9.

Table 4.9: SKM Cost Estimate

No	*Description*	*Qty*	*Rate*	*Total ($)*
1.	MATERIALS AND CONTRACTOR			
1.1	257 mm MSCL 6 mm	46.5 m	$260/m* (for pipe material only)	12,090
1.2	420 mm MSCL 5 mm	47.1 m	$650/m* (for pipe material only)	30,615
1.3	660 mm MSCL 6 mm	46.4 m	$900/m* (for pipe material only)	41,760
1.4	Timber Piles	315.6 m	$7500* for establishment and $127/m	47,607
1.5	Support Structures (1.25 times Timber Piles)			59,509
2	SUB TOTAL A			191,581
3	Contractors Preliminary and General Item (17% of Sub Total B)			32,569
4	**Total**			**224,150**

**Based on rates extracted from Rawlinsons – Australian Construction Handbook 2011. Source: SKM (2011)*

A cost comparison showing the breakdown of both SunWater and SKM is shown in the Table 4.10:

Table 4.10: Comparison between SunWater and SKM Costing

Description	*SunWater Cost ($)*	*SKM Cost ($)*
Contractors and Material	250,000	224,150
Internal Labour and Overheads	85,081	100,868 (Based on 45% of Contractors and Materials)
Total	**335,081**	**325,018**

Source: SKM (2011).

From the above table it can be seen that the cost differs by 3% between the SunWater and SKM costing.

SKM considered the costs submitted to the Authority for this renewals expenditure to be efficient, based on overall information.

SunWater has developed a planning order for this item's replacement which details the following breakdown of costs between contractors, overheads and materials as shown in the Table 4.11 below.

Table 4.11: SunWater Breakdown of Costs - Replace Suction Line

Cost Item	*Planned Costs*
Contractors	$150,000
Internal Labour Transfer	$33,500
Internal Overhead Transfer	$51,581
Materials	$100,000
Service Charges	
Total	**$335,081**

Source: SKM (2011).

SunWater has advised that Internal Overhead Transfer relates to corporate overhead costs that are allocated to this item's replacement.

Conclusion on Efficiency Evaluation

The value submitted for this item is efficient, based on the information at SKM's disposal.

Summary and Conclusions

SKM are satisfied that SunWater's robust procedures for determining the timing of asset refurbishment have been followed and hence the timing and need for replacement have been demonstrated.

Accordingly, SKM consider the replacement of this item to be prudent and its forecast cost to be efficient, based on the information at SKM's disposal.

Authority's Analysis

The Authority notes that the total cost (including direct and indirect) submitted by SunWater for this renewals item ($357,000) does not equate to the amount reviewed by SKM ($335,081). This is because SKM's review was based on SunWater's SAP system, which uses a simplified method for calculating indirect and overhead costs compared to SunWater's financial system. It is the financial system which forms the basis of SunWater's NSPs and submissions to the Authority. However, where direct costs were reviewed by SKM this aligns with the direct costs submitted to the Authority.

The Authority notes SKM's recommendation that the replacement of the suction mains is considered to be prudent and efficient.

Although SunWater are yet to provide further details regarding the potential $3 million expenditure associated with the St George Pump Station, the Authority proposes to incorporate the costs of the suction lines at $357,000 in the renewals annuity.

Item 4: Renewals Items from 2015-16

SunWater proposed a range of renewals items (Table 4.12).

Table 4.12: Renewals Items Beyond 2015-16

Item	*Value*	*Year*
Aluminium gate structure 4559M	$117,000	2016-17
Replace outlet	$69,000	2016-17
Repair access crossing	$88,000	2016-17
Fencing	$142,000	2019-20
Replace control equipment	$57,000	2019-20
Re-profile & regrade drain	$182,000	2019-20
Replace meter off-take	$73,000	2024-25
Replace vacuum priming pump	$57,000	2024-25
Replace meter out-let	$170,000	2024-25
Replace bridge crossing	$207,000	2026-27
Replace switchboard	$349,000	2028-29
Boundary fencing	$116,000	2029-30
Replace meter out-let	$75,000	2029-30
Fencing	$168,000	2029-30
Safety signage	$76,000	2030-31
Replace overflow structure	$81,000	2031-32
Cross drainage culvert	$93,000	2033-34
Replace flow meter	$266,000	2034-35
Replace meter out-let	$110,000	2034-35
Replace suction pipe	$704,000	2034-35

Note: Costs include indirect and overhead costs. Source: GHD 2011.

Other Stakeholders

No other stakeholders have commented on these items.

Consultant's Review

GHD considered the forecast renewals expenditure outlined in Table 4.12 to determine whether the expenditures were required and whether the timing was appropriate. GHD noted the renewals items included refurbishments to protect assets and recurrent expenditure on the refurbishment of channels, gates and structures. GHD assessed the forecast renewals expenditure as efficient and prudent.

Authority's Analysis

The Authority notes that SunWater's forecast renewals expenditure indicates future renewals expenditure totalling of $426,000 associated with fencing – $142,000 in 2019-20 and $284,000 in 2029-30. The Authority recommends that 50% of these fencing costs be removed from the calculation of the renewals annuity, pending SunWater confirming that total costs have been off-set by 50% consistent with the provisions of the *Dividing Fences Act 1953.*

As noted above, a 10% saving has been applied to the remaining items.

Conclusion

In summary, various items for the St George Distribution System were sampled. Of these:

(a) GHD could not confirm the prudency of the expenditure relating to the Buckinbah Pump Station as the renewals items may no longer be required. The Authority has applied a general 10% saving pending the provision of further information to confirm the prudency of this expenditure;

(b) SKM was able to conduct a detailed review of the replacement of the suction mains at St George Pump Station. This expenditure was found by SKM to be prudent and efficient;

(c) the Authority recommends that forecast fencing costs be reduced by 50% pending SunWater confirming total costs are efficient; and

(d) the Authority has applied a general 10% saving to the remaining renewals expenditure.

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

Therefore, the Authority recommends that forecast renewals expenditure should be adjusted as noted in Table 4.13 below.

Table 4.13: Review of Forecast Renewals Expenditure 2011-35 (Real $'000)

Item	*Year*	*SunWater ($)*	*Authority's Findings*	*Recommended ($)*
Sampled Projects				
1. Buckinbah Pump Station	various	183	Insufficient information to assess prudency and efficiency	10% saving applied
2. Selected channels & drains 2011-16	various	409	Insufficient information	10% saving applied
3. St George Pump Station suction lines	2011-12	357	Prudent and efficient based on SKM analysis	357
4. Various items beyond 2016	various	2,774	Insufficient information	10% saving applied
5. Fencing	2019-20	142	Prudent, but awaiting confirmation that 50% of costs have been off-set	71
	2029-30	284	Prudent, but awaiting confirmation that 50% of costs have been off-set	142
Non-Sampled Projects				10% saving applied

SunWater (2011), GHD (2011), SKM (2011) and QCA (2011).

