IPART
New South Wales

Independent Pricing and Regulatory Tribunal

Review of bulk water charges for State Water Corporation

From 1 July 2010 to 30 June 2014

Water — Final Report
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1 Introduction and executive summary

The Independent Pricing and Regulatory Tribunal of NSW (IPART) has reviewed the maximum prices State Water Corporation (State Water) can charge for bulk water services. These prices are set on a per valley basis, and reflect the costs State Water incurs in providing bulk water to users on regulated rivers in each valley. The new prices will apply from 1 July 2010 to 30 June 2014.

The purpose of this report is to set out and explain our determination, including the price outcomes under this determination, and the decisions that led to these outcomes. We have considered all the submissions received from stakeholders in making our final determination in June 2010.

This report does not discuss the prices the NSW Office of Water can charge for its water resource management functions. We are conducting a separate review and will make a separate determination on these prices.

1.1 Overview of bill outcomes under the 2010 Determination

Under the determination, the annual bills for regulated bulk water users across NSW will increase in real terms. The size of the increases vary widely, depending on which valley customers are located in, whether they hold high security or general security licences, and their annual water usage.

To illustrate the potential outcomes for individual users, Table 1.1 compares the current annual bill for a high security customer with an annual water entitlement of 500 ML and a 100% allocation with the annual bill this customer would face in 2013/14 under State Water's proposal and the 2010 Determination. Table 1.2 shows the same comparison for a general security customer with the same water entitlement and a 60% allocation. The tables indicate that under the 2010 Determination:

- The real increase in the high security customer's bulk water bill varies from 2% (in the Murrumbidgee valley) to 73% (in the Border valley) over the 4-year determination period. This increase is somewhat less than would be the case under State Water's proposal in all valleys.

- The change in the general security customer's bill varies from a decrease of 4% (in the Murrumbidgee valley) to an increase of 47% (in the Lachlan valley) over the same period. This results in bills which are less than or equal to State Water's proposal in all valleys with the exception of the Murrumbidgee valley (which decreases by 4% under the 2010 Determination but decreases by 9% under State Water's proposal).

Table 1.1 Increase in annual bills for high security customers with 500ML entitlement and 100% allocation under IPART's determination and State Water's proposal ($2009/10)

Valley	Current bill 2009/10	IPART's bill 2013/14	IPART's total increase 2009/10 - 2013/14	State Water's bill 2013/14	State Water's total increase 2009/10 - 2013/14
Border	5,455	9,445	73%	9,524	75%
Gwydir	7,520	12,451	66%	12,918	72%
Namoi	10,933	16,379	50%	17,796	63%
Peel	18,607	30,223	62%	42,418	128%
Lachlan	8,928	13,757	54%	20,904	134%
Macquarie	7,123	11,491	61%	15,818	122%
Murray	3,374	3,666	9%	5,040	49%
Murrumbidgee	3,004	3,054	2%	3,542	18%
North Coast	16,719	24,698	48%	225,566	1249%
Hunter	16,250	18,463	14%	20,999	29%
South Coast	17,785	27,826	56%	62,374	251%

Source: IPART price modelling and State Water Corporation submission to IPART 2010 Pricing Determination, p 11-1, September 2009.

Table 1.2 Increase in annual bills for general security customers with 500ML entitlement and 60% allocation under IPART's determination and State Water's proposal ($2009/10)

Valley	Current bill 2009/10	IPART's bill 2013/14	IPART's total increase 2009/10 - 2013/14	State Water's bill 2013/14	State Water's total increase 2009/10 - 2013/14
Border	3,667	4,008	9%	4,187	14%
Gwydir	4,371	5,358	23%	5,808	33%
Namoi	7,488	9,540	27%	10,669	42%
Peel	8,572	12,550	46%	19,443	127%
Lachlan	4,680	6,896	47%	8,375	79%
Macquarie	4,076	5,710	40%	6,139	51%
Murray	2,298	2,406	5%	2,565	12%
Murrumbidgee	1,820	1,746	-4%	1,658	-9%
North Coast	10,594	15,510	46%	137,203	1195%
Hunter	7,052	8,019	14%	8,764	24%
South Coast	10,607	15,529	46%	32,687	208%

Source: IPART price modelling and State Water Corporation submission to IPART 2010 Pricing Determination, p 11-1, September 2009.

Some stakeholders argued that use of a 60% allocation to model annual bills for general security customers was unrepresentative of actual allocations in some cases.

Table 1.3 therefore provides information about bills for a general security customer with an annual water entitlement of 500ML and 30% allocation. This table compares the current annual bill with the bill that this customer would face in 2013/14 under State Water's proposal and the 2010 Determination.

Based on these assumptions Table 1.3 shows that bills for customers in most valleys will increase. However, these customers will be better off under our determination than under State Water's proposal (except those in the Murrumbidgee valley).

Table 1.3 Increase in annual bills for general security customers with 500ML entitlement and 30% allocation under IPART's determination and State Water's proposal ($2009/10)

Valley	Current bill 2009/10	IPART's bill 2013/14	IPART's total increase 2009/10 - 2013/14	State Water's bill 2013/14	State Water's total increase 2009/10 - 2013/14
Border	2,687	2,729	2%	2,883	7%
Gwydir	3,027	3,598	19%	3,907	29%
Namoi	5,605	6,828	22%	7,532	34%
Peel	4,714	6,901	46%	10,223	117%
Lachlan	3,055	4,448	46%	5,042	65%
Macquarie	2,805	3,813	36%	3,869	38%
Murray	1,698	1,732	2%	1,747	3%
Murrumbidgee	1,288	1,234	-4%	1,119	-13%
North Coast	6,418	9,396	46%	80,860	1160%
Hunter	5,210	6,014	15%	6,440	24%
South Coast	6,863	10,048	46%	20,916	205%

Source: IPART price modelling and State Water Corporation submission to IPART 2010 Pricing Determination, p 11-1, September 2009.

1.2 What has changed between draft and final determinations

We have made 3 key changes to our decisions between the draft and final determination. Briefly, these changes involve:

- revision to the method of calculating the allowance added to State Water's notional revenue requirement to manage its revenue volatility
- reversal of the $13 million adjustment to State Water's capital expenditure in 2009/10 to reflect the likelihood that it will meet its proposed capital expenditure target
- modification to our calculation of the high security premium used to derive the high security charge so that the percentage average allocation to high security customers is reflected within the premium.

As a result of the changes to our decisions the prices in most valleys have changed across the price path of the 2010 Determination. However, there has been no significant change between draft and final determinations to the forecast level of revenue for State Water over the period.

Also driving the changes to prices are adjustments to our modelling approach in each valley. These adjustments are in response to comments from stakeholders. These stakeholders have stated a preference to see greater initial price increases to enable lower prices (in comparison to the draft determination) in the final years of the determination. For instance, Gwydir Valley Irrigators Association have expressed:

> …concern for the proposed "Glide-Path" [used by the draft determination] to price setting, highlighting that the approach leads to inflated pricing at the end of the Determination period, and this is likely to result in an inflated starting point for the next pricing period.[1]

Table 1.4 compares current 2009/10 bills for high security customers with a 500ML entitlement and 100% for all valleys with the bills that result from prices in the draft and final determinations in 2013/14. Table 1.6 shows that high security bills for customers with a 500ML entitlement under the final determination are less than or equal to those in the draft determination.

Table 1.4 Comparison of bills for high security customers – 500 ML entitlement with 100% allocation ($2009/10)

Valley		Draft Determination		Final Determination	
	2009/10	2013/14	% real increase 2010-14	2013/14	% real increase 2010-14
Border	5,455	9,680	77%	9,445	73%
Gwydir	7,520	13,885	85%	12,451	66%
Namoi	10,933	17,867	63%	16,379	50%
Peel	18,607	30,223	62%	30,223	62%
Lachlan	8,928	16,186	81%	13,757	54%
Macquarie	7,123	11,978	68%	11,491	61%
Murray	3,374	3,852	14%	3,666	9%
Murrumbidgee	3,004	3,109	4%	3,054	2%
North Coast	16,719	24,698	48%	24,698	48%
Hunter	16,250	20,292	25%	18,463	14%
South Coast	17,785	27,826	56%	27,826	56%

Note: 2009/10 is not part of the 2010 Determination and has been provided for comparison only.

Current 2009/10 bills for general security customers across all valleys with a 500ML entitlement and 60% allocation are compared to the bills that are produced from the draft and final determination prices in Table 1.5. This comparison shows that general security bills for customers with a 500ML entitlement and 60% allocation under the final determination are equal to or less than those under the draft determination for all valleys.

1 Gwydir Valley Irrigators Association submission to IPART, April 2010, p 3.

Table 1.5 Comparison of bills for general security customers – 500ML entitlement with 60% allocation ($2009/10)

Valley		Draft Determination		Final Determination	
	2009/10	2013/14	% real increase 2010-14	2013/14	% real increase 2010-14
Border	3,667	4,274	17%	4,008	9%
Gwydir	4,371	5,903	35%	5,358	23%
Namoi	7,488	10,079	35%	9,540	27%
Peel	8,572	12,550	46%	12,550	46%
Lachlan	4,680	7,727	65%	6,896	47%
Macquarie	4,076	5,989	47%	5,710	40%
Murray	2,298	2,559	11%	2,406	5%
Murrumbidgee	1,820	1,827	0%	1,746	-4%
North Coast	10,594	15,510	46%	15,510	46%
Hunter	7,052	8,726	24%	8,019	14%
South Coast	10,607	15,529	46%	15,529	46%

Note: 2009/10 is not part of the 2010 Determination and has been provided for comparison only.

1.3 What is driving the price increases under the determination?

There are several reasons for the price increases under the determination, including:

- an increase in the forecast efficient revenue that State Water requires for operating and capital expenditure
- an increase in the real pre-tax WACC (reflecting current market parameters) to determine an appropriate rate of return on State Water's RAB from 6.5% (used in the 2006 Determination) to a rate of 7.4%
- a decrease in the forecast annual extractions compared to those used to set prices at the 2006 Determination
- our decision to include an allowance for revenue volatility in State Water's revenue requirement.

On average across all valleys, water prices will be around 28% higher in 2013/14 than in 2009/10. Higher costs contribute 11% to this increase and lower expected water sales contribute 15%.

The user notional revenue requirement[2] shows that the largest contributor to higher costs is the return on capital component (10%). This increase reflects both a larger asset base and a higher rate of return. The introduction of the volatility allowance contributes 4% to the increase. By contrast, operating expenditure (-1%) and MDBA costs (-4%) are expected to be lower in 2013/14 than in 2009/10.

2 Table 4.6 provides the user share of State Water's notional revenue requirement.

1.3.1 Increase in State Water's revenue requirements

Table 1.6 outlines the drivers of increases in State Water's notional revenue requirement under the 2010 Determination. The table shows that increases in the user cost share contribute 22.5% of the total increase in the notional revenue requirement. The increase in the Government's share contributes the remaining 77.5% in the notional revenue requirement. As a consequence the user cost share decreases over the 2010 Determination from 68.6% in 2009/10 to 57.0% in 2013/14. The Government's share increases from 31.4% to 43.0%.

Table 1.6 Drivers of increases under IPART's decision on State Water's notional revenue requirement ($'000, 2009/10)

	2009/10	2013/14	Proportion of total increase in NRR (%)
Operating expenditure	36,246	37,110	3.1%
Revenue volatility allowance	0	2,237	7.9%
MDBA & BRC costs	17,227	13,207	-14.2%
Allowed depreciation[b]	3,445	7,478	14.2%
Return on capital[a, b]	27,245	46,264	67.2%
Increase in rate of return (through higher WACC)	0	6,188	21.8%
Notional revenue requirement (NRR)	84,163	112,485	100.0%
User cost share	57,756	64,128	22.5%
Government cost share	26,407	48,356	77.5%

a Return on capital includes a working capital allowance.

b For modelling purposes this values assume no change to the rate of return (ie, WACC = 6.5%).

Note: Column totals may not sum due to rounding.

State Water's higher revenue requirement is primarily driven by increased capital expenditure which is required to undertake dam safety upgrades and related environmental measures (discussed further below). Dam safety upgrades are to be fully funded by the Government.[3] This is consistent with the cost share ratios for this determination.

1.3.2 Decrease in forecast extractions

In making the 2006 Determination, we set prices based on forecast extractions of 21,799 GL across all valleys for the 4-year period. However, actual extractions over the period were only 6,247 GL (ie, over 70% less than forecast).[4] The levels of bulk water available for extraction were much lower than expected, due to continuing drought conditions. The difference between the forecast and actual extractions

3 Expenditure on dam safety upgrades for this determination is classified as pre 1997 dam safety upgrades, which have a 100% allocation to Government.

4 Extraction data for 2009/10 is forecast only.

resulted in State Water under-recovering its target revenue from bulk water services by around $63.8 million over the 2006 Determination.

To reduce the risk of such a significant forecasting error occurring again, we have adopted a new approach for forecasting extractions for the 2010 Determination. This approach uses a 20-year moving average of historical Integrated Quantity and Quality Model (IQQM) and actual extractions data. In our view, this approach strikes an appropriate balance between the conflicting objectives of maintaining price stability over consecutive determinations and using current, updated data that incorporates recent trends to forecast future extractions.

The use of this approach resulted in forecast annual extractions of 4,627 GL, which is around 15% less than the forecast annual extractions of 5,450 GL that we used in making the 2006 Determination. Because we have decided for this determination to recover the same proportion of State Water's target revenue from volume-based usage charges as we did for the 2006 Determination (60%),[5] the lower forecast extractions made it necessary to increase these charges.

We consider that the new approach to forecasting extractions offers a more reliable forecasting method that will increase the likelihood of State Water recovering its full target revenue over the 2010 Determination. This is important to ensure State Water's long-term financial viability, and is also necessary to comply with the National Water Initiative's cost recovery principles.

1.3.3 Inclusion of allowance for revenue volatility in State Water's revenue requirement

Although we expect the new approach for forecasting extractions will reduce the risk associated with forecasting error, the inherent difficulties of forecasting variable climatic conditions mean that this risk will not be eliminated. State Water will remain exposed to the risk of revenue volatility due to annual variability in water available for extraction.

State Water proposed several approaches for addressing the remaining risk, including:

- using a higher rate of return on capital in its notional revenue requirement
- changing the ratio of revenue to be recovered through fixed entitlement charges versus volume-based usage charges from the current 40:60 to 90:10[6]
- recovering the holding costs of an 'unders and overs' account created to keep track of the net shortfall/windfall when actual extractions deviate from forecasts.

5 For all valleys except the Hunter and North Coast valleys where the figure is 40%.
6 The Hunter and North Coast valleys have an entitlement charge to usage charge ratio of 60:40.

We considered State Water's proposed approaches, along with others submitted by stakeholders, but decided that the best approach is to include a volatility allowance in the notional revenue requirement.

This allowance is designed to recover the costs State Water will face in managing the risk of revenue volatility – such as the holding costs it will incur if it needs to borrow funds to conduct its business in years when its revenue is low due to lower than forecast extractions. It adds around $7.78 million to State Water's notional revenue requirement over the 4 years of the 2010 Determination (in NPV terms), all of which is allocated to the user share (through the general security entitlement charge).

This approach to addressing revenue risk is more cost effective than increasing the rate of return or recovering the holding costs on an 'unders and overs' account. It addresses revenue volatility directly and has regulatory precedent. In addition, it complies with the National Water Initiative principles which state that users should bear the risks of any reduction in, or less reliable, water allocations arising as a result of seasonal or long-term changes in climate and drought.[7]

As discussed in Chapter 10, our determination requires high security users to pay a high security premium, which is incorporated within high security entitlement charges. This reflects the secure nature of high security water allocations. The revenue that State Water obtains is also relatively stable. We have therefore decided that the volatility allowance should be recovered from general security users. The general and high security entitlement charges are first calculated (including the high security premium). The volatility allowance is then added to the general security entitlement charge.

Stakeholder concerns

Some stakeholders have argued that the combination of our approach to forecasting extractions, the volatility allowance and an increase to State Water's rate of return excessively rewards State Water for risk. However, these components of our determination serve different purposes.

The adoption of a new approach to forecasting extractions increases the accuracy of our forecasts, and hence the likelihood that our forecasts will represent accurate predictors of future extractions.

The revenue volatility allowance funds State Water with sufficient working capital to manage its volatile revenue streams. The revised approach to forecasting extractions means that the revenue volatility is smaller than it would be if we continued to use the IQQM forecasts.

7 COAG, *Intergovernmental Agreement on a National Water Initiative*, June 2004, p 8.

The calculation of State Water's rate of return is based purely on current market conditions. The increase in the rate of return reflects the recent movements which have occurred in equity and debt markets since State Water's rate of return was last calculated for the 2006 Determination.

The adoption of the new forecasting approach and the revenue volatility allowance, along with an increase in State Water's rate of return does not amount to triple counting. Our treatment of these 3 components under the 2010 Determination enables State Water to remain financially viable. This enables State Water to continue to provide its services to customers, to meet its statutory obligations and to cover its costs of capital.

1.4 Approach used to set prices

The approach we used to set prices is broadly similar to the one we used for the 2006 Determination. We consider that this approach best meets our primary objectives for the 2010 Determination, including establishing cost-reflective prices and the allocation of costs on an impactor pays basis. Our approach involved setting prices on a per valley basis by:

- Determining State Water's notional revenue requirement by estimating the full, efficient cost of providing the regulated bulk water services in each valley over the 2010 Determination using the building block approach.
- Determining how much of this efficient cost should be recovered through prices for bulk water services (the target revenue) by calculating the users' share of the notional revenue requirement.
- Determining the forecast extractions and entitlement volumes to be used in setting prices.
- Determining the approach for converting the target revenue into prices. This included deciding on issues such as the price path and price structure, the proportion of revenue to be recovered through fixed entitlement charges versus volume-based usage charges, and the balance between high and general security entitlement charges.
- Converting the target revenue into prices in line with the above decisions.
- Considering whether these prices are reasonable and balanced in terms of their likely impact on users, State Water's financial viability and the environment.

As noted above, we decided to include an allowance for revenue volatility in the notional revenue requirement. We also decided to pass through the costs of the Murray Darling Basin Authority (MDBA) and the Border Rivers Commission (BRC) allocated to State Water by including an allowance for these costs within State Water's notional revenue requirement.

To convert State Water's target revenue into prices, we decided to target a smoothed NPV (net present value) neutral price path. Under this approach, we seek to set prices to generate the total target revenue, in NPV terms, by the end of the determination period. It is described as 'smoothed' because it flattens out any year-on-year fluctuations to achieve more equal annual price increases over the period.

1.5 IPART's decisions on State Water's notional revenue requirement and target revenue

Table 1.7 provides an overview of our decisions on State Water's notional revenue requirement and target revenue over the 2010 Determination. The target revenue represents the users' share of the notional revenue requirement, which is to be recovered through prices for bulk water services. The remaining share will be funded by the NSW Government.

Table 1.7 IPART's decisions on State Water's notional revenue requirement and target revenue ($'000, 2009/10)

	2010/11	2011/12	2012/13	2013/14
Total operating expenditure	38,622	38,195	38,058	37,110
Revenue volatility allowance	2,237	2,237	2,237	2,237
Total MDBA & BRC costs	12,219	13,536	14,747	13,207
Allowed depreciation	4,470	5,662	6,779	7,447
Allowance for a return on capital[a]	36,549	42,958	48,868	52,483
Total revenue requirement	94,096	102,589	110,689	112,485
User cost share	60,871	63,000	65,001	64,128
Government cost share	33,225	39,589	45,688	48,356
Revenue to be recovered from tariffs	60,871	63,000	65,001	64,128

[a] Return on capital incorporates a working capital allowance.

Note: Column totals may not sum due to rounding.

In making our decision on the notional revenue requirement, we analysed State Water's proposed operating and capital expenditure forecasts for the 2010 Determination. We engaged a consortium of independent engineering consultants, WS Atkins International Limited and Cardno Limited (Atkins/Cardno), to review State Water's past and forecast operating and capital expenditure. Our decision reflects our view of State Water's total efficient costs in providing its regulated bulk water services over the 2010 Determination.

In making our decision on the target revenue, we considered the cost share ratios used to apportion State Water's costs between users and the Government for the 2006 Determination. We decided to maintain these ratios for the 2010 Determination.

1.5.1 Forecast efficient operating and maintenance expenditure

Our decision on forecast operating expenditure reflects our view that State Water has further scope to improve its operating efficiency. In its submission, State Water indicated that it had achieved sizeable efficiency gains over the 2006 Determination, and proposed to make additional specified efficiency gains over the 2010 Determination. However, its forecast level of operating expenditure for this period was still higher, due to new expenditure required to meet its statutory and regulatory obligations (eg, expenditure on emergency and security, dam safety and the environment).[8]

After considering State Water's proposed expenditure and efficiency targets, and Atkins/Cardno's review of this proposal, we decided to accept our consultants' advice that State Water has further scope to improve its efficiency, defer expenditure on some schemes and reduce contingencies. We applied additional efficiency targets to its proposed annual operating expenditure, as shown in Table 1.8.

Table 1.8 IPART's decision on operating expenditure efficiency targets for State Water (%)

	2010/11	2011/12	2012/13	2013/14
Total efficiency target	1.4	3.2	5.2	7.2
less efficiency target proposed by State Water	0.6	2.0	4.1	5.9
Net additional efficiency target	0.8	1.2	1.1	1.3

Table 1.9 compares our decisions on operating expenditure and the cost shares of this expenditure with State Water's proposal.

Table 1.9 IPART's decision on efficient operating expenditure by cost share, compared to State Water's proposal ($'000, 2009/10)

	2010/11	2011/12	2012/13	2013/14
State Water proposed				
User share	35,720	35,882	36,433	35,756
Government share	3,624	3,875	3,732	3,568
Total State Water proposed	**39,344**	**39,757**	**40,165**	**39,324**
IPART's decision				
User share	35,194	34,834	34,668	33,891
Government share	3,427	3,362	3,390	3,219
Total decision	**38,622**	**38,195**	**38,058**	**37,110**

Source: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 3-6 and Appendix 4; IPART modelling.

8 State Water has referred to this as thematic expenditure.

1.5.2 Allowance for a return on assets

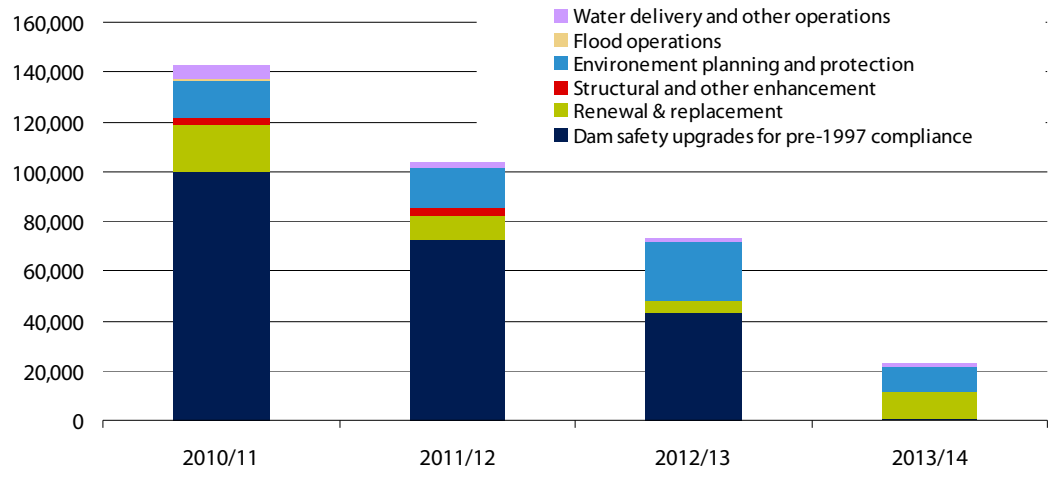
Our decision on the allowance for a return on capital reflects our view that:

- the value of State Water's regulatory asset base (RAB) as at 1 July 2010 is $466.4 million, which incorporates $122.1 million of prudent capital expenditure incurred over the 2006 Determination
- State Water's forecast efficient capital expenditure for the 2010 Determination is $289.2 million, which will be rolled into the RAB during this period
- an appropriate rate of return on State Water's RAB is 7.4%.

The real pre-tax WACC used to determine an appropriate rate of return on State Water's RAB has increased from the rate of 6.5% (used in the 2006 Determination) to a rate of 7.4%, which has been used for this determination. The increase in the real pre-tax WACC reflects movements which have occurred in the market parameters used to calculate the WACC since it was last set in 2006.

State Water proposed large increases in its capital works program over the 2010 Determination (Figure 1.1). These increases are mainly driven by planned spending on dam safety upgrades and environmental planning and protection, both of which are required to meet State Water's statutory and regulatory obligations. However, planned spending on the renewal and replacement of existing assets is also a significant driver.

Figure 1.1 State Water's proposed capital expenditure by activity ($'000, 2009/10)



Data source: State Water, Electronic Information Return, September 2009.

We examined State Water's proposal and Atkins/Cardno's review of the prudency and efficiency of its past and forecast capital expenditure. We accepted the need for increased expenditure on dam safety upgrades and related environmental measures (such as fish passage and cold water pollution mitigation works). A large proportion of it is allocated to the Government and so will not affect prices charged to water users.

We also decided to make some adjustments to the level and timing of the proposed capital works program in line with Atkins/Cardno's recommendations. This included adjustments to:

- address the incorrect allocation of some project expenditure to capital expenditure categories
- align the timing and level of dam safety expenditures to the timetable agreed with the NSW Dam Safety Committee
- realign the timing and adjust the level of fish passage and cold water pollution mitigation expenditures
- apply the capital efficiency targets shown in Table 1.10.

Table 1.10 IPART's decision on capital expenditure efficiency targets for State Water (%)

	2010/11	2011/12	2012/13	2013/14
Efficiency targets for expenditure on dam safety upgrades	1.4	2.3	3.2	4.1
Efficiency targets for other expenditure categories	1.4	3.3	5.2	7.1

Table 1.11 shows our decisions on forecast efficient capital expenditure to be included in the RAB during the 2010 Determination. It shows our adjustments to the timing and level of capital expenditure and the application of the capital efficiency targets we set. It also compares our decisions with State Water's proposed expenditure.

Table 1.11 IPART's decisions on adjustments to State Water's proposed capital expenditure ($'000, 2009/10)

	2010/11	2011/12	2012/13	2013/14	Total 2010/11 to 2013/14
State Water proposed capital expenditure	**142,121**	**103,858**	**73,144**	**22,828**	**341,951**
IPART adjustments for:					
- rephasing	-39,750	500	13,100	2,200	-23,950
- specific schemes	-8,250	-9,250	-2,150	-750	-20,400
- efficiency	-1,318	-2,517	-3,130	-1,401	-8,366
IPART decision on forecast capital expenditure	**92,803**	**92,591**	**80,964**	**22,877**	**289,235**
Difference between State Water proposed & IPART decision	-49,318	-11,267	7,820	49	-52,716

Note: Columns may not sum due to rounding.

In making our decision on the appropriate rate of return, we calculated that State Water's real pre-tax weighted average cost of capital (WACC) is in the range of 6.3% to 8.6%. We decided that the appropriate rate of return for State Water is 7.4%, or the mid-point of this range.

Table 1.12 shows our decisions on the allowance for a return on capital and the cost share of this allowance between users and Government.

Table 1.12 IPART's decision on allowance for return on capital by cost share ($'000 2009/10)[a]

	2010/11	2011/12	2012/13	2013/14
State Water proposed				
User share	15,839	17,807	19,137	20,200
Government share	24,600	31,483	36,273	38,160
Total State Water proposed	**40,439**	**49,290**	**55,410**	**58,359**
IPART decision				
User share	14,689	16,165	17,414	18,036
Government share	21,860	26,793	31,455	34,447
Total allowance for return on capital	36,549	42,958	48,868	52,483

a Includes an allowance for working capital.

Note: Columns may not sum due to rounding.

1.5.3 Allowance for regulatory depreciation

In calculating the allowance for regulatory depreciation, we used asset lives of 160 years for existing assets and 75 years for new assets. These are the same as the asset lives State Water proposed for the 2006 Determination, and which we used in making that determination.

For the 2010 Determination, State Water proposed using an average asset life for all assets of 86 years. After considering State Water's proposal and Atkins/Cardno's views on this proposal, we decided to accept Atkins/Cardno's advice to maintain the asset lives that we used for the 2006 Determination.

Table 1.13 shows our decisions on the allowance for regulatory depreciation and the cost share of this allowance between users and Government.

Table 1.13 IPART's decisions on allowance for regulatory depreciation and user share compared with State Water's proposal ($'000 2009/10)

	2010/11	2011/12	2012/13	2013/14
State Water proposed				
User share	2,411	2,737	2,970	3,165
Government share	3,736	4,819	5,600	5,954
Total State Water proposed	**6,147**	**7,556**	**8,570**	**9,120**
IPART decision				
User share	1,666	1,949	2,185	2,321
Government share	2,804	3,713	4,594	5,126
Total allowance for depreciation	4,470	5,662	6,779	7,447

1.5.4 Allowance for revenue volatility

Our decision on the level of the revenue volatility allowance reflects our view of the costs State Water is likely to incur in managing revenue volatility over the 2010 Determination.

The measure of volatility under the approach for the final determination is the mean of the absolute differences between the 20-year average of extractions and actual extractions in each of the 20 years. This provides a better estimate of volatility than the approach used in the draft determination. It measures the degree to which extractions have fluctuated over the last 20 years, rather than using the assumption that the worst case scenario repeats itself.

1.5.5 Allowance for MDBA and BRC costs to be passed through

For BRC costs, we decided to pass through the total costs allocated to State Water. However, we remain concerned about the lack of transparency of MDBA costs. Our 2006 report stated:

> The Tribunal notes that there has been no independent examination of its efficiency. The MDBC [now MDBA] is outside the Tribunal's jurisdiction. However, the Tribunal believes that the governments that are signatories to the agreement should consider initiating a study of the efficiency of the MDBC's operations before agreeing to fund expenditures which are then to be passed on to irrigators.[9]

In our view, it is unsatisfactory to pass through unspecified costs to users without an independent review of their efficiency. In recognition of our uncertainty about the efficiency of the MDBA's costs, we have applied an efficiency adjustment of 1.25% compounded per annum to these costs. This is the same efficiency factor that we applied to MDBA costs for the 2006 Determination.

1.6 Output measures

We have developed a set of output measures for State Water in conjunction with setting prices for the 2010 Determination. The price increases within the 2010 Determination are required for State Water to achieve certain outputs and service levels in the provision, maintenance and operation of its infrastructure.

The output measure for the 2010 Determination include:

- milestone dates for major projects
- the percentage of maintenance jobs reported on the facilities maintenance and management system
- reporting of State Water's existing asset conditions
- environmental output measures to assess fish passage and reduced cold water pollution.

In addition, we expect that State Water will continue to provide valley based reporting of its delivery against its forecast expenditure and outcomes.

Output measures enable us to assess State Water's performance against the targets set by us and thereby determine the benefit to water users from the provision of services and projects that have been allowed for and funded by this determination. State Water's performance against its output measures will be assessed by us and our consultants at the next price review to determine State Water's performance over the 2010 Determination.

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9 IPART, *Bulk Water Prices for State Water Corporation and Water Administration Ministerial Corporation - From 1 October 2006 to 30 June 2010*, September 2006, p 10.

1.7 Pricing decisions

In setting prices for each valley, we decided to maintain the same broad price structure as used for the 2006 Determination. We also decided to:

- Continue to set prices to target revenue from fixed entitlement charges and volume-based usage charges in the ratio of 40:60 for all valleys except the North Coast and Hunter valleys. In these 2 valleys, we decided to continue to set prices to generate revenue from entitlement and usage charges in the ratio of 60:40.
- Rebalance high and general security entitlement charges by incorporating a premium into the high security entitlement charges to better reflect the higher costs and benefits associated with high security entitlements.
- Not attempt to set prices at full cost recovery levels in the North Coast, South Coast and Peel valleys. In these valleys, we have capped the average valley bill increase to 10% per annum in real terms for general security customers because of the already high dollar value of charges in these valleys (in comparison to all other valleys).[10] We calculated average valley bill increases on the basis of each valley's average entitlement size (with an assumed allocation of 100% for high security and 60% for general security customers).
- Maintain the current method for calculating rebates for irrigation corporations and districts (ICDs), which is based on the costs that the ICDs avoid for State Water.
- Accept State Water's proposal to introduce a new metering charge for users who have new meters installed under the NSW metering scheme, which is designed to recover the operation and maintenance costs of the scheme.

Table 1.14 to Table 1.18 show our decisions on the maximum charges State Water can levy in each valley, the maximum discounts it can provide to ICDs, and the maximum metering services charges over the 2010 Determination.

[10] Which also restrains average bill increases for high security customers by a similar magnitude because of the relationship between general security and high security entitlement charges.

Table 1.14 IPART's decision on high security and general security entitlement charges and percentage increases ($/ML $2009/2010)

	2009/10	2010/11		2011/12		2012/13		2013/14		2009/10 – 2013/14	
	$	$	% △	$	% △	$	% △	$	% △	$ △	% △
High Security Entitlement Charge											
Border	4.37	6.32	44.4	7.89	24.8	9.23	17.0	10.36	12.3	5.99	136.9
Gwydir	6.08	9.23	51.7	11.79	27.7	12.17	3.2	13.16	8.2	7.08	116.3
Namoi	9.31	11.28	21.2	12.78	13.3	14.01	9.6	14.68	4.8	5.37	57.7
Peel	11.50	13.78	19.9	16.39	18.9	19.37	18.2	22.79	17.6	11.30	98.3
Lachlan	7.02	8.60	22.5	9.44	9.7	10.30	9.1	11.19	8.6	4.17	59.3
Macquarie	5.78	6.84	18.4	7.96	16.4	9.12	14.6	10.34	13.3	4.56	79.0
Murray	2.75	2.61	-5.2	2.69	3.1	2.77	2.9	2.84	2.6	0.09	3.2
Murrumbidgee	2.46	2.43	-1.2	2.53	3.9	2.61	3.4	2.69	3.0	0.23	9.4
North Coast	5.60	6.25	11.6	6.96	11.4	7.75	11.4	8.64	11.4	3.04	54.3
Hunter	20.22	24.33	20.3	24.07	-1.1	23.81	-1.1	23.56	-1.1	3.34	16.5
South Coast	10.61	12.34	16.3	14.32	16.0	16.56	15.7	19.11	15.4	8.50	80.1
General Security Entitlement Charge											
Border	3.41	3.49	2.4	3.28	-6.1	3.08	-6.0	2.90	-6.0	-0.51	-15.1
Gwydir	3.37	4.01	19.1	3.89	-3.0	3.78	-2.9	3.67	-2.8	0.31	9.1
Namoi	7.44	8.61	15.6	8.48	-1.5	8.35	-1.5	8.23	-1.5	0.79	10.6
Peel	1.71	1.88	10.0	2.07	10.0	2.28	10.0	2.51	10.0	0.79	46.4
Lachlan	2.86	3.85	34.8	3.90	1.2	3.95	1.2	4.00	1.3	1.14	39.8
Macquarie	3.07	3.64	18.6	3.70	1.7	3.77	1.7	3.83	1.8	0.76	24.9
Murray	2.20	2.22	1.2	2.19	-1.7	2.15	-1.7	2.12	-1.6	-0.08	-3.7
Murrumbidgee	1.51	1.55	2.1	1.51	-2.1	1.48	-2.3	1.44	-2.3	-0.07	-4.6
North Coast	4.48	4.93	10.0	5.42	10.0	5.97	10.0	6.56	10.0	2.08	46.4
Hunter	6.74	8.46	25.6	8.31	-1.8	8.16	-1.8	8.02	-1.8	1.28	19.0
South Coast	6.24	6.86	10.0	7.55	10.0	8.30	10.0	9.13	10.0	2.90	46.4

Note: Charges for 2009/10 exist under the 2006 Determination and are provided for comparison purposes only.

Table 1.15 IPART's decision on usage charges and percentage increases ($/ML $2009/2010)

	2009/10	2010/11		2011/12		2012/13		2013/14		2009/10 – 2013/14	
	$	$	% △	$	% △	$	% △	$	% △	$ △	% △
Border	6.54	7.84	20.0	8.14	3.8	8.45	3.8	8.53	0.9	1.99	30.5
Gwydir	8.96	11.85	32.3	11.81	-0.3	11.78	-0.3	11.74	-0.3	2.78	31.1
Namoi	12.56	18.61	48.2	18.43	-1.0	18.26	-1.0	18.08	-1.0	5.52	44.0
Peel	25.72	28.29	10.0	31.12	10.0	34.23	10.0	37.66	10.0	11.94	46.4
Lachlan	10.83	14.88	37.4	15.35	3.1	15.83	3.1	16.32	3.1	5.49	50.7
Macquarie	8.47	11.30	33.4	11.73	3.8	12.18	3.8	12.65	3.8	4.18	49.3
Murray	4.00	4.66	16.5	4.60	-1.2	4.55	-1.2	4.49	-1.2	0.50	12.4
Murrumbidgee	3.54	3.51	-1.0	3.48	-0.8	3.45	-1.0	3.41	-1.0	-0.13	-3.7
North Coast	27.84	30.62	10.0	33.69	10.0	37.05	10.0	40.76	10.0	12.92	46.4
Hunter	12.28	13.95	13.6	13.75	-1.4	13.56	-1.4	13.37	-1.4	1.09	8.9
South Coast	24.96	27.45	10.0	30.20	10.0	33.22	10.0	36.54	10.0	11.58	46.4

Note: Charges for 2009/10 exist under the 2006 Determination and are provided for comparison purposes only.

Table 1.16 IPART's decision on charges for the Fish River scheme ($/kL, $2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14	% △ 2009/10 -2013/14
BULK RAW WATER						
Minimum Annual Quantity (MAQ)						
- Delta Electricity	0.24	0.26	0.29	0.32	0.35	43.3%
- Sydney Catchment Authority	0.24	0.26	0.29	0.32	0.35	43.3%
- Oberon Council	0.24	0.26	0.29	0.32	0.35	43.3%
- Individual Minor Customers	0.30	0.33	0.36	0.39	0.43	43.3%
Usage up to MAQ						
- Delta Electricity	0.27	0.29	0.32	0.35	0.39	43.3%
- Sydney Catchment Authority	0.27	0.29	0.32	0.35	0.39	43.3%
- Oberon Council	0.27	0.29	0.32	0.35	0.39	43.3%
- Individual Minor Customers	0.54	0.59	0.65	0.71	0.77	43.3%
Usage in excess of MAQ						
- Delta Electricity	0.51	0.56	0.61	0.67	0.73	43.3%
- Sydney Catchment Authority	0.51	0.56	0.61	0.67	0.73	43.3%
- Oberon Council	0.51	0.56	0.61	0.67	0.73	43.3%
- Individual Minor Customers	0.84	0.92	1.01	1.10	1.20	43.3%
BULK FILTERED WATER						
Minimum Annual Quantity (MAQ)						
- Lithgow Council	0.36	0.39	0.43	0.47	0.52	43.3%
- Individual Minor Customers	0.42	0.46	0.50	0.55	0.60	43.3%
Usage up to MAQ						
- Lithgow Council	0.39	0.43	0.47	0.51	0.56	43.3%
- Individual Minor Customers	0.66	0.72	0.79	0.86	0.95	43.3%
Usage in excess of MAQ						
- Lithgow Council	0.75	0.82	0.90	0.98	1.07	43.3%
- Individual Minor Customers	1.08	1.18	1.29	1.42	1.55	43.3%

Note: Charges for 2009/10 exist under the 2006 Determination and are provided for comparison purposes only.

Table 1.17 Decision on ICD discounts for the 2010 Determination ($2009/10)

ICDs	2009/10	2010/11	2011/12	2012/13	2013/14
Jemalong	93,865	88,331	87,339	84,361	83,369
Murray Irrigation	1,565,897	940,715	925,783	910,851	895,919
Western Murray	34,233	38,590	37,978	37,365	36,753
West Corurgan	34,233	50,922	50,113	49,305	48,497
Moira	15,460	24,721	24,329	23,936	23,544
Eagle Creek	6,626	10,811	10,640	10,468	10,297
Murrumbidgee Irrigation	994,974	800,165	800,165	786,369	772,573
Coleambally Irrigation	425,155	354,274	354,274	348,165	342,057

Note: Discounts for 2009/10 exist under the 2006 Determination and are provided for comparison purposes only.

Table 1.18 Metering service charges ($2009/10)

Type of electromagnetic meter	Metering service charge (per meter per annum)
Local read – magmeter	214
Remote read - magmeter with mobile phone coverage	289
Remote read - magmeter with satellite telemetry coverage	604
Remote read - channel meter with Mobile phone coverage	604
Remote read - channel meter with satellite telemetry coverage	604

The above prices are presented in 2009/10 terms, which reflect the prices in the current 2009/10 financial year dollars. We note that the 2010 Determination prices (and the bills they produce) will be adjusted by the CPI for each year of the determination period. A CPI adjustment of 2.7% will be applied to adjust current prices (and bills) to 2010/11 terms. The 2.7% adjustment equates the prices shown in this report (in 2009/10 dollars) with the prices presented in the determination (in 2010/11 dollars).

Table 1.19 presents the 2010/11 prices of State Water's entitlement and usage charges in 2010/11 dollar terms (ie, after applying the CPI adjustment of 2.7%). The prices in Table 1.19 are the prices that customers will actually pay.

Table 1.19 Inflation impact on entitlement and usage charge prices for 2010/11($/ML)

	Prices for 2010/11 (in $2009/10 terms)	Prices for 2010/11 (in $2010/11 terms)
High Security Entitlement Charge		
Border	6.32	6.49
Gwydir	9.23	9.48
Namoi	11.28	11.59
Peel	13.78	14.16
Lachlan	8.60	8.83
Macquarie	6.84	7.02
Murray	2.61	2.68
Murrumbidgee	2.43	2.50
North Coast	6.25	6.41
Hunter	24.33	24.99
South Coast	12.34	12.67
General Security Entitlement Charge		
Border	3.49	3.59
Gwydir	4.01	4.12
Namoi	8.61	8.84
Peel	1.88	1.93
Lachlan	3.85	3.96
Macquarie	3.64	3.74
Murray	2.22	2.28
Murrumbidgee	1.55	1.59
North Coast	4.93	5.06
Hunter	8.46	8.69
South Coast	6.86	7.05
Usage charge		
Border	7.84	8.06
Gwydir	11.85	12.17
Namoi	18.61	19.11
Peel	28.29	29.05
Lachlan	14.88	15.29
Macquarie	11.30	11.60
Murray	4.66	4.78
Murrumbidgee	3.51	3.61
North Coast	30.62	31.45
Hunter	13.95	14.32
South Coast	27.45	28.19

Note: A CPI adjustment of 2.7% has been used to convert prices from $2009/10 terms to $2010/11 terms.

1.8 Impact of our decisions on State Water prices

We have assessed the impact of our decisions on State Water's customers and its financial position. We are satisfied that these decisions reflect an appropriate balance between the competing needs and interests of these stakeholders, and take appropriate account of the other matters we are required to consider under the IPART Act.

1.8.1 Impact on customers

To assess the impact of our decisions on bulk water prices on customers in each valley, we calculated the annual bills for high security and general security entitlement holders with allocations of 100% and 60% respectively, and with annual water usage of 150 ML, 500 ML and 1,000 ML. These calculations provide a reasonable indication of the impact of our decisions on low, medium and high users of bulk water in each valley. As noted above, this analysis indicates that the impact of our decisions on customers varies widely, depending on the valley they are located in, the type of entitlement they hold, and their level of water usage.[11]

We also calculated the annual bills of these customers as a percentage of average total farm costs in each valley. We found that for high security and general security customers who use 150 ML per annum, these annual bills represent less than 9% of average total farm costs. The annual bill represents less than 11% of average total farm costs for high security and general security customers who use 1,000 ML per annum.

We understand that our decisions will result in considerable price increases for some customers in some valleys. However, these increases are required to fund the users' share of the independently assessed, efficient costs of State Water's regulated bulk water services.

We recognise that water users have also suffered reduced revenue because of drought conditions. We also recognise that water in-flows are highly variable. At issue is who should bear this risk and what risk mitigation measures are available to State Water and its customers. We are bound to follow the rules and principles of the National Water Initiative. It states that:

> Water access entitlement holders are to bear the risks of any reduction or less reliable water allocation…arising from reductions to the consumptive pool as a result of seasonal or long-term changes in climate; and… drought.[12]

In addition, we note that State Water is unable to diversify its risks if sales are low, however water users may purchase or sell an allocation of water on an open market, or invest in water saving infrastructure.[13]

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11 These findings are discussed in detail in Chapter 12.

12 COAG, *Intergovernmental Agreement on a National Water Initiative*, June 2004, p 8.

13 We note that opportunities to trade water is better in some valleys than others.

1.8.2 Impact on State Water's financial position

We consider that our determination will allow State Water to generate sufficient revenue to operate, maintain, renew and augment the assets it requires to deliver its regulated bulk water services. However, we expect that State Water's credit rating will fall below investment grade over the course of the 2010 Determination.[14] This is largely due to State Water's large forecast capital program, which will require it to almost double its current debt to equity ratio, from 25% in 2009/10 to 45% in 2013/14.

State Water claims it is imperative that an overall investment grade credit rating of BBB be maintained throughout the 2010 Determination and have proposed a number of measures to achieve this. However, stakeholders are generally of the opinion that there should be increased equity funding from shareholders and/or a deferral of capital expenditure in order to improve State Water's credit rating.

There are inherent conflicts between attaining a BBB credit rating, while setting prices that are cost reflective and equitable to customers in an environment of significant capital expansion. Our view is that under normal competitive market conditions a firm would seek additional equity funding from its shareholders if it wished to undertake substantial capital works and maintain its BBB credit rating.

This determination sets prices to recover State Water's costs with an efficient rate of return set at the midpoint of the WACC range. We consider that the decision of whether an equity injection is required to attain BBB status is a matter for State Water and the NSW Government to resolve.

The issue of State Water's credit rating is discussed in detail in chapter 12.

1.9 Structure of this report

The rest of this report discusses our key findings and decisions in more detail. It is structured as follows:

- Chapter 2 outlines the scope and context for our review, including our review and decision-making processes, State Water's operating environment, and State Water's pricing proposal.
- Chapter 3 explains our price setting approach, including our decisions to target a smoothed NPV neutral approach to set prices and include an allowance for revenue volatility in the notional revenue requirement.
- Chapter 4 provides an overview of our decisions on State Water's notional revenue requirement and target revenue from bulk water services, while Chapters 5 to 7 explain our decisions on the revenue required for operating expenditure and capital expenditure in more detail.

[14] The NSW Treasury states that a BBB rating is considered investment grade and is the minimum credit rating required to ensure financial viability.

- Chapter 8 explains our decisions on the ratios for sharing costs between users and the Government.
- Chapter 9 discusses our decisions on forecast extractions and entitlement volumes, including the new approach we used to forecast extractions.
- Chapters 10 and 11 set out our pricing decisions on entitlement and usage charges, rebates to ICDs, and miscellaneous and metering charges.
- Chapter 12 discusses the implications of our determination for State Water's customers and financial position, and for the environment and State Water's service standards.

Appendix A includes a table which outlines our responses to the comments and issues raised by stakeholders.

2 Scope and context for this review

The purpose of this review is to determine the prices that State Water can charge irrigators, industrial users and town water suppliers for extracting bulk water from regulated rivers in NSW.[15]

The scope of the review **excludes** the prices the NSW Office of Water (NOW) charges to recover the costs of its water resource management functions. We are conducting a separate review of these prices and the associated costs.

The sections below outline the context for the review of State Water's prices, including our review process, the matters we considered as part of this review, State Water's operations and regulatory environment, and State Water's submissions and pricing proposals.

2.1 IPART's review process

To date, our review process has included an extensive investigation and public consultation process. As part of the review, we:

- released an Issues Paper in July 2009 to assist stakeholders in identifying and understanding the key issues for review
- invited State Water to make a submission to the review detailing its pricing proposal, and required it to provide extensive financial and performance data on the future capital and operating expenditure necessary to provide bulk water services
- invited interested parties to make submissions in response to our issues paper and State Water's submission[16]
- held public hearings in Griffith, Dubbo, Moree and Sydney to provide stakeholders with an additional opportunity to express their views[17]

15 Regulated rivers are those where the natural flow of water is regulated by infrastructure such as dams or weirs.

16 105 written submissions have been received from stakeholders and interested parties to date.

17 Public hearings were conducted in Griffith on 23 November 2009; Dubbo on 25 November 2009; Moree on 2 December 2009 and Sydney on 3 December 2009.

- engaged a consortium of independent engineering consultants – WS Atkins International Ltd and Cardno Limited (Atkins/Cardno) – to review State Water's capital expenditure, asset planning, operating expenditure proposals, and its proposed changes to asset lives
- released a draft determination and report outlining and explaining our decisions on all issues involved with our determination of draft prices for the 2010 Determination for State Water
- invited State Water and stakeholders to make submissions in response to our draft determination and report to outline their views and suggestions for consideration in determining final prices for State Water[18]
- considered the matters raised by State Water and stakeholders in their response to the draft determination and report to develop our final determination
- released this final report and determination.

Our issues paper, State Water's submission, the consultants' reports, stakeholder submissions, transcripts from the public hearings, the draft determination and report and the final determination and report are available on our website, www.ipart.nsw.gov.au.

We have considered all matters raised in making our final determination. The new charges are expected to apply from 1 July 2010.

2.2 Matters considered

We are empowered to review and make determinations on the prices State Water charges for its monopoly bulk water services under the *Independent Pricing and Regulatory Tribunal Act 1992* (IPART Act). Section 15 of this Act requires us to consider a broad range of matters when conducting reviews. These matters include:

- **Consumer protection**—protecting consumers from abuses of monopoly power; maintaining the standards of quality, reliability and safety of the services concerned; taking account of the social impact of decisions, and their impact on inflation.
- **Economic efficiency** — encouraging greater efficiency in the use and supply of services; promoting competition.
- **Financial viability** — taking account of the rate of return on public sector assets including dividend requirements; considering the impact on pricing of borrowing, capital and the dividend requirements of agencies.
- **Environmental protection** — promoting ecologically sustainable development by appropriate pricing policies; considering demand management and least-cost planning.

