



**Final Report**

**SunWater**

**Irrigation Price Review: 2012-17**

**Volume 2**

**Chinchilla Weir Water Supply Scheme**

**April 2012**

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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 Chinchilla Weir WSS for the 2012-17 regulatory period are outline in Table 1 together with actual prices since 1 July 2006. A comparison of draft and final recommended prices is in Chapter 6.

**Table 1: Prices for the Chinchilla Weir WSS (\$/ML)**

|                     | <i>Actual Prices</i> |                |                |                |                |                | <i>Recommended Prices</i> |                |                |                |                |
|---------------------|----------------------|----------------|----------------|----------------|----------------|----------------|---------------------------|----------------|----------------|----------------|----------------|
|                     | <i>2006-07</i>       | <i>2007-08</i> | <i>2008-09</i> | <i>2009-10</i> | <i>2010-11</i> | <i>2011-12</i> | <i>2012-13</i>            | <i>2013-14</i> | <i>2014-15</i> | <i>2015-16</i> | <i>2016-17</i> |
| <b>River</b>        |                      |                |                |                |                |                |                           |                |                |                |                |
| Fixed (Part A)      | 15.84                | 16.32          | 17.12          | 17.64          | 18.16          | 18.84          | 25.37                     | 26.01          | 26.66          | 27.32          | 28.01          |
| Volumetric (Part B) | 13.91                | 14.32          | 15.01          | 15.48          | 15.95          | 16.52          | 2.91                      | 2.98           | 3.06           | 3.13           | 3.21           |

*Source: Actual Prices (SunWater, 2011a) and Recommended Prices (QCA, 2012).*

### Final Report

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

Volume 2, which comprises scheme specific reports, should be read in conjunction with Volume 1.

### Consultation

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

All submissions received on the Draft Report have been taken into account by the Authority in preparing its Final Report.

## 1. CHINCHILLA WEIR WATER SUPPLY SCHEME

### 1.1 Scheme Description

The Chinchilla Weir Water Supply Scheme (WSS) is located near the town of Chinchilla. An overview of the key characteristics of this WSS is provided in Table 1.1.

**Table 1.1: Key Scheme Information for the Chinchilla Weir WSS**

|                          |                                                       |
|--------------------------|-------------------------------------------------------|
| Business Centre          | Toowoomba                                             |
| Irrigation Uses of Water | Cereal and melons as well as pasture and fodder crops |
| Urban Water Supplies     | The town of Chinchilla                                |

Source: Synergies Economic Consulting (2010)

The Chinchilla Weir WSS has a total of 31 bulk customers. Medium and high priority water access entitlements (WAE) are outlined in Table 1.2.

**Table 1.2: Water Access Entitlements**

| <i>Customer Group</i> | <i>Irrigation WAE (ML)</i> | <i>Total WAE (ML)</i> |
|-----------------------|----------------------------|-----------------------|
| Medium Priority       | 2,871                      | 2,884                 |
| High Priority         | 0                          | 1,165                 |
| <b>Total</b>          | <b>2,871</b>               | <b>4,049</b>          |

Source: SunWater (2011)

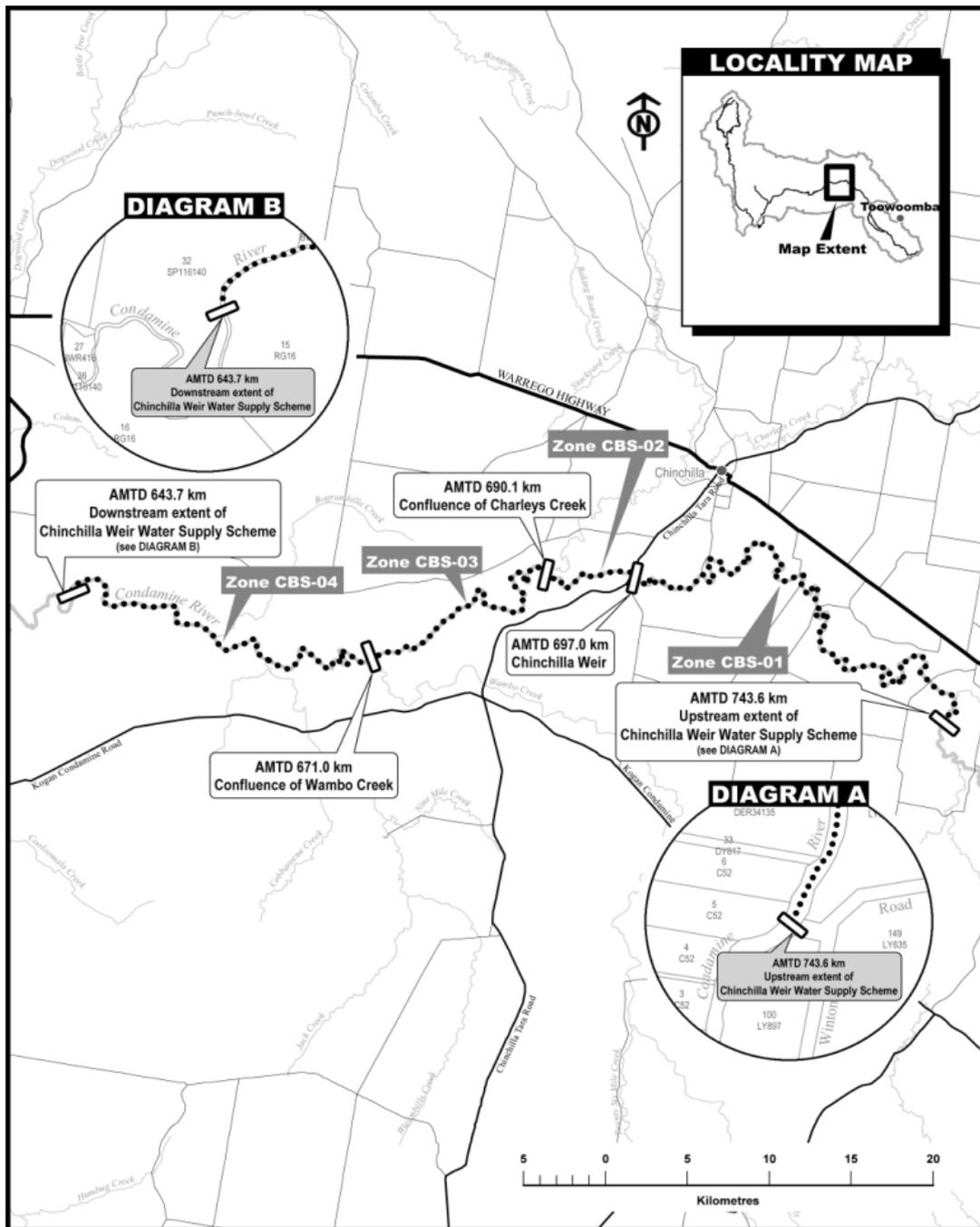
### 1.2 Bulk Water Infrastructure

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

The sole piece of infrastructure in the scheme is the Chinchilla Weir, completed in 1973. The Chinchilla Weir has a full supply storage capacity of 9,780 ML and is located on the Condamine River, supplying local irrigators upstream and downstream of the weir. Upstream irrigators pump directly from the pond created by the weir and downstream irrigators from the flows regulated by releases from the weir (SunWater, 2011).

The location of the Chinchilla Weir WSS and key infrastructure is shown in Figure 1.1.

**Figure 1.1: Chinchilla Weir WSS Locality Map**



Source: SunWater (2011)

The Authority notes that the Chinchilla Beneficial Use Scheme will transport treated coal seam gas water from a water treatment plant established by Queensland Gas Corporation (QGC) to Chinchilla Weir Pipeline.

Although SunWater report that water will be distributed to farmers along the pipeline and within the Condamine River, between the boundaries as the Chinchilla Weir WSS, the project is fully funded by QGC and is largely beyond the scope of the Authority’s review.

### 1.3 Network Service Plans

The Chinchilla Weir WSS network services plan (NSP) presents SunWater's:

- (a) existing service standards;
- (b) forecast operating and renewals costs, including the proposed renewals annuity; and
- (c) identified risks to the NSP and possible reset triggers.

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

### 1.4 Consultation

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

- (a) invited submissions from interested parties;
- (b) met with stakeholders to identify and discuss relevant issues (two rounds of consultation prior to the Draft Report);
- (c) published notes on issues arising from each round of consultation;
- (d) commissioned independent consultants to prepare Issues Papers and review aspects of SunWater's submissions;
- (e) published all issues papers and submissions on its website; and
- (f) considered all submissions and reports in preparing a Draft Report for comment; and
- (g) after release of the Draft Report:
  - (i) considered issues arising from a third Round of consultation held in November and December 2011 and submissions on the Draft Report;
  - (ii) obtained and reviewed additional information, particularly relating to past and future renewals expenditures, and non-direct and direct costs; and
  - (iii) subjected SunWater's financial, renewals annuity and electricity models and the Authority's pricing module to independent external review.

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

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

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

## 2. REGULATORY FRAMEWORK

### 2.1 Introduction

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

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

### 2.2 Draft Report

#### *Stakeholder Submissions*

##### SunWater

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

- (a) possible developments driven by the Murray Darling Basin Plan 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 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;
- (c) damage to SunWater's assets, to the extent that such damage is not recoverable under insurances;
- (d) levies or charges made in relation to the regulation of irrigation prices by the Authority;
- (e) metering costs related to changes in regulatory standards and
- (f) outbreak of noxious weeds.

##### Other Stakeholders

Cotton Australia/Queensland Farmers' Federation (QFF) (2011a) questioned SunWater's statement that customers' demand is a risk that cannot be managed by SunWater. Cotton Australia/QFF suggested that managing demand may be best addressed by setting prices based on 20% higher usage than historical averages.

#### *Authority's Analysis*

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

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

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

Source: QCA (2011)

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

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

The Authority notes Cotton Australia/QFF's proposed method to address demand risk. This proposal would require that the tariffs depart from the underlying costs which allocate volume risk to SunWater which SunWater is not able to manage.

Rather than estimating future demand the Authority recommends that short term volume risks should be assigned to customers through a tariff structure that recovers all fixed costs through fixed charges and variable costs through the volumetric charges. Costs that vary with water use (variable), and may cause volume risk, are addressed in more detail in the chapter on operating expenditures.

To seek to impose an arbitrary risk on SunWater of the magnitude suggested may place an unacceptable level of risk upon SunWater. Moreover, SunWater may simply respond by seeking to reduce costs in a manner which reduces the standard of service at the scheme level. The establishment of a two-part tariff that aligns the costs and prices better manages risk and avoids these complications.

### **2.3 Submissions Received from Stakeholders on the Draft Report**

As outlined in Volume 1, the Authority notes that several submissions regarding the Draft Report's recommendations on the regulatory framework were received. These submissions primarily referred to how more accurate forecasts of electricity costs could be undertaken and how best to accommodate any variance between actuals and forecasts that occur during the 2012-17 regulatory period through mechanisms such as a cost pass through.

Irrigators submitted that the present system of having Part A at approximately 50% is more equitable than the Authority's recommended approach as both SunWater and irrigators share the risk of reduced water availability. In addition, Part A should be no more than it is at present (\$18.84) or approximately 54% of the total price (M Jenyns 2011 and K. Holt 2011).

### **2.4 Authority's Response to Submissions Received on the Draft Report**

As noted above, the Authority considers that only if costs are materially different to those forecast would there be a case to consider a price review trigger or cost pass through.

In the Volume 1 (2011e) the Authority concluded that short term volume risks (that is, both demand and supply) are outside SunWater's control, but are, to some extent, within the control of customers. For example, customers can vary the rate at which they apply irrigation water, may draw upon alternative water sources (ground water or on-farm storages), can determine the area of crop planted and in some areas, change crop type. In contrast, SunWater cannot control rainfall (supply), customer orders (demand) or, in general, the water planning framework which requires pumping or water releases under ROPs and ROLs.

Accordingly, the Authority concludes that such risks should be allocated to customers by way of a tariff structure that aligns fixed costs to the fixed tariff and variable costs to the variable tariff.

The Authority concluded that no compelling evidence had been put forward to change the approach recommended in the Draft Report.

### 3. PRICING FRAMEWORK

#### 3.1 Tariff Structure

##### *Introduction*

For the 2006-11 price path, it was generally agreed to adopt a 70:30 ratio of fixed costs to variable costs. However, due to the prevailing Government policy that there should be no real price decreases, the Part A fixed charge was set at 65% and Part B variable charges at 35% of total revenues in this scheme.

##### *Draft Report*

###### Stakeholder Submissions

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

Cotton Australia/QFF (2011a) submitted that if SunWater charges for 100% of WAE regardless of use (and thus removes all references to storage rental fees), the value of spending money on water use efficiency will be put into question where carryover or continuous accounting is not in place. Cotton Australia/QFF suggested that SunWater should therefore review all scheme rules for the prospect of carryover or continuous accounting and that if SunWater charges for 100% of bulk WAE it should be charged in arrears not in advance as is currently the case.

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

In response to Cotton Australia/QFF submission regarding efficiency, it was noted that efficiency is promoted as:

- (a) the volumetric charge is set to equal the anticipated costs of using an additional unit of water (the marginal cost), as this informs decisions by users. That is, the cost of supplying the additional unit of water is clear and customers can establish whether the benefit of using it exceeds its cost (PricewaterhouseCoopers (PwC), 2010a). Increasing the volumetric charge beyond its marginal cost will mean less water is used than available for consumptive purposes and farm output would be reduced;
- (b) the tariff structure signals the full fixed costs of holding WAE and provides an incentive for customers to reduce their WAEs, if they currently hold more than is necessary. This incentive also applied to SunWater where it holds WAEs;
- (c) in respect of setting tariffs to meet environmental objectives, the Authority noted that the institutional arrangements in Queensland administered by DERM establish the quantum, and allocation of water, between environmental and consumptive use. The Authority has been required to establish prices to recover SunWater's efficient business costs – to seek to achieve other broader goals would require a clear specification of those goals to enable the Authority to respond with relevant pricing recommendations;

- (d) Setting prices of delivered water at its true cost will also allow irrigators to make appropriate decisions about the need for, and nature of, any further on-farm initiatives to improve water use efficiency (which will in turn ensure that total farm costs, including associated environmental costs, are minimised over the longer term). The water planning framework needs to take into account and adjust allocations for consumptive purposes if the broader effects of current allocations for consumption are considered inappropriate; and
- (e) where a volumetric charge is relatively low (or zero) and, as a result, fixed costs are high, then there are incentives for customers to utilise all of an announced allocation. However, the appropriate degree of utilisation of capacity allocated for consumption can only be determined by irrigators (and other customers) in the light of market conditions for their products, in the knowledge of the cost of water delivered (including on-farm costs) and the understanding of the impact of changed water consumption on their farms.

Moreover, the Authority also recognised 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 (across all sectors, separately from land) for the Chinchilla Weir WSS are identified in Table 3.1.

**Table 3.1: Permanent and Temporary Water Traded (ML)**

|                        | 2002-03 | 2003-04 | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 |
|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Permanent water traded | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| Temporary water traded | 30      | 180     | 479     | 501     | 545     | 277     | 823     | 958     |

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

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

In regard to carry-over or continuous accounting issue raised by Cotton Australia/QFF, the Authority is not aware of anything in the proposed tariff structure which should in principle detract from its effective implementation. In particular, high fixed costs mitigate unnecessary carry-over of allocations.

The Authority further noted that if SunWater charges for 100% bulk WAE in arrears, rather than in advance, the additional financing costs arising from an increased need for working capital will need to be included in prices. Therefore, the Authority proposed to retain the existing arrangements of charging Part A in advance.

