

Final Report

Seqwater Water Supply Schemes Asset Restoration Reserve Balances



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EXECUTIVE SUMMARY

Background

Seqwater engaged Indec Consulting (Indec) to determine closing Asset Restoration Reserve (ARR) Balances as at 30 June 2013 as an input into the 2014-17 Irrigation Price setting process.

This involved a two stage process, with the initial objective determining ARR Balances on a service line basis for inclusion in the Draft Network Service Plans (NSPs) by the end of April 2012. Due to data limitations and time constraints, draft balances were produced on an irrigation only basis and then converted to total scheme (all customer sectors) balances. ARR Balances on a total scheme basis, without any conversion process, were subsequently calculated. The revised total scheme balances adopted a first principles approach based on full scheme data, which does not require any conversion processes from irrigation only to total scheme balances.

This report summarises the key issues, methodology and outcomes from the two sets of ARR Balances produced by Indec.

Asset Restoration Reserve Balances

The renewals annuity approach to fund the renewals and rehabilitation expenditure on existing assets requires ongoing accounting of renewals related expenditure and income. This balance, called the ARR, can be either positive or negative, and is incorporated into the calculation of the renewals annuity for determining revenues and tariffs. Interest is applied to the balance, at the same rate used to determine the original renewals annuity.

The opening ARR balance for the 2014-17 irrigation price path is based on the opening ARR balance for the current price path (1 July 2006), less renewals expenditure, plus renewals income and adjusted for interest over the 2006-13 period.

To establish opening ARR Balances for the 2014-17 irrigation price path, Indec was required to unbundle the ARR Balances for two water supply schemes to distinguish between bulk supply and distribution services to enable unbundled tariffs to be determined.

Draft ARR Balances

For the purposes of the Draft NSPs, Indec has calculated the opening ARR Balances as at 2012/13 as outlined in Figure E.1. Section 2 of this Report provides further detail.

Water Supply Scheme	Tariff Group	Irrigation Only ARR Balance 2013	Total Scheme ARR Balance 2013	Uplift Factor
Central Lockyer Supply	River/Groundwater	456,701	457,940	1.0027
Mortonvale Distribution	Mortonvale Distribution	351,462	351,462	1.0000
<i>Total Central Lockyer Wss</i>		<i>808,163</i>	<i>809,402</i>	
Lower Lockyer Supply	River	(434,195)	(434,877)	1.0016
Logan River Supply	River	(368,260)	(932,884)	2.5332
Cedar Pocket	Cedar Pocket	14,269	14,269	1.0000
Mary Valley Supply	River	(2,263,888)	(5,639,636)	2.4911
Upper Mary Distribution	Pie Creek	325,512	325,512	1.0000
<i>Total Mary Valley Wss</i>		<i>(1,938,376)</i>	<i>(5,314,124)</i>	
Warril Valley Supply	River	(266,444)	(563,602)	2.1153
TOTAL		(2,184,843)	(6,421,817)	

Figure E.1 Draft ARR Balances 2012/13 (nominal \$)

Figure E.1 presents the forecast ARR Balances as at 30 June 2013 and shows the ARR Balances both on an irrigation only basis as well as a total scheme basis, which represents the ARR balance applicable to all customer sectors.

For the purposes of the Draft NSPs, the methodology adopted to convert the irrigation only balances to a total scheme basis has involved adopting the approach applied by SunWater¹. This approach involves applying an uplift factor, detailed in Figure m.1 above, which is determined by the irrigation sector's share of medium priority equivalent water allocation entitlements. The uplift factors are calculated using the conversion factors applied in the 2007-11 irrigation price path.

Key Issues with Draft ARR Balances

Indec produced Draft ARR Balances to meet the deadlines associated with the production of Draft NSPs. Indec identified an alternative option of calculating total scheme balances from first principles which is dependent upon data availability from SunWater's and Seqwater's accounting systems. At the time of finalising the Draft NSPs, the data required to complete this calculation was not available.

Revised ARR Balances

The methodology for calculating the Revised ARR Balances involved applying a total scheme concept from first principles and accounting for renewals expenditure and revenues for all customer sectors. This is a fundamental change in methodology to that applied in the calculation of the Draft ARR Balances. Section 3 of this Report outlines the methodology in more detail.

¹ SunWater, Renewals Annuity Background Paper, January 2010, p9

The total scheme approach involved the following changes to the methodology applied to the calculation of the Draft ARR Balances:

- ▶ including all renewals expenditure on existing assets without any customer sector based apportionment of renewals expenditure to the ARR balance. The rationale for this is the ARR balance relates to all customer sectors or the total scheme;
- ▶ revenues relating to all customer sectors are the basis of the ARR calculation rather than customer specific revenues as applied under the Draft ARR Balances; and
- ▶ the portion of revenues included in the ARR balance is the percentage of the total scheme renewals annuity to the total scheme revenue target set for the respective irrigation price path.

These changes have been applied from the commencement of the ARR Balances in 2001 to effectively establish total scheme balances from inception. This required some additional data from both SunWater and Seqwater.

As with the Draft ARR Balances, the Revised ARR Balances on a total scheme basis have been calculated on an unbundled or service line basis to enable Seqwater to calculate unbundled tariffs for bulk supply and distribution services.

The Revised ARR Balances include the latest available information to forecast balances to 30 June 2013 including any revisions to forecast data applicable to the ARR Balance calculation since the preparation of the Draft ARR Balances. It should be noted that a direct comparison between Draft ARR Balances and Revised ARR Balances is problematic due to a combination of data updates and the change in methodology.

Interest on Revised ARR Balances

Interest has been applied to closing balances for the 2007-13 period using the equivalent rate as applied by SunWater to calculate the 2007-11 price path annuities² (9.689% pre-tax nominal). No interest has been applied to balances between 2001-06 based on advice from SunWater that the 2001-05 irrigation price path made offsetting adjustments on the account that no interest would apply to ARR Balances in that price path.

Queensland Competition Authority Adjustments

The Queensland Competition Authority (QCA) advised that two adjustments be made to the ARR Balances, one adjustment related to 2008/09 expenditure and the other impacting on renewal related revenue across all years. Section 3.3 of this Report provides further details.

The net impact of the changes requested by the QCA total \$306,535 across all schemes and Figure E.2 provides details on a scheme and tariff group basis for the 2013 ARR Balances.

² SunWater, Renewals Annuity Background Paper, January 2010, p5

Water Supply Scheme	Tariff Group	2013
Central Lockyer Supply	River/Groundwater	(67,603)
Mortonvale Distribution	Mortonvale Distribution	(3,630)
<i>Total Central Lockyer Wss</i>		<i>(71,233)</i>
Lower Lockyer Supply	River	(105,396)
Logan River Supply	River	581,321
Cedar Pocket	Cedar Pocket	(5,838)
Mary Valley Supply	River	(80,180)
Upper Mary Distribution	Pie Creek	(59,422)
<i>Total Mary Valley Wss</i>		<i>(139,602)</i>
Warril Valley Supply	River	47,283
TOTAL		306,535

Figure E.2 Net Impact on ARR Balances arising from QCA Adjustments

Revised ARR Balances

Figure E.3 and Figure E.4 outline the Revised ARR Balances based on the total scheme concept from a first principles basis for the period 2000/01 to 2012/13, including any interest which applied over the 2006/07 to 2012/13 period only.

Water Supply Scheme	Tariff Group	2001	2002	2003	2004	2005	2006
Central Lockyer Supply	River/Groundwater	40,893	(19,503)	79,208	(5,784)	(67,566)	(100,955)
Mortonvale Distribution	Mortonvale Distribution	64,348	88,155	88,231	151,861	186,158	238,170
<i>Total Central Lockyer Wss</i>		<i>105,241</i>	<i>68,652</i>	<i>167,439</i>	<i>146,077</i>	<i>118,593</i>	<i>137,215</i>
Lower Lockyer Supply	River	93,275	16,409	(48,054)	(107,959)	(186,092)	(148,605)
Logan River Supply	River	28,572	61,568	(146,592)	(290,703)	(383,745)	(358,552)
Cedar Pocket	Cedar Pocket	2,988	(64,067)	(53,345)	(52,825)	(88,919)	(75,428)
Mary Valley Supply	River	(69,760)	(381,933)	(673,621)	(1,496,423)	(1,766,764)	(2,041,467)
Upper Mary Distribution	Pie Creek	25,175	10,561	31,314	42,583	33,626	50,502
<i>Total Mary Valley Wss</i>		<i>(44,585)</i>	<i>(371,371)</i>	<i>(642,307)</i>	<i>(1,453,840)</i>	<i>(1,733,138)</i>	<i>(1,990,965)</i>
Warril Valley Supply	River	37,073	(96,421)	(156,101)	(167,641)	(317,256)	(298,133)
TOTAL		222,565	(385,230)	(878,959)	(1,926,891)	(2,590,556)	(2,734,469)

Figure E.3 Revised ARR Balances - 2000/01 to 2005/06 (nominal \$)

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	2012	2013
Central Lockyer Supply	River/Groundwater	(71,433)	(70,172)	2,296	32,247	33,900	67,100	(345,554)
Mortonvale Distribution	Mortonvale Distribution	322,424	386,144	487,410	596,426	703,156	839,407	984,581
<i>Total Central Lockyer Wss</i>		<i>250,991</i>	<i>315,972</i>	<i>489,706</i>	<i>628,673</i>	<i>737,056</i>	<i>906,506</i>	<i>639,026</i>
Lower Lockyer Supply	River	(216,483)	(236,285)	(146,530)	(214,745)	(239,128)	(243,614)	(533,707)
Logan River Supply	River	(369,275)	(393,785)	(393,063)	(464,204)	(591,045)	(624,106)	(707,153)
Cedar Pocket	Cedar Pocket	(60,972)	(37,409)	(19,318)	(3,405)	18,005	(8,551)	15,579
Mary Valley Supply	River	(2,201,613)	(2,305,819)	(2,424,082)	(2,644,047)	(3,078,205)	(3,433,769)	(3,844,424)
Upper Mary Distribution	Pie Creek	101,864	161,399	246,389	320,935	363,736	276,039	129,261
<i>Total Mary Valley Wss</i>		<i>(2,099,749)</i>	<i>(2,144,420)</i>	<i>(2,177,693)</i>	<i>(2,323,112)</i>	<i>(2,714,469)</i>	<i>(3,157,729)</i>	<i>(3,715,164)</i>
Warril Valley Supply	River	(292,468)	(301,484)	(325,648)	(332,380)	(409,354)	(440,689)	(575,422)
TOTAL		(2,787,957)	(2,797,411)	(2,572,546)	(2,709,174)	(3,198,935)	(3,568,182)	(4,876,841)

Figure E.4 Revised ARR Balances - 2006/07 to 2012/13 (nominal \$)

Comparison of Actual Expenditure against Forecast Expenditure

Seqwater requested that Indec undertake a high level comparison of actual renewals expenditure against forecast renewals expenditure over the five year period between 2007 and 2011.