[18] A total of 31 submissions to the draft determination and report were received including State Water's submission.

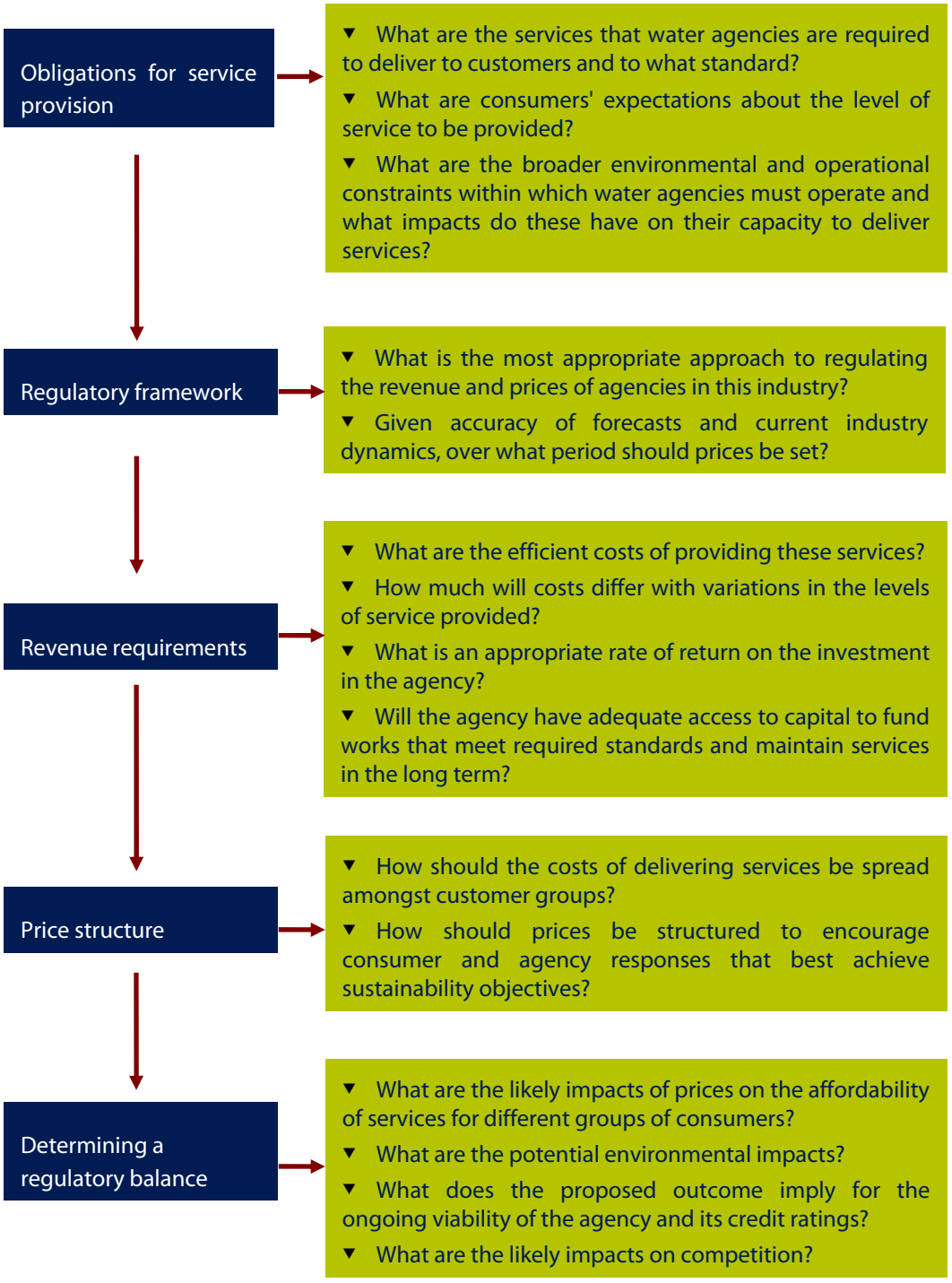
The section 15 requirements are listed in full in Appendix B.

In considering these matters, we aim to balance the diverse needs and interests of stakeholders while ensuring that State Water is adequately recompensed for the services it provides. We also take into account the principles issued by the Council of Australian Governments (COAG) and contained in the National Water Initiative.[19]

Because of the numerous complex and sometimes conflicting requirements that need to be addressed, we follow a determination process that provides a framework to efficiently deal with these requirements. The process is shown in Figure 2.1.

[19] The National Water Initiative is built on the principles established in the 1994 COAG Water Reform Framework.

Figure 2.1 IPART's determination process



2.3 State Water's operations

State Water is a statutory state-owned corporation which operates under the *State Water Corporation Act 2004* (the State Water Act). This review relates to the river activities State Water undertakes to provide bulk water to users on regulated rivers.

Section 6 of the State Water Act specifies that these activities include the following principal functions:

- to capture and store water and to release water to persons entitled to take the water, for the purposes of flood management, and for any other lawful purpose, including the release of environmental water
- to construct, maintain and operate water management works
- any other functions conferred or imposed on it by the operating licence or under the State Water Act or any other act or law.

This section of the State Water Act also empowers State Water to:

- provide facilities or services that are necessary, ancillary or incidental to its principal functions
- conduct any business or activity (whether or not related to its principal functions) that it considers will further its objectives.

State Water's statutory objectives are outlined in Box 2.1.

Box 2.1 State Water's objectives under the State Water Act (section 5)

State Water's principle objectives are to capture, store and release water in an efficient, effective, safe and financially responsible manner.

State Water's other objectives are:

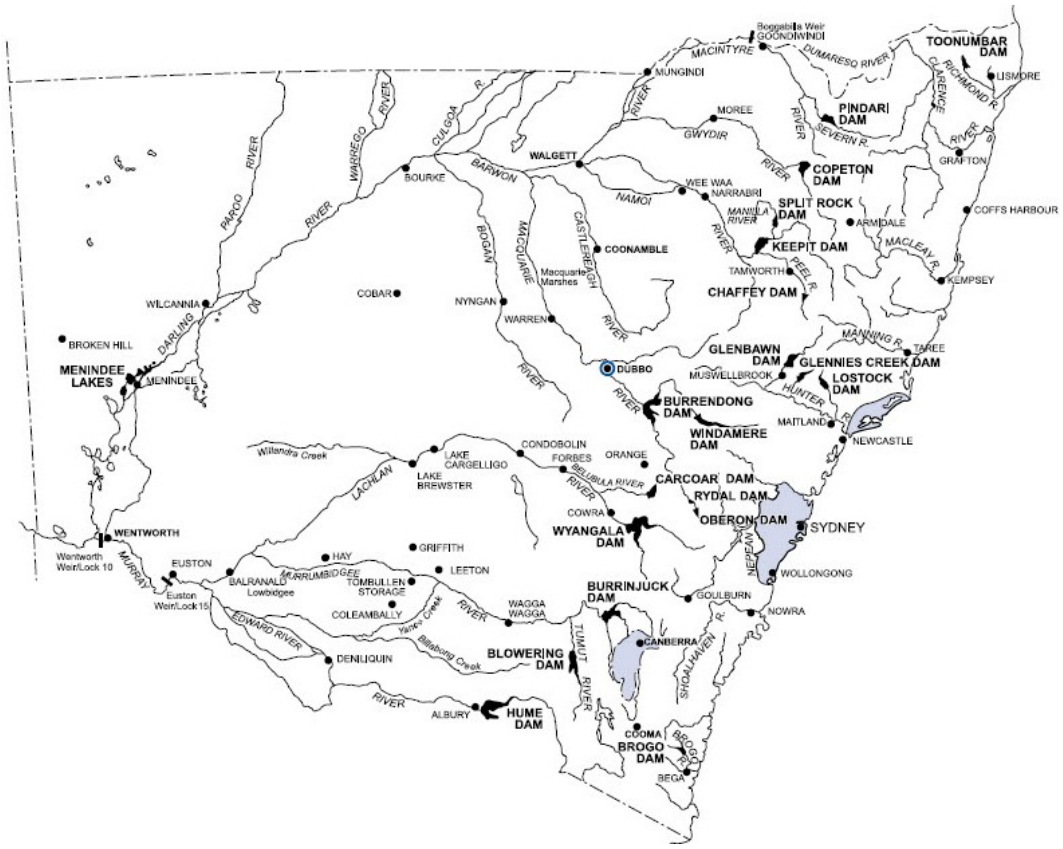
- to be a successful business
- to exhibit a sense of social responsibility by having regard to the interests of the community in which it operates
- where its activities affect the environment, to conduct its operations in compliance with the principles of ecologically sustainable development contained in section 6 (2) of the *Protection of the Environment Administration Act 1991*
- to exhibit a sense of responsibility towards regional development and decentralisation in the way in which it operates.

2.4 Scope of State Water's river operation activities

State Water's area of operations is shown in Figure 2.2 and is defined in the State Water Act as the whole of NSW other than the areas of operations of Sydney Water Corporation, Sydney Catchment Authority, Hunter Water Corporation and the area of operations of any other water supply authority.[20]

State Water's area of operations includes 11 river valleys, the Fish River Water Supply Scheme, and some of the area managed by the Murray Darling Basin Authority and Borders Rivers Commission.

Figure 2.2 State Water's area of operations



Data source: State Water Corporation, *Annual Report 2008/09*, October 2009, p 3.

2.4.1 River valleys

The bulk of State Water's area of operations is divided into 11 river valleys, including the Border, Gwydir, Namoi, Peel, Lachlan, Macquarie, Murray, Murrumbidgee, North Coast, Hunter, and South Coast valleys.

20 *Independent Pricing and Regulatory Tribunal Act 1992*, Section 15.

Within these valleys, it provides services to around 6,200 customers including irrigation corporations, country town water supply authorities, farms, mines and electricity generators. It meets community needs by providing water for stock and domestic users. The business is also responsible for delivering environmental flows on regulated rivers. State Water operates around 20 dams and over 280 weirs and associated assets on regulated rivers.

2.4.2 Fish River Water Supply Scheme

State Water is also responsible for the Fish River Water Supply Scheme (Fish River Scheme), which was a government trading enterprise that operated as a bulk water supplier on the Fish River until 2005. The Fish River Scheme is a pipe and pump scheme which sources water from Oberon Dam and supplies bulk water to four major customers – Delta Electricity, Lithgow City Council, Oberon Council and the Sydney Catchment Authority. It also provides water to approximately 240 smaller customers. These smaller customers include farmers (not irrigation) and some industrial customers (eg, collieries) who use the water for domestic purposes (such as showers and toilets).

The Fish River Scheme is geographically separate from State Water's other areas of operation, and is not subject to a water sharing plan. Its customers do not have an entitlement similar to customers in State Water's river valleys. However, in previous reviews we have set valley-based prices for each regulated river, and have treated the Fish River Scheme as a separate regulated river for pricing purposes.

2.4.3 Murray Darling Basin Authority and Border Rivers Commission

Some areas within the Border, Gwydir, Namoi, Peel, Macquarie, Murray and Murrumbidgee valleys are managed by the Murray-Darling Basin Authority (MDBA) and the Dumaresq-Barwon Border River Commission (BRC). The MDBA and BRC are cross-jurisdictional bodies that have responsibility for coordinating and managing water resource management activities from a 'whole of system' perspective, where the issues involve more than one state. These include activities such as monitoring water quality, managing ground water, monitoring bores and developing/implementing salinity mitigation strategies.

The MDBA is also responsible for preparing the Basin Plan, which is a strategic plan for the integrated and sustainable management of water resources in the Murray Darling Basin. The first Basin Plan is expected to commence in 2011, which will coincide with the 2010 determination period.

The costs of managing and maintaining assets under the MDBA's and BRC's arrangements are jointly paid for by the signatory states. The costs are then allocated to each state in a proportion defined under the terms of the agreement. The NSW Government pays the NSW share of these costs to the MDBA and the BRC, and the portion attributed to regulated rivers in NSW is allocated to State Water. State Water

has included these costs in the cost information it has submitted so these costs can be recovered through bulk water prices.

The treatment of MDBA and BRC costs is discussed in Chapter 4.

2.5 Regulatory framework

State Water operates under a regulatory framework similar to those of Hunter Water, Sydney Water and the Sydney Catchment Authority. In addition to the State Water Act and the IPART Act, there are a number of other applicable laws imposing obligations on State Water. Some of these include:

- *Water Management Act 2000*
- *Water Act 1912*
- *Environmental Planning and Assessment Act 1979*
- *State Owned Corporations Act 1989*
- *Dams Safety Act 1978*
- *Fisheries Management Act 1994*
- *Public Health Act 1991.*

State Water must also comply with its operating licence administered by the portfolio Minister. It is subject to annual audits of its performance against the terms and conditions of this licence. The revised operating licence commenced on 24 June 2008 and will expire on 24 June 2013.

This determination has considered the cost to State Water from complying with its legislative obligations.

2.6 Overview of State Water's submission

State Water submitted its initial submission in September 2009. This submission provided information on State Water's cost recovery performance under the 2006 Determination, and its proposed prices for the 2010 Determination. We note that the quality of information provided in State Water's submission is significantly higher than that provided when we last set prices for bulk water in 2005 and 2006.

State Water made a further submission in April 2010 to address issues contained in the draft report and determination. A key component of this submission is an alternative proposal to manage revenue volatility over the 2010 Determination. Under this proposal the volatility allowance would recover the holding costs on an 'unders and overs' account. This account adds up the differences each year between actual revenue and the revenue allowed under the determination. State Water proposes to commence the unders and overs account with a negative starting balance of $64.3 million (to reflect its revenue shortfall from the 2006 Determination).

State Water contends that their alternative proposal to manage revenue volatility allows it to achieve an investment grade credit rating, when combined with an adjusted debt gearing ratio (used to calculate the WACC to reflect their individual circumstances). State Water believes that the effect of these two adjustments will lower Treasury's business risk classification for State Water which, along with the combined results of the proposal, will achieve and maintain an investment grade credit rating of BBB.[21]

State Water also claims that some of the operating and capital expenditure recommendations from the Atkins/Cardno review need to be revisited. State Water highlights that it is on track to meet its dam safety expenditure program and requests that we amend the RAB roll forward to remove our $13 million adjustment which results from our view that State Water was likely to underspend on capital expenditure in 2009/10.[22]

2.6.1 State Water's cost recovery over the 2006 Determination

The prices we set in the 2006 Determination were expected to allow State Water to recover its full costs in most valleys by the end of the period. However, State Water actually under-recovered its costs by a significant amount.

State Water generated only 64.5% of its revenue requirement for providing bulk water services over the 2006 period, creating a $74.2 million revenue shortfall over this period.[23] The primary reason for this was that it supplied a much smaller volume of bulk water than was forecast at the time of the 2006 Determination, due to the effects of severe drought over much of NSW.

State Water's submission also indicated that it achieved a rate of return of less than 1% over the determination period (much less than the return of 6.5% expected under the 2006 Determination.)

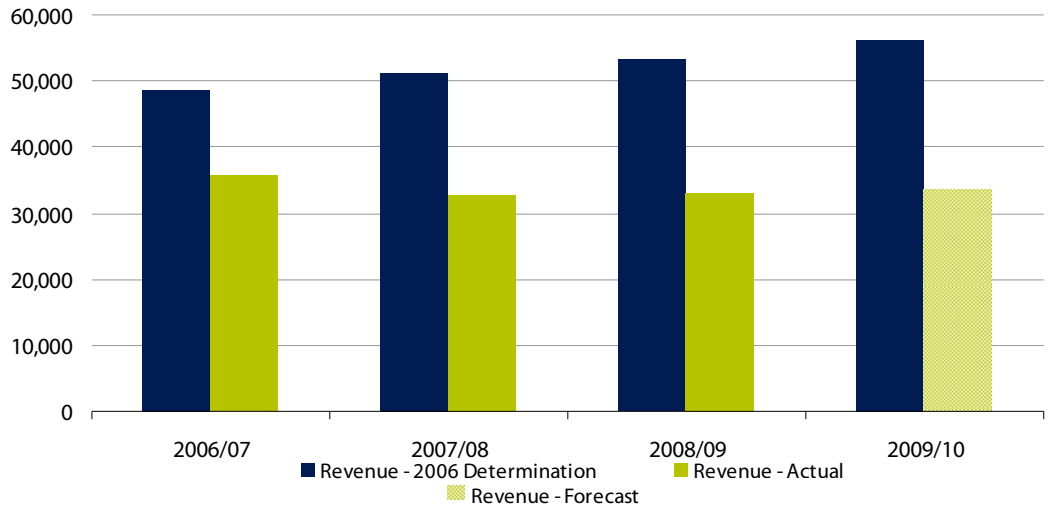
Figure 2.3 compares State Water's actual and forecast revenue from bulk water services over the 2006 Determination with the revenue we expected it to generate in setting prices.

21 Chapter 4 examines and discusses the revenue volatility allowance in further detail. Chapter 12 addresses the financial outcomes for State Water.

22 Our decisions on operating and capital expenditure are outlined in Chapter 5 and 6.

23 Revenue earned from the Government's cost share and fixed charges meant that State Water was able to generate 64.5% of its revenue requirement, despite only achieving 28.7% of its forecast delivery of water to customers.

Figure 2.3 State Water's actual and forecast revenue from bulk water services over the 2006 Determination compared to the revenue IPART assumed in setting prices ($'000, 2009/10)



Data source: IPART 2006 Determination and State Water Corporation, Electronic Information Return, September 2009.

2.6.2 State Water's proposed prices for the 2010 Determination

State Water currently charges bulk water users different prices, depending on which valley they are located in, and whether they hold a high security, general security or supplementary licence. All users pay a variable usage charge ($ per ML), while high and general security licence holders also pay a fixed entitlement charge ($ per year). Together, these charges need to be set at levels sufficient to recover State Water's revenue requirement in most valleys.

State Water's September 2009 submission included 2 pricing proposals to meet this objective:

- **A preferred proposal**, under which the entitlement charges in a valley are set to recover 40% of the revenue requirement for that valley, and the usage charges are set to recover 60% of the revenue requirement, including a 7.9% rate of return.
- **An alternative proposal**, under which the entitlement charges in a valley are set to recover 90% of the revenue requirement for that valley, and the usage charges are set to recover 10% of the revenue requirement, including a 6.5% rate of return.

Under State Water's preferred proposal, the rate of return incorporates a premium to compensate State Water for the high risk of volatility in its revenues, due to the fact that climatic conditions can significantly affect the volume of bulk water that it is able to supply. The alternative proposal does not include this premium, as the risks associated with revenue volatility are much lower when 90% of its revenue comes from fixed entitlement charges. However, State Water indicated that as many

customers would strongly oppose prices being set to recover 90% of its revenue requirement from the entitlement charge, it does not favour the alternative proposal.

In addition, State Water forecast that its operating expenditure will increase by 8.7% over the 2010 Determination, from $36.1 million in 2009/10 to $39.3 million in 2013/14.[24]

In relation to capital expenditure, State Water estimates that it will overspend the $117.3 million allowed for in making the 2006 Determination by $4.7 million (or around 4%). It also proposes to significantly increase its capital expenditure over the 2010 Determination. In particular, it proposes capital expenditure of $342.0 million over this period. This represents a 180.5% increase compared to its estimated expenditure for the 2006 Determination.

However, State Water indicated that a major portion of its actual capital expenditure during the 2006 Determination and planned capital expenditure for the 2010 Determination is allocated to the NSW Government, and so will not be recovered through user charges. Much of this capital expenditure is needed to upgrade dams to comply with pre-1997 dam safety standards, and 100% expenditure in this category is allocated to the Government. Other capital expenditure is required to address environmental problems caused by these safety upgrades (eg, expenditure to provide fish passage and address cold water pollution). These costs are shared between users and the Government on a 50:50 basis.

Table 2.1 shows State Water's proposed increase in its notional revenue requirement and the drivers of this increase, along with their impact on State Water's 2009/10 notional revenue requirement.

Table 2.1 State Water's proposed increase in its notional revenue requirement for the 2010 Determination ($2009/10)

	Increase from 2009/10 to 2013/14 ($m)	Impact on 2009/10 notional revenue requirement (%)
Operating expenditure	3.0	4.4
Return on assets – (from an increase in WACC)	11.4	16.9
Return on assets – (from an increase in capital expenditure)	19.6	29.0
Depreciation	5.3	7.8
Total increase	**39.3**	**58.1**

Source: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 6-1.

[24] State Water's proposed revenue requirement does not include MDBA and BRC costs.

Table 2.2, Table 2.3 and Table 2.4 show State Water's proposed prices by valley under its preferred pricing scenario. Table 2.2 and Table 2.3 set out State Water's preferred high and general security entitlement charges. Table 2.4 sets out State Water's preferred usage charges. For all valleys except the North Coast, South Coast and Peel,[25] State Water's preferred scenario would result in:

- an increase in high security entitlement charges of between 31.1% (Hunter) and 185.5% (Macquarie)
- a change in general security entitlement charges ranging from -23.2% (Murrumbidgee) to 22.1% (Hunter)
- an increase in usage charges ranging from 1.4% (Murrumbidgee) to 105.2% (Lachlan).

Table 2.2 Price outcomes under State Water's preferred pricing proposal – high security entitlement charges ($/ML, $2009/10)

	2009/10	2010/11		2011/12		2012/13		2013/14		2009/10 – 2013/14	
	$	$	% Δ	$	% Δ	$	% Δ	$	% Δ	$ Δ	% Δ
Border	4.37	10.57	141.9	10.44	-1.2	10.84	3.8	10.36	-4.4	5.99	137.1
Gwydir	6.08	11.54	89.8	11.70	1.4	12.17	4.0	13.16	8.1	7.08	116.4
Namoi	9.31	12.37	32.9	13.53	9.4	14.01	3.5	14.68	4.8	5.37	57.7
Peel	11.50	23.72	106.3	24.22	2.1	24.34	0.5	23.37	-4.0	11.87	103.2
Lachlan	7.02	17.64	151.3	17.97	1.9	19.35	7.7	19.59	1.2	12.57	179.1
Macquarie	5.78	14.62	152.9	15.12	3.4	15.67	3.6	16.50	5.3	10.72	185.5
Murray	2.75	4.17	51.6	4.66	11.8	4.91	5.4	4.63	-5.7	1.88	68.4
Murrumbidgee	2.46	3.36	36.6	3.48	3.6	3.57	2.6	3.49	-2.2	1.03	41.9
North Coast	5.60	75.10	1,241	75.89	1.1	77.70	2.4	75.51	-2.8	69.91	1,248
Hunter	20.22	26.55	31.3	26.56	0.0	27.16	2.3	26.50	-2.4	6.28	31.1
South Coast	10.61	46.70	340.2	46.57	-0.3	47.47	1.9	46.28	-2.5	35.67	336.2

Source: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, pp 11-1 & 11-2, IPART analysis.

25 The price increases sought by State Water for the North Coast, South Coast, and Peel valleys are significantly higher. State Water proposes a one-off step increase to move prices in these valleys to full cost recovery.

Table 2.3 Price outcomes under State Water's preferred pricing proposal– general security entitlement charges ($/ML, $2009/10)

	2009/10	2010/11		2011/12		2012/13		2013/14		2009/10 – 2013/14	
	$	$	% △	$	% △	$	% △	$	% △	$ △	% △
Border	3.41	3.22	-5.6	3.18	-1.2	3.30	3.8	3.16	-4.2	-0.25	-7.3
Gwydir	3.37	3.52	4.5	3.57	1.4	3.71	3.9	4.01	8.1	0.64	19.0
Namoi	7.44	7.41	-0.4	8.10	9.3	8.39	3.6	8.79	4.8	1.35	18.1
Peel	1.71	2.03	18.7	2.08	2.5	2.09	0.5	2.00	-4.3	0.29	17.0
Lachlan	2.86	3.08	7.7	3.14	1.9	3.38	7.6	3.42	1.2	0.56	19.6
Macquarie	3.07	2.83	-7.8	2.93	3.5	3.04	3.8	3.20	5.3	0.13	4.2
Murray	2.20	1.67	-24.1	1.87	12.0	1.97	5.3	1.86	-5.6	-0.34	-15.5
Murrumbidgee	1.51	1.12	-25.8	1.16	3.6	1.19	2.6	1.16	-2.5	-0.35	-23.2
North Coast	4.48	48.77	988.6	49.28	1.0	50.46	2.4	49.03	-2.8	44.55	994.4
Hunter	6.74	8.25	22.4	8.25	0.0	8.43	2.2	8.23	-2.4	1.49	22.1
South Coast	6.24	18.46	195.8	18.41	-0.3	18.76	1.9	18.29	-2.5	12.05	193.1

Source: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, pp 11-1 & 11-2, IPART analysis.

Table 2.4 Price outcomes under State Water's preferred pricing proposal – usage charges ($/ML, $2009/10)

	2009/10	2010/11		2011/12		2012/13		2013/14		2009/10 – 2013/14	
	$	$	% △	$	% △	$	% △	$	% △	$ △	% △
Border	6.54	8.88	35.8	8.77	-1.2	9.10	3.8	8.69	-4.5	2.15	32.9
Gwydir	8.96	11.11	24.0	11.27	1.4	11.71	3.9	12.67	8.2	3.71	41.4
Namoi	12.56	17.62	40.3	19.29	9.5	19.96	3.5	20.92	4.8	8.36	66.6
Peel	25.72	62.36	142.5	63.68	2.1	64.02	0.5	61.47	-4.0	35.75	139.0
Lachlan	10.83	20.01	84.8	20.38	1.8	21.94	7.7	22.22	1.3	11.39	105.2
Macquarie	8.47	13.41	58.3	13.87	3.4	14.37	3.6	15.13	5.3	6.66	78.6
Murray	4.00	4.90	22.5	5.48	11.8	5.78	5.5	5.45	-5.7	1.45	36.3
Murrumbidgee	3.54	3.46	-2.3	3.58	3.5	3.67	2.5	3.59	-2.2	0.05	1.4
North Coast	27.84	373.67	1,242	377.45	1.0	386.16	2.3	375.62	-2.7	347.78	1,249
Hunter	12.28	15.52	26.4	15.53	0.1	15.88	2.3	15.49	-2.5	3.21	26.1
South Coast	24.96	79.14	217.1	78.94	-0.3	80.45	1.9	78.47	-2.5	53.51	214.4

Source: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, pp 11-1 & 11-2, IPART analysis.

3 Approach to setting State Water's notional revenue requirement for price setting purposes

We set prices for State Water's bulk water supply services on a per valley basis for our 2006 Determination. Our overarching objective was to set prices at the levels required to recover the bulk water users' share of State Water's full efficient costs in each valley from the users in that valley (except in valleys where it is recognised that this is not feasible). We have maintained this broad approach for the 2010 Determination.

Sections 3.1 and 3.2 below provide an overview of the steps involved in our price setting approach, and discuss our decisions in relation to this approach.

3.1 Overview of key steps in the price setting approach

The approach we used to set prices for the 2010 Determination included the following steps:

1. Establish the full, efficient cost of providing the regulated bulk water services over the 2010 Determination, based on detailed analysis of State Water's forecast operating and capital costs and scope for efficiency gains (ie, the notional revenue requirement).
2. Decide how much of this efficient cost should be recovered through prices for bulk water services (the target revenue) by:
   - Deciding what proportion of the notional revenue requirement should be recovered from the NSW Government, and what proportion should be recovered from users (through bulk water prices).
3. Decide on the approach for converting the user's portion of the target revenue into prices, which involves:
   - Deciding which price path to adopt (ie, the decision to use an NPV smoothed approach for setting the price path).
   - Deciding on the price structure.
   - Deciding on the proportion to be recovered through fixed entitlement charges versus volume-based usage charges.
   - Deciding on the balance between high and general security entitlement charges.

- Deciding whether to set prices to achieve full cost recovery in all valleys, and if not, how to determine price increases in those valleys where cost recovery is not considered feasible.

4. Decide on the forecast extractions and entitlement volumes to be used in setting prices.
5. Convert the users' portion of annual target revenue into prices.
6. Consider whether these prices are reasonable and balanced in terms of the likely impact on users, State Water's financial viability and the environment.

3.2 Decisions in relation to price setting approach

We made a series of decisions related to the approaches we would use in taking some of the steps outlined above. These included decisions to:

- adopt a 4-year determination period from 1 July 2010 to 30 June 2014
- use the building block approach to determine State Water's notional revenue requirement
- address the risk associated with revenue volatility by including a specific allowance to cover the costs of managing this risk in the operating expenditure cost block of the notional revenue requirement
- account for the MDBA and BRC costs allocated to State Water by including them in the operating expenditure cost block of the notional revenue requirement
- apply a smoothed NPV neutral approach to set valley-based prices for most valleys
- maintain the broad framework of the current 2009/10 price structure.

The sections below discuss each of these decisions in detail.

3.2.1 Length of 2010 Determination

Decision

1 IPART's decision is to adopt a 4-year determination period from 1 July 2010 to 30 June 2014.

We considered a range of factors when deciding on the appropriate length of the 2010 Determination. In particular, we considered the advantages of a longer determination period, which include stronger incentives for State Water to increase its economic efficiency, greater stability and predictability (which may lower State Water's business risk and assist investment decision-making), and lower regulatory costs. However, we also considered the disadvantages, which include an increased risk associated with inaccuracies in the forecasts and other data used to make the determination.

We also noted that State Water proposed a 4-year period, and that several stakeholders supported this proposal including the Gwydir Valley Irrigators Association, Murrumbidgee Private Irrigators[26] and the NSW Irrigators' Council[27]. For example, the Gwydir Valley Irrigators Association submitted that it:

> …concurs with the State Water submission that the appropriate period for the 2010 Determination period is four years, providing irrigators with some price path certainty, without unreasonably locking customers into an extended price path.[28]

We concluded that a 4-year determination from 1 July 2010 to 30 June 2014 is appropriate for State Water because it provides the best balance between the factors considered above.

3.2.2 Approach for determining the notional revenue requirement

Decision

2 IPART's decision is to use the building block approach to calculate State Water's notional revenue requirement in each valley.

As for previous determinations, we decided to use the building block approach to calculate State Water's notional revenue requirement. The building block approach ensures that the full, efficient costs of providing the regulated services in each valley are measured and monitored in a rigorous and transparent way. It is also consistent with the approach we use in regulating other water businesses and industries in NSW.

To apply the building block approach, we must make decisions on:

- the revenue State Water will require for operating expenditure over the 2010 Determination, including the forecast efficient operating and maintenance costs plus an allowance for working capital
- the revenue it will require for capital investment over the 2010 Determination, including:
  - an allowance for a return on assets
  - an allowance for a return of assets (regulatory depreciation).

The sum of these amounts represents our view of State Water's total efficient costs over the 2010 Determination, or its notional revenue requirement (Figure 3.1).

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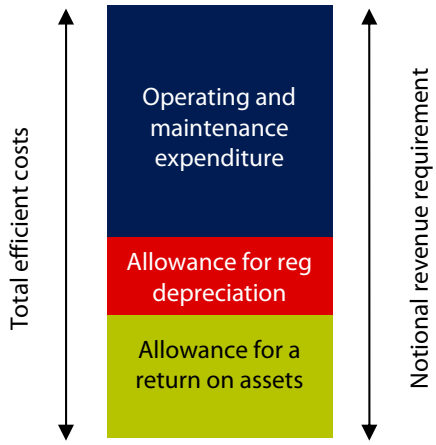
26 Murrumbidgee Private Irrigators Incorporated submission to IPART 2010 Determination, 23 October 2009, p 2.

27 NSW Irrigators' Council submission to IPART 2010 Determination, 23 October 2009, p 12.

28 Gwydir Valley Irrigators Association submission to IPART 2010 Determination, October 2009, p 38.

Figure 3.1 Building block approach



3.2.3 Addressing the risk associated with revenue volatility

Decision

3 IPART's decision is to address the risk associated with revenue volatility by including an allowance in the operating expenditure cost block of the notional revenue requirement.

State Water is exposed to annual variability in the availability of water because of the inherent difficulty in forecasting variable climatic conditions. This creates a revenue volatility risk for State Water.

There are costs associated with revenue volatility. Shortfalls resulting from revenue volatility may occur before windfalls, leaving State Water to carry revenue shortfalls from year to year. Under the principles of the National Water Initiative, the costs of these shortfalls are to be recovered from water access entitlement holders.

Our decision is to include a revenue volatility allowance in State Water's revenue requirement, attributed to general security entitlement holders. The level and the method we used to calculate this allowance is detailed in Chapter 4.

3.2.4 Treatment of MDBA and BRC costs

As Chapter 2 explained the costs that the MDBA and BRC attribute to regulated rivers in NSW are allocated to State Water. State Water has sought a pass through of these costs through to the bulk water prices that it charges its customers.

Our decision on the level of MDBA and BRC costs to be recovered through State Water's bulk water prices is provided in Chapter 4. These costs have been included in the notional revenue requirement as an operating expenditure.

3.2.5 Price path

Decision

4 IPART's decision is to target a smoothed NPV neutral approach to set valley-based prices.

We considered several options for how the users' portion of target revenue can be recovered through prices over the 2010 Determination. In its submission, State Water indicated that it:

> …would be willing to consider alternative "smoothed" price paths, which minimise price shocks for customers, but it is essential for State Water's ongoing financial viability that this price path does not include any NPV shortfalls.[29]

In contrast, the High Security Irrigators-Murrumbidgee (HSI-M)[30], Lachlan Valley Water[31] and the NSW Irrigators Council[32] argued in favour of a glide path approach, under which prices increase by the same percentage in each year of the determination to achieve full cost recovery in the final year. These stakeholders argued for a glide path approach to price modelling as a means of mitigating price impacts on customers and reducing price shocks. HSI-M commented that:

> HSI-M would favour the glide path modelling approach to be applied to any price increases that may occur over the next pricing period. We believe this to be the most acceptable to high security users especially if charges are increased to the level that State Water would like. The only alternative HSI-M would consider is the P-nought modelling approach as long as the initial price rise is not too large.[33]

In their response to the draft determination the NSW Irrigators Council (NSWIC)[34] stated that:

> It is, however, the very clear preference of NSWIC that the glide path process be maintained. We submit that it has served well to date, mitigates the price shock impact on the customers of SWC and that the revenue volatility risk has been more than compensated elsewhere in the Draft Determination.

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29 State Water Corporation submission to IPART 2010 Determination, September 2009, p 8-2. An NPV neutral (or net present value neutral) price modelling approach matches the target revenue from tariffs of the agency with the notional revenue requirement to achieve full cost recovery at the targeted rate of return in each year of the price path. This approach is associated with higher financial returns for the agency and higher prices for customers in the initial years of the determination than under either a P-nought or glide path approach.

30 High Security Irrigators – Murrumbidgee (HSI-M) submission to IPART 2010 Determination, October 2009, p 6.

31 Lachlan Valley Water submission to IPART 2010 Determination, October 2009, p 11.

32 NSW Irrigators Council, submission to IPART 2010 Determination, April 2010, p 4.

33 High Security Irrigators – Murrumbidgee (HSI-M), submission to IPART 2010 Determination, p 6.

34 NSW Irrigators Council submission to IPART, April 2010, p 4.

After considering these views, we decided to adopt a smoothed NPV neutral approach to set prices for State Water. Under this approach, prices are set to generate the total target revenue, in NPV terms, over the course of the determination. This approach is described as 'smoothed' because it flattens out any year-on-year fluctuations to achieve an even transition of prices from the beginning to the end of the price path.

A smoothed NPV neutral approach meets our obligations under the National Water Initiative to set prices that reflect costs.[35]

3.2.6 Price structure

Decision

5 IPART's decision is to maintain the current price structure.

We have decided to maintain the broad framework of the current 2009/10 price structure over the 2010 Determination. We have structured prices to recover 40% of the target revenue through a fixed entitlement charge with the remaining 60% to be recovered through a variable usage charge.[36] This decision is explained further in chapter 10.

Our decision reflects State Water's preferred price structure and is also supported by bulk water users.[37] This structure includes:

- Entitlement charges, which are paid by water licence entitlement holders according to their ML entitlement, regardless of their usage. For this reason they are described as fixed.
- Water usage charges, which are paid according to the number of ML used by the entitlement holder. This can vary and may depend on whether the license holder receives a full allocation of their entitlement.

In addition, we decided to accept State Water's proposal to levy a metering service charge to recover the operating and maintenance costs involved with the installation of Government-owned meters under the NSW metering scheme.

We also decided to maintain the natural resource management plan levy for Yanco Creek irrigators to fund a works program initiated by users in that system.

35 With the exception of those valleys where we have chosen to cap the average bill increase to avoid unaffordably high charges (eg, North Coast, South Coast and Peel valleys).

36 A 60:40 entitlement to usage charge structure has been applied to the Hunter and North Coast valleys. This is a continuation of the current structure of the 2006 Determination.

37 Stakeholders that supported the retention of the 40:60 fixed to variable charge structure included Auscott, Lachlan Valley Water, Macquarie River Food and Fibre and the NSW Irrigators Council.

4 Overview of State Water's revenue requirement

We have used the building block approach to determine State Water's notional revenue requirement for the 2010 Determination. The notional revenue requirement represents our view of the total efficient costs required by State Water over the determination period to meet its service standards and regulatory requirements in the provision of its regulated bulk water services.

This chapter provides:

- an overview of State Water's proposed notional revenue requirement
- our decision on State Water's notional revenue requirement and the target revenue to be recovered through prices
- our decision on revenue from other fees and charges
- our decision on the mechanism to address revenue volatility
- our decision on the treatment of MDBA and BRC costs.

4.1 State Water's proposed revenue requirement

State Water proposes a $39.3 million increase (58.1%) in revenue over the 2010 Determination from $67.5 million in 2009/10 to $106.8 million in 2013/14. State Water's proposed revenue requirement is shown in Table 4.1.

Table 4.1 State Water's proposed notional revenue requirement ($'000, 2009/10)

	2009/10 [a]	2010/11	2011/12	2012/13	2013/14
Operating expenditure	36,300	39,344	39,757	40,165	39,324
Depreciation	3,800	6,147	7,556	8,570	9,120
Return on assets	27,400	40,439	49,290	55,410	58,359
Total revenue requirement	**67,500**	**85,930**	**96,603**	**104,145**	**106,803**

[a] Differences between the 2009/10 inflation rate used by State Water and IPART result in small differences between State Water and IPART values for 2009/10. These differences do not affect this determination or its prices.

Note: Columns may not add due to rounding. State Water's proposal excludes MDBA and BRC costs.

Source: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 6-1.

State Water's proposed split of its notional revenue requirement shown in Table 4.2 generally divides costs between users (ie, irrigators) and Government according to the cost share ratios we set in our 2006 Determination. Table 4.2 shows that State Water has allocated the majority of the increase in the notional revenue requirement to the Government cost share. This is largely the result of major capital works upgrades for dam safety compliance, where the capital costs are allocated fully to Government.

Table 4.2 User and Government share of notional revenue requirement ($'000, 2009/10)

	2009/10[a]	2010/11	2011/12	2012/13	2013/14
User share	48,400	53,969	56,425	58,540	59,120
Government share	19,200	31,961	40,178	45,605	47,682
Total revenue requirement	**67,500**	**85,930**	**96,603**	**104,145**	**106,803**

a Differences between the 2009/10 inflation rate used by State Water and IPART result in small differences between State Water and IPART values for 2009/10. These differences do not affect this determination or its prices.

Note: Columns may not add due to rounding. State Water's proposal excludes MDBA and BRC costs.

Source: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, pp 7-3 to 7-4.

The costs attributed to Government are excluded from the costs attributed to and paid for by State Water's customers. Chapter 8 provides further information and our final decision on allocating costs between users and Government.

Table 4.1 and Table 4.2 present State Water's proposed notional revenue requirement, however State Water chose to remove the MDBA and BRC costs from their notional revenue requirement. For this reason, a 'like for like' comparison between these tables cannot be made against Table 4.4, Table 4.5 and Table 4.6, as these include MDBA and BRC costs, plus our allowance for revenue volatility.

For comparative purposes, Table 4.3 presents State Water's proposed notional revenue requirement (as presented in Table 4.1 and Table 4.2) with the addition of the proposed cost pass-through for MDBA and BRC costs. A comparison of Table 4.3 and Table 4.4 highlights the reductions that we have made to State Water's notional revenue requirement.

Table 4.3 State Water's proposed notional revenue requirement with MDBA and BRC costs included ($'000, 2009/10)

	2009/10[a]	2010/11	2011/12	2012/13	2013/14
Total operating expenditure	36,300	39,344	39,757	40,165	39,324
Total MDBA & BRC costs	17,128	12,365	13,864	15,286	13,851
Total capital costs	31,200	46,586	56,846	63,980	67,479
Total revenue requirement	**84,628**	**98,295**	**110,467**	**119,431**	**120,654**

a Differences between the 2009/10 inflation rate used by State Water and IPART result in small differences between State Water and IPART values for 2009/10. These differences do not affect this determination or its prices.

Note: Columns may not add due to rounding. Table includes State Water's proposed MDBA and BRC cost pass-through.

Source: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 6-1.

4.2 IPART's final decisions on the notional revenue requirement and target revenue to be recovered through prices over the 2010 Determination

Applying the building block approach resulted in a notional revenue requirement for the 2010 Determination period as shown in Table 4.4 below.

Table 4.4 IPART's final decision: notional revenue requirement ($'000, 2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
Total operating expenditure	36,246	38,622	38,195	38,058	37,110
Revenue volatility allowance	0	2,237	2,237	2,237	2,237
Total MDBA & BRC costs	17,227	12,219	13,536	14,747	13,207
Total capital costs	30,690	41,018	48,620	55,647	59,930
Total revenue requirement	**84,163**	**94,096**	**102,589**	**110,689**	**112,485**

Note: Column totals may not sum due to rounding. 2009/10 is not part of the 2010 Determination and has been provided for comparison only.

The costs in Table 4.4 have been allocated between users and the Government as set out in Table 4.5.

Table 4.5 Revenue requirement by user share ($'000, 2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
User share	57,756	60,871	63,000	65,001	64,128
Government share	26,407	33,225	39,589	45,688	48,356
Total costs	**84,163**	**94,096**	**102,589**	**110,689**	**112,485**
User share as percentage of total	68.6%	64.7%	61.4%	58.7%	57.0%
Government share as percentage of total	31.4%	35.3%	38.6%	41.3%	43.0%

Note: Column totals may not sum due to rounding. 2009/10 is not part of the 2010 Determination and has been provided for comparison only. User and Government shares include MDBA and BRC costs plus an allowance for revenue volatility.

Table 4.6 below sets out the drivers of our final decision on State Water's revenue requirement.

Table 4.6 Drivers of increases to State Water's notional revenue requirement under IPART final determination ($'000, 2009/10)

	2009/10	2013/14	% change from 2009/10 to 2013/14
Operating expenditure[a]			
User share	34,213	33,891	-0.9%
Government share	2,033	3,219	58.3%
Total operating expenditure	**36,246**	**37,110**	**2.4%**
Revenue volatility allowance (user share only)	0	2,237	100%
MDBA & BRC costs			
User share	9,794	7,642	-22.0%
Government share	7,433	5,565	-25.1%
Total MDBA & BRC costs	**17,227**	**13,207**	**-23.3%**
Allowed depreciation			
User share	1,543	2,321	50.4%
Government share	1,902	5,126	169.5%
Total allowed depreciation	**3,445**	**7,447**	**116.2%**
Return on capital[b]			
User share	12,205	18,036	47.8%
Government share	15,039	34,447	129.0%
Total return on capital	**27,245**	**52,483**	**92.6%**
Notional revenue requirement			
User share	57,756	64,128	11.0%
Government share	26,407	48,356	83.1%
Total revenue requirement	**84,163**	**112,485**	**33.7%**

a Operating expenditure excludes an allowance for revenue volatility and MDBA and BRC costs.

b Return on capital includes a working capital allowance.

Note: Column totals may not sum due to rounding.

4.3 IPART's final decision on revenue from other fees and charges

State Water's submission proposes the introduction of a new metering charge and an ancillary charge for the provision of information. State Water also proposes to retain the Yanco Creek levy included in the 2006 Determination. Our final decision on the treatment of revenue from each of these charges is discussed below.

4.3.1 Metering charge

State Water's submission proposes a new metering service charge to recover the operating and maintenance costs it incurs as part of the NSW metering scheme.

We have investigated State Water's cost breakdown on the marginal costs of the metering project and consider that these costs are prudent. Our final decision is to include State Water's proposed metering charges in the 2010 Determination.

The metering service has not been included in our calculation of State Water's notional revenue requirement. The metering charge represents the standalone cost of this service that State Water incurs in maintaining these meters. Therefore, revenue generated from this charge will offset the expenses State Water incurs.

The charge will not apply to all customers. The metering charge will be levied on customers only after new meters are installed.

Further details on this charge are provided in Chapter 11.

4.3.2 Ancillary charge

State Water has proposed a new ancillary charge to recover the costs of staff time incurred in providing information to non-State Water customers or providing information that is greater than two years old.

We have assessed these costs and consider that State Water's proposal appears reasonable. However, our ability to determine charges for State Water is limited to services that directly relate to the supply of bulk water. Therefore, we have not made a decision on State Water's proposed ancillary charge. This is discussed further in Chapter 11.

4.3.3 Yanco Creek levy

Chapter 11 discusses our decision to continue the natural resource management plan levy on irrigators in the Yanco Creek system to fund a program of works initiated by users in this system.

This levy has not been included in our calculation of State Water's notional revenue requirement. It will be passed on directly to customers in the Yanco Creek system.

4.4 IPART's decision on the treatment of revenue volatility

Decision

6 IPART's decision is to determine a revenue volatility allowance for each valley as shown in Table 4.7. The allowance is to be recovered through the general security entitlement charge.

The revenue volatility allowance included within the draft determination added $11.7 million over 4 years (or $2.9 million per year) to State Water's revenue requirement. For our final determination we have undertaken further analysis of the allowance in response to concerns raised by stakeholders.

Our analysis has identified the potential to improve the approach that we adopted in the draft determination. These improvements have been incorporated into a revised approach that we consider produces a more robust method of calculating the revenue volatility allowance for the final determination.

The revenue volatility allowance attributable to each valley for the final determination is shown in Table 4.7.

Table 4.7 shows that our revised approach to calculating the revenue volatility allowance for the final determination results in a total allowance to State Water over the 2010 Determination of $7.8 million (or $2.2 million per annum).

Table 4.7 IPART revenue volatility allowance for the final determination ($'000, 2009/10)

Valley	2010/11	2011/12	2012/13	2013/14	NPV 2010/11 - 2013/14	Annual charge
Border	22	46	70	94	194	56
Gwydir	119	237	356	473	994	286
Namoi	102	203	303	402	846	243
Peel	9	19	30	42	84	24
Lachlan	161	326	497	673	1,388	399
Macquarie	130	265	405	551	1,132	325
Murray	213	423	630	836	1,763	507
Murrumbidgee	140	279	417	553	1,166	335
North Coast[a]	0	0	0	0	0	0
Hunter	26	52	77	102	216	62
South Coast[a]	0	0	0	0	0	0
Fish River[b]	0	0	0	0	0	0
Total	**922**	**1,850**	**2,785**	**3,726**	**7,784**	**2,237**

a Insufficient data exists to calculate the revenue volatility allowance for these valleys. We note that this does not have a detrimental effect on other valleys (as the revenue volatility allowance is calculated on an individual valley basis).

b Fish River does not attract a revenue volatility allowance. We consider that it is a separate case to other valleys because of the unique 'pump and pipe' characteristics of its scheme.

Note: Column totals may not sum due to rounding.

Section 4.4.1 presents State Water's initial and subsequent proposals for addressing revenue volatility. Section 4.4.2 outlines comments and other approaches proposed by stakeholders. Sections 4.4.3 and 4.4.4 describe the calculation and operation of our revised approach for addressing revenue volatility for State Water under our final determination.

4.4.1 State Water proposals to address revenue volatility

State Water has proposed two approaches to address its revenue volatility. Its initial approach (September 2009) was proposed as part of its pricing submission and its second (April 2010) was in response to our draft report. They are:

- to make adjustments to the WACC at a parameter level to derive a 1.4% premium (September 2009)
- an alternative revenue volatility allowance that recovers the holding costs on an 'unders and overs' account with a negative starting balance (April 2010).

Adjusting the WACC at the parameter level

State Water proposed adjustments to the asset beta and the gearing ratio of IPART's standard WACC parameter valuations. The resulting WACC under this proposal is 1.4% higher.

State Water considers that an additional 1.4% rate of return is justified because of the increased risk it faces through extraction uncertainty if tariffs are set to recover 40% of revenue from entitlement charges and 60% from usage charges (for most valleys).

The cost of this 1.4% premium on the WACC for users (by valley) and the Government is set out in Table 4.8.

Table 4.8 Cost to users and Government of 1.4% WACC premium ($'000, 2009/10)

Valley	2010/11	2011/12	2012/13	2013/14
Border	32	33	34	35
Gwydir	917	1,095	1,307	1,392
Namoi	1,425	1,849	2,245	2,459
Peel	253	280	306	317
Lachlan	612	696	833	1,014
Macquarie	662	797	941	1,020
Murray	338	408	467	465
Murrumbidgee	1,198	1,323	1,352	1,368
North Coast	74	74	73	73
Hunter	307	310	311	311
South Coast	35	36	37	37
Fish River	791	886	930	926
Total cost to users	**2,638**	**2,901**	**3,112**	**3,221**
Total cost to government	**4,008**	**4,886**	**5,724**	**6,197**
Total cost of 1.4% WACC premium	**6,646**	**7,787**	**8,836**	**9,418**

Note: Column totals may not sum due to rounding. The figures presented in this table have been calculated using a premium of 1.4% on our selected WACC of 7.4%.

We consider that it is preferable to address State Water's revenue volatility through an explicit allowance in State Water's cash flows, rather than increasing the rate of return to apply to capital investments made within State Water's business. Table 4.8 indicates that the 1.4% WACC premium will cost around $32.7 million over the 2010 Determination. This is substantially higher than the cost of the volatility allowance under our revised approach.