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

#### *Submissions Received from Stakeholders on the Draft Report*

Several customers submitted that the proposed increase in water charges for Part A from approximately 53% to 90% is not supported. Given there are many years when irrigators

receive extremely modest announced allocations, it is grossly unfair to charge irrigators for something that is not made available (Jenyns M 2011, IA December 2011, Jackson D & I, 2012 and Corbett L & F 2011).

#### *Authority's Response to Submissions Received on the Draft Report*

In response to submissions, as outlined in Volume 1, the Authority considers that irrigators are best placed to manage short-term volume risk – i.e. risk associated with fluctuating customer demand/and or water supply. The Authority considers that this short-term volume risk is best managed through cost-reflective tariffs, where the Part A fixed tariff is aligned with fixed costs and the Part B variable tariff is aligned with variable costs.

The Authority notes stakeholders concerns that a high Part A charge is excessive, particularly when modest announced allocations are made. However, the Authority considers that deviating from cost-reflective tariffs will allocate risk to SunWater that it is unable to manage.

As an example, if the Authority were to recommend that some fixed costs were to be included in the volumetric charge (thereby decreasing Part A to less than the recommended 90%), then SunWater would be at significant risk of not achieving cost-recovery in those years where water use is, for whatever reason, less than forecast. This outcome would also be inconsistent with the Ministerial Direction which requires the Authority to have regard to SunWater's legitimate commercial interests.

Accordingly, the Authority proposes no changes to its Draft Report recommendations.

## **3.2 Water Use Forecasts**

### *Introduction*

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

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

For the Chinchilla Weir WSS, SunWater (2006b) assumed a water usage forecast of 60% of WAE. Water usage for high and medium priority irrigation WAE was not separately identified (SunWater, 2006b).

### *Draft Report*

#### Stakeholder Submissions

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

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

SunWater's usage forecasts in the Chinchilla Weir WSS for 2012-17 are made with regard to historic averages over a seven-year period and the usage forecast applied for the 2006-11 price path. However, SunWater advised that usage of high priority and medium priority irrigation

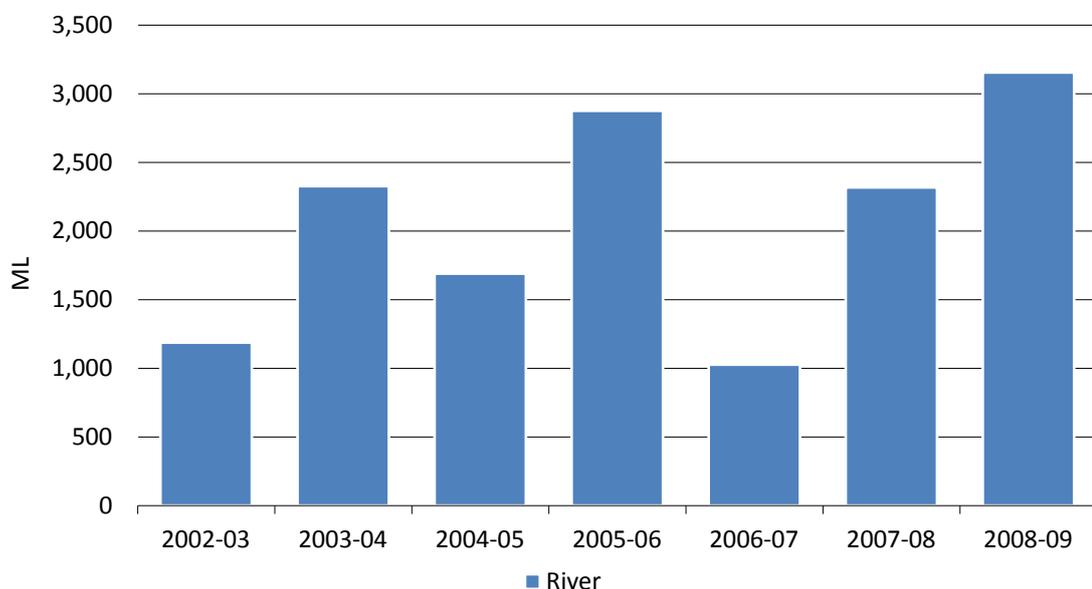
water cannot be separately identified, as holders of high priority WAE also hold medium priority WAE which passes through the same meter.

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

- (a) at a whole scheme level (all sectors) – an average of 51% of total WAE (including SunWater’s WAE); and
- (b) for the irrigation sector only – an average of 55% of irrigation WAE. This compares with the use assumption adopted in the 2006-11 price paths of 60% of WAE.

Figure 3.1 shows the historic usage information for the Chinchilla Weir WSS submitted by SunWater (2011). The river category includes all irrigation and other usage sourced from the river.

**Figure 3.1: Water Usage for the Chinchilla Weir WSS**



Source: SunWater (2011)

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 – Recommended 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 – Recommended Prices).

No submissions were received in regard to water use forecasts for the Chinchilla Weir WSS. The Authority proposes no changes to its Draft Report recommendations.

### **3.3 Tariff Groups**

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

The 2006-11 SunWater Irrigation Price Paths Final Report (SunWater, 2006b) nominated one tariff group, the River tariff group, for the Chinchilla Weir WSS.

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

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

## 4. RENEWALS ANNUITY

### 4.1 Background

#### *Ministerial Direction*

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

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

#### *Previous Review*

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

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

- (a) a detailed asset management plan, based on asset condition, that defined the timing and magnitude of renewals expenditure; and
- (b) an asset restoration reserve (ARR) to manage the balance of the unspent (or overspent) renewals annuity (including interest).

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

The allocation of the renewals annuity between high and medium priority users was based on water pricing conversion factors (WPCFs).

#### *Issues*

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

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

- (a) the establishment of the opening ARR balance (at 1 July 2012), which requires:
  - (i) whether renewals expenditure in 2007-11 was prudent and efficient. This affects the opening ARR balance for the 2012-17 regulatory period;
  - (ii) the extension of the opening ARR balance (calculated for 1 July 2011) to 1 July 2012 to account for the adjusted timelines specified in the amended Ministerial Direction;
- (b) the prudence and efficiency of SunWater's forecast renewals expenditure;
- (c) the methodology for apportioning bulk and distribution renewals between medium and high priority WAEs; and

- (d) the methodology to calculate the renewals annuity.

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

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

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

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

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

Subsequently, the Authority liaised directly with SunWater to obtain further information, and commissioned Sinclair Knight Merz (SKM) to address material expenditure items (that is, 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 in the Draft Report.

An additional six past renewals items across the schemes were reviewed for the Final Report, bringing the total proportion of past items reviewed to 34% by value (up from 29% in the Draft Report). A further 14 forecast renewals items were reviewed, increasing the proportion reviewed to 29% (up from 13% in the Draft Report).

The size of the sample is sufficiently large to determine and apply separate cost savings to past (and forecast) non-sampled items.

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

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

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

SunWater submitted that the opening balance for the Chinchilla Weir WSS was \$51,000.

In Volume 1, the Authority noted that the opening ARR balance at 1 July 2006 is not subject to review for the 2012-17 regulatory period.

The Draft Report opening balance of \$51,000 remains unchanged for the Final Report.

#### **4.3 Past Renewals Expenditure**

##### *Draft Report*

As noted in Volume 1, the Authority has reviewed the prudence and efficiency of selected renewals expenditures over the 2006-11 price paths. The Authority has also sought to compare the original expenditure forecasts underlying the 2006-11 price paths with actual expenditure, to establish the accuracy of SunWater's forecasts.

## Stakeholder Submissions

SunWater

SunWater (2011) submitted actual renewals expenditure for the Chinchilla Weir WSS for 2006-11 (Table 4.1) in real (2010-11 dollar) terms. 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 for this period that was approved for the 2005-06 review.

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

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

|                                     | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 |
|-------------------------------------|---------|---------|---------|---------|---------|
| Past (Actual ) Renewals Expenditure | -       | 3       | 43      | 24      | 5       |

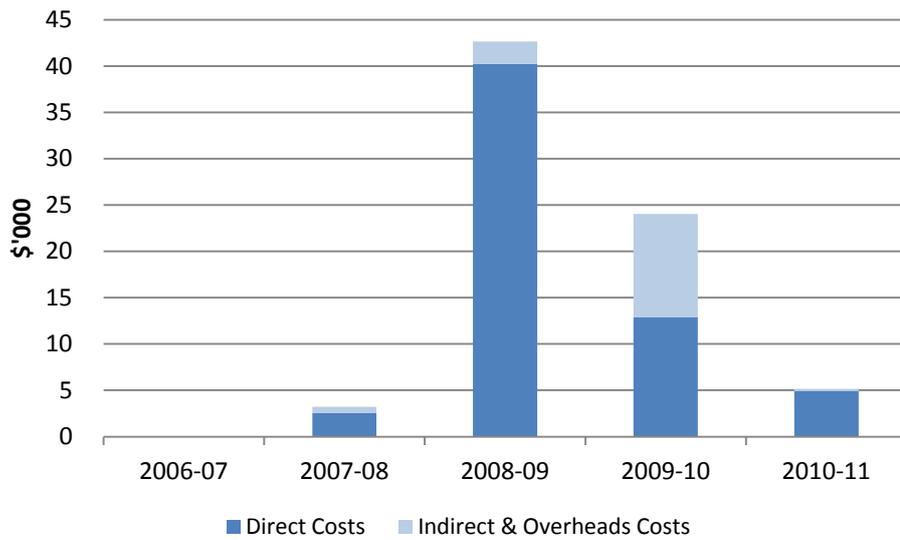
*Note: The estimates reflect the most recent information provided by SunWater to the Authority in September 2011. Source: SunWater(2011 an).*

No other stakeholders have commented on this 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 a following chapter.

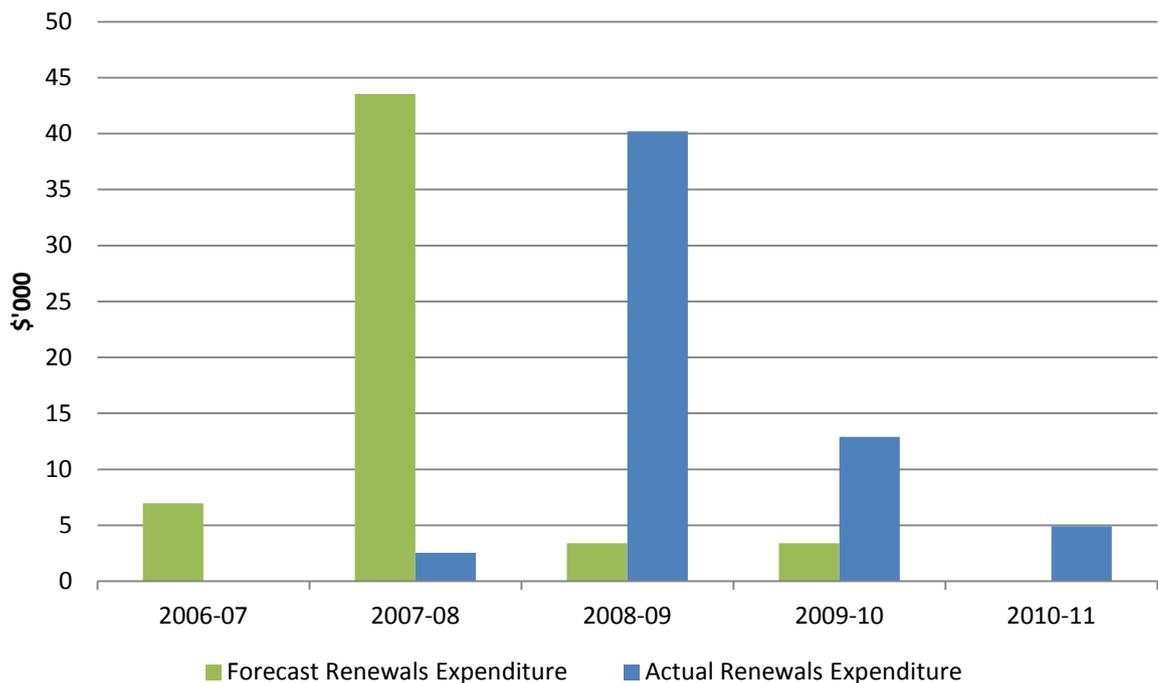
**Figure 4.1: Past (Actual) Renewals Expenditure 2006-11 (Real \$'000)**

Source: Indec (2011d)

#### Comparison of Forecast and Actual Costs

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

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

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

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

Actual renewals expenditure was approximately \$4,000 (direct costs) above that forecast over the period.

#### *Review of Past Renewal Items*

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

In the absence of forecast renewals expenditure for 2006-11 from SunWater (at the time of GHD's review), GHD sought to identify variances between annually budgeted and actual expenditure for certain projects.

GHD reported that over the past five years SunWater has completed two projects, to purchase a data-logger and install a buoy line for the Chinchilla Weir. However, due to information deficiencies GHD was unable to conclude on the prudence and efficiency of past renewals expenditure.

#### *Submissions Received from Stakeholders on the Draft Report*

In its submission in response to the Draft Report, SunWater (2011as) advised that additional information is now available on required flood damage repairs which need to be taken into account for the renewals annuity calculation. For the Chinchilla Weir WSS, the flood repair costs are \$5,156 (actual) for 2010-11.

SunWater has advised that the 2010-11 flood damage repair costs are included in its proposed renewals expenditure.

However, SunWater subsequently submitted that insurance revenue was also expected to be received, which would offset some of the flood repair costs. SunWater sought that this submission remains confidential as the negotiations with the insurer are still ongoing.

#### Authority's Response to Submissions Received on the Draft Report

As outlined in Volume 1, the Authority reviewed a sample of flood damage repairs across SunWater's schemes. The sampled items accounted for 30% of total flood repairs. SKM found that all sampled items were prudent and efficient.

However, the Authority notes that if flood damage repair costs are to be included then so should any offsetting insurance revenues. As insurance revenues are yet to be determined, the Authority has not included flood damage repairs costs in prices.

Therefore, once the insurance matter is settled, SunWater may apply for an adjustment to prices to account for the flood damage expenditure and revenue, or the ARR balances will be adjusted during the next regulatory review.

#### *Conclusion*

##### Draft Report

The Authority noted GHD's finding that there was insufficient information to review the past renewals expenditure items for this scheme. As noted in Volume 1, after a consideration of all its consultants' reviews, the Authority, for the purpose of the Draft Report, applied a 10% saving to non-sampled and sampled items for which there was insufficient information.

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

##### Final Report

As outlined above and in Volume 1, the Authority undertook further sampling of past renewals expenditures across SunWater's schemes. The larger sample of items reviewed indicated that a lower average savings for past renewals expenditures could have been achieved. (A separate level of savings was calculated for forecast renewals expenditures – see further below).

After consideration of this further work, the Authority recommended that a 4% saving be applied to all non-sampled and sampled items for which there was insufficient information.

In addition, following the Draft Report, the Authority reviewed the flood damage repair costs previously included in 2010-11 proposed by SunWater and recommended these be excluded from prices until the insurance claim is settled.

The Authority's recommended expenditure is summarised in Table 4.2.

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

| <i>Item</i>         | <i>Date</i> | <i>SunWater</i> | <i>Authority's Draft Report Findings</i> | <i>Draft Recommended (\$'000)</i> | <i>Authority's Final Report Findings</i>    | <i>Final Recommended (\$'000)</i> |
|---------------------|-------------|-----------------|------------------------------------------|-----------------------------------|---------------------------------------------|-----------------------------------|
| Past Renewals Items | Various     | Various         | Insufficient Information                 | 10% saving applied                | Insufficient Information                    | 4% saving applied                 |
| Flood Repairs       | 2010-11     | \$5.2           | Not sampled                              | 10% saving on 2010-11 cost,       | Excluded pending outcome of insurance claim | 0                                 |

Source: SunWater (2011), GHD (2011), SKM (2011) and QCA (2011, 2012).

