

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

Figure m.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.

Revised ARR Balances

Figure m.2 and Figure m.3 outline the Revised ARR Balances based on the total scheme concept from a first principles basis for the period 2000/01 to 2012/13.

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

Water Supply Scheme	Tariff Group	2001	2002	2003	2004	2005	2006
Central Lockyer Supply	River/Groundwater	25,085	(13,869)	103,235	56,194	37,221	86,152
Mortonvale Distribution	Mortonvale Distribution	(1,117)	(34,724)	(76,942)	(57,856)	(45,198)	(49,406)
<i>Total Central Lockyer Wss</i>		23,968	(48,593)	26,294	(1,661)	(7,978)	36,747
Lower Lockyer Supply	River	59,195	(25,118)	(92,603)	(157,606)	(223,519)	(171,783)
Logan River Supply	River	15,115	46,576	(161,915)	(305,621)	(392,011)	(343,361)
Cedar Pocket	Cedar Pocket	(791)	(70,314)	(59,447)	(61,246)	(96,769)	(96,769)
Mary Valley Supply	River	(13,072)	(259,013)	(445,608)	(1,175,623)	(1,315,010)	(1,481,873)
Upper Mary Distribution	Pie Creek	(1,513)	(41,755)	(42,406)	(58,768)	(89,129)	(43,634)
<i>Total Mary Valley Wss</i>		(14,584)	(300,767)	(488,014)	(1,234,391)	(1,404,139)	(1,525,507)
Warril Valley Supply	River	5,102	(130,871)	(189,952)	(187,642)	(329,478)	(296,189)
TOTAL		88,004	(529,087)	(965,638)	(1,948,166)	(2,453,894)	(2,396,863)

Figure m.2 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	133,803	154,950	175,995	224,936	246,290	300,672	(280,320)
Mortonvale Distribution	Mortonvale Distribution	6,985	40,142	104,254	176,146	242,155	333,740	426,267
<i>Total Central Lockyer Wss</i>		140,789	195,092	280,249	401,082	488,445	634,412	145,946
Lower Lockyer Supply	River	(241,907)	(264,173)	(285,119)	(366,548)	(610,032)	(650,222)	(1,134,615)
Logan River Supply	River	(255,421)	(175,749)	(188,676)	(219,330)	(299,638)	(280,630)	(330,063)
Cedar Pocket	Cedar Pocket	(84,381)	(63,086)	(53,321)	(40,702)	(22,906)	(53,426)	(33,643)
Mary Valley Supply	River	(1,571,832)	(1,611,370)	(1,994,889)	(2,165,410)	(2,546,693)	(2,842,406)	(3,230,724)
Upper Mary Distribution	Pie Creek	(1,393)	48,138	62,731	119,483	142,765	33,659	(218,216)
<i>Total Mary Valley Wss</i>		(1,573,225)	(1,563,232)	(1,932,158)	(2,045,927)	(2,403,928)	(2,808,747)	(3,448,940)
Warril Valley Supply	River	(274,233)	(268,501)	(378,934)	(390,829)	(473,465)	(511,012)	(706,029)
TOTAL		(2,288,378)	(2,139,648)	(2,557,959)	(2,662,254)	(3,321,524)	(3,669,624)	(5,507,345)

Figure m.3 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 m.4 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 \$844,137 below forecasts with results at the scheme level including both expenditure below and above forecast levels.