Our established practice is to set the rate of return with reference to the weighted average cost of capital for a benchmark utility and exclude business-specific risk including revenue volatility. This rate of return only recognises systematic risk,[38] consistent with financial theory. State Water's business-specific risk has been addressed through our decision to provide a revenue volatility allowance within its cash flows.

Our approach to adopt a revenue volatility allowance is more cost effective than State Water's proposed 1.4% premium. We also consider that our approach achieves a more appropriate allocation of the costs of managing revenue volatility. State Water's proposed premium imposes substantial costs on high security entitlement holders and the Government which are relatively stable sources of revenue (in comparison to general security entitlement holders).

Unders and overs account with a negative starting balance

State Water's proposal recovers the holding costs on an 'unders-and-overs' account to keep track of the net revenue shortfall/windfall. A rate of return equal to State Water's WACC is applied to the balance of the account. When the account balance is negative State Water receives the return in the form of increased prices. When the balance is positive (as could occur after numerous years of heavy rainfall) then State Water would reduce the return by lowering prices.

A crucial aspect of State Water's proposal is that it begins with an account starting balance of negative $64.3 million. This represents the carry-over of shortfalls from the 2006 Determination.

State Water calculates its allowance by applying a rate of return of 7.4% (representing State Water's WACC) to its negative starting account balance of $64.3 million. This creates an annualised allowance of $4.8 million for State Water over the 2010 Determination. State Water has proposed that this account carry over from one determination to the next. Prices would be adjusted at each determination to reflect changes in the account balance.[39]

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38 Systematic risk is defined as the risk inherent to the entire market or entire market segment that cannot be reduced through diversification.

39 We note that the balance in the account would have been positive under State Water's proposal if actual revenue had exceeded allowed revenue over the 2006 Determination. This would result in price reductions for irrigators equal to the interest earned on over-recovered revenue.

Our view is that State Water's proposal creates a substantial non-depreciating asset that by its very nature will extend from one determination to the next. This shifts costs across determinations, and so potentially to different groups of customers. This raises intergenerational equity concerns.

We also believe that a negative $64.3 million starting balance for the 'unders-and-overs' account is unduly favourable to State Water. A possible alternative would be to use a starting account balance of zero, however this would provide no revenue to State Water over the 2010 Determination.

For the reasons discussed we consider that State Water's proposal is not a viable alternative to our revised revenue volatility allowance.

4.4.2 Stakeholder views on the revenue volatility allowance proposed by the IPART draft determination

The draft determination included a revenue volatility allowance within State Water's revenue requirement to be recovered through charges paid by general security customers. Some stakeholders criticised this proposal and some have suggested alternative methods for addressing revenue volatility.

Many stakeholders have argued that revenue volatility is experienced by all businesses and that State Water should not be compensated for this risk. For example, Border Rivers Food and Fibre state that:

> Revenue volatility is a fact of life in agriculture and management of natural resources. This shifting of risk to the irrigator for the benefit of the monopolistic corporation is unacceptable. Irrigators would dearly love to enjoy the same luxury that State Water is claiming to need. While recognizing that stability in income would be a wonderful thing for State Water, to achieve it by imposing further on its customers with higher overall charges is misguided.[40]

Some stakeholders argued that State Water is being over-compensated for its revenue volatility and that this will reduce its drive for greater efficiency. In particular, Murray Irrigation has stated that:

> Murray Irrigation is acutely concerned [that] the draft determination provides State Water with three mechanisms for managing revenue risk. Murray Irrigation considers this approach is excessive and will remove the pressure that State Water has successfully responded to during the last determination to improve the efficiency of their business and to prioritise their expenditure when exposed to revenue shortfalls.[41]

40 Border Rivers Food and Fibre submission to IPART, April 2010, p 6.
41 Murray Irrigation Limited submission to IPART, April 2010, p 2.

Another major concern of stakeholders is how State Water will use the allowance. A number of stakeholders have suggested that revenue from the volatility allowance should be sequestered from other revenue to avoid it forming the basis of a dividend to Treasury. Lachlan Valley Water has stated that:

> IPART has said State Water may hold this allowance in a designated account but does not require State Water to do so. This leaves the way open for the volatility allowance to be folded into general operating income, boosting profit and potentially being paid to the NSW Government as a dividend, rather than fulfilling the risk management function, particularly in a situation where sales are close to or exceed the forecast level.[42]

Other options presented by stakeholders to address revenue volatility

A number of stakeholders have also suggested approaches to address State Water's revenue volatility. Inland Rivers Network proposed that prices for entitlement and usage charges should be set inversely to the amount of water available for allocation to customers.[43] However we note that this could result in substantial variation in price from year to year.

Namoi Water proposed that dividends should be paid into an asset renewal account managed by State Water. This account would be used to manage climate variability and its impact on income reliability in the short term.[44] However, State Water is required to pay a dividend to its shareholder in the same way as a privately owned company.

Other stakeholders noted that although State Water's price structure resulted in a shortfall over the current determination period it could also result in revenue windfalls during times when rainfall is abundant. They argue that measures to reduce revenue volatility are therefore unnecessary.[45] However we note that State Water does incur costs (through a requirement for working capital) to withstand periods of low revenue and that an allowance should be made for this in the revenue requirement.

Some stakeholders ague that the Government should incur the costs of revenue volatility:

> I think if anyone in all of this has the capacity to absorb the volatility over 120 years rather than five years or 10 years or 15 years, it's the government that's backed by all of us, so, really, I think they should be prepared to take that risk.[46]

However, we note that this is contrary to the National Water Initiative.

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42 Lachlan Valley Water submission to IPART, April 2010, p 2.
43 Inland Rivers Network submission to IPART, November 2009, p 6.
44 Namoi Water submission to IPART, November 2009, p 11.
45 See for example NSW Irrigators' Council, Gwydir Valley Irrigators Association, Macquarie River Food and Fibre.
46 Auscott, IPART Transcript of Public Hearing - Moree, 2 December 2009, p 46.

4.4.3 IPART's view on addressing revenue volatility

Extraction forecasts in the 2006 Determination were based on IQQM estimates of water extractions data that extends over 100 years. This may introduce an upward bias on extraction forecasts impacting State Water's ability to recover its efficient costs over the current regulatory period. As noted by State Water's customers,[47] there are both upsides and downsides to this volatility. If less water is available to sell than we forecast for the next determination period, State Water will under recover its efficient costs. The opposite effect occurs if more water is available.

We consider that forecasts based on long-run data are likely to overstate water extractions over the 2010 Determination. Changing the approach to forecasting water extractions to use shorter-term moving averages will place greater emphasis on more recent data. We expect that this will, at least in part, remove the upward bias of the current approach to forecasting extractions. This is explained further in Chapter 9.

However, State Water will still be exposed to annual variability in the availability of water because of the inherent difficulty in forecasting variable year-to-year climatic conditions. This occurs regardless of the approach used to forecast extractions and creates a revenue volatility risk for State Water.

We note there are costs associated with revenue volatility, as shortfalls resulting from revenue volatility may occur before windfalls, leaving State Water to carry revenue shortfalls from year to year. Under the principles of the National Water Initiative, the costs of these shortfalls are to be recovered from water access entitlement holders. The National Water Initiative states that:

> Water access entitlement holders are to bear the risks of any reduction or less reliable water allocation…arising from reductions to the consumptive pool as a result of seasonal or long-term changes in climate; and… drought.[48]

State Water's charge structure shifts revenue risk from its customers to itself.[49] For this reason we consider that it is appropriate for State Water to recover the costs of bearing this risk from its customers. Our approach complies with the National Water Initiative principles because it requires water entitlement holders to bear the risk of revenue volatility, rather than State Water.

We have made an allowance in State Water's cash flows to manage this risk in the form of a revenue volatility allowance. The calculation of this allowance is described below.

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47 See for example submission to IPART from NSW Irrigators' Council, Gwydir Valley Irrigators Association and Macquarie River Food and Fibre.

48 COAG, *Intergovernmental Agreement on a National Water Initiative*, June 2004, p 8.

49 State Water has an entitlement to usage charge ratio of 40:60 for most valleys.

4.4.4 IPART's revised volatility allowance

Our decision is to address State Water's revenue volatility through the use of a revenue volatility allowance. A revenue volatility allowance provides State Water with revenue to recover the holding costs required to borrow funds to conduct its business in years of revenue shortfalls. We consider that the allowance is cost effective,[50] addresses volatility directly and has regulatory precedent.[51]

We have used a revised volatility allowance for the final determination that incorporates improvements to the methodology used for the draft determination. This approach was chosen after we conducted further analysis in response to comments and suggestions from stakeholders.

The measure of volatility under the revised approach uses the average of the absolute differences between the 20-year average and actual extractions in each of the 20 years. This provides a better estimate of volatility than the approach used by the draft determination because it provides a measure of the degree to which extractions have fluctuated over the last 20 years, rather than using an assumption that the worst case scenario repeats itself.[52]

Calculating the allowance

Our revised volatility allowance is based on the volatility of historical extractions around the mean. It can be expressed mathematically by equation 1 below:

$$(1) \qquad \text{Extraction volatility} = \frac{1}{20} \sum_{i=1}^{20} | \mu - X_i | \ ,$$

where the X_i terms are the last 20 years of actual extractions, and μ represents the 20-year moving-average for extractions.

We calculate the extraction volatility on an individual valley basis. We measure the level of volatility experienced for each valley over the last 20 years. The volatility is measured in ML and is multiplied by the WACC of 7.4% that we determined for State Water to derive the holding costs, in revenue terms, which arise from bearing extraction volatility.

The allowance has been applied cumulatively over the determination period, recognising the compounding nature of borrowing costs. This results in an allowance of around $7.8 million over the 4-year price path. Annually, the charge is

50 Other approaches such as insurance, regulatory adjustment mechanisms (eg, trigger events, ex-post adjustments), alternative forms of depreciation, hedging are many times more expensive and/or less effective.

51 We have previously made allowances for the cost of managing volatility in our electricity retail draft determination.

52 The volatility allowance adopted by the draft determination was calculated using the assumption that the 'worst case scenario' (equivalent to average extractions over the 2006 Determination) were to be repeated.

$2.2 million. Box 4.1 provides a description of the steps that we used to calculate the revenue volatility allowance.

Box 4.1 Calculation of the revenue volatility allowance

We have calculated the revenue volatility allowance as follows:

- We calculated the extraction volatility for each individual valley using equation 1.
- The extraction volatility (in ML) is multiplied by the usage charge for each year of the 2010 Determination to determine State Water's revenue exposure.
- This revenue exposure is multiplied by the WACC to determine the holding costs of carrying this exposure over each year over the 2010 Determination – this equates to $930,000 per annum.
- The holding costs that occur over this period are compounded for each year that they are carried over the 2010 Determination.
- We derived an annual payment (using an annuity approach[a]) to recover the NPV sum of the holding costs. The annual payment calculates the value of the annual revenue volatility allowance for each of the 4 years of the 2010 Determination. The value of the annual payment is $2.2 million per annum.

The annual revenue volatility allowance for each valley has been attributed to the general security entitlement charge.

a An annuity approach calculates a fixed sum each year for a specified number of years.

Our determination requires high security users to pay a high security premium, which is incorporated within high security entitlement charges. This reflects the secure nature of high security water allocations. The revenue that State Water obtains is also relatively stable. We have therefore decided that the volatility allowance should be recovered from general security users. The general and high security entitlement charges are first calculated (including the high security premium). The volatility allowance is then added to the general security entitlement charge.[53]

Evaluation of the revised approach

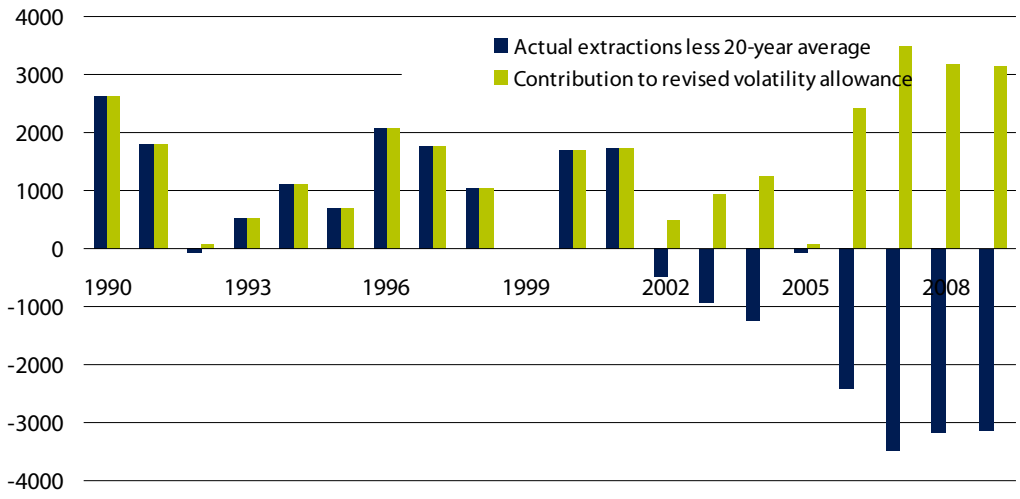
Figure 4.1 illustrates how a given year's extraction data contributes to the measure.

Figure 4.1 shows the actual extractions *less* the 20-year average over the last 20 years (blue bars), and the associated contribution to the volatility allowance (green bars). Although years where extractions are greater than the 20-year average ('overs') are included in the measure, their magnitude is less than the shortfalls during the 2006 Determination period. This means that their inclusion moderates the impact of the massive shortfalls of the last 4 years. As a result:

53 Discussed in detail in Chapter 10.

- irrigators end up paying a lower volatility allowance when the average is taken over a longer period, despite 'overs' being recognised by the measure of volatility
- the allowance acknowledges that 'overs' are indicative of ongoing volatility risk to State Water's revenue.

Figure 4.1 Historical differences between extractions and the 20-year average (GL)



The revised approach uses the most recent 20 years of historical extraction data,[54] rather than the 4-year worst case scenario used under the draft determination approach. This provides a consistent and stable measure of volatility and addresses the concerns of customers that the 2006 Determination was unrepresentative of long-term rainfall patterns.

We consider that the revised volatility allowance:

- is a better and more robust measure of volatility (in comparison to the draft determination approach) because State Water receives compensation for the holding costs associated with the average variation around the mean (ie, a more accurate measure of volatility)
- does not provide State Water with excessive compensation – the volatility allowance would more closely match actual holding costs if the last 20 years of extractions were to be repeated

54 However, we note that 20 years of reliable actual extractions data is not available because State Water's information on metered water sales does not go back far enough. To adjust for this we have used: 5 years of modelled IQQM extractions for the years prior to the availability of reliable actual extraction data (1990/91 to 1994/95); 14 years of actual extraction data (1995/96 to 2008/09); and a forecast for the most recent year provided by State Water (2009/10). The use of this data is intended to match the data used by our 20-year moving average approach to forecast bulk water extractions (discussed in chapter 9).

- allocates costs to valleys on the basis of fluctuations in extractions over the last 20 years which, for some valleys that have had historically stable extractions but experienced particularly low rainfall over the last determination, is preferable to the draft determination approach which allocated excessive costs to these valleys
- provides customers with price certainty over the determination period because it is determined ex-ante.

We intend to review the performance of our approach to calculating State Water's revenue volatility allowance should we set prices for State Water at the next determination. We will assess whether the allowance has operated satisfactorily over the 4 years of the 2010 Determination in light of the observed variation between forecast and actual extractions and the volatility of State Water's revenue.

4.5 Treatment of Murray Darling Basin Authority and Border Rivers Commission costs

Decision:

7 IPART's decision is to include the MDBA and BRC costs as set out in Table 4.9 and Table 4.10. The inclusion of these costs incorporates an efficiency factor of 1.25% compounded per annum to State Water's proportion of MDBA costs.

Table 4.9 IPART's decision on MDBA cost allocation ($'000, 2009/10)

	2010/11	2011/12	2012/13	2013/14
Total NSW Government contribution to MDBA costs	29,721	29,721	29,721	29,721
State Water share of MDBA costs	11,526	12,842	14,029	12,492
User share allocation of State Water MDBA costs:				
Border	17	18	20	18
Gwydir	51	58	63	56
Namoi	60	67	73	64
Peel	3	4	5	4
Lachlan	-	-	-	-
Macquarie	36	40	44	39
Murray	5,094	5,675	6,199	5,520
Murrumbidgee	1,130	1,259	1,375	1,225
North Coast	-	-	-	-
Hunter	-	-	-	-
South Coast	-	-	-	-
Fish River	-	-	-	-
User share of State Water MDBA costs (total)	6,392	7,121	7,779	6,927
Government share of State Water MDBA costs	5,134	5,721	6,250	5,565

Table 4.10 IPART's decision on BRC cost allocation ($'000, 2009/10)

	2010/11	2011/12	2012/13	2013/14
Total NSW Government contribution to BRC costs	1,100	1,100	1,100	1,100
State Water share of BRC costs	693	694	718	715
User share allocation of State Water BRC costs:				
Border	693	694	718	715
Government share of State Water BRC costs	407	406	382	385

4.5.1 State Water's proposal

State Water does not propose any variation to the way the Murray Darling Basin Authority (MDBA) and Border Rivers Commission (BRC) were treated in the draft determination.

For the 2010 Determination the NSW Government's share of MDBA and BRC costs have been divided between State Water and the NSW Office of Water (NOW). The costs allocated to State Water have then been further divided between Government and users (eg, irrigators), where the users' share has been attributed among valleys.[55]

State Water's submission highlights:

> …that it has included these costs simply to assist the NSW Government in establishing a mechanism for cost recovery of MDBA and BRC costs attributable to users, as required by the National Water Initiative. State Water passes through to the NSW Government the revenue collected from users for the MDBA and BRC costs. Consequently, there is no net revenue to State Water from including these costs in the proposed prices.[56]

State Water also notes that it has no authority to review the efficiency or service levels of the MDBA and BRC services.

State Water sought agreement and confirmation from the NSW Treasury and NOW who have confirmed the level of NSW's proportion of costs and the allocation between State Water and NOW. State Water's proposed share of MDBA costs and the proposed allocation of these costs among valleys for the 2010 Determination are shown Table 4.11.

55 State Water sought information from the MDBA on the appropriate cost allocation to MDB valleys. The MDBA did not provide the information requested by State Water. As a result, State Water's submission applied a pro-rata split to NSW's MDBA contributions based on total State Water expenditure in each activity for the purposes of calculating user shares.

56 State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 1-13.

Table 4.11 State Water proposed MDBA cost allocation ($'000, 2009/10)

	2010/11	2011/12	2012/13	2013/14
Total NSW Government contribution to MDBA costs	29,721	29,721	29,721	29,721
State Water share of MDBA costs	11,672	13,170	14,568	13,136
User share allocation of State Water MDBA costs:				
Border	17	19	21	19
Gwydir	52	59	66	59
Namoi	61	69	76	68
Peel	3	4	5	5
Lachlan	-	-	-	-
Macquarie	37	42	45	41
Murray	5,158	5,819	6,437	5,805
Murrumbidgee	1,144	1,291	1,428	1,288
North Coast	-	-	-	-
Hunter	-	-	-	-
South Coast	-	-	-	-
Fish River	-	-	-	-
User share of State Water MDBA costs	6,472	7,303	8,078	7,285
Government share of State Water MDBA costs	5,200	5,867	6,490	5,851

Source: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, Appendix 4.

Table 4.12 shows State Water's proposed share of BRC costs and the Border valley's proposed allocation for the 2010 Determination.

Table 4.12 State Water proposed BRC cost allocation ($'000, 2009/10)

	2010/11	2011/12	2012/13	2013/14
Total NSW Government contribution to BRC costs	1,100	1,100	1,100	1,100
State Water share of BRC costs	693	694	718	715
User share allocation of State Water BRC costs:				
Border	693	694	718	715
Government share of State Water BRC costs	407	406	382	385

Source: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, Appendix 4.

4.5.2 Stakeholder submissions

Some stakeholders have expressed concern about the lack of transparency in the cost of water resource management service provision. In particular, customers submit that costs incurred by the MDBA and BRC should be subject to scrutiny and include efficiency gains. For example:

> I also think it is ironic that the biggest driver of our costs has totally escaped any ability of customers to even understand what the costs are - what is driving the efficiency? Who is deciding what they actually do? I think it is inadequate and we look to IPART to at least raise those issues for the determination process and to provide some rigour in terms of what they agree to pass on to customers to pay when customers have had no opportunity to understand or influence them.[57]

Similarly, the NSW Irrigators' Council submits that:

> …the costs for the MDBA and the BRC be removed from the SWC [State Water] requested total, that IPART instruct that these costs be included within the NOW submission and that an analysis of the efficiency of these costs be included in that submission.[58]

In response to the draft report, the NSW Irrigator's council has further argued that:

> If IPART cannot determine if the expense is efficiently incurred, it should not recommend a charge based on recovery of that expense. This entirely defeats the purpose of IPART's very existence.[59]

In contrast to the comments from irrigators, the NSW Office of Water has raised concerns about the efficiency factor and its impact on cost recovery. Their submission stated that:

> This governance structure means that the imposition by IPART of an efficiency factor on the MDBA costs cannot be applied by the NSW Government on the MDBA. As a result, any proposed efficiency factor on the MDBA can only be borne via a reduction in the agency's costs (i.e. State Water or the Office), which IPART as part of it pricing determination would have already set at an efficient level. The imposition of this will result in failure to recover the agencies true costs as required under the National Water Initiative pricing principles.[60]

57 Murray Irrigation, IPART Transcript of Public Hearing – Griffith, 23 November 2009, p 19.
58 NSW Irrigators' Council submission to IPART, October 2009, p 12.
59 NSW Irrigators' Council submission to IPART, April 2010, p 5.
60 NSW Office of Water submission to IPART, April 2010, p 1.

4.5.3 Decision

Our decision is to accept State Water's proposed pass through of BRC costs with an efficiency adjustment to MDBA costs of 1.25% compounded per annum to partly address our concerns (this is the same efficiency factor that we applied to MDBA costs over the 2006 Determination).

We remain concerned about the insufficient detail and examination of MDBA costs. Our 2006 Determination noted:

> The Tribunal notes that there has been no independent examination of its efficiency. The MDBC [now MDBA] is outside the Tribunal's jurisdiction. However, the Tribunal believes that the governments that are signatories to the agreement should consider initiating a study of the efficiency of the MDBC's operations before agreeing to fund expenditures which are then to be passed on to irrigators.[61]

The lack of information and transparency of MDBA costs and activities continues to be an area of concern for us for the 2010 Determination. It is our opinion that it is unsatisfactory to pass through unspecified costs to users without an independent review of efficiency.

In the context of the transition to national water management under the *Water Act 2007*, we consider that it is timely to review the efficiency of water resource management costs incurred by these cross-jurisdictional bodies. We have endeavoured to set prices that recover State Water's efficient costs, including costs that are beyond State Water's control.

61 IPART, *Bulk Water Prices for State Water Corporation and Water Administration Ministerial Corporation - From 1 October 2006 to 30 June 2010*, September 2006, p 10.

5 Revenue required for operating expenditure

To determine how much revenue State Water should receive to meet its expected operating expenditures over the 2010 Determination, we assessed the efficient level of operating and maintenance expenditure that it would incur in providing its regulated bulk water services.

As part of our assessment, we engaged a consortium of WS Atkins International Limited and Cardno Limited (Atkins/Cardno), independent engineering consultants, to review State Water's past and forecast operating expenditure.

We also sought comment from stakeholders on:

- the efficiency of State Water's operating expenditure over the current determination period and the efficiency of its projected operating expenditure
- whether there was scope for State Water to achieve further efficiency gains over the 2010 Determination.

Section 5.1 below summarises our decisions on the revenue required for operating expenditure relating to State Water's regulated bulk water services. The following sections discuss our considerations in reaching these decisions in more detail.

5.1 Summary of IPART's decisions

Decision

8 IPART's decisions on the efficient level of operating expenditure that State Water requires to provide its bulk water services over the 2010 Determination are as shown in Table 5.1.

Table 5.1 IPART decision on allowed amounts for State Water operating expenditure ($'000, 2009/10)

	2010/11	2011/12	2012/13	2013/14
State Water proposed (excl. MDBA & BRC)				
User share	35,720	35,882	36,433	35,756
Government share	3,624	3,875	3,732	3,568
State Water proposed (excl. MDBA & BRC)	39,344	39,757	40,165	39,324
IPART decision (excl. MDBA & BRC)				
User share	35,194	34,834	34,668	33,891
Government share	3,427	3,362	3,390	3,219
IPART decision (excl. MDBA & BRC)	38,622	38,195	38,058	37,110
MDBA & BRC costs				
State Water proposed	12,365	13,864	15,286	13,851
IPART decision	12,219	13,536	14,747	13,207
State Water proposed (incl. MDBA & BRC)				
User share	42,885	43,878	45,229	43,755
Government share	8,824	9,742	10,222	9,420
State Water proposed (incl. MDBA & BRC)	51,709	53,621	55,451	53,175
IPART decision (incl. MDBA & BRC)				
User share	42,279	42,649	43,165	41,533
Government share	8,562	9,083	9,639	8,784
IPART decision (incl. MDBA & BRC)	50,841	51,732	52,804	50,317
plus volatility allowance (included in user share)	2,237	2,237	2,237	2,237
IPART total decision on operating expenditure	**53,078**	**53,969**	**55,042**	**52,555**
Difference excluding volatility allowance ($)	-868	-1,889	-2,647	-2,858
Difference excluding volatility allowance (%)	-1.7%	-3.5%	-4.8%	-5.4%

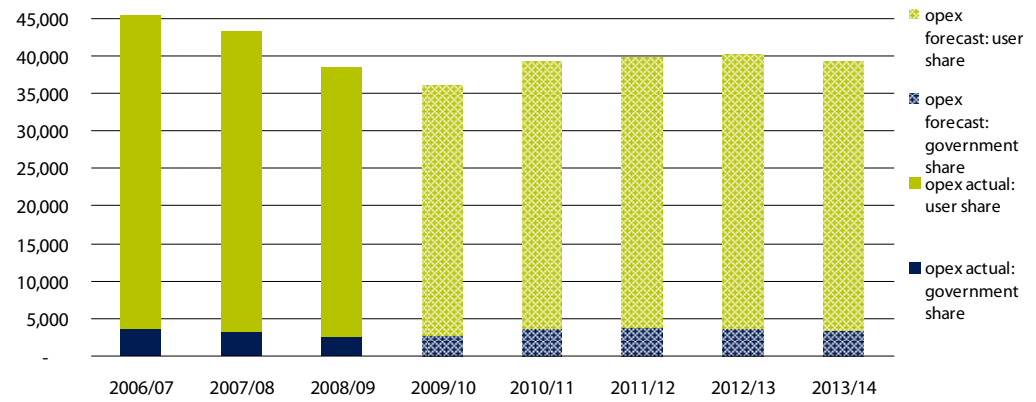
Note: Columns may not add due to rounding.

Source: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 3-6 and Appendix 4; IPART modelling.

5.2 State Water's submission

State Water's actual and forecast operating expenditure for the current and upcoming determination periods (2006/07 to 2013/14) are shown by user (eg, irrigators) and Government cost shares in Figure 5.1.

Figure 5.1 State Water proposal: actual and forecast operating expenditure for 2006/07 to 2013/14 ($'000, 2009/10)



Data source: State Water Corporation, Electronic Information Return, September 2009.

Figure 5.1 shows that State Water reduced its operating expenditure over the current determination period but anticipates increases over the upcoming period. Figure 5.1 also shows that the users continue to pay the major share of operating expenditure over the current and upcoming determination periods.

5.2.1 Operating expenditure (2006/07 to 2009/10)

State Water reports that it reduced its operating expenditure by 20.4% over the 2006 Determination from $45.4 million in 2006/07 to its forecast of $36.1 million for 2009/10.

Table 5.2 compares State Water's actual operating expenditure against that allowed in the 2006 Determination.

Table 5.2 State Water operating expenditure over the 2006 Determination ($'000, 2009/10)

	2006/07	2007/08	2008/09	2009/10
2006 Determination	41,091	38,487	37,332	36,180
State Water actual/forecast	45,461	43,311	38,520	36,133
Variance	10.6%	12.5%	3.4%	0.1%

Note: State Water operating expenditure values for 2009/10 are forecast only.

Source: State Water Corporation, Electronic Information Return, September 2009.

State Water reports that it undertook a review of discretionary non-salary costs in an attempt to reduce operating expenditure to the allowed amounts following the 2006 Determination. However, these measures were insufficient to realise all the necessary savings.

Consequently, State Water commenced a restructure of its business to shift from a valley-based workforce to one based on business function. This achieved a 14.3% reduction in its workforce which, when combined with higher vacancy rates, achieved sufficient reductions to forecast the achievement of the allowed operating expenditure target in 2009/10.

5.2.2 Operating expenditure (2010/11 to 2013/14)

State Water have calculated operating expenditure forecasts for the 2010 Determination by projecting baseline operating expenditure, subtracting efficiencies that it expects to realise, and adding additional expenditure items required to meet its statutory and regulatory obligations. Table 5.3 summarises this approach.

Table 5.3 State Water proposed operating expenditure – 2010 Determination ($'000 2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
Baseline expenditure		36,166	36,291	36,575	36,760
less efficiencies		-200	-700	-1,440	-2,150
plus expenditure to meet its statutory & reg. obligations (thematic expenditure)		3,376	4,166	5,030	4,714
Total expenditure proposed	36,133	39,342	39,757	40,165	39,324

Source: State Water Corporation, Electronic Information Return, September 2009.

Table 5.3 shows that State Water proposes an 8.8% increase in operating expenditure over the 2010 Determination from $36.1 million in 2009/10 to a forecast amount of $39.3 million in 2013/14. Growth in expenditure to meet statutory and regulatory obligations (which State Water refers to as its thematic expenditure) is the key driver behind State Water's proposed increase in operating expenditure. However, this increase is partly offset by State Water's proposed efficiency gains.

Additional expenditure to meet statutory & regulatory obligations (thematic expenditure)

Thematic expenditure is the term that State Water has given to the additional operating expenditure that it proposes for the upcoming determination period (ie, additional to the current 2009/10 baseline amount). State Water's thematic expenditure is grouped into common 'themes' such as environment and heritage, dam safety, research, land management, emergency and security, works approval and corporate.

Table 5.4 itemises State Water's proposal for additional thematic expenditures by function and value for the 2010 Determination.

Table 5.4 Additional thematic expenditure ($'000, $2009/10)

Additional expenditure item	Functional allocation	2010/11	2011/12	2012/13	2013/14
Works approvals	Operations	190	190	190	190
Environment and heritage	Environment	1,985	2,770	3,644	3,478
Dam safety	Maintenance	250	250	450	250
Research	Maintenance	150	140	90	40
Land management	Maintenance	300	300	300	300
Emergency and security	Maintenance	50	100	150	250
Corporate	Corporate	355	270	8	8
Discretionary services	Operations	96	146	198	198
Total		3,376	4,166	5,030	4,714

Source: Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation – Final Report*, November 2009, pp 78-9.

In relation to the expenditures shown in Table 5.4, State Water explains:

- Works approval expenditure is intended to fund newly created annual works approval management fees (imposed by the NSW Office of Water).
- Environment and heritage expenditure is required to meet State Water's Environment Management Plan requirements (eg, programs for water quality, fish passage, heritage management).
- Dam safety expenditure is needed to achieve current best practices in dam safety.
- Research expenditure funds research into areas of dam safety engineering that will assist State Water's business and the wider community.
- Land management expenditure assesses and identifies the extent of land over which access or rights are required in order to fulfil its statutory functions of capture, storage and delivery of water. This expenditure will also offer State Water the potential to discover opportunities to generate further revenue through, for example, increased grazing leases and wind farm development.
- Emergency and security expenditure is required to develop a broader approach (beyond dam safety) to asset security to meet the requirements of government acts, regulations and policies in light of the heightened risks of terrorist activity.
- Corporate expenditure identifies deficiencies and amends corporate systems – some key initiatives include data cleansing, interstate tagging (to link works approvals with cross-border licences and vice versa) and occupational health and safety audits (to identify and plan for risks surrounding potential dangerous goods and hazardous substances).
- Discretionary services expenditure is required to undertake projects endorsed by valleys' respective Customer Service Committees (CSCs) such as water efficiency projects (Lachlan) and maintenance of two new gauging stations (Namoi).

5.3 Atkins/Cardno review of State Water's operating expenditure

We asked Atkins/Cardno to assess whether State Water's proposed expenditure represents the best way of meeting the community's need in providing its bulk water services. We directed Atkins/Cardno to undertake a rigorous assessment of State Water's approach to business management and investment decision making as part of this assessment. We also asked Atkins/Cardno to assess State Water's current and future performance and operational requirements, including its customer service, health, safety and environmental standards.

Atkins/Cardno made comparisons of the costs of undertaking similar services and projects by other water utilities to assist them form an opinion of what represents the efficient costs of bulk water service provision. Atkins/Cardno drew cost comparisons between State Water and a range of agencies of similar size that manage dams and weirs for either bulk water management or potable supplies. The results of the benchmarking exercise are provided in Table 5.5.

Table 5.5 Benchmarking of State Water's business

Agency	Dams	Weirs	Maintenance (% of CRC)	Capex (% of CRC)	Operation, maintenance & admin (% of CRC)
State Water Corporation	17	69	0.45	0.32	0.95
Sun Water – river regulation	24	84	0.20	0.17	0.69
Sun Water – aggregated service provider	24	84	0.37	0.18	1.01
Grampians-Wimmera-Mallee Water – aggregated service provider	12	9	0.29	50.00[a]	1.72
Goulburn-Murray Water – regulated river	14	14	0.31	0.62	1.91
Goulburn-Murray Water – aggregated service provider	14	14	0.90	0.89	2.48
Sydney Catchment Authority	21	-	0.17	2.02	2.38
UK utility 'A' (name confidential)	26	-	0.20	no data	no data
UK utility 'B' (name confidential)	3	-	0.20	no data	no data

a Grampians-Wimmera-Mallee Water has a 50% capex to CRC ratio due to extensive channel re-lining works.

Note: The acronym 'CRC' refers to current replacement costs.

Source: Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation – Final Report*, November 2009, pp 34-35.

Atkins/Cardno state that the heterogeneous nature of similar utilities' asset bases, lengths of river, areas of supply, condition of assets and robustness of data makes it difficult to derive cost and performance comparisons on all areas of State Water's business. Nevertheless, Atkins/Cardno state that the comparisons in Table 5.5 show that State Water's performance sits mid-range among the utilities listed.

Atkins/Cardno reports that State Water has made significant changes to its business from the 2006 Determination. The major restructuring has moved the business from a regional organisation to one with a central functional structure. Atkins/Cardno states that this has brought greater focus to State Water's key business activities and a stronger, more consistent approach across its operational area.

5.3.1 Assessment of State Water's operating expenditure proposals

Atkins/Cardno reviewed State Water's current and proposed operating expenditures, including additional thematic expenditures, to assess the efficiency of its proposed expenditure for the 2010 Determination. Table 5.6 summarises the process and key recommendations of the Atkins/Cardno review.

Table 5.6 Atkins/Cardno's recommendations for State Water operating expenditure ($'000, 2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14	Change 2009/10 to 2013/14
State Water proposed	36,100[a]	39,342	39,758	40,165	39,266	3,166
% increase		9.0%	1.1%	1.0%	-2.2%	8.8%
Adjustments for specific schemes:						
Capitalisation of heritage costs		-	-400	-400	-400	-1,200
Capitalisation of fish passage monitoring costs		-128	-320	-32	-	-480
Fish passage monitoring re-phasing		-	-96	-16	-32	-144
Reduction of fish passage maintenance		-	-	-800	-800	-1,600
Land management review		-	-	-150	-150	-300
Reducing environmental contingencies		-280	-280	-280	-280	-1,120
Adjustments total		-408	-1,096	-1,678	-1,662	-4,844
Sub-total		38,934	38,662	38,487	37,604	
Less application of efficiency targets:						
Operational efficiency targets (%)		0.80	1.20	1.10	1.30	
Operational efficiency targets ($)		-311	-464	-423	-489	
Atkins/Cardno recommended	36,100[a]	38,623	38,198	38,064	37,115	1,015
% increase		7.0%	-1.1%	-0.4%	-2.5%	2.8%

a IPART-allowed amount from the 2006 Determination.

Note: Columns may not add due to rounding.

Source: Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation – Final Report,* November 2009, p 93.

Atkins/Cardno recommends a 2.8% (or $1 million) increase in State Water's operating expenditure over the 2010 Determination from the current level of $36.1 million in 2009/10 to $37.1 million in 2013/14. This represents a 5.5% (or $2.1 million) reduction to State Water's proposal for 2013/14 of $39.3 million.

Adjustments for specific schemes

Atkins/Cardno made adjustments to specific schemes within State Water's proposed operating expenditure for the 2010 Determination period. The adjustments made by Atkins/Cardno amount to a reduction of $4.8 million and are broadly categorised into 4 groups:

- Capitalisation of environmental operational costs – includes the capitalisation of heritage works activities and fish passage monitoring studies.
- Fish passage expenditure rephasing – refers to the re-phasing of monitoring costs to align with Atkins/Cardno's re-phasing of fish passage projects and the reductions to maintenance costs associated with fish passage schemes to account for the economies of scale which are achievable through performing maintenance at multiple fish passage sites.
- Land management review – expenditure towards this review will improve State Water's knowledge of its land assets and the associated risks but also enable the identification of potential commercial opportunities (eg, grazing leases and wind farms). Half of the expenditure associated with the costs of this land review have been deducted from State Water's efficient operating expenditure in the final two years of the determination period based on Atkins/Cardno's expectations of the revenue generated from these opportunities.[62]
- Reducing environmental contingencies – Atkins/Cardno took the view that individual environmental expenditure estimates include stand alone contingencies that are unnecessary and are likely to overstate costs. Atkins/Cardno believe that an overall contingency allowance is preferable. It would sit over all projects and be more cost effective and provide project managers with greater incentive not to exceed initial budgeted estimates.

Application of operating expenditure efficiency targets

Atkins/Cardno applied a catch-up and continuing efficiency approach to determine the level of operational efficiency gain that they expect that State Water can achieve over the 2010 Determination. Atkins/Cardno proposed operating cost efficiencies increasing from 1.4% in 2010/11 to 7.2% in 2013/14. Table 5.7 presents the operating expenditure efficiency targets set by Atkins/Cardno.

62 We have made no deductions for any non-regulated revenue which State Water may earn through identification of potential commercial opportunities.

Table 5.7 Atkins/Cardno recommended operating expenditure efficiencies (%)

	2010/11	2011/12	2012/13	2013/14
Continuing efficiency	0.8	0.8	0.8	0.8
Catch up efficiency	0.6	1.0[a]	1.2	1.2
Total efficiency	1.4	1.8	2.0	2.0
Cumulative total efficiency	**1.4**	**3.2**	**5.2**	**7.2**
less efficiency proposed by SWC	0.6	2.0	4.1	5.9
Atkins/Cardno recommended net efficiency	**0.8**	**1.2**	**1.1**	**1.3**

a Number adjusted to reflect totals.

Note: Columns may not add due to rounding.

Source: Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation - Final Report,* 27 November 2009, p 92.

State Water claimed that its ability to realise further efficiencies in the initial years of the 2010 Determination is limited by the faster than anticipated implementation of its business restructure. Its restructure was planned for completion in 2009/10 but was completed a year earlier than expected, which left a backlog of business improvement projects as a result.

State Water claims that it cannot continue to realise efficiencies at current levels because reduced staff levels (from the restructure) has left it with:

> …a theoretical deficiency in its capability until strategies, processes and in particular the enabling of technology/systems with associated procedures are effectively operational to offset reduced staffing.[63]

Atkins/Cardno concluded that State Water has the ability to achieve further efficiency gains over the 2010 Determination.

Catch-up efficiency

Catch-up efficiency is defined as the level of operational efficiency that State Water can achieve from its current position to the position of a top performing, frontier company. A top performing, frontier company is one which incorporates best practices across all areas of its business.

Catch-up efficiency targets for State Water are used to represent a measure of the level of catch-up efficiency that is considered achievable by State Water over the determination period. Achieving the determination-determined level of operating expenditure (which encompass the catch-up efficiency targets) does not then imply that State Water is operating at the frontier and that maximum efficiency has been achieved. Further catch-up efficiencies may still exist but may not have been deemed achievable over the period.

[63] State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 3-7.

Atkins/Cardno have applied a 1.2% per annum catch-up efficiency in the latter years of the 2010 Determination. However, Atkins/Cardno have assumed a lower level of efficiency of 0.6% for State Water in 2010/11 to reflect a lag in the flow of efficiency while State Water's new systems are being implemented.

Atkins/Cardno has taken account of the catch-up efficiencies proposed by State Water to arrive at the net efficiencies presented in Table 5.7.[64] Atkins/Cardno provide examples of catch-up efficiencies that State Water can look to achieve. These include the full implementation of the facilities maintenance and management system (FMMS), the introduction of new customer operations systems and new water delivery systems.

Continuing efficiency

Continuing efficiency gains represent the increased productivity derived from process innovation and new technology that all well-performing businesses should achieve.

Atkins/Cardno has set a continuing efficiency of 0.8% per annum for State Water which recognises the efficiency assumptions already identified by State Water.[65] Atkins/Cardno identified the restructure of the corporate and asset management functions as potential examples of continuing efficiency improvements.

5.4 IPART's decision in the draft determination

We accepted Atkins/Cardno's findings and adopted the operating expenditure recommendations they proposed for the draft determination.

State Water raises some concerns about our adoption of aspects of Atkins/Cardno's recommendations in its submission to our draft determination.[66] State Water remains critical of our:

- reduction to land management expenditure
- capitalisation of heritage maintenance expenditure
- reduction to contingencies for environmental projects
- application of efficiency targets.

64 Atkins/Cardno note that some lack of clarity over State Water's corporate operating expenditure was a factor influencing its decision on the level of catch-up efficiency.

65 Atkins/Cardno note that Sydney Water was set a continuing efficiency target for controllable expenditure of 0.8% per annum in 2008, which was offset by those efficiencies already identified by Sydney Water. A similar application of continuing efficiency was applied to Hunter Water for its 2009 Determination.

66 State Water Corporation submission to IPART 2010 Pricing Determination, April 2010, pp 4-5.

Land management expenditure

State Water objects to reduction to its land management thematic expenditure on the basis of revenue generated from potential commercial opportunities and propose that its original land management thematic expenditure proposal of $300,000 per annum be maintained for the final two years of the determination period.

Heritage maintenance expenditure

State Water request that its expenditure on heritage management works be reconsidered as operational expenditure.

Environmental contingencies

State Water believes that operating expenditure adjustments to reduce environmental contingencies are arbitrary and will erode actual project budgets, which will affect the scope of the environmental thematic program. State Water claims that this reduction compromises its ability to meet its environmental obligations.

Efficiency targets

State Water disagrees with the application of catch-up efficiency targets. State Water claims that it is on track to achieve its IPART-determined efficient operating expenditure target in 2009/10 and states that:

> There seems to be an underlying assumption that a monopoly business can never be as efficient as the frontier firm, … irrespective of the level of cost reductions it has achieved in previous regulatory periods.[67]

State Water states that it rejects the notion of catch-up efficiency and believes that reductions to operating expenditure on this basis may result in reduced service delivery.

5.5 Stakeholder comments

Stakeholders generally recognise and have congratulated State Water for its achievements in reducing operating expenditure over the 2006 Determination. Nevertheless, most stakeholders that commented on State Water's operating expenditure proposals oppose the increases sought for the 2010 Determination. These stakeholders consider that there is scope for further efficiency gains, and expenditure increases should be deferred in light of continuing drought conditions.[68]

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67 State Water Corporation submission to IPART 2010 Pricing Determination, April 2010, p 4.

68 See stakeholder submission to IPART, for example, Lachlan Valley Water, p 2; Macquarie River Food and Fibre, pp 4-6; NSW Irrigators, p 16; Hunter Valley Water Users Association, p 3.

The NSW Irrigators' Council made this point at the Griffith public hearing when they said:

> What we have suggested in our submission is that those thematic expenses couldn't be characterised as urgent in nature. In fact, I suspect State Water would probably agree with that when you look through some of these. We have suggested that that sort of expenditure ought rightly be deferred, as it would be in a normal competitive commercial enterprise, until revenue recovers rather than be visited through a charge to irrigators to increase it as a means of opex.[69]

Other stakeholders who oppose State Water's proposed thematic expenditure consider that some of this expenditure already exists within State Water's baseline operating expenditure. Murrumbidgee Irrigation considers that State Water's proposed thematic expenditure should only be allowed if users or the Government are willing to pay for it.[70]

Border Rivers Food and Fibre states that thematic expenditure needs to be closely scrutinised so that revenue from water and storage and delivery functions is not used to subsidise other functions.[71] Similarly, the Gwydir Valley Irrigators Association urges IPART to closely examine State Water's operating expenditure proposals. They believe that:

> IPART should drive a commitment by State Water to consistently deliver efficiency savings, which will result in ongoing real reductions in operating costs.[72]

The Hunter Valley Water Users Association submit that:

> …most of the thematic costs included in State Water['s] submission are either discretionary or the result of additional Government regulation. We believe that they should either be postponed [un]til normal state wide water availability is achieved or Government responsibility is determined.[73]

However, State Water has defended its operating expenditure proposals in response to opposition from stakeholders. George Warne of State Water commented on State Water's proposal for additional thematic expenditure as follows:

> I would be more likely to say this is the compulsory regulatory framework we are living in and these are some of the things we have to do. So, before you throw out all the thematic expenditure as being unnecessary, or think that you would be easily able to cover it by other efficiencies in the business, just have a look at it line by line and I think you'll see the chunky items of it are not very discretionary at all.[74]

---

69 NSW Irrigators Council, IPART Transcript of Public Hearing - Griffith, 23 November 2009, p 34.
70 Murrumbidgee Irrigation submission to IPART, October 2009, p 3.
71 Border Rivers Food and Fibre submission to IPART, April 2010, p 6.
72 Gwydir Valley Irrigators Association, IPART Transcript of Public Hearing - Moree, 2 December 2009, p 22.
73 Hunter Valley Water Users Association submission to IPART, October 2009, p 3.
74 State Water Corporation, IPART Transcript of Public Hearing - Moree, 2 December 2009, p 47.

The Department of Environment Climate Change and Water offered a different view. It submitted that the proportion of State Water's budget allocated to environmental water management should increase in line with the revenue received from environmental water holders. The Department states that this expenditure should be separately itemised to allow for a review of its efficiency at future determinations.[75]

Lachlan Valley Water believes that 2.5% per annum represents a suitable target rate for efficiency. They state that:

> Many other outside regulated businesses are aiming to match CPI increases each year. That is simply a part of doing business, to continue to make your systems and your operations more efficient, and our view is that State Water should equally be seeking to achieve those efficiencies.[76]

5.6 IPART decision

We have considered the issues raised by stakeholders and those raised by State Water in relation to operating expenditure reductions. Our decision for the final determination is to maintain our draft decision and adopt the operating expenditure recommendations proposed by Atkins/Cardno.

State Water has demonstrated its willingness to reduce operating expenditure where it can. Examples of this include where it has reduced labour costs by retaining high vacancy rates and limiting the manning of dams (through negotiation with the NSW Dam Safety Committee when storage levels at dams are low).

The adoption of Atkins/Cardno's recommended adjustments to operating expenditure, along with State Water's willingness to reduce costs and increase efficiencies, should see State Water further move its business towards the efficient frontier of top performing companies.

Stakeholders have asked that we:

- rigorously scrutinise State Water's operating expenditure proposals to ensure that only efficient, non-discretionary expenditure is recovered through the prices we set
- set challenging efficiency targets to see State Water reduce its operational expenditure and move towards what can be considered a top performing company.

75 Department of Environment, Climate Change and Water submission to IPART, October 2009, p 3.

76 Lachlan Valley Water, IPART Transcript of Public Hearing - Dubbo, 25 November 2009, p 22.

We have conducted a detailed assessment of State Water's operating expenditure proposals. Based on this assessment, we have accepted the recommendations from our consultant to:

- rephase non-essential expenditures
- reduce overstated contingencies
- adjust for the incorrect treatment of capital costs
- make deductions to account for expectations about revenues generated from commercial opportunities within its regulated business
- apply efficiency targets which rise from 1.4% to 7.2% over the 2010 Determination.

These adjustments are outlined in Table 5.6.

Table 5.8 outlines our decision on operating expenditure for the 2010 Determination, by valley, for State Water.

Table 5.8 IPART decision by valley for State Water operating expenditure ($'000, 2009/10)

Valley	2010/11	2011/12	2012/13	2013/14
Border	1,320	1,267	1,287	1,194
Gwydir	3,773	3,637	3,589	3,618
Namoi	3,974	4,024	3,915	3,871
Peel	1,074	1,045	1,035	971
Lachlan	5,339	5,296	5,517	5,238
Macquarie	4,566	4,556	4,567	4,729
Murray	3,385	3,396	3,330	3,214
Murrumbidgee	6,246	6,193	6,105	5,865
North Coast	582	576	570	546
Hunter	4,046	3,951	3,944	3,802
South Coast	659	638	631	607
Fish River	3,656	3,616	3,568	3,455
Total operating expenditure	**38,622**	**38,195**	**38,058**	**37,110**
User Share				
Border	1,183	1,132	1,153	1,066
Gwydir	3,487	3,389	3,317	3,361
Namoi	3,613	3,703	3,550	3,517
Peel	876	849	841	790
Lachlan	4,751	4,693	4,921	4,667
Macquarie	4,118	4,107	4,118	4,304
Murray	3,183	3,174	3,146	3,041
Murrumbidgee	5,631	5,582	5,488	5,285
North Coast	499	495	489	468

Valley	2010/11	2011/12	2012/13	2013/14
Hunter	3,654	3,567	3,559	3,438
South Coast	545	525	518	498
Fish River	3,656	3,616	3,568	3,455
Total user share	**35,194**	**34,834**	**34,668**	**33,891**
Government share				
Border	137	135	134	128
Gwydir	287	248	273	257
Namoi	361	321	365	353
Peel	198	196	194	181
Lachlan	588	603	596	571
Macquarie	449	448	449	424
Murray	203	221	184	173
Murrumbidgee	615	611	616	580
North Coast	82	81	81	78
Hunter	392	385	385	364
South Coast	114	113	114	109
Fish River	0	0	0	0
Total government share	**3,427**	**3,362**	**3,390**	**3,219**
Government share as % of total	8.9%	8.8%	8.9%	8.7%

Note: Column totals may not sum due to rounding. Expenditure includes MDBA & BRC costs and the revenue volatility allowance.