#### 4.4 Opening ARR Balance (at 1 July 2012)

##### *Draft Report*

##### Stakeholder Submissions

SunWater indicated that the renewals opening ARR balance for 1 July 2011 was \$103,000 for the Chinchilla Weir WSS. This estimate reflects the most recent information provided by SunWater to the Authority in September 2011 and may differ from the NSP.

No other stakeholders have commented on this matter.

##### *Authority's Analysis*

Based on the Authority's assessment of the prudence and efficiency of past renewals expenditure, the recommended opening ARR balance for 1 July 2011 for the Chinchilla Weir WSS was \$110,000.

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

- (a) adopting the opening balance as at 1 July 2006;
- (b) adding 2006-11 renewals annuity revenue;
- (c) subtracting 2006-11 renewals expenditure; and
- (d) adjusting interest for the period consistent with the Authority's recommendations detailed in Volume 1.

To establish the Draft Report's closing ARR balance as at 30 June 2012 of \$107,000, 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 was the opening ARR balance for 1 July 2012.

### *Final Report*

The Authority revised its Draft Report estimate of the 30 June 2012 ARR to take account of the key changes since the Draft Report, including the 4% (previously 10%) saving to non-sampled items and sampled items for which there was insufficient information as outlined above and the flood damage repair costs.

The resulting revised ARR as at 1 July 2011 is \$107,000. The Authority has estimated the ARR as at 1 July 2012 to be \$103,000.

## **4.5 Forecast Renewals Expenditure**

### *Planning Methodology*

#### Draft Report

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

- (a) high-level options analysis for all material renewals expenditures expected to occur over the Authority's recommended planning period (20 years), with a material renewals expenditure being defined as one which accounts for 10% or more in present value terms of total forecast renewals expenditure;
- (b) detailed options analysis (which also takes 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; and
- (c) SunWater to adopt the Authority's consultants' suggested improvements for forecasting renewals expenditure.

#### Submissions Received from Stakeholders on the Draft Report

SunWater submitted that:

- (a) the costs of undertaking options analysis (and associated activities including consultation) are excessive (\$445,000 annually for all schemes);
- (b) these costs are to be allocated exclusively to the irrigation sector; and
- (c) although some of the Authority's consultant's suggested improvements have merit, they all involve additional cost. SunWater sought to implement only those that demonstrate a net-benefit.

#### Authority's Response to Submissions Received on the Draft Report

In response to SunWater, and as outlined in Volume 1, the Authority considers that:

- (a) the cost of the options analyses is acceptable when compared to SunWater's total renewals expenditure (\$14.5 million in 2011-12). In addition, SunWater's estimated \$445,000 does not include the savings associated with options analyses;
- (b) the cost of carrying out options analyses should be met by all water users (including irrigators and non-irrigators where they exist) in the relevant service contract; and

- (c) SunWater should review its renewals planning process (taking into account the Authority's consultants' suggested improvements) and provide a copy of the review to Government and the Authority by 30 June 2014.

As noted in Volume 1, the Authority has not, therefore, amended its draft recommendations regarding SunWater undertaking high-level and detailed options analyses. The Authority has, however, modified its draft recommendation as noted in (c) above.

### *Prudence and Efficiency of Forecast Renewals Expenditure*

#### Submissions

#### SunWater

SunWater's proposed 2011-16 renewals expenditure for the Chinchilla Weir WSS in real (2011 dollar) terms is presented in Table 4.3 as provided in its NSP (submitted prior to the Government's announced interim prices for 2011-12).

**Table 4.3: Forecast Renewals Expenditure 2011-16 (Real \$'000)**

| <i>Facility</i> | <i>2011-12</i> | <i>2012-13</i> | <i>2013-14</i> | <i>2014-15</i> | <i>2015-16</i> |
|-----------------|----------------|----------------|----------------|----------------|----------------|
| Chinchilla Weir | 18             | -              | -              | 38             | 164            |

*Source: SunWater (2011)*

The major item incorporated in the above estimates is to replace the gate valve in the Left Bank outlet works with an actuated butterfly valve because of the existing valve's condition. The gate valve is scheduled to be replaced in 2016 at an estimated cost of \$123,000.

The major expenditure items from 2016-17 are:

- (a) five year comprehensive dam inspection as required by law at Chinchilla Weir at an estimated cost of \$10,000 in 2024-25; and
- (b) refurbishment and painting of external pipeline for LH conduit at Chinchilla Weir at \$18,000 in 2027-28.

SunWater's forecast renewals expenditure items greater than \$10,000 in value, for the years 2011-12 to 2035-36 in 2010-11 dollar terms are provided in **Appendix A**.

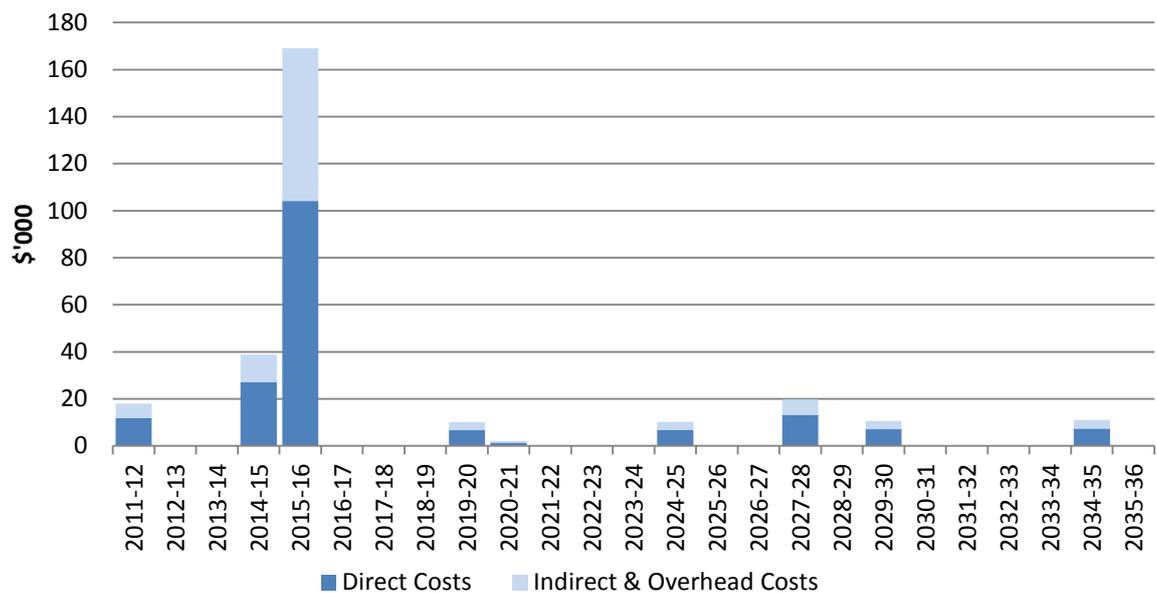
#### Other Stakeholders

Participants at the Round 1 consultation considered that if there were major refurbishments associated with the Chinchilla Weir and this meant significant increases in prices, then this would be of great concern to irrigators.

#### Authority's Analysis

#### Total Costs

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

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

Source: SunWater (2011am).

#### *Review of Forecast Renewals Items*

GHD reviewed the prudence and efficiency of the total costs (including indirect and overhead costs) of a sample of items.

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, in the Draft Report the Authority applied a general 10% cost saving to SunWater's proposed renewals expenditure items reviewed by GHD alone.

The Authority also requested that SKM review an additional item. The assessed future renewals projects are discussed below.

#### *1. Chinchilla Weir Renewals Projects 2011-12 to 2015-16*

##### *Draft Report*

SunWater proposed the following renewal projects for the Chinchilla Weir (Table 4.4).

**Table 4.4: Chinchilla Weir Renewals Expenditure 2011-12 to 2015-16 (Real \$'000)**

| <i>Facility</i> | <i>Description</i>                                     | <i>Driver</i> | <i>2011-12</i> | <i>2014-15</i> | <i>2015-16</i> |
|-----------------|--------------------------------------------------------|---------------|----------------|----------------|----------------|
| Chinchilla Weir | 09CHW01- replace: HW gauge w/ level sensor             | age           |                | 27.96          |                |
| Chinchilla Weir | 14CHWXX - decommission RH conduit and valves           | condition     |                |                | 41.49          |
| Chinchilla Weir | Replace 300 Gate Valve D/S                             | condition     | 17.58          |                |                |
| Chinchilla Weir | Replace Butterfly Valve (Replaces existing Gate Valve) | condition     |                |                | 122.89         |

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

No other stakeholders have commented on these items.

#### GHD's Review

GHD stated that the majority of the expenditure from 2011-12 to 2015-16 is forecast for the replacement of the gate valve number 3 and the decommissioning of valve number 2 at the Chinchilla Weir in year 2016. GHD reviewed the decommissioning of valve number 2 in SunWater's SAP PM information system.

GHD concluded that the need and timing of the renewals works listed in Table 4.4 is generally supported by condition appraisals and risk assessments.

However, GHD stated that without a detailed scope of works, bill of materials (BOM) and quantities and details of the unit rates used to calculate the estimates, the costs could not be fully reviewed.

#### Final Report

The Authority notes that GHD found there was insufficient information to conclude on the efficiency of costs. No further information on the prudence or efficiency of these items was provided following the Draft Report.

The butterfly valve was subsequently able to be assessed in more detail by SKM as noted below.

#### *2. Butterfly Valve for Chinchilla Weir*

##### Draft Report

According to SunWater's Systems, Applications and Products (SAP) Works Management System (WMS), the gate valve was initially installed in 1973 as part of the original construction of the Chinchilla Weir. SunWater has proposed expenditure in its NSP of \$122,890 for the purchase and installation of a butterfly valve in 2015-16.

No other stakeholders have commented on this item.

### SKM's Review

#### (a) Available Information

SKM reviewed SunWater's SAP-WMS, and asset condition and risk assessment policy and procedures. SunWater's SAP-WMS proposed expenditure of \$100,000 for the purchase and installation of the butterfly valve.

The Authority notes that the total cost (including direct and indirect) submitted by SunWater for this renewals item (\$122,890) does not equate to the amount reviewed by SKM (\$100,000). As discussed in Volume 1, this is because SKM's review was based on SunWater's SAP system, which uses a simplified method for calculating indirect and overhead costs than SunWater's financial system, which formed the basis of SunWater's NSPs and submissions to the Authority. However, where direct costs were reviewed by SKM this aligns with the direct costs submitted to the Authority.

**Table 4.5: Documentation Reviewed on the Butterfly Valve for Chinchilla Weir**

| <i>Document No.</i> | <i>Document Name</i>                             | <i>Document Title</i>                                                                                                       | <i>Date</i>   |
|---------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---------------|
| 1108982             | 1108982-v1A<br>Chinchilla Weir Valve Replacement | Chinchilla Weir Water Supply – Chinchilla Weir – Purchase Butterfly Valve (Replace existing gate valve) (CHW-CHIN-VLV-VLV3) | 8 August 2011 |

*Source: SKM (2011)*

#### (b) Prudency Review

SKM considered that SunWater has largely followed the policies and procedures that it has in place to determine renewals item replacement/refurbishment dates and costs as such.

SKM viewed the WMS record for this asset. The record confirms that the asset has been in service since 1973.

SunWater has applied its risk evaluation method to this asset. A risk assessment was undertaken in October 2005. Two scenarios were considered and are presented in Table 4.6.

**Table 4.6: Results from SunWater's Risk Assessment, 2005**

| <i>Risk</i>         | <i>Valve stuck open</i>                                           | <i>Valve stuck shut</i> |
|---------------------|-------------------------------------------------------------------|-------------------------|
| Comment             | Upstream valves cannot be serviced, Chinchilla town water supply. |                         |
| WH&S                | low                                                               | low                     |
| Environmental risks | low                                                               | low                     |
| Business risks      | moderate                                                          | low                     |

*Source: SKM (2011)*

The highest risk is assessed as 'Production/Operations', with a consequence of 'Critical'. The comments added suggested that failure of the valve would lead to SunWater not being able to service the upstream valves resulting in an impact on the Chinchilla town water supply.

SunWater's risk consequence table included the following comments for critical production/operations risks "*Total loss of storage resulting in major flooding and/or long term loss of supply. Certain crop failure on a large scale. Failure of supply to urban or industrial sectors resulting industry closure or significant reduction in production. Need to establish alternative urban supplies*". The recorded comment suggests that failure of the valve in the open position will affect the Chinchilla town water supply and therefore may result in the need to establish an alternative supply to this area. Without further knowledge of the system, SKM were unable to assess whether this risk rating is appropriate. However, it should be noted that downgrading this risk from 'Critical' to 'Major' would still result in a risk assessment level of 'Moderate'.

Based on the above condition assessment and SunWater's processes, SKM considered that application of a risk based asset life of 35 years is appropriate.

Two condition assessments have been undertaken, the first in March 2005 and the latest in January 2009. This is within SunWater's condition assessment frequency of every five years.

SKM noted that the risks for workplace health and safety (WHS) is classed as 'Low' (based on a consequence = insignificant). However, two WHS problems were identified within the provided documentation (1108982-v1A Chinchilla\_Weir\_Valve\_Replacement) as part of the justification for the provision of an actuator for the valve.

The maximum condition of the asset in 2009 was a four for 'External Coating / Surface / Bolts'. However, the condition assessment also contains a ranking of 'N/A' for 'Operation' and associated comment of 'Unable to Operate', also a ranking of 'N/A' for 'Function' and associated comment of 'Not Known'.

The provided documentation (1108982-v1A Chinchilla\_Weir\_Valve\_Replacement) suggests that "*the combined comments of 'Valve stuck open' and 'Unable to Operate' suggest that the valve has failed (condition 6) and should have been replaced earlier than planned in 2016*". SKM were unable to identify the "*Valve stuck open*" comment in the condition assessment. SKM therefore considered that there may have been confusion between the risks assessed above, and the condition assessment profile.

The condition assessment does not indicate whether the inability to operate the valve was due to the valve failing or other circumstances (e.g. lack of access or equipment). If the valve had been stuck open or been unable to be operated due to a fault with the valve, it should have received a condition assessment score of six (asset has failed and is not operable), not a ranking of 'N/A'. Either the form was incorrectly completed, or SunWater interpretation of the information contained in the form is incorrect.

In the absence of information clarifying what the assessor intended to record, SKM were unable to support the statement that the valve has failed.

The provided documentation (1108982-v1A Chinchilla Weir Valve Replacement) contains a table of the recommended replacement date (Table 4-2). There is a minor error in the table. Table 4-2 notes that the valve has been in operations since 1972, whereas SAP states July 1973. Based on the asset risk and maximum condition score, Table 4-2 indicates that the value should be replaced in 2023-24. SunWater proposed replacement of the valve is 2015-16, due to concerns within the condition assessment, as discussed above. Based on SKM's concerns of the interpretation of the condition assessment, SKM were unable to confirm that bringing forward the timing of the replacement of the valve is prudent.

Whilst the 2023-24 replacement date still falls within the current annuity period of 25 years, restating its replacement date as 2023-24 will impact on the actual amount, due to greater discounting.

SKM recommended that the condition assessment is reviewed to confirm the existing condition of the valve. If the valve is inoperable, the condition assessment score for operations and function should be revised to a 6. This would result in a new recommended replacement year, that is, that the valve should be replaced as soon as is reasonably practical.

SKM noted that it is intended to replace the existing gate valve with a butterfly valve. Within the Refurbishment and Maintenance Planning data, the frequency for replacement for the future butterfly valve is stated as 25 years. SunWater has allocated a standard run to failure asset life of 80 years and a refurbishment period of 20 years for butterfly valves. Following SunWater's procedures and allowing for a medium risk (as per the risk assessment), a risk based asset life of 70 years should be applied.