4.6 SunWater's Consultation with Customers

Submissions

SunWater

SunWater (2011b) submitted that through Irrigator Advisory Committees (IACs), customers are:

(a) able to offer suggestions on planned asset maintenance which are considered by SunWater in the context of asset management planning;

(b) consulted on various operational and other aspects of service provision, including the timing of shutdowns and managing supply interruptions; and

(c) provided with information about renewals expenditure, particularly where supply interruptions may result.

Nonetheless, SunWater noted opportunities for greater consultation with irrigators do exist.

Other Stakeholders

Cooinda Cotton (2011) submitted that the massive blowout in expenditure due to 'fencing and repairs to crossings' have not been bought to the attention of, or sought comment from, the Customer Councillor of any customer stakeholders.

Cooinda Cotton also submitted that the St George Customer Council has met only twice in the past three years and the minutes of these meetings, which are available on the SunWater website, makes no mention of these unfunded projects. The Customer Council Charter states that these councils are there for this very reason.

Authority's Analysis

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

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

4.7 Allocation of Distribution Renewals Costs According to WAE Expenditure

Previous Review

For 2006-11 price path, the renewals costs for the St George 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 (1.9:1), that is, one ML of high priority WAE was considered equivalent to 1.9 ML of medium priority WAE.

Stakeholder Submissions

SunWater

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 stakeholder comments were received regarding this issue.

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 WAEs held, irrespective of priority type, with no conversion. Under this approach, high and medium priority WAEs 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 WAEs, 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.

In the St George Distribution System, the only high priority WAE is held by SunWater for distribution losses. High priority distribution loss WAE is required to fill the distribution system at the commencement of each irrigation season to allow the delivery of medium priority water. As there are no high priority customer WAEs in the distribution system, the high priority distribution loss WAEs are used exclusively to benefit medium priority distribution system customers. Therefore, the costs of storing high priority distribution loss WAEs must be borne by medium priority customers.

The bulk storage costs associated with distribution loss WAEs are then transferred to the distribution system and included in distribution prices. Under the Authority's recommended approach (as outlined in Volume 1, this report and the St George WSS Draft Report) the cost of distribution loss WAE is calculated by allocating bulk costs using the HUF.

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 St George Distribution System, the recommended renewals annuity for the 2012-17 regulatory period is shown in Table 4.14. The table shows the total renewals annuity recommended by the Authority for medium priority customers. Also presented for comparison are SunWater's total renewals annuity for 2006-11 and SunWater's proposed total annuity for 2011-16.

Table 4.14: St George 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	292	136	128	143	172	405	398	396	391	397	397
Total Authority - medium priority	-	-	-	-	-	-	253	252	249	260	253

** Includes indirect and overhead costs relating to renewals expenditure, which is discussed in Chapter 5. Source: SunWater (2011); Authority's Analysis.*

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[10] 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 St George depot and are responsible for the day-to-day water supply management and for delivery of the programmed works;

(b) service provision relates to:

[10] 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.

(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;

(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;

(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

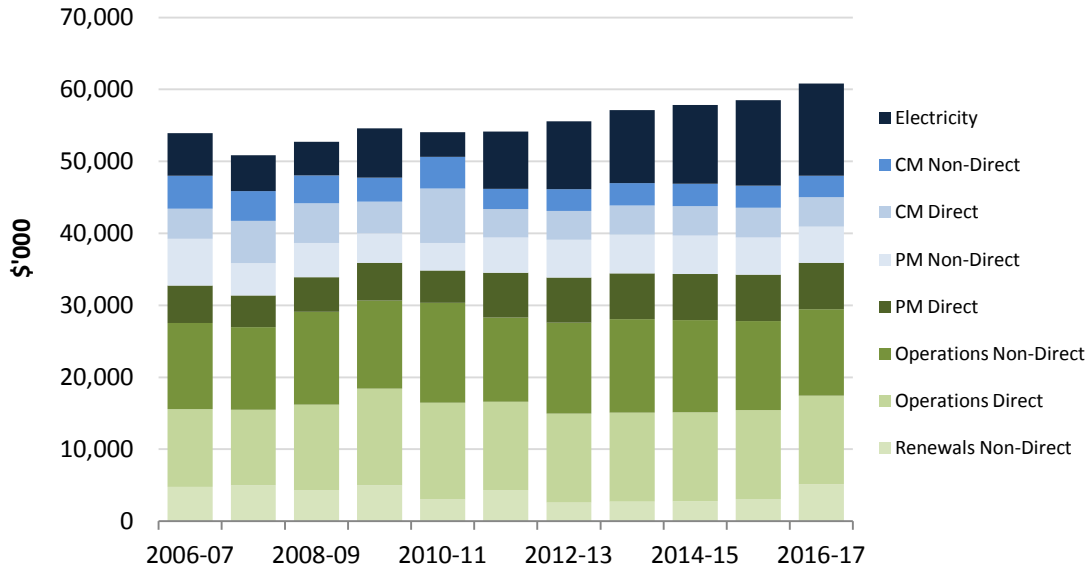
For the 2006-11 price paths, Indec identified annual cost savings of between $3.8 million and $5.5 million (2010-11 dollars) or 7.5% to 9.9% of total annual costs, which SunWater was to achieve during the 2006-11 price paths (SunWater, 2006a). See Volume 1.

Stakeholder Submissions

SunWater

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

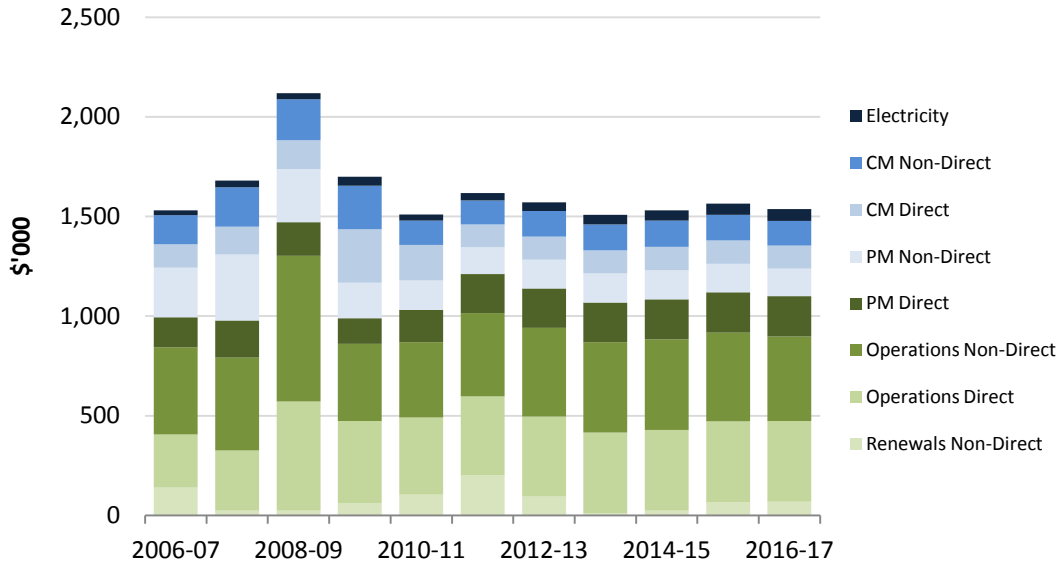
Figure 5.1: SunWater's Total Operating Costs (Real $'000) – All Service Contracts