Indec has sourced the forecast renewals expenditure from SunWater's data inputs to the SunWater Irrigation Pricing Model which established the 2007-11 Irrigation Price Paths. Indec has adjusted these forecasts to apply:

- ▶ efficiency savings established by Indec as part of the 2007-11 Irrigation Price Paths; and
- ▶ annual indexation to the forecasts expressed in 2005/06 dollars to enable comparison with actual expenditure. Indec has applied annual indexation of 4% based on the approach applied by the QCA in its analysis of SunWater's irrigation pricing³.

Figure E.5 below shows the annual and cumulative variance between forecast and actual renewals expenditure on a direct cost basis (excluding overheads and indirect costs) over the five year period ending 2011. The comparison reveals at the aggregate level that total renewals expenditure over the 5 year period was \$1,567,660 below forecasts with results at the scheme level including both expenditure below and above forecast levels.

This analysis excludes 2008/09 expenditure totalling \$738,734 based on QCA advice (see Section 3.3 of this Report).

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	TOTAL
Central Lockyer Supply	River/Groundwater	(165,995)	(165,174)	(137,351)	(175,868)	(168,044)	(812,433)
Mortonvale Distribution	Mortonvale Distribution	(10,602)	5,337	(11,184)	(10,522)	(9,936)	(36,907)
<i>Total Central Lockyer Wss</i>		<i>(176,597)</i>	<i>(159,837)</i>	<i>(148,536)</i>	<i>(186,389)</i>	<i>(177,980)</i>	<i>(849,340)</i>
Lower Lockyer Supply	River	35,486	3,415	(73,558)	(22,189)	(53,965)	(110,811)
Logan River Supply	River	12,885	(21,922)	(78,291)	41,712	9,483	(36,134)
Cedar Pocket	Cedar Pocket	(63,613)	(5,193)	0	4,710	(60,517)	(124,612)
Mary Valley Supply	River	(54,540)	(63,187)	(117,437)	(63,178)	188,431	(109,910)
Upper Mary Distribution	Pie Creek	(17,207)	(89,423)	(24,060)	5,068	46,070	(79,552)
<i>Total Mary Valley Wss</i>		<i>(71,747)</i>	<i>(152,610)</i>	<i>(141,497)</i>	<i>(58,110)</i>	<i>234,501</i>	<i>(189,463)</i>
Warril Valley Supply	River	(26,776)	(52,786)	(50,538)	(75,726)	(51,473)	(257,300)
TOTAL		(290,363)	(388,934)	(492,420)	(295,992)	(99,951)	(1,567,660)

Figure E.5 Variance between Forecast and Actual Renewals Expenditure on a Direct Cost Basis - 2006/07 to 2010/11 (nominal \$)

³ Queensland Competition Authority, SunWater Irrigation Price Review, Final Report (Volume 1), May 2012, p116

Conclusions

Indec has relied upon the data and representations made by both SunWater and Seqwater to calculate the Revised ARR Balances.

The restatement of the ARR Balances from irrigation to total scheme for the 2001-05 period has been based on the data and assumptions made to establish the opening ARR Balances for the 2007-11 irrigation price path. This approach was adopted so that the change in ARR Balances as at 2004/05 is solely related to the change in methodology and not influenced by a change in data or any major assumptions underpinning that data. This approach preserves as far as possible the 2004/05 ARR Balances which were the basis of the 2007-11 irrigation price path.

The changes made to calculate the total scheme ARR Balances involved the following steps:

- ▶ capturing the full amount of renewals expenditure rather than the irrigation share only;
- ▶ including urban and industrial renewals revenue and applying the total scheme share of renewals revenues to the ARR Balance rather than the irrigation share only; and
- ▶ completing a revenue transfer from distribution to bulk water supply to calculate unbundled ARR Balances.

1. INTRODUCTION

1.1. Background

Seqwater engaged Indec Consulting (Indec) to determine closing Asset Restoration Reserve (ARR) balances as at 30 June 2013 as an input into the 2014-17 Irrigation Price setting process.

The initial objective involved determining ARR Balances for inclusion in the Draft Network Service Plans (NSPs) to be produced by the end of April 2012. Due to data limitations and time constraints, draft balances were produced on an irrigation only basis and then converted to total scheme (all customer sectors) balances.

Indec was subsequently engaged to produce ARR Balances on a total scheme basis adopting a first principles approach based on all customer sector data which does not involve any conversion processes from irrigation only to total scheme balances.

This report summarises the key issues, methodology and outcomes arising from the two sets of ARR Balances produced by Indec.

1.2. Seqwater Irrigation Water Supply Schemes

Seqwater is responsible for the following irrigation water supply schemes:

- ▶ Central Lockyer;
- ▶ Cedar Pocket;
- ▶ Lower Lockyer;
- ▶ Logan River;
- ▶ Mary Valley; and
- ▶ Warrill Valley.

These schemes were transferred to Seqwater from SunWater on 1 July 2008. These water supply schemes are included in the scope of the ARR balance calculations.

Seqwater is also responsible for the Central Brisbane River Water Supply Scheme which is not within the scope of determining ARR Balances as this scheme is not currently subject to an irrigation price path.

1.3. Asset Restoration Reserve Balances

The renewals annuity approach to fund the renewals and rehabilitation expenditure on existing assets requires ongoing accounting of renewals related expenditure and income. This balance, called the ARR, can be either positive or negative, and is incorporated into the calculation of the renewals annuity for revenue and pricing purposes. Interest is applied to the balance, at the same rate used to determine the original renewals annuity.

An ARR has been maintained by SunWater on an irrigation only basis for each irrigation scheme transferred to Seqwater.

1.4. Key Objectives

The key objectives of establishing ARR Balances include calculating:

- ▶ ARR Balances for the relevant water supply schemes out to 2012/13;
- ▶ unbundled ARR Balances on a service line basis for the two water supply schemes with distribution services; and
- ▶ total scheme ARR Balances on a first principles basis from 2001 to avoid the need to apply an uplift factor to irrigation only ARR Balances.

2. DRAFT ASSET RESTORATION RESERVE BALANCES

2.1. Methodology

In order to calculate the respective ARR Balances for the Draft NSPs, Indec adopted the following methodology:

- ▶ obtained relevant data for the water supply schemes from SunWater dating back to 2001 when the existing annuity balances were established;
- ▶ established a closing balance at 30 June 2008 based on the renewals expenditure and income over the period the schemes were owned and managed by SunWater. Indec sought advice and guidance from SunWater to establish these balances;
- ▶ calculated a closing balance at 30 June 2011 based on actual renewals expenditure and income since the schemes were transferred to Seqwater;
- ▶ forecast a closing balance at 30 June 2013 based on Seqwater's budgeted renewals expenditure and irrigation income for the 2011/12 year and Seqwater's estimated renewals income and expenditure for 2012/13; and
- ▶ established unbundled balances for the two water supply schemes (Mary Valley and Central Lockyer) which include distribution networks to enable unbundled or separate irrigation tariffs to be calculated for bulk supply and distribution services.

The availability of data necessitated that Indec calculate the ARR Balances on an irrigation only basis prior to being converted to total scheme balances for tariff calculation purposes. This approach was adopted to match the availability of data at the time of preparing the Draft NSPs.

Indec identified an alternative methodology to calculate total scheme balances from first principles which was dependent upon data availability from SunWater's and Seqwater's accounting systems. The required data to apply this alternative methodology was unavailable at the time of preparing the Draft NSPs. The alternative methodology was applied to calculate Revised ARR Balances and is further outlined in Section 3.

2.2. Data Sources

Appendix A lists the data sources made available to Indec to calculate the Draft ARR Balances. The following data sources and assumptions were the basis of the Draft ARR Balances:

2.2.1. Renewals Expenditure

- ▶ actual renewals expenditure from SunWater from 2000/01 to 2007/08 for each scheme.
- ▶ actual renewals expenditure from Seqwater for the 2008/09 to 2010/11 period, following the transfer of the assets to Seqwater in the 2008/09 year.

- ▶ renewals expenditure for 2011/12 and 2012/13 is based on the greater of Seqwater's 2011/12 budget or 2011/12 January year to date results and 2012/13 forecast data.
- ▶ as Seqwater's accounting system does not distinguish between renewals and non-renewals expenditure, Indec was required to identify renewals expenditure from both capital and operating expenditure. This step was completed with the assistance of the Seqwater asset management engineers and respective scheme operators to identify renewals and rehabilitation expenditure on existing assets with a frequency of greater than 12 months.
- ▶ renewals expenditure for the period 2008/09 to 2012/13 undertaken by Seqwater includes an allocation of overheads and indirect costs based on the SunWater average allocation rate for the period 2006/07 to 2007/08 of 28.6%.
- ▶ Figure 2.1 shows the percentages applied to allocate renewals expenditure to the irrigation sector for the calculation of the ARR Balances. These allocation rates are based on the percentages used for the 2007-11 irrigation price path. The 2011/12 and 2012/13 years have been based on the percentages applicable to the 2010/11 year due to the extension of the price path.

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	2012	2013
Central Lockyer Supply	River/Groundwater	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%	99.7%
Mortonvale Distribution	Mortonvale Distribution	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Lower Lockyer Supply	River	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%
Logan River Supply	River	39.5%	39.5%	39.5%	39.5%	39.5%	39.5%	39.5%
Cedar Pocket	Cedar Pocket	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Mary Valley Supply	River	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%	40.1%
Upper Mary Distribution	Pie Creek	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Warril Valley Supply	River	47.3%	47.3%	47.3%	47.3%	47.3%	47.3%	47.3%

Figure 2.1 Irrigation Share of Renewals Expenditure applied to Draft ARR

2.2.2. Renewals Revenue

- ▶ actual irrigation tariff revenue including Community Service Obligations (CSOs) from SunWater for the period 2000/01 to 2007/08 inclusive.
- ▶ actual irrigation tariff revenue including CSOs from 2008/09 until 2010/11 sourced from Seqwater's accounting system. A budget forecast and estimate is used for 2011/12 and 2012/13 respectively.
- ▶ the tariff unbundling process introduces the need to transfer revenue from distribution to bulk supply to effectively transfer the portion of revenue collected from distribution customers which relates to the bulk water. This step was completed as is further discussed in Section 2.5.3.

- ▶ Figure 2.2 shows the percentages of irrigation revenue (including CSOs) allocated to the ARR balance on an irrigation only basis. This allocation rate reflects the percentage of the irrigation sector renewals annuity to the irrigation sector revenue target set for the 2007-11 irrigation price path. The 2011/12 and 2012/13 years have been based on the percentages applicable for the 2010/11 year due to the extension of the irrigation price path.