SKM noted that while this makes little difference to the proposed replacement in 2015-16 (which as stated above is subject to confirmation of condition) this does affect the future planned replacement of the valve, which is scheduled for 2049-50, and associated renewals costs. If the replacement date of the initial valve is set at 2015-16, according to SunWater's procedures, the valve should not be replaced again until 2085-86, some 36 years later than currently scheduled for the valve.

SKM recommended that the dates for future replacement are reviewed. SKM further recommended that SunWater investigates opportunities to allow for automatic updating of data fields in SAP-WMS, to reduce the potential for errors caused by manually entering data fields. It is possible that some of the data errors above are a result of updates, which have not fully carried through to all sections of SAP.

(c) Options Evaluation

SKM proposed to replace the existing manual valve with an actuated valve. The main reason is to provide SunWater with cost effective control and reliable operation of the valve. The valve is currently operated by Chinchilla Council under SunWater's instruction. A fee is paid to the council per operation of the valve. This arrangement has been made as the cost of SunWater operators travelling to Chinchilla to regularly operate the valve is excessive.

However, historically there has been resistance on the part of the council to release water from the weir, especially given the recent prolonged drought that has seriously threatened Chinchilla Council's water security. SKM have been advised that directions to release water from the weir required to meet SunWater's obligations under Interim Resource Operations Licence (IROL) generally result in debate between SunWater and Chinchilla Council. This problem is likely to cause SunWater to breach requirements of the Resource Operation Plan (ROP) once it comes into force. Requirements for pass-flows at the weir under the ROP are understood to be more onerous than under the IROL. There is no provision for delaying releases while decisions are made under the ROP and there is a requirement to adjust flows on a daily basis under the ROP.

In addition to the above issues, two WHS problems have been identified by SunWater:

- (a) the work required to operate the valve is excessive, with potential to cause back injuries to operators; and
- (b) access to the valve is dangerous. Operators are required to traverse a steep uneven river bank and then walk across slippery wet concrete.

Based on the daily requirements to adjust flows, the expense associated with SunWater operators travelling to Chinchilla to regularly operate the valve, the historical issues with Chinchilla Council operating the valve, and the identified WHS issues, SKM considered the proposed installation of an actuator is reasonable.

Two options have been considered for actuation of the valve:

- (a) install a manual hydraulic actuator at the weir so that the valve can be operated from the top bank; and
- (b) install a remote control actuation system for the valve.

The first option still requires an operator to visit the site. A net present value (NPV) analysis has been undertaken based on analysis of releases from the weir made over the previous six years, which showed that the valve is adjusted approximately 20 times per year. A reasonable rate of \$300 per operation has been used. This rate of operation is likely to increase with introduction of the ROP.

On the basis of the NPV analysis, SKM agreed that remote actuation of the valve is the most cost effective option.

SKM recommended that a detailed review is undertaken of the replacement of the gate valve with a butterfly valve. Butterfly valves may experience problems in raw water applications where there are high volumes of sediment, which may result in problems with the valve sealing. In order to resolve this, the valve may be mounted in the horizontal position. Based on the photograph within SAP, it appears the valve is installed in a chamber. SunWater will need to confirm that there is sufficient room within the chamber to install the butterfly valve and actuator.

Whilst a butterfly valve is likely to be significantly cheaper at this size than a gate valve, this cost saving is likely to be offset by the need to modify existing pipe work to allow for the dimensions of the butterfly valve.

#### (d) Conclusion on Prudency Evaluation

Following SunWater's procedures for risk and condition assessment, the valve is due for replacement in 2023-24, therefore the current proposed replacement of the valve in 2015-16 is not considered prudent. Therefore whilst it is prudent to include the cost of the valve within the current annuity period of 25 years, it should be replaced in 2023-24.

SKM recommended that the condition assessment is reviewed to confirm the existing condition of the valve. If the valve is inoperable, the condition assessment score for operations and function should be revised to a 6, this would result in a recommendation for the valve should be replaced as soon as is reasonably practical.

SKM recommended that the WHS risks are reviewed and updated if necessary to reflect the WHS risks identified within the provided documentation.

SKM further recommended that the dates for future replacement are reviewed, and that the replacement period is updated from 25 years to 70 years, or as appropriate based on the updated risk profile.

#### (e) Efficiency Evaluation

The process used by SunWater to establish future renewals item replacements/refurbishments cost are detailed in the main body of SKM's report.

The project costs have been derived from a document prepared by the Ipswich regional manager during February 2008 (An extract of Hummingbird Document 604708 has been included in 1108982-v1A Chinchilla Weir\_Valve\_Replacement). The cost estimate for this work is presented in Table 4.7.

**Table 4.7: Cost Estimate for Chinchilla Weir Valve Replacement (\$'000, 2007-08)**

| <i>Cost Item</i>                           | <i>Cost</i> | <i>Comment</i>                               |
|--------------------------------------------|-------------|----------------------------------------------|
| Replacement of valve                       | 60          | Including a new valve, labour and crane hire |
| GSM Remote Operation Equipment (20yr Life) | 7           |                                              |
| Power Supply                               | 10          |                                              |
| Rotork                                     | 12          |                                              |
| <b>Total</b>                               | <b>89</b>   |                                              |

Source: SKM (2011)

Allowing for additional costs associated with the consumer price index (CPI), SunWater has allowed for \$100,000 in the current estimate. SKM noted that this equates to an allowance of 6% for CPI (assuming costs are escalated over two years to 2009-10 costs). This is considered to be high. However, SKM also noted that this figure may contain some allowances for rounding.

(f) Renewal/Replacement Project Cost Evaluation

Based on SKM's recent project experience, SKM have obtained quotations from Tyco for large diameter valves (Table 4.8).

**Table 4.8: Quotations from Tyco for Large Diameter Valves (\$'000, 2009-10)**

| <i>Cost Item</i>      | <i>Cost</i> | <i>Comment</i>                                             |
|-----------------------|-------------|------------------------------------------------------------|
| 900mm Gate Valve      | 83.5        | 900 FL RS CC Fig 400 16:1 G/BX including a Rotork actuator |
| 900mm Butterfly Valve | 22.0        | F627PQ 403S AD including a Rotork actuator                 |

Source: SKM (2011)

In addition to the materials costs above, there will be a need to supply and install specials and flexible couplings, as well as labour and crane hire costs.

Based on SKM's project experience and typical rates from Rawlinsons, SKM estimated the costs to be just below \$70,000. SKM considered that, given the low value of the difference in expenditure and uncertainties within the estimating process, the sum proposed by SunWater was not unreasonable, and it could be considered for inclusion.

For the proposed 2049-50 works, i.e. the next replacement of the valve, SKM reviewed the BOM costs and agreed that the correct procedure has been used to calculate the costs, but noted that the stated BOM costs are based on the replacement of a gate valve not a butterfly valve, which at this size will be cheaper. The cost estimate costs for the supply of a gate valve is \$93,500, compared to \$31,900 for the supply of a butterfly valve. If this valve is changed to a butterfly valve, it is likely that it will be replaced by a butterfly valve in future. Future costs should also be allowed for the refurbishment and replacement of the actuator.

(g) SKM's Summary and Conclusion

Following SunWater's procedures for risk and condition assessment, the Chinchilla gate valve is due for replacement in 2023-24. Based on the condition assessment presented, SKM were unable to ascertain whether the valve has failed, therefore the current proposed replacement of the valve in 2015-16 was not considered prudent. The item should be deferred to 2023-24.

SKM recommended that the condition assessment is reviewed to confirm the existing condition of the valve. If the valve is inoperable, the condition assessment score for operations and function should be revised to a 6. This would result in a new recommended replacement year of 2004-05, i.e. that the valve should be replaced as soon as is reasonably practical.

SKM recommended that the WHS risks are reviewed and updated if necessary to reflect the WHS risks identified within the provided documentation.

SKM further recommended that the dates for future replacement are reviewed, and that the replacement period is updated from 25 years to 70 years, or as appropriate based on the updated risk profile.

SKM estimated a cost of \$70,000, and given the low value of the difference in expenditure and uncertainties within the estimating process, the sum proposed by SunWater was not unreasonable.

SKM recommended that future replacement costs are reviewed, although noted that these are outside of the current annuity period.

Authority's Analysis

The Authority accepted SKM's recommendation that this project is prudent but replacement should be deferred to 2023-24.

The Authority noted that SKM had independently estimated the cost of this item at \$70,000. In comparing the SKM estimate to SunWater's cost estimate in the SAP of \$100,000, SKM have concluded that while SunWater's estimate may not be efficient it may not necessarily be unreasonable.

However, the Authority noted that the total cost of this item as proposed by SunWater for inclusion in renewals expenditure is \$122,890 in 2015-16, and this estimate materially differs from that reviewed by SKM due to differences in the application of indirect and overhead costs in the SAP-WMS as compared to those submitted in the NSP.

Given SKM's advice, the Authority considered the expenditure for this item as proposed for inclusion in renewals expenditure for pricing purposes of \$122,890 to be prudent and efficient, with the timing of the works being deferred until 2023-24 instead of 2015-16.

Submissions Received from Stakeholders on the Draft Report

SunWater accepted the Authority's draft finding that this item was prudent and efficient but should be deferred to 2023-24.

Authority's Response to Submissions Received on the Draft Report

The Authority has not changed its draft finding that this item was prudent and efficient but should be deferred to 2023-24.

### 3. Chinchilla Weir Renewals Projects from 2015-16

#### Draft Report

SunWater proposed a range of renewals project beyond 2015-16 (Table 4.9) in real terms as at 2010-11.

**Table 4.9: Chinchilla Weir Renewals Expenditure Beyond 2015-16 (Real '000)**

| <i>Facility</i> | <i>Description</i>                                                                   | <i>Year</i> | <i>Cost</i> |
|-----------------|--------------------------------------------------------------------------------------|-------------|-------------|
| Chinchilla Weir | Study: 5yr Dam Comprehensive Inspection                                              | 2019-20     | \$10        |
| Chinchilla Weir | Replace 150 Gate Valve U/S                                                           | 2020-21     | \$2         |
| Chinchilla Weir | Study: 5yr Dam Comprehensive Inspection                                              | 2024-25     | \$10        |
| Chinchilla Weir | Refurbish: Chinchilla Weir - refurbish/ Painting of external pipework for LH conduit | 2027-28     | \$18        |
| Chinchilla Weir | Study: 5yr Dam Comprehensive Inspection                                              | 2029-30     | \$10        |
| Chinchilla Weir | Study: 5yr Dam Comprehensive Inspection                                              | 2034-35     | \$10        |

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

#### Other Stakeholders

No other stakeholders have commented on these items.

#### GHD's Review

GHD reported that the majority of the expenditures over the remaining 20 years are five-yearly dam inspections, replacement of smaller valves based on remaining useful life and refurbishments/repainting of the conduit.

GHD concluded that the forecast renewals expenditure was efficient and prudent based on the predicted useful life of the assets.

#### Final Report

In the Draft Report the Authority applied a general 10% cost saving to renewals items reviewed by GHD.

No further information on the prudence or efficiency of these items was provided following the Draft Report.

#### Conclusion

#### Draft Report

Various projects for the Chinchilla Weir WSS were sampled. Of these:

- (a) GHD considered that the need and timing of proposed expenditure items for 2012-16 was prudent, but that insufficient information was provided to conclude on the efficiency of costs;

- (b) SKM was able to conduct a detailed review of the butterfly valve for Chinchilla Weir, which it concluded was prudent and efficient but should be deferred to 2023-24; and
- (c) the Authority applied a general 10% saving to renewals expenditure after 2015-16.

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

Therefore, the Authority recommended that forecast renewals expenditure be adjusted as shown in Table 4.10.

#### Final Report

After review of submissions in response to the Draft Report, the Authority's conclusions in relation to specific items are as follows:

- (a) no change to the Authority's Draft Report recommendation regarding various projects from 2011-12 to 2015-16 and from 2015-16; and
- (b) no change from the view that expenditure at the butterfly valve at Chinchilla Weir can be delayed from 2015-16 to 2024-25.

As outlined in Volume 1, the Authority undertook further sampling of forecast renewals expenditures across SunWater's schemes. For the Final Report, the Authority recommended that a 20% saving be applied to all non-sampled and sampled items for which there was insufficient information.

The Authority's recommended expenditure is summarised in Table 4.10.

**Table 4.10: Review of Forecast Renewals Expenditure 2011-36 (Real \$'000)**

| <i>Item</i>                            | <i>Year</i>        | <i>SunWater (\$'000)</i> | <i>Authority's Draft Report Findings</i>                                               | <i>Draft Recommended (\$'000)</i> | <i>Authority's Final Report Findings</i>                                               | <i>Final Recommended (\$'000)</i> |
|----------------------------------------|--------------------|--------------------------|----------------------------------------------------------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------|-----------------------------------|
| <b>Sampled Projects</b>                |                    |                          |                                                                                        |                                   |                                                                                        |                                   |
| 1. Various projects from               | 2011-12 to 2015-16 | 87                       | Prudent, but insufficient information was provided to conclude on efficiency of costs. | 10% saving applied*               | Prudent, but insufficient information was provided to conclude on efficiency of costs. | 20% saving applied                |
| 2. Butterfly valve for Chinchilla Weir | 2015-16            | 123                      | Prudent and efficient but deferred to 2024                                             | 123                               | Prudent and efficient but deferred to 2024                                             | 123                               |
| 3. Various projects                    | from 2015-16       | 60                       |                                                                                        | 10% saving applied                |                                                                                        | 20% saving applied                |
| <b>Non Sampled Projects</b>            |                    |                          |                                                                                        | 10% saving applied                |                                                                                        | 20% saving applied                |

*Note: \* Except for the butterfly valve proposed for 2016 which has been adjusted as per Item 2. Source: SunWater (2011), GHD (2011), SKM (2011) and QCA (2011, 2012)*

#### 4.6 SunWater's Consultation with Customers

##### *Draft Report*

##### Submissions

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.

The participants of the Round 1 consultation were concerned that recent capital expenditure has exceeded levels agreed to by irrigators and that this cost will be passed on to irrigators as part of the prices going into the future. They suggested that irrigators may not have agreed to this maintenance initiative if the costs were known. The participants further queried whether this

assessment takes into account recent capital expenditure that has exceeded levels previously agreed to by irrigators.

#### *Authority's Analysis*

In the Draft Report, the Authority noted the concerns of irrigators and their representatives about the lack of involvement in the planning of future renewals expenditure.

In the context of the Draft Report, the Authority recommended 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.

#### *Submissions Received from Stakeholders on the Draft Report*

SunWater (2011as) submitted that the nature and extent of stakeholder consultation is ultimately a matter for SunWater and its customers. SunWater submitted that costs would be involved in implementing the Authority's recommendations and that the Authority had failed to establish that the benefits outweighed the costs.

SunWater considers that although it is crucial that SunWater retains ultimate control over decisions regarding renewals expenditure, opportunities to improve information provided to customers that does not involve legislative amendment do exist.

#### *Authority's Response to Submissions Received on the Draft Report*

In response to SunWater's concerns that excessive costs will be incurred undertaking consultation, the Authority considers that SunWater's estimated cost is modest compared to total renewals spend, as noted previously. The benefits of greater consultation are likely to outweigh the costs, as noted in Volume 1.

In addition, the Authority agrees that SunWater maintain ultimate control over its renewals annuity program. However, the Authority considers that customer consultation has not been adequate under current legislation (despite explicit recommendations of the past price review) and, as a consequence, SunWater should be more formally obliged to undertake consultation.

The Authority proposes no change to its recommendation.