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

Expenditure by activity in Macintyre Brook WSS (all sectors) is shown in Figure 5.2 and Tables 5.1 and 5.2.

Figure 5.2: Total Operating Costs – St George Distribution System WSS (Real $'000)



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

Table 5.1: 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	704	767	1,280	799	764	815	848	857	859	850	829
Electricity	23	35	32	44	31	37	44	48	51	56	60
Preventive maintenance	400	517	434	308	311	330	341	345	348	346	340
Corrective maintenance	265	337	350	487	300	235	244	247	248	246	240
Renewals non-direct	139	24	23	61	105	200	94	12	24	66	69
Total	**1,531**	**1,680**	**2,119**	**1,699**	**1,510**	**1,618**	**1,572**	**1,508**	**1,530**	**1,564**	**1,538**

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

Table 5.2: Expenditure by 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	434	407	611	454	330	460	467	467	467	467	467
Electricity	23	35	32	44	31	37	44	48	51	56	60
Materials	49	122	130	253	262	88	89	90	91	93	93
Contractors	3	42	58	45	53	106	107	109	110	112	112
Other	51	57	61	59	81	52	52	53	52	53	52
Non-direct	971	1,018	1,227	844	752	875	812	742	758	784	753
Total	**1,531**	**1,680**	**2,119**	**1,699**	**1,510**	**1,618**	**1.572**	**1,508**	**1,530**	**1,564**	**1,538**

Note: Renewals direct costs are discussed in the previous chapter. Non-direct costs include the non-direct operating costs allocated to renewals. Totals vary from NSP due to the inclusion of renewals non-direct costs, SunWater's revised approach to insurance and electricity, exclusion of revenue offset (which is dealt with in the following chapter), and rounding. Source: SunWater (2011ap).

In its NSP, SunWater submitted that the operating costs for this scheme averaged $1.437 million per year over the period of the current price path. [Operating costs as defined in the NSP exclude the indirect and overhead costs allocated to renewals expenditure.] The projected efficient average operating costs in the NSP for 2012-16 are $1.267 million per annum.

Other Stakeholders

No submissions were received from other stakeholders on this item.

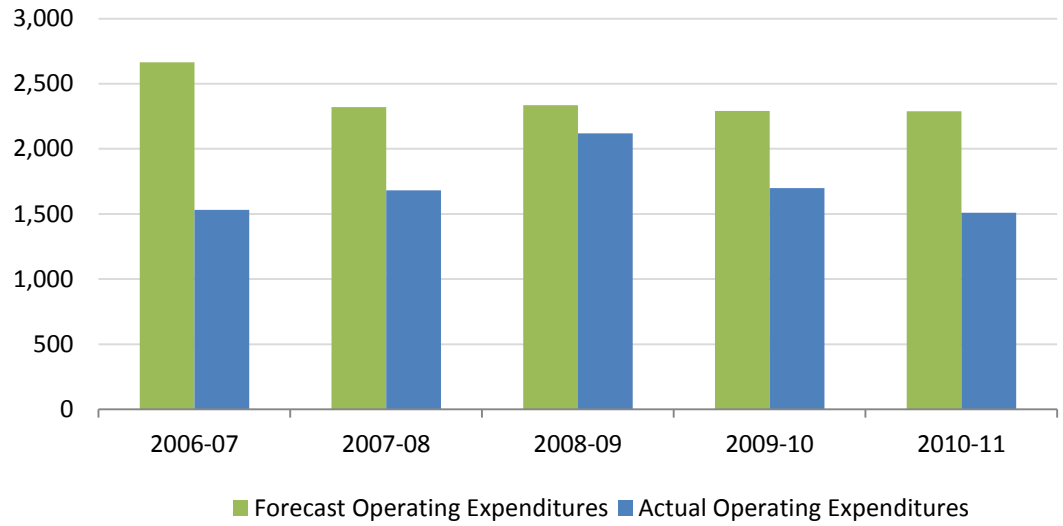
Authority's Analysis

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

In Volume 1, the Authority noted that during the beginning of the 2006-11 price paths, SunWater's total operating costs increased above those previously forecast. In response, in July 2009 SunWater instigated a program to reduce costs by $10 million (the Smarter Lighter Faster Initiative (SLFI)). SunWater submitted that these savings should be fully realised by 30 June 2012.

In 2011, the Authority engaged Indec to assess whether SunWater achieved the cost savings forecast in 2005-06. A comparison of forecast and actual operating costs for the St George Distribution System is shown in 5.3 below. For this distribution system, SunWater's actual operating costs were less than Indec's forecast efficient operating costs over the period. Indec noted that anomalies could arise for the service contracts from linked bulk and distribution systems and the solution was to combine them into bundled schemes. See Volume 1.

Figure 5.3: Forecast and Actual SunWater Operating Expenditure 2006-11 (Real $'000)



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

Indec has not, however, inferred from its analysis that SunWater should alter its costs over the 2012-17 regulatory period to the level of efficient costs determined for 2010-11. It observed that further analysis would be required to justify and support such an inference (see Volume 1).

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, such as communication systems (Supervisory Control and Data Acquisition or SCADA), 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.

Stakeholders

SunWater

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

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

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

Total non-direct costs and those allocated to the St George Distribution System which include indirect renewals are outlined 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	21,130	23,770	23,512	24,244	24,055	23,708	25,089
St George Distribution System	971	1,018	1,227	844	752	875	812	742	758	784	753

Source: SunWater (2011ap)

The non-direct costs for this scheme include a portion of SunWater's total overhead costs (for example, HR, ICT and finance), as well as a share of Infrastructure Management costs for each

regional (South, Central, North and Far North) and a share of the overhead costs of SunWater's Infrastructure Development Unit.