³ 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	(165,995)	(165,174)	(80,780)	(175,868)	(168,044)	(755,862)
Mortonvale Distribution	Mortonvale Distribution	(10,602)	5,337	(8,402)	(10,522)	(9,936)	(34,125)
<i>Total Central Lockyer Wss</i>		<i>(176,597)</i>	<i>(159,837)</i>	<i>(89,183)</i>	<i>(186,389)</i>	<i>(177,980)</i>	<i>(789,987)</i>
Lower Lockyer Supply	River	35,486	3,415	9,227	(22,189)	103,296	129,235
Logan River Supply	River	12,885	(21,922)	(34,495)	41,712	9,483	7,663
Cedar Pocket	Cedar Pocket	(63,613)	(5,193)	4,475	4,710	(60,517)	(120,137)
Mary Valley Supply	River	(54,540)	(63,187)	144,289	(63,178)	188,431	151,816
Upper Mary Distribution	Pie Creek	(17,207)	(89,423)	21,489	5,068	46,070	(34,003)
<i>Total Mary Valley Wss</i>		<i>(71,747)</i>	<i>(152,610)</i>	<i>165,778</i>	<i>(58,110)</i>	<i>234,501</i>	<i>117,812</i>
Warril Valley Supply	River	(26,776)	(52,786)	18,039	(75,726)	(51,473)	(188,723)
TOTAL		(290,363)	(388,934)	73,842	(295,992)	57,309	(844,137)

Figure m.4 Variance between Forecast and Actual Renewals Expenditure on a Direct Cost Basis - 2006/07 to 2010/11 (nominal \$)

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 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:

- ▶ Including 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
- ▶ Including a revenue transfer between bulk supply and distribution 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. At the time of preparing the Draft NSPs, the required data to apply this alternative methodology was unavailable and 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 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; and

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

- ▶ Applied interest 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 service type and Figure 2.5 shows the net annual change in the respective 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 Annity 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 will be 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 is undertaking 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. Indec proposes to undertake further analysis of this process to confirm the robustness of the approach and to confirm the assumptions applied and their consistency with the assumptions applied in the establishment of the 2001-05 irrigation price path.

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. SunWater in the 2010/11 year based the transfer on a revenue basis which includes actual revenues associated with bulk supply to capture any revenues above lower bound costs. 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. Indec proposes to identify if the required data is available to enable the revenue transfer calculation for the 2001-2006 period to be based on actual data relating to that period.

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 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 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 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 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. 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:

3.3.1. 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 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%;

3.3.2. Renewals Revenue

- ▶ Actual tariff revenue including CSOs for all customer sectors from SunWater for the period 2000/01 to 2007/08 inclusive;
- ▶ Actual 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 3.3.3;
- ▶ Figure 3.1 shows the percentages of tariff revenues, including CSO, allocated to the Revised ARR balance for the 2001 to 2006 period and Figure 3.2 shows the percentages 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 percentages for the 2005/06 year are based on the 2004/05 year due to a one year extension to the price path and 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	17.6%	23.4%	24.8%	28.0%	36.2%	36.2%
Mortonvale Distribution	Mortonvale Distribution	17.6%	23.4%	24.8%	28.0%	36.2%	36.2%
Lower Lockyer Supply	River	13.2%	17.5%	17.7%	17.0%	20.3%	20.3%
Logan River Supply	River	4.0%	5.1%	3.7%	3.1%	4.3%	4.3%
Cedar Pocket	Cedar Pocket	10.3%	12.0%	37.5%	33.5%	34.3%	34.3%
Mary Valley Supply	River	10.3%	12.0%	30.6%	26.7%	29.4%	29.4%
Upper Mary Distribution	Pie Creek	10.3%	12.0%	30.6%	26.7%	29.4%	29.4%
Warril Valley Supply	River	7.2%	9.0%	10.8%	12.6%	8.8%	8.8%

Figure 3.1 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 3.2 Share of Revenues applied to Revised ARR - 2006/07 to 2012/13

3.3.3. 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.

The methodology of revenue transfer between the Draft ARR Balances and Revised ARR Balances has not changed. The amount of revenue transferred from distribution to bulk supply was based on a revenue basis including CSOs. For the period 2007 to 2011, the revenue transfer has been based on actual revenues, 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 the required data for the 2001 to 2006 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.