## **4.7 Allocation of Headworks Renewals Costs According to WAE Priority**

### *Draft Report*

#### *Previous Review*

For the 2006-11 price path, the renewals costs for the Chinchilla Weir bulk water infrastructure were apportioned between priority groups using converted nominal water allocations. The WPCF for the Chinchilla Weir WSS was 2:1; that is, one ML of high priority WAE was considered equivalent to 2 ML of medium priority WAE.

## Stakeholder Submissions

SunWater

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

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

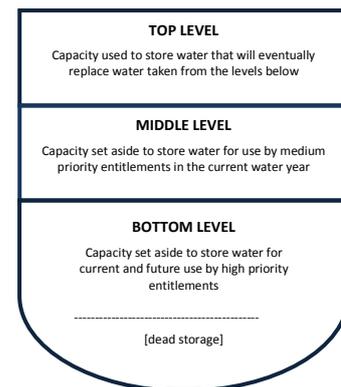
SunWater (2010d) submitted a detailed outline of the HUFs methodology, outlining its derivation and application for each scheme. This methodology, discussed in detail Volume 1, can be summarised as follows.

**Step 1:** Identify the water entitlement groupings for each scheme, as listed in DERM's Water Entitlement Register, and establish which groups are to be considered as high priority (HP) and medium priority (MP) for the purposes of the HUFs calculation<sup>1</sup>.

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

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

This step divides the storage infrastructure into three levels: the bottom layer, which is exclusively reserved for high priority; the middle layer, which is effectively reserved for medium priority; and the top layer, which is shared between the medium and high priority groups.



**Step 4:** Assess the hydrological performance in 15-year sequences of each layer identified in Step 3 to determine the probability of each component of headworks storage being accessible to the relevant priority group.

**Step 5:** Calculate the percentage of storage headworks capacity to which medium priority users have access for each of the 15-year sequences analysed in **Step 4**:

$$\frac{MP \text{ Utilised Capacity}}{\text{Total Utilised Capacity}} = \frac{MP_{1(\text{utilised})} + MP_{2(\text{utilised})}}{MP_{1(\text{utilised})} + HP_{1(\text{utilised})} + MP_{2(\text{utilised})} + HP_{2(\text{utilised})}} (\%)$$

Set the  $HUF_{mp}$  equal to the minimum of these values to reflect the worst 15-year period ( $HUF_{hp} = 1 - HUF_{mp}$ ).

If more than two types of water entitlements were aggregated in Step 1 these are then disaggregated.

<sup>1</sup> If more than two priority groups exist, water sharing rules and other differentiating characteristics are taken into account to determine whether they are included in the high or medium priority grouping, or neither.

The parameters used for determining the HUFs for the Chinchilla Weir WSS are summarised in Table 4.11.

The HUFs for this scheme (SunWater, 2010d) are 12% for medium priority and 88% for high priority.

**Table 4.11: Application of HUFs Methodology**

| <b>STEP 1: Water Entitlement Groups (DERM's Water Allocation Register)</b>                                                                                                       |                                          |                             |                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----------------------------|--------------------------------------------|
| <b>Nominal Group</b>                                                                                                                                                             | <b>(ML)</b>                              | <b>HUF Group</b>            | <b>(ML)</b>                                |
| Medium Priority                                                                                                                                                                  | 2,884                                    | MP <sub>A</sub>             | 2,884                                      |
| High Priority                                                                                                                                                                    | 1,165                                    | HP <sub>A</sub>             | 1,165                                      |
| <b>STEP 2: ROP Conversion Factor Adjustment</b>                                                                                                                                  |                                          |                             |                                            |
| Conversion Factor: ROP <sub>CF</sub>                                                                                                                                             |                                          |                             | N/A                                        |
| Maximum volume that can be converted to HP: HP <sub>A</sub> max                                                                                                                  |                                          |                             | 1,165                                      |
| Corresponding volume of MP: MP <sub>A</sub> min = MP <sub>A</sub> - (HP <sub>A</sub> max - HP <sub>A</sub> ) * ROP <sub>CF</sub>                                                 |                                          |                             | 2,884                                      |
| <b>STEP 3: Water Sharing Rules &amp; Operational Requirements</b>                                                                                                                |                                          |                             |                                            |
| <b>Water Sharing Rules</b>                                                                                                                                                       |                                          |                             |                                            |
| Volume below which MP not available: MP <sub>0</sub> AA                                                                                                                          |                                          |                             | N/A                                        |
| Volume above which max. MP available: MP <sub>100</sub> AA                                                                                                                       |                                          |                             | N/A                                        |
| <b>CWSAs and other operational requirements</b>                                                                                                                                  |                                          |                             |                                            |
| Likely increase in volume effectively reserved for HP: MP <sub>0</sub>                                                                                                           |                                          |                             | 6,757                                      |
| Likely increase in min. storage before maximum MP available: MP <sub>100</sub>                                                                                                   |                                          |                             | 9,780                                      |
| <b>Key Dam Level Measures</b>                                                                                                                                                    |                                          |                             |                                            |
| Full Supply Level: FSV <sub>hwks</sub>                                                                                                                                           |                                          |                             | 9,780                                      |
| Dead Storage Level: DSL <sub>hwks</sub>                                                                                                                                          |                                          |                             | 120                                        |
| <b>STEP 4: Hydrologic performance of headworks storage</b>                                                                                                                       |                                          |                             |                                            |
| <b>Storage Layer</b>                                                                                                                                                             | <b>Storage Capacity (ML)</b>             | <b>Prob. of Utilisation</b> | <b>Utilised Capacity (ML)</b>              |
| Top: max{(FSV <sub>hwks</sub> - MP <sub>100</sub> ), 0}*                                                                                                                         | MP <sub>2</sub> = 0; HP <sub>2</sub> = 0 | 0%                          | MP <sub>2u</sub> = 0; HP <sub>2u</sub> = 0 |
| Middle: min{(MP <sub>100</sub> - MP <sub>0</sub> ), (FSV <sub>hwks</sub> - MP <sub>0</sub> )}                                                                                    | MP <sub>1</sub> = 3,023                  | 24%                         | MP <sub>1u</sub> = 724                     |
| Bottom: MP <sub>0</sub> - DSV <sub>hwks</sub>                                                                                                                                    | HP <sub>1</sub> = 6,637                  | 78%                         | HP <sub>1u</sub> = 5,147                   |
| <b>STEP 5: Calculation of HUFs for each Water Entitlement Group</b>                                                                                                              |                                          |                             |                                            |
| <b>Formula</b>                                                                                                                                                                   | <b>HUF Group</b>                         | <b>Nominal Group</b>        |                                            |
| MP <sub>A</sub> : (MP <sub>1u</sub> + MP <sub>2u</sub> ) / (MP <sub>1u</sub> + HP <sub>1u</sub> + MP <sub>2u</sub> + HP <sub>2u</sub> )<br>= (724 + 0) / (724 + 5,147 + 0 + 0)   | HUF <sub>mp</sub> = 12%                  | Medium Priority = 12%       |                                            |
| HP <sub>A</sub> : (HP <sub>1u</sub> + HP <sub>2u</sub> ) / (MP <sub>1u</sub> + HP <sub>1u</sub> + MP <sub>2u</sub> + HP <sub>2u</sub> )<br>= (5,147 + 0) / (724 + 5,147 + 0 + 0) | HUF <sub>hp</sub> = 88%                  | High Priority = 88%         |                                            |

Note: \*Apportioned between MP<sub>2</sub> and HP<sub>2</sub> using the ratio MP<sub>1</sub>:HP<sub>1</sub>. Source: SunWater (2010d).

### Other Stakeholders

No other stakeholders have commented on this matter.

### Authority's Analysis

The Authority commissioned Gilbert & Sutherland (G&S) to conduct an independent review of SunWater's proposed HUFs methodology. G&S (2011) concluded that the input data and

model sources were appropriate, calculations were accurate to the method and input data utilised, the methodology exhibits rigour and is generally robust in providing consistent outcomes. G&S also recommended some amendments to SunWater's approach.

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

SunWater (2011y) accepted these recommendations and submitted recalculated HUFs for each scheme. However, since there is no top layer of storage to apportion in the Chinchilla Weir WSS, the recommendations made by G&S do not affect the HUF values for this scheme.

The Authority estimated that based on the HUF methodology, the conversion for medium priority to high priority would be 18.15:1. This compared with the WPCF of 2:1 used for 2006-11 price paths. The HUF for the Chinchilla WSS apportions 12% of renewals costs to medium priority WAE compared to 55% under the previous water pricing conversion factor.

No submissions on this issue were received following the Draft Report. The Authority proposes no change to its Draft Report conclusions.

## 4.8 Calculating the Renewals Annuity

### *Draft Report*

In Volume 1, the Authority recommended an indexed rolling annuity, calculated for each year of the 2012-17 regulatory period.

For the Chinchilla Weir WSS the draft recommended renewals annuity for the 2012-17 regulatory period (in real terms as at 2010-11) is shown in Table 4.12.

The table shows the total renewals annuity recommended by the Authority and the component amounts for high and medium priority customers. Also presented for comparison is SunWater's total renewals annuity for 2006-11 and SunWater's proposed total annuity for 2012-16. SunWater did not submit a disaggregation between high and medium priority customers.

### *Final Report*

For the Final Report, changes to the Authority's recommended forecast renewals annuity arise due to the change in general efficiency gains imposed on non-sampled items and items for which there were insufficient information.

The revised renewals annuities are compared to the Draft Report recommendations in Table 4.12.

**Table 4.12: Chinchilla Weir WSS Renewals Annuity\* (Real \$'000)**

|                        | <i>Actual</i> |         |         |         |         |         | <i>Recommended</i> |         |         |         |         |
|------------------------|---------------|---------|---------|---------|---------|---------|--------------------|---------|---------|---------|---------|
|                        | 2006-07       | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13            | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
| <b>Draft Report</b>    |               |         |         |         |         |         |                    |         |         |         |         |
| <b>Total SunWater</b>  | 6             | 6       | 8       | 8       | 7       | 10      | 9                  | 9       | 9       | 9       | 9       |
| <b>Total Authority</b> | -             | -       | -       | -       | -       | -       | 4                  | 4       | 4       | 4       | 4       |
| High Priority          | -             | -       | -       | -       | -       | -       | 3                  | 3       | 3       | 3       | 3       |
| Medium Priority        | -             | -       | -       | -       | -       | -       | 1                  | 1       | 1       | 1       | 1       |
| <b>Final Report</b>    |               |         |         |         |         |         |                    |         |         |         |         |
| <b>Total Authority</b> |               |         |         |         |         |         | 4                  | 4       | 4       | 4       | 4       |
| High Priority          |               |         |         |         |         |         | 3                  | 3       | 3       | 3       | 3       |
| Medium Priority        |               |         |         |         |         |         | 0                  | 0       | 1       | 1       | 0       |

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

## 5. OPERATING COSTS

### 5.1 Background

#### *Ministerial Direction*

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

#### *Issues*

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

- (a) the scope of operating activities for this scheme;
- (b) the extent to which previously anticipated cost savings (identified prior to the 2006-11 price paths) have been incorporated into SunWater's total cost estimates for the purpose of 2012-17 prices;
- (c) the prudence and efficiency of SunWater's proposed operating expenditures including direct and non-direct costs and escalation factors; and
- (d) the most appropriate methodologies for allocating operating costs to service contracts<sup>2</sup> 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 to include service provision, compliance, insurance, recreation and other supporting activities (these were not classified by direct and indirect costs). SunWater noted that:

- (a) there are no direct employees for the scheme, which is serviced from Pittsworth. A Senior Operator is located at the Pittsworth depot and is responsible for the day to day water supply management and delivery of the programmed works;

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<sup>2</sup> SunWater refers to each bulk scheme and each distribution system as a service contract. Consequently, SunWater has 22 irrigation bulk service contracts and eight irrigation distribution system service contracts.

- (b) service provision relates to:
- (i) water delivery – scheduling and releasing bulk water from storages, surveillance of water levels and flows in the river, and quarterly meter reading; and
  - (ii) customer service and account management – managing enquiries about accounts and major transactions; providing up to date online data on WAE, water balances and water usage; and managing transactions such as temporary trades, transfers and other scheme specific transactions;
- (c) compliance requirements to provide the bulk service include those relating to:
- (i) the ROP and Resource Operations Licence (ROL) – a major part of which is gathering and reporting data at quarterly and annual intervals on water sharing rules, ROP amendments and modifications; water accounting and reporting on stream flow, water quality and other data (see table below);

**Table 5.1: DERM’s Water quality Monitoring Requirements of SunWater**

| <i>Storage</i>  | <i>Monthly Monitoring requirements</i> |                   |                   |            |
|-----------------|----------------------------------------|-------------------|-------------------|------------|
|                 | <i>Inflow</i>                          | <i>Head Water</i> | <i>Tail Water</i> | <i>BGA</i> |
| Chinchilla Weir | No                                     | Yes               | Yes               | Yes        |

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

- (ii) dam safety – routine inspections are carried out quarterly on the Chinchilla Weir. They also include annual condition inspections to identify and plan maintenance requirements and to provide information for management planning of water delivery assets;
  - (iii) environmental management to comply with the ROP and *Environmental Protection Act 1994* which require SunWater to deal with risks such as fish deaths, chemical usage, pollution, contaminants and approvals for in-stream works;
  - (iv) land management (weed and pest control, rates and land tax, security and trespass and access to land owned by SunWater) as well as other obligations in relation to WHS, financial reporting and taxation and irrigation pricing;
- (d) insurance is obtained on a portfolio basis and allocated to the scheme;
- (e) SunWater has sought to transfer the management and cost of recreation activities to private operators or Government; and
- (f) other supporting activities include central procurement, human resources and legal services.

#### *Previous Review*

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

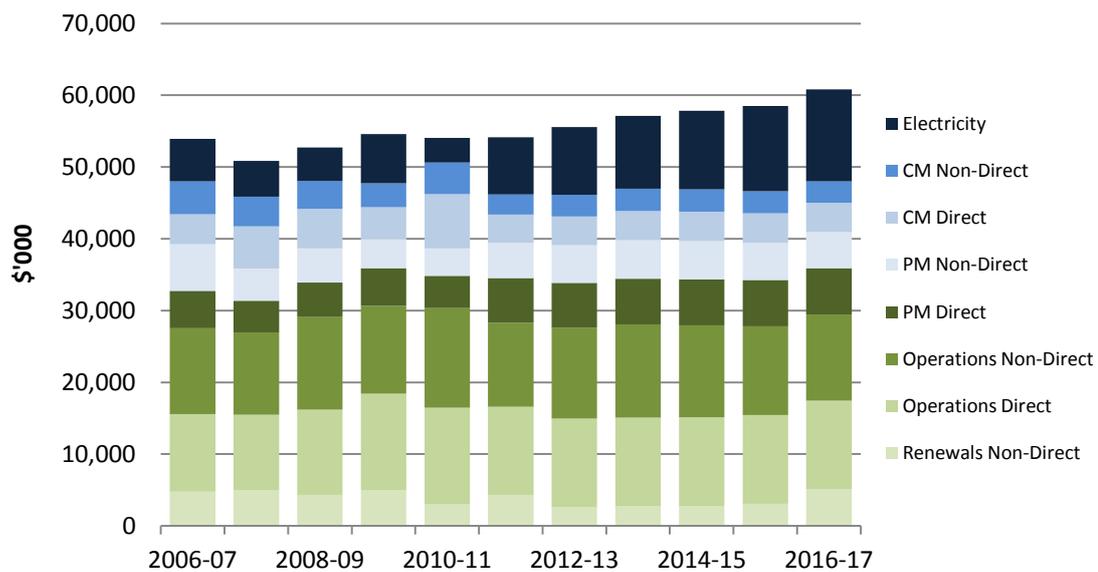
*Draft Report*

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 positions, including information received in October 2011, and differ from SunWater’s NSP as noted in Volume 1.