Authority's Analysis

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

In seeking to establish prudency and efficiency, the Authority commissioned Deloitte Touche Tohmatsu (Deloitte) to review SunWater's non-direct costs. Deloitte carried out benchmarking to assess where potential efficiencies within SunWater may be achieved. Deloitte identified savings of $495,314 (in 2010-11 real terms) per annum in finance, human resources, information technology, and health, safety, environmental and quality areas (for the whole of SunWater).

Deloitte was unable to draw any definitive conclusions from an attempt to benchmark against Pioneer Valley Water Board (PVWater) and other Australian rural water service providers. Deloitte noted that PVWater's non-direct costs were higher than those of SunWater as a percentage of total operating costs – but that there are differences between PVWater and SunWater which can make comparisons unreliable.[11]

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

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

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

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

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

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

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

[11] For example, PVWater has only four FTE staff. For the benchmarking exercise, PVWater needed to estimate the proportions of staff time spend on administration versus operations and maintenance activities, which varies 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.

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

This adjustment ensures that schemes are paying for the overhead costs from those resource centres 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 St George Distribution System (from all customers) is set out in below. The allocation of these costs between high and medium priority customers is discussed below.

Table 5.4: Recommended Non-Direct Costs Including Indirect Renewals (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	971	1,018	1,227	844	752	875	812	742	758	784	753
Authority	-	-	-	-	-	-	791	711	715	728	689

Source: SunWater (2011ap).

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

5.4 Direct Costs

Introduction

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

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

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

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

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

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

Stakeholder Submissions

SunWater

SunWater estimated the costs of each activity in 2010-11, based on actual costs over the past four years (excluding spurious costs) with adjustments for known or expected changes in costs. Adjustments were also made to preventive maintenance in line with the Parsons Brinckerhoff

(PB 2010) review. These estimates were then escalated forward for the 2012-17 pricing period. Further details are outlined in Volume 1.

SunWater's forecast direct operating expenditure by activity is set out in Table 5.5. 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	267	302	548	414	387	397	402	404	404	406	405
Preventive maintenance	151	186	168	129	163	195	198	199	201	202	202
Corrective maintenance	118	140	145	268	177	114	115	116	116	117	117
Electricity	23	35	32	44	31	37	44	48	51	56	60
Total	**559**	**662**	**892**	**855**	**757**	**743**	**759**	**766**	**772**	**781**	**784**

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	434	407	611	454	330	460	467	467	467	467	467
Electricity	23	35	32	44	31	37	44	48	51	56	60
Materials	49	122	130	253	262	88	89	90	91	93	93
Contractors	3	42	58	45	53	106	107	109	110	112	112
Other	51	57	61	59	81	52	52	53	52	53	52
Total	**559**	**662**	**892**	**855**	**757**	**743**	**759**	**766**	**772**	**781**	**784**

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

Authority's Analysis

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

GHD noted that there were substantial information deficiencies relating to the information provided by SunWater. As an example, GHD report that sampling was not possible due to the level of aggregation in SunWater's SAP-WMS. GHD report that, alternatively, information was

gathered via direct interviews and information sessions with analysis undertaken of the information made available. Comparisons against published benchmarks were made, where possible.

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.

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

Item 1: Operations

Stakeholder Submissions

SunWater

Operations relate to the day-to-day costs of delivering water and meeting compliance obligations. They include collating water orders, scheduling releases and delivering water, operating pump stations and cleaning trash and weed screens. These costs also include recording and reporting releases, water use and system losses, the reading of meters, undertaking system surveillance to ensure that customer standards are being met, liaising with customers and notifying customers of interruptions.

Other Stakeholders

Participants at the Round 2 consultation considered that the NSP did not provide adequate information to allow analysis of efficiencies. Participants also considered that the GHD preliminary draft report has provided an inadequate analysis of operational expenditure costs and recommended efficiencies.

Authority's Analysis

Consultant's Review

GHD (2011) concluded that SunWater's operational expenditure forecast (including direct and non-direct costs) for the 2011-16 regulatory period represents, on average, a 3.2% decrease in costs compared to the average operational expenditure that occurred during 2008-11.

GHD consider that this decrease is primarily due to the cost of labour and materials associated with the pump station running at comparatively high utilisation rates during the dry periods of 2008 and 2010. In addition, SunWater report that a peak in materials spend occurred in 2009-10 due to the installation and operation of low level diesel pumps in response to requests from customers to pump dead storage from Beardmore Dam during this dry period.

However, GHD consider that there are increases in the forecast of particular costs for the 2012-17 regulatory period, such as:

(a) an increase in costs for contract labour associated with weed control; and

(b) an increase in contractor costs due to SunWater disposing of heavy equipment in recent years and relying more on contracted services.

GHD conclude that it is problematic to use these averages for evaluation due to extenuating circumstances. These extenuating circumstances include recent flood events, extended dry periods that require additional pumping and other events outside of the control of SunWater.

GHD considered that monthly meter reading (required in accordance with continuous sharing arrangements) currently undertaken exclusively by SunWater constituted a significant cost. GHD considered that having irrigators read meters and enter meter readings via the online system would be an efficiency gain.

Specifically, GHD recommended that irrigators read their own meter(s) on a monthly basis and provide the information collected to SunWater in accordance with formal protocol set by SunWater. In this arrangement, SunWater would continue to read meters quarterly for the purpose of billing, to assess the condition of the meter and ancillary devices (solar panel, etc.) and to validate the previously recorded meter readings submitted by the irrigator.

SunWater's Response

SunWater responded specifically to GHD's recommendation that customers read their own meters.

Specifically, GHD's recommendation that customers read their own meters on a monthly basis is not supported as SunWater consider the integrity of continuous sharing arrangements will be compromised if monthly meter readings are inaccurate.

SunWater (2011m) submit that accurate meter readings are required for announced allocation determinations and for the accurate approvals of temporary transfers and customer water balances. In this context, SunWater submit that the benefits associated with continuous sharing arrangements would be in jeopardy should meter readings be inaccurate, provided late to SunWater or not undertaken at all.

Conclusion

The Authority notes that GHD did not recommend any adjustment to forecast costs. The Authority also notes that participants at Round 2 consultation considered the information provided by SunWater in the NSPs was deficient for the purpose of allowing adequate analysis.

The Authority also notes GHD's recommended efficiency gain of irrigators reading their meters on a monthly basis while SunWater read these meters on a quarterly basis. However, GHD did not provide any supporting data regarding the cost savings that would arise from the implementation of this arrangement. This issue is progressed in more detail in the Authority's report on St George WSS.

The Authority concurs with participants at Round 2 consultation who considered the information outlined in the NSPs and GHD's draft report was deficient for the purpose of establishing efficient and prudent operations costs. In overcoming these deficiencies, the Authority enlisted additional consultants (such as Indec and SKM) and extracted information from SunWater beyond that contained in the NSPs, prior to finalising its recommendations.