Figure 3.3 shows the amounts of the revenue transfer for the respective schemes for the period 2000/01 to 2005/06 and Figure 3.4 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	29,827	28,531	22,664	19,774	12,715	16
Mortonvale Distribution	Mortonvale Distribution	(29,827)	(28,531)	(22,664)	(19,774)	(12,715)	(16)
<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	5,996	6,139	2,912	3,141	3,214	18,587
Upper Mary Distribution	Pie Creek	(5,996)	(6,139)	(2,912)	(3,141)	(3,214)	(18,587)
<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 3.3 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 3.4 Revenue Transfer - 2006/07 to 2012/13 (nominal \$)

3.3.4. 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 3.5 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	8,347	12,964	15,013	17,052	21,794	23,863	29,132
Mortonvale Distribution	Mortonvale Distribution	(4,787)	677	3,889	10,101	17,067	23,462	32,336
<i>Total Central Lockyer Wss</i>		3,560	13,641	18,902	27,153	38,861	47,325	61,468
Lower Lockyer Supply	River	(16,644)	(23,438)	(25,596)	(27,625)	(35,515)	(59,106)	(63,000)
Logan River Supply	River	(33,268)	(24,748)	(17,028)	(18,281)	(21,251)	(29,032)	(27,190)
Cedar Pocket	Cedar Pocket	(9,376)	(8,176)	(6,112)	(5,166)	(3,944)	(2,219)	(5,176)
Mary Valley Supply	River	(143,579)	(152,295)	(156,126)	(193,285)	(209,807)	(246,749)	(275,401)
Upper Mary Distribution	Pie Creek	(4,228)	(135)	4,664	6,078	11,577	13,833	3,261
<i>Total Mary Valley Wss</i>		(147,806)	(152,430)	(151,462)	(187,207)	(198,230)	(232,917)	(272,139)
Warril Valley Supply	River	(28,698)	(26,570)	(26,015)	(36,715)	(37,867)	(45,874)	(49,512)
TOTAL		(232,232)	(221,721)	(207,311)	(247,841)	(257,946)	(321,822)	(355,550)

Figure 3.5 Interest on Revised ARR Balances (nominal \$)

3.4. Key Results

Figure 3.6 and Figure 3.7 below detail the renewals expenditure applicable to the ARR Balances which are considered as an outflow in the determination of ARR Balances.

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>		126,672	264,059	86,480	186,601	138,094	117,767
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>		153,296	451,988	387,615	934,714	382,081	380,164
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 3.6 Renewals Expenditure applied to Revised ARR - 2000/01 to 2005/06 (nominal \$)

⁵ SunWater Renewals Annuity Background Paper, January 2010, p5

Water Supply Scheme	Tariff Group	2007	2008	2009	2010	2011	2012	2013
Central Lockyer Supply	River/Groundwater	31,794	57,820	80,275	54,168	87,115	51,286	694,454
Mortonvale Distribution	Mortonvale Distribution	0	21,463	3,630	1,450	2,828	1,060	13,046
<i>Total Central Lockyer Wss</i>		<i>31,794</i>	<i>79,283</i>	<i>83,904</i>	<i>55,618</i>	<i>89,943</i>	<i>52,347</i>	<i>707,500</i>
Lower Lockyer Supply	River	158,491	106,724	108,000	177,927	326,650	103,858	556,627
Logan River Supply	River	56,045	76,943	57,136	77,181	122,900	22,933	96,736
Cedar Pocket	Cedar Pocket	0	462	5,838	6,145	0	51,847	0
Mary Valley Supply	River	122,411	31,759	341,443	95,326	285,299	170,718	238,122
Upper Mary Distribution	Pie Creek	22,107	10,177	59,422	21,788	60,102	197,980	330,836
<i>Total Mary Valley Wss</i>		<i>144,518</i>	<i>41,936</i>	<i>400,865</i>	<i>117,114</i>	<i>345,400</i>	<i>368,698</i>	<i>568,959</i>
Warril Valley Supply	River	57,081	77,402	128,589	27,137	90,747	44,298	203,785
TOTAL		447,929	382,750	784,332	461,122	975,640	643,981	2,133,606