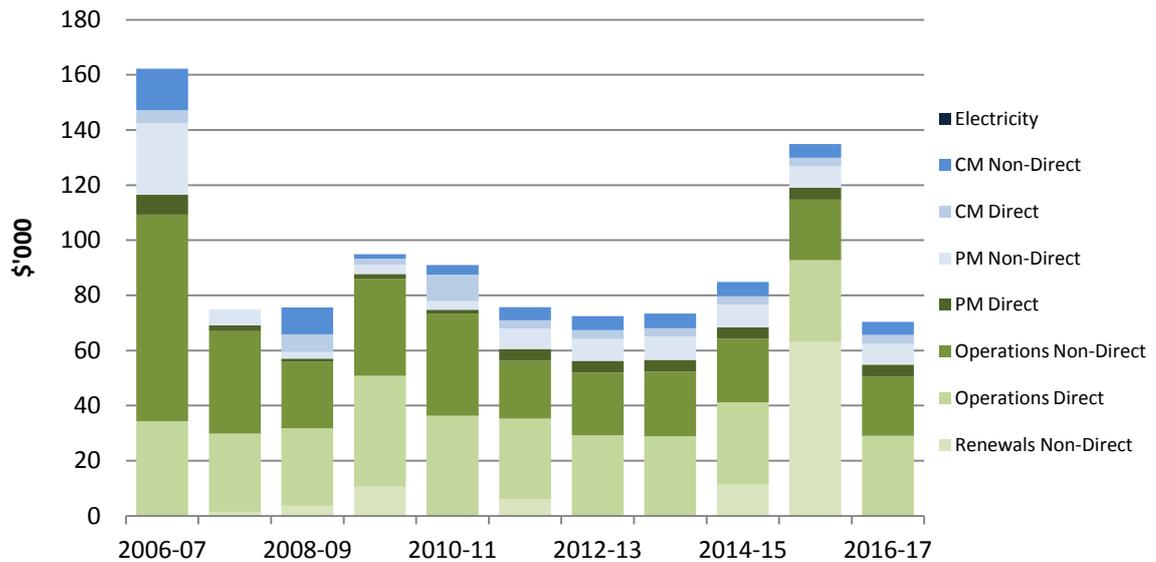
**Figure 5.1: SunWater’s Total Operating Costs (Real \$’000)**



*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, 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 Chinchilla Weir WSS (all sectors) is shown in Figure 5.2 and Tables 5.1 and 5.2.

**Figure 5.2: Total Operating Costs – Chinchilla Weir 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, exclusion of revenue offset (which is dealt with in the following chapter) and rounding. The estimates also reflect the most recent information provided by SunWater to the Authority in October 2011. Source: SunWater (2011ap) and SunWater (2011ao).

**Table 5.2: Expenditure by Activity (Real \$'000)**

|                              | 2006-07    | 2007-08   | 2008-09   | 2009-10   | 2010-11   | 2011-12   | 2012-13   | 2013-14   | 2014-15   | 2015-16    | 2016-17   |
|------------------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|-----------|
| Operations                   | 109        | 66        | 52        | 75        | 73        | 50        | 52        | 52        | 53        | 52         | 51        |
| Electricity                  | 0          | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0          | 0         |
| Preventive maintenance       | 33         | 8         | 3         | 5         | 5         | 12        | 12        | 13        | 12        | 12         | 12        |
| Corrective maintenance       | 20         | 0         | 16        | 4         | 13        | 8         | 8         | 8         | 8         | 8          | 8         |
| Renewals non-direct          | 0          | 1         | 4         | 11        | 0         | 6         | 0         | 0         | 11        | 63         | 0         |
| <b>Total operating costs</b> | <b>162</b> | <b>75</b> | <b>76</b> | <b>95</b> | <b>91</b> | <b>76</b> | <b>72</b> | <b>73</b> | <b>85</b> | <b>135</b> | <b>70</b> |

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, exclusion of revenue offset (which is dealt with in the following chapter) and rounding. The estimates also reflect the most recent information provided by SunWater to the Authority in October 2011. Source: SunWater (2011ap)

**Table 5.3: Expenditure by Type (Real \$'000)**

|                              | 2006-07    | 2007-08   | 2008-09   | 2009-10   | 2010-11   | 2011-12   | 2012-13   | 2013-14   | 2014-15   | 2015-16    | 2016-17   |
|------------------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|-----------|
| Labour                       | 28         | 15        | 16        | 21        | 19        | 18        | 18        | 18        | 18        | 18         | 18        |
| Electricity                  | 0          | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0          | 0         |
| Contractors                  | 3          | 2         | 5         | 9         | 7         | 5         | 5         | 5         | 5         | 5          | 5         |
| Materials                    | 1          | 3         | 2         | 1         | 3         | 2         | 2         | 2         | 2         | 2          | 2         |
| Other                        | 14         | 11        | 13        | 13        | 18        | 12        | 12        | 11        | 12        | 12         | 11        |
| Non-direct                   | 116        | 44        | 40        | 51        | 44        | 39        | 36        | 37        | 48        | 98         | 34        |
| <b>Total Operating Costs</b> | <b>162</b> | <b>75</b> | <b>76</b> | <b>95</b> | <b>91</b> | <b>76</b> | <b>72</b> | <b>73</b> | <b>85</b> | <b>135</b> | <b>70</b> |

*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, exclusion of revenue offset (which is dealt with in the following chapter), and rounding. The estimates also reflect the most recent information provided by SunWater to the Authority in October 2011. Source: SunWater (2011ap)*

In its NSP, SunWater submitted that the operating costs for this scheme averaged \$88,000 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 2011-16 are \$68,000 per annum.

#### Other Stakeholders

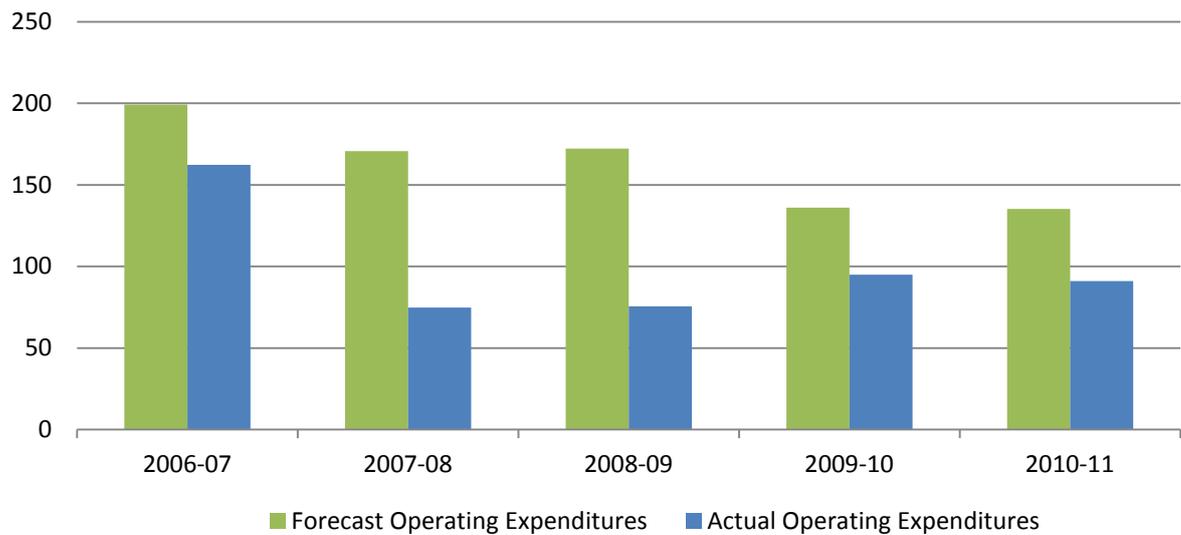
No other stakeholders have commented on this matter prior to the Draft Report.

#### Authority's Analysis

The Authority 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 of the Draft Report, 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 Chinchilla Weir WSS is shown in Figure 5.3 below. For this scheme, SunWater's actual operating costs were less than Indec's forecast efficient operating costs by \$315,000 over the period.

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

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

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

Following the Draft Report, further information was received from SunWater about how savings from SLFI are taken into account in its operating cost estimates. This information is set out in 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 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.

## Draft Report

### Stakeholder Submissions

#### SunWater

As noted in Volume 1, SunWater submitted that it will incur \$23.5 million in total non-direct costs in 2012-13 (Table 5.4).

SunWater's approach to the forecasting of non-direct operating expenditures is detailed in Volume 1. In brief, SunWater estimated 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 Chinchilla Weir WSS are in Table 5.4 below.

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

|                 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| SunWater        | 27,831  | 25,097  | 25,872  | 24,579  | 25,152  | 23,770  | 23,512  | 24,244  | 24,055  | 23,708  | 25,089  |
| Chinchilla Weir | 116     | 44      | 40      | 51      | 44      | 39      | 36      | 37      | 48      | 98      | 34      |

Source: SunWater (2011ap)

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

#### Other Stakeholders

No other stakeholders have commented on this matter.

#### Authority's Analysis

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

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

savings of \$495,314 (in 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 made the comparisons unreliable.<sup>3</sup>

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 \$297,189 relates to irrigation service contracts under SunWater's proposed cost allocation methodology). See Volume 1.

In addition, the Authority recommended 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 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). However, the Authority concluded 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 accepted SunWater's proposed DLC methodology with two exceptions recommended by Deloitte:

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

This adjustment ensured 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.

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

#### Proportion of Non-direct to Total Costs

The Authority also notes that in many schemes irrigators considered that the non-direct costs allocated to their schemes appeared to be high, and in some cases much higher than the

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<sup>3</sup> For example, PVWater have 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.

SunWater-wide average ratio of non-direct to total costs. The reason for the wide variation of non-direct to total cost ratios across service contracts is because non-direct costs are allocated on the basis of DLC. It follows that if a service contract has a relatively high proportion of labour costs it will attract a relatively high proportion of non-direct costs.

In addition, the greater the indirect resources absorbed by a particular scheme, the higher will be the ratio of non-direct costs to direct labour costs. Together, these factors result in a relatively high non-direct to total cost ratio for irrigation service contracts.

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

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

|                 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| SunWater        | 116     | 44      | 40      | 51      | 44      | 39      | 36      | 37      | 48      | 98      | 34      |
| Authority Draft | -       | -       | -       | -       | -       | -       | 35      | 36      | 46      | 55      | 36      |
| Authority Final |         |         |         |         |         |         | 35      | 36      | 44      | 51      | 32      |

Source: SunWater 2011ap

## 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.

*Draft Report*

## Stakeholder Submissions

SunWater

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

SunWater's forecast direct operating expenditure by activity is set out in Table 5.6 below. These estimates reflect the SunWater's most recent positions and differ from the NSP.

**Table 5.6: 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                             | 34        | 28        | 28        | 40        | 36        | 29        | 29        | 29        | 30        | 30        | 29        |
| Electricity                            | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         |
| Preventive maintenance                 | 7         | 2         | 1         | 2         | 1         | 4         | 4         | 4         | 4         | 4         | 4         |
| Corrective maintenance                 | 5         | 0         | 6         | 2         | 10        | 3         | 3         | 3         | 3         | 3         | 3         |
| <b>SunWater Direct Operating Costs</b> | <b>46</b> | <b>30</b> | <b>36</b> | <b>44</b> | <b>47</b> | <b>37</b> | <b>37</b> | <b>37</b> | <b>37</b> | <b>37</b> | <b>36</b> |

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

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

**Table 5.7: 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                                 | 28        | 15        | 16        | 21        | 19        | 18        | 18        | 18        | 18        | 18        | 18        |
| Electricity                            | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         |
| Contractors                            | 3         | 2         | 5         | 9         | 7         | 5         | 5         | 5         | 5         | 5         | 5         |
| Materials                              | 1         | 3         | 2         | 1         | 3         | 2         | 2         | 2         | 2         | 2         | 2         |
| Other                                  | 14        | 11        | 13        | 13        | 18        | 12        | 12        | 12        | 12        | 12        | 11        |
| <b>SunWater Direct Operating Costs</b> | <b>46</b> | <b>30</b> | <b>36</b> | <b>44</b> | <b>47</b> | <b>37</b> | <b>37</b> | <b>37</b> | <b>37</b> | <b>37</b> | <b>36</b> |

*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 GHD to review the prudence 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. GHD reported that sampling was not possible due to the level of aggregation in SunWater's SAP-WMS. GHD also reported that, where possible, 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 recommended that SunWater undertake a review of its planning policies, processes and procedures to better achieve its strategic objectives. The Authority also recommended that SunWater needed 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 scheme and the Authority's conclusions and views on cost escalation are outlined below.

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## *Review of Direct Operating Expenditure*

### *Item 1: Operations*

Draft Report

#### Stakeholder Submissions

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

SunWater's operating expenditure forecasts have been developed on the basis of detailed work instructions and operational manuals for each scheme.

SunWater's proposed operations costs are set out in Table 5.6 above. Actual past and estimated future operating cost of the recreational facility is approximately \$2,500 per annum.

Participants at the Round 1 consultation (May 2010) enquired as to whether Western Downs Regional Council maintaining recreational facilities at Chinchilla Weir at a cost to SunWater is an appropriate arrangement.

#### Authority's Analysis

Consultants GHD considered that the required compliance activity for the weir asset accounts for the majority of the cost of this scheme. The business risk assigned to the scheme by SunWater and the compliance requirements will require a frequent inspection and maintenance regime.

GHD further considered that given the expectations for compliance with Australian and Queensland Government regulation and initiatives, the management water allocations, and corrective and preventive maintenance, are considered efficient. GHD stated that SunWater has forecast the required expenditure using the current cost requirements as the basis. Considering the regulatory requirements are unlikely to change, the management and administration costs of this scheme would be consistent with the actual expenditure incurred in the current price period. GHD stated that allowing for anomalies such as floods, the method for calculating the forecast using actual historical cost is considered robust.

GHD advised that efficiency gains for this scheme could be achieved with the implementation of electronic water ordering through Integrated Voice Recognition (IVR) or the SunWater Online solution. SunWater has indicated, when questioned, that customers in this scheme are not willing to pay for these services. Considering the low volumes allocated to this scheme this is considered reasonable.

In the Draft Report, the Authority noted that GHD did not recommend any adjustment to SunWater's proposed operations costs for this scheme.

SunWater, in response, submitted that the costs of implementing electronic water ordering systems are significant as they must be set up and tailored to each water supply scheme. SunWater does not believe the costs, given the small customer base, would be justified. SunWater further submitted that GHD did not provide any supporting data about the cost savings that would arise from implementing these systems to support their findings. However, SunWater noted that GHD did not recommend any adjustment to costs.

The Authority noted that GHD did not recommend any adjustment to costs, although GHD considered that electronic water ordering could result in efficiency gains. SunWater responded that the costs of doing so would not be justified for this scheme.

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

In response to stakeholder concerns regarding recreational costs, the Ministerial Direction requires that irrigation prices recover recreation management costs. The Authority is not aware of any specific costs related to recreational facilities in this scheme that could be considered inefficient.

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

On the basis of the consultants' reviews and SunWater's internal cost reductions over time, for the Draft Report the Authority did not specifically adjust SunWater's operations cost forecast.

Final Report

No submissions on these matters were received in response to the Draft Report and the Authority has not identified any other grounds to alter its approach. No changes are therefore proposed for the Final Report.

#### *Item 2: Preventive and Corrective Maintenance*

Draft Report

#### Stakeholder Submissions

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

Preventive maintenance includes:

- (a) condition monitoring – the inspection, testing or measurement of physical assets to report and record its condition and performance for determination of preventive maintenance requirements; and
- (b) servicing – planned maintenance activities normally expected to be carried out routinely on physical assets.

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

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

SunWater identifies two types of corrective maintenance activities:

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

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

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

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

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

No other stakeholders have commented on these items.