6 Revenue required for capital investment

To determine what revenue State Water needs to fund its capital works program over the 2010 Determination, we assessed the efficient and prudent level of capital expenditure that it requires to provide its regulated bulk water services.

As part of our assessment, we engaged Atkins/Cardno to review State Water's past and forecast capital expenditure. Atkins/Cardno conducted this review in conjunction with their review of State Water's operating expenditure and asset lives.

We also sought comment from stakeholders on:

- the prudency of State Water's capital costs over the current determination period and the efficiency of its projected capital works program
- whether there was scope for State Water to achieve further efficiency gains over the 2010 Determination.

Section 6.1 below summarises our final decisions on the revenue required for capital expenditure relating to State Water's regulated bulk water services. The following sections discuss our considerations in reaching these decisions in more detail.

6.1 Summary of IPART decisions on the allowance for a return on assets and regulatory depreciation

Decisions

9 IPART's decision is that the prudent level of capital expenditure that State Water required to provide its bulk water services over the 2006 Determination is as shown in Table 6.1.

Table 6.1 IPART decision on prudent capital expenditure for 2006 Determination ($'000, 2009/10)

Valley	2006/07	2007/08	2008/09	2009/10
User share	7,131	9,437	4,420	11,597
User share as % of total	51.6%	51.2%	27.2%	15.8%
Government share	6,696	8,996	11,859	61,970
Government share as % of total	48.4%	48.8%	72.8%	84.2%
IPART decision on capital expenditure	13,827	18,433	16,280	73,567

Note: Column totals may not sum due to rounding.

10 IPART's decision is that the efficient level of capital expenditure that State Water requires to provide its bulk water services over the 2010 Determination is as shown in Table 6.2.

Table 6.2 IPART decision on efficient capital expenditure for 2010 Determination ($'000, 2009/10)

Valley	2010/11	2011/12	2012/13	2013/14
User share	19,193	24,861	11,755	9,458
User share as % of total	20.7%	26.9%	14.5%	41.3%
Government share	73,610	67,731	69,209	13,417
Government share as % of total	79.3%	73.1%	85.5%	58.7%
IPART decision on capital expenditure	92,802	92,592	80,964	22,875

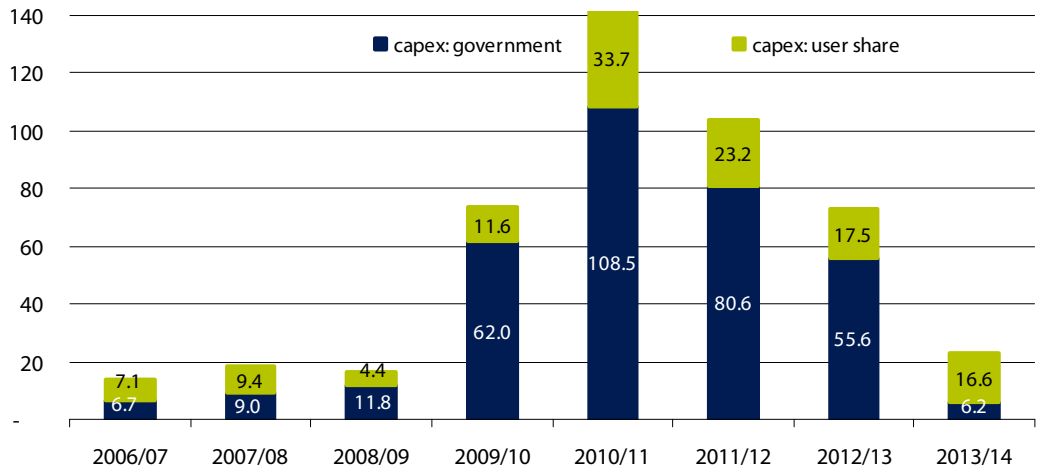
Note: Columns may not sum due to rounding.

6.2 State Water's submission

State Water's actual and forecast capital expenditure over the 2006/07 to 2013/14 period is shown by allocation to user and Government shares in Figure 6.1.

Figure 6.1 shows that State Water is seeking a significant increase in capital expenditure over the 2010 Determination. State Water proposes to increase capital expenditure from its forecast of $122.0 million over the 2006 Determination to $342.0 million for the 2010 Determination. This represents a 180.5% increase.

Figure 6.1 State Water capital expenditure: actuals & forecasts for 2006/07 to 2013/14 ($million, 2009/10)



Data source: State Water, Electronic Information Return, September 2009.

The major portion of the capital expenditure proposed by State Water for the current and upcoming determination periods is allocated to the Government share. This lessens the impact on customer charges but increases the amount that Government pays.

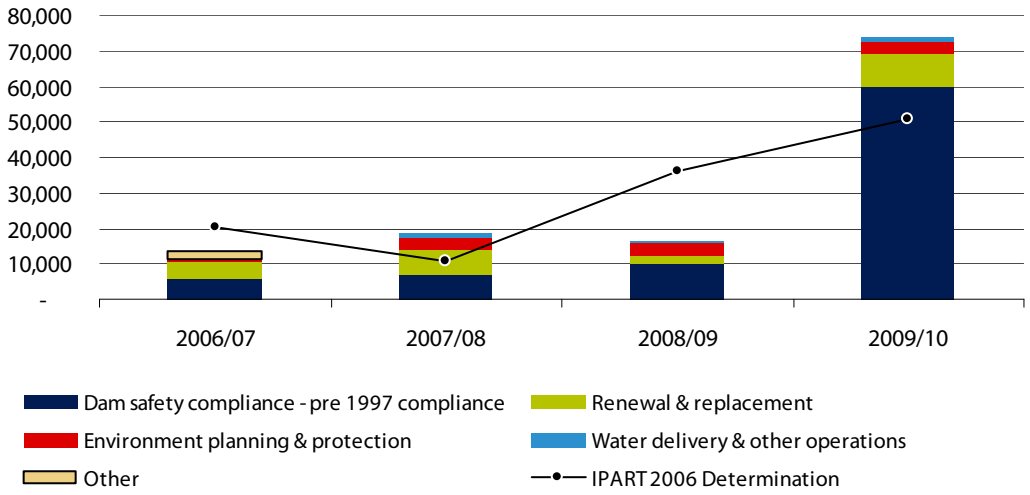
6.2.1 Capital expenditure (2006/07 to 2009/10)

A comparison of State Water's capital expenditure against that allowed in the 2006 Determination is provided in Figure 6.2 and Table 6.3. Figure 6.2 and Table 6.3 show that State Water underspent against its 2006 Determination-allowed capital expenditure amounts in 2006/07 and 2008/09, but overspent in 2007/08 and 2009/10.[77]

Figure 6.2 shows that expenditure on dam safety upgrades to meet pre-1997 compliance standards (where costs in this category have a 100% allocation to Government) is the most significant driver of capital expenditure over this period, representing around 67% of total capital expenditure. Expenditure on renewals and replacement ranks second among drivers of capital expenditure (representing around 20% of total capital expenditure), followed by environmental protection and planning (8%), water delivery and other operations (2%) and other expenditure (2%).

77 Capital expenditure for 2009/10 is forecast only.

Figure 6.2 State Water capital expenditure actuals by activity, 2006/07 to 2009/10 ($'000, 2009/10)



Note: State Water capital expenditure for 2009/10 is forecast only.
Data source: State Water, Electronic Information Return, September 2009.

Table 6.3 shows that State Water forecasts a total capital expenditure overspend of $4.7 million for the 2006 Determination. This represents 4% of the allowed capital expenditure amount of $117.3 million.

The Government was allocated the majority of State Water's capital expenditure over the 2006 Determination, amounting to $89.4 million (or 73%) of the $122.0 million for the period.

Table 6.3 State Water actual versus allowed capital expenditure for 2006 Determination ($'000, 2009/10)

	2006/07	2007/08	2008/09	2009/10	Total
User share allowed	13,027	6,169	7,324	6,746	33,267
User share actual	7,118	9,420	4,404	11,597	32,538
User share variation	-5,909	3,251	-2,920	4,851	-728
Govt share allowed	7,035	4,489	28,447	44,024	83,995
Govt share actual	6,684	8,980	11,815	61,970	89,449
Govt share variation	-351	4,491	-16,632	17,946	5,454
Total share allowed	20,062	10,658	35,771	50,770	117,261
Total share actual	13,802	18,399	16,219	73,567	121,987
Total share variation	-6,260	7,741	-19,552	22,797	4,725

Note: State Water capital expenditure values for 2009/10 are forecast only.
Source: State Water Corporation submission to IPART, September 2009, p 4-1.

State Water notes that capital expenditure in 2008/09 was markedly underspent. State Water claims that this was due primarily to the restructure that occurred in the organisation which led to major changes to the workforce and significant staff turnover. A number of delays relating to the investigation stages of the dam safety upgrade projects were also experienced.

State Water claims that it is confident that its forecasted capital expenditure 'catch-up' in 2009/10 (for the 2008/09 underspend) will be achieved.

6.2.2 Capital expenditure (2010/11 to 2013/14)

Table 6.4 shows that State Water's capital expenditure program for the 2010 Determination increases significantly between 2009/10 and 2010/11, but then returns to a level of expenditure in 2013/14 that is commensurate with the levels of expenditure incurred over the 2006 Determination.

Table 6.4 provides a breakdown of the allocation of State Water's proposed capital expenditure between user and Government shares.

Table 6.4 State Water capital expenditure forecasts by user share, 2009/10 to 2013/14 ($'000, 2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14	Total
Capital expenditure: user share	11,597	33,661	23,222	17,516	16,599	90,998
Capital expenditure: Government	61,970	108,461	80,637	55,628	6,227	250,954
State Water proposed capital expenditure	73,567	142,122	103,860	73,145	22,826	341,952

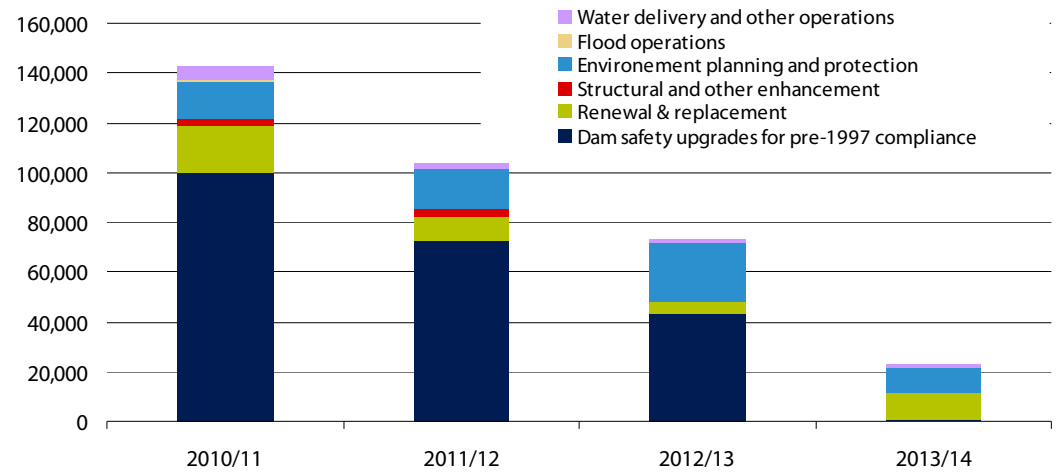
Note: Columns may not add due to rounding. Capital expenditure for 2009/10 is not part of the 2010 Determination and so is not included in the summation in the total column.

Source: State Water Corporation, Electronic Information Return, September 2009.

Figure 6.3 identifies the cause for the sudden increase in capital expenditure in 2010/11. State Water proposes expenditures on dam safety upgrades to meet pre-1997 compliance standards of $95.5 million in 2010/11, falling to $0.4 million by 2013/14. Renewal and replacement and environment planning and protection are the other majors drivers of capital expenditure over the 2010 Determination. State Water claims that expenditure on dam safety upgrades and related environment and compliance works (fish passage and cold water pollution mitigation works) are required to meet its regulatory and policy obligations.

State Water notes that Government will meet the majority of the proposed capital expenditure for the 2010 Determination since dam safety upgrades to meet pre-1997 compliance standards has a 100% allocation to the Government. State Water's customers are somewhat sheltered from the increase in State Water's proposed capital program as a result.

Figure 6.3 State Water capital expenditure forecasts by activity, 2010/11 to 2013/14 ($'000, 2009/10)



Data source: State Water, Electronic Information Return, September 2009.

6.3 Atkins/Cardno review of past and forecast capital expenditure

We asked Atkins/Cardno to assess the prudency and efficiency of State Water's past and forecast capital expenditure. We directed Atkins/Cardno to examine and report on State Water's decision-making processes, planning and asset management frameworks and to undertake a rigorous assessment of State Water's approach to business management and investment decision making.

The sections that follow summarise Atkins/Cardno's findings on the prudency of past capital expenditure followed by their assessment of future capital expenditure for the 2010 Determination.

6.3.1 Past capital expenditure of the 2006 Determination

Atkins/Cardno has accepted State Water's expenditures for 2006/07 to 2008/09. However, Atkins/Cardno recommend a $13 million reduction to State Water's proposed capital program in 2009/10 to reflect its belief that State Water is unlikely to meet its forecast dam safety upgrades for this year. This reduces the allowance for capital expenditure from $73.6 million to $60.6 million in 2009/10.

Table 6.5 presents the adjustments recommended by Atkins/Cardno to the prudent level of capital expenditure for the 2006 Determination.

Table 6.5 Atkins/Cardno assessment of prudent capital expenditure for the 2006 Determination ($'000, 2009/10)

	2006/07	2007/08	2008/09	2009/10
State Water proposed	**13,776**	**18,364**	**16,219**	**73,567**
Atkins/Cardno projected underspend in 2010:				
Chaffey dam upgrade	-	-	-	-2,000
Copeton dam upgrade	-	-	-	-1,000
Keepit dam upgrade	-	-	-	-10,000
Atkins/Cardno final recommendation	**13,776**	**18,364**	**16,219**	**60,567**

Source: State Water, Electronic Information Return, September 2009; Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation –Final Report*, December 2009, p 53.

6.3.2 Atkins/Cardno recommended adjustments to capital expenditure over the 2010 Determination

Atkins/Cardno have reduced State Water's forward capital program in the first two years of the determination period by around $47.8 million, followed by an increase of $7.9 million in 2012/13. In total, Atkins/Cardno recommends a $39.9 million (or 11.6%) reduction to State Water's capital program over the four year period to 2013/14.

Table 6.6 outlines Atkins/Cardno's recommended adjustments to State Water's proposed capital expenditure for the 2010 Determination.

Table 6.6 Atkins/Cardno recommended capital expenditure for the 2010 Determination ($'000, 2009/10)

	2010/11	2011/12	2012/13	2013/14	Total 2010/11 to 2013/14
State Water proposed	**142,121**	**103,858**	**73,144**	**22,828**	**341,951**
Atkins/Cardno adjustments:					
rephasing	-27,750	1,500	13,100	2,200	-10,950
specific schemes	-8,250	-9,250	-2,150	-750	-20,400
efficiency	-1,486	-2,540	-3,130	-1,401	-8,557
Atkins/Cardno final recommendation	**104,635**	**93,568**	**80,964**	**22,877**	**302,044**
Reduction/increase between State Water proposed & Atkins/Cardno	37,486	10,290	-7,820	-49	39,907

Source: Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation – Final Report*, December 2009, pp 67-68.

6.3.3 Forecast capital expenditure for the 2010 Determination

Atkins/Cardno recommend adjustments to the level and timing of State Water's proposed capital expenditure for the 2010 Determination as follows:

- corrections where capital projects have been wrongly allocated to the renewal and replacement category
- adjustments to State Water's dam safety expenditures to align with the timetable agreed to by the NSW Dam Safety Committee
- adjustments to the timing of fish passage and cold water pollution mitigation expenditures
- the application of capital efficiency targets.

The proposed adjustments are discussed in turn.

Corrections to capital project allocation

Atkins/Cardno's analysis of State Water's electronic information return identified 2 material inconsistencies. Atkins/Cardno report:

> Both the Wyangala Fish Passage Offset and Cold Water Pollution were wrongly attributed to Renewal and Replacement rather than Environmental Planning and Protection. The net impact is that $11.15M should be transferred from Renewal and Replacement to Environmental Planning and Protection.[78]

Atkins/Cardno's corrections are important from a pricing perspective because renewal and replacement expenditure attracts a 90% user and 10% Government cost share, while environmental planning and protection is funded 50% from users and 50% from Government.

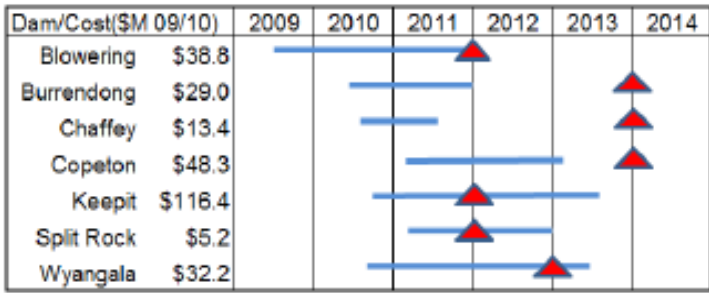
Adjustments to dam safety expenditure

State Water's expenditure on dam safety compliance accounts for 63% of total capital expenditure over the 2010 Determination. Atkins/Cardno report that State Water's expenditure is required to meet the dam safety compliance program that was agreed with the NSW Dam Safety Committee in 2006.

The construction program (blue line) along with the target dates of its dam safety compliance program (red triangles) are shown in Figure 6.4.

78 Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation – Final Report*, November 2009, p 63.

Figure 6.4 Construction program and target dates for dam safety compliance



Data source: Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation – Final Report*, December 2009, p 56.

Figure 6.4 shows that the construction and completion of dam safety upgrades to Burrendong, Chaffey and Copeton dams are forecast to occur ahead of the timetable agreed with the NSW Dam Safety Committee.

Atkins/Cardno take the view that construction, and the associated expenditure, of safety upgrades at the dams which are projected to occur ahead of scheduled completion date should be rephased to align with the timetable agreed with the NSW Dam Safety Committee. Atkins/Cardno has also formed the view that expenditure on the Blowering dam upgrade is overstated by $2.1 million.

Atkins/Cardno recommends that State Water's capital expenditure on dam safety compliance be adjusted:

- for the rephasing of dam safety compliance construction at Burrendong, Chaffey and Copeton dams
- to address the overstated forecasts for Blowering dam upgrade.

Adjustments to fish passage expenditure

Atkins/Cardno noted that State Water has not constrained its fish passage program within its overall capital budget for the 2010 Determination. Atkins/Cardno report that State Water consider that the fish passage schemes are required by legislation, and so it has no option but to undertake them.

Atkins/Cardno accept State Water's view on this. Atkins/Cardno refer to the relevant legislation which states that:

> (5) A public authority that proposes to construct, alter or modify a dam, weir or reservoir on a waterway (or to approve of any such construction, alteration or modification):
>
> a) must notify the Minister of the proposal, and
>
> b) must, if the Minister so requests, include as part of the works for the dam, weir or reservoir, or for its alteration or modification, a suitable fishway or fish by-pass.[79]

79 *Fisheries Management Act 1994 (NSW)*, section 218.

However, Atkins/Cardno recommends that the timing of fish passage projects should be rephased to reflect the recommended rephasing of dam safety upgrades. Atkins/Cardno also form the view that State Water have applied an excessive level of contingency to expenditure on fish passage schemes considering the scale of this expenditure.

Atkins/Cardno's recommended adjustments to State Water's proposed capital expenditure on fish passage schemes are presented in Table 6.7.

Table 6.7 Fish passage expenditure ($million, 2009/10)

	2010/11	2011/12	2012/13	2013/14
State Water proposed	9.1	14.0	12.0	0.0
Atkins/Cardno recommended	5.3	9.8	13.4	2.8
Variance	-3.8	-4.3	1.4	2.8

Note: Columns may not add due to rounding.

Source: Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation – Final Report*, December 2009, pp 59-60.

Adjustments to cold water pollution mitigation expenditure

State Water identify Keepit, Copeton, Wyangala and Burrendong dams as requiring cold water pollution mitigation over the 2010 Determination. State Water propose undertaking cold water pollution mitigation schemes at 3 of these sites simultaneously.

Atkins/Cardno notes a Cabinet strategy that State Water claims requires action from them to mitigate cold water pollution at these sites. The Cabinet approved Statewide Strategy states that water utilities should:

> …investigate and ameliorate the impacts of Cold Water Pollution (CWP) at high priority dams, where it is technically and economically feasible to do so.[80]

Contrary to State Water's view, Atkins/Cardno state that a more prudent approach would be to phase the undertaking of cold water pollution mitigation schemes to enable opportunities to learn from the experiences of previous schemes.

Atkins/Cardno also note that by procuring all schemes at the same time the tendering process may not prove to be entirely competitive, as there may not be enough contractors available and willing to undertake the work.

80 Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation – Final Report*, November 2009, p 61.

Atkins/Cardno takes the view that a prudent approach would be to test the solution and operational practice at one site to confirm the effectiveness of the solution before it is rolled out to other sites. Atkins/Cardno also stated that this is consistent with the Cabinet strategy's requirement for demonstrating that the solutions are technically sustainable and economically feasible.

Atkins/Cardno's recommended adjustments to State Water's proposed expenditure on cold water pollution mitigation schemes are presented in Table 6.8.

Table 6.8 Cold water pollution expenditure ($million, 2009/10)

	2010/11	2011/12	2012/13	2013/14
State Water proposed	0.2	2.7	12.1	15.0
Atkins/Cardno recommended	0.0	0.2	2.0	3.1
Variance	-0.2	-2.5	-10.1	-11.9

Source: Atkins/Cardno, Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation – Final Report, December 2009, pp 61-2.

Application of capital expenditure efficiencies

Atkins/Cardno applied a continuing efficiency factor of 0.4% per annum to State Water's capital expenditure. This is in line with the efficiencies set most recently for Sydney Water Corporation and Hunter Water Corporation, and the efficiency targets set by Ofwat for water utilities in England.

Atkins/Cardno explain that they have applied their informed judgement to determine the level of catch-up efficiency that is achievable by State Water in the areas of cost estimating, procurement and program management. Atkins/Cardno state that this judgement is:

> …based on our detailed experience of current best practice applied in Australia and what has been achieved recently by water companies in England and Wales, the recent efficiency targets set for Hunter Water and our qualitative assessment of SWC's capital planning processes.[81]

Table 6.9 shows the recommended efficiency targets for State Water capital expenditure. Table 6.9 assigns State Water's capital expenditure to two categories: dam safety works and other capital works.

[81] Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation – Final Report*, December 2009, p 64.

Table 6.9 Atkins/Cardno recommended capital expenditure efficiency targets (%)

ref#	Efficiencies	2010/11	2011/12	2012/13	2013/14
1	Continuing efficiency	0.4	0.4	0.4	0.4
2	Continuing efficiency (cumulative)	0.4	0.8	1.2	1.6
	Dam safety - recommended efficiencies				
3	Catch-up efficiency: cost estimating	-	0.5	1.0	1.5
4	Catch-up efficiency: procurement	0.5	0.5	0.5	0.5
5	Catch-up efficiency: program management	0.5	0.5	0.5	0.5
6	**Total dam safety efficiency (catch-up + continuing = 2+3+4+5)**	**1.4**	**2.3**	**3.2**	**4.1**
	Other expenditure - recommended efficiencies				
7	Catch-up efficiency: cost estimating	-	1.0	2.0	2.5
8	Catch-up efficiency: procurement	0.5	1.0	1.5	2.0
9	Catch-up efficiency: program management	0.5	0.5	0.5	1.0
10	**Total other expenditure efficiency (catch-up + continuing = 2+7+8+9)**	**1.4**	**3.3**	**5.2**	**7.1**

Source: Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation – Final Report*, December 2009, p 65.

6.4 IPART's decision in the draft determination

The draft determination adopted the capital expenditure recommendations of Atkins/Cardno. State Water's submission to the draft determination raises three issues in relation to the adoption of the Atkins/Cardno's recommendations on capital expenditure.[82] State Water recommends adjustments in response to the draft determination decisions involving:

- the roll forward of capital expenditure in 2009/10
- the rephasing capital expenditure for cold water pollution
- reduction of contingencies for fish passage schemes.

6.4.1 Capital expenditure in 2009/10

State Water objected to the draft determination's reduction of its 2009/10 capital expenditure program from $73.6 million to $60.6 million. The reduction in the draft determination is based on Atkins/Cardno's view that State Water will not meet its dam safety program's expenditure targets for 2009/10.

82 State Water Corporation submission to IPART 2010 Pricing Determination, April 2010, pp 6-8.

State Water states in its submission that its current forecasts show that it is on track to meet its proposed $54 million target for dam safety expenditure in 2009/10.[83] State Water requests that IPART amend the RAB roll forward to remove the $13 million adjustment in 2009/10 for the final determination.

6.4.2 Cold water pollution expenditure

State Water claims that it is obliged by legislation to meet the requirements of works approvals which contain conditions relating to cold water pollution mitigation. This is in addition to State Water's assertion to Atkins/Cardno that the Cabinet-approved state-wide strategy for water utilities (to investigate and ameliorate the impacts of cold water pollution) requires action at the sites that State Water has identified.[84]

State Water accepts the rationale for staging cold water pollution works to enable lessons to be learnt from earlier projects. However, State Water requests that IPART include sufficient expenditure in the final determination to allow it to complete cold water pollution works at Keepit Dam in parallel with the dam safety upgrade.

IPART's view

We have maintained our draft decision on cold water pollution expenditure for the final determination. The efficient level of cold water pollution expenditure was independently assessed by Atkins/Cardno for our draft determination. Atkins/Cardno recommended rephasing cold water pollution expenditure in order to benefit from lessons learnt from previous cold water pollution projects (rather than undertaking all projects at once). We maintain our support for this view in the final determination.

6.4.3 Reduction of contingencies for fish passage schemes.

State Water believe that reductions to capital expenditure for fish passage construction on the basis of excessive contingencies is unjustifiable. State Water claims that these reductions will inhibit the delivery of the proposed fish passage schemes if adopted by the final determination.

IPART's view

Atkins/Cardno's view is that State Water have applied an excessive level of contingency to fish passage scheme expenditure given the scale of this expenditure. Additionally, Atkins/Cardno recommends that the timing of fish passage projects should be rephased to reflect the recommended rephasing of dam safety upgrades.

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83 State Water Corporation submission to IPART 2010 Pricing Determination, April 2010, p 6.

84 Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation – Final Report*, November 2009, p 61.

We support the views of Atkins/Cardno in relation to expenditure on fish passage schemes.

6.5 Stakeholder comments

Some stakeholders note that State Water has underspent its capital allowance over the 2006 Determination. These stakeholders suggest that we undertake an assessment of State Water's capital expenditure at a later stage in our review process to ensure that only actual expenditure enters the RAB, not an inflated view of forecast expenditure in 2009/10 that does not eventuate. Murray Irrigation shares these concerns. It states that the:

> …achievement of budget versus actual capital expenditure continues to be an issue for State Water and [Murray Irrigation] is therefore concerned that forecast budget capital expenditure over the next determination will differ from actual capital expenditure.[85]

Murrumbidgee Irrigation believes that:

> …all future investments that have impacts on charges to paying customers with a cost-benefit analysis showing the share of all drivers in costs and the share of all beneficiaries in benefits to avoid potential for explosive growth in the RAB.[86]

Lachlan Valley Water have asked that State Water's 2009/10 capital expenditure be reviewed closer to the end of financial year to ensure they maintain on budget.

> …we say we think that should have some independent verification and we suggested in our submission that IPART should review State Water's progress with capex in say the third quarter to see if you are on budget.[87]

Lachlan Valley Water state that they support the draft decision to reduce State Water's capital expenditure in 2009/10 by $13 million to reflect the likelihood that State Water will not meet its increased expenditure forecast.[88] Lachlan Valley Water also support the draft decision which recommends that cold water pollution mitigation be initially implemented at one site rather than an automatic roll out across all sites.

An individual submission from Glen Waring states that greater investment in maintenance and renewal of infrastructure should have been undertaken over the past 20 years and it is unreasonable to impose large increases now to fund these things.[89]

85 Murray Irrigation Limited submission to IPART 2010 Pricing Determination, October 2009, p 1.
86 Murrumbidgee Irrigation Limited submission to IPART 2010 Pricing Determination, April 2010, p 2.
87 Lachlan Valley Water, IPART Transcript of Public Hearing - Dubbo, 25 November 2009, p 19.
88 Lachlan Valley Water submission to IPART 2010 Pricing Determination, April 2010, p 4.
89 Glen Waring, individual submission to IPART 2010 Pricing Determination, March 2010, p 1.

Several stakeholders query the prudence of the large forward capital program. The proposed levels of capital expenditure are generally viewed to be too high and stakeholders argue that it should be deferred. Murrumbidgee Private Irrigators state that:

> Despite the drought it appears that State Water has still managed to make a profit each year over the last determination period and has shown a positive return on assets. On the contrary, I wish to stress that State Water's customers have been and still remain under enormous financial pressure and, as a result, have been forced to delay any form of capital works or upgrade through this terrible time. Murrumbidgee Private Irrigators struggle to understand State Water's justification for further capital expenditure during the dry period instead of deferring until the outlook improves.[90]

High Security Irrigators – Murrumbidgee put forward a similar argument at the Griffith public hearing claiming that:

> …if one is pushed for finances, one has to look at ways of trimming one's budget to see what one can actually do. We in the private industry have to do that. We can't understand why State Water is not looking at those issues.[91]

However, State Water defends its need to maintain investment and expenditures:

> We have heard a lot of discussion about deferring thematic expenditure, deferring dam safety programs, cutting your cloth to suit your budget, and while I respect that, I think State Water has an absolute responsibility to spend money wisely, I would argue that decisions to defer expenditure in state government owned infrastructure is a road to disaster. You only have to look at the quality of the rural rail services, as an example, where people have deferred expenditure.[92]

At the Moree public hearing Auscott put its case that adequate investment in infrastructure should be maintained:

> Investment in working infrastructure is key to irrigators in this part of the basin. Our view is that if we are paying charges that reflect upper-bound pricing, then we expect appropriate investment in infrastructure which maintains those assets and keeps them at a level, which means they perform well for us.[93]

6.6 IPART decision on capital expenditure

Our final decision is to maintain the draft decision and adopt all capital expenditure recommendations proposed by Atkins/Cardno with the one exception of the $13 million adjustment for capital underspend in 2009/10.

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90 Murrumbidgee Private Irrigators, IPART Transcript of Public Hearing - Griffith, 23 November 2009, p 29.

91 High Security Irrigators - Murrumbidgee, IPART Transcript of Public Hearing - Griffith, 23 November 2009, p 45.

92 State Water Corporation, IPART Transcript of Public Hearing - Griffith, 23 November 2009, p 48.

93 Auscott, IPART Transcript of Public Hearing - Moree, 2 December 2009, p 39.

Our view is that Atkins/Cardno has robustly assessed State Water's capital expenditure proposals at an individual and aggregate level.[94] This has enabled Atkins/Cardno to accurately form a view on the level of efficiency that should be achieved over the period and identify adjustments at a scheme specific level to reduce and rephase expenditure where necessary.

Atkins/Cardno's recommendations have adequately balanced the competing needs of stakeholders (to defer non-critical expenditure) and State Water (to maintain the level of investment necessary to maintain assets and meet its regulatory and legislative responsibilities).

Stakeholders have also requested that State Water's 2009/10 capital expenditure forecast be reviewed closer to the conclusion of the financial year to obtain an accurate assessment of their actual expenditure.

Atkins/Cardno made their assessment of State Water's likely capital spend in the latter months of 2009 and recommended that it be reduced by $13 million to reflect the likelihood that State Water will not meet its forecast expenditure on dam safety. We have reviewed this recommendation based on the most recent and available information.

State Water reports in its April 2010 submission that its current forecasts show that it is on track to meet its proposed $54 million target for dam safety expenditure. On review of this information we have formed the view that State Water is on track to meet its capital expenditure targets for 2009/10. State Water reporting that it will meet its dam safety expenditure targets for 2009/10 provides sufficient reassurance of this. Our decision for the final determination is to not include a $13 million adjustment to State Water's capital expenditure in 2009/10.

Table 6.10 outlines our draft decisions on State Water's prudent capital expenditure by valley for the 2006 Determination. Table 6.11 presents our draft decisions on State Water's efficient capital expenditure by valley for the 2010 Determination.

At the completion of the 2010 Determination, we will review State Water's capital expenditure and reduce the amount allowed in the regulatory asset base for the value of any underspend.

[94] As part of their assessment, Atkins/Cardno have completed a detailed investigation into the project planning and actual outcomes of 10% of State Water's capital projects above the $1 million threshold.

Table 6.10 IPART decision on prudent capital expenditure for the 2006 Determination ($'000, $2009/10)

Valley	2006/07	2007/08	2008/09	2009/10
Border	75	85	98	135
Gwydir	1,086	1,116	1,481	6,221
Namoi	44	3,267	2,620	26,340
Peel	222	1,576	1,005	3,166
Lachlan	749	4,157	3,286	4,279
Macquarie	771	822	216	4,521
Murray	424	3,208	417	4,333
Murrumbidgee	7,365	2,066	5,361	21,925
North Coast	304	551	71	200
Hunter	1,483	617	468	995
South Coast	358	157	41	76
Fish River	948	810	1,216	1,376
Total capital expenditure	**13,827**	**18,433**	**16,280**	**73,567**
User share				
Border	68	80	88	122
Gwydir	993	499	131	402
Namoi	-24	336	130	628
Peel	-24	240	29	0
Lachlan	484	2,042	1,280	1,846
Macquarie	610	526	162	744
Murray	381	2,851	296	3,128
Murrumbidgee	1,726	821	535	2,131
North Coast	274	533	73	200
Hunter	1,418	549	438	945
South Coast	277	149	41	76
Fish River	948	810	1,216	1,376
Total user share	**7,131**	**9,437**	**4,420**	**11,597**
Government share				
Border	6	5	10	14
Gwydir	93	617	1,349	5,820
Namoi	68	2,932	2,490	25,712
Peel	245	1,337	976	3,166
Lachlan	265	2,115	2,007	2,433
Macquarie	161	296	54	3,777
Murray	43	357	121	1,205
Murrumbidgee	5,639	1,246	4,826	19,794
North Coast	30	17	-2	0
Hunter	65	68	30	50
South Coast	81	8	0	0

Valley	2006/07	2007/08	2008/09	2009/10
Fish River	0	0	0	0
Total government share	**6,696**	**8,996**	**11,859**	**61,970**
Government share as % of total	48.4%	48.8%	72.8%	84.2%

Note: Column totals may not sum due to rounding.

Table 6.11 IPART decision on efficient capital expenditure for the 2010 Determination ($'000, 2009/10)

Valley	2010/11	2011/12	2012/13	2013/14
Border	162	91	100	48
Gwydir	8,769	19,841	14,374	625
Namoi	38,787	28,807	35,288	1,720
Peel	2,269	2,264	2,100	98
Lachlan	6,415	7,371	14,809	14,626
Macquarie	8,246	13,342	10,159	3,413
Murray	1,688	9,542	242	280
Murrumbidgee	18,156	3,002	3,504	1,342
North Coast	77	20	11	11
Hunter	462	323	245	150
South Coast	140	74	79	37
Fish River	7,631	7,914	53	525
Total capital expenditure	**92,802**	**92,592**	**80,964**	**22,875**
User share				
Border	162	86	46	44
Gwydir	631	1,232	1,531	378
Namoi	3,164	2,795	2,615	1,366
Peel	43	39	133	27
Lachlan	2,716	455	1,881	3,161
Macquarie	515	1,616	2,887	2,398
Murray	1,598	8,613	223	256
Murrumbidgee	2,093	1,763	2,196	1,126
North Coast	37	19	10	10
Hunter	462	255	140	131
South Coast	140	73	38	36
Fish River	7,631	7,914	53	525
Total user share	**19,193**	**24,861**	**11,755**	**9,458**
Government share				
Border	0	5	53	5
Gwydir	8,138	18,609	12,843	247
Namoi	35,623	26,011	32,672	353
Peel	2,225	2,225	1,967	71

Valley	2010/11	2011/12	2012/13	2013/14
Lachlan	3,699	6,916	12,928	11,465
Macquarie	7,731	11,726	7,273	1,015
Murray	90	929	18	23
Murrumbidgee	16,063	1,239	1,308	217
North Coast	39	1	1	1
Hunter	0	68	106	18
South Coast	0	1	40	1
Fish River	0	0	0	0
Total government share	**73,610**	**67,731**	**69,209**	**13,417**
Government share as % of total	79.3%	73.1%	85.5%	58.7%

Note: Columns may not sum due to rounding.

7 Rolling forward State Water's regulatory asset base

In Chapter 3 we explained that the revenue required for capital investment is comprised of 2 cost components:

- an allowance for a return *on* assets
- an allowance for a return *of* assets (regulatory depreciation).

Together, these allowances make up around 49.7% of State Water's notional revenue requirement for the 2010 Determination, and so have a significant impact on prices. A value for each of these allowances was determined by undertaking 4 steps:

- establishing the opening value of State Water's regulatory asset base (RAB) at the start of the 2010 Determination (1 July 2010)
- calculating the annual value of the RAB over the 2010 Determination by rolling the opening value forward to the end of this period (30 June 2014)
- deciding on an appropriate rate of return on assets for State Water, and multiplying the annual value of the RAB by this rate (to give the allowance for a return on assets)
- deciding on the appropriate depreciation method and asset lives for State Water's existing and new assets, and then calculating the allowance for regulatory depreciation by dividing the RAB by the weighted average asset lives.

The section below summarises our decisions on the allowances for a return on assets and regulatory depreciation. The subsequent sections explain how we reached these decisions by discussing each of the above steps.

7.1 Summary of IPART decisions on the allowance for a return on assets and regulatory depreciation

Our decisions are:

- That for the purposes of calculating the allowance for a return on assets, a real pre-tax WACC of 7.4% will be applied.
- To maintain the current asset life of 160 years for existing assets and 75 years for new assets. State Water's resulting allowance for regulatory depreciation is shown in Table 7.1.

Table 7.1 IPART decision on State Water's allowance for regulatory depreciation ($'000, 2009/10)

	2010/11	2011/12	2012/13	2013/14
User share	1,666	1,949	2,185	2,321
Government share	2,804	3,713	4,594	5,126
IPART decision	4,470	5,662	6,779	7,447

Note: Columns may not sum due to rounding.

7.2 IPART decision on an appropriate rate of return

Decision

11 IPART's decision is to use a real pre-tax WACC of 7.4% for the purposes of calculating an allowance for a return on assets.

We have used the weighted average cost of capital (WACC) approach to determine an appropriate rate of return.[95] To do this we developed a range for the real pre-tax WACCs of similar utilities in the water industry, and then made a judgement on the most appropriate rate of return for State Water within this range.

The WACC parameters used to calculate the WACC are presented in Table 7.2.

Table 7.2 Decision on the rate of return and the parameters used to calculated the WACC

WACC Parameters	Value
Nominal risk free rate [a]	5.8%
Inflation [a]	3.0%
Market risk premium	5.5% - 6.5%
Debt margin [a, b]	1.8% - 3.8%
Debt to total assets	60%
Dividend imputation factor (gamma)	0.5 – 0.3
Tax rate	30%
Equity beta	0.8 – 1.0
Cost of equity (nominal post tax)	10.2% - 12.3%
Cost of debt (nominal pre-tax)	7.6% - 9.6%
WACC range (real pre-tax)	6.2% - 8.7%
WACC (real pre-tax) mid-point	**7.4%**

[a] Reflects market data sampled over the 20 days to 23 April 2010.

[b] Includes debt raising costs of 12.5 basis points.

Source: Bloomberg, IPART analysis.

95 The rate of return is multiplied by the value of the RAB in each year of the determination period to calculate the allowance for a return on assets.

State Water's submission proposed changes to some of the WACC parameters that we traditionally adopt for water determinations. Our consideration of these proposed changes and further information on our decision is presented in Appendix C.

7.3 IPART decisions on the treatment of regulatory depreciation and asset lives

Decision

12 IPART's decision is to maintain the current asset life of 160 years for existing assets and 75 years for new assets.

At the 2006 Determination we accepted State Water's proposed asset lives of:

- 160 years for existing assets (expenditure before 1 July 2004)
- 75 years for new assets (expenditure after 1 July 2004).

State Water's September 2009 submission proposed that an average asset life of 83 years be used to set prices for the 2010 Determination. In their submission to the draft determination State Water have again stated that they believe that 83 years represents the best estimate of the remaining life of assets within its portfolio.[96]

A reduction in State Water's asset lives to 83 years would increase the allowance for regulatory depreciation over the 2010 Determination. However, such an increase would be offset by future reductions in the return earned on the assets.

Our decision is to maintain the decision made under our draft determination and use an asset life of 160 years for existing assets and 75 years for new assets for pricing purposes. Our decision is based on the independent advice provided by Atkins/Cardno. We asked Atkins/Cardno to assess the basis of State Water's proposed reduction to asset lives. This was conducted in conjunction with Atkins/Cardno's review of operating and capital expenditure.

Atkins/Cardno found that State Water's current asset lives (for 2006 Determination) should be maintained for the 2010 Determination. Atkins/Cardno reported a number of problems with the data used by State Water to underpin their 83-year average asset life proposal.

Atkins/Cardno reported that:

> There is scope to improve the quality of the data. The analysis is not sufficiently mature and tested to provide robust assessments of asset life.
>
> Our opinion is that while there may be a case to reduce the asset life from the current assumptions using condition based assessments, the analysis and data provided to us are

96 State Water Corporation submission to IPART 2010 Pricing Determination, April 2010, p 8.

not sufficiently robust to justify a change in the asset life assumptions applied to the 2006 Determination.

The current 160 years for existing assets and 75 years for new assets are consistent with other agencies with similar assets and should be retained for the 2010 Determination. The 160 year asset life is consistent with other agencies with predominantly long life assets such as dams and structures.[97]

Furthermore, Atkins/Cardno stated that they expected to see some asset life increases in State Water's analysis. However, State Water has only adjusted asset lives to shorten them.[98]

We have accepted Atkins/Cardno's recommendation that the asset lives from the 2006 Determination be maintained. The allowance on regulatory depreciation as a result of our final decision on State Water's asset lives is shown in Table 7.3

Table 7.3 IPART decision for regulatory depreciation ($'000, 2009/10)

	2010/11	2011/12	2012/13	2013/14
State Water proposed				
User share	2,411	2,737	2,970	3,165
Government share	3,736	4,819	5,600	5,954
Total State Water proposed	**6,147**	**7,556**	**8,570**	**9,120**
IPART decision				
User share	1,666	1,949	2,185	2,321
Government share	2,804	3,713	4,594	5,126
Total IPART decision	**4,470**	**5,662**	**6,779**	**7,447**
Difference	-1,677	-1,894	-1,791	-1,673
Difference (%)	-37.5%	-33.4%	-26.4%	-22.5%

Note: Columns may not add due to rounding.

Source: State Water Corporation, Electronic Information Return, September 2009.

7.4 Calculation of the RAB values

The RAB is the basis for determining the return *on* and *of* capital in the revenue requirement calculation based on the 'building block' approach. We determine the value of State Water's RAB by rolling forward the opening value of its RAB from the beginning of the 2006 Determination to reflect our findings on prudent capital expenditure (over the 2006 Determination) and efficient forecast capital expenditure (for the 2010 Determination). Other adjustments are also required when rolling forward the RAB. These are discussed in the sections that follow.

97 Atkins/Cardno, *Review of the Weighted Average Asset Life of State Water Corporations Assets – Final Report,* December 2009, pp 16-7.

98 Atkins/Cardno, *Review of the Weighted Average Asset Life of State Water Corporations Assets – Final Report*, December 2009, p 16.

The next sections outline our findings on the methodology used in rolling forward State Water's RAB and the resulting values for the RAB over the 2010 Determination.

7.4.1 Establishing the opening RAB for 1 July 2010

As in past reviews we have determined the value of State Water's opening RAB at 1 July 2010 by:

- rolling forward State Water's RAB from 1 July 2006 to 30 June 2010 on the basis of actual prudent capital expenditure over this period (as discussed in Chapter 6)
- deducting regulatory depreciation as allowed for by the 2006 Determination
- indexing the annual closing RAB for actual/forecast inflation.[99]

Table 7.4 details the key components of the RAB roll forward for State Water from 1 July 2006 to 30 June 2010.

Table 7.4 Roll forward of RAB over the 2006 Determination ($'000, nominal)

	2006/07	2007/08	2008/09	2009/10
Opening RAB value	313,877	333,496	359,945	384,237
Capital expenditure	12,607	17,377	15,823	73,567
Regulatory depreciation	2,274	2,547	2,935	3,606
Asset disposals	-	-	-	-
Indexation	9,285	11,620	11,404	12,159
Closing RAB value	333,496	359,945	384,237	466,357

Note: State Water did not dispose of any assets over the 2006 Determination so no amount is deducted from the RAB for this reason. Columns may not sum due to rounding.

7.4.2 Calculating the annual value of the RAB over the 2010 Determination

State Water's RAB refers to its regulatory asset base which is used to derive a notional revenue requirement. State Water's return on capital and return of capital are calculated with reference to its RAB. State Water's RAB value can be attributed to users and the Government through cost shares which are discussed in chapter 8.

Annual values for the RAB have been calculated over the 2010 Determination by adding the allowances for State Water's efficient capital expenditure (chapter 6) and regulatory depreciation (this chapter). No asset disposals are forecast over the 2010 Determination, so no RAB deductions are made for this reason. Indexation is not required because values are presented in real terms (ie, $2009/10).

[99] In making this calculation we assume that half the capital expenditure occurs at the beginning of the year, therefore, receiving a full year of indexation. The remaining half of capital expenditure is assumed to occur at the end of the period and is not indexed.

Table 7.5 presents the annual values for State Water's RAB for the 2010 Determination.

Table 7.5 Annual values for State Water's RAB for the 2010 Determination ($'000, 2009/10)

	2010/11	2011/12	2012/13	2013/14
Opening RAB value	466,357	554,527	641,250	715,189
Capital expenditure	92,802	92,592	80,964	22,875
Regulatory depreciation	4,632	5,868	7,025	7,717
Asset disposals	-	-	-	-
Indexation	-	-	-	-
Closing RAB value	554,527	641,250	715,189	730,347

Note: Columns may not sum due to rounding.

Table 7.6 presents the annual values for State Water's RAB for the 2010 Determination by user and Government share. Table 7.6 shows that around two thirds of State Water's RAB is allocated to the Government over the 2010 Determination.

Table 7.6 Annual values for State Water's RAB for the 2010 Determination by user share ($'000, 2009/10)

	2010/11	2011/12	2012/13	2013/14
User share closing RAB value	211,418	234,259	243,749	250,802
Government share closing RAB value	343,109	406,991	471,440	479,545
Total closing RAB value	**554,527**	**641,250**	**715,189**	**730,347**
User share as % of total	38.1%	36.5%	34.1%	34.3%
Government share as % of total	61.9%	63.5%	65.9%	65.7%

Note: Columns may not sum due to rounding.

7.5 IPART decision on State Water's notional revenue requirement components

Table 7.7 presents our decision on State Water's notional revenue requirement.

Table 7.7 IPART decision on total notional revenue requirement ($'000, 2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
Operating expenditure [a]					
User share	34,213	35,194	34,834	34,668	33,891
Government share	2,033	3,427	3,362	3,390	3,219
Total operating costs	**36,246**	**38,622**	**38,195**	**38,058**	**37,110**
Revenue volatility allowance	0	2,237	2,237	2,237	2,237
MDBA and BRC costs					
User share	9,794	7,084	7,815	8,497	7,642
Government share	7,433	5,135	5,721	6,249	5,565
Total MDBA and BRC costs	**17,227**	**12,219**	**13,536**	**14,747**	**13,207**
Allowed depreciation					
User share	1,543	1,666	1,949	2,185	2,321
Government share	1,902	2,804	3,713	4,594	5,126
Total allowed depreciation	**3,445**	**4,470**	**5,662**	**6,779**	**7,447**
Return on assets & working capital					
User share	12,205	14,689	16,165	17,414	18,036
Government share	15,039	21,860	26,793	31,455	34,447
Total return on assets & WC	**27,245**	**36,549**	**42,958**	**48,868**	**52,483**
Notional revenue requirement					
User share	57,756	60,871	63,000	65,001	64,128
Government share	26,407	33,225	39,589	45,688	48,356
Total revenue requirement	**84,163**	**94,096**	**102,589**	**110,689**	**112,485**

[a] Operating expenditure excludes the revenue volatility allowance and all MDBA and BRC costs.

Note: Column totals may not sum due to rounding. Costs for 2009/10 are included for comparison only. These costs are not part of the 2010 Determination.

The significance of the return on and return of (regulatory depreciation) investment components of State Water's notional revenue requirement over the 2010 Determination is highlighted in Table 7.7.

Table 7.7 shows that the return on and return of investment components made up 36.5% of State Water's notional revenue requirement in 2009/10. By 2013/14, State Water's return on and return of investment components comprise 53.3% of its notional revenue requirement. This highlights the impact of their increased capital works program.

8 Findings on ratios for sharing costs between users and Government

Our 1996 Determination established a set of principles for setting bulk water prices to achieve the best possible balance between competing claims within the community. These principles have guided our subsequent determinations, including this determination. The principles we use take into account our obligations under our Act and the Government's policies and commitments as part of COAG.