Figure 3.7 Renewals Expenditure applied to Revised ARR - 2006/07 to 2012/13 (nominal \$)

Figure 3.8 and Figure 3.9 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	129,875	165,101	139,123	136,777	113,613	162,468
Mortonvale Distribution	Mortonvale Distribution	20,765	26,397	22,244	21,869	18,165	23
<i>Total Central Lockyer Wss</i>		<i>150,640</i>	<i>191,498</i>	<i>161,367</i>	<i>158,646</i>	<i>131,778</i>	<i>162,491</i>
Lower Lockyer Supply	River	92,274	111,700	111,917	113,854	87,342	105,583
Logan River Supply	River	35,184	48,966	48,016	41,964	45,106	64,868
Cedar Pocket	Cedar Pocket	7,523	8,992	10,867	10,214	11,515	0
Mary Valley Supply	River	130,816	156,367	188,963	177,618	200,247	188,893
Upper Mary Distribution	Pie Creek	7,895	9,437	11,405	10,720	12,086	69,902
<i>Total Mary Valley Wss</i>		<i>138,712</i>	<i>165,804</i>	<i>200,368</i>	<i>188,338</i>	<i>212,333</i>	<i>258,796</i>
Warril Valley Supply	River	82,145	106,460	104,431	111,698	66,882	68,291
TOTAL		506,478	633,421	636,965	624,714	554,957	660,029

Figure 3.8 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	86,307	86,057	86,676	81,805	84,330
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>150,159</i>	<i>149,297</i>	<i>138,445</i>	<i>150,988</i>	<i>157,566</i>
Lower Lockyer Supply	River	105,011	107,897	112,649	124,123	118,681	122,774	135,233
Logan River Supply	River	177,254	181,362	61,237	64,809	63,843	70,973	74,493
Cedar Pocket	Cedar Pocket	21,764	29,933	21,715	23,930	21,740	23,547	24,959
Mary Valley Supply	River	176,030	144,516	114,049	118,090	113,823	121,754	125,205
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>244,607</i>	<i>204,359</i>	<i>183,400</i>	<i>190,552</i>	<i>185,630</i>	<i>196,796</i>	<i>200,905</i>
Warril Valley Supply	River	107,735	109,704	44,171	51,957	45,978	52,625	58,280
TOTAL		788,646	753,201	573,332	604,667	574,317	617,703	651,436

Figure 3.9 Revenues applied to Revised ARR - 2006/07 to 2012/13 (nominal \$)

Figure 3.10 and Figure 3.11 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	25,085	(38,953)	117,104	(47,041)	(18,974)	48,932
Mortonvale Distribution	Mortonvale Distribution	(1,117)	(33,607)	(42,217)	19,086	12,657	(4,208)
<i>Total Central Lockyer Wss</i>		23,968	(72,561)	74,887	(27,955)	(6,316)	44,724
Lower Lockyer Supply	River	59,195	(84,313)	(67,485)	(65,003)	(65,912)	51,735
Logan River Supply	River	15,115	31,460	(208,490)	(143,706)	(86,391)	48,650
Cedar Pocket	Cedar Pocket	(791)	(69,523)	10,867	(1,799)	(35,523)	0
Mary Valley Supply	River	(13,072)	(245,941)	(186,595)	(730,015)	(139,387)	(166,863)
Upper Mary Distribution	Pie Creek	(1,513)	(40,242)	(652)	(16,362)	(30,361)	45,495
<i>Total Mary Valley Wss</i>		(14,584)	(286,183)	(187,247)	(746,376)	(169,748)	(121,368)
Warril Valley Supply	River	5,102	(135,972)	(59,082)	2,311	(141,837)	33,289
TOTAL		88,004	(617,091)	(436,550)	(982,528)	(505,727)	57,031