Item 2: Preventive and Corrective Maintenance

Stakeholder Submissions

SunWater

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

(a) condition monitoring – 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. Examples include:

(a) mechanical and chemical weed control including Acrolein injections;

(b) desilting of channels and drains;

(c) electrical and mechanical servicing of regulating gates, valves, meters and water level sensors;

(d) mechanical and electrical servicing of pumps, motors and filter systems; and

(e) servicing batteries and back-up systems.

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

(a) emergency breakdown maintenance – 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 – 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 advises that it has made provision for corrective maintenance based on past experience. This provision includes a portion of labour costs in the scheme for such events, as well as additional materials and plant hire. The corrective maintenance forecast exclude costs of damage arising from events covered by SunWater's insurance.

Other Stakeholders

No other stakeholders made submissions regarding either preventive or corrective maintenance.

Authority's Analysis

Consultant's Review

GHD commented that the proposed 58%/42% split between preventive and corrective maintenance appeared consistent with the requirements of weed management, compliance inspections and reactive responses as required. Given the backlog of maintenance required, GHD proposed that this ration be accepted.

However, GHD made no recommendations for adjustment to preventive or corrective maintenance for this scheme.

SunWater's Response

SunWater did not provide a response to GHD's review of these items.

Conclusion

In Volume 1, the Authority accepted 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.

The Authority notes that GHD did not recommend any specific adjustment to costs.

Item 4: Electricity

Stakeholder Submissions

SunWater

Electricity costs for the scheme mostly relate to the operation of the Buckinbah and the St George Pump Stations. The Beardmore Low Level Pump Station is diesel driven and does not require electricity. SunWater currently procures electricity using franchise tariffs.

SunWater initially proposed that electricity costs increase in line with inflation with prices adjusted annually (cost pass through) to reflect the actual change in electricity costs (2011h).

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

SunWater's proposed electricity costs are set out in Table 5.7.

Table 5.7: SunWater's Forecast Electricity Cost (Nominal $)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Forecast Cost	44,000	48,000	51,000	56,000	60,000
Estimated $/ML	1.02	1.11	1.18	1.30	1.39

SunWater (2011 Electricity Cost-Re-forecast).

Other Stakeholders

No other stakeholders made submissions regarding this item.

Authority's Analysis

Consultant's Review

The Authority notes that GHD did not recommend any adjustment to costs.

SunWater's Response

SunWater did not provide a response to GHD's review of this item.

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

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

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

Item 5: Cost Escalation

As noted in Volume 1, as part of their assessment of the prudency and efficiency of SunWater's operating costs, the Authority's operating cost consultants across all schemes were required to examine the appropriateness of SunWater's proposed cost escalation methods.

Direct Labour

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

Evidence cited included the growth in both the Labour Price Index for the Electricity, Gas, Water and Waste Services Industry and the Labour Price Index for Queensland, which have averaged around 4% per annum in recent years, and recent forecasts by Deloitte suggesting an

average increase in the labour costs facing Queensland's utilities sector of 4.3% per annum between 2011-12 and 2017-18.

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

Direct Materials and Contractors

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

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

Direct Electricity

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

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

As noted in Volume 1, the Authority proposes electricity be escalated at 6.32% per annum, based on expected growth in the four key components of electricity prices – network costs, energy costs, retail operating costs and retail margin.

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

Other 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 St George 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	402	404	404	406	405	390	392	394	396	397
Preventive maintenance	198	199	201	202	202	191	193	194	195	195
Corrective maintenance	115	116	116	117	117	112	112	113	114	114
Electricity	44	48	51	56	60	38	39	41	43	45
Total	**759**	**766**	**772**	**781**	**784**	**731**	**736**	**742**	**748**	**751**

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

5.5 Cost Allocation According to WAE Priority

It is necessary, in most schemes, to allocate operating costs to the different priority groups. In Volume 1, the Authority recommended that:

(a) operating costs be allocated to medium and high priority customers using current WAEs; and

(b) that variable costs be allocated to medium and high priority WAE on the basis of water use.

However, there is no high priority distribution WAE in the St George Distribution System. Therefore, there is no need to allocate operating costs between priority groups. All distribution system operating costs are allocated to medium priority WAE.

As discussed above, the bulk costs associated with high (and medium) priority distribution losses will be recovered fully from medium priority customers.

5.6 Summary of Operating Costs

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

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

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations					
Labour	291	291	291	291	291
Materials	55	56	57	57	57
Contractors	4	4	4	4	4
Other	52	53	52	53	52
Non-direct	445	453	455	445	424
Preventive Maintenance					
Labour	92	92	92	92	92
Materials	16	17	17	17	17
Contractors	90	91	92	94	94
Other	0	0	0	0	0
Non-direct	144	146	147	144	137
Corrective Maintenance					
Labour	84	84	84	84	84
Materials	18	18	18	18	18
Contractors	13	14	14	14	14
Other	0	0	0	0	0
Non-direct	129	131	132	129	123
Electricity	44	48	51	56	60
Total	**1,478**	**1,497**	**1,506**	**1,498**	**1,468**

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

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

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations					
Labour	282	284	286	288	289
Materials	53	54	54	54	54
Contractors	4	4	4	4	4
Other	51	51	50	50	49
Non-direct	433	434	429	413	387
Preventive Maintenance					
Labour	89	89	90	91	91
Materials	16	16	16	16	16
Contractors	87	87	88	89	88
Other	-	-	-	-	-
Non-direct	140	140	139	134	126
Corrective Maintenance					
Labour	82	82	83	83	84
Materials	17	17	17	17	17
Contractors	13	13	13	13	13
Other	-	-	-	-	-
Non-direct	126	126	125	120	112
Electricity	38	39	41	43	45
Total	**1,430**	**1,436**	**1,435**	**1,414**	**1,376**

Source: QCA 2011.

6. DRAFT PRICES

Ministerial Direction

The Ministerial Direction requires the Authority to recommend SunWater's irrigation prices for water supply 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 NSPs and not to investigate additional nodal pricing arrangements.

The Ministerial Direction also requires that:

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

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

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

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

Previous Review

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

For this scheme, prices over 2006-11 increased in real terms to achieve lower bound costs in 2008-09, and were increased by CPI thereafter.

In 2011-12, prices in this distribution system were unbundled to reflect fixed and variable charges that were then adjusted by CPI and increased by $1.00 per ML in real terms.

6.1 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.