The principles that we use to set bulk water prices are:

- Water charges should be based on the efficient economic costs of providing water services.
- The administrator of water resources should receive sufficient funds to achieve financial stability and deliver an appropriate level of water services.
- Pricing policy should encourage the best overall outcome for the community from the use of water and the other resources used to store, manage and deliver that water.
- The cost of water services should be paid by those who use the services. Those who cause more services to be required should pay more.
- Pricing policies should promote the ecologically sustainable use of water and of the resources used to store, manage and deliver that water.
- Water access entitlement holders are to bear the risks of any reduction or less reliable water allocation.

The prices that we allow State Water for its regulated bulk water services are intended to recover extractive users' share of the efficient costs incurred by State Water in providing its regulated bulk water services. The remaining costs are borne by the Government on behalf of the community in recognition of the public good and/or legacy features of these costs.

Our objective in determining cost share ratios is to ensure, as far as possible, that extractive users and the community both pay a fair share of the efficient costs of providing bulk water services.

Our findings on the allocation of costs between users and the Government for the purposes of setting State Water's prices for the 2010 Determination are set out below. Subsequent sections discuss:

- the cost share ratios adopted in the 2006 Determination
- State Water's proposed approach for the 2010 Determination
- our findings on the appropriate cost share ratios for the 2010 Determination
- our approach to allocating State Water's common costs across valleys.

8.1 Summary of IPART's decisions

Decision

13 IPART's decision is to maintain the approach and cost share ratios adopted in the 2006 Determination where:

- costs are allocated between users and the Government according to Table 8.1
- 'legacy costs' incurred before July 1997 are fully borne by the Government.

Our decision on the percentage cost share of State Water's operating and capital expenditure that is allocated to users is set out in Table 8.1. We set State Water's charges to recover the user's share of these costs. The Government is responsible for the payment of revenue to State Water where the user cost share is less than 100%.

Table 8.1 IPART's decision on percentage user cost share of operating and capital expenditure

Activity	User share
Operating expenditure	
Customer Support	100%
Customer Billing	100%
Metering & Compliance	100%
Water delivery & Other Operations	100%
Flood Operations	50%
Hydrometric Monitoring	90%
Water Quality Monitoring	50%
Corrective Maintenance	100%
Routine Maintenance	100%
Asset Management Planning	100%
Dam Safety Compliance Capital Projects pre-1997	0%
Dam Safety Compliance	50%
Environmental Planning & Protection	50%
Insurance	100%
Capital expenditure	
Asset Management Planning	100%
Routine Maintenance	100%
Dam Safety Compliance - Pre 1997 Construction	0%
Dam Safety Compliance	50%
Renewal & Replacement	90%
Structural and Other Enhancement	100%
Corporate Systems	100%
Environment Planning and Protection	50%
Environment Planning and Protection	50%
Flood operations	50%
Office Accommodation Capital Projects	100%
Information Management Projects	100%
River Channel Protection Works	50%
Water Delivery and other operations	100%
Hydrometric Monitoring	100%

Note: Some activity codes have not been used to set prices for the 2010 Determination period.

Table 8.2 presents State Water's notional revenue requirement, and the share of the notional revenue requirement to be recovered from users and the Government. Table 8.2 shows that the Government is responsible for over 50% of the capital costs over the 2010 Determination and around 40% of State Water's notional revenue requirement. This is largely due to State Water's capital works program which includes a number of dam safety upgrades to meet pre-1997 compliance standards,

representing around 69% of total capital expenditure. This is allocated 100% to the Government.

Table 8.2 shows that the user share as a percentage of the total notional revenue requirement is decreasing over the 2010 Determination, from 68.6% in 2009/10 to 57.0% in 2013/14. The reverse is true for the Government. The Government's share is increasing from 31.4% in 2009/10 to 43.0% in 2013/14.

Table 8.2 Revenue requirement by user and Government share ($'000, 2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
Operating expenditure					
User share	34,213	35,194	34,834	34,668	33,891
Government share	2,033	3,427	3,362	3,390	3,219
Total operating expenditure	**36,246**	**38,622**	**38,195**	**38,058**	**37,110**
User share as percentage of total	94.4%	91.1%	91.2%	91.1%	91.3%
Government share as percentage of total	5.6%	8.9%	8.8%	8.9%	8.7%
Revenue volatility allowance	0	2,237	2,237	2,237	2,237
User share as percentage of total (including volatility allowance)	94.4%	91.6%	91.7%	91.6%	91.8%
Government share as percentage of total (including volatility allowance)	5.6%	8.4%	8.3%	8.4%	8.2%
MDBA & BRC costs					
User share	9,794	7,084	7,815	8,497	7,642
Government share	7,433	5,135	5,721	6,249	5,565
Total MDBA & BRC costs	**17,227**	**12,219**	**13,536**	**14,747**	**13,207**
User share as percentage of total	56.9%	58.0%	57.7%	57.6%	57.9%
Government share as percentage of total	43.1%	42.0%	42.3%	42.4%	42.1%
Combined capital expenditure (return on and of capital)					
User share	13,749	16,355	18,114	19,599	20,358
Government share	16,941	24,663	30,506	36,049	39,572
Total capital costs	**30,690**	**41,018**	**48,620**	**55,647**	**59,930**
User share as percentage of total	44.8%	39.9%	37.3%	35.2%	34.0%
Government share as percentage of total	55.2%	60.1%	62.7%	64.8%	66.0%
Notional revenue requirement to be recovered					
User share	57,756	60,871	63,000	65,001	64,128
Government share	26,407	33,225	39,589	45,688	48,356
Notional revenue requirement	**84,163**	**94,096**	**102,589**	**110,689**	**112,485**
User share as percentage of total	68.6%	64.7%	61.4%	58.7%	57.0%
Government share as percentage of total	31.4%	35.3%	38.6%	41.3%	43.0%

Note: Column totals may not sum due to rounding. Costs for 2009/10 are included for comparison only. These costs are not part of the 2010 Determination.

Table 8.3 shows the user share of the notional revenue requirement by valley. Prices are set to recover these costs with the exception of the North Coast, South Coast, Peel, Gwydir and Namoi valleys. Full cost recovery in these valleys is not achieved because:

- the average bill increase for the North Coast, South Coast and Peel valley general security customers have been capped at 10% per annum, which places an effective cap on both general and high security entitlement charges[100]
- prices for high security entitlement charges in the Gwydir and Namoi valleys in 2012/13 and 2013/14 have been set to match those proposed by State Water.[101]

Table 8.3 Total costs to be recovered from users via tariffs ($'000, 2009/10)

Valley	2009/10	2010/11	2011/12	2012/13	2013/14
Border	2,192	2,116	2,076	2,127	2,039
Gwydir	4,538	5,129	5,109	5,147	5,259
Namoi	4,878	5,000	5,345	5,417	5,537
Peel	1,379	1,144	1,120	1,118	1,073
Lachlan	5,359	6,821	6,907	7,210	7,146
Macquarie	5,363	6,079	6,149	6,333	6,726
Murray	11,081	10,301	11,251	12,150	11,363
Murrumbidgee	9,695	9,439	9,665	9,833	9,605
North Coast	880	807	804	796	774
Hunter	4,407	4,886	4,830	4,829	4,710
South Coast	814	715	703	700	682
Fish River	7,171	8,435	9,041	9,341	9,214
Total costs	**57,756**	**60,871**	**63,000**	**65,001**	**64,128**

Note: Columns may not sum due to rounding. Costs for 2009/10 are included for comparison only. These costs are not part of the 2010 Determination. Costs from 2010/11 forwards include recovery of the revenue volatility allowance.

8.2 Cost share ratios used over the 2006 Determination

The 2001 Determination and 2006 Determination adopted the 'impactor pays' approach to allocate costs between users and the Government. Legacy costs were the one exception.

The 'impactor pays' approach seeks to allocate costs to different individuals or groups in proportion to the contribution that each individual or group makes to creating the costs (or the need to incur the costs).

[100] See chapter 12 for more detail.
[101] Chapter 10 discusses this further.

Legacy costs involve current and future costs that are attributable to the past that, on equity grounds, are fully borne by the Government. We drew a 'line in the sand' at July 1997 to assess liability for such cost recovery. Legacy costs incurred before July 1997 were borne fully by the Government.

We engaged the Centre for International Economics (CIE) to review the cost share ratios for the 2006 Determination. The 2006 Determination maintained the majority of the cost share ratios used in the 2001 Determination.

8.3 State Water's submission

State Water's proposal retains the 'impactor pays' principle and allocates legacy costs incurred before July 1997 to the Government in full. State Water sought some minor changes to the cost share ratios determined in 2006. These included:

- Introduction of a corporate systems activity, allocated 100% to users. This allocation is consistent with the cost share ratio used for other similar corporate functions adopted in previous determinations.
- Re-introduction of a code for flood operations, allocated 50% to users. This allocation is consistent with previous determinations.
- Discontinuation of the salt interception schemes activity. As this activity has been transferred to NOW, State Water no longer incurs expenditure for this activity.[102]

State Water also sought clarification on the allocation of costs for the maintenance of fishways. State Water sought confirmation that these costs are routine maintenance, rather than compliance.[103]

8.4 Stakeholder comments

Most stakeholders support the continuation of the cost share ratios from the 2006 Determination.[104] In recognition that these shares have been thoroughly assessed in previous price reviews, the NSW Irrigators Council asks:

> What has changed to suggest that there should be a reopening of the cost sharing arrangements? Our submission says there has not been any change and, as a result, there should not be a reopening of it and you should rely on the in-depth examination that you went through during the course of the last determination and leave those cost shares in place.[105]

[102] State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, pp 7-1 to 7-2.
[103] Ibid., p 7-3.
[104] See for example Lachlan Valley Water, NSW Irrigators Council, Murray Irrigation and Gwydir Valley Irrigators Association.
[105] NSW Irrigators, IPART Transcript of Public Hearing, Sydney, 3 December 2009, p 16.

However, a number of other stakeholders[106] in their response to the State Water issues paper proposed one change to the current cost share ratios. These stakeholders requested that fish passage works which, when triggered as a result of a dam safety upgrade, should be allocated 100% to the Government (ie, treated in the same manner as the underlying dam safety work).

Stakeholders in their submissions to the draft report again focussed strongly on the issue of cost shares for fish passage works when triggered by dam safety expenditure. The submissions reiterated the view that irrigators should not have to bear the costs of fish passageway expenditure where the need to incur these costs arises as a result of government decisions to undertake dam safety expenditure. Stakeholders restated that these costs should be 100% funded by the Government.[107]

Stakeholders including Inland Rivers Network and Stephen Ireland have proposed changes consistent with a 'beneficiary pays' approach to sharing costs. As an example, the Inland Rivers Network submits:

> As licencees gain benefits from these changes, we argue the user cost share borne by government should be less than 100%, even though these dams we[re] built before 1997.[108]

Stephen Ireland suggests that there is a community benefit in providing water to irrigators. He submits that it is appropriate that charges are borne in part by the Government on behalf of the community.[109]

Other changes proposed by stakeholders include increasing the Government's share for:

- environmental management plan costs[110]
- land management costs[111]
- environmental and heritage activities[112]
- emergency and security thematic expenditure.[113]

106 See for example submissions from Lachlan Valley Water, October 2009, p 3; NSW Irrigators Council, October 2009, p 8; Auscott, October 2009, p 3.

107 See for example submissions from Gwydir Valley Irrigators Association, April 2010, p 5, Lachlan Valley Water, April 2010, p.4, Namoi Water, April 2010, p 1.

108 Inland Rivers Network submission to IPART, October 2009, p 1.

109 Stephen Ireland submission to IPART, October 2009, p 1.

110 High Security Irrigators – Murrumbidgee submission to IPART, October 2009, p 1.

111 High Security Irrigators – Murrumbidgee submission to IPART, October 2009, p 1.

112 Macquarie River Food and Fibre submission to IPART, October 2009, p 5, Gwydir Valley Irrigators Association submission to IPART, October 2009, p 7.

113 See for example submissions from Macquarie River Food and Fibre, October 2009, p 5, Gwydir Valley Irrigators Association, October 2009, p 7.

8.5 Cost share ratios for the 2010 Determination

Our decision is to maintain the cost share ratios of the 2006 Determination for all activities. We consider that the current cost shares are the result of extensive review and consultation from previous determinations.

State Water has proposed some minor changes to cost share ratios as a result of upgrading its financial system. However, we do not believe this warrants a change to the current approach of the 2006 Determination. Our view is that State Water's proposed changes to cost shares represent minor re-categorisations that are consistent with the 2006 cost share ratios. We also consider that suggestions from stakeholders for proposed increases to the Government's cost share have not been justified.

State Water also sought clarification on the allocation of costs for the maintenance of fishways. We confirm that these costs are classified as routine maintenance, rather than compliance.

8.5.1 Cost share ratio for fish passage works when triggered by dam safety upgrade

Our decision is to maintain the cost share ratios from the 2006 Determination, including the 50% user cost share for fish passage works when triggered by dam safety upgrades.

A number of stakeholders proposed that the Government should be responsible for 100% of costs of fish passage works that are initiated by requirements to comply with NSW dam safety standards.[114] Namoi Water stated:

> We would submit that the fish passage trigger caused by that work [dam safety upgrade], when that work commences, again is a legacy issue and 100 per cent the cost of the New South Wales Government.[115]

Gwydir Valley Irrigation Association also shares this view:

> When fish passage work requirements are triggered by Pre- 1997 Dam Safety Upgrades, the fish passage costs should be included as part of the Upgrade costs and allocated accordingly (100% Govt).[116]

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114 The *Fisheries Management Act 1994* enables the Minister to require that fish passage (where it does not already exist) be provided at dams, weirs or reservoirs when maintenance or modifications to the dams, weirs or reservoirs takes place.

115 NSW Irrigators, IPART Transcript of Public Hearing, Moree, Namoi Water, 2 December 2009, p 59.

116 Gwydir Valley Irrigators Association submission, October 2009, p 24.

Lachlan Valley Water stated that it:

> …recommends that the provision of fish passage as a result of dam safety upgrades to pre-1997 assets be considered an integral component of the dam safety upgrade and therefore 100% funded by Government.[117]

We consider that the proposal to allocate these costs to the Government is inconsistent with the 'impactor pays' principle. Fish passage is necessitated by the existence of dams which prevent fish movements. As dams exist primarily for irrigation purposes, a 50% fish passage user share is a reasonable sharing of costs on irrigators, regardless of whether the timing of dam safety upgrades has triggered the works.

8.6 Common cost allocation

Decision:

14 IPART's decision is to maintain the current FTE method as the basis for allocating common costs.

State Water currently allocates its common (or indirect) costs (such as corporate costs and the like) on a full time equivalent (FTE) basis. This means its common costs are attributed to each valley based on the proportional number of FTEs employed by State Water in each valley.

8.6.1 State Water and stakeholder comments

Some stakeholders have raised the possibility of allocating common costs on a 'per ML' basis. Arthur Burns of the Hunter Valley Water Users Association and Coastal Valleys Customer Service Committee stated:

> With regard to State Water overhead costs, given that has been raised already, it is my understanding that the corporate costs are shared on a per person per employee basis. I am sure that we would be a lot better off if it was on a per megalitre basis. I don't know what the right answer is to it all, but I would be very surprised, given the hassles in the Murray Darling Basin, et cetera, that a lot bigger proportion of the overheads, particularly the corporate overheads, in State Water are not used in the Murray Darling Basin at a higher rate than they are used in the coastal areas, and I am talking per person. You must look at what is happening and it is fairly obvious where the time is being spent.[118]
>
> One way obviously is to charge per megalitre. Unless you sit down and try and take every second that George [Warne of State Water] spends on different things and what eventually that was, I guess it's hard, but I just have a very strong feeling, I'm sure most of my colleagues do, that there's a lot more time spent on chasing around with the feds and the Murray Darlings stuff and all this and what happens. The coast is just there sitting along.

[117] Lachlan Valley Water, submission to IPART 2010 Determination, April 2010, p 4.
[118] IPART Transcript of Public Hearing – Sydney, 3 December 2009, p 39.

> Sure we get reasonably good service, it's been reduced a fair bit lately, but I just think we are paying a fairly high cost.[119]

Ms Tonge from the Toonumbar Dam Water Users Association stated:

> According to the State Water figures provided in the submission, State Water is aiming to recoup from the users $842,000 in the year 2010/2011. We assume this figure includes those fixed costs or the indirect costs and also the higher WACC, the weighted average cost to capital. We actually believe this is a gross overstatement of the cost of running and maintaining Toonumbar Dam, so we certainly have some issues in the way the fixed costs are allocated to Toonumbar. Even the operating costs we feel do not represent truly what Toonumbar Dam costs.
>
> I note that Lisa [Welsh of State Water] put some figures up beyond 2009/2010 and those figures very quickly go on the upward slide again back up to over $600,000. So we are not confident that these really reflect what is happening at Toonumbar. The remainder of the costs, the $290,000-odd, we believe would be the indirect cost and cost of capital. We see this as an extremely high figure especially when there is such a small number of users. We are certainly not taking much time of the office staff down at head office for Toonumbar problems. I don't think we have any answer to these costs except to ask IPART to look into how these costings are done.[120]

Finally, Bega Cheese stated that:

> [They] support the change of allocated cost shares from FTE to ML as discussed but dismissed on page 102 section 8.6 [of the draft report] ... [They request] further investigation to see what impact this new allocation system [ML] would have on all river valley pricing should be published and debated prior to moving forward with [the] draft determination. [They] suspect price increases across all other systems would be minimal but it would give some equity for the small river valleys that are being priced out of existence.[121]

State Water acknowledged that it is possible to allocate common costs using ML but stated that they preferred the FTE basis because, in their view, it delivered a more equitable outcome. George Warne of State Water replied when asked if State Water had looked at alternative ways of allocating common costs:

> We could do it per average megalitres sold, probably. That might be a credible way of offering overheads. You realise you are just talking here about cost distribution design. And I would argue there could be a more equitable outcome but the actual costs of the overheads are probably best related to the number of FTEs driven to achieve the service because employees do represent actually a majority of our costs in operating costs.[122]

State Water noted that any decision on the basis in which to allocate common costs would be revenue neutral, so they would neither receive more or less revenue.

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119 IPART Transcript of Public Hearing – Sydney, 3 December 2009, p 42.
120 IPART Transcript of Public Hearing – Sydney, 3 December 2009, p 51.
121 Bega Cheese submission to IPART, April 2010, p 4.
122 IPART Transcript of Public Hearing – Sydney, 3 December 2009, p 23.

8.6.2 Analysis of FTE and ML allocation methods

We assessed the outcomes from the allocation of State Water's common costs under a FTE and per ML basis. The adoption of a per ML basis:

- allocates a higher proportion of common costs to the Murray and Murrumbidgee valleys and reduces the allocation to all other valleys
- sees a significant reduction in total costs for the North Coast, South Coast and Peel valleys.

A per ML allocation aligns State Water's common costs with those valleys that receive the most water. However, this alone is not a reason to adopt a per ML allocation of common costs.

We investigated the current composition of State Water's costs to better understand its key cost drivers. Table 8.4 presents State Water's salaries and wages as a percentage of total direct costs.

Table 8.4 State Water operating expenditure by cost item for 2010/11 ($2009/10)

Valley	Salaries & wages	Other direct costs	Total direct costs	Salaries & wages (% of total)
Border	611	298	909	67%
Gwydir	1,426	1,147	2,573	55%
Namoi	1,549	1,241	2,790	56%
Peel	487	399	886	55%
Lachlan	1,750	1,809	3,559	49%
Macquarie	1,409	1,749	3,158	45%
Murray	1,302	735	2,037	64%
Murrumbidgee	2,435	2,227	4,662	52%
North Coast	266	167	433	61%
Hunter	1,385	1,357	2,742	51%
South Coast	298	140	438	68%
Fish River	1,050	1,011	2,061	51%
Total	13,968	12,280	26,248	53%

Notes

1: State Water's forecasts for operating expenditure in 2010/11 closely reflects State Water's forecast operating expenditure for the other 3 years the upcoming 2010 determination period.

2: Operating expenditure data for this analysis has been obtained from State Water's electronic information return. The data excludes the expenditure adjustments made by Atkins/Cardno (which have been approved by IPART), however the relationship between salaries as a proportion of total cost remains representative.

Source: State Water Corporation, Electronic Information Return, September 2009.

Table 8.4 shows that State Water's expenditure on salaries and wages makes up 53% of its total costs. State Water's 'other direct costs' is the sum of 16 other cost categories of which 'direct billing services' and 'utilities, rents and rates' are significant cost drivers.

Atkins/Cardno gave support to State Water's approach to allocating common costs in their report:

> Corporate expenditure is apportioned across the regulated and non-regulated business pro-rata to salaries and wages costs. We agree that this is an appropriate methodology.[123]

Salaries and wages are a key driver and a significant portion of State Water's total costs, and so represent a superior method of common cost allocation in comparison to a per ML basis.

[123] Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation 2009 – Final Report*, December 2009, p 33.

9 Findings on forecast extractions and entitlement volumes

Valley-based entitlement and usage charges are set by taking into account the user share of the revenue requirement, water extraction forecasts and licensed water entitlements and/or number of licenses. The user share of State Water's revenue requirement is set out in Chapter 4.

This chapter outlines our approach to forecasting bulk water extractions for the 2010 Determination.

Forecasts of bulk water extractions play a pivotal role in the price determination process. If extraction forecasts are either too high or low, then State Water will under- or over-recover its revenue requirement respectively. This was the situation that arose in the 2006 Determination when extraction forecasts greatly exceeded actual water sales, resulting in considerable revenue under-recovery for State Water.

State Water propose a new approach to forecasting water extractions for the 2010 Determination that it states will reduce the risk of revenue under-recovery. State Water propose to use a moving average of actual extractions for the past 15 years to forecast future water extractions.[124] They contend that this will reflect more recent water extraction conditions and will minimise the difference between forecast and actual water extractions, which will mitigate revenue over- or under-recovery.

We have thoroughly examined our approach to forecasting water extractions in light of the failure of the forecasting approach used for the 2006 Determination. State Water's proposed approach to consumption forecasting has been considered within our examination. We have sought to select an approach that will better address the potential for differences between forecast and actual extractions, to better enable State Water to recover its revenue requirement over the course of the 2010 Determination and over the longer term.

[124] For the current determination, only 13 years of actual extraction data are available. State Water proposed they would use this period for the 2010 Determination, and incorporate the full 15 years in the following determination under their proposal.

9.1 Summary of our decisions

Decision:

15 IPART's decision is that water extraction forecasts will be determined using a 20-year moving average of historical IQQM and actual extractions for the 2010 Determination as shown in Table 9.1.

Table 9.1 IPART's decision on water extraction forecasts for the 2010 Determination

	ML per annum	Difference from 2006 Determination (%)
Border	148,535	-29.2
Gwydir	247,734	-19.9
Namoi	165,558	-30.2
Peel	13,052	-11.1
Lachlan	258,319	-15.9
Macquarie	300,832	-22.1
Murray Lower Darling	1,541,376	-20.3
Murrumbidgee	1,805,846	-5.7
North Coast	906	-8.7
Hunter	139,141	8.6
South Coast	5,804	-0.5
Total	4,627,102	-15.2

Note: Water extraction forecasts for the North Coast and South Coast rely on 4 years of actual extractions data as proposed by State Water.

Decision:

16 IPART's decision is to adopt the entitlement volume forecasts as presented in Table 9.2 for the 2010 Determination.

Table 9.2 IPART decision on forecast entitlements for the 2010 Determination (ML)

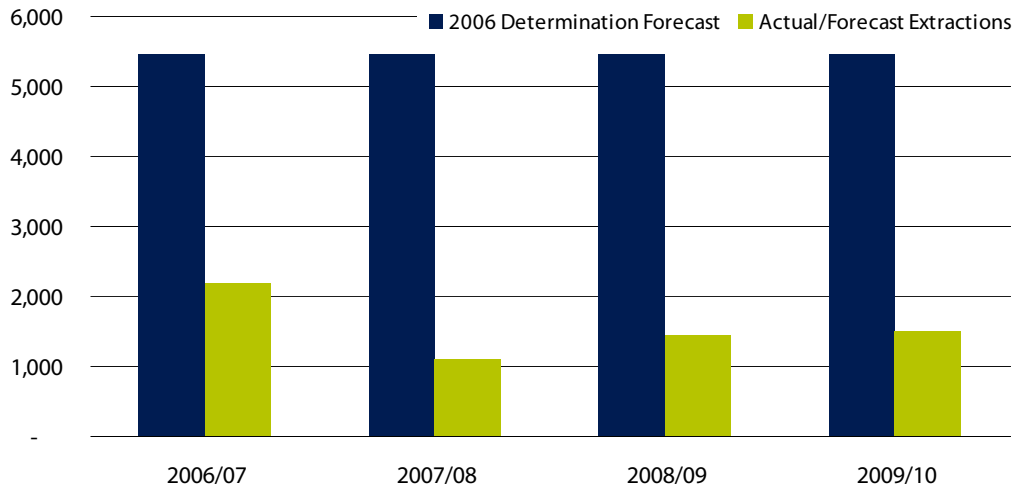
	2010/11	2011/12	2012/13	2013/14
High Security Entitlements				
Border	3,125	3,125	3,125	3,125
Gwydir	21,458	21,458	21,458	21,458
Namoi	8,527	8,527	8,527	8,527
Peel	17,381	17,381	17,381	17,381
Lachlan	60,778	60,778	60,778	60,778
Macquarie	42,594	42,594	42,594	42,594
Murray	257,438	257,438	257,438	257,438
Murrumbidgee	436,928	436,928	436,928	436,928
North Coast	137	137	137	137
Hunter	70,738	70,738	70,738	70,738
South Coast	967	967	967	967
Total	**920,071**	**920,071**	**920,071**	**920,071**
General Security Entitlements				
Border	263,085	263,085	263,085	263,085
Gwydir	509,665	509,665	509,665	509,665
Namoi	255,780	255,780	255,780	255,780
Peel	30,911	30,911	30,911	30,911
Lachlan	632,946	632,946	632,946	632,946
Macquarie	631,716	631,716	631,716	631,716
Murray	2,076,223	2,076,223	2,076,223	2,076,223
Murrumbidgee	2,264,065	2,264,065	2,264,065	2,264,065
North Coast	10,193	10,193	10,193	10,193
Hunter	147,909	147,909	147,909	147,909
South Coast	14,197	14,197	14,197	14,197
Total	**6,826,889**	**6,826,889**	**6,826,889**	**6,826,889**

9.2 Actual extractions over the 2006 Determination period

During the 2006 Determination, the long-run average approach based on output from the Integrated Quantity and Quality Model (IQQM) was used to forecast water extractions. The LRA approach models water availability and extractions that would have occurred based on the current water sharing plan rules and agricultural development. This approach uses over 100 years of historical data to forecast current water extractions.

The long-run average approach failed to accurately forecast actual water extractions over the 2006 Determination. State Water's delivery of water was only 28.7% of that forecast for the period using the IQQM model. Figure 9.1 below presents forecast versus actual extractions for State Water over the 2006 Determination.

Figure 9.1 IPART forecasts versus actual extractions – 2006 Determination (GL)



Note: Actual for 2009/10 is forecast.

Data source: State Water Corporation submission to IPART 2010 Pricing Determination, p 9-1, September 2009.

State Water's shortfall in sales has led to a significant under recovery of revenue. State Water generated only 64.5% of its revenue forecasts which created a $74.2 million shortfall in revenue over the 2006 Determination.[125] The revenue shortfall has had a large impact on State Water's rate of return. Over the period State Water achieved a rate of return of less than 1%. This compares unfavourably with our regulatory allowance of 6.5%.

Our view is that the long-run average approach to water extraction forecasting has failed over the course of the 2006 Determination and that a new approach is required. We have undertaken detailed analysis of water extraction forecasting methods in order to select a new method that will minimise the difference between forecast and actual water extractions to more accurately reflect recent extractions. The use of a more appropriate and reliable method of extraction forecasting will increase the likelihood that State Water will recover its full revenue requirement.

[125] Revenue earned from the Government's cost share and users' fixed charges meant that State Water was able to generate 66.7% of its revenue requirement, despite only achieving 28.7% of its forecast delivery of water to customers.

9.3 IPART decision on approach to forecast extractions for the 2010 Determination

Our decision is to forecast water extractions for the 2010 Determination using a 20-year moving average of historical IQQM and actual extractions.

Our view is that a 20-year moving average of historical and actual extractions is superior to the IQQM approach because:

- it focuses on more recent information and reflects current extraction conditions
- the use of actual extractions for each valley is relatively easy to identify and verify
- a 20-year moving average will allow State Water to recover its revenue, with a lag, because the actual extractions that occur over the 2010 Determination will be used to calculate prices at the next price review and so on[126]
- it relies on actual extractions (where possible) rather than modelled data from the IQQM and so does not rely on having to update the IQQM at the commencement of each regulatory period (the current version of the IQQM model was last updated in 2005)
- it provides State Water with an incentive to minimise water theft (where actual extractions are used) as any additional water sales that are captured are chargeable which provides State Water with additional revenue.

A 20-year moving average approach strikes a good balance between maintaining price stability over consecutive determinations and using current, updated data that incorporates recent trends to forecast future extractions. Using a 20-year moving average approach also strikes a suitable balance between State Water's proposal of a 15-year moving average and the requests of irrigators to maintain the use of the IQQM under the long-run average approach.

[126] A 20-year moving average discards the oldest 4 years of consumption data and incorporates the 4 most recent years of extraction data at each new price determination.

Data requirements to forecast extractions for the 2010 Determination

Our decision to use a 20-year moving average of modelled and actual extractions requires 20 years of actual extractions data. However, 20-years of reliable actual extractions data is not available because State Water's information on metered water sales does not go back far enough. As a result, our 20-year moving average approach incorporates:

- 5 years of modelled IQQM extractions for the years prior to the availability of reliable actual extraction data (1990/91 to 1994/95)
- 14 years of actual extraction data (1995/96 to 2008/09), and
- a forecast for the most recent year provided by State Water (2009/10).

The adoption of this approach sees a reduction of around 15% in extraction forecasts from the annual forecast of 5,450 GL used in the 2006 Determination to the forecast of 4,627 GL to be used over the 2010 Determination.

A comparison of our decision to use a 20-year moving average of historical and actual extractions against State Water's proposed 15-year moving average of actual extractions results in higher total extractions at an aggregate level. However, some individual valleys experience lower consumption forecasts that adversely impact prices as a result. For example, State Water's proposal provides a consumption forecast of 275,597 ML for the Gwydir valley, whereas our 20-year moving average approach has produced a consumption forecast of 247,734 ML.

9.4 Forecast entitlement volumes for the 2010 Determination

Our decision is to adopt the entitlement volume forecasts presented in Table 9.2 for the 2010 Determination. Our decision reflects our view that licence numbers will not be materially affected over the 2010 Determination given the present embargo on licence conversions. However, there has been one change to entitlement volumes which affects water users in the Hunter valley.

State Water and Macquarie Generation have reached an agreement on the payment for use of general security water on the Barnard River Scheme (in the Hunter valley). Macquarie Generation have agreed to pay for their use of 9,800 megalitres per annum for water captured, stored and released to them from the Barnard River Scheme.

State Water advise that entitlement volumes in the Hunter should be increased by this amount for the 2010 Determination. State Water and Macquarie Generation have both provided letters to IPART confirming their agreement.[127]

[127] State Water letter to IPART, 10 May 2010 and Macquarie Generation letter to IPART, 18 May 2010.

The Hunter Valley Water Users' Association in its submission to the draft report provides support for an agreement of this nature being reached between State Water and Macquarie Generation because it would have the effect of reducing the costs to be paid by other water users.[128]

The agreement between State Water and Macquarie Generation has been accounted for in the entitlement volumes presented in Table 9.2.

9.5 State Water's submission

The significant shortfalls in the level of actual versus forecast extractions has led State Water, in association with the NSW Office of Water, to commission the Centre for International Economics (CIE) to develop an alternative method of forecasting water extractions. State Water states that current low levels of extraction indicate a structural break in patterns of water availability, rather than normal climatic variability. State Water presents statistical evidence (developed by CIE) to demonstrate this. State Water claims that historical water availability will not accurately represent future extractions.

The CIE found that for the recent period of water extractions, the probability that structural change had not occurred was greater than 1 in 186 million.[129] State Water's annual actual and forecast extractions over the years 2006/07 to 2009/10 have all been below 2,200 GL. This compares to the 2006 Determination forecast of 5,450 GL per annum.

9.5.1 State Water's proposed approach for the 2010 Determination

State Water has proposed a new method that it claims better reflects actual extractions for pricing purposes. State Water propose the use of a rolling 15-year average based on actual extractions to forecast demand. State Water claims that this approach has a number of advantages including:

- reduced risk of under-recovery – State Water state that using the dry sequence of the last 15 years to forecast consumption will reduce the risk of a revenue shortfall in the event that the dry sequence continues
- balancing price and climate volatility – State Water claim that a 15-year average is long enough to reduce the price volatility between regulatory periods when climatic volatility is present. State Water state that a 15-year period strikes an appropriate balance between price volatility and the structural shift in climatic conditions
- simplicity – average actual extractions for each valley are relatively easy to identify and verify.

[128] Hunter Valley Water Users Association, submission to IPART, April 2010, pp 1-2.
[129] State Water Corporation submission to IPART 2010 pricing determination, Appendix 5, p 47-48.

We note that the use of actual extractions data to forecast consumption was considered in the 2006 Determination. However, a decision not to use actual extraction data was made because there were issues with the limited timeframe and quality of the data. Substantial changes were also occurring in water management practices at that time.

For the 2010 Determination there are now 13 years of reasonable quality metered extractions data available under fairly similar water management rules (1995/96 to 2008/09). State Water argues that this is long enough to provide a basis for using actual data, rather than IQQM data. State Water claims that actual data is preferable to IQQM data in the absence of changes to water management rules and data quality issues.

9.5.2 State Water's proposed extraction forecasts

Table 9.3 presents a comparison of State Water's proposed water extraction forecasts for the 2010 Determination against those used by the 2006 Determination.

Table 9.3 Forecast extraction comparison of 2006 Determination and State Water proposal for 2010 Determination

Valley	2006 Determination (ML)	State Water proposed (ML)	% change
Border	209,670	148,923	-29.0%
Gwydir	309,164	275,597	-10.9%
Namoi	237,146	170,193	-28.2%
Peel	14,675	11,422	-22.2%
Lachlan	307,149	226,554	-26.2%
Macquarie	386,311	269,989	-30.1%
Murray Lower-Darling	1,934,830	1,391,796	-28.1%
Murrumbidgee	1,915,848	1,736,020	-9.4%
North Coast	992	906	-8.7%
Hunter	128,067	129,581	1.2%
South Coast	5,831	5,804	-0.5%
Total	5,449,683	4,366,785	-19.9%

Source: State Water Corporation submission to IPART 2010 pricing Determination, September 2009, p 9-3.

State Water believes that variability in actual extractions (against forecasts) is likely to continue due to changed climatic conditions. State Water predicts that total extractions in 2010/11 will likely be lower than its proposed estimate of 4,367 GL. However, State Water's methodology allows ongoing volatility to be incorporated into future consumption forecasts (through the operation of the moving average).

9.6 Stakeholder comments

A number of submissions made comments on the approach to forecasting water extractions. These comments generally concerned the relative merits of continuing to use the long-run average forecasts versus State Water's proposed 15-year moving average approach.

Almost all submissions from irrigators and irrigation organisations generally opposed a switch to the 15-year moving average approach and continued to favour the long-run average approach.[130] The one exception was the Peel Valley Water Users Association who believed that the CIE consumption forecasts for the 2010 Determination are overly high and did not go far enough.[131]

The opposition to the introduction of a 15-year moving average approach centred on a number of themes. The High Security Irrigators-Murrumbidgee (HSI-M) did not believe that State Water should move away from the IQQM method for forecasting water extractions because current climate conditions do not suit their budgetary expectations. HSI-M believes the shift to the 15-year moving average approach would strengthen State Water's financial position at the expense of customers who are unable to insulate themselves from dry conditions.

Tamworth Regional Council contended that using the 15-year moving average approach would not be in the best interest of customers as water delivery charges would be excessive if a run of wetter seasons was experienced and water sales increased.[132] They stated in their submission that:

> State Water costs applied over a smaller volume of water significantly increase the consumption charge.[133]

Lachlan Valley Water has also expressed their preference for the retention of the long-run average approach to consumption forecasting[134]. Lachlan Valley Water believes that the proposed 15-year rolling average methodology is not an accurate indicator of availability or usage for the 2010 Determination.

Lachlan Valley Water contends that using the 15-year rolling average results in significant time lags in periods of high or low usage that may be significantly different from the current supply conditions. This would be reflected in current pricing, leading to significant under or over-recovery of efficient costs. Lachlan

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130 Organisations that opposed the 15-year moving average approach included the High Security Irrigators-Murrumbidgee (October 2009), Tamworth Regional Council (October 2009, pp 3-4), Lachlan Valley Water (October 2009, p 10), Murrumbidgee Private Irrigators (October 2009), NSW Irrigators Council (October 2009, p 15) and Macquarie River Food and Fibre (October 2009, p 14).

131 The Peel Valley Water Users Association Inc, stated that water sales are more likely to be around 1500 GL per annum in contrast to State Water's forecast amount of 4367 GL per annum.

132 Tamworth Regional Council submission to IPART, October 2009, p 3.

133 Ibid, p 3.

134 Lachlan Valley Water submission to IPART, October 2009, p 10.

Valley Water believes that using the long-run average with the addition of recent data up to and including 2008/09 would more accurately reflect current conditions.

Murrumbidgee Irrigation states that it recommends:

> The continued use of long run IQQM data for consumption forecasts, and that data be used as the benchmark for estimating the costs of annual revenue volatility (rather than moving to the moving average approach). If this is not possible then reductions in the consumption forecasts should be capped.[135]

Murray Irrigation in its response to the draft determination expressed the view in relation to the Murray Valley that:

> IPART's draft determination which uses a 20.3 percent reduction in the consumption forecast compared to State Water's proposed 28.1 percent is preferred to State Water's approach for the 2010 determination.[136]

9.7 CSIRO forecasts

We have also considered basing forecast extractions on the results of the Murray-Darling Basin Sustainable Yields Project undertaken by the CSIRO. We examined the CSIRO forecasts and consider that the large degree of uncertainty present in the forecasts renders them unsuitable for extraction forecasting at this stage, for the purpose of setting prices. The intention of the CSIRO study is to shed light on shifts in climatic and rainfall patterns in the Murray-Darling Basin over the next 30 years.

Such a timeframe is not suited to predictions of water extractions over the next 4 years of the 2010 Determination. Our view is that it is more appropriate to use historical modelled and extractions data that State Water relies on for billing purposes.

State Water's consultants', the CIE, also examined the possibility of using the CSIRO results for forecasting extractions.[137] The CIE noted that the CSIRO approach had serious limitations as a basis for forecasting extractions over the 2010 Determination period and has a large degree of uncertainty involved with the forecasts.

9.8 Assessment of the evidence for a structural break in the availability of water for extraction purposes

State Water states that forecasts of water extractions can be considerably affected by climate change. State Water claims that when climate change is present:

- actual extractions are likely to be lower than forecasts when approaches using historical estimates of water extraction (such as from IQQM) are used to forecast

[135] Murrumbidgee Irrigation submission to IPART, April 2010, p 2.
[136] Murray Irrigation submission to IPART, April 2010, p 1.
[137] State Water Corporation submission to IPART, Appendix 5, September 2009, p 42-45.

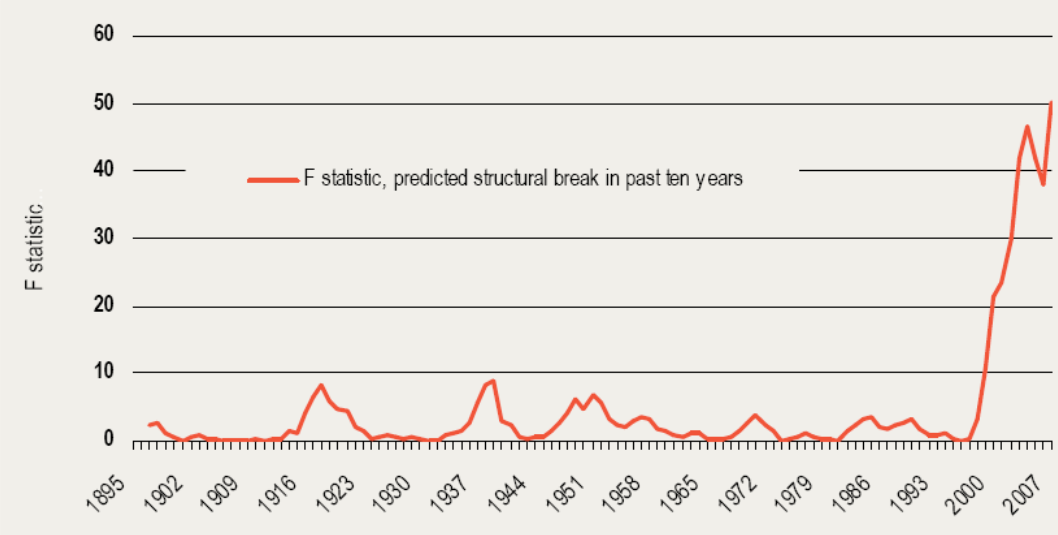
- the risk of inaccuracy in forecasts is increased due to greater rainfall variability.

9.8.1 State Water's analysis

State Water presents the results of regression analysis to test for evidence of a structural break in water extractions. State Water's analysis uses an F-statistic to establish whether there is evidence of structural change. The higher the statistic, the more likely that structural change has occurred. State Water state that an F-statistic of 10 equates to a 0.2% probability that structural change has not occurred and an F-statistic of 40 equates to a 1 in 186 million probability that structural change has not occurred.

Figure 9.2 shows the results from State Water's regression analysis. Figure 9.2 shows that the F-statistic was over 9 in the periods of 1915 to 1928 and 1936 to 1949. However, the F-statistic is over 40 for the current period.

Figure 9.2 Predicting a structural break over the history of estimated extractions



Data source: State Water Corporation pricing submission to IPART 2010 Determination, Appendix 5 p .48, September 2009.

State Water asserts that Figure 9.2 clearly demonstrates a structural break in available water extractions. State Water claims that this vindicates abandoning the IQQM as it is no longer sufficient for modelling future extractions.

State Water claims that the regression analysis presented within their submission shows that recent low water extractions are outside the range of what could be expected from normal climatic variability. They believe that a permanent change in climatic conditions has occurred and their analysis suggests that there is an extremely high probability that this has occurred. On this basis they argue that future water extractions will be lower than those forecast by the long-run average approach.

9.8.2 IPART's analysis

We have examined ways of forecasting extractions for the 2010 Determination in order to improve State Water's ability to generate its full revenue requirement and recover its costs.

We examined a number of approaches to forecasting water extractions including:

- maintaining the existing long-run average approach (used in the 2006 Determination)
- State Water's proposed approach (15-year moving average of actual extractions)
- the use of moving averages of actual and historical modelled extractions
- the use of arithmetically and geometrically weighted averages
- using the CSIRO sustainable yields estimates.

We accept State Water's view that a new approach to forecasting extractions is warranted to more closely match forecast and actual sales. However, any approach to forecasting water extractions is likely to over- or under-estimate sales in a given year due to the natural unpredictability of rainfall.

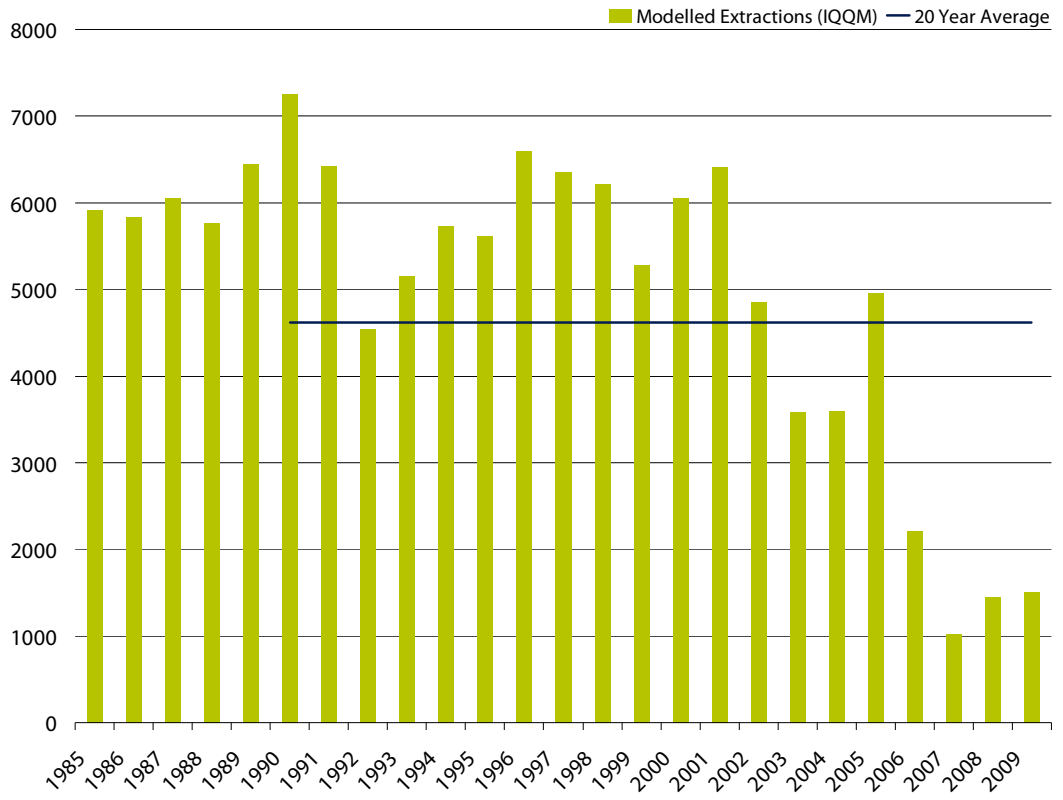
Variation in water availability

Our examination of the regression analysis put forward by State Water revealed the presence of skewness, where data is not normally distributed. This weakens the assertions made by State Water. Furthermore, this analysis was performed at an aggregate level. Our analysis suggests that while the evidence of a structural break in extractions may hold at an aggregate level, the evidence is far less conclusive at a valley level.

When extractions data is assessed on an individual valley basis it is clear that valleys such as the Murray and Murrumbidgee have had significant reductions in extractions, while other valleys such as the Hunter and Border remain largely unaffected.

Figure 9.3 and Figure 9.4 illustrate this point. Figure 9.3 shows that on aggregate actual extractions among all valleys have fallen considerably from 2006 onwards.

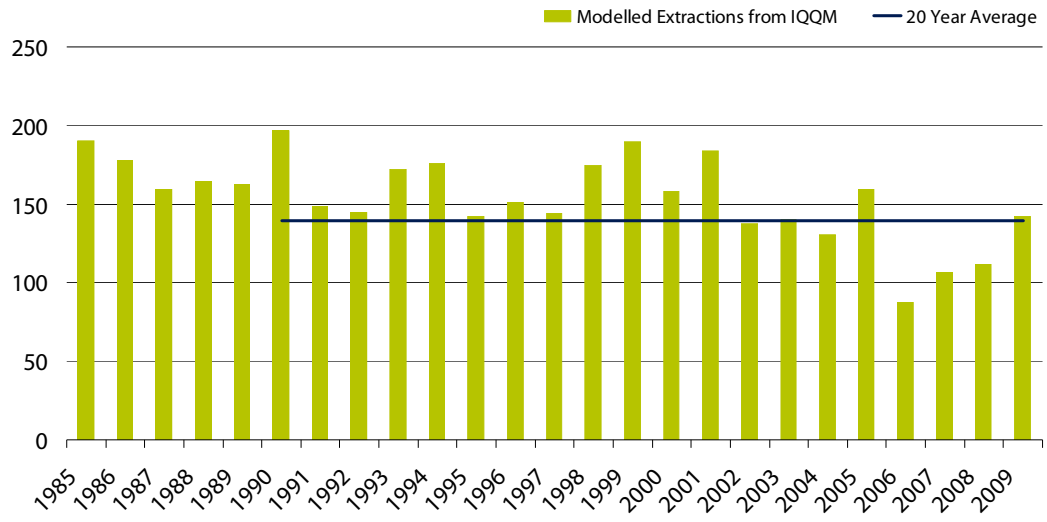
Figure 9.3 Modelled and actual extractions and forecasts – all valleys (GL)



Data source: IQQM Data provided by NOW, actual extractions data from State Water, 2008/09 and 2009/10 actual and estimated use taken from State Water submission.

Figure 9.4 on the other hand shows actual extractions for the Hunter valley. Figure 9.4 demonstrates that while State Water has experienced a significant reduction in water extractions across all valleys, claims of a structural break do not hold on an individual valley basis.

Figure 9.4 Modelled and actual extractions and forecasts – Hunter (GL)



Data source: IQQM Data provided by NOW, actual extractions data from State Water, 2008/09 and 2009/10 actual and estimated use taken from State Water submission.

The CSIRO's regional reports also provided further insight into whether structural breaks in water extractions are occurring in each individual valley. The CSIRO's regional reports confirm that structural changes in extractions may only be occurring in the Murray and Murrumbidgee valleys (ie, two of the largest valleys in terms of extractions.)

In their report to State Water on forecasting extractions, the CIE confirmed the conclusions of the CSIRO regarding structural breaks at a valley level. They state that:

> It is likely that structural change in extractions has occurred in the southern river valleys over the past five years. In the northern and central valleys, there is less evidence of structural changes in extraction[138]

Whether or not there has been a structural change to extractions, we consider that a moving average approach is superior to the long run average approach used in the 2006 Determination because it is based on recent data of actual metered extractions.[139]

[138] State Water Corporation submission to IPART 2010 pricing determination, Appendix 5, p 49.

[139] We note that the moving average approach incorporates 5 years of modelled IQQM extractions due to unreliable actual extraction data for the period from 1990/91 to 1994/95. Our intention is to add more recent actual extractions data at future price reviews which will see the total removal of IQQM data.