Figure 3.10 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	6,032	31,889	(440)	30,519	(610,125)
Mortonvale Distribution	Mortonvale Distribution	61,178	32,480	60,223	61,791	48,942	68,123	60,191
<i>Total Central Lockyer Wss</i>		100,482	40,662	66,255	93,679	48,503	98,641	(549,934)
Lower Lockyer Supply	River	(53,480)	1,173	4,649	(53,804)	(207,969)	18,917	(421,394)
Logan River Supply	River	121,208	104,420	4,101	(12,373)	(59,057)	48,040	(22,243)
Cedar Pocket	Cedar Pocket	21,764	29,471	15,877	17,785	21,740	(28,300)	24,959
Mary Valley Supply	River	53,619	112,757	(227,394)	22,764	(171,476)	(48,964)	(112,918)
Upper Mary Distribution	Pie Creek	46,469	49,666	9,929	50,674	11,705	(122,939)	(255,136)
<i>Total Mary Valley Wss</i>		100,089	162,423	(217,465)	73,438	(159,771)	(171,903)	(368,054)
Warril Valley Supply	River	50,654	32,302	(84,418)	24,820	(44,769)	8,327	(145,505)
TOTAL		340,717	370,451	(211,000)	143,545	(401,324)	(26,278)	(1,482,170)

Figure 3.11 Net Annual Change in Revised ARR Balances - 2006/07 to 2012/13 (nominal \$)

3.5. Revised ARR Balances

Figure 3.12 and Figure 3.13 outlines the Revised ARR Balances including interest based on the approach outlined above.

Water Supply Scheme	Tariff Group	2001	2002	2003	2004	2005	2006
Central Lockyer Supply	River/Groundwater	25,085	(13,869)	103,235	56,194	37,221	86,152
Mortonvale Distribution	Mortonvale Distribution	(1,117)	(34,724)	(76,942)	(57,856)	(45,198)	(49,406)
<i>Total Central Lockyer Wss</i>		23,968	(48,593)	26,294	(1,661)	(7,978)	36,747
Lower Lockyer Supply	River	59,195	(25,118)	(92,603)	(157,606)	(223,519)	(171,783)
Logan River Supply	River	15,115	46,576	(161,915)	(305,621)	(392,011)	(343,361)
Cedar Pocket	Cedar Pocket	(791)	(70,314)	(59,447)	(61,246)	(96,769)	(96,769)
Mary Valley Supply	River	(13,072)	(259,013)	(445,608)	(1,175,623)	(1,315,010)	(1,481,873)
Upper Mary Distribution	Pie Creek	(1,513)	(41,755)	(42,406)	(58,768)	(89,129)	(43,634)
<i>Total Mary Valley Wss</i>		(14,584)	(300,767)	(488,014)	(1,234,391)	(1,404,139)	(1,525,507)
Warril Valley Supply	River	5,102	(130,871)	(189,952)	(187,642)	(329,478)	(296,189)
TOTAL		88,004	(529,087)	(965,638)	(1,948,166)	(2,453,894)	(2,396,863)

Figure 3.12 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	133,803	154,950	175,995	224,936	246,290	300,672	(280,320)
Mortonvale Distribution	Mortonvale Distribution	6,985	40,142	104,254	176,146	242,155	333,740	426,267
<i>Total Central Lockyer Wss</i>		140,789	195,092	280,249	401,082	488,445	634,412	145,946
Lower Lockyer Supply	River	(241,907)	(264,173)	(285,119)	(366,548)	(610,032)	(650,222)	(1,134,615)
Logan River Supply	River	(255,421)	(175,749)	(188,676)	(219,330)	(299,638)	(280,630)	(330,063)
Cedar Pocket	Cedar Pocket	(84,381)	(63,086)	(53,321)	(40,702)	(22,906)	(53,426)	(33,643)
Mary Valley Supply	River	(1,571,832)	(1,611,370)	(1,994,889)	(2,165,410)	(2,546,693)	(2,842,406)	(3,230,724)
Upper Mary Distribution	Pie Creek	(1,393)	48,138	62,731	119,483	142,765	33,659	(218,216)
<i>Total Mary Valley Wss</i>		(1,573,225)	(1,563,232)	(1,932,158)	(2,045,927)	(2,403,928)	(2,808,747)	(3,448,940)
Warril Valley Supply	River	(274,233)	(268,501)	(378,934)	(390,829)	(473,465)	(511,012)	(706,029)
TOTAL		(2,288,378)	(2,139,648)	(2,557,959)	(2,662,254)	(3,321,524)	(3,669,624)	(5,507,345)