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	2012	2013
Central Lockyer Supply	River/Groundwater	18.2%	19.1%	15.1%	17.8%	18.1%	18.1%	18.1%
Mortonvale Distribution	Mortonvale Distribution	21.7%	21.5%	16.7%	19.3%	19.9%	19.9%	19.9%
Lower Lockyer Supply	River	14.8%	14.6%	11.6%	14.1%	14.1%	14.1%	14.1%
Logan River Supply	River	9.4%	9.3%	9.3%	9.2%	9.3%	9.3%	9.3%
Cedar Pocket	Cedar Pocket	34.0%	49.6%	49.5%	50.2%	49.2%	49.2%	49.2%
Mary Valley Supply	River	20.1%	18.3%	18.5%	17.8%	17.2%	17.2%	17.2%
Upper Mary Distribution	Pie Creek	34.9%	34.6%	34.8%	35.3%	34.7%	34.7%	34.7%
Warril Valley Supply	River	9.3%	9.2%	9.3%	9.3%	9.2%	9.2%	9.2%

Figure 2.2 Share of Irrigation Revenues applied to Draft ARR

2.2.3. Interest on ARR Balances

Interest has been applied to closing balances for the period 2007-13 at the equivalent rate used to calculate the 2007-11 price path annuities (7.76% nominal). No interest has been applied to balances between 2001 and 2006 based on advice from SunWater that the 2001-05 irrigation price path made offsetting adjustments on the account that no interest would apply to ARR Balances in that price path.

2.3. Key Results

Figure 2.3 and Figure 2.4 below set out the inflows and outflows respectively to the irrigation sector ARR Balances for each scheme on an unbundled basis or for each tariff group. Figure 2.5 shows the net annual change in the respective irrigation ARR Balances.

Figure 2.3 below details the irrigation renewals expenditure applicable to the ARR Balances which are considered as an outflow in the determination of ARR Balances.

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	2012	2013
Central Lockyer Supply	River/Groundwater	31,708	57,664	78,940	53,267	85,667	25,260	141,529
Mortonvale Distribution	Mortonvale Distribution	0	21,463	3,579	1,430	2,788	0	0
<i>Total Central Lockyer Wss</i>		<i>31,708</i>	<i>79,126</i>	<i>82,519</i>	<i>54,697</i>	<i>88,455</i>	<i>25,260</i>	<i>141,529</i>
Lower Lockyer Supply	River	141,285	89,849	106,325	175,168	321,585	96,975	23,466
Logan River Supply	River	22,124	30,374	22,240	30,042	47,838	8,926	4,139
Cedar Pocket	Cedar Pocket	0	462	5,757	6,059	0	50,934	0
Mary Valley Supply	River	49,139	12,749	135,150	37,732	112,927	67,574	39,724
Upper Mary Distribution	Pie Creek	22,107	10,177	58,593	21,484	59,263	195,217	43,474
<i>Total Mary Valley Wss</i>		<i>71,246</i>	<i>22,926</i>	<i>193,743</i>	<i>59,216</i>	<i>172,190</i>	<i>262,791</i>	<i>83,198</i>
Warril Valley Supply	River	26,985	36,592	59,942	12,650	42,302	20,650	6,694
TOTAL		293,348	259,329	470,526	337,832	672,371	465,535	259,026

Figure 2.3 Irrigation Renewals Expenditure applied to Draft ARR (nominal \$)

Figure 2.4 below details the irrigation revenues applicable to the ARR Balances which are treated as an inflow in the determination of ARR Balances.

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	2012	2013
Central Lockyer Supply	River/Groundwater	72,691	67,355	87,184	85,452	87,063	86,475	88,543
Mortonvale Distribution	Mortonvale Distribution	63,484	56,116	65,774	65,356	53,505	64,337	71,335
<i>Total Central Lockyer Wss</i>		<i>136,176</i>	<i>123,471</i>	<i>152,958</i>	<i>150,808</i>	<i>140,569</i>	<i>150,812</i>	<i>159,878</i>
Lower Lockyer Supply	River	105,359	108,262	112,324	123,711	117,959	122,593	135,096
Logan River Supply	River	21,221	27,486	27,769	30,648	26,599	31,192	33,045
Cedar Pocket	Cedar Pocket	21,763	29,933	21,737	23,943	21,727	23,533	24,944
Mary Valley Supply	River	66,032	50,547	60,414	64,533	58,813	64,152	68,317
Upper Mary Distribution	Pie Creek	68,633	59,935	69,296	72,483	71,723	75,563	75,810
<i>Total Mary Valley Wss</i>		<i>134,664</i>	<i>110,482</i>	<i>129,710</i>	<i>137,016</i>	<i>130,537</i>	<i>139,715</i>	<i>144,127</i>
Warril Valley Supply	River	33,420	36,510	40,394	44,461	38,656	44,433	49,394
TOTAL		452,602	436,143	484,892	510,588	476,047	512,278	546,483

Figure 2.4 Irrigation Revenues applied to Draft ARR (nominal \$)

Figure 2.5 shows the net annual change in Irrigation ARR Balances, which is simply the differences between applicable revenue inflows and applicable renewals expenditure outflows for that year.

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	2012	2013
Central Lockyer Supply	River/Groundwater	40,983	9,691	8,244	32,184	1,396	61,215	(52,986)
Mortonvale Distribution	Mortonvale Distribution	63,484	34,653	62,195	63,927	50,717	64,337	71,335
<i>Total Central Lockyer Wss</i>		<i>104,468</i>	<i>44,344</i>	<i>70,439</i>	<i>96,111</i>	<i>52,113</i>	<i>125,553</i>	<i>18,349</i>
Lower Lockyer Supply	River	(35,926)	18,412	5,999	(51,457)	(203,626)	25,619	111,629
Logan River Supply	River	(904)	(2,888)	5,529	606	(21,239)	22,265	28,906
Cedar Pocket	Cedar Pocket	21,763	29,471	15,980	17,884	21,727	(27,401)	24,944
Mary Valley Supply	River	16,893	37,798	(74,737)	26,801	(54,114)	(3,422)	28,592
Upper Mary Distribution	Pie Creek	46,526	49,758	10,704	50,999	12,461	(119,653)	32,336
<i>Total Mary Valley Wss</i>		<i>63,418</i>	<i>87,556</i>	<i>(64,033)</i>	<i>77,800</i>	<i>(41,653)</i>	<i>(123,075)</i>	<i>60,929</i>
Warril Valley Supply	River	6,435	(82)	(19,548)	31,811	(3,646)	23,783	42,700
TOTAL		159,254	176,814	14,365	172,756	(196,324)	46,743	287,457

Figure 2.5 Net Annual Changes in Draft Irrigation ARR Balances (nominal \$)

The roll forward ARR Balances, which includes prior year balances, adjusts accordingly to reflect the net annual change in ARR Balances.

2.4. Draft ARR Balances

For the purposes of the Draft NSPs, Indec has calculated the opening ARR Balances as at 2012/13 as outlined in Figure 2.6.

Water Supply Scheme	Tariff Group	Irrigation Only ARR Balance	Total Scheme ARR Balance	Uplift Factor
		2013	2013	
Central Lockyer Supply	River/Groundwater	456,701	457,940	1.0027
Mortonvale Distribution	Mortonvale Distribution	351,462	351,462	1.0000
<i>Total Central Lockyer Wss</i>		<i>808,163</i>	<i>809,402</i>	
Lower Lockyer Supply	River	(434,195)	(434,877)	1.0016
Logan River Supply	River	(368,260)	(932,884)	2.5332
Cedar Pocket	Cedar Pocket	14,269	14,269	1.0000
Mary Valley Supply	River	(2,263,888)	(5,639,636)	2.4911
Upper Mary Distribution	Pie Creek	325,512	325,512	1.0000
<i>Total Mary Valley Wss</i>		<i>(1,938,376)</i>	<i>(5,314,124)</i>	
Warril Valley Supply	River	(266,444)	(563,602)	2.1153
TOTAL		(2,184,843)	(6,421,817)	

Figure 2.6 Draft ARR Balances 2012/13 (nominal \$)

Figure 2.6 presents the forecast ARR Balances as at 30 June 2013 based on the approach detailed above. Figure 2.6 shows the ARR Balances both on an irrigation only basis as well as a total scheme basis, which represents the ARR balance applicable to all customer sectors.

For the purposes of the Draft NSPs, the methodology adopted to convert the irrigation only balances to a total scheme basis has involved adopting the approach applied by SunWater⁴. This approach involves applying an uplift factor, detailed in Figure 2.6 above, which is determined by the irrigation sector's share of medium priority equivalent water allocation entitlements, as calculated using the conversion factors applied in the 2007-11 irrigation price path.

For bulk water schemes, this is equivalent to the value used to allocate renewals expenditure to the irrigation ARR. For distribution systems, no uplift factor was applied on the basis that these systems exclusively supply the irrigation sector, and given that the proposed Headwork's Utilisation Factor (HUF) relates to the allocation of capital costs in bulk water schemes.

SunWater has acknowledged that this is imprecise given some irrigators hold high priority water allocation entitlements, and some non-irrigation customers hold medium priority water allocation entitlements.

⁴ SunWater Renewals Annuity Background Paper, January 2010, p9

2.5. Key Issues with Draft NSP ARR Balances

Indec produced Draft ARR Balances to meet the deadlines associated with the production of Draft NSPs and identified that a number of issues exist, in particular:

2.5.1. Total Scheme Balances

Indec identified the alternative option of calculating total scheme balances from first principles which is dependent upon data availability from SunWater's and Seqwater's accounting systems.

At the time of finalising the Draft NSPs, the data required to complete this analysis was being sought and discussions had commenced with SunWater to identify the data gaps and the availability of the required data.

2.5.2. Unbundling of ARR Balances

Indec has completed further analysis of the unbundling process applied to calculate the ARR Balances proposed in the Draft NSPs. The approach adopted involved ARR Balances from their inception in 2001 to be restated on an unbundled basis for each service type. This process involved reviewing data applicable to the 2001 to 2006 years and the assumptions applied in establishing the 2001-05 irrigation price path. Section 3 of this Report details the results of this analysis.

2.5.3. Revenue Transfers

The unbundling process introduces the need to transfer revenue from distribution to bulk supply to effectively transfer the portion of revenue collected from distribution customers which relates to bulk water services. SunWater first commenced the revenue transfer in 2007/08 on a cost basis which excludes any revenues above lower bound costs associated with the bulk supply charge. Indec has not included the revenue transfers made by SunWater and has applied the following approach for the purposes of ARR balance calculations for the Draft NSPs:

- ▶ the revenue transferred from distribution to bulk supply is on a revenue basis including CSOs;
- ▶ for the period 2006/07 to 2010/11, the revenue transfer has been based on actual revenues, whereas for the period 2011/12 and 2012/13 a combination of year to date actual (up until March 2012) and forecasts have been applied; and
- ▶ due to the unavailability of the required data for the 2000/01 to 2005/06 period, the revenue transfer between distribution and bulk supply has been based on the percentage averages over the 2006/07 to 2012/13 period.