The Authority's estimate of prudent and efficient total costs for the St George 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 St George 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	1,477	1,591	2,020	1,570	1,381	1,620	1,673	1,690	1,695	1,693	1,663
Renewals Annuity	292	136	128	143	172	405	398	396	391	397	397
Operating Costs	1,392	1,656	2,095	1,638	1,405	1,417	1,478	1,497	1,506	1,498	1,468
Revenue offsets	-206	-201	-204	-212	-196	-202	-202	-202	-202	-202	-202
Authority's Total Costs	-	-	-	-	-	-	1,482	1,488	1,482	1,473	1,428
Renewals Annuity	-	-	-	-	-	-	253	252	249	260	253
Operating Costs	-	-	-	-	-	-	1,430	1,437	1,435	1,414	1,376
Revenue offsets	-	-	-	-	-	-	-202	-202	-202	-202	-202
Return on Working Capital	-	-	-	-	-	-	1	1	1	1	1

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

6.2 Fixed and Variable Costs

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

SunWater submitted that all of its operating costs are fixed in the St George Distribution System and that only electricity pumping costs vary with water use.

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

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

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

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

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

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

(c) costs that *should* vary with water use under Indec's proposed optimal (prudent and efficient) management approach (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 St George Distribution System, Indec recommended 84% of costs should be fixed and 16% 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 the recovery of 30% of costs in the volumetric charge.

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

6.3 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 the table below.

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

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Net Fixed Costs	1,213	1,218	1,213	1,205	1,167
High Priority	0	0	0	0	0
Medium Priority	1,213	1,218	1,213	1,205	1,167

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

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

Variable Costs

Variable costs are allocated to all users on the basis of water use. Volumetric tariffs are calculated using SunWater's forecast usage data, based on the eight year historical average water use data for all sectors. However, consistent with SunWater's assumed typical year for operating cost forecasts, the Authority has removed from the eight years of data, the three lowest water-use years for each service contract. Accordingly, to determine the volumetric charge, the Authority has assumed historical total water use for all sectors to be 93.4% of WAE.

6.4 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. These prices have not been adjusted to reflect the Queensland Government's pricing policies (see below).

As noted in Chapter 3 - Pricing Framework, drainage and drainage diversion charges have been rolled forward in real terms.

Table 6.3: Medium Priority Prices for St George 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***
Bulk Water Charge (Unbundled)											
Fixed (Part A)	13.56	14.44	15.12	15.60	16.08	17.64	18.20	18.66	19.12	19.60	20.09
Volumetric (Part B)	2.81	3.00	3.14	3.24	3.34	3.46	1.06	1.09	1.12	1 14	1.17
Channel (Unbundled)											
Fixed (Part C)	13.16	15.00	15.76	16.24	16.72	18.32	27.51	28.20	28.91	29.63	30.37
Volumetric (Part D)	6.84	7.63	8.01	8.26	8.52	8.82	5.33	5.46	5.59	5.73	5.88
Channel (Bundled)											
Fixed (Part A)	26.72	29.44	30.88	31.84	32.80	nr	nr	nr	nr	nr	nr
Volumetric (Part B)	9.65	10.63	11.15	11.50	11.86	nr	nr	nr	nr	nr	nr

Note: nr – not relevant. Prior to 2012, channel tariffs were a bundled price for bulk and distribution services (St George channel tariffs were unbundled in 2011-12). Thus, the fixed Part C tariffs for 2006-11 represent a notional unbundled channel price calculated by deducting Part A Regulated Section prices from Part A Channel prices. The same process was applied to determine Part D prices. Source: Actual Prices (SunWater, 2011a) and Recommended Prices (QCA, 2011).

Table 6.4: Termination Fees ($/ML)

	Actual Prices				*Cost Reflective Prices*				
	2008-09	***2009-10***	***2010-11***	***2011-12***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Channel to Beardmore Dam/Balonne River or Thuraggi Watercourse	141.10	139.33	157.77	201.52	378.29	387.75	397.44	407.38	417.56

Source: SunWater (2011).

Table 6.5: Drainage Charges ($/ha of land)

	Actual Prices						*Calculated Prices*				
	2006-07	***2007-08***	***2008-09***	***2009-10***	***2010-11***	***2011-12***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Drainage Charge	18.75	19.33	20.25	20.85	21.45	22.20	22.76	23.32	23.91	24.50	25.12

Source: SunWater (2011).

Table 6.6: Drainage Diversion Charges ($/ML)

	Actual Prices						*Calculated Prices*				
	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Metered	9.09	10.02	10.50	10.83	11.16	12.06	12.36	12.67	12.99	13.31	13.64
Pump	8.22	8.46	8.87	9.15	9.43	9.77	10.01	10.26	10.52	10.78	11.05

Source: SunWater (2011).

Table 6.7: Distribution System Water Harvesting Fees & Charges ($/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*
Lease Fee	3.00	3.09	3.24	3.34	3.44	3.56	To be set by SunWater				
Distribution & Consumption Charge	9.65	10.63	11.15	11.50	11.86	12.28	5.33	5.46	5.59	5.73	5.88
DERM Water Charge	na	na	na	na	3.70	3.80	To be set by DERM				
Total	**12.65**	**13.72**	**14.39**	**14.84**	**19.00**	**19.64**	**-**	**-**	**-**	**-**	**-**

Note: na = not applicable as DERM did not levy a charge until the commencement of the ROP in 2010. Source: SunWater (2011).

6.5 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 arising from 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 (see Table 6.8).

To ensure that distribution customers are not disadvantaged by unbundling, the comparison has included both bulk and distribution system revenues.

On this basis, current revenues in the St George Distribution System are below the level required to recover prudent and efficient costs.

Table 6.8: Comparison of Current Prices and Cost-Reflective Prices

Tariff and Priority Group	*2010-11 Prices $/ML (indexed to 2012-13)*		*Irrigation WAE (ML)*	*Irrigation Water Use (ML)*	*Current Revenue*	*Revenue from Cost-Reflective Tariffs*	*Difference*
	Fixed	*Variable*					
Channel Bundled	$34.46	$12.46	50,788	40,035	$2,249,027	$2,577,443	-$328,416

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 St George Distribution System is a fixed charge of $38.55 per WAE and $6.39 per ML of usage, and the $2/ML real increase is applied to the fixed charge. At this rate of increase, cost reflective bundled charges are achieved in 2015-16, and maintained in real terms thereafter. The recommended (unbundled) charge is then calculated by deducting the recommended river charge from the bundled charge.