10 Pricing decisions for bulk water services

In Chapter 3 we discussed our approach to setting prices. How we calculate State Water's notional revenue requirement using the building block approach was set out in Chapter 4. In Chapter 8 we outlined our decisions regarding the cost share ratios which divide State Water's notional revenue requirement between users and Government.

This Chapter provides our final decisions on prices for entitlement and usage charges, and outlines our decision on rebates for irrigation corporations and districts (ICDs). The revenue generated from these charges recovers the user share of State Water's notional revenue requirement.

Before we set prices there were a number of issues relating to State Water's price structure that had to be taken into account. State Water and stakeholders put forward suggestions regarding the proportion of revenue recovered by entitlement and usage charges and the relationship between high security and general security entitlement charge values. We also had to consider the pricing of Fish River water supply services and measures to mitigate the extraordinarily high charges that would result from full cost recovery in the North Coast, South Coast and Peel valleys. Once decisions on these parameters had been reached, we were able to set prices for State Water's bulk water services by taking consumption forecasts and entitlement volumes into account.

A summary of our pricing decisions is provided in Section 10.1. The following sections provide:

- an overview of the bulk water charges proposed by State Water
- our decision on the proportion of revenue recovered between entitlement and usage charges
- consideration of the relationship between high security and general security entitlement charge values
- explanation of our pricing decisions for Fish River water supply services
- consideration of the rebates given to ICDs.

10.1 Summary of IPART's pricing decisions for bulk water services

Our final decisions are to:

- Maintain the current entitlement to usage charge ratio of 40:60 for all valleys except the North Coast and Hunter valleys which maintain a 60:40 entitlement to usage charge ratio.
- Rebalance high and general security entitlement charges to incorporate a high security premium into the calculation of high security entitlement charges to better equate the costs and benefits of high and general security entitlement charges. High security entitlement charges will be calculated as follows:

  High Security Entitlement Charge = General Security Entitlement Charge x Conversion Factor x High Security Premium).[140]
- Cap average valley bill increases to 10% real per annum for general security customers in the North Coast, South Coast and Peel valleys, where the average valley bill increases for general security customers are calculated on the basis of each valley's average entitlement size (with an assumed allocation of 60%).[141]
- Set high security and general security entitlement charges and usage charges for State Water as shown in Table 10.1 and Table 10.2.
- Set the prices that State Water can charge its customers in the Fish River scheme as shown in Table 10.3.
- Set discounts for ICDs as shown below in Table 10.4.

IPART's final decision on State Water's entitlement charges

17 IPART's final decision is to set high security and general security entitlement charges as shown in Table 10.1, usage charges as shown in Table 10.2 and prices for the Fish River scheme as shown in Table 10.3.

Table 10.1 shows our final decisions for State Water's high security and general security entitlement charges over the 2010 Determination.

[140] The Gwydir and Namoi valleys are the exceptions to this. The prices for high security entitlement charges in these valleys have been confined to the values proposed by State Water.

[141] Average entitlement size has been based on information from State Water Corporation's submission to the IPART 2010 pricing determination, September 2009, Appendix 6, p 14.

Table 10.1 IPART decision on high security and general security entitlement charges and percentage increases ($/ML $2009/2010)

	2009/10	2010/11		2011/12		2012/13		2013/14		2009/10 to 2013/14	
	$	$	% △	$	% △	$	% △	$	% △	$ △	% △
High Security Entitlement Charge											
Border	4.37	6.32	44.4	7.89	24.8	9.23	17.0	10.36	12.3	5.99	136.9
Gwydir	6.08	9.23	51.7	11.79	27.7	12.17	3.2	13.16	8.2	7.08	116.3
Namoi	9.31	11.28	21.2	12.78	13.3	14.01	9.6	14.68	4.8	5.37	57.7
Peel	11.50	13.78	19.9	16.39	18.9	19.37	18.2	22.79	17.6	11.30	98.3
Lachlan	7.02	8.60	22.5	9.44	9.7	10.30	9.1	11.19	8.6	4.17	59.3
Macquarie	5.78	6.84	18.4	7.96	16.4	9.12	14.6	10.34	13.3	4.56	79.0
Murray	2.75	2.61	-5.2	2.69	3.1	2.77	2.9	2.84	2.6	0.09	3.2
Murrumbidgee	2.46	2.43	-1.2	2.53	3.9	2.61	3.4	2.69	3.0	0.23	9.4
North Coast	5.60	6.25	11.6	6.96	11.4	7.75	11.4	8.64	11.4	3.04	54.3
Hunter	20.22	24.33	20.3	24.07	-1.1	23.81	-1.1	23.56	-1.1	3.34	16.5
South Coast	10.61	12.34	16.3	14.32	16.0	16.56	15.7	19.11	15.4	8.50	80.1
General Security Entitlement Charge											
Border	3.41	3.49	2.4	3.28	-6.1	3.08	-6.0	2.90	-6.0	-0.51	-15.1
Gwydir	3.37	4.01	19.1	3.89	-3.0	3.78	-2.9	3.67	-2.8	0.31	9.1
Namoi	7.44	8.61	15.6	8.48	-1.5	8.35	-1.5	8.23	-1.5	0.79	10.6
Peel	1.71	1.88	10.0	2.07	10.0	2.28	10.0	2.51	10.0	0.79	46.4
Lachlan	2.86	3.85	34.8	3.90	1.2	3.95	1.2	4.00	1.3	1.14	39.8
Macquarie	3.07	3.64	18.6	3.70	1.7	3.77	1.7	3.83	1.8	0.76	24.9
Murray	2.20	2.22	1.2	2.19	-1.7	2.15	-1.7	2.12	-1.6	-0.08	-3.7
Murrumbidgee	1.51	1.55	2.1	1.51	-2.1	1.48	-2.3	1.44	-2.3	-0.07	-4.6
North Coast	4.48	4.93	10.0	5.42	10.0	5.97	10.0	6.56	10.0	2.08	46.4
Hunter	6.74	8.46	25.6	8.31	-1.8	8.16	-1.8	8.02	-1.8	1.28	19.0
South Coast	6.24	6.86	10.0	7.55	10.0	8.30	10.0	9.13	10.0	2.90	46.4

Note: Charges for 2009/10 exist under the 2006 Determination and are provided for comparison purposes only.

Table 10.1 shows that there are considerable price changes to high and general security entitlements over the course of the 2010 Determination.

High security entitlement charges have increased substantially due to the rebalancing between high security and general security charges. Increases in high security entitlement charges range over the 2010 Determination from 3.2% in the Murray valley to 136.9% in the Border valley.

For general security entitlement charges some charges will decrease due to the effect of rebalancing with high security entitlement charges. The price movements for general security entitlement charges vary over the 2010 Determination, ranging from a 15.1% reduction in the Border valley to a 46.4% increase in the North Coast, South Coast and Peel valleys.

Decision

18 IPART's decision is to set usage charges as shown in Table 10.2.

Table 10.2 below outlines our decision on usage charges for State Water over the 2010 Determination.

Table 10.2 IPART decision on usage charges and percentage increases ($/ML $2009/2010)

	2009/10	2010/11		2011/12		2012/13		2013/14		2009/10 to 2013/14	
	$	$	% Δ	$	% Δ	$	% Δ	$	% Δ	$ Δ	% Δ
Border	6.54	7.84	20.0	8.14	3.8	8.45	3.8	8.53	0.9	1.99	30.5
Gwydir	8.96	11.85	32.3	11.81	-0.3	11.78	-0.3	11.74	-0.3	2.78	31.1
Namoi	12.56	18.61	48.2	18.43	-1.0	18.26	-1.0	18.08	-1.0	5.52	44.0
Peel	25.72	28.29	10.0	31.12	10.0	34.23	10.0	37.66	10.0	11.94	46.4
Lachlan	10.83	14.88	37.4	15.35	3.1	15.83	3.1	16.32	3.1	5.49	50.7
Macquarie	8.47	11.30	33.4	11.73	3.8	12.18	3.8	12.65	3.8	4.18	49.3
Murray	4.00	4.66	16.5	4.60	-1.2	4.55	-1.2	4.49	-1.2	0.50	12.4
Murrumbidgee	3.54	3.51	-1.0	3.48	-0.8	3.45	-1.0	3.41	-1.0	-0.13	-3.7
North Coast	27.84	30.62	10.0	33.69	10.0	37.05	10.0	40.76	10.0	12.92	46.4
Hunter	12.28	13.95	13.6	13.75	-1.4	13.56	-1.4	13.37	-1.4	1.09	8.9
South Coast	24.96	27.45	10.0	30.20	10.0	33.22	10.0	36.54	10.0	11.58	46.4

Note: Charges for 2009/10 exist under the 2006 Determination and are provided for comparison purposes only.

Table 10.2 shows that there are also considerable changes to the price of water usage charges over the 2010 Determination.

A key driver behind the change is the adoption of a new approach to forecasting extractions which uses a 20-year moving average. The adoption of a 20-year moving average sees a 15% reduction in extraction forecasts. Annual forecasts decrease from the forecast of 5,450 GL used in the 2006 Determination to the forecast of 4,623 GL to be used for the 2010 Determination. Using lower forecasts over the 2010 Determination to recover the same usage charge component of State Water's target revenue requirement places upward pressure on usage charges.

Our view is that this change is necessary to reflect likely actual extractions and better enable State Water to recover its full revenue requirement over the 2010 Determination. Table 10.2 shows that bulk water usage prices will range from a reduction of 3.7% in the Murrumbidgee valley to an increase of 50.7% in the Lachlan valley over the course of the 2010 Determination.

Prices in the Peel and Namoi valleys

We have maintained separate charges for the Peel and Namoi valleys. Tamworth Regional Council suggested merging the Peel and Namoi valleys if postage stamp pricing is not adopted. However, State Water proposed that these valleys remain separate. State Water provided separate costs and prices for the Peel and Namoi valleys.

Our view is that these valleys should be kept separate as merging them would see Namoi valley customers subsidise customers in the Peel valley. We consider this would occur because:

- water in the Namoi valley is fed by a number of tributaries of which the Peel valley is just one
- the Chaffey Dam that supplies bulk water to the Peel valley does not designate water for users in the Namoi valley. This provides a strong indication of the demarcation between the 2 valleys.[142]

[142] Pers comm., Lisa Welsh of State Water, 17 December 2009.

Decision

19 IPART's decision is to set prices for the Fish River scheme as shown in Table 10.3.

Table 10.3 shows our decision on the prices that State Water can charge its customers in the Fish River scheme over the 2010 Determination.

Table 10.3 IPART decision on charges for the Fish River scheme ($/kL, $2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14	% △ 2009/10-2013/14
BULK RAW WATER						
Minimum Annual Quantity (MAQ)						
- Delta Electricity	0.24	0.26	0.29	0.32	0.35	43.3%
- Sydney Catchment Authority	0.24	0.26	0.29	0.32	0.35	43.3%
- Oberon Council	0.24	0.26	0.29	0.32	0.35	4.33%
- Individual Minor Customers	0.30	0.33	0.36	0.39	0.43	43.3%
Usage up to MAQ						
- Delta Electricity	0.27	0.29	0.32	0.35	0.39	43.3%
- Sydney Catchment Authority	0.27	0.29	0.32	0.35	0.39	43.3%
- Oberon Council	0.27	0.29	0.32	0.35	0.39	4.33%
- Individual Minor Customers	0.54	0.59	0.65	0.71	0.77	43.3%
Usage in excess of MAQ						
- Delta Electricity	0.51	0.56	0.61	0.67	0.73	43.3%
- Sydney Catchment Authority	0.51	0.56	0.61	0.67	0.73	43.3%
- Oberon Council	0.51	0.56	0.61	0.67	0.73	4.33%
- Individual Minor Customers	0.84	0.92	1.01	1.10	1.20	43.3%
BULK FILTERED WATER						
Minimum Annual Quantity (MAQ)						
- Lithgow Council	0.36	0.39	0.43	0.47	0.52	43.3%
- Individual Minor Customers	0.42	0.46	0.50	0.55	0.60	43.3%
Usage up to MAQ						
- Lithgow Council	0.39	0.43	0.47	0.51	0.56	43.3%
- Individual Minor Customers	0.66	0.72	0.79	0.86	0.95	43.3%
Usage in excess of MAQ						
- Lithgow Council	0.75	0.82	0.90	0.98	1.07	43.3%
- Individual Minor Customers	1.08	1.18	1.29	1.42	1.55	43.3%

Note: Charges for 2009/10 exist under the 2006 Determination and are provided for comparison purposes only.

Decision

20 IPART's decision is to set the value of rebates provided to irrigation corporations and districts (ICDs) as shown in Table 10.4.

Table 10.4 below shows our decision on rebates to ICDs over the 2010 Determination.

Table 10.4 IPART decision on ICD discounts for the 2010 Determination ($2009/10)

ICDs	2009/10	2010/11	2011/12	2012/13	2013/14
Jemalong	93,865	88,331	87,339	84,361	83,369
Murray Irrigation	1,565,897	940,715	925,783	910,851	895,919
Western Murray	34,233	38,590	37,978	37,365	36,753
West Corurgan	34,233	50,922	50,113	49,305	48,497
Moira	15,460	24,721	24,329	23,936	23,544
Eagle Creek	6,626	10,811	10,640	10,468	10,297
Murrumbidgee Irrigation	994,974	800,165	800,165	786,369	772,573
Coleambally Irrigation	425,155	354,274	354,274	348,165	342,057

Note: Discounts for 2009/10 exist under the 2006 Determination and are provided for comparison purposes only.

10.2 Overview of current and State Water's proposed bulk water prices

State Water has set the price of its charges to achieve full cost recovery in each year of the regulatory period. State Water's prices incorporate a significant step increase followed by price fluctuations for the remainder of the 2010 Determination. State Water has not attempted to create a smoothed price path but has noted that we may.

State Water's approach differs from our usual smoothed NPV-neutral approach which we use to moderate initial price increases to create a consistent and steady price path over the determination period.

State Water's proposed structure for bulk water charges remains unchanged from the 2006 Determination. There are broadly three types of licences for charging purposes. They are high security, general security and supplementary licences. Both high and general security licences comprise of a fixed entitlement charge and all three types incorporate a usage based (variable) charge.

State Water has put forward two pricing scenarios. State Water has proposed a:

- preferred scenario with a 40% entitlement charge: 60% usage charge structure, incorporating a 7.9% rate of return
- alternative scenario with a 90% entitlement charge: 10% usage charge structure, incorporating a 6.5% rate of return.

State Water's preferred pricing scenario is based on maintaining the current 40:60 ratio between entitlement and usage charges with the incorporation of a 7.9% rate of return. Table 10.5 presents a comparison of current prices against those proposed by State Water under its preferred pricing scenario.

Table 10.5 Current and State Water proposed prices– 40:60 fixed to variable ratio ($/ML, $2009/10)

	2009/10	2010/11		2011/12		2012/13		2013/14		2009/10 – 2013/14	
	$	$	% △	$	% △	$	% △	$	% △	$ △	% △
High Security Entitlement Charge											
Border	4.37	10.57	141.9	10.44	-1.2	10.84	3.8	10.36	-4.4	5.99	137.1
Gwydir	6.08	11.54	89.8	11.70	1.4	12.17	4.0	13.16	8.1	7.08	116.4
Namoi	9.31	12.37	32.9	13.53	9.4	14.01	3.5	14.68	4.8	5.37	57.7
Peel	11.50	23.72	106.3	24.22	2.1	24.34	0.5	23.37	-4.0	11.87	103.2
Lachlan	7.02	17.64	151.3	17.97	1.9	19.35	7.7	19.59	1.2	12.57	179.1
Macquarie	5.78	14.62	152.9	15.12	3.4	15.67	3.6	16.50	5.3	10.72	185.5
Murray	2.75	4.17	51.6	4.66	11.8	4.91	5.4	4.63	-5.7	1.88	68.4
Murrumbidgee	2.46	3.36	36.6	3.48	3.6	3.57	2.6	3.49	-2.2	1.03	41.9
North Coast	5.60	75.10	1,241	75.89	1.1	77.70	2.4	75.51	-2.8	69.91	1,248
Hunter	20.22	26.55	31.3	26.56	0.0	27.16	2.3	26.50	-2.4	6.28	31.1
South Coast	10.61	46.70	340.2	46.57	-0.3	47.47	1.9	46.28	-2.5	35.67	336.2
General Security Entitlement Charge											
Border	3.41	3.22	-5.6	3.18	-1.2	3.30	3.8	3.16	-4.2	-0.25	-7.3
Gwydir	3.37	3.52	4.5	3.57	1.4	3.71	3.9	4.01	8.1	0.64	19.0
Namoi	7.44	7.41	-0.4	8.10	9.3	8.39	3.6	8.79	4.8	1.35	18.1
Peel	1.71	2.03	18.7	2.08	2.5	2.09	0.5	2.00	-4.3	0.29	17.0
Lachlan	2.86	3.08	7.7	3.14	1.9	3.38	7.6	3.42	1.2	0.56	19.6
Macquarie	3.07	2.83	-7.8	2.93	3.5	3.04	3.8	3.20	5.3	0.13	4.2
Murray	2.20	1.67	-24.1	1.87	12.0	1.97	5.3	1.86	-5.6	-0.34	-15.5
Murrumbidgee	1.51	1.12	-25.8	1.16	3.6	1.19	2.6	1.16	-2.5	-0.35	-23.2
North Coast	4.48	48.77	988.6	49.28	1.0	50.46	2.4	49.03	-2.8	44.55	994.4
Hunter	6.74	8.25	22.4	8.25	0.0	8.43	2.2	8.23	-2.4	1.49	22.1
South Coast	6.24	18.46	195.8	18.41	-0.3	18.76	1.9	18.29	-2.5	12.05	193.1
Usage Charge											
Border	6.54	8.88	35.8	8.77	-1.2	9.10	3.8	8.69	-4.5	2.15	32.9
Gwydir	8.96	11.11	24.0	11.27	1.4	11.71	3.9	12.67	8.2	3.71	41.4
Namoi	12.56	17.62	40.3	19.29	9.5	19.96	3.5	20.92	4.8	8.36	66.6
Peel	25.72	62.36	142.5	63.68	2.1	64.02	0.5	61.47	-4.0	35.75	139.0
Lachlan	10.83	20.01	84.8	20.38	1.8	21.94	7.7	22.22	1.3	11.39	105.2
Macquarie	8.47	13.41	58.3	13.87	3.4	14.37	3.6	15.13	5.3	6.66	78.6
Murray	4.00	4.90	22.5	5.48	11.8	5.78	5.5	5.45	-5.7	1.45	36.3
Murrumbidgee	3.54	3.46	-2.3	3.58	3.5	3.67	2.5	3.59	-2.2	0.05	1.4

	2009/10	2010/11		2011/12		2012/13		2013/14		2009/10 – 2013/14	
	$	$	% Δ	$	% Δ	$	% Δ	$	% Δ	$ Δ	% Δ
North Coast	27.84	373.7	1,242	377.45	1.0	386.16	2.3	375.62	-2.7	347.8	1,249
Hunter	12.28	15.52	26.4	15.53	0.1	15.88	2.3	15.49	-2.5	3.21	26.1
South Coast	24.96	79.14	217.1	78.94	-0.3	80.45	1.9	78.47	-2.5	53.51	214.4

Source: State Water submission, September 2009, pp 11-1 & 11-2.

Table 10.5 shows that State Water proposes significant price increases for many of its valleys for both entitlement and usage charges. Large price increases are proposed for the North Coast, South Coast and Peel valleys, which did not reach full cost recovery in the 2006 Determination.

10.3 Considering the distribution of the revenue recovered between entitlement and usage charges

Decision

21 IPART's decision is to maintain the current entitlement to usage charge ratio of 40:60 for all valleys except the North Coast and Hunter valleys which continue the current 60:40 entitlement to usage charge ratio. (This decision is based on the attainment of the entitlement to usage charge ratio in NPV terms over the 4-year determination period.)

We considered State Water's proposed 40:60 entitlement and usage charge structure, as well as the submissions received from stakeholders which requested that this charge structure be maintained. Our view is that a 40:60 entitlement to usage charge ratio represents an appropriate balance between fixed and usage charges and is supported by State Water and stakeholders. A 40:60 entitlement to usage charge ratio represents a continuation of the 2006 Determination price structure and gives State Water's customers a considerable degree of control over the size of the bill that they pay to State Water.

The entitlement to usage charge ratio for the North Coast and Hunter valleys has been set at 60:40 for the 2010 Determination. This is a continuation of the ratio used in the 2006 Determination which has the support of customers in the North Coast and Hunter valleys.

The objective of this decision is to recover revenue through the entitlement and usage charges to match the 40:60 (or 60:40) ratios for all valleys in NPV terms over the 4 years of the 2010 Determination. However, there are 3 exceptions to our decision which affects 5 valleys:

- The first exception relates to our decision to cap average bill increases for general security customers in the North Coast, South Coast and Peel valleys means that the charge structures in these valleys depart from the ratios of 40:60 (for the South Coast and Peel valleys) and 60:40 (for the North Coast valley). Instead the ratios in 2013/14 for the North Coast, South Coast and Peel valleys are 65:35, 41:59 and 48:52 respectively.
- The second exception involves our decision to set the price for high security entitlement charge in the Gwydir valley[143] equal to the value proposed by State Water in 2012/13 and 2013/14. The entitlement to usage charge ratio for the Gwydir valley in 2013/14 is 39:61.
- The third and final exception relates to our decision to manage the price of the usage charge in the Border valley to prevent unfavourable up and down price movements. The entitlement to usage charge ratio for the Border valley in 2013/14 is 37:63.

Our decision to incorporate a revenue volatility allowance within the general security entitlement charge also leads to a small departure from our targeted 40:60 (or 60:40) entitlement to usage charge structure. This occurs because the revenue volatility allowance is added to the general security entitlement charge following our calculation of the revenue to be recovered from entitlement and usage charges, on a 40:60 (or 60:40) basis.

10.3.1 State Water and stakeholder comments

Stakeholders expressed a strong preference for the maintenance of the existing price structure (ie, a 40:60 ratio between entitlement and usage charges as proposed by State Water's preferred pricing proposal). In its submission, State Water comments that:

> State Water has consulted with the Customer Service Committees and the New South Wales Irrigator's Council regarding preferences for fixed [entitlement] and variable [usage] water charges. The strong consensus was that customers prefer to have a significant proportion of charges being usage based. This serves as a natural hedge for customers against periods of drought as customers pay lower State Water charges when usage, and therefore production, is low and higher charges when usage and production is high.[144]

[143] The value of the high security entitlement charge for the Namoi valley has also been set equal to the price proposed by State Water. However, the Namoi valley maintains an entitlement to usage charge ratio of 40:60 due to the small adjustment required to confine the price of their high security entitlement charge equal to the value proposed by State Water.

[144] State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 10-3.

Western Murray Irrigation supports the retention of this charge structure.[145] Other organisations also support the retention of the existing price structure including Macquarie River Food and Fibre, Auscott, Lachlan Valley Water and the NSW Irrigators Council and Split Rock Water Users Association. Auscott state in their submission:

> The current ratio of 40% fixed [entitlement] and 60% variable [usage] gives irrigators some minor degree of risk management against these low water supply years.[146]

Commenting on our draft decision to maintain the current entitlement and usage charge ratios the NSW Irrigators Council states:

> NSWIC commends IPART for the retention of the fixed to variable pricing ratio as providing a modicum of risk support to customers of SWC.[147]

Similarly, the Split Rock Water Users Association submits:

> We join other irrigator groups in supporting your decision to preserve the 40:60 split in access [entitlement]/usage charges. This ratio is the one factor allowing an irrigator some control over water budgeting.[148]

10.3.2 Calculation of entitlement and usage charges

Entitlement and usage charges are calculated on a per valley basis. To determine the value of these charges the user share of the notional revenue requirement is allocated 40% to the entitlement charge and 60% to the usage charge (for most valleys). The usage charge is determined by dividing the revenue it is required to recover by extractions forecast (ie, water sold) to determine a $/ML charge. Calculation of the entitlement charge is discussed in the section that follows.

10.4 Rebalancing high security and general security entitlement charges

Decision

22 IPART's decision is to rebalance high security and general security entitlement charges by incorporating a high security premium into the calculation of high security entitlement charges to better equate the costs and benefits of high and general security entitlement charges. High security entitlement charges will be calculated as follows:

High Security Entitlement Charge = General Security Entitlement Charge x (Conversion Factor x High Security Premium)

145 Western Murray Irrigation submission to IPART, October 2009, p 6.
146 Auscott submission to IPART, October 2009, p 4.
147 NSW Irrigators submission to IPART, April 2009, p 11.
148 Split Rock Water Users Association submission to IPART, April 2009, p 1.

The high and general security entitlement charges established under the 2006 Determination do not adequately reflect how likely it is that each of these groups will receive their full entitlements of water.[149] This is particularly evident in light of the substantial value of high security water on the spot market in times of low water availability, and from the strong demand from general security licence holders to convert to a high security entitlement. The effective per ML price paid by general security customers, based on the water allocation that they receive, in comparison to the equivalent amount paid by high security customers is another indicator.

Our decision is to incorporate a high security premium within the calculation of the high security entitlement charge.[150] The high security premium is calculated as follows:

(2) High Security Entitlement Charge = General Security Entitlement Charge x (Conversion Factor x ***High Security Premium***)

where the high security premium is derived as follows:

(3) ***High Security Premium*** = (average allocation to High Security over last 20 years / average allocation to General Security over last 20 years)

Equation 3 shows that the high security premium is calculated by dividing the average of actual allocations to high security licence holders (as a percentage of their full entitlement) over the last 20 years (20 years being the period used for forecasting extractions) by the average of actual allocations to general security licence holders over the last 20 years.

Our calculation of the high security premium for the final determination (shown by equation 3) represents a change to the way we proposed its calculation for the draft determination. This is discussed in section 10.4.2.

10.4.1 State Water's proposed approach

State Water claims that the current conversion factors no longer accurately reflect and equate the costs and benefits of general and high security entitlement charges.[151]

[149] The 2006 Determination used a valley's conversion factor to escalate the price for the high security entitlement charge from the price determined for the general security charge. Conversion factors exist in each valley's water sharing plan. Their purpose is to represent the 'units' of general security water required to secure one 'unit' of high security water.

[150] However, our decision to incorporate a revenue volatility allowance within the general security entitlement charge does not have an effect on the value or calculation of the high security entitlement charge. The revenue volatility allowance is allocated to the general security entitlement charge following the calculation and rebalancing of high security and general security entitlement charges. Because of this the relationship described in Equation 2 will not be maintained in precise terms, however we note that the deviation is negligible.

State Water argues that there is a need to increase high security entitlement charges to correct for the inequity that has been created between high and general security entitlements over the current drought period. State Water claims this is clearly demonstrated by the large number of general security licence holders who have attempted to convert their entitlements to high security (albeit an embargo on conversions has prevented the majority of conversions from taking place).

State Water proposes that an additional premium be added to calculate the high security entitlement charge for the 2010 Determination. They state that the premium aims to better reflect the benefit that high security customers enjoy from a secure water supply under varying degrees of water availability.

State Water proposes that its scarcity premium be calculated by taking the inverse of the average of actual allocations to general security licence holders (as a percentage of their full entitlement) over the last 15 years.

State Water states that its proposed changes to the high security charge are revenue neutral and are solely aimed at redistributing the cost burden faced by high security and general security licence holders.

10.4.2 Stakeholder comments

Stakeholder views on the introduction of a high security premium

The views of stakeholders on the introduction of a high security premium are equally divided. High security licence holders oppose the introduction of the high security premium, while general security licence holders welcome its introduction. The NSW Irrigators' Council states that it prefers an approach where we:

> …determine what the costs are and who the impactor was and to then attribute those costs reasonably between them.[152]

Gwydir Valley Irrigators Association proposes an approach which calculates the price of high and general security entitlement charges using an average cost calculation and the forecast volume of extractions by high and general security licence holders.[153] The underlying basis of this proposal is that costs are created proportionally to the level of extractions.

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[151] State Water believes that the current conversion factors result in a strong preference for general security licence holders to convert to high security licences. High security entitlement holders gain in dry times from the high security of their water supply (with close to full allocations on average). Their loss in wet times arises from the increased premium they pay. However, State Water claim that since the spot price for water is significantly higher in times of scarcity, the gain to high security holders far exceeds the value of the loss during wet years. See: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, section 10.3.

[152] NSW Irrigation Council, IPART Transcript of Public Hearing – Griffith, 3 December 2009.

[153] Gwydir Valley Irrigators Association submission to IPART, April 2010, pp 19-21.

There is no clear and accurate way of allocating the costs of providing, maintaining and operating State Water's infrastructure between high and general security licence holders. The approach proposed by the Gwydir Valley Irrigators Association ignores the differing levels of water security offered to high and general security customers, and the costs that differing levels of water security incur.

High security customers derive an additional benefit in times of low water availability. This results in an imbalance between high security and general security charges in favour of high security users. Our decision to incorporate a high security premium into the calculation of high security charges that depends on the relative average allocations to high and general security licence holders over the last 20 years reflects this.

Stakeholder comment towards the approach adopted by the draft determination

Our draft determination calculated the value of the high security premium by taking the inverse of the average allocations to general security licence holders over the last 20 years.[154] However, stakeholders noted that this then implies a 100% allocation to high security customers. For the Lachlan, Murray and Murrumbidgee valleys this is not the case. These valleys received average actual allocations to high security licence holders over the last 20 years of 87%, 95% and 98% respectively. Stakeholders such as the Tamworth Regional Council opposed the approach taken by our draft determination which they state:

> …can not be justified given the low level of security of HS [high security] water in the Peel.[155]

To address this issue we have modified the way we calculate the high security premium for the final determination to incorporate the average allocations to high security licence holders over the last 20 years. This addresses the concerns raised by stakeholders and achieves a fairer outcome that is more reflective of the actual premium value of high security water. For most valleys the high security premium will not change because their average allocation for the last 20 years has been 100%. Only the Lachlan, Murray and Murrumbidgee valleys are affected.

10.4.3 Analysis of rebalancing of high and general security entitlement charges

State Water charges its customers a fixed per ML entitlement charge based on the size of a customer's entitlement. This charge is levied regardless of whether or not a customer receives or uses the full allocation amount of their entitlement.

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154 The approach we used to calculate the high security premium for the draft determination is shown in the following equation: High Security Premium = 1 / average allocation to General Security over last 20 years.

155 Tamworth Regional Council submission to IPART, April 2010, p 4.

The entitlement charge paid by high security licence holders under the 2006 Determination uses a conversion factor to escalate the value of the charge to adjust for the increased security of supply that high security licence holders enjoy. Conversion factors from each valley's water sharing plan are used to determine this amount.[156] The intended purpose of the inclusion of the conversion factors is to escalate the price of the high security entitlement charge to equate the costs and benefits of high security and general security entitlement water. However, this has not been achieved.

We note that any change to the calculation of high security entitlement charges will affect the level of the general security entitlement charges. This is because entitlement charges recover 40% of the user share of the notional revenue requirement, and any increase in high security entitlement charges must be offset by a decrease in general security charges. Changes to entitlement charges will be revenue neutral for State Water.

10.4.4 IPART's calculation of the high security premium

Our decision is to incorporate a high security premium within the calculation of the high security entitlement charge. The introduction of a high security premium to the calculation of entitlement charges will increase the value of the high security entitlement charge and lower the value of the general security entitlement charge. This means that the charges will better reflect the values of each type of entitlement.

Our calculation of the high security premium uses 20 years of historical data and divides the actual average allocations to high security licence holders by the actual average allocations to general security licence holders. To do this we have used actual allocations from 1989/90 to 2008/09 to calculate the average of actual allocations to high and general security licence holders over the last 20 years (as a percentage of their full entitlement). Our intention is to match the duration of the average used to determine the price of high and general security entitlement charges with the period of the moving average selected to determine consumption forecasts and our revenue volatility allowance.

The data obtained to calculate high and general security average allocations over the past 20 years comes from the NSW Office of Water website.[157] It differs slightly from that used to determine our consumption forecasts and revenue volatility allowance as high and general security allocations (as a percentage of their full allocation) cannot be derived from actual extraction data.

[156] The conversion factor represents the quantity of general security units required to secure one high security unit.

[157] http://waterinfo.nsw.gov.au/ac/alloc.xls, accessed 21 December 2009.

Data on actual allocations to high and general security licence holders is required because the water sharing plans for each valley have different rules about when and under what circumstances high and general security allocations are made. For example, in some valleys general security allocations occur before high security licence holders have received their full allocation, while in other valleys general security water is only allocated once high security license holders have received their full entitlement. The use of carryover water also complicates matters.

Table 10.6 presents a comparison of the escalation factors used to determine the value of high security entitlement charges in each valley over the 2010 Determination with the escalation factors used to determine charges in the 2006 Determination. The escalation factors for the:

- 2010 Determination are equal to the sum of the conversion factor multiplied by the high security premium for each valley
- 2006 Determination represent the conversion factor for each valley only (ie, no additional of a high security premium).

Table 10.6 Escalation factors used for the 2006 and 2010 Determination

	2006 Determination	2010 Determination				
Valley	**Premium used in 2006 Determination (ie, conversion factor only)**	**Conversion factor**	**High security premium**			**Conversion factor x HS premium**
Border	1.28	1.28	x	3.01	=	3.86
Gwydir	1.81	1.81	x	2.91	=	5.27
Namoi	1.25	1.25	x	1.72	=	2.15
Peel	6.73	6.73	x	1.35	=	9.09
Lachlan	2.45	2.45	x	1.36	=	3.32
Macquarie	1.88	1.88	x	1.66	=	3.12
Murray	1.25	1.25	x	1.21	=	1.52
Murrumbidgee	1.63	1.63	x	1.28	=	2.08
North Coast	1.25	1.25	x	1.05	=	1.32
Hunter	3.00	3.00	x	1.03	=	3.10
South Coast	1.70	1.70	x	1.23	=	2.09

Source: 2006 Determination factors taken from State Water submission, p 10-8. 2010 Determination factors from our calculations.

The Border and Lachlan valleys are used as examples to explain the operation of the high security premium in Table 10.6.

The average actual allocations to high and general security licence holders over the last 20 years for the Border valley are 100% and 33.2% respectively, which creates a high security premium of 3.01 (ie, =100/33.2). For the Lachlan valley the average actual allocations to high and general security licence holders are 87% and 64.2%, giving a high security premium of 1.36 (ie, =87/64.2).

We have also decided that the calculation of entitlement charge prices will be set to transition towards the new escalation factors from the current use of conversion factors. This avoids a sawtooth like effect in general security prices. The transitioning approach is reflected in the price of entitlement charges set for high security and general security customers over the 2010 Determination.

10.5 Pricing of Fish River water supply services

Decision

23 IPART's decision is to calculate prices for the Fish River scheme using a building block approach.

The prices that State Water can charge its customers in the Fish River Scheme are determined using the building block approach as described in Chapter 3. We have set prices for the Fish River scheme so that the target revenue is equal to the notional revenue requirement in NPV terms over the course of the 2010 Determination.

Prices for the Fish River are shown in Table 10.7 below. Prices in the Fish River increase by 43.3% from 2009/10 to 2013/14. This represents a 9.4% increase per annum.

Table 10.7 Tariffs for Fish River water ($/kL, 2009/10$)

	2009/10	2010/11	2011/12	2012/13	2013/14	% △ 2010-2014
BULK RAW WATER						
Minimum Annual Quantity (MAQ)						
- Delta Electricity	0.24	0.26	0.29	0.32	0.35	43.3%
- Sydney Catchment Authority	0.24	0.26	0.29	0.32	0.35	43.3%
- Oberon Council	0.24	0.26	0.29	0.32	0.35	4.33%
- Individual Minor Customers	0.30	0.33	0.36	0.39	0.43	43.3%
Usage up to MAQ						
- Delta Electricity	0.27	0.29	0.32	0.35	0.39	43.3%
- Sydney Catchment Authority	0.27	0.29	0.32	0.35	0.39	43.3%
- Oberon Council	0.27	0.29	0.32	0.35	0.39	4.33%
- Individual Minor Customers	0.54	0.59	0.65	0.71	0.77	43.3%
Usage in excess of MAQ						
- Delta Electricity	0.51	0.56	0.61	0.67	0.73	43.3%
- Sydney Catchment Authority	0.51	0.56	0.61	0.67	0.73	43.3%
- Oberon Council	0.51	0.56	0.61	0.67	0.73	4.33%
- Individual Minor Customers	0.84	0.92	1.01	1.10	1.20	43.3%
BULK FILTERED WATER						
Minimum Annual Quantity (MAQ)						

	2009/10	2010/11	2011/12	2012/13	2013/14	% △ 2010-2014
- Lithgow Council	0.36	0.39	0.43	0.47	0.52	43.3%
- Individual Minor Customers	0.42	0.46	0.50	0.55	0.60	43.3%
Usage up to MAQ						
- Lithgow Council	0.39	0.43	0.47	0.51	0.56	43.3%
- Individual Minor Customers	0.66	0.72	0.79	0.86	0.95	43.3%
Usage in excess of MAQ						
- Lithgow Council	0.75	0.82	0.90	0.98	1.07	43.3%
- Individual Minor Customers	1.08	1.18	1.29	1.42	1.55	43.3%

Note: Charges for 2009/10 exist under the 2006 Determination and are provided for comparison purposes only.

10.6 Pricing decisions for North Coast, South Coast and Peel valleys

Decision

24 IPART's decision is to adopt a price setting approach that caps average valley bill increases for general security customers to 10% real per annum for the North Coast, South Coast and Peel valleys (which also restrains bill increases for high security customers through the relationship between general security and high security entitlement charges), where average general security bill increases are calculated on the basis of each valley's average entitlement size and an assumed allocation of 60%.

We have chosen to cap bill increases for general security customers in the North Coast, South Coast and Peel valleys at 10% real per annum to mitigate the price impacts that would result from a shift to full cost recovery.[158] Our decision is based on our view that these valleys are currently considerably below the full cost recovery level and a move to full cost recovery over the 4 year determination period would adversely affect the financial viability of farms in these valleys.

State Water's proposed prices implied an immediate shift to full cost recovery for these valleys in the 2010/11 financial year. We have chosen to cap bill increases for these valleys because prices in these valleys in absolute terms and on a per ML basis are already considerably higher than in all the other valleys.

In the 2006 Determination we stated that:

> In some valleys full cost recovery could not be achieved without substantial increases in tariffs that would have a damaging impact on users. In these cases the Tribunal has decided to limit increases. In some instances (ie, North Coast, South Coast and Peel), the Tribunal considers that cost reflectivity will never be achieved. In such instances, it considers State Water should review the future of these services and consult with

[158] Capping the average bill increase for general security customers restrains average bill increases for high security customers by a similar magnitude because of the relationship between general security and high security entitlement charges.

government in those cases where it considers that the service could be recognised as a Community Service Obligation.[159]

We restate our view that State Water and the Government should assess the long term viability of these valleys that are below full cost recovery. In the interim, the NSW Government will need to fund the revenue shortfall as it has done for the 2006 Determination.

10.6.1 Approaches for setting prices in the North Coast, South Coast and Peel valleys

Prices in the North Coast, South Coast, Peel and Hunter valleys were set below full cost recovery in the 2006 Determination. In the 2006 Determination we capped bill increases in these valleys at the maximum percentage increase of the remaining valleys, which equated to a 14.37% real per annum increase. Prices in the Hunter Valley are now considered to be at full cost recovery. However, given the current absolute value of prices in the North Coast, South Coast and Peel valleys, maintaining the approach used for the 2006 Determination may result in too high of an increase in prices.

Two submissions from irrigators (NSW Irrigation Council and Bega Cheese) supported a 5% real per annum increase in bills. The NSW Irrigators Council (NSWIC) in their submission stated

> NSWIC submits that full cost recovery should not be pursued in specified valleys – namely the North Coast, South Coast and Peel – on the basis that unsustainable price increases would result.[160]
>
> NSWIC submits that price increases in the specified valleys should be limited, by means of a subsidy from Government, to no more than 5% per annum.[161]

We assessed a number of alternative approaches for setting prices for the North Coast, South Coast and Peel valleys. The approaches assessed included setting prices in the North Coast, South Coast and Peel valleys:

- at full cost recovery
- to recover operating expenditure only
- by capping average valley bill increases to 5% real per annum (as recommended by the NSW Irrigators' Council and Bega Cheese)
- using the approach used for the 2006 Determination (which caps average valley bill increases at the maximum percentage increase of the remaining valleys, which equates to a 14.37% real per annum increase)

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159 IPART, *Bulk Water Prices for State Water Corporation and Water Administration Ministerial Corporation from 1 October 2006 to 30 June 2010 – Report*, September 2006, p 9.

160 New South Wales Irrigators' Council submission to IPART, 23 October 2009, p 30.

161 Ibid, p 30.

- by capping average valley bill increases to 10% real per annum for general security customers.

The alternative approaches above are compared against the results from current prices. The average valley bill increases for general security customers (referred to by the capped approaches) are calculated on the basis of each valley's average entitlement size with an assumed allocation of 60%.

We consider that a 5% per annum increase in bills is too low. The 10% per annum cap places an appropriate ceiling on bills for valleys where prices are unlikely to achieve full cost recovery. The total increase for the 2010 Determination is 46% using a 10% per annum cap. This is still at the higher end of increases for State Water's other valleys (and higher than the average increase for all valleys of 28%).

Our decision to place a cap on price for the North Coast, South Coast and Peel valleys reflects our view that the prices in these valleys are already considerably above the other valleys in absolute terms and severe customer impacts would result if these valleys were moved substantially further towards cost recovery.

10.7 Rebates to irrigation corporations and districts

Decision

25 IPART's decision is to set rebates for the irrigation corporations and districts (ICDs) as shown in Table 10.8. Our decision also allows for the reduction of rebates to ICDs when an individual within an ICD transforms out of the ICD to become a new, individual customer of State Water.

The rebates presented in Table 10.8 assume ICD entitlements do not change. The rebates will be reduced accordingly if ICD entitlements are reduced through the transformation of individual customers.

Table 10.8 Rebates to ICDs for the 2010 Determination ($2009/10)

ICDs	2009/10	2010/11	2011/12	2012/13	2013/14
Jemalong	93,865	88,331	87,339	84,361	83,369
Murray Irrigation	1,565,897	940,715	925,783	910,851	895,919
Western Murray	34,233	38,590	37,978	37,365	36,753
West Corurgan	34,233	50,922	50,113	49,305	48,497
Moira	15,460	24,721	24,329	23,936	23,544
Eagle Creek	6,626	10,811	10,640	10,468	10,297
Murrumbidgee Irrigation	994,974	800,165	800,165	786,369	772,573
Coleambally Irrigation	425,155	354,274	354,274	348,165	342,057

Note: Rebates for 2009/10 are provided for comparison purposes only. They are not part of the 2010 determination.

The sections that follow provide an outline of State Water's proposal, the decisions made under the 2006 Determination and our decision on discounts to ICDs.

10.7.1 State Water's proposed discounts for the 2010 Determination

State Water does not propose any change to the current approach used to calculate ICD discounts. However, State Water notes that it is necessary to recalculate the discounts using the 2006 approach to reflect the efficiencies achieved by State Water and the changes in circumstances since the 2006 Determination.

State Water points out that while the size of the rebate does not affect State Water's total revenue requirements, it will affect the value of charges paid by its customers.

State Water has recalculated the savings arising from avoided billing, metering and compliance costs using average costs per entitlement. State Water has also recalculated the additional systems benefits arising from large customers extracting significant quantities of water from the river using real time monitoring (in the Murrumbidgee as much as 70% of total extractions), which reduces the need for monitoring of smaller users via telemetry.

State Water has calculated the costs it avoids from the ICDs real time monitoring using estimates from the Commonwealth's metering project.[162] State Water claims that meters installed under the Commonwealth's regulated metering project achieve the same level of real time monitoring as provided by the ICDs (through the installation of telemetry on the majority of meters).

State Water also propose to reduce the value of rebates to ICDs if individuals 'transform' out to become new, individual customers of State Water. This reflects the reduced economies of scale associated with billing and metering. However, State Water can only estimate the rebate based on the number of entitlements currently held by ICDs. As such, transformations have not yet been factored into their rebate calculations but will be in future when they occur (this will be done on a revenue neutral basis).

State Water's calculation of its avoided costs over the 2010 Determination is presented in Table 10.9. State Water has used these avoided cost calculations to determine the rebate to ICDs on the basis of the number of entitlements held by each ICD.

[162] State Water's estimates incorporate a rate of return of 7.9% on telemetry installation of $3,000 per site with data transfer costs of $118 per year (per site) which accounts for data management and calls costs (State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 10-10).

Table 10.9 State Water's avoided cost calculations ($2009/10)

Average cost savings 2011 - 2015	Lachlan	Murray	Murrumbidgee
Metering and compliance	443,000	703,000	585,000
Billing	96,000	66,000	51,000
Telemetry installation	39,000	442,000	603,000
Data transfer costs	19,000	220,000	300,000
Total Cost	**597,000**	**1,430,000**	**1,540,000**
No of Entitlements (ML)	693,724	2,333,661	2,700,993
Total Cost per Entitlement	**0.86**	**0.61**	**0.57**

Source: State Water submission to IPART, September 2009, p 10-10.

10.7.2 Analysis of rebates to ICDs

Avoided costs principles established under the 2006 Determination

We engaged the CIE to assess the justification of providing rebates to ICDs at the 2006 Determination. CIE concluded that there is justification for providing rebates to ICDs because of the:

- lower costs in delivering water to the ICDs which largely relate to billing and metering, but also some river operations' activities
- system wide benefits of some of the river operations' activities undertaken by the ICDs which reduce State Water's costs of running the overall system (including the policing of water use and qualitatively superior monitoring of diversions resulting from real-time monitoring).

CIE advised that the system wide benefits of ICDs activities are likely to vary among the ICDs. For example, a small irrigation corporation or private irrigation district is unlikely to generate the same level of system wide benefits as generated by Murray Irrigation and Murrumbidgee Irrigation.

We accepted CIE's findings and we supported the use of discounts to ICDs for the 2006 Determination in recognition of:

> Their lower costs of service delivery and the system wide benefits that they provide.[163]

[163] IPART, *Bulk Water Prices for State Water Corporation and Water Administration Ministerial Corporation from 1 October 2006 to 30 June 2010 – Report*, September 2006, p 114.

IPART decision

For the draft determination we made a decision to accept State Water's proposed rebates to ICDs because State Water maintained the approach that we assessed and endorsed in 2006. However, Murray Irrigation requests that we revisit this decision and recommends a continuation of the current rebate at the 2009/10 levels, adjusted for CPI. Murray Irrigation raises a number of concerns. It states that the draft determination:

> …proposes a 40 percent reduction in the wholesale rebate received by Murray Irrigation in 2010/11, increasing to a 43 percent reduction in 2013/14. In 2010/11 this will be equal to an effective price increase for Murray Irrigation and its customers of 47 percent, (subsequent price increases from 2010/11 to 2013/14 are relatively small). This contrasts with the 5.6 percent increase for NSW Murray general security entitlement charges.[164]

After further consideration our decision for the final determination is to maintain our draft decision and accept State Water's proposed ICD rebates. Our view is that State Water has adhered to the approach established at the 2006 Determination. State Water's proposed changes to the value of ICD rebates reflect:

- State Water's revised calculations to account for the efficiencies that it achieved over the 2006 Determination
- updating the estimates of the costs that State Water avoids from ICD's real time monitoring of extractions – State Water's estimates of the costs avoided from ICD's real time monitoring have been updated to reflect the recently released cost estimates from the Commonwealth's metering project (which offer equivalent benefits to the real time monitoring conducted by ICDs).[165]

Our view is that the approach used to calculate ICD rebates adheres to the avoided costs principles and maintains the calculation methodology used at the 2006 Determination. Any changes to the value of ICD rebates reflect updated information about State Water's operating efficiency and up-to-date estimates of its avoided costs.

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[164] Murray Irrigation, submission to IPART draft determination, April 2010, p.4.

[165] The cost estimates for the Government's metering project were calculated independently by Nayar consulting in a report prepared for the NSW Office of Water. We note that we have also relied on these cost estimates to set the value of the metering service charge (discussed in Chapter 11).

11 Pricing decisions for miscellaneous and metering charges

Chapter 10 outlined the pricing decisions for State Water's entitlement and usage charges for the 11 valleys and the Fish River Scheme which exist under State Water's operations. This chapter explains our pricing decisions for State Water's miscellaneous and metering charges, as well as our decision on the Yanco Creek natural resource management plan levy.

State Water has proposed two new charges and the continuation of an existing charge. State Water proposes to introduce a new metering service charge to recover the operating and maintenance costs that it incurs as part of the NSW metering scheme. State Water also proposes to introduce an ancillary charge for the provision of information. State Water has proposed to continue the levy on irrigators in the Yanco Creek system to fund a program of works initiated by users in that system.

This chapter begins with a summary of our decisions on prices for miscellaneous and metering charges. The proposals put forward by State Water and the responses from stakeholders regarding these charges are also outlined. Our analysis and the reasoning behind our decisions are provided in detail.

11.1 Summary of our pricing decisions for miscellaneous and metering services

Decisions:

26 IPART's decision is to introduce a transitional metering service charge as shown in Table 11.1.

Table 11.1 Transitional metering service charges ($2009/10)

Type of electromagnetic meter	Metering service charge (per meter per annum)
Local read – magmeter	214
Remote read - magmeter with mobile phone telemetry coverage	289
Remote read - magmeter with satellite telemetry coverage	604
Remote read - channel meter with mobile phone telemetry coverage	604
Remote read - channel meter with satellite telemetry coverage	604

27 IPART's decision is to continue a maximum per annum natural resource management plan levy (an addition to the entitlement charge) of $0.90 per ML for users in the Yanco Columbo system.

11.2 State Water's submission

11.2.1 Proposed transitional metering service charge

The NSW Metering Scheme is one of the NSW Government's priority projects for the Commonwealth's Water for the Future program. The Commonwealth Government has given in-principle agreement to provide funding of $90 million to be shared by State Water and NOW for the purchase and installation of meters connected via telemetry on regulated rivers in the Murray Darling Basin.