For the revenue transfer calculation to be made, revenues, (including CSOs), water allocation entitlements, tariffs and water usage data are required for each service.

3. REVISED ASSET RESTORATION RESERVE BALANCES

3.1. Total Scheme Approach

The methodology for calculating the Revised ARR Balances involved applying a total scheme concept from first principles and accounting for renewals expenditure and revenues for all customer sectors.

This is a fundamental change in methodology to that applied in the calculation of the Draft ARR Balances for the Draft NSPs, which established total scheme ARR Balances after uplifting the irrigation only ARR Balances.

The total scheme approach involved the following changes to the methodology applied to the calculation of the Draft ARR Balances:

- ▶ including all renewals expenditure on existing assets and no apportionment of renewals expenditure to the ARR balance was required as the ARR balance relates to all customer sectors or the total scheme rather than for a particular customer sector;
- ▶ revenues relating to all customer sectors are the basis of the ARR calculation rather than customer specific revenues as applied under the Draft ARR Balances; and
- ▶ the portion of revenues included in the ARR balance is based on the ratio or percentage of the total scheme renewals annuity of the total scheme revenue target set for the respective irrigation price path.

These changes have been applied from the commencement of the ARR Balances in 2001 to effectively establish total scheme balances from inception. This required some additional data from both SunWater and Seqwater.

As with the Draft ARR Balances, the Revised ARR Balances on a total scheme basis have been calculated on an unbundled or service line basis to enable Seqwater to calculate unbundled tariffs for bulk supply and distribution services.

The Revised ARR Balances include the latest available information supplied by Seqwater to forecast balances to 30 June 2013 including any revisions to forecast data applicable to the ARR Balance calculation since the preparation of the Draft ARR Balances. It should be noted that a direct comparison between Draft ARR Balances and Revised ARR Balances is problematic due to a combination of data updates and the change in methodology.

3.2. Methodology

To calculate the respective Revised ARR Balances on a total scheme basis, Indec adopted the following methodology:

- ▶ calculated a closing ARR balance on a total scheme basis as at 30 June 2006 for each scheme from the SunWater data set which calculated the irrigation only ARR Balances. Indec sought advice and guidance from SunWater to establish these balances;

- ▶ calculated a closing balance at 30 June 2011 on a total scheme approach based on actual renewals expenditure and income since the schemes were transferred to Seqwater;
- ▶ forecast a closing total scheme balance at 30 June 2013 based on Seqwater's budgeted renewals expenditure and income for the 2011/12 year and Seqwater's estimated renewals income and expenditure for 2012/13; and
- ▶ established unbundled or tariff group ARR balances for the two water supply schemes (Mary Valley and Central Lockyer) which include distribution networks to enable unbundled or separate irrigation tariffs to be calculated for bulk supply and distribution services.

3.3. QCA Adjustments

The QCA advised that two adjustments are required to be made to the ARR Balances, one adjustment related to 2008/09 expenditure and the other impacting on renewals related revenue across all years.

3.3.1. Renewals Expenditure 2008/09

Seqwater has withdrawn the 2008/09 operating expenditure from the renewals balance following QCA advice that the costs will be disallowed due to inadequate substantiation. This was a result of serious system constraints in the previous financial system which was replaced on 1 July 2009. Figure 3.1 shows that withdrawn renewals expenditure totalled \$738,734 with all schemes impacted.

Water Supply Scheme	Tariff Group	2009
Central Lockyer Supply	River/Groundwater	73,801
Mortonvale Distribution	Mortonvale Distribution	3,630
<i>Total Central Lockyer Wss</i>		<i>77,431</i>
Lower Lockyer Supply	River	108,000
Logan River Supply	River	57,136
Cedar Pocket	Cedar Pocket	5,838
Mary Valley Supply	River	341,443
Upper Mary Distribution	Pie Creek	59,422
<i>Total Mary Valley Wss</i>		<i>400,865</i>
Warril Valley Supply	River	89,465
TOTAL		738,734

Figure 3.1 2008/09 Renewals Expenditure withdrawn from ARR Balances

3.3.2. Renewals Revenue

The QCA advised that any above lower bound revenues relating to urban and industrial customers are to be excluded from the ARR Balances as these revenues do not fund renewals expenditure. This amount totalled \$1,045,269 across the impacted schemes over the period of the ARR Balances. Figure 3.2 details the schemes and tariff groups impacted by this adjustment and the total amount of the impact:

Water Supply Scheme	Tariff Group	TOTAL
Central Lockyer Supply	River/Groundwater	6,198
Lower Lockyer Supply	River	2,604
Logan River Supply	River	638,457
Mary Valley Supply	River	261,263
Warril Valley Supply	River	136,748
TOTAL		1,045,269

Figure 3.2 Above Lower Bound Urban and Industrial Revenue excluded from ARR Balances

The net impact of the changes requested by the QCA are shown in Figure 3.3 for 2013 ARR Balances.

Water Supply Scheme	Tariff Group	2013
Central Lockyer Supply	River/Groundwater	(67,603)
Mortonvale Distribution	Mortonvale Distribution	(3,630)
<i>Total Central Lockyer Wss</i>		<i>(71,233)</i>
Lower Lockyer Supply	River	(105,396)
Logan River Supply	River	581,321
Cedar Pocket	Cedar Pocket	(5,838)
Mary Valley Supply	River	(80,180)
Upper Mary Distribution	Pie Creek	(59,422)
<i>Total Mary Valley Wss</i>		<i>(139,602)</i>
Warril Valley Supply	River	47,283
TOTAL		306,535

Figure 3.3 Net Impact on ARR Balances arising from QCA Adjustments

3.4. Data Sources

The data made available to Indec to calculate the Revised ARR Balances are listed in Appendix B. The following data sources and assumptions were the basis of the Revised ARR Balances:

3.4.1. Renewals Expenditure

- ▶ actual renewals expenditure on a tariff group basis from SunWater from 2000/01 to 2007/08 for each scheme.
- ▶ actual renewals expenditure on a tariff group basis from Seqwater for the 2008/09 to 2010/11 period, following the transfer of the assets to Seqwater in the 2008/09 year.

- ▶ renewals expenditure on a tariff group basis for 2011/12 and 2012/13 based on the greater of Seqwater's 2011/12 budget or 2011/12 January year to date results and 2012/13 forecast data.
- ▶ as Seqwater's accounting system does not distinguish between renewals and non-renewals expenditure, Indec was required to identify renewals expenditure from both capital and operating expenditure. This step was completed with the assistance of the Seqwater asset management engineers and respective scheme operators to identify renewals and rehabilitation expenditure on existing assets with a frequency of greater than 12 months.
- ▶ renewals expenditure for the period 2008/09 to 2012/13 undertaken by Seqwater includes an allocation of overheads and indirect costs based on the SunWater average allocation rate for the period 2006/07 to 2007/08 of 30.5%.
- ▶ the 2012/13 renewals expenditure forecasts have been adjusted to account for the QCA determined efficiency factors of 28% for capital expenditure related renewals and 3% for renewals expenditure which is classified as an operating cost in the accounting system.

3.4.2. Renewals Revenue

- ▶ actual tariff revenues, including CSOs, for all customer sectors from SunWater for the period 2000/01 to 2007/08 inclusive. As some of the revenue data was aggregated at the scheme level, the following issues emerged.
 - ▶ 2000/01 revenues for the Mary Valley Water Supply Scheme did not include details relating to which revenues were collected from the upper and lower sections.
 - ▶ Cedar Pocket revenues were not separately recorded until 2006/07.
 - ▶ 2000/01 revenues for the Central Lockyer Water Supply Scheme did not include tariff group details to observe revenues for each of the river/groundwater and Mortonvale tariff groups.
 - ▶ CSO revenues for the Mortonvale tariff group in the Central Lockyer Water Supply Scheme were not separately recorded prior to 2006/07.
- ▶ the data issues described above required a further step to unbundle the aggregated revenues to the tariff group level. This step and the assumptions made are outlined in more detail in Section 3.4.3.

- ▶ actual tariff revenues including CSOs from 2008/09 until 2010/11 sourced from Seqwater's accounting system. A budget forecast and estimate is used for 2011/12 and 2012/13 respectively.

3.4.3. Revenue Unbundling

- ▶ The following revenue unbundling step was undertaken to unbundle the revenues to the tariff group level in the Mary Valley, Cedar Pocket and Central Lockyer Water Supply Schemes:
 - ▶ 2000/01 customer revenues for the Mary River Water Supply Scheme were allocated to the upper and lower sections based on the actual revenue ratios over the 2001/02 to 2004/05 period. The actual revenue ratio between the Upper Mary and Lower Mary sections was 53% and 47% respectively over the 2001/02 to 2004/05 period. A time horizon consistent with the price path period was selected to maintain currency and relevance with the associated price path and to smooth out any revenue volatility associated with high and low water use; and
 - ▶ 2000/01 irrigation CSO revenues in the Mary River Water Supply Scheme were allocated to the upper and lower sections based on the actual 2001/02 irrigation CSO revenue ratio. The actual 2001/02 irrigation CSO revenue ratio between the Upper Mary and Lower Mary sections was 52% and 48% respectively. Using the 2001/02 ratio was considered to be more appropriate than the average ratio over the 2001/02 to 2004/05 period as irrigation CSO revenues tend to decline over time as customer revenues rise with annual tariff increases and subsequently recover a greater share of lower bound costs. The 2001/02 irrigation CSO ratio is therefore more likely to replicate the 2000/01 ratio than the average ratio over the 2001/02 to 2004/05 period.
 - ▶ revenues in the upper section of the Mary River Water Supply Scheme, now called the Mary Valley Water Supply Scheme, were recorded to the River and Pie Creek tariff groups, with no revenues separately identified to Cedar Pocket before 2006/07. This required the following steps to unbundle Mary Valley revenues to Cedar Pocket:
 - ▶ detailed analysis of the actual revenue data suggested that Cedar Pocket revenues were recorded to the Pie Creek tariff group;

- ▶ the first year that actual revenue ratios were available between Pie Creek and Cedar Pocket was 2006/07, a year beyond the associated 2001-06 price path period. Although the revenue data and associated assumptions underpinning tariff calculations in the 2007-11 price path may not be current and relevant to the 2001-06 price path, it was considered the most appropriate basis of revenue allocation due to the significant level of irrigation CSO revenues in Cedar Pocket. As mentioned earlier, irrigation CSO revenues tend to decline over time as customer revenues rise with annual tariff increases and subsequently recover a greater share of lower bound costs. The 2006/07 revenue ratios between Pie Creek and Cedar Pocket of 77% and 23% respectively determined the amount of revenues transferred from Pie Creek to Cedar Pocket over the 2000/01 to 2005/06 period; and
- ▶ for the purposes of revenue type classification (customer and irrigation CSO) for Cedar Pocket, a simplifying assumption was made that the level of irrigation customer revenues over the 2000/01 to 2005/06 period were equivalent to the actual revenues of 2006/07 totalling \$6,964. This does create a potential issue as relevancy and currency between the two separate price paths may not be consistent. Once the assumed level of irrigation customer revenues were determined, the residual of the amount being transferred on an annual basis was considered to be irrigation CSO revenues. This enabled a more plausible profiling of irrigation CSO revenues over the 2000/01 to 2005/06 period for Cedar Pocket. Applying these simplifying assumptions resulted in irrigation CSO revenues declining over time which matches the expected trend with customer revenues rising after annual tariff increases and subsequently recovering a greater share of lower bound costs.
- ▶ 2000/01 customer revenues for the Central Lockyer Water Supply Scheme were allocated to the tariff group level, river/groundwater and Mortonvale, based on the actual revenue ratio over the 2001/02 to 2004/05 period. The actual revenue ratio between the river/groundwater and Mortonvale tariff groups was 53% and 47% respectively over the 2001/02 to 2004/05 period. A time horizon consistent with the price path period was selected to maintain currency and relevance with the associated price path and to smooth out any revenue volatility associated with high and low water use.