6.6 The Authority's Recommended Prices

The Authority's recommended prices to apply to the St George Distribution System for 2012-17 are outlined in Table 6.9, 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 6.9: Draft Medium Priority Prices for St George 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 Water Charge (Unbundled)											
Fixed (Part A)	13.56	14.44	15.12	15.60	16.08	17.64	18.73	19.19	19.67	20.17	20.67
Volumetric (Part B)	2.81	3.00	3.14	3.24	3.34	3.46	1.06	1.09	1.12	1 14	1.17
Channel (Unbundled)											
Fixed (Part C)	13.16	15.00	15.76	16.24	16.72	18.32	21.83	24.42	27.14	29.06	29.79
Volumetric (Part D)	6.84	7.63	8.01	8.26	8.52	8.82	5.33	5.46	5.59	5.73	5.88
Channel (Bundled)											
Fixed (Part A)	26.72	29.44	30.88	31.84	32.80	nr	nr	nr	nr	nr	nr
Volumetric (Part B)	9.65	10.63	11.15	11.50	11.86	nr	nr	nr	nr	nr	nr

Note: nr – not relevant. Prior to 2012, channel tariffs were a bundled price for bulk and distribution services (St George channel tariffs were unbundled in 2011-12). Thus, the fixed Part C tariffs for 2006-11 represent a notional unbundled channel price calculated by deducting Part A Regulated Section prices from Part A Channel prices. The same process was applied to determine Part D prices. Source: Actual Prices (SunWater, 2011a) and Recommended Prices (QCA, 2011).

The Authority's recommended draft termination fees to apply to the St George Distribution System during 2012-17 are outlined in Table 6.10, together with actual termination fees since 2008-09. The Authority's recommended termination fees are higher than those charged by SunWater, as the Authority's approach:

(a) recovers 20 years of fixed costs with SunWater bearing the remaining fixed costs. SunWater's approach recovers 10 years of fixed costs with remaining fixed costs paid for by other users;

(b) reflects the Authority's estimate of fixed costs in the cost-reflective fixed charge. The Authority's cost-reflective fixed charge recovers all fixed costs. SunWater's fixed charges recover only a portion of fixed costs. Therefore, some fixed costs are excluded from SunWater's termination fees;

(c) reflects the Authority's cost-reflective fixed charge and not the Authority's recommended fixed charge; and

(d) results in a multiple of up to 13.8 times the Authority's cost reflective fixed charge. SunWater's multiple is up to 9.4 of its fixed charge (Chapter 3).

Table 6.10: Draft Termination Fees ($/ML)

	Actual Prices				*Recommended Prices*				
	2008-09	***2009-10***	***2010-11***	***2011-12***	***2012-13***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Termination fee (inc. GST)	141 10	139.33	157.77	201.52	378.29	387.75	397.44	407.38	417.56

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

The Authority's recommended drainage and drainage diversion charges to apply to the St George Distribution System in 2012-17 are outlined in Tables 6.11 and 6.12 together with actual drainage and drainage charges since 1 July 2006.

Table 6.11: Draft Drainage Charges ($/ha of land)

	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***
Drainage Charge	18.75	19.33	20.25	20.85	21.45	22.20	22.76	23.32	23.91	24.50	25.12

Source: SunWater (2011).

Table 6.12: Draft Drainage Diversion Charges ($/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***
Metered	9.09	10.02	10.50	10.83	11.16	12.06	12.36	12.67	12.99	13.31	13.64
Pump	8.22	8.46	8.87	9.15	9.43	9.77	10.01	10.26	10.52	10.78	11.05

Source: SunWater (2011).

The Authority's recommended water harvesting fees and charges to apply to the St George Distribution System in 2012-17 are outlined in Table 6.13 together with actual water harvesting fees and charges since 1 July 2006.

Table 6.13: Draft Distribution System Water Harvesting Fees & Charges ($/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***
Lease Fee	3.00	3.09	3.24	3.34	3.44	3.56	To be set by SunWater				
Distribution & Consumption Charge	9.65	10.63	11.15	11.50	11.86	12.28	5.33	5.46	5.59	5.73	5.88
DERM Water Charge	na	na	na	na	3.70	3.80	To be set by DERM				
Total	**12.65**	**13.72**	**14.39**	**14.84**	**19.00**	**19.64**	-	-	-	-	-

Note: na = not applicable as DERM did not levy a charge until the commencement of the ROP in 2010. Source: SunWater (2011).

6.7 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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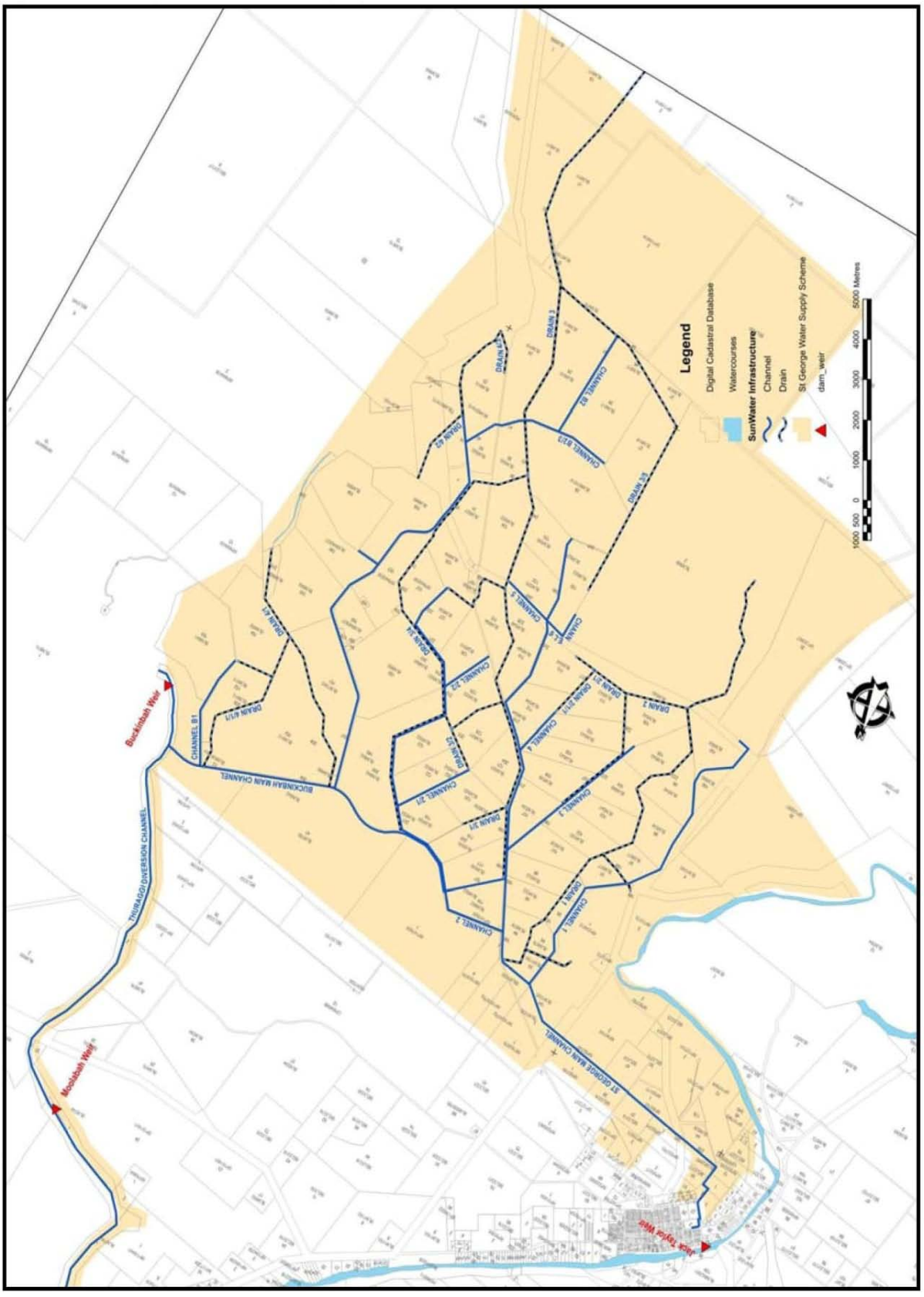
APPENDIX A: ST GEORGE DISTRIBUTION SYSTEM