The project involves replacing approximately 5,500 customer-owned meters with meters to be installed and operated by State Water and NOW. The project is aimed at improving the accuracy of meter readings and minimising water theft. The metering scheme will also enable NSW to meet NWI commitments to implement national water meter standards.[166]

The Commonwealth Government has given in-principle support to fund the initial capital costs for the purchase and installation of the meters and telemetry. The ongoing operating, maintenance and replacement costs are to be met by State Water and NOW. State Water proposes that users fund its ongoing operating, maintenance and replacement costs[167] through an IPART-determined metering service charge. The metering service charge is proposed to be levied on works approvals,[168] with the charge designed to recover the full ongoing costs to operate and maintain the meter.

State Water's proposed new metering service charges are presented in Table 11.2.

166 State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 10-14.

167 Asset replacement costs are not expected to be incurred until after the next determination period.

168 The metering service charge will apply to holders of approvals (under the *Water Management Act 2000* and *Water Act 1912*) for water management works to which government owned meters have been added.

Table 11.2 Proposed transitional metering service charges for the 2010 Determination

Type of flowmeter	Metering service charge (per meter per annum)
Local read - magmeter	214
Remote read - magmeter with mobile phone coverage	289
Remote read - magmeter with satellite telemetry coverage	604
Remote read - channel meter with Mobile phone coverage[a]	604
Remote read - channel meter with satellite telemetry coverage[a]	604

[a] Annualised costs for channel meters are the subject of a consultancy funded by the Federal Government. State Water has advised that this consultancy found that more information was required on determining the costs for these meters and that a pilot project was occurring in the Murray to determine these costs. Pending further information, the metering service charge for channel meters is based on that of an electromagnetic meter. State Water advises that this would provide an estimate toward the lower end of the range.

Note: State Water has not proposed to install any mechanical meters under the metering scheme, therefore they have not proposed charges for these meters.

Source: State Water Corporation submission to IPART 2010 Pricing Determination, p 10-19, September 2009.

Table 11.2 shows that State Water proposes to vary the charge depending on the meter type and size. State Water claims that the range of meter charges accounts for the varying maintenance and replacement costs, which are based on meter type and size.

State Water proposes to commence charging works approval holders the metering service charge in the financial year following the installation of the new meters.

11.2.2 Proposed new ancillary charge

State Water has proposed a new charge of $80.52 per hour to recover the staff time costs it incurs when providing information:

- to non-State Water customers
- over two years old to existing State Water customers.

State Water reports that this charge would cover requests for information on billing, metering, usage, allocations and other historical records. Information less than 2 years old would be provided to State Water customers free of charge as part of its regulated services.[169] State Water has advised that the proposed charge would apply to approximately 4 hours per week of staff time.

[169] State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 11-7.

11.2.3 Proposed natural resource management plan levy for Yanco Creek system

State Water has proposed to continue the Yanco Creek system natural resource management plan levy. State Water and IPART have received advice that the Yanco Creek and Tributaries Advisory Council (YACTAC) has voted to continue the collection of the $0.90/ML natural resource management plan levy. It is proposed that the levy be paid quarterly over the period 2010/11 to 2013/14 as presently occurs. Given that YACTAC has voted to continue the levy, State Water supported the continuation of the levy for the 2010 Determination.[170]

The levy is intended to fund the rehabilitation of the Yanco Columbo system, to improve flows and provide significant water efficiencies for the system and the Murrumbidgee valley. The plan that was proposed and developed by YACTAC extends over 10 years. The levy was introduced in the 2005 Determination and continued through the 2006 Determination.

11.3 Stakeholder comments

11.3.1 Metering service charge

A number of stakeholders commented on the metering service charge.

The Department of the Environment, Climate Change and Water supported the proposed metering service charge and the shift from entitlement holder owned meters to State Water owned meters.[171]

The Department of the Environment, Water, Heritage and the Arts (DEWHA) also supported State Water's proposal to create a metering service charge to recover the efficient operating, maintenance and replacement costs for Commonwealth-funded meters. The DEWHA submission supported State Water's proposal to use transitional arrangements for the roll-out of Commonwealth funded meters.[172]

The NSW Office of Water welcomed IPART's decision to introduce a metering service charge for regulated river water users stating that:

> …it reflects the cost of the emerging and increased requirements for water management in Australia.[173]

Western Murray Irrigation states that it:

> …supports the metering service charge once State Water has installed new meters noting the landholder is not responsible for the capital cost and installation of the meter.[174]

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170 State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 10-19.
171 DECCW NSW submission to IPART, October 2009, p 4.
172 DEWHA submission to IPART, 19 November 2009, p 3.
173 NSW Office of Water submission to IPART, April 2010, p 2.
174 Western Murray Irrigation submission to IPART, May 2010, p 2.

No irrigators raised objection to the introduction of the charge.

11.3.2 Ancillary information charge

The NSW Irrigators' Council in their submission support the introduction of an ancillary charge as proposed by State Water. The NSW Irrigators Council state:

> NSW Irrigators Council submits that the ancillary charges regime proposed by State Water Corporation is fair and ought be adopted[175]

The NSW Irrigators Council was the only stakeholder to comment on this issue in a submission.

11.3.3 Natural Resource Management Plan levy for Yanco Creek system

The Murrumbidgee Private Irrigators comment in their submission that:

> Murrumbidgee Private Irrigators Incorporated supports the continuation of compulsory levy collection from YACTAC landholders to continue natural resource management. The continuation of the levy is essential to co-fund funding that is being provided by government agencies and to allow for works that require follow up funding to be completed.[176]

11.4 Metering charge

Funding for the NSW metering scheme currently has in-principle support from the Commonwealth. At present, the timeframe for the installation of the new meters is unclear and therefore a transitional arrangement has been proposed by State Water. State Water's submission states that meters are to be installed on the regulated rivers from mid-2010 to mid-2014, however in some cases meters may not be installed until after 2014. For this reason, State Water proposes that the metering service charge only be levied commencing in the financial year following installation.

State Water has provided a cost breakdown on the marginal costs of the metering project that were estimated in a consultancy commissioned by the then Department of Water and Energy (ie, NOW).[177]

Nayar Consulting were engaged by NOW to assess the costs of the metering scheme.

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[175] NSW Irrigators Council submission to IPART, 23 October 2009, p 35.

[176] Murrumbidgee Private Irrigators Inc, response to State Water's proposed charges 2011-2014, 23 October 2009, p 2.

[177] Nayar Consulting, *Assessment of Annual Operation and Maintenance Costs for the NSW (Hawkesbury Nepean and NSW Murray-Darling Basin) Metering Scheme*, August 2009.

The objective of the consultancy was to provide a preliminary estimate of the operating and maintenance costs of the metering scheme to support NOW's pricing application to IPART. The costs of the metering scheme per meter are also equally applicable to State Water.[178]

We have reviewed State Water's proposal to introduce the metering service charge, as well as the cost build-up supporting the estimation of the charge. Manual meter reading costs will continue to be recovered through existing water charges and so these are not included in the metering service charge.

11.5 Component costs of the metering charge

The Nayar Consulting report on the marginal costs of the metering scheme breaks down operating and maintenance costs into individual components and provides a cost build-up to determine the value of the charges. The methodology for calculation of the individual components of the metering charge is described below.

The component costs of the metering scheme are as follows:

- meter reading – remote
- planned maintenance – validation
- planned maintenance – consumables
- unplanned maintenance
- meter information system – data processing.

11.5.1 Meter reading – remote

The 'meter reading – remote' category represents the cost of fees and charges for access to public wireless networks. The cost of sending data is a significant component of the cost structure for meters equipped with telemetry modems. The costs of remote reading vary according to whether a mobile phone modem or satellite modem is used.

The lowest cost data plan on the mobile phone network is $5 per month, yielding a total cost of $60 per meter per annum. Nayar Consulting states that this provides 5MB per month which is a sufficient amount to allow a daily log of the meter reading and basic meter status.[179]

The lowest cost data plan available for meters that use satellite modems is $30 per month. This results in a total cost of $360 per meter per annum.

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[178] State Water will be responsible for recovering costs of metering on regulated rivers, with NOW recovering costs for metering on unregulated rivers.

[179] Nayar Consulting, *Assessment of Annual Operation and Maintenance Costs for the NSW (Hawkesbury Nepean and NSW Murray-Darling Basin) Metering Scheme*, August 2009, p 21.

11.5.2 Planned maintenance – validation

Validation involves checking the accuracy of meters. Nayar Consulting recommends that a sampling approach to meter validation be used as an economical means of achieving accuracy limit compliance. A sampling approach selects a sample from the population of meters to be tested each year. For electromagnetic meters, the cost of meter testing including removal, provision of a temporary alternate meter, transportation and reinstallation is $5,000 per meter. Assuming that 120 meters are tested at a cost of $5,000 per meter test, with a population of 8,000 meters, the total cost can be calculated. This is calculated as (120 sample meters tested x $5,000 per meter test)/8,000 meter population. This yields a cost estimate of $78 per meter per annum.[180]

11.5.3 Consumables

Electromagnetic meters will require a new battery once every three years. The size and type of the battery required will vary according to the power consumption of the meter and its ancillaries. Nayar Consulting's cost build-up assumes that a $60 battery would be required every three years for electromagnetic meters. This yields a cost of $20 per annum per meter.[181]

11.5.4 Unplanned maintenance

Unplanned maintenance is required in response to component failure, vandalism, accidental breakage, flood and storm damage. The costs of unplanned maintenance will vary according to the type of meter used. For electromagnetic meters Nayar Consulting assumed:

- a 3% failure rate
- cost of meter assets ranging from $6,200 to $10,200
- a 50km return travel distance from the contractors' maintenance base to the meter site
- the repair would require 4 hours of labour time using an accredited technician
- a $90 cost per hour for the meter repair technician
- a travel cost of $1.50 per km
- costs of managing and scheduling the maintenance visit are included in the technicians' costs.

These assumptions yielded unplanned maintenance costs of between $60 and $90 per meter per annum according to the meter type.[182]

[180] Ibid, pp 24-25.
[181] Ibid, p 25.
[182] Ibid, pp 26-28.

11.5.5 Meter information system – data processing

A meter information software system is required for the processing, storage and assessment of the meter reading, asset and maintenance data collected from the meter fleet. Nayar Consulting have estimated the costs of the meter information system based on the following assumptions:

- 4 full-time equivalent persons (FTE) will be required to operate and maintain the meter information system
- the cost of an FTE is $114,000 (where staff overheads and indirect costs have been excluded)
- a provision of $100,000 or $10 per meter is provided for on-going information system software licensing costs.

These assumptions yield a cost per meter of 4 FTEs x $114,000 per annum = $456,000/10,000 meters or $46 per meter. Annual software licence costs are assumed to be $10 per meter, therefore the total cost per meter for the meter information system is $56 per annum.[183]

The marginal cost breakdown for the metering project is outlined in Table 11.3 below. Table 11.3 shows the values assigned to the individual operating and maintenance costs of the metering project.

[183] Ibid, p 29.

Table 11.3 Marginal costs of the metering project ($2009/10)

Type of Meter	Annual Operating and Maintenance costs ($/meter/ annum)					Estimated Cost ($/meter/ annum)
	Meter reading - Remote	Planned Maintenance - Validation	Planned Maintenance - Consumables	Unplanned Maintenance	Meter Information System - Data Processing	
Electromagnetic Meter with basic data logger	0	78	20	60	56	214
Electromagnetic Meter with programmable data logger and mobile phone modem	60	78	20	75	56	289
Electromagnetic Meter with programmable data logger and satellite modem	360	78	20	90	56	604
Remote Read - Channel meter with mobile phone coverage[a]	360	78	20	90	56	604
Remote Read - Channel meter with Satellite telemetry coverage[a]	360	78	20	90	56	604

[a] State Water have used the cost estimates for an electromagnetic meter with programmable data logger and satellite modem to estimate these costs. Costs for channel meters are the subject of a consultancy funded by the Commonwealth Government as part of the metering project. There is currently insufficient information on the costs of these meters, however the costs will be determined in a pilot metering project occurring in the Murray region.

Note: State Water has not included a contingency allowance to allow for uncertainty of costs. They state that this would significantly increase costs and they have tried to keep costs low.

Source: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 10-17.

The marginal cost build-up for the metering service charge results in the transitional metering service charges for the 2010 Determination shown in Table 11.4.

Table 11.4 Transitional MSC Charges for 2010 Determination ($2009/10)

Type of Flowmeter	Charge ($)
Local Read - Magmeter	214
Remote Read - Magmeter with mobile phone telemetry coverage	289
Remote Read - Magmeter with satellite telemetry coverage	604
Remote Read - Channel meter with Mobile phone telemetry coverage[a]	604
Remote Read - Channel meter with satellite telemetry coverage[a]	604

[a] State Water has used the cost estimates for an electromagnetic meter with programmable data logger and satellite modem to estimate these costs. Costs for channel meters are the subject of a consultancy funded by the Commonwealth Government as part of the metering project. There is currently insufficient information on the costs of these meters, however the costs will be determined in a pilot metering project occurring in the Murray region.

Note: State Water has not included a contingency allowance to allow for uncertainty of costs. They state that this would significantly increase costs and they have tried to keep costs low.

Source: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 10-19.

11.6 Analysis of Metering Service Charge

We have reviewed the consultants report on annual operation and maintenance costs for the NSW metering scheme. Our view is that the assessment of the metering costs uses an appropriate approach to evaluate the costs of the metering scheme and assigns reasonable values to those costs. The report also takes a wide geographical area into account in its assessment of costs.

Our decision is to approve the introduction of a metering service charge with the charge commencing for works approval holders in the financial year after a government meter is installed. The metering service charge will be levied on a per meter basis, with the size and number of meters used to measure extractions through a works approval determining the appropriate charge.

11.7 Miscellaneous service charge

State Water proposed a new miscellaneous service charge for the provision of information to recover State Water's staffing costs in handling requests for information from non-customers and information greater than 2 years old. State Water forecast that the proposed charge would apply to approximately 4 hours per week of staff time.

Table 11.5 provides a comparison of State Water's proposed miscellaneous service charge with similar charges levied by other metropolitan water utilities.

Table 11.5 Miscellaneous service charges levied by water agencies ($2009/10)

Water utility	Charge ($ per hour)
State Water – proposed charge	$80.52
Hunter Water Corporation	$80.52
Wyong Shire Council [a]	$50.91

[a] This charge is to recover the costs of staff tie involved in a billings record search further back than 5 years and applies to the first hour of staff time, for following hours the cost would be slightly lower.

Source: State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 11-7, Wyong Shire Council determinations and final report, May 2009, p 35.

Table 11.5 shows that State Water's proposal for a miscellaneous service charge for the provision of information is in line with the charges of other water utilities which have been set through our determinations.

State Water states that it has set the proposed charge at an identical level to a similar charge levied by Hunter Water Corporation. We engaged Deloitte/Halcrow to review Hunter Water's miscellaneous charges. Deloitte/Halcrow concluded that they strongly supported those new and amended charges that Hunter Water had proposed and that Hunter Water's approach to calculating miscellaneous charges was sound.[184] We approved Hunter Water's charge after an assessment of the charging methodology.

We consider that State Water's proposed charge is an efficient means of recovering the staffing costs incurred when responding to requests for information. However, our regulatory powers do not allow us to set miscellaneous charges for State Water.

We may set charges for State Water's services involving the supply of water or the use of its water supply facilities.[185] However, as this charge relates to the provision of information (greater than two years old or to non-State Water customers), our view is that this charge does not involve the supply of water or the use of State Water's water supply facilities and so is outside the scope of our determination.

State Water may have the option of introducing this charge independently of our determination. The onus of pursuing this option rests on State Water and it is at their discretion as to whether they wish to do so.

11.8 Proposed natural resource management plan levy for Yanco Creek system

Our decision is to set a maximum per annum natural resource management plan levy of $0.90 per ML for users in the Yanco Columbo system.

184 IPART, *Review of prices for water, sewerage, stormwater and other services for Hunter Water Corporation - Determinations and Final Report*, July 2009.

185 *Independent Pricing and Regulatory Tribunal (Water Services) Order 2004.*

In the 2006 Determination, we charged a levy of $0.90 per ML of entitlement for Yanco Creek irrigators to fund a works program initiated by users in that system. The YACTAC wrote to IPART advising that they wish for the levy to continue to be charged.

Our decision to allow a continuation of the levy has the support of YACTAC. YACTAC informs us that they unanimously approved the continuation of the collection of the natural resource management plan levy at their general meeting.[186] The natural resource management plan levy is set at $0.90 per ML per annum, divided into quarterly payments for the next four years.

11.9 Treatment of interstate trading

In its submission, State Water notes that it has encountered some difficulty in recovering the usage charge where water has been traded to a buyer without an account with State Water. This commonly occurs where water is traded interstate on a temporary basis.

From 1 July 2009, State Water has billed the seller for usage charges where the buyer does not have an account with State Water. State Water believes that the current determination allows this to occur. For the purposes of clarity, State Water has requested that we amend the 2010 Determination to expressly allow State Water to bill the seller in these circumstances.

We decided to re-draft the 2010 Determination to address State Water's concerns. In particular, the 2010 Determination now makes it clear that usage of water includes extraction and trade of water, although noting that State Water is only entitled to recover the usage charge once.

State Water's method of billing and recovery of charges is not a matter which is regulated by us. Our view is that the 2010 Determination does not present a barrier to State Water billing in relation to this matter. However, we consider that it is a fair and reasonable proposition for State Water to recover the costs that it incurs from those who benefit from the sale of water which it delivers.

Furthermore, our view is that market distortions are created when the costs of the usage charge are not reflected in the sale price of interstate transactions. Any purchaser of water who does not pay a price which incorporates both the entitlement and usage components for water will pay a price that does not reflect the total cost to provide that water. Where this occurs a purchaser will overstate their demand, which will lead to a distortion of efficient market outcomes.

[186] YACTAC, letter to IPART, 11 May 2009.

12 Implications of pricing decisions

We have considered the impact of maximum prices on State Water, its customers and the environment throughout our price determination. We considered each of the matters listed in Section 15 of our Act.[187] Overall, we are satisfied that the implications of our findings for customers, economic efficiency, the environment and the financial outcomes for State Water are appropriately balanced.

This chapter explains our assessment of the implications of this determination. It provides detail on the:

- implications for customers from our decisions on prices
- financial outcomes for State Water
- implications for the environment.

This review does not consider the costs attributed to the NSW Office of Water (NOW). The NOW determination will discuss the customer impacts of both State Water charges and the updated NOW charges, once both reviews are completed.

12.1 Implications for customers from prices

In reaching our decisions, we considered the likely impact on State Water's high security and general security customers, assuming different patterns of usage and entitlement. In particular, we considered the impact of State Water's bulk water charges on high and general security entitlement holders as a percentage of total farm costs.

We have assessed the impact on bills for high security and general security customers with allocations of 100% and 60% respectively. Our assessment calculated the impact on bills from extraction levels of 150 ML for low usage, 500 ML for medium consumption and 1,000 ML for high usage. In addition, we have assessed the impact on bills for general security customers with a 500 ML entitlement and a 30% allocation.

[187] Appendix D lists the factors included in Section 15 of our Act and identifies where these matters have been considered in our draft determination.

Our view is that the levels of usage modelled will provide suitable indicative results based on our analysis of the mean, median and mode of extractions for high security and general security customers in each valley.

12.1.1 Customer bills with low usage

Table 12.1 provides a summary of the outcomes from our prices for high security customers with a low consumption of 150 ML per annum and an allocation of 100%. Table 12.2 presents the same information for general security customers, but with an allocation of 60%.

Our analysis of the impact on State Water's low consumption customers concentrated on the overall impact of total bills by valley. We have looked at how bills increased in comparison with the past costs to provide these services, and how the size of these bill increases vary with water usage.

Table 12.1 shows that State Water's bills for customers with high security entitlements who consume 150 ML per annum are expected to increase by an average annual amount ranging from 0.4% for customers in the Murrumbidgee valley to 14.7% for customers in the Border valley. Over the 4-year price path, bills for customers are expected to increase in the range of 2% (Murrumbidgee) to 73% (Border).

Table 12.1 Bill impacts for high security customers – 150 ML entitlement with 100% allocation ($2009/10)

Valley	2009/10	2010/11	2011/12	2012/13	2013/14	Total real increase 2009/10-2013/14	Annualised increase
Border	1,637	2,124	2,404	2,652	2,833	73%	14.7%
Gwydir	2,256	3,163	3,541	3,591	3,735	66%	13.4%
Namoi	3,280	4,484	4,682	4,839	4,914	50%	10.6%
Peel [a]	5,582	6,311	7,126	8,041	9,067	62%	12.9%
Lachlan	2,678	3,523	3,718	3,919	4,127	54%	11.4%
Macquarie	2,137	2,720	2,953	3,195	3,447	61%	12.7%
Murray	1,012	1,089	1,093	1,097	1,100	9%	2.1%
Murrumbidgee	901	892	902	909	916	2%	0.4%
North Coast[a]	5,016	5,530	6,097	6,721	7,410	48%	10.2%
Hunter	4,875	5,742	5,673	5,606	5,539	14%	3.2%
South Coast[a]	5,335	5,969	6,677	7,467	8,348	56%	11.8%

a Bills for the North Coast, South Coast and Peel valleys increase despite the revenue requirement falling because these valleys were not previously at full cost recovery.

Note: 2009/10 is not part of the 2010 Determination and has been provided for comparison only.

Table 12.2 shows that State Water's bills for general security entitlement holders who consume 150 ML per annum are expected to change by an average annual amount ranging from a decrease of -1.0% for customers in the Murrumbidgee valley to an increase of 10.2% for those in the Lachlan valley. This sees bills decrease on average in the Murrumbidgee valley by around $22 over the 2010 Determination. The largest bill increases over the 2010 Determination are expected in the Lachlan valley where bills are expected to rise by 47% over the 4 years.

Table 12.2 Bill impacts for general security customers – 150ML entitlement with 60% allocation ($2009/10)

Valley	2009/10	2010/11	2011/12	2012/13	2013/14	Total real increase 2009/10-2013/14	Annualised increase
Border	1,100	1,230	1,225	1,224	1,202	9%	2.2%
Gwydir	1,311	1,669	1,647	1,627	1,608	23%	5.2%
Namoi	2,246	2,966	2,931	2,896	2,862	27%	6.2%
Peel	2,571	2,829	3,111	3,423	3,765	46%	10.0%
Lachlan	1,404	1,918	1,967	2,017	2,069	47%	10.2%
Macquarie	1,223	1,563	1,611	1,661	1,713	40%	8.8%
Murray	689	753	742	732	722	5%	1.2%
Murrumbidgee	546	548	540	532	524	-4%	-1.0%
North Coast	3,178	3,496	3,845	4,230	4,653	46%	10.0%
Hunter	2,116	2,525	2,484	2,445	2,406	14%	3.3%
South Coast	3,182	3,500	3,850	4,235	4,659	46%	10.0%

Note: 2009/10 is not part of the 2010 Determination and has been provided for comparison only.

12.1.2 Customer bills with medium usage

The bill impact on high security and general security customers who consume 500ML of water per annum is shown in Table 12.3 and Table 12.4. Once again, we assumed a 100% allocation for high security entitlement holders and 60% allocation for general security entitlement holders.

Table 12.3 shows the expected bills for high security entitlement holders who consume 500 ML per annum. Bills are expected to increase by an annual average of 0.4% in the Murrumbidgee valley up to 14.7% in the Border valley. Over the 4-year determination period, bills are expected to increase by up to 73% in the Border valley. The smallest bill increase occurs for customers in the Murrumbidgee valley who incur a 2% bill increase over the 4 years of the determination period.

Table 12.3 Bill impacts for high security customers – 500ML entitlement with 100% allocation ($2009/10)

Valley	2009/10	2010/11	2011/12	2012/13	2013/14	Total real increase 2009/10-2013/14	Annualised increase
Border	5,455	7,081	8,015	8,840	9,445	73%	14.7%
Gwydir	7,520	10,542	11,802	11,971	12,451	66%	13.4%
Namoi	10,933	14,947	15,607	16,131	16,379	50%	10.6%
Peel	18,607	21,038	23,754	26,802	30,223	62%	12.9%
Lachlan	8,928	11,743	12,395	13,063	13,757	54%	11.4%
Macquarie	7,123	9,067	9,844	10,651	11,491	61%	12.7%
Murray	3,374	3,632	3,645	3,656	3,666	9%	2.1%
Murrumbidgee	3,004	2,972	3,006	3,031	3,054	2%	0.4%
North Coast	16,719	18,435	20,323	22,404	24,698	48%	10.2%
Hunter	16,250	19,139	18,911	18,686	18,463	14%	3.2%
South Coast	17,785	19,897	22,257	24,890	27,826	56%	11.8%

Note: 2009/10 is not part of the 2010 Determination and has been provided for comparison only.

Table 12.4 shows the bill impacts for customers with general security entitlements of 500 ML per annum and a 60% allocation. Bills are expected to increase by up to 47% for those in the Lachlan valley by the end of the 2010 Determination. Changes in annual bills range from an annual average decline of 1.0% in the Murrumbidgee valley to an average bill increase of 10.2% for customers in the Lachlan valley.

Table 12.4 Bill impacts for general security customers – 500ML entitlement with 60% allocation ($2009/10)

Valley	2009/10	2010/11	2011/12	2012/13	2013/14	Total real increase 2009/10-2013/14	Annualised increase
Border	3,667	4,101	4,084	4,078	4,008	9%	2.2%
Gwydir	4,371	5,562	5,491	5,423	5,358	23%	5.2%
Namoi	7,488	9,887	9,769	9,654	9,540	27%	6.2%
Peel	8,572	9,429	10,372	11,409	12,550	46%	10.0%
Lachlan	4,680	6,392	6,556	6,722	6,896	47%	10.2%
Macquarie	4,076	5,208	5,370	5,537	5,710	40%	8.8%
Murray	2,298	2,509	2,474	2,440	2,406	5%	1.2%
Murrumbidgee	1,820	1,826	1,801	1,773	1,746	-4%	-1.0%
North Coast	10,594	11,653	12,818	14,100	15,510	46%	10.0%
Hunter	7,052	8,415	8,281	8,149	8,019	14%	3.3%
South Coast	10,607	11,667	12,834	14,118	15,529	46%	10.0%

Note: 2009/10 is not part of the 2010 Determination and has been provided for comparison only.

Table 12.5 shows the bill impacts for general security customers with entitlements of 500 ML per annum and a 30% allocation. Bills for these customers are expected to decrease by 4% over the 2010 Determination for those in the Murrumbidgee valley, and increase by up to 46% for those in the Peel, Lachlan, North Coast and South Coast valleys.

In all valleys except the Murrumbidgee valley bills for general security customers (with a 500 ML entitlement and a 30% allocation) are lower over our determination than under State Water's proposal. In the Murrumbidgee valley bills decline by 4% over the 2010 Determination, and decline by 13% under State Water's proposal.

Table 12.5 Increase in annual bills for general security customers with 500ML entitlement and 30% allocation under IPART's determination and State Water's proposal ($2009/10)

Valley	Current bill 2009/10	IPART's bill 2013/14	IPART's total increase 2009/10-2013/14	State Water's bill 2013/14	State Water's total increase 2009/10-2013/14
Border	2,687	2,729	2%	2,883	7%
Gwydir	3,027	3,598	19%	3,907	29%
Namoi	5,605	6,828	22%	7,532	34%
Peel	4,714	6,901	46%	10,223	117%
Lachlan	3,055	4,448	46%	5,042	65%
Macquarie	2,805	3,813	36%	3,869	38%
Murray	1,698	1,732	2%	1,747	3%
Murrumbidgee	1,288	1,234	-4%	1,119	-13%
North Coast	6,418	9,396	46%	80,860	1160%
Hunter	5,210	6,014	15%	6,440	24%
South Coast	6,863	10,048	46%	20,916	205%

Source: IPART price modelling and State Water Corporation submission to IPART 2010 Pricing Determination, p 11-1, September 2009.

12.1.3 Customer bills with high usage

Table 12.6 and Table 12.7 set out the bill impacts for customers with a high usage of 1,000 ML. As with the previous analysis, we have assumed that high security entitlement holders will receive an allocation of 100% of their entitlement and general security entitlement holders will receive an allocation of 60%.

Table 12.6 shows bills for customers with high security entitlements of 1,000 ML per annum and 100% allocation are expected to increase by an average annual amount of between 0.4% in the Murrumbidgee valley and 14.7% in the Border valley.

Over the 4 years of the determination period, customers will face total bill increases of between 2% (Murrumbidgee) to 73% (Border).

Table 12.6 Bill impacts for high security customers – 1,000 ML entitlement with 100% allocation ($2009/10)

Valley	2009/10	2010/11	2011/12	2012/13	2013/14	Total real increase 2009/10-2013/14	Annualised increase
Border	10,910	14,161	16,029	17,680	18,889	73%	14.7%
Gwydir	15,041	21,084	23,604	23,942	24,901	66%	13.4%
Namoi	21,865	29,895	31,214	32,262	32,757	50%	10.6%
Peel	37,215	42,076	47,507	53,605	60,447	62%	12.9%
Lachlan	17,857	23,486	24,790	26,127	27,513	54%	11.4%
Macquarie	14,245	18,134	19,688	21,302	22,981	61%	12.7%
Murray	6,747	7,263	7,290	7,313	7,333	9%	2.1%
Murrumbidgee	6,007	5,944	6,012	6,063	6,108	2%	0.4%
North Coast	33,438	36,869	40,645	44,808	49,397	48%	10.2%
Hunter	32,500	38,278	37,823	37,373	36,927	14%	3.2%
South Coast	35,569	39,793	44,513	49,779	55,653	56%	11.8%

Note: 2009/10 is not part of the 2010 Determination and has been provided for comparison only.

Table 12.7 Bill impacts for general security customers – 1,000 ML entitlement with 60% allocation ($2009/10)

Valley	2009/10	2010/11	2011/12	2012/13	2013/14	Total real increase 2009/10-2013/14	Annualised increase
Border	7,335	8,202	8,169	8,157	8,016	9%	2.2%
Gwydir	8,742	11,124	10,981	10,846	10,717	23%	5.2%
Namoi	14,977	19,773	19,539	19,308	19,080	27%	6.2%
Peel	17,143	18,857	20,743	22,818	25,099	46%	10.0%
Lachlan	9,360	12,785	13,111	13,444	13,793	47%	10.2%
Macquarie	8,152	10,417	10,739	11,073	11,420	40%	8.8%
Murray	4,596	5,018	4,949	4,880	4,813	5%	1.2%
Murrumbidgee	3,640	3,651	3,602	3,546	3,493	-4%	-1.0%
North Coast	21,187	23,306	25,636	28,200	31,020	46%	10.0%
Hunter	14,104	16,830	16,561	16,297	16,038	14%	3.3%
South Coast	21,214	23,335	25,668	28,235	31,059	46%	10.0%

Note: 2009/10 is not part of the 2010 Determination and has been provided for comparison only.

Table 12.7 shows that customers with general security entitlements of 1,000 ML and 60% allocations will face a decrease in bills of an average annual amount of 1.0% for the Murrumbidgee valley and increases of up to 10.2% (Lachlan valley). Over the 2010 Determination, customers in the Murrumbidgee will experience a decrease in real terms of 4% on their bills. Some customers in other valleys will face significant

bill increases. Bills are expected to increase by up to 47% over the 4-year determination period in the Lachlan valley.

12.1.4 Analysis of bills as a percentage of total farm costs

To inform our assessment of likely bill impacts, we considered the proportion that these bills represent as a percentage of total farm costs. We:

- reviewed the report prepared by the RM Consulting Group (RMCG) commissioned by State Water on the ability of State Water customers to afford price increases[188]
- conducted our own analysis on the impact on high security and general security customer bills under several usage assumptions using further data from ABARE.[189]

ABARE's data provides similar conclusions to the RMCG report. The ABARE data suggests that State Water's bills comprise only a small percentage of an average farm's total costs. The conclusion that we draw from ABARE's data is that the impact of the price increases of our determination will be small. The analysis that follows outlines the premise of our conclusion.

Table 12.8 and Table 12.9 set out the findings from our analysis of bills as a percentage of total farm cash costs for high security and general security licence holders with extractions of 150 ML and 1,000 ML per annum.[190] We have assumed an allocation of 100% to high security entitlement holders and an allocation of 60% to general security entitlement holders.

Table 12.8 shows that customer bills are expected to be below 2% of total farm cash costs for all valleys by 2013/14, assuming a usage level of 150 ML.

[188] State Water Corporation submission to IPART 2010 Pricing Determination, Appendix 6, Ability to pay - State Water Customers, RM Consulting Group, August 2009.

[189] ABARE, *Economic Survey of Irrigation Farms in the Murray Darling Basin: Industry Overview and Region Profiles 2007-08*, December 2009.

[190] As stated, our analysis uses ABARE data which incorporates average farm costs, rather than costs which vary in relation to different levels of water entitlements and farm type and size. Our analysis holds farm costs constant as a consequence. This may overstate the impact on customers with high water usage because farm costs would, on average, presumably increase as water usage increases. The opposite effect may occur for low water usage.

Table 12.8 State Water bills as a percentage of total farm cash costs (%) -150 ML entitlement with 100% allocation to high security users and 60% allocation to general security users

	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Border								
High Security	0.34%	0.31%	0.36%	0.39%	0.50%	0.57%	0.62%	0.67%
General Security	0.10%	0.07%	0.10%	0.11%	0.12%	0.12%	0.12%	0.12%
Namoi								
General Security	0.31%	0.20%	0.27%	0.29%	0.38%	0.38%	0.37%	0.37%
Macquarie								
High Security	0.54%	1.43%	0.96%	1.07%	1.36%	1.47%	1.59%	1.71%
General Security	0.32%	0.09%	0.15%	0.16%	0.21%	0.22%	0.22%	0.23%
Lachlan								
High Security	0.83%	0.59%	0.79%	0.87%	1.14%	1.20%	1.26%	1.33%
General Security	0.44%	0.28%	0.36%	0.39%	0.53%	0.54%	0.56%	0.57%
Murrumbidgee								
High Security	0.44%	0.31%	0.40%	0.42%	0.42%	0.42%	0.43%	0.43%
General Security	0.21%	0.21%	0.20%	0.20%	0.20%	0.20%	0.19%	0.19%
Murray								
High Security - Dairy	0.32%	0.24%	0.28%	0.29%	0.31%	0.31%	0.31%	0.31%
High Security - Horticulture	0.32%	0.24%	0.28%	0.29%	0.31%	0.31%	0.31%	0.32%
General Security	0.12%	0.87%	0.20%	0.19%	0.21%	0.21%	0.20%	0.20%

Note: ABARE data for 2006/07 to 2007/08 has been used to estimate total farm cash costs. Total farm cash costs were held constant from 2008/09 going forward for this analysis.

Source: ABARE, An economic survey of irrigation farms in the Murray Darling Basin: Industry overview and region profiles 2007-08, December 2009, pp 42-63.

Table 12.9 sets out our findings on customer bills in each valley as a percentage of total farm costs for high security and general security licence holders consuming 1,000 ML per annum. Table 12.9 shows that customer bills are expected to not represent more than 11% of total farm cash costs.

Table 12.9 State Water bills as a percentage of total farm cash costs (%) – 1,000 ML entitlement, 100% allocation to high security users and 60% allocation to general security users

	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Border								
High Security	2.24%	2.03%	2.35%	2.52%	3.24%	3.65%	4.01%	4.28%
General Security	0.64%	0.45%	0.68%	0.73%	0.82%	0.82%	0.81%	0.80%
Namoi								
General Security	2.01%	1.29%	1.75%	1.89%	2.49%	2.46%	2.43%	2.40%
Macquarie								
High Security	3.49%	8.83%	6.07%	6.71%	8.39%	9.05%	9.72%	10.40%
General Security	2.06%	0.59%	1.00%	1.09%	1.38%	1.43%	1.47%	1.51%
Lachlan								
High Security	5.27%	3.83%	5.04%	5.51%	7.13%	7.49%	7.86%	8.25%
General Security	2.85%	1.82%	2.38%	2.53%	3.42%	3.50%	3.59%	3.68%
Murrumbidgee								
High Security	2.88%	2.05%	2.59%	2.75%	2.73%	2.76%	2.78%	2.80%
General Security	1.39%	1.39%	1.33%	1.30%	1.31%	1.29%	1.27%	1.25%
Murray								
High Security - Dairy	2.11%	1.57%	1.83%	1.88%	2.02%	2.03%	2.04%	2.04%
High Security - Horticulture	2.11%	1.60%	1.86%	1.91%	2.05%	2.06%	2.06%	2.07%
General Security	0.80%	5.52%	1.30%	1.27%	1.38%	1.37%	1.35%	1.33%

Note: ABARE data for 2006/07 to 2007/08 has been used to estimate total farm cash costs. Total farm cash costs were held constant from 2008/09 going forward for this analysis.

Source: ABARE, An economic survey of irrigation farms in the Murray Darling Basin: Industry overview and region profiles 2007-08, December 2009, pp 42-63.

Table 12.10 shows the impact of State Water bills as a proportion of total farm cash costs for the South Coast and Peel valleys with assumed entitlement levels of 150 ML and 100% allocation to high security customers and 60% allocation to general security customers. We have used data provided by RMCG (presented within an appendix to State Water's submission) to calculate total farm cash costs.[191] ABARE data was not available for these valleys.

[191] State Water Corporation submission to IPART 2010 pricing determination, Appendix 6, Ability to pay - State Water Customers, RM Consulting Group, August 2009, p 34-35.

Our analysis in Table 12.10 assesses the impact on customers holding entitlements of 150 ML. It does not assess the impact on customers who hold 1,000 ML entitlements because the RMCG data did not contain the data required to conduct this analysis. However, our assessment of customer entitlement sizes for the South Coast and Peel valleys indicates that entitlement sizes are generally lower in these valleys and so the assessment of 150 ML entitlements is considered appropriate for this purpose.[192]

Table 12.10 shows that State Water bills as a proportion of total cash costs for the South Coast and Peel valleys remain below 9% by 2013/14. This demonstrates that water bills comprise only a small proportion of a farms' cash costs and that the impact of bill increases will be limited in these two valleys.

Table 12.10 State Water bills as a proportion of total cash costs for South Coast and Peel Valleys assuming a 150 ML entitlement

	2009/10	2013/14
South Coast		
High Security	1.1%	1.7%
General Security	0.7%	1.0%
Peel		
High Security	5.3%	8.5%
General Security	2.4%	3.5%

Note: The North Coast valley has not been included due to absence of appropriate data in the RMCG report.

Source: State Water Corporation submission to IPART 2010 pricing determination, Appendix 6, Ability to pay - State Water Customers, RM Consulting Group, August 2009, p 4-35.

We have set prices that are cost reflective to ensure that bulk water users pay prices that reflect the costs that they impose from their use of State Water's services. However, we note that bills as a percentage of total farm costs for some valleys increase significantly over the years 2006/07 to 2013/14. For example, bills as a percentage of total farm costs for high security users with a 1,000 ML entitlement in the Macquarie valley increase from 3.49% in 2006/07 to 10.4% in 2013/14. We accept that there are significant increases that, in some cases, may impact adversely on farm viability.

12.1.5 Stakeholder comment

A number of submissions received commented that while State Water bills may only represent a small proportion of total costs for a farm, increases in bills will have a large impact on business profitability and will directly affect the bottom line of businesses'. A submission from Stahmann Farms Enterprises[193] provided a case study of their business and was accompanied by the following statements:

> By 2014 water charges will represent nearly 8% of our total operating costs.

[192] Although we recognise that entitlement sizes and water usage varies widely in all valleys.
[193] Stahmann Farms Enterprises Pty Ltd submission to IPART, April 2010, p 5.

> The increase in charges of nearly $145,000 will come directly off our bottom line. It is not accompanied with any improvement in service or delivery efficiency which will in any way improve the profitability of our business. The net impact is a potential reduction in our net earnings of over 40%.
>
> In supporting the price increases proposed you are not "Fiddling" with the margins of our business profitability you are striking hard at the fundamental sustainability of our operation.

Many stakeholders have argued that the prices set by our draft determination are unrealistically high. These stakeholders include Bega Cheese, Border Rivers Food and Fibre, Lachlan Shire Council and Namoi Water. We have considered the views and the information from stakeholders such as Stahmann Farms Enterprises.

We have taken all reasonable available measures in order to minimise the level of the price increases. This includes capping bill increases for high cost valleys at 10% and having consultants Atkins/Cardno independently assess State Water's operating and capital expenditures. The price increases proposed are necessary for State Water to maintain its financial viability and recover the costs that it incurs in its water delivery operations to continue providing its bulk water services to its customers.

12.1.6 Impacts of price increases on Tamworth Regional Council

The Tamworth Regional Council (Tamworth) submission to the draft report expressed concern over the large increase in prices in the Peel valley. Tamworth's concerns related to the effect that the draft determination's price increases would have on their urban water customers.

Table 12.11 reproduces Tamworth's reported cost of bulk water. Tamworth provides this data to summarise the impacts of price increases on their water supply based on their existing extractions from Chaffey Dam.

Table 12.11 Tamworth Regional Council's cost of bulk water ($2009/10)

		2009/10	2010/11	2011/12	2012/13	2013/14
High security entitlement charge (Peel)	$/ML	11.50	13.78	16.39	19.37	22.79
Usage charge (Peel)	$/ML	25.72	28.29	31.12	34.23	37.66
Cost for 16,400ML entitlement	$'000	189	226	269	318	374
Cost for Chaffey usage of 5,665ML	$'000	146	160	176	194	213
Total charge	$'000	334	386	445	512	587
Cost per unit	$/ML	59.01	68.18	78.57	90.31	103.64

Note: The cost data in this table is reproduced from Tamworth Regional Councils' submission which is based on the prices set by our draft determination.

Data source: Tamworth Regional Council submission to IPART draft report, 14 April 2010.

Table 12.11 shows that Tamworth's bulk water prices will increase by around 75% (from $59.01 in 2009/10 to $103.64 in 2013/14). To gauge the reasonableness of charges paid by Tamworth we compared Tamworth's unit cost of one ML of bulk water with that of other comparable bulk water users/suppliers. Table 12.12 provides this comparison.

Table 12.12 Comparison of the cost of bulk water ($/ML, $2009/10)

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Tamworth Regional Council	-	-	-	-	59	68	79	90	104
Sydney Catchment Authority[a]	295	328	353	369	402	416	454	-	-
Hunter Water Corporation[b]	-	-	-	-	1270	1270	1270	-	-
Gosford City Council[b]	-	-	-	-	1270	1270	1270	-	-
Wyong Shire Council[b]	-	-	-	-	1270	1270	1270	-	-
Sydney Water Corporation[c]	1,130	1,260	1,340	-	-	-	-	-	-
Goldenfields Water[d]	1,526	1,229	1,206	-	-	-	-	-	-
Rous Water[e]	1,121	970	1,274	-	-	-	-	-	-

[a] Calculated using cost to Sydney Water Corporation only.

[b] Hunter Water Determination, the price of bulk water interchanged between Hunter Water and the Central Coast councils (Gosford City Council and Wyong Shire Council).

[c] Cost of water purchased by Gosford City Council from Sydney Water Corporation – only three years of data provided.

[d] Volume of bulk water supplied by Goldenfields Water (bulk water) is assumed to be equal to volume of bulk water supplied to Goldenfields Water (reticulation).

[e] Rous Water supplies some urban water (around 7%) however calculations are based on 100% bulk water being supplied.

Source: Sydney Water Corporation's 2009 Annual Information Return, Hunter Water Corporation Determination July 2009; Gosford City Council 2009 Annual Information Return, National Performance Report 2007-2008, national Water Commission, Australian Government; and IPART calculations. Tamworth Regional Council submission to IPART draft report, 14 April 2010.

Table 12.12 shows that Tamworth pays significantly less than other comparable bulk water users. The interchange price between Hunter Water Corporation and the Gosford and Wyong councils is in the order of over 16 times more expensive. Similarly, the bulk water costs incurred in 2007/08 by Sydney Water Corporation, Goldenfields Water and Rous Water are of a similar magnitude of around 20 times more expensive than the projected costs to be paid by Tamworth in 2013/14. The Sydney Catchment Authority's costs (a bulk water supplier) are over four times more expensive.

Table 12.11 and Table 12.12 demonstrate that while Tamworth will experience significant price increases, the amount that they will pay is significantly smaller than that which is incurred by other bulk water users.

We recognise the significant price increases in the Peel valley facing Tamworth under the prices proposed. However, we consider there is little that can be done further to limit the price impacts for Peel valley customers.

The 2010 Determination has capped average valley bill increases for general security customers in the Peel at 10% (which also restrains high security customer's bills through the relationship between high and general security charges). The decision to cap general security bill increases was made in recognition of the large dollar value of the prices already being charged. Without the price cap the price increases for the Peel would have been far more severe.

12.1.7 Fish River

Table 12.13 Fish River Scheme large customers ($'000, 2009/10)

Customer	2009/10	2010/11	2011/12	2012/13	2013/14	Total real increase 2009/10-2013/14	Annualised increase
Delta Electricity	3,754	4,107	4,494	4,917	5,380	43.3%	9.4%
Oberon Council	380	416	455	498	545	43.3%	9.4%
Lithgow Council	1,162	1,271	1,391	1,522	1,665	43.3%	9.4%
Sydney Catchment Authority	1,687	1,846	2,020	2,210	2,418	43.3%	9.4%

Note: 2009/10 is not part of the 2010 Determination and has been provided for comparison only.

We have also investigated the price impacts on customers in the Fish River scheme. Table 12.13 presents our analysis. Table 12.13 shows that customers in the Fish River scheme will face annual bill increases of 9.4% (or 43.3% over the 2010 Determination) if their current levels of usage are maintained.

12.2 Financial outcomes for State Water

We have set prices for State Water to ensure that it is able to operate, maintain, renew and augment the assets it requires to deliver its regulated bulk water services.

However, State Water's credit rating is expected to fall below investment grade over the course of the 2010 Determination. The NSW Treasury states that a BBB rating is considered investment grade and is the minimum credit rating required to ensure financial viability. State Water's large forward capital program is chiefly responsible for this. State Water's large capital program doubles its current debt levels, from 25% in 2009/10 to 45% in 2013/14.

Table 12.14 presents State Water's key financial indicators and credit ratings arising from our decision on prices.[194] The 4 credit metrics listed in Table 12.14 are inputs into the overall rating. Our analysis and financial modelling indicate that State Water will earn a credit rating of less than BBB in the last 2 years of the 2010 Determination.

Table 12.14 shows that State Water's increasing debt levels will cause deterioration in the 4 credit metrics. This sees State Water's credit rating fall below investment grade from 2012/13 onwards.

Table 12.14 Financial ratios for State Water - whole entity

Financial year ending 30 June	2009/10	2010/11	2011/12	2012/13	2013/14
1. Funds from Operations Interest Cover	3.8	4.4	2.9	2.4	2.1
	BBB+	BBB+	BBB	BB+	BB
2. Funds from Operations / Total Debt	20%	29%	17%	12%	9%
	BBB	A	BBB	BB+	BB
3. Debt gearing (regulatory value)	25%	34%	41%	45%	45%
	A	BBB+	BBB	BB+	BB+
4. EBIT Interest Cover	1.7	3.8	2.7	2.2	2.0
	BB	BBB+	BBB	BBB	BBB
NSW Treasury total score (0 - 10)	**4.25**	**5.25**	**4.00**	**3.25**	**2.75**
Overall rating	**BBB**	**BBB+**	**BBB**	**BB+**	**BB**

Note: Utility business risk profile used is consistent with State Water's proposal of 'average' business risk.

We are required under Section 15 of our Act to consider the impact on customers as well as the businesses' financial viability when setting the level of charges for State Water. Our view is that a company susceptible to drought and operating in a competitive market would not simultaneously significantly increase its level of gearing, expenditure and returns to shareholders without compromising its credit rating. We have therefore evaluated the Government's desire to maintain a BBB rating against the requirement to protect customers from outcomes that would not normally occur in a competitive environment.

[194] For the purposes of analysing financial implications of prices on State Water, we have used actual forecast gearing levels. We consider that the assessment of financeability should be modelled on the approach of rating agencies.

Further, we note that State Water has proposed prices under its preferred pricing proposal that fail to achieve the Government's minimum credit rating after 2011/12.[195] The fact that State Water itself has not proposed prices that achieve an investment grade rating is an indication of the inherent difficulty of achieving an investment grade credit rating while maintaining customer affordability.

We have investigated a number of options that could be adopted to achieve and maintain an overall NSW Treasury credit rating of BBB over the 2010 Determination. We requested that stakeholders provide feedback on these options in their response to the draft determination. The options we investigated were to:

- increase State Water's equity funding, through larger equity injections from its shareholders
- defer portions of State Water's capital expenditure, much of which is required to meet its statutory and regulatory obligations
- increase the WACC premium, which would impose higher costs on Government and State Water's customers.

These 3 options are discussed in the sections that follow.

Increase equity funding

The equity injection required to achieve an overall NSW Treasury credit rating score of BBB (or above) for State Water is $16.95 million each year for the 4 years of the regulatory period (whilst maintaining current dividend payments).[196] This results in a BBB rating in the final 2 years and higher credit ratings in the first 2 years of the regulatory period.

The same result is achieved if State Water makes no dividend payments during the determination period and shareholders inject an additional $2.75 million into State Water's business for the first 3 years of the determination period.

[195] State Water's submission also presents a scenario assuming a debt gearing level of 30%. State Water's analysis shows that its credit rating would be BBB+ over the entire regulatory period under a 30% gearing assumption. State Water noted that this "would require negotiation with shareholders to increase equity funding of future capital expenditure requirements (through reduced dividends and/or equity injections)". The magnitude of this funding requirement was not disclosed but it was stated that the annual equity injections were assumed to be required to maintain a debt gearing ratio of 30%. See State Water submission, September 2009, p 6-4.

[196] This assumes that dividend payments are maintained over the regulatory period. Our analysis assumes a 70% dividend payout ratio of post-tax profit as assumed by State Water in its proposal.