- ▶ irrigation CSO revenues in the Central Lockyer Water Supply Scheme were allocated to the tariff groups over the 2000/01 to 2005/06 period based on the actual 2006/07 irrigation CSO revenue ratio. The actual 2006/07 irrigation CSO revenue ratio between the river/groundwater and Mortonvale tariff groups was 58% and 42% respectively. Using the 2006/07 ratio was considered to be more appropriate than a ratio that considered a period beyond 2006/07 due to currency and relevance with the 2001-6 price path and as irrigation CSO revenues tend to decline over time as customer revenues rise with annual tariff increases and subsequently recover a greater share of lower bound costs. The 2006/07 irrigation CSO ratio is therefore more likely to replicate the 2000/01 ratio than a ratio including a period beyond 2006/07 period.
- ▶ the tariff unbundling process introduces the need to transfer revenue from distribution to bulk supply to effectively transfer the portion of revenue collected from distribution customers which relates to the bulk water supply. This step was completed as is further discussed in Section 3.4.5.

3.4.4. Share of Revenue Applied to ARR Balances

- ▶ Figure 3.4 shows the percentages of tariff revenues, including CSO, allocated to the Revised ARR balance for the 2001 to 2006 period. The percentages on an all customer sector basis were not available in the data provided by SunWater and required Indec to effectively calculate the percentages. The percentages essentially represent the portion of the lower bound costs derived from the renewals annuity, on an all customer sector basis. The percentages for the 2005/06 year are based on the 2004/05 year due to a one year extension to the irrigation price path.
- ▶ Figure 3.5 shows the percentages of the tariff revenues, including CSO, allocated to the Revised ARR balance for the 2006/07 to 2012/13 period. This allocation rate reflects the percentage of all customer sector renewals annuity to the total customer sector revenue target set for the 2007-11 irrigation price path. The 2011/12 and 2012/13 years have been based on the percentages applicable for the 2010/11 year due to a two year price path extension.

Water Supply Scheme	Tariff Group	2001	2002	2003	2004	2005	2006
Central Lockyer Supply	River/Groundwater	27.1%	27.9%	28.5%	29.2%	30.4%	30.4%
Mortonvale Distribution	Mortonvale Distribution	27.1%	27.9%	28.5%	29.2%	30.4%	30.4%
Lower Lockyer Supply	River	18.1%	18.8%	18.2%	17.8%	17.5%	17.5%
Logan River Supply	River	8.4%	8.6%	8.3%	8.2%	8.1%	8.1%
Cedar Pocket	Cedar Pocket	15.2%	21.1%	21.8%	22.5%	22.6%	22.6%
Mary Valley Supply	River	15.2%	21.1%	21.8%	22.5%	22.6%	22.6%
Upper Mary Distribution	Pie Creek	15.2%	21.1%	21.8%	22.5%	22.6%	22.6%
Warril Valley Supply	River	11.6%	11.8%	11.4%	11.0%	10.8%	10.8%

Figure 3.4 Share of Revenues applied to Revised ARR – 2000/01 to 2005/06

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	2012	2013
Central Lockyer Supply	River/Groundwater	17.8%	18.7%	14.8%	17.4%	17.7%	17.7%	17.7%
Mortonvale Distribution	Mortonvale Distribution	20.9%	20.7%	16.2%	18.7%	19.3%	19.3%	19.3%
Lower Lockyer Supply	River	14.8%	14.6%	11.6%	14.1%	14.1%	14.1%	14.1%
Logan River Supply	River	12.1%	11.3%	11.1%	11.5%	12.2%	12.2%	12.2%
Cedar Pocket	Cedar Pocket	34.0%	49.6%	49.5%	50.2%	49.2%	49.2%	49.2%
Mary Valley Supply	River	21.9%	17.9%	18.0%	17.4%	17.2%	17.2%	17.2%
Upper Mary Distribution	Pie Creek	34.9%	34.6%	34.8%	35.3%	34.7%	34.7%	34.7%
Warril Valley Supply	River	10.2%	10.0%	9.8%	10.6%	10.7%	10.7%	10.7%

Figure 3.5 Share of Revenues applied to Revised ARR - 2006/07 to 2012/13

3.4.5. Revenue Transfers

The unbundling of the ARR Balances for tariff setting purposes introduces the need to transfer revenue from distribution to bulk supply to effectively transfer the portion of revenue collected from distribution customers which relates to the bulk water supply.

The methodology of revenue transfer between the Draft ARR Balances and Revised ARR Balances has not changed.

Indec has developed a simplified methodology to unbundle the tariff structures to determine the bulk supply revenues captured as distribution revenues.

The methodology calculates a revenue transfer from distribution to bulk supply to capture the portion of bulk supply revenues recorded as distribution revenues, including any Community Service Obligation (CSOs) payments from Government.

The methodology to separate bulk supply revenues within distribution revenues involved the following steps:

- ▶ determining the Part A bulk supply revenues accounted for within the distribution revenues;
- ▶ determining the Part B bulk supply revenues accounted for within the distribution revenues;
- and
- ▶ determining any bulk supply CSO revenues accounted for within the distribution revenues.

The separation of bulk supply revenues from within distribution revenues required the following information:

- ▶ annual tariffs for those schemes with bundled tariff arrangements;
- ▶ community Service Obligation Payments (CSOs) for the relevant bulk supply tariff groups; and
- ▶ water allocation and water usage data for the distribution tariff groups.

As part of the 2007-11 Irrigation Price Paths, the CSOs were established at the tariff group level. For the purposes of the revenue transfer calculation, only those CSO revenues relating to bulk supply are subject to transfer from distribution to bulk supply.

A working example is included in Appendix C to further demonstrate the methodology and its application in the ARR Balance calculations.

For the period 2007 to 2011, the revenue transfer has been calculated based on actual revenues, tariff and water use data, whereas for the period 2011/12 and 2012/13 a combination of year to date actuals (up until March 2012) and forecasts have been applied.

Due to the unavailability of all the data required for the 2001 to 2006 period, the revenue transfer between distribution and bulk supply has been based on assumed percentage averages over the 2006/07 to 2012/13 period. For the revenue transfer calculation to be made, revenues, (including CSOs), water allocation entitlements, tariffs and water usage data are required for each tariff group.

Figure 3.6 shows the amounts of the revenue transfer for the respective schemes for the period 2000/01 to 2005/06 and Figure 3.7 shows the amounts for the 2006/07 to 2012/13 period.

Water Supply Scheme	Tariff Group	2001	2002	2003	2004	2005	2006
Central Lockyer Supply	River/Groundwater	54,503	51,494	38,800	39,057	22,488	31,774
Mortonvale Distribution	Mortonvale Distribution	(54,503)	(51,494)	(38,800)	(39,057)	(22,488)	(31,774)
<i>Total Central Lockyer Wss</i>		0	0	0	0	0	0
Lower Lockyer Supply	River	0	0	0	0	0	0
Logan River Supply	River	0	0	0	0	0	0
Cedar Pocket	Cedar Pocket	0	0	0	0	0	0
Mary Valley Supply	River	16,967	12,385	11,201	12,728	11,053	13,625
Upper Mary Distribution	Pie Creek	(16,967)	(12,385)	(11,201)	(12,728)	(11,053)	(13,625)
<i>Total Mary Valley Wss</i>		0	0	0	0	0	0
Warril Valley Supply	River	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0

Figure 3.6 Revenue Transfer - 2000/01 to 2005/06 (nominal \$)

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	2012	2013
Central Lockyer Supply	River/Groundwater	24,267	34,445	56,604	70,691	67,452	72,529	74,342
Mortonvale Distribution	Mortonvale Distribution	(24,267)	(34,445)	(56,604)	(70,691)	(67,452)	(72,529)	(74,342)
<i>Total Central Lockyer Wss</i>		0	0	0	0	0	0	0
Lower Lockyer Supply	River	0	0	0	0	0	0	0
Logan River Supply	River	0	0	0	0	0	0	0
Cedar Pocket	Cedar Pocket	0	0	0	0	0	0	0
Mary Valley Supply	River	13,978	12,397	13,569	15,559	14,426	17,981	17,958
Upper Mary Distribution	Pie Creek	(13,978)	(12,397)	(13,569)	(15,559)	(14,426)	(17,981)	(17,958)
<i>Total Mary Valley Wss</i>		0	0	0	0	0	0	0
Warril Valley Supply	River	0	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0	0

Figure 3.7 Revenue Transfer - 2006/07 to 2012/13 (nominal \$)

3.4.6. Interest on ARR Balances

Interest has been applied to closing balances for the 2007-13 period using the equivalent rate as applied by SunWater to calculate the 2007-11 price path annuities⁵ (9.689% pre-tax nominal). No interest has been applied to balances between 2001-06 based on advice from SunWater that the 2001-05 irrigation price path made offsetting adjustments on the account that no interest would apply to ARR Balances in that price path.

Figure 3.8 shows the interest applied to the Revised ARR Balances over the 2006/07 to 2012/13 period.