APPENDIX B: 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)*
Buckinbah Pump Station	2011-12	12SGAXX PAINT & MAINTAIN GATES& SEALS	23
		Replace Buckinbah Main Switchboard	22
	2015-16	Replace switchboard subject to decommissioning review study 2011	138
St George Distribution	2011-12	12SGAXX IMPLEMENT RECS - 2008 FNCG AUDIT	42
		Repair Access Crossing - Access Crossing AC06	33
		Replace St.G Irrigation Project Fences	16
		Replace Regulating Gate - Channel 3 CO01	11
	2013-14	Repair Access Crossing - BBM Access Crossing AC01	34
	2014-15	Repair Access Crossing - BBM Access Crossing AC02	34
		Repair access crossing - Channel B1 Access Crossing AC	34
		13SGAXX REFURB/REMODEL MAIN CHANNEL	31
	2015-16	Repair Access Crossing - Channel B2 Access Crossing AC02	34
		Replace Regulating Gate	11
	2016-17	Replace Aluminium Gate Structure 4559M	101
		Replace Structure, 600Mm Meter Outlet	59
		Refurbish: Earth works	45
		Replace Check Structure 9326M.Por 127.	21
	2018-19	Refurbish: Replace Rotorks	23
	2019-20	Replace Fencing.	114
		Replace M/O 4550M L Por 151.	20
	2024-25	Replace Structure, 600Mm Meter Outlet	169
		Replace Structure, Meter Offtake	119
		Replace Outlet Gate	38
		Replace Structure	25
		Refurbish: Concrete one bay and replace wooden boards with aluminium gate on other - Raj moved to 2004 (Nov 03)	11
	2025-26	Replace Overflow Structure Por 127	35
	2026-27	Replace Bridge Crossing 2857M Por 97.	139
		Refurbish: Replace Rotorks	22
		Replace Regulating Gate	12
	2027-28	Replace Trash Screen	28
	2028-29	Refurbish: Replacement of Channel Fencing on St George Main Channel	34
	2029-30	10SGA25 INSTALL FENCES AS PER AUDIT	106
		Replace Boundary Fence 6437M - 12874M	72
		Replace Structure, 600Mm Meter Outlet	47
		10SGA24 INSTALL SAFETY SIGNAGE	44
		Replace Structure	23
		Refurbish: Eroded Channel section d/s of CK06 (8869m)	11
	2030-31	Replace Overflow Structure Por 154	47
		Replace Regulating Gate	18
	2031-32	Replace Structure	36

Asset	*Year*	*Description*	*Value ($'000)*
	2032-33	Replace Structure	96
		Replace Structure, 600Mm Meter Outlet	28
		Replace Structure A, 600Mm Meter Outlet	25
		Replace Structure B, 600Mm Meter Outlet	25
	2033-34	Replace Control Equipment	93
	2034-35	Replace Structure, 600Mm Meter Outlet	208
		Replace Structure, Meter Offtake	42
		Refurbish: Replace Rotorks	22
		Replace Structure, 450Mm Meter Outlet	19
	2035-36	Replace Regulating Gate No 2	19
St George Drainage	2011-12	Refurbish Drain Access Crossing - Drain 1 Access Crossing AC05	33
		Repair concrete work and stabilise headworks - Drain 3/4 Access Crossing AC03	33
		Repair concrete works - Drain 3/4 Access Crossing AC04	33
	2012-13	Repair Access Crossing - Access Crossing Drain 3/3 AC02	34
		Repair of Concrete works and headwalls - Drain Access Crossing 3_4 AC02	34
	2016-17	Repair Access Crossing	75
	2021-22	Replace Road Crossing 9604M Por 129.	139
	2024-25	Replace Batescrew Gate	31
	2025-26	Replace Foot Bridge 2650M Por 13.	15
	2029-30	10SGA40 REPLACE HAND RAILS - ACCESS XING	35
	2031-32	Replace Cross Drainage Culvert Chb1.	40
St George Pump Station	2011-12	Replace Pump. 19 Cusec	134
		Replace Pump. 7 Cusec	132
		Prepared detailed design for St George Pump Station refurbishment/replacement	109
		Replace Electric Motor.	24
		11SGAXX REPLACE BACKUP SUMP PUMP	22
		Replace Electric Motor	13
		Replace Min Switchboard.	11
	2012-13	09SGA-Enhance: Construction of New Sucti	357
		13SGAXX O/HAUL INC REPL BUSHES&INSP SEAT	31
		13SGAXX REFURBISH MOTOR	18
	2015-16	Replace Fall Arrest System	13
		Replace Hoist, 3T Elec Chain Anchor	12
	2017-18	REFURBISH - GENERAL OVERHAUL INCLUDING REPLACEMENT OF ALL BUSHES AND INSPECTION OF SEAT	34
	2019-20	Replace Control Equipment	46
		Replace Cable (Excluding Ergon Main)	13
	2022-23	13SGAXX O/HAUL INC REPL BUSHES&INSP SEAT	32
	2024-25	Replace Vacuum Priming Pump Unit.	40
	2025-26	13SGAXX REFURBISH MOTOR	18
		Replace Fan, Sigrist	12
	2027-28	Refurbish: Major overhaul anticipated on New Pumps installed in 2007	56
		REFURBISH - GENERAL OVERHAUL INCLUDING	33

Asset	*Year*	*Description*	*Value ($'000)*
		REPLACEMENT OF ALL BUSHES AND INSPECTION OF SEAT	
	2028-29	Replace Switchboard	224
	2032-33	Replace Control Equipment	45
		13SGAXX O/HAUL INC REPL BUSHES&INSP SEAT	32
	2033-34	Replace Structure, Flow Meter	53
	2034-35	Replace Suction Pipe.	389