#### Authority's Analysis

Consultants GHD noted that preventive and corrective maintenance is forecast as a 60%/40% ratio. GHD considered that this is consistent with the requirements for weed management, compliance inspections and reactive responses as required.

GHD stated that assessment of the distribution of preventive to corrective maintenance is problematic and would usually be conducted against system losses, unaccounted water and non-revenue water evaluating reductions in these losses against the maintenance expenditure. GHD stated that the complication of natural watercourses used as the transport mechanism, actions by other irrigators, and so on, makes it extremely difficult to make this assessment. However, GHD, applying engineering and operational management judgement, considered this ratio to be reasonable.

Dams and weirs are generally long-lived assets that combined with appropriate periodic maintenance programs can be retained in service indefinitely. The maintenance and inspection program is relatively static from year to year. GHD considered the forecast provided by SunWater reflects a static program of work to maintain the assets in this scheme.

In the Draft Report GHD did not recommend any adjustment to SunWater's proposed preventive and corrective maintenance costs for this scheme.

In Volume 1, the Authority accepted that most of its consultants considered 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 noted that GHD did not recommend any specific adjustment to costs.

Final Report

No submissions on these matters were received in response to the Draft Report and the Authority has not identified any other grounds to alter its approach. No changes are therefore proposed for the Final Report.

### *Item 3: Electricity*

Draft Report

#### Stakeholder Submissions

SunWater advised that there are no electricity costs for this scheme. No other stakeholders have commented on this item.

#### Authority's Analysis

The Authority notes that there are no electricity costs for this scheme.

### *Item 4: Other – Materials and Contractors*

Draft Report

#### Stakeholder Submissions

SunWater submitted that materials and contractor costs are based on the quantities required in the work instructions for the scheme. SunWater advised that the unit cost of materials and contractors are based on current unit costs, with adjustments made where those costs are expected to change in real terms. Materials and contractors costs are direct costs associated with operations, corrective and preventive maintenance activities.

No other stakeholders have commented on these items.

#### Authority's Analysis

GHD considered the contractor and materials costs to be appropriate. This consideration is made with the understanding that SunWater no longer maintains machinery such as backhoes in the region as the use of the equipment did not justify this. SunWater therefore relies on contractors. GHD also considered materials to be appropriate. SunWater has advised the main expense in this cost line is for poisons for weed management.

GHD advised that SunWater currently engages Western Downs Regional Council to open the valve on the weir, constituting approximately half of the forecast contractor expenditure. SunWater advised GHD that the round trip for a SunWater team member to undertake this task would take five hours. On this basis, GHD considered that utilising contract labour, the Western Downs Regional Council in this case, is the most efficient means of managing the asset. This is accounted for in the contractor cost element in the forecast.

GHD did not recommend any specific adjustment to SunWater's proposed materials and contractors costs for this scheme.

The Authority notes that in the Draft Report, GHD did not recommend any specific adjustment to costs.

## Final Report

No submissions on these matters were received in response to the Draft Report and the Authority has not identified any other grounds to alter its approach. No changes are therefore proposed for the Final Report.

### *Item 6: Cost Escalation*

#### Draft Report

As noted in Volume 1, the Authority's consultants 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 recommended 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 recommended that direct materials and contractor costs be escalated at 4% per annum.

#### Other Direct Costs

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

#### Non-direct costs

The Authority accepted SunWater's proposal to escalate all non-direct costs by 2.5% per annum for the 2012-17 regulatory period, and for the interim year 2011-12.

### *Conclusion*

#### Draft Report

A comparison of SunWater's and the Authority's direct operating costs for the Chinchilla Weir WSS is set out in Table 5.8.

In the Draft Report, the Authority's proposed costs include all specific adjustments and the Authority's proposed cost escalations as noted above and as set out below in Table 5.8. As noted in Volume 1, the Authority applied a minimum 2.43% saving to direct operating costs (excluding electricity) in 2012-13. A further 0.75% saving arising from labour productivity was also applied.

#### Final Report

As noted in Volume 1, in the Draft Report the Authority inadvertently understated cost saving percentage estimates. These have been corrected and as a result, the Authority has now applied a minimum 4.5% saving to direct operating costs in 2012-13. A further 0.75% saving arising from labour productivity is also applied annually.

The Authority's final recommended direct costs are shown in Table 5.8 compared to the Draft Report recommendations.

**Table 5.8: Direct Operating Costs (Real \$'000)**

|                               | <i>SunWater</i> |                |                |                |                | <i>Authority</i> |                |                |                |                |
|-------------------------------|-----------------|----------------|----------------|----------------|----------------|------------------|----------------|----------------|----------------|----------------|
|                               | <i>2012-13</i>  | <i>2013-14</i> | <i>2014-15</i> | <i>2015-16</i> | <i>2016-17</i> | <i>2012-13</i>   | <i>2013-14</i> | <i>2014-15</i> | <i>2015-16</i> | <i>2016-17</i> |
| <b>Draft Report</b>           |                 |                |                |                |                |                  |                |                |                |                |
| Operations                    | 29              | 29             | 30             | 30             | 29             | 28               | 28             | 28             | 28             | 28             |
| Electricity                   | 0               | 0              | 0              | 0              | 0              | 0                | 0              | 0              | 0              | 0              |
| Preventive maintenance        | 4               | 4              | 4              | 4              | 4              | 4                | 4              | 4              | 4              | 4              |
| Corrective maintenance        | 3               | 3              | 3              | 3              | 3              | 3                | 3              | 3              | 3              | 3              |
| <b>Direct Operating Costs</b> | <b>37</b>       | <b>36</b>      | <b>37</b>      | <b>37</b>      | <b>36</b>      | <b>35</b>        | <b>36</b>      | <b>36</b>      | <b>36</b>      | <b>36</b>      |
| <b>Final Report</b>           |                 |                |                |                |                |                  |                |                |                |                |
| Operations                    |                 |                |                |                |                | 28               | 28             | 28             | 28             | 28             |
| Electricity                   |                 |                |                |                |                | 0                | 0              | 0              | 0              | 0              |
| Preventive maintenance        |                 |                |                |                |                | 4                | 4              | 4              | 4              | 4              |
| Corrective maintenance        |                 |                |                |                |                | 3                | 3              | 3              | 3              | 3              |
| <b>Direct Operating Costs</b> |                 |                |                |                |                | <b>35</b>        | <b>35</b>      | <b>35</b>      | <b>35</b>      | <b>35</b>      |

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

## 5.5 Cost Allocation According to WAE Priority

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

### *Previous Review*

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

### *Draft Report*

#### Stakeholder Submissions

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

Participants at the Round 1 consultation identified that the Chinchilla township originally provided significant funds to the weir's construction. They considered that although the weir was originally built to support irrigation development and to provide water for the Chinchilla township, the primary use of the Chinchilla Weir is currently not for irrigation but to provide water to the township, and the town is growing. The participants suggested that any allocation of costs should reflect the reliance of Chinchilla on the scheme.

Participants at the Round 1 consultation considered that due to the level of water harvesting, Chinchilla Weir is not required for irrigation, suggesting that it only represents a back-up option. They proposed that cost implications need to be considered including allocation via conversion factors.

#### Authority's Analysis

In Volume 1, the Authority summarised the views of its consultants and recommended that, in relation to bulk schemes:

- (a) variable costs be allocated to medium and high priority WAE on the basis of water use;
- (b) fixed preventive and corrective maintenance costs be allocated to medium and high priority WAE using HUFs; and
- (c) for fixed operations costs, 50% be allocated using HUFs and 50% using current nominal WAEs.

The Authority recommended that within bulk service contracts, insurance premiums are allocated between medium and high priority customers on the basis of HUFs.

The effect for the Chinchilla Weir WSS is detailed in the following chapter (as it takes into account other factors relevant to establishing total costs).

### *Submissions Received from Stakeholders on the Draft Report*

D and I Jackson (2012) submitted that in recommending prices, the Authority has not taken into consideration costs associated with the use of the Chinchilla Weir for storing and distributing water made available by the Chinchilla Beneficial Use Scheme - i.e. coal seam gas water (CSG water). Particularly in those years of limited announced allocation, the Chinchilla Weir will have a role in storing and distributing CSG water. Accordingly, given this role, based on a user-pays philosophy operating costs should be met equally by WAE holders and those who hold contracts to use CSG water.

In response to these stakeholder views, SunWater (2011as) submitted that:

- (a) CSG customers have contractual arrangements with SunWater that are entirely separate from SunWater's obligations associated with providing WAE; and
- (b) that the roster/schedule associated with taking CSG water has been designed to minimise Chinchilla Weir acting as a storage.

SunWater (2011as) has also submitted that the water management and accounting rules outlined in the Condamine and Balonne ROP, require SunWater to ensure CSG water volumes are not stored in the Chinchilla Weir to any material extent. Specifically, the volumes of CSG water transiting through Chinchilla Weir are expected to be about 63ML/day and, in accordance with the conditions of supply contracts SunWater has with customers, this volume is to be taken over specified intervals (often daily).

#### *Authority's Response to Submissions Received on the Draft Report*

The Authority referred the issue to DERM. In response, DERM (2012) confirmed that, in accordance with the Condamine and Balonne ROP, not only are the normal operations of the Chinchilla WSS to be maintained, but there is also a requirement that CSG water is to transit through, as opposed to being stored by, the weir.

Accordingly, the Authority concludes that there is no basis to allocate a cost share to CSG water.

#### *Final Report*

The Authority has reviewed the positions of stakeholders regarding the allocation of operating costs and considers that no compelling case has been put forward to change the approach outlined in the Authority's Draft Report with the exception of insurance costs.

No general submissions on the allocation of insurance costs were received in response to the Draft Report. However, following further consultation with SunWater, the Authority has concluded that an allocation of bulk insurance costs based solely on HUF is not appropriate (as other than asset utilisation factors are also relevant) and has decided to allocate the cost in the same manner as fixed bulk operations costs (50% HUF and 50% WAE).

## **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 draft recommended operating costs are set out in Table 5.10, and final recommended operating costs are provided in Table 5.11.

**Table 5.9: SunWater's Proposed Operating Costs for Activity by Type (Real '000)**

|                        | 2012-13   | 2013-14   | 2014-15   | 2015-16   | 2016-17   |
|------------------------|-----------|-----------|-----------|-----------|-----------|
| Operations             |           |           |           |           |           |
| Labour                 | 11        | 11        | 11        | 11        | 11        |
| Materials              | 2         | 2         | 2         | 2         | 2         |
| Contractors            | 5         | 5         | 5         | 5         | 5         |
| Other                  | 11        | 11        | 12        | 11        | 11        |
| Non-direct             | 23        | 23        | 23        | 22        | 22        |
| Preventive Maintenance |           |           |           |           |           |
| Labour                 | 4         | 4         | 4         | 4         | 4         |
| Materials              | 0         | 0         | 0         | 0         | 0         |
| Contractors            | 0         | 0         | 0         | 0         | 0         |
| Other                  | 0         | 0         | 0         | 0         | 0         |
| Non-direct             | 8         | 8         | 8         | 8         | 8         |
| Corrective Maintenance |           |           |           |           |           |
| Labour                 | 3         | 3         | 3         | 3         | 3         |
| Materials              | 1         | 1         | 1         | 1         | 1         |
| Contractors            | 0         | 0         | 0         | 0         | 0         |
| Other                  | 0         | 0         | 0         | 0         | 0         |
| Non-direct             | 5         | 5         | 5         | 5         | 5         |
| Electricity            | 0         | 0         | 0         | 0         | 0         |
| <b>Total</b>           | <b>72</b> | <b>73</b> | <b>73</b> | <b>72</b> | <b>70</b> |

*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 Draft Recommended Operating Costs (Real '000)**

|                               | 2012-13   | 2013-14   | 2014-15   | 2015-16   | 2016-17   |
|-------------------------------|-----------|-----------|-----------|-----------|-----------|
| <b>Operations</b>             |           |           |           |           |           |
| Labour                        | 11        | 11        | 11        | 11        | 11        |
| Materials                     | 1         | 2         | 2         | 2         | 2         |
| Contractors                   | 5         | 5         | 5         | 5         | 5         |
| Other                         | 11        | 11        | 11        | 11        | 11        |
| Non-direct                    | 22        | 23        | 22        | 21        | 20        |
| <b>Preventive Maintenance</b> |           |           |           |           |           |
| Labour                        | 4         | 4         | 4         | 4         | 4         |
| Materials                     | 0         | 0         | 0         | 0         | 0         |
| Contractors                   | 0         | 0         | 0         | 0         | 0         |
| Other                         | 0         | 0         | 0         | 0         | 0         |
| Non-direct                    | 8         | 8         | 8         | 7         | 7         |
| <b>Corrective Maintenance</b> |           |           |           |           |           |
| Labour                        | 2         | 3         | 3         | 3         | 3         |
| Materials                     | 0         | 1         | 1         | 1         | 1         |
| Contractors                   | 0         | 0         | 0         | 0         | 0         |
| Other                         | 0         | 0         | 0         | 0         | 0         |
| Non-direct                    | 5         | 5         | 5         | 5         | 4         |
| Electricity                   | 0         | 0         | 0         | 0         | 0         |
| <b>Total</b>                  | <b>70</b> | <b>71</b> | <b>70</b> | <b>68</b> | <b>67</b> |

Source: QCA (2011)

**Table 5.11: The Authority's Final Recommended Operating Costs (Real \$'000)**

|                        | 2012-13   | 2013-14   | 2014-15   | 2015-16   | 2016-17   |
|------------------------|-----------|-----------|-----------|-----------|-----------|
| Operations             |           |           |           |           |           |
| Labour                 | 11        | 11        | 11        | 11        | 11        |
| Materials              | 1         | 1         | 1         | 1         | 1         |
| Contractors            | 5         | 5         | 5         | 5         | 5         |
| Other                  | 11        | 11        | 11        | 11        | 11        |
| Non-Direct             | 23        | 23        | 23        | 22        | 20        |
| Preventive Maintenance |           |           |           |           |           |
| Labour                 | 4         | 4         | 4         | 4         | 4         |
| Materials              | 0         | 0         | 0         | 0         | 0         |
| Contractors            | 0         | 0         | 0         | 0         | 0         |
| Other                  | 0         | 0         | 0         | 0         | 0         |
| Non-Direct             | 8         | 8         | 8         | 7         | 7         |
| Corrective Maintenance |           |           |           |           |           |
| Labour                 | 2         | 2         | 2         | 2         | 3         |
| Materials              | 0         | 0         | 0         | 0         | 0         |
| Contractors            | 0         | 0         | 0         | 0         | 0         |
| Other                  | 0         | 0         | 0         | 0         | 0         |
| Non-Direct             | 5         | 5         | 5         | 5         | 4         |
| Electricity            | 0         | 0         | 0         | 0         | 0         |
| <b>Total</b>           | <b>70</b> | <b>71</b> | <b>70</b> | <b>69</b> | <b>67</b> |

Source: QCA (2012).

## 6. RECOMMENDED PRICES

### 6.1 Background

#### *Ministerial Direction*

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

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

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

- (a) prudent and efficient expenditure on renewing and rehabilitating existing assets through a renewals annuity; and
- (b) efficient operational, maintenance and administrative costs to ensure the continuing delivery of water services.

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

The Ministerial Direction also requires that:

- (a) where current prices are above the level required to recover prudent and efficient costs, current prices are to be maintained in real terms;
- (b) where cost-reflective prices are above current prices, the Authority must consider recommending price paths to moderate price impacts on irrigators, whilst having regard to SunWater's commercial interests; and
- (c) for certain schemes or segments of schemes [hardship schemes], prices should increase in real terms at a pace consistent with 2006-11 price paths, until such time as the scheme reaches the level required to recover prudent and efficient costs.