Figure 3.13 Revised AAR Balances including Interest - 2006/07 to 2012/13 (nominal \$)

3.6. 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 3.14 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 3.14 Forecast Renewals Expenditure (Direct Costs) - 2006/07 to 2010/11 (nominal \$)

Figure 3.15 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	61,533	41,521	66,777	234,434
Mortonvale Distribution	Mortonvale Distribution	0	16,159	2,782	1,111	2,167	22,220
<i>Total Central Lockyer Wss</i>		<i>20,072</i>	<i>60,690</i>	<i>64,315</i>	<i>42,633</i>	<i>68,944</i>	<i>256,654</i>
Lower Lockyer Supply	River	141,507	89,991	82,785	136,386	250,387	701,056
Logan River Supply	River	39,390	59,243	43,796	59,162	94,207	295,798
Cedar Pocket	Cedar Pocket	0	218	4,475	4,710	0	9,403
Mary Valley Supply	River	88,588	17,978	261,726	73,070	218,690	660,053
Upper Mary Distribution	Pie Creek	14,599	6,893	45,549	16,701	46,070	129,811
<i>Total Mary Valley Wss</i>		<i>103,188</i>	<i>24,871</i>	<i>307,275</i>	<i>89,771</i>	<i>264,760</i>	<i>789,865</i>
Warril Valley Supply	River	42,137	55,434	98,567	20,801	69,560	286,500
TOTAL		346,294	290,447	601,214	353,464	747,858	2,339,276

Figure 3.15 Actual Renewals Expenditure (Direct Costs) - 2006/07 to 2010/11 (nominal \$)

Figure 3.16 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 \$844,137 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)	(80,780)	(175,868)	(168,044)	(755,862)
Mortonvale Distribution	Mortonvale Distribution	(10,602)	5,337	(8,402)	(10,522)	(9,936)	(34,125)
<i>Total Central Lockyer Wss</i>		<i>(176,597)</i>	<i>(159,837)</i>	<i>(89,183)</i>	<i>(186,389)</i>	<i>(177,980)</i>	<i>(789,987)</i>
Lower Lockyer Supply	River	35,486	3,415	9,227	(22,189)	103,296	129,235
Logan River Supply	River	12,885	(21,922)	(34,495)	41,712	9,483	7,663
Cedar Pocket	Cedar Pocket	(63,613)	(5,193)	4,475	4,710	(60,517)	(120,137)
Mary Valley Supply	River	(54,540)	(63,187)	144,289	(63,178)	188,431	151,816
Upper Mary Distribution	Pie Creek	(17,207)	(89,423)	21,489	5,068	46,070	(34,003)
<i>Total Mary Valley Wss</i>		<i>(71,747)</i>	<i>(152,610)</i>	<i>165,778</i>	<i>(58,110)</i>	<i>234,501</i>	<i>117,812</i>
Warril Valley Supply	River	(26,776)	(52,786)	18,039	(75,726)	(51,473)	(188,723)
TOTAL		(290,363)	(388,934)	73,842	(295,992)	57,309	(844,137)

Figure 3.16 Variance between Forecast and Actual Renewals Expenditure on a Direct Costs Basis - 2006/07 to 2010/11 (nominal \$)

3.7. 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 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:

- ▶ Including 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
- ▶ Including a revenue transfer between bulk supply and distribution 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	Breakdwn 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