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	2012	2013
Central Lockyer Supply	River/Groundwater	(9,782)	(6,921)	(6,799)	222	3,124	3,285	6,501
Mortonvale Distribution	Mortonvale Distribution	23,076	31,240	37,413	47,225	57,788	68,129	81,330
<i>Total Central Lockyer Wss</i>		13,295	24,319	30,615	47,448	60,912	71,413	87,831
Lower Lockyer Supply	River	(14,398)	(20,975)	(22,894)	(14,197)	(20,807)	(23,169)	(23,604)
Logan River Supply	River	(34,740)	(35,779)	(38,154)	(38,084)	(44,977)	(57,266)	(60,470)
Cedar Pocket	Cedar Pocket	(7,308)	(5,908)	(3,625)	(1,872)	(330)	1,745	(828)
Mary Valley Supply	River	(197,798)	(213,314)	(223,411)	(234,869)	(256,182)	(298,247)	(332,698)
Upper Mary Distribution	Pie Creek	4,893	9,870	15,638	23,873	31,095	35,242	26,745
<i>Total Mary Valley Wss</i>		(192,905)	(203,445)	(207,773)	(210,997)	(225,086)	(263,005)	(305,952)
Warril Valley Supply	River	(28,886)	(28,337)	(29,211)	(31,552)	(32,204)	(39,662)	(42,698)
TOTAL		(264,943)	(270,125)	(271,041)	(249,254)	(262,492)	(309,945)	(345,721)

Figure 3.8 Interest on Revised ARR Balances (nominal \$)

3.5. Key Results

Figure 3.9 and Figure 3.10 below detail the renewals expenditure applicable to the Revised ARR Balances which are considered as an outflow in the determination of ARR Balances.

⁵ SunWater Renewals Annuity Background Paper, January 2010, p5

Water Supply Scheme	Tariff Group	2001	2002	2003	2004	2005	2006
Central Lockyer Supply	River/Groundwater	104,790	204,054	22,019	183,818	132,586	113,536
Mortonvale Distribution	Mortonvale Distribution	21,882	60,005	64,461	2,783	5,508	4,231
<i>Total Central Lockyer Wss</i>		<i>126,672</i>	<i>264,059</i>	<i>86,480</i>	<i>186,601</i>	<i>138,094</i>	<i>117,767</i>
Lower Lockyer Supply	River	33,080	196,013	179,401	178,857	153,255	53,848
Logan River Supply	River	20,069	17,505	256,506	185,670	131,497	16,217
Cedar Pocket	Cedar Pocket	8,314	78,515	0	12,013	47,038	0
Mary Valley Supply	River	143,888	402,308	375,559	907,632	339,634	355,756
Upper Mary Distribution	Pie Creek	9,408	49,679	12,056	27,082	42,447	24,407
<i>Total Mary Valley Wss</i>		<i>153,296</i>	<i>451,988</i>	<i>387,615</i>	<i>934,714</i>	<i>382,081</i>	<i>380,164</i>
Warril Valley Supply	River	77,044	242,433	163,512	109,387	208,719	35,002
TOTAL		418,474	1,250,512	1,073,515	1,607,242	1,060,684	602,998

Figure 3.9 Renewals Expenditure applied to Revised ARR - 2000/01 to 2005/06 (nominal \$)

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	2012	2013
Central Lockyer Supply	River/Groundwater	31,794	57,820	6,473	54,168	87,115	51,286	502,394
Mortonvale Distribution	Mortonvale Distribution	0	21,463	0	1,450	2,828	1,060	9,393
<i>Total Central Lockyer Wss</i>		<i>31,794</i>	<i>79,283</i>	<i>6,473</i>	<i>55,618</i>	<i>89,943</i>	<i>52,347</i>	<i>511,787</i>
Lower Lockyer Supply	River	158,491	106,724	0	177,927	121,491	103,858	401,512
Logan River Supply	River	56,045	76,943	0	77,181	122,900	22,933	72,308
Cedar Pocket	Cedar Pocket	0	462	0	6,145	0	51,847	0
Mary Valley Supply	River	122,411	31,759	0	95,326	285,299	170,718	196,538
Upper Mary Distribution	Pie Creek	22,107	10,177	0	21,788	60,102	197,980	249,225
<i>Total Mary Valley Wss</i>		<i>144,518</i>	<i>41,936</i>	<i>0</i>	<i>117,114</i>	<i>345,400</i>	<i>368,698</i>	<i>445,762</i>
Warril Valley Supply	River	57,081	77,402	39,124	27,137	90,747	44,298	150,315
TOTAL		447,929	382,750	45,598	461,122	770,481	643,981	1,581,685

Figure 3.10 Renewals Expenditure applied to Revised ARR - 2006/07 to 2012/13 (nominal \$)

Figure 3.11 and Figure 3.12 below detail the revenues applicable to the Revised ARR Balances which are treated as an inflow in the determination of ARR Balances.

Water Supply Scheme	Tariff Group	2001	2002	2003	2004	2005	2006
Central Lockyer Supply	River/Groundwater	145,683	143,658	120,729	98,826	70,804	80,146
Mortonvale Distribution	Mortonvale Distribution	86,230	83,811	64,538	66,413	39,805	56,243
<i>Total Central Lockyer Wss</i>		<i>231,913</i>	<i>227,470</i>	<i>185,267</i>	<i>165,239</i>	<i>110,609</i>	<i>136,389</i>
Lower Lockyer Supply	River	126,354	119,147	114,939	118,952	75,122	91,335
Logan River Supply	River	48,642	50,501	48,346	41,559	38,455	41,410
Cedar Pocket	Cedar Pocket	11,302	11,459	10,722	12,533	10,945	13,491
Mary Valley Supply	River	74,128	90,136	83,871	84,830	69,293	81,054
Upper Mary Distribution	Pie Creek	34,583	35,065	32,809	38,351	33,490	41,283
<i>Total Mary Valley Wss</i>		<i>108,711</i>	<i>125,201</i>	<i>116,679</i>	<i>123,181</i>	<i>102,783</i>	<i>122,336</i>
Warril Valley Supply	River	114,117	108,938	103,833	97,847	59,105	54,124
TOTAL		641,039	642,717	579,786	559,311	397,019	459,085

Figure 3.11 Revenues applied to Revised ARR - 2000/01 to 2005/06 (nominal \$)

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	2012	2013
Central Lockyer Supply	River/Groundwater	71,097	66,003	85,741	83,896	85,644	81,202	83,239
Mortonvale Distribution	Mortonvale Distribution	61,178	53,942	63,852	63,241	51,770	69,183	73,236
<i>Total Central Lockyer Wss</i>		<i>132,275</i>	<i>119,945</i>	<i>149,593</i>	<i>147,137</i>	<i>137,413</i>	<i>150,385</i>	<i>156,476</i>
Lower Lockyer Supply	River	105,011	107,897	112,649	123,909	117,914	122,541	135,022
Logan River Supply	River	80,062	88,212	38,876	44,124	41,036	47,138	49,730
Cedar Pocket	Cedar Pocket	21,764	29,933	21,715	23,930	21,740	23,547	24,959
Mary Valley Supply	River	160,063	140,867	105,148	110,230	107,323	113,401	118,580
Upper Mary Distribution	Pie Creek	68,576	59,842	69,352	72,461	71,807	75,041	75,700
<i>Total Mary Valley Wss</i>		<i>228,639</i>	<i>200,710</i>	<i>174,500</i>	<i>182,692</i>	<i>179,130</i>	<i>188,443</i>	<i>194,281</i>
Warril Valley Supply	River	91,632	96,724	44,171	51,957	45,978	52,625	58,280
TOTAL		659,383	643,421	541,504	573,748	543,211	584,679	618,748

Figure 3.12 Revenues applied to Revised ARR - 2006/07 to 2012/13 (nominal \$)

Figure 3.13 and Figure 3.14 shows the net annual change in Revised ARR Balances before interest, which is the differences between applicable revenue inflows and applicable renewals expenditure outflows for that year.

The roll forward ARR Balances, which includes prior year balances, adjusts accordingly to reflect the net annual change in ARR Balances.

Water Supply Scheme	Tariff Group	2001	2002	2003	2004	2005	2006
Central Lockyer Supply	River/Groundwater	40,893	(60,396)	98,711	(84,992)	(61,782)	(33,390)
Mortonvale Distribution	Mortonvale Distribution	64,348	23,807	76	63,630	34,297	52,012
<i>Total Central Lockyer Wss</i>		<i>105,241</i>	<i>(36,589)</i>	<i>98,787</i>	<i>(21,362)</i>	<i>(27,485)</i>	<i>18,622</i>
Lower Lockyer Supply	River	93,275	(76,866)	(64,463)	(59,905)	(78,133)	37,487
Logan River Supply	River	28,572	32,996	(208,160)	(144,111)	(93,042)	25,193
Cedar Pocket	Cedar Pocket	2,988	(67,055)	10,722	520	(36,094)	13,491
Mary Valley Supply	River	(69,760)	(312,172)	(291,688)	(822,802)	(270,341)	(274,703)
Upper Mary Distribution	Pie Creek	25,175	(14,614)	20,752	11,270	(8,957)	16,875
<i>Total Mary Valley Wss</i>		<i>(44,585)</i>	<i>(326,786)</i>	<i>(270,936)</i>	<i>(811,533)</i>	<i>(279,298)</i>	<i>(257,827)</i>
Warril Valley Supply	River	37,073	(133,494)	(59,679)	(11,541)	(149,614)	19,122
TOTAL		222,565	(607,795)	(493,729)	(1,047,931)	(663,665)	(143,913)

Figure 3.13 Net Annual Change in Revised ARR Balances - 2000/01 to 2005/06 (nominal \$)

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	2012	2013
Central Lockyer Supply	River/Groundwater	39,304	8,183	79,267	29,729	(1,472)	29,915	(419,155)
Mortonvale Distribution	Mortonvale Distribution	61,178	32,480	63,852	61,791	48,942	68,123	63,844
<i>Total Central Lockyer Wss</i>		<i>100,482</i>	<i>40,662</i>	<i>143,119</i>	<i>91,519</i>	<i>47,471</i>	<i>98,038</i>	<i>(355,312)</i>
Lower Lockyer Supply	River	(53,480)	1,173	112,649	(54,018)	(3,577)	18,683	(266,490)
Logan River Supply	River	24,017	11,269	38,876	(33,057)	(81,864)	24,206	(22,578)
Cedar Pocket	Cedar Pocket	21,764	29,471	21,715	17,785	21,740	(28,300)	24,959
Mary Valley Supply	River	37,651	109,108	105,148	14,904	(177,976)	(57,317)	(77,958)
Upper Mary Distribution	Pie Creek	46,469	49,666	69,352	50,674	11,705	(122,939)	(173,524)
<i>Total Mary Valley Wss</i>		<i>84,121</i>	<i>158,774</i>	<i>174,500</i>	<i>65,578</i>	<i>(166,271)</i>	<i>(180,255)</i>	<i>(251,482)</i>
Warril Valley Supply	River	34,551	19,322	5,046	24,820	(44,769)	8,327	(92,035)
TOTAL		211,454	260,671	495,906	112,626	(227,270)	(59,302)	(962,937)

Figure 3.14 Net Annual Change in Revised ARR Balances - 2006/07 to 2012/13 (nominal \$)

3.6. Revised ARR Balances

Figure 3.15 and Figure 3.16 outlines the Revised ARR Balances including interest (2006/07 to 2012/13 period only) based on the approach outlined above.