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

#### *Previous Review*

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

For this scheme, prices over 2006-11 increased in real terms to achieve lower bound costs in 2006-07, and were increased by CPI thereafter. In 2011-12, prices in this scheme were increased by CPI.

## 6.2 Approach to Calculating Prices

In order to calculate SunWater's irrigation prices in accordance with the Ministerial Direction, the Authority has:

- (a) identified the total prudent and efficient costs of the scheme;
- (b) identified the fixed and variable components of total costs;
- (c) allocated the fixed and variable costs to each priority group;
- (d) calculated cost-reflective irrigation prices;
- (e) compared the cost-reflective irrigation prices with current irrigation prices; and
- (f) implemented the Government's pricing policies in recommended irrigation prices.

For the Draft Report, the Authority adopted a 20 year price model mainly to promote long term price stability. Under this approach, prices are above costs for the first ten years of the 20 year model and below costs for the last ten years. Over the 20 year period, costs are fully recovered.

Some stakeholders raised concerns about estimated cost reflective prices exceeding lower bound costs over the 2012-17 price period.

In the Final Report, the Authority has adopted a five year pricing model for the purpose of developing prices. The Authority has retained the rolling 20 year renewals annuity planning period and used the relevant five years of the smoothed renewals annuity. For non-renewals costs the five year model now incorporates only five years of such costs, rather than 20 years. Such an approach also has the advantage of removing from prices the inaccuracies associated with longer term forecasts in non-capital costs.

## 6.3 Total Costs

### *Draft Report*

The Authority's estimate of prudent and efficient total costs for the Chinchilla Weir WSS for the 2012-17 regulatory period is outlined in Table 6.1. Total costs since 2006-07 are also provided. Total costs reflect the costs for the service contract (all sectors) and do not include any adjustments for the Queensland Government's pricing policies.

**Table 6.1: Total Costs for the Chinchilla Weir WSS (Real \$'000)**

|                                   | <i>Actual Costs</i> |         |         |         |         |         | <i>Future Costs</i> |         |         |         |         |
|-----------------------------------|---------------------|---------|---------|---------|---------|---------|---------------------|---------|---------|---------|---------|
|                                   | 2006-07             | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13             | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
| <b>SunWater's Submitted Costs</b> | 167                 | 75      | 75      | 87      | 94      | 76      | 77                  | 78      | 78      | 77      | 75      |
| Renewals Annuity                  | 6                   | 6       | 8       | 8       | 7       | 10      | 9                   | 9       | 9       | 9       | 9       |
| Operating Costs                   | 162                 | 73      | 72      | 84      | 91      | 70      | 72                  | 73      | 73      | 72      | 70      |
| Revenue offsets                   | -1                  | -5      | -4      | -5      | -4      | -4      | -4                  | -4      | -4      | -4      | -4      |
| <b>Draft Report</b>               |                     |         |         |         |         |         |                     |         |         |         |         |
| <b>Authority's Total Costs</b>    | -                   | -       | -       | -       | -       | -       | 70                  | 71      | 70      | 68      | 67      |
| Renewals Annuity                  | -                   | -       | -       | -       | -       | -       | 4                   | 4       | 4       | 4       | 4       |
| Operating Costs                   | -                   | -       | -       | -       | -       | -       | 70                  | 71      | 70      | 68      | 67      |
| Revenue offsets                   | -                   | -       | -       | -       | -       | -       | -4                  | -4      | -4      | -4      | -4      |
| Return on Working Capital         | -                   | -       | -       | -       | -       | -       | 0                   | 0       | 0       | 0       | 0       |
| <b>Final Report</b>               |                     |         |         |         |         |         |                     |         |         |         |         |
| <b>Authority's Total Costs</b>    |                     |         |         |         |         |         | 70                  | 71      | 70      | 69      | 66      |
| Renewals Annuity                  |                     |         |         |         |         |         | 4                   | 4       | 4       | 4       | 4       |
| Operating Costs                   |                     |         |         |         |         |         | 70                  | 71      | 70      | 69      | 67      |
| Revenue offsets                   |                     |         |         |         |         |         | -4                  | -4      | -4      | -4      | -4      |
| Return on Working Capital         |                     |         |         |         |         |         | 0                   | 0       | 0       | 0       | 0       |

*Note: Costs are presented for the total service contract (all sectors). Costs reflect SunWater's latest data provided to the Authority in October 2011 and may differ from the NSP. Source: SunWater (2011ap), Draft Costs (QCA, 2011 and Final Costs (QCA, 2012).*

## 6.4 Fixed and Variable Costs

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

### *Draft Report*

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

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

- (a) costs that would be *expected* to vary with water use. Indec expected that electricity pumping costs would generally be variable and non-direct costs would be fixed;
- (b) all other activities and expenditure types (costs) would be expected to be semi-variable, including: labour, material, contractor and other direct costs, maintenance, operations and renewals expenditures;
- (c) costs that *actually* varied with water use in 2006-11, by activity and by type:
  - (i) by activity, Indec found that operations, preventive and corrective maintenance and renewals were semi-variable. Electricity was generally highly variable with water use in five distribution systems and two bulk schemes. In three distribution systems electricity pumping costs were semi-variable due to gravity feed;
  - (ii) by type, Indec found that labour, materials, contractors and other direct costs were semi-variable. Non-direct costs were fixed; and
- (d) costs that *should* vary with water use under Indec's proposed optimal (prudent and efficient) management approach (as outlined in Volume 1). On average across all SunWater's bulk schemes, Indec considered 93% of costs would be fixed and 7% variable. However Indec proposed that scheme-specific tariff structures should be applied to reflect the relevant scheme costs.

For Chinchilla Weir WSS, Indec recommended 90% of costs should be fixed and 10% variable under optimal management. The Authority notes that this ratio differs from the current tariff structure which reflects the recovery of 65% of costs in the fixed charge and 35% of costs in the volumetric charge.

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

### *Submissions Received from Stakeholders on the Draft Report*

L Corbett (2011) submitted that seven of the last 10 years had extended periods with no water available and during these periods it is difficult to pay Part A charges even at \$18.84.

T and Co Smith (2011) submitted that the proposal that part A be increased to be the majority of charges [and part B only a small percentage] does not seem reasonable, taking into consideration that over the past 20 years the majority of the time they have not been able to access the full allocation. This does not seem to be a fair and equitable arrangement.

### *Authority's Response to Submissions Received on the Draft Report*

In response to stakeholders' submissions that having a significant Part A charge in times of low water supply is inequitable, the Authority notes that under current legislative and contractual arrangements (and the Ministerial Direction), customers must bear all the costs of water supply incurred by SunWater irrespective of whether water is made available or not (provided the costs of supply are efficient and prudent).

Not to do so in years of low supply would mean that the fixed costs should be recouped in years of high supply (plus capitalized interest). Only Government and/or SunWater can vary these obligations. That is, where it is considered that there are particular difficulties for some schemes as water is not made available in accordance with the WAEs (particularly over a sustained period), then any case for amending these arrangements needs to be referred to, and considered, by Government.

#### Final Report

The Authority has reviewed the positions of stakeholders and considers that no compelling case has been put forward to change the approach outlined in the Authority's Draft Report.

## 6.5 Allocation of Costs According to WAE Priority

### *Fixed Costs*

The method of allocating fixed costs to priority groups is outlined in Chapter 4 – Renewals Annuity and Chapter 5 – Operating Costs. The outcome is summarised in Table 6.2. These costs are translated into the fixed charge using the relevant WAE for each priority group.

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

|                        | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
|------------------------|---------|---------|---------|---------|---------|
| <b>Draft Report</b>    |         |         |         |         |         |
| <b>Net Fixed Costs</b> | 63      | 64      | 62      | 61      | 60      |
| High Priority          | 43      | 44      | 43      | 42      | 41      |
| Medium Priority        | 20      | 20      | 20      | 19      | 19      |
| <b>Final Report</b>    |         |         |         |         |         |
| <b>Net Fixed Costs</b> | 63      | 64      | 63      | 62      | 60      |
| High Priority          | 44      | 44      | 43      | 42      | 41      |
| Medium Priority        | 20      | 20      | 20      | 20      | 19      |
| Distribution Loss      | 0       | 0       | 0       | 0       | 0       |

*Note: Net fixed costs is net of revenue offsets and return on working capital. Source: SunWater (2011ap), Draft Costs (QCA (2011) and Final Costs(QCA, 2012).*

### *Variable Costs*

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.

## 6.6 Cost-Reflective Prices

Cost-reflective prices reflect the Authority's estimates of prudent and efficient costs, recommended tariff structures, and the allocation of costs to different priority groups. These prices (Table 6.3) have not been adjusted to reflect the Queensland Government's pricing policies (see below).

The cost-reflective prices in the Draft Report are contrasted with its Authority's final cost-reflective prices below.

### *Draft Report*

**Table 6.3: Medium Priority Cost-Reflective Prices for the Chinchilla Weir WSS (\$/ML)**

|                     | <i>Actual Prices</i> |                |                |                |                |                | <i>Cost Reflective Prices</i> |                |                |                |                |
|---------------------|----------------------|----------------|----------------|----------------|----------------|----------------|-------------------------------|----------------|----------------|----------------|----------------|
|                     | <i>2006-07</i>       | <i>2007-08</i> | <i>2008-09</i> | <i>2009-10</i> | <i>2010-11</i> | <i>2011-12</i> | <i>2012-13</i>                | <i>2013-14</i> | <i>2014-15</i> | <i>2015-16</i> | <i>2016-17</i> |
| <b>River</b>        |                      |                |                |                |                |                |                               |                |                |                |                |
| Fixed (Part A)      | 15.84                | 16.32          | 17.12          | 17.64          | 18.16          | 18.84          | 6.90                          | 7.08           | 7.25           | 7.43           | 7.62           |
| Volumetric (Part B) | 13.91                | 14.32          | 15.01          | 15.48          | 15.95          | 16.52          | 2.80                          | 2.87           | 2.94           | 3.02           | 3.09           |

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

### *Final Report*

**Table 6.4: Medium Priority Cost-Reflective Prices for the Chinchilla Weir WSS (\$/ML)**

|                     | <i>Actual Prices</i> |                |                |                |                |                | <i>Cost Reflective Prices</i> |                |                |                |                |
|---------------------|----------------------|----------------|----------------|----------------|----------------|----------------|-------------------------------|----------------|----------------|----------------|----------------|
|                     | <i>2006-07</i>       | <i>2007-08</i> | <i>2008-09</i> | <i>2009-10</i> | <i>2010-11</i> | <i>2011-12</i> | <i>2012-13</i>                | <i>2013-14</i> | <i>2014-15</i> | <i>2015-16</i> | <i>2016-17</i> |
| <b>River</b>        |                      |                |                |                |                |                |                               |                |                |                |                |
| Fixed (Part A)      | 15.84                | 16.32          | 17.12          | 17.64          | 18.16          | 18.84          | 7.12                          | 7.30           | 7.49           | 7.67           | 7.86           |
| Volumetric (Part B) | 13.91                | 14.32          | 15.01          | 15.48          | 15.95          | 16.52          | 2.91                          | 2.98           | 3.06           | 3.13           | 3.21           |

Source: Actual Prices (SunWater, 2011a) and Final Cost Reflective Prices (QCA, 2012).

## 6.7 Queensland Government Pricing Policies

As noted above, the Queensland Government has directed that:

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

#### *Draft Report*

As noted in the Draft Report, 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 6.4).

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

**Table 6.5: Comparison of Current Revenues and Cost-Reflective Revenues (\$2012-13)**

| <i>Tariff and Priority Group</i> | <i>2010-11 Prices (indexed to 2012-13)</i> |                 | <i>Irrigation WAE (ML)</i> | <i>Water Use (ML)</i> | <i>Current Revenue</i> | <i>Revenue from Cost-Reflective Tariffs</i> | <i>Difference</i> |
|----------------------------------|--------------------------------------------|-----------------|----------------------------|-----------------------|------------------------|---------------------------------------------|-------------------|
|                                  | <i>Fixed</i>                               | <i>Variable</i> |                            |                       |                        |                                             |                   |
| <b>Draft Report</b>              |                                            |                 |                            |                       |                        |                                             |                   |
| River                            | \$19.08                                    | \$16.76         | 2,871                      | 1,467                 | \$79,357               | \$23,926                                    | \$55,430          |
| <b>Final Report</b>              |                                            |                 |                            |                       |                        |                                             |                   |
| River                            | \$19.08                                    | \$16.76         | 2,871                      | 1,320                 | \$76,894               | \$24,294                                    | \$52,600          |

*Source: SunWater (2011a), SunWater (2011a), QCA (2011) and QCA (2012).*

## **6.8 The Authority's Recommended Prices**

The Authority's draft and final recommended prices to apply to the Chinchilla Weir WSS for 2012-17 are outlined in Table 6.6, together with actual prices since 2006-07. In calculating the recommended prices, a 10-year average irrigation water use has been adopted (see Volume 1).

**Table 6.6: Medium Priority Recommended Prices for the Chinchilla Weir WSS (\$/ML)**

|                     | <i>Actual Prices</i> |                |                |                |                |                | <i>Recommended Prices</i> |                |                |                |                |
|---------------------|----------------------|----------------|----------------|----------------|----------------|----------------|---------------------------|----------------|----------------|----------------|----------------|
|                     | <i>2006-07</i>       | <i>2007-08</i> | <i>2008-09</i> | <i>2009-10</i> | <i>2010-11</i> | <i>2011-12</i> | <i>2012-13</i>            | <i>2013-14</i> | <i>2014-15</i> | <i>2015-16</i> | <i>2016-17</i> |
| <b>Draft Report</b> |                      |                |                |                |                |                |                           |                |                |                |                |
| <b>River</b>        |                      |                |                |                |                |                |                           |                |                |                |                |
| Fixed (Part A)      | 15.84                | 16.32          | 17.12          | 17.64          | 18.16          | 18.84          | 26.28                     | 26.94          | 27.61          | 28.30          | 29.01          |
| Volumetric (Part B) | 13.91                | 14.32          | 15.01          | 15.48          | 15.95          | 16.52          | 2.80                      | 2.87           | 2.94           | 3.02           | 3.09           |
| <b>Final Report</b> |                      |                |                |                |                |                |                           |                |                |                |                |
| <b>River</b>        |                      |                |                |                |                |                |                           |                |                |                |                |
| Fixed (Part A)      | 15.84                | 16.32          | 17.12          | 17.64          | 18.16          | 18.84          | 25.37                     | 26.01          | 26.66          | 27.32          | 28.01          |
| Volumetric (Part B) | 13.91                | 14.32          | 15.01          | 15.48          | 15.95          | 16.52          | 2.91                      | 2.98           | 3.06           | 3.13           | 3.21           |

Source: *Actual Prices (SunWater, 2011am), Draft Recommended Prices (QCA, 2011) and Final Recommended Prices (QCA, 2012).*

## 6.9 Impact of Recommended Prices

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



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**APPENDIX A: FUTURE RENEWALS LIST**

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

| <i>Asset</i>    | <i>Year</i> | <i>Description</i>                                                                   | <i>Value<br/>(\$'000)</i> |
|-----------------|-------------|--------------------------------------------------------------------------------------|---------------------------|
| Chinchilla Weir | 2011-12     | Replace 300 Gate Valve D/S                                                           | 18                        |
|                 | 2014-15     | 09CHW01-REPLACE: HW Gauge w/ Level Senso                                             | 28                        |
|                 | 2015-16     | REPLACE: Purchase Butterfly Valve (Replaces existing Gate Valve)                     | 123                       |
|                 |             | 14CHWXX DECOMISSION RH CONDUIT & VALVES                                              | 41                        |
|                 | 2027-28     | Refurbish: Chinchilla Weir - refurbish/ Painting of external pipework for LH conduit | 18                        |