Defer capital expenditure

State Water's capital expenditure program is heavily weighted toward the front of the 2010 Determination. We have investigated a lump sum deferral method and a stepped deferral method as means of achieving a credit rating of at least BBB in each year of the 2010 Determination.

Table 12.15 Lump sum deferral of capital expenditure ('000, $2009/10)

	2010/11	2011/12	2012/13	2013/14
User share	11,516	14,917	8,951	9,458
Government share	44,166	40,638	52,703	13,417
Total capital expenditure	55,681	55,555	61,654	22,875
Capital expenditure deferral	40%	40%	23.85%	0%

Table 12.15 outlines the magnitude and timing of the capital expenditure deferrals required under the lump sum deferral method. Permanent capital expenditure deferrals of 40% in 2010/11 and 2011/12 and 23.85% in 2012/13 are required in order to achieve a credit rating of BBB (or above) for State Water. No deferral is required for 2013/14.[197]

The stepped deferral option presented below is similar in magnitude to the lump sum deferral above. Table 12.16 shows that this option defers 50% of 2010/11 capital expenditure, 45% of 2011/12 capital expenditure and 50.4% of 2012/13 capital expenditure. No deferral is required for 2013/14.

Table 12.16 Stepped deferral of capital expenditure ('000, $2009/10)

	2010/11	2011/12	2012/13	2013/14
Deferred 1 year	12.5%	15%	25.2%	-
Deferred 2 years	12.5%	15%	25.2%	-
Deferred 3 years	12.5%	15%	-	-
Deferred 4 years	12.5%	-	-	-

WACC premium

Increasing State Water's WACC premium was the final of the 3 options proposed as a means of maintaining an investment grade credit rating for State Water. The addition of a WACC premium passes the burden of achieving the BBB credit rating onto both the user and Government cost shares, according to the relative weights of the RAB.

[197] Capital expenditure in 2013/14 has little to no impact on the credit rating outcome. A 100% deferral of capital expenditure in 2013/14 reduces the 2012/13 deferral amount by 0.1%.

With a WACC of 7.4%, the WACC premium required for State Water to achieve an overall NSW Treasury credit rating score of BBB in 2013/14 is 2.7%. This sums to a total WACC value of 10.1%. Table 12.17 shows the credit rating outcomes under this option.

Table 12.17 Financial ratios for State Water with WACC premium of 2.71%

Financial year ending 30 June	2009/10	2010/11	2011/12	2012/13	2013/14
Utility business risk profile			Average risk business		
1. Funds from Operations Interest Cover	3.8	5.4	3.8	3.3	2.7
	BBB+	A	BBB+	BBB	BBB
2. Funds from Operations / Total Debt	20%	38%	24%	19%	15%
	BBB	AA	BBB+	BBB	BBB
3. Debt gearing (regulatory value)	25%	33%	39%	43%	41%
	A	BBB+	BBB	BBB	BBB
4. EBIT Interest Cover	1.7	4.9	3.6	3.0	2.7
	BB	A	BBB+	BBB+	BBB
NSW Treasury total score (0 - 10)	**4.25**	**6.25**	**4.75**	**4.25**	**4.00**
Overall rating	**BBB**	**A**	**BBB**	**BBB**	**BBB**

The options presented demonstrate potential ways to achieve and maintain an investment grade credit rating of BBB for State Water over the course of the 2010 Determination. Each of the options presented have associated drawbacks:

- Increasing equity funding requires significant equity injections from Government and potential reductions to State Water's dividend payments.
- Deferring State Water's capital program would more than likely result in postponing expenditure required to meet its statutory and regulatory obligations.
- Increasing the WACC premium passes the cost of maintaining an investment grade rating through to Government in the form of higher payments to State Water and to customers by way of higher prices.

We sought the views and comments from stakeholders on the 3 options presented in the draft report and on the importance of maintaining a BBB investment grade rating throughout the 2010 Determination.

12.2.2 Stakeholder feedback

Stakeholders that commented on the issue of State Water's credit rating supported the notion of using equity injections or a deferral of capital expenditure in order to improve State water's credit rating. They were strongly opposed to the idea of an additional WACC premium.

The Gwydir Valley Irrigators Association suggest that:

> …the application of a WACC premium as a way of retaining State Water's BBB credit rating be totally rejected.[198]

The Hunter Valley Water Users Association was in favour of increasing equity funding and deferring capital expenditure in order to improve State Water's credit rating. They state:

> We note the comments on the impact of the determination on State Water's financial position (point 1.6.2 pp18) and suggest a combination of increased equity funding and deferment of some of the less critical capital expenditure items could allow for maintenance of satisfactory credit ratings.[199]

Similarly, Lachlan Valley Water comment that they:

> …supports larger equity injections from shareholders as the means of maintaining State Water's credit rating.[200]

Murrumbidgee Irrigation is also of the opinion that increased equity funding or a deferral of State Water's capital expenditure program should be used to improve State Water's credit rating. They state that they recommend that:

> …improving SWC's credit rating should be achieved through either:
>
> a. An increase in equity funding, and
>
> b. Deferral of SWC's capex program.[201]

Western Murray Irrigation Limited state that the NSW Government should increase its equity to enable State Water to achieve its overall investment grade credit rating of BBB. They claim:

> State Water should not have the benefit of transferring all [the] risk of operating its business to the consumptive user.[202]

Finally, the Split Rock Water Users Association believes that the preservation of State Water's investment grade credit rating of BBB is crucial and that the State Government should increase its equity position in State Water. It believes that placing the cost of achieving a BBB credit rating on present-day irrigators would be punitive.[203]

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198 Gwydir Valley Irrigators Association submission to IPART, April 2010, p 3.
199 Hunter Valley Water Users Association submission to IPART, April 2010, p 1.
200 Lachlan Valley Water submission to IPART, April 2010, p 5.
201 Murrumbidgee Irrigation submission to IPART, April 2010, p 7.
202 Western Murray Irrigation Limited submission to IPART, May 2010, p 2.
203 Split Rock Water Users Association submission to IPART, April 2010, p 1.

12.2.3 State Water proposal to address volatility and achieve BBB status

In their April 2010 submission State Water provided a further option to address the issue of revenue volatility and achieve a credit rating of BBB.

State Water's proposal requires:

- a revenue volatility allowance that effectively establishes an 'unders and overs' account (to keep track of revenue shortfalls and windfalls between determinations) with a negative starting balance of $64.3 million
- an adjusted WACC debt gearing ratio to reflect their individual circumstances.

State Water claim that the effect of the above two actions will lower Treasury's business risk classification for State Water which, along with the combined results of the above actions, will achieve and maintain an investment grade credit rating of BBB.

A crucial aspect of State Water's proposal is that it begins with an account starting balance of negative $64.3 million, which represents a carry-over of shortfalls from the 2006 Determination. State Water calculates its allowance by applying its rate of return of 7.4% to its negative starting account balance of $64.3 million. This creates an annualised allowance of $4.8 million for State Water over the 2010 Determination.

12.2.4 IPART assessment of measures to maintain an investment grade credit rating

State Water reports that the NSW Treasury's Capital Structure Policy requires that Government-owned businesses maintain an appropriate investment grade credit rating.[204] State Water claim it is imperative that an overall investment grade credit rating of BBB be maintained throughout the 2010 Determination.

State Water's proposal effectively establishes an unders and overs account with an initial negative account balance, along with an adjustment to State Water's WACC debt gearing ratio. We have examined this proposal in detail in chapter 4. In summary, our view is that it creates a substantial non-depreciating asset that by its very nature will extend from one determination to the next. We also believe that it is geared heavily in State Water's favour due to a starting point of negative $64.3 million.

Stakeholders are generally of the opinion that there should be increased equity funding from shareholders and/or a deferral of capital expenditure in order to improve State Water's credit rating. The Hunter Valley Water Users Association suggested a combination of increased equity funding and deferment of some of the less critical capital expenditure items in order to maintain satisfactory credit

[204] NSW Treasury Office of Financial Management, Commercial Policy Framework, Capital Structure Policy for Government Businesses, September 2002.

ratings.[205] Lachlan Valley Water also supported larger equity injections from shareholders as the means of maintaining State Water's credit rating.[206]

There is an inherent conflict in setting prices for State Water to attain a BBB credit rating, while being cost reflective and equitable to customers in an environment of significant capital expansion. Under normal competitive market conditions a firm would seek additional equity funding from its shareholders if it wished to maintain its BBB credit rating (while undertaking a substantial capital works program).

Our final determination sets prices to recover State Water's costs with an efficient rate of return set at the midpoint of the WACC range. Under these prices State Water's credit rating falls below BBB in the final 2 years of the determination period. This is largely due to State Water's reliance on debt to fund its significant capital works program that it will undertake over the course of the 2010 Determination. We consider that the decision as to whether an equity injection is required to attain BBB status is a matter for State Water and the NSW Government to resolve.

12.3 Other financial considerations under Section 15

Section 15 requires us to consider the impact of our decisions on the:

- rate of return that State Water is expected to achieve
- level of dividends paid by State Water
- consolidated fund.

The impact of our decision on the considerations above may depend on what course of action, if any, we take to address our concerns in regard to the difficulty to maintain a BBB credit rating over the course of the 2010 Determination. For the purposes of this report these considerations are addressed based on the outcomes of our decision on prices for State Water.

12.3.1 Impact on rate of return

State Water is expected to achieve a real pre-tax rate of return of 7.4% in NPV terms over the course of the 2010 Determination. Achieving this return is based on the assumptions used in our modelling, which include water extractions forecasts.

12.3.2 Payment of dividends

Our modelling has assumed that State Water will maintain a 70% dividend payout ratio in each year of the determination period if the outcomes and targets set out in this report are achieved.

[205] Hunter Valley Water Users' Association submission to IPART, April 2010, p 1.
[206] Lachlan Valley Water submission to IPART, April 2010, p 5.

The exact level of dividends and therefore State Water's financial structure is a matter for negotiation between State Water and the Government. However, we note that it is common when a firm makes a very substantial capital investment that it would seek additional equity funding through the reinvestment of dividends and the like.

Similarly, it is expected that State Water would be supported financially by its shareholder as it undertakes extensive works at the direction of the shareholder. State Water's management needs to have the flexibility in its tax management and dividend policies to better balance its future financial outcomes.

In the short term, the situation may arise where State Water's shareholder may need to accept a lower level of cash from the business to ensure financial sustainability ie, retention of funds in the business in place of higher levels of debt. Alternatively, State Water's stakeholder may have to accept a level of lesser financial performance for a short period of time when capital expenditure levels are abnormally high.

12.3.3 Impact on the Consolidated Fund

We are required to consider the likely impact to the Consolidated Fund if prices are not increased to the maximum levels permitted and the Consolidated Fund is required to compensate State Water for the revenue foregone.

Before tax and dividend payments are considered, the impact on the Consolidated Fund (ie, the compensation it pays to State Water) is one dollar for every one dollar not recovered by State Water. However, if the revenue shortfall forms part of State Water's profit, then the impact on the Consolidated Fund will be depend on the level of tax equivalent and dividends payments returned to the Consolidated Fund.

If this is the case, the impact will depend on Treasury's application of its financial distribution policy and how the change affects after-tax profit. IPART's financial modelling is consistent with a tax rate of 30% for pre-tax profit and dividend payments at 70% of after-tax profit. This means for every one dollar provided by the Consolidated Fund, 30 cents is returned in the form of a tax payment and, of the remaining 70 cents, 49 cents is returned through dividend payment. We calculate that State Water's total payment (tax plus dividends) to the Consolidated Fund is 79 cents (assuming the Consolidated Fund's initial compensation funds State Water's profit).

Revenue impact from capping bills for the North Coast, South Coast and Peel valleys

We consider that it is appropriate to set prices for customers in the North Coast, South Coast and Peel valleys below cost-reflective levels after considering the prices and bills that these customers would face. The shortfall in revenue from these valleys is shown in Table 12.18 below. The likely impact on the consolidated fund is

around $1 million, assuming 79 cents in every dollar of compensation is returned to the consolidated fund.

Table 12.18 Shortfall in required revenue to be recovered from Government ($'000, 2009/10)

Valley	2010/11	2011/12	2012/13	2013/14	NPV 2011-14
Peel	477	365	264	108	1,093
North Coast	728	717	700	669	2,454
South Coast	446	407	373	321	1,358
Total	**1,651**	**1,489**	**1,337**	**1,098**	**4,905**

Note: Columns may not sum due to rounding. Figures for the Peel valley take the revenue volatility allowance into account. The North and South Coast do not have any revenue volatility allowance.

Chapter 8 provides our decision for allocating costs to the Government, on behalf of the community. These costs are set out in Table 12.19 below.

Table 12.19 Revenue requirement from Government ($'000, 2009/10)

Valley	2009/10	2010/11	2011/12	2012/13	2013/14
Total costs to be recovered	26,407	33,225	39,589	45,688	48,356
Government share as percentage of total	31.4%	36.2%	39.5%	42.1%	43.9%
Total costs including shortfall	**26,407**	**34,876**	**41,078**	**47,025**	**49,455**

Note: Column totals may not sum due to rounding.

12.4 Implications for the environment

Our decision has allowed State Water the efficient costs of meeting its environmental obligations which include

- its obligation under the Fisheries Act[207] to conduct its fish passage program
- the obligations imposed on it by the NSW Government's Cabinet strategy to investigate ameliorating the impacts of cold water pollution at high priority dams, where it is technically and economically feasible to do so.

The capital expenditure that we deemed efficient is set out in Table 12.20. There are also ongoing operating expenses associated with these projects that we have recognised in our report, as detailed in Chapter 5.

[207] *Fisheries Act 1994 (NSW)*, Section 218.

Table 12.20 Environmental capital expenditure ($million, 2009/10)

	2010/11	2011/12	2012/13	2013/14
Decision – Fish passage expenditure	5.3	9.8	13.4	2.8
Decision – Cold water pollution expenditure	0.0	0.2	2.0	3.1

12.5 Service standards

We sought to ensure that our decision on prices would not adversely affect the standards of service that State Water delivers to its customers. We have set prices in the expectation that service levels commensurate with the proposed expenditures will be delivered. This will result in improved service delivery in some areas. Cost reductions and efficiency savings will not be obtained at the expense of service standards.

State Water's Act requires it to hold an operating licence that contains performance standards that State Water must meet or risk penalties associated with a breach of licence conditions.

In addition, the 2006 Determination set out a list of reporting obligations to improve the transparency of State Water's costs and enable us and other stakeholders to monitor the outputs and outcomes that it delivered during the determination period.[208] Over the 2006 Determination, State Water has developed systems to fulfil these reporting obligations, and has provided us with several valley-based reports which are published on our website. These reports provide a greater degree of transparency by enabling stakeholders to monitor delivery against forecast outputs and outcomes. We envisage that State Water will continue to provide valley-based reports for its stakeholders.

Our decision has introduced a set of output measures that can be used to assess State Water's progress against the 2010 Determination. These have been developed to reflect the nature of the capital program over the 2010 Determination and the observations of Atkins/Cardno from their review of capital and operating expenditure.

12.6 Output measures for State Water

Decision

28 Our decision is to adopt the set of output measures in Appendix D. These output measures will be used to assess State Water's performance over the 2010 Determination.

[208] 2006 Determination, Appendix 8.

Our draft report requested that State Water provide targets and comments on our proposed output measures. State Water provided comments on the output measures and we have incorporated their feedback in developing the output measures. A list of output measures to assess State Water's performance over the 2010 Determination is set out in Appendix D.

12.6.1 Output measures to assess delivery of service and projects over the 2010 Determination

We directed Atkins/Cardno to develop a set of output measures to assess State Water's performance over the 2010 Determination. We reviewed and adopted the majority of their recommended measures. The output measures for State Water have been developed in conjunction with our decisions on prices for the 2010 Determination. The price increases in the 2010 Determination are required for State Water to achieve certain outputs and service levels in the provision, maintenance and operation of its infrastructure.

The output measures indicate State Water's performance against the targets set by us to determine whether water users do in fact benefit from the provision of services and projects that have been allowed for and funded by this determination. State Water's performance against its output measures will be assessed by us and our consultants at the next price review to determine State Water's performance over the 2010 Determination.

We note that output measures themselves are not definitive targets that must be achieved over the determination period as there may be valid justifications for variance. However, they will enable the assessment of prudent expenditure, and the reporting of variances from targets will be an important consideration for future efficiency reviews.

The output measures that we have set for the 2010 Determination include:

- Milestone dates of major projects such as the dam safety program as these will confirm the required completion dates. If State Water does not meet these dates it will result in customers and the community not benefitting from the outputs at the agreed dates for which funding was allowed.
- The percentage of maintenance jobs on the facilities maintenance and management system (FMMS) as an output measure. The extent to which assets and jobs are included on the FMMS planned maintenance schedules is intended to measure the effectiveness of corrective and routine maintenance. The actual coverage against forecast percentage could then be reported.
- Assessing the existing asset condition profile to see that there has been no deterioration of State Water's asset base. This would provide a measure of the effectiveness of renewal and replacement capital expenditure and provide a broad measure to ensure that State Water is maintaining its assets in the long term.

- A range of environmental output measures. These incorporate measures to assess fish passage and cold water pollution.

These output measures will assist in measuring State Water's progress against its planned outputs and forecasts and will facilitate future efficiency reviews. We require State Water to report against the output measures listed in Appendix D on an annual basis. We will publish State Water's performance against these measures on our website, along with the valley-based reports that State Water is required to provide.

12.6.2 Valley-based reporting

The 2006 Determination required State Water to develop and publish valley-based reports for the purposes of monitoring State Water's delivery against its forecast outputs and outcomes.[209] These reports are reviewed and assessed by us and published on our website. For the 2010 Determination, we expect that State Water will continue to meet the valley based reporting requirements of the 2006 Determination.

State Water's valley based reporting

State Water reports annually to IPART and the Customer Service Committees (CSCs) on:

- the head office costs allocated to each valley and its method of apportionment
- any variation between operating and capital expenditure budgets and actuals (on a valley basis)
- its forecasts of operating and capital expenditure budgets for the next financial year
- its compliance with water sharing plans
- any water use penalties enforcement action undertaken (subject to confidentiality)
- audited consolidated financial accounts (eg, Profit and Loss Statement, Balance Sheet).[210]

State Water also provides the CSCs with biannual valley based reports detailing:

- the revenue collected from water charges
- operating expenditure (including details of all new positions filled for the reporting period and vacancies unfilled) and capital expenditure by activity/product codes
- current year budget.

[209] 2006 Determination, Appendix 8.

[210] These accounts include reconciliation to the regulated component of its business and identify any State Government financial contributions.

In addition, State Water highlights that its 2008-2013 Operating Licence includes several water delivery and compliance performance indicators, against which State Water reports to us and to the CSCs.

Stakeholder comment

Stakeholders have expressed strong support for the continuation of the provision of valley based reporting to CSCs. Stakeholders such as Macquarie River Food and Fibre[211] have highlighted the usefulness and importance of this reporting. Stakeholders state that it informs their understanding of State Water's costs and cost drivers and of State Water's current performance in each valley. For these reasons we request that State Water maintain this reporting for the 2010 Determination.

[211] Macquarie River Food and Fibre, IPART Transcript of Public Hearing – Dubbo, 25 November 2009.

Appendices

A Consideration of stakeholder comments

The following table sets out the key comments submitted by stakeholders (excluding State Water) together with how we addressed those comments in our report.

Table A.1 Stakeholder comments and IPART's response

Issue	IPART response
Most irrigators oppose a 90:10 entitlement to usage charge ratio. Some stakeholders proposed increases to usage charges adopted in the 2006 Determination. The MDBA suggests that there is a rationale to recover revenue entirely from fixed charges.	We consider that a 40:60 entitlement to usage charge is the appropriate price structure for most valleys. A 60:40 ratio has been adopted for the North Coast and Hunter valleys (Section 10.3).
A number of stakeholders have commented on State Water's proposal to add a premium component to the calculation of high security entitlement charges to reflect the large differential that has arisen between the benefits derived from high and general security entitlements over the current period of drought. The premium is supported by stakeholders including the Department of Environment, Climate Change and Water and Murray Irrigation Limited. Conversely, stakeholders including Lachlan Valley Water and Macquarie River Food and Fibre and High Security Irrigators – Murrumbidgee oppose it.	Our decision is to rebalance high and general security entitlement charges by incorporating a high security premium into the calculation of high security entitlement charges to better equate the costs and benefits of high and general security entitlement charges (Section 10.4).
A number of submissions considered that cost reflective prices in the North Coast, South Coast and Peel valleys is impractical and unfair, and not intended to be achieved when the dams were constructed. Stakeholders call for transparent subsidies for these valleys. We were also asked to consider state-wide/nation-wide uniform bulk water prices. There have also been calls to merge the Peel and Namoi valleys. In contrast, stakeholders including the Gwydir Valley Irrigators Association consider that there should be no cross-subsidisation between valleys.	Our decision is to maintain the Peel valley as a separate valley. We consider that uniform prices would result in cross subsidisation across valleys. Our decision is to cap average bill increases for general security customers in the Peel, North Coast and South Coast valleys at 10% real per annum (which also limits average bill increases for high security customers) to mitigate the price impacts that would result from a shift to full cost recovery (Chapter 10). The effect of the 10% cap is that the Government (ie, tax payer) bears the loss rather than other State Water customers.
Western Murray Irrigation submits that charges should be based on an assessment of the economic costs and queries why conveyance and carryover water entitlements do not attract higher premiums.	Our decision maintains the current arrangements for charging conveyance and carryover water (which depend on the high or general security categorisation of the water being used). Both conveyance and carryover water attract an entitlement charge and a usage charge (when the water is used). Our view is that these charges sufficiently recover the cost of supplying this water. We consider that additional storage charges for carryover water are not justified in light of the fact that this water is the first to be lost when dams reach capacity and water is

Issue	IPART response
	spilled.
Several submissions argue that charging arrangements should be extended to the government (on behalf of recreational users), government environmental water holders and water for critical human needs.	Our decision is limited to setting water charges for State Water's customers. This includes environmental water holders who have licensed entitlements with State Water.
Some stakeholders argue that Murray Darling Basin Authority (MDBA) and Border Rivers Commission (BRC) costs should be permanently transferred to the NSW Office of Water.	We have incorporated within State Water's prices in each valley the proportion of MDBA and BRC costs that relate to State Water's activities.
A number of stakeholders have noted that MDBA costs should be subject to scrutiny and include efficiency gains. Some stakeholders submit that the MDBA provides limited benefits to some valleys.	We agree that there is limited transparency regarding MDBA costs. We have applied an efficiency factor of 1.25% real per annum to reflect our discomfort with the lack of transparency that is associated with these costs. It is our opinion that it is unsatisfactory to pass through unspecified costs to users without an independent review of efficiency.
Stakeholders including Lachlan Valley Water, Macquarie River Food and Fibre, NSW Irrigators generally opposed State Water's proposed increases in operating expenditure for the 2010 Determination. They consider that there is scope for further efficiency gains, and expenditure increases should be deferred in light of continuing drought conditions. Stakeholders are generally opposed to State Water's proposed thematic expenditure.	We engaged Atkins/Cardno to provide an independent review of State Water's proposed operating and capital expenditure. Atkins/Cardno recommended a number of efficiencies which we have adopted in our decisions.
DECCW has submitted that the proportion of State Water's budget allocated to environmental water management should increase as revenues from environmental water holders increase. DECCW makes the point that it is important that service levels are maintained for environmental water users. DECCW states that this expenditure should be separately itemised to allow for a review of its efficiency at future determinations.	Our decision allows State Water to recover the efficient and prudent costs of providing its regulated bulk water services. The prices set for State Water reflect the valley-based costs that it incurs in providing its services.
A number of stakeholders including High Security Irrigators – Murrumbidgee, Auscott, Lachlan Valley Water and Murrumbidgee Private Irrigators have queried the prudence of the large forward capital program.	Atkins/Cardno have reviewed State Water's proposed capital expenditure program. Atkins/Cardno have rephased and adjusted State Water's capital expenditure on efficiency grounds. The principal driver of the large capital expenditure is dam safety committee requirements. The resultant expenditures are to be funded in the main by Government (ie, the tax payer).

Issue	IPART response
Some stakeholders including Lachlan Valley Water and Murrumbidgee Irrigation note that State Water has underspent its capital allowance over the current determination period. These stakeholders suggest that IPART review State Water's capital expenditure at a later stage in the review to ensure that only actual expenditure enters the RAB, not an inflated view of forecast expenditure in 2009/10 that does not eventuate. Auscott requests that State Water be held accountable for delivering its proposed capital investments.	In the draft report, State Water's capital expenditure for 2009/10 was adjusted downward based on our view at the time that it was likely to underspend on dam safety capital works by $13 million. However, in their response to the draft report, State Water advised that they were on track to meet their dam safety capital expenditure program and the $13 million adjustment has been removed. State Water's costs are subject to regulatory scrutiny at each price review.
Most stakeholders opposed State Water's proposed changes to the current cost share ratios. Some stakeholders have submitted that there should be changes to the current cost share for: ▼ fish passage works which are triggered as a result of the dam safety upgrade ▼ maintenance on pre-1997 assets ▼ environmental management plan costs ▼ land management costs ▼ environmental and heritage activities ▼ emergency and security thematic expenditure.	We have considered the cost share ratios and have concluded that the current cost shares are the result of extensive review and consultation at previous determinations (in 2001 and 2006). We do not believe that any changes are warranted for the 2010 Determination (Chapter 8).
A number of stakeholders opposed State Water's proposed introduction of a 15-year moving average to forecast water extractions. ▼ The findings of CIE of a structural break conflict with the CSIRO sustainable yields report ▼ The High Security Irrigators-Murrumbidgee consider a move away from the IQQM method does not suit their budgetary expectations and would strengthen State Water's financial position at the expense of customers who are unable to insulate themselves from dry conditions. ▼ Tamworth Regional Council contended that using the 15-year moving average approach would result in excessive water charges if a run of wetter seasons was experienced and water sales increased. ▼ Lachlan Valley Water believes that the proposed 15-year moving average approach is not an accurate indicator of availability or usage for the 2010 Determination because it results in significant time lags in periods of high or	We have considered State Water's proposed 15-year moving average and stakeholder's concerns. We have conducted our own analysis on this issue and conclude that a 20-year moving average provides a better balance between price stability and reflecting more recent extractions data. Our decision sets prices based on 20-year moving averages. We have considered the CSIRO evidence and consider that the timeframe of this study is an inappropriate basis for setting State Water's prices. Further, the moving average approach is a superior method to the IQQM approach, regardless of whether there has been a structural break or not.

Issue	IPART response
low usage that may be significantly different from the current supply conditions. ▼ Lachlan Valley Water considers that CIEs' conclusion that there is a structural break in water availability conflicts with the CSIRO sustainable yields report. ▼ It would strengthen State Water's financial position at the expense of customers who are unable to insulate themselves from dry conditions ▼ Charges would be excessive if a run of wetter seasons was experienced and water sales increased.	
All stakeholders who have commented on the issue of the WACC oppose any increase from the value adopted in the 2006 Determination of 6.5%.	Our decision has adopted a WACC of 7.4%. The WACC has increased because the underlying market parameters (the debt margin, the risk free rate and the inflation adjustment) have been resampled to reflect prevailing market conditions.
Some stakeholders note that while State Water's business may be volatile as a standalone business, it is part of the Government's portfolio of assets. Others submit that the benchmark WACC should not be altered for State Water's circumstances. These circumstances should be addressed through business-specific strategies instead, such as reducing expenditure in times of drought.	We set a rate of return with reference to a benchmark standalone water utility. State Water is a state-owned corporation and has a responsibility to its shareholders to recover its efficient costs, including a return on investment. We agree that the benchmark WACC should not be altered for State Water's circumstances. We have excluded business-specific risk from the WACC.
Stakeholders including High Security Irrigators – Murrumbidgee and Macquarie River Food and Fibre consider that the WACC is adequate as State Water received a positive return in a severe drought, a result that was not always attained by State Water's customers.	State Water did not earn our determined level of returns over the 2006 Determination. We aim to set prices to provide State Water with its efficient costs, including the cost of capital.
Murray Irrigation and Gwydir Valley Irrigators Council consider that including a rate of return in prices places NSW irrigators at a competitive disadvantage to their interstate counterparts.	We have no authority to set prices in other states to include an appropriate rate of return in water prices. We note that all states are signatories to the COAG agreement to set prices to include this return.
NSW Irrigators' Council opposes a change to the asset beta as the revenue risk also has an upside.	Our decision does not address revenue risk through a change in the equity beta. We have introduced a revenue volatility adjustment which recognises that revenue risk has an upside (Chapter 4).
Murrumbidgee Irrigation considers that if State Water's proposed changes to the gearing level prove to be realistic, offsetting change should be made to the equity beta.	We have maintained State Water's level of gearing of 60% in our final report.

Issue	IPART response
Some stakeholders have submitted that it is inappropriate to take a short term view of market based parameters when setting the WACC.	We have sampled market-based parameters over a 20 day trading period as close as practical to the decision. This approach is designed to set a rate of return based on prevailing market conditions removing daily volatility.
Stakeholders note that State Water's revenue volatility can result in either over- or under-recovery of State Water's revenue requirement. Murrumbidgee Irrigation considers that State Water has overstated the effects of revenue volatility. Inland Rivers Network proposes a way for State Water to manage revenue volatility whereby entitlement charges and usage charges are changed in an inverse manner to the amount of water available for allocation	We have investigated the extent of State Water's revenue volatility over a number of regulatory periods. We consider that State Water incurs costs of bearing revenue volatility and have provided State Water with a revenue volatility allowance.
Some stakeholders including Murray Irrigation oppose reductions to irrigation corporation rebates as circumstances have not changed since the previous determination. Lachlan Valley Water submits that rebates should reduce as irrigators 'transform' their licence and cost savings reduce. Contrary to this, Western Murray Irrigation considers that it is inappropriate to reduce rebates on these grounds. Murray Irrigation proposes that rebates are maintained at their current level, adjusted for CPI. The NSW Department of Environment, Climate Change and Water submits that rebates for large customers should be extended to large environmental water holders.	Our decision is to maintain the avoided cost approach used in the 2006 Determination. Rebates have been recalculated under this approach to reflect the costs that ICDs will avoid for State Water over the 2010 Determination. Our decision is to reduce rebates as irrigators transform their entitlements out of ICDs, to reflect the lower avoided costs that ICDs provide to State Water. Rebates have not been provided for large environmental customers as these customers do not avoid any costs for State Water when it provides bulk water services (Chapter 10).
Most stakeholders have highlighted the impacts of State Water's proposed price increases on customers and the community. Many submissions claim that the proposed price increases would make irrigation in their respective valleys unviable and pointed out that there would be considerable flow-on effects to other industries if irrigators had to cease operations. John and Joan Bailey note that farmers are unable to increase product prices when water prices rise. Stakeholders including Bega Cheese and the NSW Irrigators' Council proposed price increase caps.	We are required under the National Water Initiative to set prices that reflect the cost of providing State Water's services. We have considered bills as a percentage of total farm costs and capped bills for the North Coast, South Coast and Peel valleys. We consider that the prices that we have set balance the objectives of Section 15 of the IPART Act.

Issue	IPART response
High Security Irrigators – Murrumbidgee submit that the effect of small water price increases is not small as it needs to be considered with increases in the cost of other inputs of production. Auscott considers that State Water's proposed prices are unreasonable when compared to CPI. A contrary view is presented by the Inland Rivers Network, who suggests that prices should be set to allow State Water an assured income. If customers are unwilling to accept cost reflective prices: ▼ customers have the option of selling their permanent water entitlement ▼ Government may need to terminate water delivery to these customers.	
A number of submissions propose that irrigators should not have to pay fixed charges when they receive low or zero water allocations.	Our decision maintains the 40:60 entitlement to usage tariff structure which was largely supported by State Water's customers. This requires State Water's customers to pay fixed charges regardless of water allocations. Following a recent Government announcement, the fixed entitlement charge is paid for by the Government for water users who do not receive any allocations for 3 or more years.
Some submissions also requested that a P-nought or glide path approach to modelling prices be adopted as a means of mitigating price impacts on customers and reducing price shocks.	We have used a smoothed NPV-neutral approach to set prices for the 2010 Determination.
Bega Valley Water Users are concerned with State Water's cost claims and request a review of their legitimacy.	Atkins/Cardno provided an independent review of State Water's operating and capital expenditure. State Water's expenditures have been assessed by us for efficiency and prudency.
The Department of the Environment, Water, Heritage and the Arts submits that State Water's proposal to bill usage charges for interstate trades at the point of transfer may create trade distortions.	Our view is that State Water's interstate billing practices are a matter for State Water. Our decisions do not present a barrier for State Water to recover usage charges from the seller where the buyer does not have an account with State Water. Furthermore, our view is that market distortions are created when the costs of the usage charge are not reflected in the sale price of the interstate transaction. Any purchaser of water who does not pay a price which incorporates both the entitlement and usage components for water will pay a price that does not reflect the cost of providing the water, and so will overstate their demand which will

Issue	IPART response
	lead to a distortion of efficient market outcomes.
Gwydir Valley Irrigators notes that State Water is borrowing to fund significant dam safety up-grade expenditure, which is placing State Water's credit rating at risk.	We note that State Water's large forward capital program is expected to compromise State Water's credit rating. We have suggested a number of ways to address this situation.
Stakeholders generally support a 4-year determination period.	Our decision is to set prices for a 4-year period.
Stakeholders including Murray Irrigation have submitted that State Water's proposed changes to asset lives (for depreciation purposes) appear arbitrary.	Our decision is to maintain the current asset life of 160 years for existing assets and 75 years for new assets (Chapter 7).
Stakeholders believed that a higher WACC than the previous determination, the shift from the IQQM model to a 20-year moving average for forecasting extractions and the inclusion of a revenue volatility allowance in the State Water determination and report represent double or triple counting in dealing with revenue volatility.	The use of the WACC to determine a return on assets is completely independent of decisions on revenue volatility and is based on market parameters. The decision to use a 20-year moving average to forecast water extractions is aimed at providing more accurate forecasts of water extractions that reflect recent extraction conditions. Our decision to adopt a revenue volatility allowance is designed to compensate State Water for the holding costs of debt should they experience revenue under-recovery.
In order to improve State Water's credit rating stakeholders suggested there should be increased equity funding from shareholders and deferral of less critical capital expenditure.	Our report outlines that these options are available to State Water. However, IPART is not in a position to make decisions on the level of State Water's equity funding from shareholders. Additionally, a large portion of capital expenditure is on dam safety compliance, which State Water is required to undertake according to recommendations from the dam safety committee. We are therefore restricted in our ability to implement changes to State Water's equity funding or capital expenditure.
Tamworth Regional Council expressed concern over the large increase in prices in the Peel valley. Tamworth's concerns relate to the effect that the determination's price increases will have on their urban water customers.	The determination has capped average valley bill increases for general security customers in the Peel at 10% (which also restrains high security customer's bills through the relationship between high and general security charges). This is in recognition of the fact that the absolute level of bills is higher than in most other valleys. The percentage increases are less for Tamworth than many other valleys.

B Matters to be considered by IPART under section 15 of the IPART Act

In making determinations, IPART is required by the IPART Act to have regard to the following matters (in addition to any other matters IPART considers relevant):

i) the cost of providing the services concerned

ii) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services

iii) the appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales

iv) the effect on general price inflation over the medium term

v) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers

vi) the need to maintain ecologically sustainable development (within the meaning of section 6 of the *Protection of the Environment Administration Act 1991*) by appropriate pricing policies that take account of all the feasible options available to protect the environment

vii) the impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets

viii) the impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body

ix) the need to promote competition in the supply of the services concerned

x) considerations of demand management (including levels of demand) and least cost planning

xi) the social impact of the determinations and recommendations

xii) standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

Table B.1 outlines the sections of the report that address each matter.

Table B.1 Consideration of Section 15 matters by IPART

Section 15(1)	Report Reference
a) the cost of providing the services	Chapters 4, 5, 6 and 7
b) the protection of consumers from abuses of monopoly power	Chapter 10, 11 and 12
c) the appropriate rate of return and dividends	Chapter 7, 12 and Appendix A
d) the effect on general price inflation	Chapter 12
e) the need for greater efficiency in the supply of services	Chapters 3, 4, 5 and 6
f) ecologically sustainable development	Chapter 12
g) the impact on borrowing, capital and dividend requirements	Chapter 12
h) impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body	Not applicable
i) need to promote competition	Not applicable
j) considerations of demand management and least cost planning	Chapter 5 and 6
k) the social impact	Chapter 12
l) standards of quality, reliability and safety	Chapter 2, 4, 5, 6 and 12

C Weighted Average Cost of Capital (WACC)

There are several approaches for calculating the return on capital on the regulated asset base (RAB). Our preferred approach is to use the weighted average cost of capital (WACC) to determine an appropriate range for the rate of return. A point estimate of the WACC is selected from this range. The WACC for a business is the expected cost of its various classes of capital (debt and equity), weighted to take into account the relative share of debt and equity in the total capital structure.

In making our decision for the WACC, we considered and made decisions on a number of input parameters to determine the appropriate range for the WACC. We then made a decision on the appropriate point within the range for our purposes in making the determination.

C.1 Overview of IPART's decision on the WACC for State Water

Decision

29 Our decision is that for the purposes of calculating the allowance for a return on assets, a real pre-tax WACC of 7.4% will be applied.

A WACC of 7.4% is the midpoint of the range, calculated using parameters detailed in Table C.1.

Table C.1 Decision on the rate of return range and parameters

WACC Parameters	State Water's proposed WACC	Value
Nominal risk free rate[a]	4.3%	5.6%
Inflation[a]	2.5%	2.9%
Market risk premium	6.0%	5.5% – 6.5%
Debt margin[a]	3.15%	2.0% - 3.8%
Debt to total assets	30%	60%
Dividend imputation factor (gamma)	0.4	0.5 – 0.3
Tax rate	30%	30%
Equity beta	0.9	0.8 -1.0
Cost of equity (nominal post tax)	9.8%	10.0% - 12.1%
Cost of debt (nominal pre-tax)	7.5%	7.7% - 9.4%
WACC range (real pre-tax)	NA	6.3% - 8.6%
WACC (real pre-tax) mid-point	**7.9%**	**7.4%**

[a] Reflects market data sampled over the 20 days to 18 January 2010. These will be updated to reflect market conditions at the time of the final determination.

Source: State Water submission p 5-4, Bloomberg, IPART analysis.

State Water's preferred WACC proposal is shown in Table C.1. State Water has proposed a 7.9% real pre-tax WACC, contingent on retaining the 40:60 entitlement to variable tariff structure.

State Water submits that our established WACC parameters used in other water determinations are:

> …predicated on low business risk assumptions normally associated with metropolitan water businesses with stable and predictable regulated cash flows.[212]

State Water seeks adjustment to the WACC parameters on the basis that its cash flows are subject to significant revenue volatility, arguing that the level of business risk it faces is much greater in comparison to metropolitan water agencies that we regulate.

[212] State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 5-3.

Submissions from stakeholders strongly oppose an increase to the rate of return.[213] Stakeholders justify their opposition to increases in the WACC through several arguments. Stakeholders claim:

- State Water should follow the example of its customers and formulate and implement a firm-specific strategy to deal with the challenges of the drought rather than requesting a higher rate of return.[214]
- State Water's business may be volatile as a standalone business. However, it is part of the Government's portfolio of assets.[215]
- State Water received a positive (albeit low) return in a severe drought. This was not always attained by State Water's customers. Therefore the WACC determined in 2006 (set using our standard parameter valuations) is adequate.[216]
- Revenue volatility does not justify an increase in the WACC because it can result in either over- or under-recovery of State Water's revenue requirement.[217]
- Including a rate of return in prices places NSW irrigators at a competitive disadvantage to their interstate counterparts.[218]
- State Water is government-owned and therefore should benefit from tax-payer support.[219]
- Some stakeholders submitted that short-term views of market-based parameters may be inappropriate because the returns apply to long-lived assets.[220]

Our view is that it is preferable to address State Water's revenue volatility through an explicit allowance in State Water's cash flows, rather than increasing the rate of return to apply to capital investments made within State Water's business. As the creation of a volatility allowance has addressed this risk we have excluded this business-specific risk from State Water's WACC calculation.

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213 For example NSW Irrigators' Council, Murrumbidgee Private Irrigators and Auscott.

214 Murrumbidgee Irrigation submission to IPART, October 2009, p 8.

215 Gwydir Valley Irrigators Council submission to IPART, October 2009, p 21.

216 Murrumbidgee Private Irrigators Inc submission to IPART, October 2009, p 2; High Security Irrigators – Murrumbidgee submission to IPART, October 2009, p 2; Macquarie River Food and Fibre submission to IPART, October 2009, p 3.

217 See for example NSW Irrigators' Council submission to IPART, October 2009, pp 13, 22, 24; Macquarie River Food and Fibre submission to IPART, October 2009, p 9; Gwydir Valley Irrigators Association submission to IPART, October 2009, p 20; High Security Irrigators – Murrumbidgee submission to IPART, October 2009, p 2.

218 Murray Irrigation submission to IPART, p 1 and Gwydir Valley Irrigators Council submission to IPART, October 2009, p 19.

219 Auscott submission to IPART, October 2009, p 4.

220 NSW Irrigators' Council submission to IPART, October 2009, p 23.

C.1.1 Nominal risk free rate and inflation

The 20-day average of the yield on nominal Commonwealth Government bonds and the inflation adjustment from swap market data sampled over the 20 days to 18 January 2010 are shown in Table C.2. State Water supports this approach.[221]

Table C.2 Risk free rate and inflation adjustment

Parameter	Value
Nominal risk free rate	5.6%
Inflation adjustment	2.9%

Source: Australian Financial Review, Bloomberg and IPART analysis.

C.1.2 Debt margin

State Water has proposed a debt margin of 3.15%, equivalent to the mid-point of the range used by IPART in its recent metropolitan water decisions. State Water raises concerns that the portfolio of proxy corporate bonds may understate the cost of debt as the sample contains bonds with maturity periods shorter than 10 years.[222] Murrumbidgee Irrigation submitted that the proposed debt margin of 3.15% appears high and suggests that offsetting changes should be made to the cost of equity.[223]

For the final determination we have set the debt margin with reference to the 'traditional universe' of securities.[224] We note that the yield of one of the bonds in this sample, the Coles bond, may cause a downward bias in the debt margin. We have excluded this bond from the sample of proxies.

C.1.3 Equity beta and gearing

State Water's proposal includes adjustments to the equity beta and gearing to compensate for revenue volatility. As noted above, this has been addressed through the volatility allowance. Some stakeholders[225] note that State Water intends to increase its debt over the 2010 Determination.

221 State Water Corporation submission to IPART 2010 Pricing Determination, September 2009, p 5-4.
222 Ibid.
223 Murrumbidgee Irrigation submission to IPART, September 2009, p 4.
224 The traditional universe comprises Coles, GPT, Snowy Hydro and Santos bonds and the 7-year BBB Bloomberg fair value yield curve.
225 See for example submissions from Inland Rivers Network, October 2009, p 1 and Gwydir Valley Irrigators, October 2009, p 21.

We have considered whether it was appropriate to adopt the standard level of gearing and equity beta that we typically use for water businesses, once revenue volatility is addressed in State Water's cash flows. Our practice is to set WACC parameters based on a benchmark efficient bulk water business – to represent State Water's efficient opportunity cost of capital. Our conclusion is that a 60% gearing assumption and an equity beta within the range of 0.8 to 1.0 is appropriate to estimate the cost of capital for a benchmark efficient bulk water business.

C.1.4 Market risk premium, gamma and tax rate

State Water's proposal adopts the midpoint of our standard valuation for the market risk premium and the dividend imputation factor (gamma). State Water has proposed our standard value for the tax rate. Our decision adopts our parameter valuations of:

- a market risk premium of 5.5% to 6.5%
- a gamma value of 0.5 to 0.3
- a tax rate of 30%.

D Output measures for the 2010 Determination

We directed Atkins/Cardno to develop a set of output measures to assess State Water's performance over the 2010 Determination. The output measures are intended to be used as a means of measuring the performance of State Water's business. We request that State Water report annually on the output measures shown in Table D.1 to provide regular updated information on State Water's performance.

Table D.1 State Water output measures for 2010 Determination

Category	Output Measure	2010/11	2011/12	2012/13	2013/14
Operating – Facilities Maintenance Management System (FMMS)	State Water is to report on the:				
	extent of maintenance jobs planned on FMMS (%)	30%	45%	60%	75%
	number planned jobs completed per annum	1066	1226	1410	1621
	State Water to report on the number of backlog jobs at 30 June each year, excluding surveillance audit jobs. As at 1January 2010, the backlog was 700 jobs. In the future, the time to resolve the jobs could also be provided.	50% reduction from 1 January 2010 backlog.	A further 25 % reduction	No change	No change
Maintenance – asset condition profile	Atkins/Cardno have provided a measure of asset condition.[a] This measure provides a condition profile of State Water's RAB. State Water should report against this measure.	No deterioration	No deterioration	No deterioration	No deterioration
Maintenance – Completion of dam safety schemes	State Water should report against the proposed construction program and key milestone dates for each project: design completion, award of the construction contract and completion of construction				
	Blowering dam	Project complete			
	Burrendong dam	Design complete	Award contract	Project complete	
	Chaffey dam	Award contract	Project complete		
	Copeton dam	Design complete	Award contract	Project complete	
	Keepit dam	Design complete	Award contract	Project complete	
	Split rock dam	Design complete	Award contract	Project complete	

Category	Output Measure	2010/11	2011/12	2012/13	2013/14
	Wyangala dam	Design complete		Award contract	Project complete
Telemetry	State Water is to report on the number and percentage of key sites with remote monitoring for observation and control of assets.	15 dams (83%)	3 dams (100%)		
		43 Weirs and Regulators (83%)	14 Weirs and Regulators (100%)		
	Automation of key sites – this is the second stage of the iSMART project which will rationalise the existing telemetry infrastructure to ensure that full benefit of the iSMART project is realised.	9 Dams (69%)	1 Dam (77%)	0 Dams (77%)	3 Dams (100%)
		14 Weirs and regulators (30%)	22 Weirs and regulators (76%)	4 Weirs and Regulators (85%)	7 Weirs and Regulators (100%)
Environmental – fish passes	Surveillance monitoring works – This project phase relates installation of new dam and weir instrumented surveillance systems to ensure that full benefit of the iSMART project is realised	7 dams (58%)	5 dams (100%)		
		21 Weirs and regulators (40%)	17 Weirs and regulators (77%)	11 Weirs and regulators (94%)	3 Weirs and regulators (100%)
	State Water is to report on the total length of river open to fish. This is to be measured by valley, length and year.		Macquarie 380 kms	Murrumbidgee 210 kms	Gywdir 368 kms
			Lachlan 519 kms		Namoi 340 kms
Environmental – cold water pollution	For valleys where Cold Water Pollution works are undertaken State Water is to achieve satisfactory performance by scheduled date as defined by:				
	achieving a 60% compliance with the 20th to 80th percentile range (would require at least 18 days observations to be within the range for a 31 day month)				
	achieving a 90% compliance with the 5th to 95th percentile range (would require at least 27 days observations to be within the range for a 31 day month)				
	no observations outside the range of +/-3 standard deviations.				

Category	Output Measure	2010/11	2011/12	2012/13	2013/14
Water Delivery – Expenditure to enhance the water delivery operations	State Water is developing performance indicators for water delivery for each valley. These indicators will be rolled up to a state total.	Establish water delivery performance indicators and benchmarks in each major valley based on historical performance.	Set performance improvement targets for each valley. Measure and report performance against performance indicators.	Measure performance against performance indicator targets.	Measure performance against performance indicator targets.

a Atkins/Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation – Final Report*, November 2009, p 38.

Glossary

2006 Determination	Bulk Water Prices for State Water Corporation and Water Administration Ministerial Corporation from 1 October 2006 to 30 June 2010 (Determination No 4, 2006).
2006 Determination period	The period from 1 October 2006 to 30 June 2010, as set in the 2006 Determination.
2010 Determination	The period commencing 1 July 2010 and extending to 30 June 2014. Also refers to the legal pricing determination set by us that applies to the same period.
Act	*State Water Corporation Act 2004*
Atkins/Cardno	WS Atkins International (Australia) Limited, in association with Cardno (Queensland) Pty.
CIE	Centre for International Economics
COAG	Council of Australian Governments
current determination	The period from 1 October 2006 to 30 June 2010, as set in the 2006 Determination.
CPI	Consumer Price Index
CSIRO	The Commonwealth Scientific and Industrial Research Organisation
DBBRC	Dumaresq-Barwon Border River Commission
DECC	NSW Department of Environment and Climate Change
determination	Price limits (maximum prices) set by IPART for a given period (determination period)
DEWHA	Commonwealth Department of Environment, Water, Heritage and the Arts

DWE	NSW Department of Water and Energy (currently NOW)
Extractions	The taking of water from State Water's regulated rivers for the purposes of irrigation, town water supply, use as an input for power stations, supplying stock and domestic users or any other use.
Fish River Scheme	Fish River Water Supply Scheme
GL	Gigalitre
HSI-M	High Security Irrigators - Murrumbidgee
ICDs	Irrigation Corporations and Districts
IPART	Independent Pricing and Regulatory Tribunal of NSW
IPART Act	*Independent Pricing and Regulatory Tribunal Act 1992*
IQQM	Integrated Quantity and Quality Model
LRA	Long run average
MDBA	Murray-Darling Basin Authority
Minister	Minister for Water
ML	Megalitre
NOW	New South Wales Office of Water
NPV	Net Present Value
NSWIC	New South Wales Irrigators Council
NWI	National Water Initiative
RAB	Regulatory Asset Base
State Water	State Water Corporation
SWC Act	*State Water Corporation Act 2004*
Tribunal	Independent Pricing and Regulatory Tribunal of NSW
Upcoming determination period	the period commencing 1 July 2010

WACC	Weighted Average Cost of Capital
WAL	Water Access Licence
WAMC	Water Administration Ministerial Corporation
WMA	*Water Management Act 2000*
WRM	Water Resource Management
YACTAC	Yanco Creek and Tributaries Advisory Council