Water Supply Scheme	Tariff Group	2001	2002	2003	2004	2005	2006
Central Lockyer Supply	River/Groundwater	40,893	(19,503)	79,208	(5,784)	(67,566)	(100,955)
Mortonvale Distribution	Mortonvale Distribution	64,348	88,155	88,231	151,861	186,158	238,170
<i>Total Central Lockyer Wss</i>		<i>105,241</i>	<i>68,652</i>	<i>167,439</i>	<i>146,077</i>	<i>118,593</i>	<i>137,215</i>
Lower Lockyer Supply	River	93,275	16,409	(48,054)	(107,959)	(186,092)	(148,605)
Logan River Supply	River	28,572	61,568	(146,592)	(290,703)	(383,745)	(358,552)
Cedar Pocket	Cedar Pocket	2,988	(64,067)	(53,345)	(52,825)	(88,919)	(75,428)
Mary Valley Supply	River	(69,760)	(381,933)	(673,621)	(1,496,423)	(1,766,764)	(2,041,467)
Upper Mary Distribution	Pie Creek	25,175	10,561	31,314	42,583	33,626	50,502
<i>Total Mary Valley Wss</i>		<i>(44,585)</i>	<i>(371,371)</i>	<i>(642,307)</i>	<i>(1,453,840)</i>	<i>(1,733,138)</i>	<i>(1,990,965)</i>
Warril Valley Supply	River	37,073	(96,421)	(156,101)	(167,641)	(317,256)	(298,133)
TOTAL		222,565	(385,230)	(878,959)	(1,926,891)	(2,590,556)	(2,734,469)

Figure 3.15 Revised ARR Balances - 2000/01 to 2005/06 (nominal \$)

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	2012	2013
Central Lockyer Supply	River/Groundwater	(71,433)	(70,172)	2,296	32,247	33,900	67,100	(345,554)
Mortonvale Distribution	Mortonvale Distribution	322,424	386,144	487,410	596,426	703,156	839,407	984,581
<i>Total Central Lockyer Wss</i>		250,991	315,972	489,706	628,673	737,056	906,506	639,026
Lower Lockyer Supply	River	(216,483)	(236,285)	(146,530)	(214,745)	(239,128)	(243,614)	(533,707)
Logan River Supply	River	(369,275)	(393,785)	(393,063)	(464,204)	(591,045)	(624,106)	(707,153)
Cedar Pocket	Cedar Pocket	(60,972)	(37,409)	(19,318)	(3,405)	18,005	(8,551)	15,579
Mary Valley Supply	River	(2,201,613)	(2,305,819)	(2,424,082)	(2,644,047)	(3,078,205)	(3,433,769)	(3,844,424)
Upper Mary Distribution	Pie Creek	101,864	161,399	246,389	320,935	363,736	276,039	129,261
<i>Total Mary Valley Wss</i>		(2,099,749)	(2,144,420)	(2,177,693)	(2,323,112)	(2,714,469)	(3,157,729)	(3,715,164)
Warril Valley Supply	River	(292,468)	(301,484)	(325,648)	(332,380)	(409,354)	(440,689)	(575,422)
TOTAL		(2,787,957)	(2,797,411)	(2,572,546)	(2,709,174)	(3,198,935)	(3,568,182)	(4,876,841)

Figure 3.16 Revised AAR Balances including Interest - 2006/07 to 2012/13 (nominal \$)

3.7. Comparison of Actual Expenditure against Forecast Expenditure

Seqwater requested that Indec undertake a high level comparison of actual renewals expenditure against forecast renewals expenditure over the five year period between 2007 and 2011.

Indec has sourced the forecast renewals expenditure from SunWater's data inputs to the SunWater Irrigation Pricing Model which established the 2007-11 Irrigation Price Paths. These forecasts are on a direct cost basis and exclude overheads and indirect costs. Indec has adjusted these direct cost forecasts to apply:

- ▶ efficiency savings established by Indec as part of the 2007-11 Irrigation Price Paths; and
- ▶ annual indexation to the forecasts expressed in 2005/06 dollars to enable comparison with actual expenditure. Indec has applied annual indexation of 4% based on the approach applied by the QCA in its analysis of SunWater's irrigation pricing⁶.

Figure 3.17 below details the forecast renewals expenditure (direct costs) for the five year period ending 2011 as applied to calculate the 2007-11 Irrigation Price Paths including adjustments related to the efficiency savings and annual indexation.

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	TOTAL
Central Lockyer Supply	River/Groundwater	186,067	209,706	142,313	217,389	234,821	990,296
Mortonvale Distribution	Mortonvale Distribution	10,602	10,822	11,184	11,633	12,103	56,345
<i>Total Central Lockyer Wss</i>		196,669	220,528	153,498	229,022	246,924	1,046,641
Lower Lockyer Supply	River	106,021	86,576	73,558	158,575	147,091	571,821
Logan River Supply	River	26,505	81,165	78,291	17,450	84,724	288,135
Cedar Pocket	Cedar Pocket	63,613	5,411	0	0	60,517	129,541
Mary Valley Supply	River	143,128	81,165	117,437	136,249	30,258	508,238
Upper Mary Distribution	Pie Creek	31,806	96,316	24,060	11,633	0	163,815
<i>Total Mary Valley Wss</i>		174,935	177,481	141,497	147,882	30,258	672,053
Warril Valley Supply	River	68,914	108,220	80,528	96,527	121,034	475,223
TOTAL		636,657	679,381	527,372	649,456	690,548	3,183,413

Figure 3.17 Forecast Renewals Expenditure (Direct Costs) - 2006/07 to 2010/11 (nominal \$)

Figure 3.18 below details the actual renewals expenditure (direct costs) over the five year period from 2007 to 2011.

⁶ Queensland Competition Authority, SunWater Irrigation Price Review, Final Report (Volume 1), May 2012, p116

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	TOTAL
Central Lockyer Supply	River/Groundwater	20,072	44,531	4,962	41,521	66,777	177,863
Mortonvale Distribution	Mortonvale Distribution	0	16,159	0	1,111	2,167	19,438
<i>Total Central Lockyer Wss</i>		<i>20,072</i>	<i>60,690</i>	<i>4,962</i>	<i>42,633</i>	<i>68,944</i>	<i>197,301</i>
Lower Lockyer Supply	River	141,507	89,991	0	136,386	93,126	461,010
Logan River Supply	River	39,390	59,243	0	59,162	94,207	252,001
Cedar Pocket	Cedar Pocket	0	218	0	4,710	0	4,928
Mary Valley Supply	River	88,588	17,978	0	73,070	218,690	398,327
Upper Mary Distribution	Pie Creek	14,599	6,893	0	16,701	46,070	84,263
<i>Total Mary Valley Wss</i>		<i>103,188</i>	<i>24,871</i>	<i>0</i>	<i>89,771</i>	<i>264,760</i>	<i>482,590</i>
Warril Valley Supply	River	42,137	55,434	29,990	20,801	69,560	217,923
TOTAL		346,294	290,447	34,952	353,464	590,597	1,615,753

Figure 3.18 Actual Renewals Expenditure (Direct Costs) - 2006/07 to 2010/11 (nominal \$)

Figure 3.19 below shows the annual and cumulative variance between forecast and actual renewals expenditure on a direct costs basis over the five year period ending 2011. The comparison reveals at the aggregate level that total renewals expenditure over the 5 year period was \$1,567,660 below forecasts with results at the scheme level including both expenditure below and above forecast levels.

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	TOTAL
Central Lockyer Supply	River/Groundwater	(165,995)	(165,174)	(137,351)	(175,868)	(168,044)	(812,433)
Mortonvale Distribution	Mortonvale Distribution	(10,602)	5,337	(11,184)	(10,522)	(9,936)	(36,907)
<i>Total Central Lockyer Wss</i>		<i>(176,597)</i>	<i>(159,837)</i>	<i>(148,536)</i>	<i>(186,389)</i>	<i>(177,980)</i>	<i>(849,340)</i>
Lower Lockyer Supply	River	35,486	3,415	(73,558)	(22,189)	(53,965)	(110,811)
Logan River Supply	River	12,885	(21,922)	(78,291)	41,712	9,483	(36,134)
Cedar Pocket	Cedar Pocket	(63,613)	(5,193)	0	4,710	(60,517)	(124,612)
Mary Valley Supply	River	(54,540)	(63,187)	(117,437)	(63,178)	188,431	(109,910)
Upper Mary Distribution	Pie Creek	(17,207)	(89,423)	(24,060)	5,068	46,070	(79,552)
<i>Total Mary Valley Wss</i>		<i>(71,747)</i>	<i>(152,610)</i>	<i>(141,497)</i>	<i>(58,110)</i>	<i>234,501</i>	<i>(189,463)</i>
Warril Valley Supply	River	(26,776)	(52,786)	(50,538)	(75,726)	(51,473)	(257,300)
TOTAL		(290,363)	(388,934)	(492,420)	(295,992)	(99,951)	(1,567,660)

Figure 3.19 Variance between Forecast and Actual Renewals Expenditure on a Direct Costs Basis - 2006/07 to 2010/11 (nominal \$)

3.8. Conclusions

Indec has relied upon the data and representations made by both SunWater and Seqwater to calculate the Revised ARR Balances.

The restatement of the ARR Balances from irrigation to total scheme for the 2001 to 2005 period has been based on the data and assumptions made to establish the opening ARR Balances for the 2007-11 irrigation price path. This approach was adopted so that the change in ARR Balances as at 2004/05 is solely related to the change in methodology and not influenced by a change in data or any major assumptions underpinning that data. This approach preserves as far as possible the 2004/05 ARR Balances which were the basis of the 2007-11 irrigation price path.

The changes made to effect the total scheme calculation involved the following steps:

- ▶ capturing the full amount of renewals expenditure rather than the irrigation share only;
- ▶ including urban and industrial renewals revenue and applying the total scheme share of renewals revenues to the ARR Balance rather than the irrigation share only; and
- ▶ completing a revenue transfer from distribution to bulk water supply to calculate unbundled ARR Balances.

APPENDIX A

DRAFT ARR BALANCES - LIST OF DATA SOURCES

Data	Source	Filename
2001 to 2006 R&E expenditure	SunWater	Copy of Historical Segment Annuity Balances 2000 to 2006 Actual 20120328 v2
2007 to 2008 R&E expenditure	SunWater	2000 to 2007 Irrigation annuity to Indec 19 9 2011
2009 to 2011 R&E expenditure	Seqwater	Historical act capex 0809 to 201011 from Colin Nicolson 20120403
2012 R&E expenditure	Seqwater	A7 2012-2013 GSC Information Return Capex 2011-12
2013 R&E expenditure	Seqwater	A8 2012-2013 GSC Information Return Capex 2012-13
2001 to 2006 % R&E expenditure applicable to ARR	SunWater	Copy of Historical Segment Annuity Balances 2000 to 2006 Actual 20120328 v3
2007 to 2013 % R&E expenditure applicable to ARR	SunWater	2000 to 2007 Irrigation annuity to Indec 19 9 2011
2001 to 2006 Revenues	SunWater	Copy of Historical Segment Annuity Balances 2000 to 2006 Actual 20120328 v2
2007 to 2008 Revenues	SunWater	2000 to 2007 Irrigation annuity to Indec 19 9 2011
2009 to 2011 Revenues	Seqwater	Breakdwon of Qrtly revenue 08-11 (2)
2012 Revenues	Seqwater	2011-2012 Irrigators Revenue Budget incl annuity
2013 Revenues	Seqwater	2012-2013 Irrigators Revenue Budget for graph
2009 to 2013 CSO	Indec	SunWater Irrigation Pricing Model v 32
2001 to 2006 % Revenues applicable to ARR	SunWater	Copy of Historical Segment Annuity Balances 2000 to 2006 Actual 20120328 v2
2007 to 2013 % Revenues applicable to ARR	SunWater	2000 to 2007 Irrigation annuity to Indec 19 9 2011

APPENDIX B

REVISED ARR BALANCES - LIST OF DATA SOURCES

Data	Source	Filename
2001 to 2006 R&E expenditure	SunWater	Copy of Historical Segment Annuity Balances 2000 to 2006 Actual 20120328 v2
2001 to 2005 Revenues	SunWater	Copy of Historical Segment Annuity Balances 2000 to 2006 Actual 20120328 v2
2001 to 2006 % Revenues applicable to ARR	SunWater	Copy of Historical Segment Annuity Balances 2000 to 2006 Actual 20120328 v2
2006 to 2007 R&E expenditure	SunWater	2000 to 2007 Irrigation annuity to Indec 19 9 2011
2006 to 2008 Revenues	SunWater	SEQWATER SCHEME REVENUE FROM SUNWATER 20120514
2007 to 2011 % Revenues applicable to ARR	Indec	SunWater Irrigation Pricing Model v 32
2007 to 2008 R&E expenditure	SunWater	2000 to 2007 Irrigation annuity to Indec 19 9 2011
2009 to 2011 R&E expenditure	Seqwater	Historical act capex 0809 to 201011 from Colin Nicolson 20120403
2012 R&E expenditure	Seqwater	A7 2012-2013 GSC Information Return Capex 2011-12
2013 R&E expenditure	Seqwater	A8 2012-2013 GSC Information Return Capex 2012-13
2013 R&E expenditure	Seqwater	Flowmeter Scheme Information
2009 to 2011 Revenues	Seqwater	Breakdown of Qrtly revenue 08-11 (2)
2012 Revenues	Seqwater	2011-2012 Irrigators Revenue Budget incl annuity
2013 Revenues	Seqwater	2012-2013 Irrigators Revenue Budget for graph
2009 to 2013 CSO	Indec	SunWater Irrigation Pricing Model v 32

APPENDIX C
REVENUE TRANSFER WORKING EXAMPLE

Background

Seqwater is setting irrigation tariffs for the next pricing period (2014-17) on an unbundled basis to separately price bulk supply and distribution services. Irrigation tariffs have historically been set on a bundled basis with ARR Balances maintained at the total scheme level. The historical irrigation tariff structures have set distribution tariffs on a combined or bundled basis to include both bulk supply and distribution services so that a distribution customer paid the distribution tariff and a river customer paid the bulk supply tariff.

The unbundling of tariffs will involve a discrete and separate tariff being set for bulk supply and distribution services with the total tariff for distribution services being the sum of the bulk supply and distribution tariffs. Under an unbundled tariff scenario, the river customers continue to pay the bulk supply tariff however as the bulk supply charge is not included in the distribution charge, the distribution customers charge is the sum of the bulk supply and distribution tariffs. The unbundling of tariffs is essentially about setting a separate price for each service and does not in itself change the total tariff paid by distribution customers.

A consequence of the unbundled tariff structure is the need to establish ARR Balances for each tariff group (bulk supply and distribution) to enable a renewals annuity to be calculated for each tariff group. The ARR Balance is a key input into the renewals annuity calculation which is a cost component in developing the revenue requirement to determine tariffs.

Objective

The recording of renewals expenditure occurs at the tariff group level so the expenditure can readily be allocated to either bulk supply or distribution. The recording of revenue also occurs at the tariff group level (with some exceptions between 2000/01 and 2005/06) however the bundled tariff structure results in a portion of the bulk supply revenues being collected as part of the distribution tariff. This requires the separation of bulk supply revenues within the distribution revenues to enable the ARR Balance to be unbundled on a tariff group basis.

The objective is to effectively unbundle the ARR Balances so that each tariff group (bulk supply and distribution) accurately accounts for its respective renewals revenues and expenditures. The need to transfer revenue between bulk supply and distribution tariff groups arises due to the bundled nature of the tariffs with the distribution revenues consisting of both bulk supply and distribution revenues.

Water Supply Schemes

The Seqwater schemes which are impacted by the bundled tariff arrangement are:

- Central Lockyer
 - River & Groundwater (bulk supply)
 - Mortonvale (distribution)
- Mary Valley
 - River (bulk supply)
 - Pie Creek (distribution)

Methodology

Indec has developed a simplified methodology to unbundle the tariff structures to determine the bulk supply revenues captured as distribution revenues.

The methodology calculates a revenue transfer from distribution to bulk supply to capture the portion of bulk supply revenues recorded as distribution revenues, including any Community Service Obligation (CSOs) payments from Government.

The methodology to separate bulk supply revenues within distribution revenues involved the following steps:

1. Determining the Part A bulk supply revenues accounted for within the distribution revenues;
2. Determining the Part B bulk supply revenues accounted for within the distribution revenues; and
3. Determining any bulk supply CSO revenues accounted for within the distribution revenues.

This required the following information.

1. Annual tariffs for those schemes with bundled tariff arrangements;
2. Community Service Obligation Payments (CSOs) for the relevant bulk supply tariff groups; and
3. Water allocation and water usage data for the distribution tariff groups.

As part of the 2007-11 Irrigation Price Paths, the CSOs were established at the tariff group level. For the purposes of the revenue transfer calculation, only those CSO revenues relating to bulk supply are subject to transfer from distribution to bulk supply.

A working example is included below to demonstrate the methodology and its application in the ARR Balance calculations.

Working Example

For the working example outlined below, Table 1 details the bundled tariffs and CSO arrangements:

Per ML	Bulk Supply	Distribution
Part A	\$5.00	\$15.00
Part B	\$1.00	\$5.00
CSO	\$2.00	\$6.00
TOTAL	\$8.00	\$26.00

Table 1 – Bundled Tariff & CSO Details

The CSO payment from Government is shown on a per ML basis to clearly demonstrate its treatment in Indec's methodology.

For the purposes of the working example, Table 2 details the unbundled tariffs including CSOs that would apply:

Per ML	Bulk Supply	Unbundled Distribution	Bundled Distribution
Part A	\$5.00	\$10.00	\$15.00
Part B	\$1.00	\$4.00	\$5.00
CSO	\$2.00	\$4.00	\$6.00
TOTAL	\$8.00	\$18.00	\$26.00

Table 2 – Bundled & Unbundled Tariff & CSO Details

Table 2 shows that the sum of the bulk supply and unbundled distribution tariff equals the bundled distribution tariff.

Table 3 below outlines the nominal water allocation and water usage data assumed for the working example:

ML	Bulk Supply	Distribution	Total
Water Allocations	100	50	150
Water Usage	75	25	100

Table 3 – Water Allocation & Water Usage

Table 4 shows the bundled revenues which arise from the working example:

Bundled Revenues	Bulk Supply	Distribution	Total
Part A	\$500.00	\$750.00	\$1,250.00
Part B	\$75.00	\$125.00	\$200.00
CSOs	\$200.00	\$300.00	\$500.00
TOTAL	\$775.00	\$1,175.00	\$1,950.00

Table 4 – Bundled Revenue Details

Table 5 shows the revenues to be transferred from distribution to bulk supply, including details of the calculations applied to derive the revenues to be transferred. Table 5 also shows the percentage of distribution revenues to be transferred from the distribution tariff group.

Revenue Transfer		Details of Calculation
Part A	\$250.00	Bulk Supply Part A Tariff x Water Allocations (Distribution)
Part B	\$25.00	Bulk Supply Part B Tariff x Water Usage (Distribution)
CSOs	\$100.00	Bulk Supply CSO/ML x Water Allocations (Distribution)
TOTAL	\$375.00	
Percentage of distribution revenue transferred	32%	Revenue Transfer / Total Distribution Revenue

Table 5 – Revenue Transfer Details

Table 6 below details the revenue on an unbundled basis after the revenue transfer has been made. Table 6 is derived from Table 4 and Table 5 with the revenue transfer outlined in Table 5 deducted from the bundled distribution revenues outlined in Table 4 with the revenue transfers from Table 5 added to the bundled bulk supply revenues outlined in Table 4.

Unbundled Revenues	Bulk Supply	Distribution	Total
Part A	\$750.00	\$500.00	\$1,250.00
Part B	\$100.00	\$100.00	\$200.00
CSOs	\$300.00	\$200.00	\$500.00
TOTAL	\$1,150.00	\$800.00	\$1,950.00

Table 6 – Unbundled Revenue Details derived from Bundled Revenues and Revenue Transfer

Table 7 calculates the unbundled revenues from a first principles basis by calculating the revenues from the unbundled tariffs in Table 2 rather than netting the bundled revenues in Table 4 with the revenue transfers in Table 5.

Unbundled Revenues	Bulk Supply	Distribution	Total
Part A	\$750.00	\$500.00	\$1,250.00
Part B	\$100.00	\$100.00	\$200.00
CSOs	\$300.00	\$200.00	\$500.00
TOTAL	\$1,150.00	\$800.00	\$1,950.00

Table 7 – Unbundled Revenue Details derived from Unbundled Tariffs

Table 7 proves that the methodology is mathematically sound and demonstrates that the unbundled revenue details calculated from first principles or an unbundled tariff basis are the same as the results in Table 6 which has been derived from the Table 4 Bundled Revenue Details and adjusting for the Table 5 Revenue Transfer details.

Data Limitations

Indec has applied the above methodology for the 2007 to 2013 period as all the required data was available to undertake the calculations outlined above for each particular year.

For the 2001 to 2006 period, Indec was unable to adopt the outlined methodology in its entirety as not all the required data was available to undertake the annual revenue transfer calculations. Rather, Indec has applied the average percentage of revenue transferred for the respective tariff groups over the 2007 to 2013 period to the 2001 to 2006 period to get around the issue of missing data.

The percentage of revenue transferred across the 2007 to 2012 period was relatively stable whereas the absolute level of revenue transferred varied significantly due to the volatility of Part B revenues.

Under the circumstances, Indec believes that the approach adopted for the 2001 to 2006 period was the best alternative available.