



Independent Pricing and Regulatory Tribunal

Review of Rural Water Charging Systems

Water — Final Report
August 2012



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The Tribunal members for this review are:

Dr Peter J Boxall AO, Chairman

Mr James Cox PSM, Chief Executive Officer and Full Time Member

Inquiries regarding this document should be directed to a staff member:

Chen Chou (02) 9290 8428

Alex Kelty (02) 9290 8499

Joyce Tapper (02) 9290 8464

Independent Pricing and Regulatory Tribunal of New South Wales

PO Box Q290, QVB Post Office NSW 1230

Level 8, 1 Market Street, Sydney NSW 2000

T (02) 9290 8400 F (02) 9290 2061

www.ipart.nsw.gov.au

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1 Executive summary

1.1 Introduction

In May 2012, the NSW Government asked IPART to conduct a review into bulk water charges to:¹

- ▼ examine options for the billing of bulk water charges that might be better matched to business cash flows
- ▼ identify options for determining the NSW Government's cost share for the Australian Competition and Consumer Commission's (ACCC) determined bulk water charges in NSW, which may include a role for IPART
- ▼ make recommendations that will assist the NSW Government to maintain viable and economically sustainable provision of services to customers, taking into account the potential impact of future pricing arrangements on customers, the State Water Corporation (State Water) and the NSW Office of Water (NOW).

In making recommendations we have been asked to consider:

- ▼ the cash flows, revenues streams and forward business planning of State Water and NOW
- ▼ the NSW Government's financial position
- ▼ statutory or policy barriers to implementation
- ▼ the NSW Government's Commission of Audit into public sector management.

The NSW Government and State Water may use the recommendations from this review to inform State Water's first price submission to the ACCC. From 1 July 2014, the ACCC will be responsible for price determinations for State Water's operations in regulated rivers in the Murray-Darling Basin under the Commonwealth *Water Act 2007*.

¹ Terms of Reference for the review rural water charging systems, http://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Rural_Water/Review_of_Rural_Water_Charging_Systems_2012/25_May_2012_-_Terms_of_Reference/Terms_of_Reference_-_Section_9_-_Rural_Water_Charging_System_Review_-_May_2012.

As part of this review, we held workshops in Griffith and Narrabri in early June 2012. Later in June, we released a discussion paper setting out our initial analysis and preliminary views. On 3 July 2012, we held a public hearing in Sydney to gather stakeholders' responses to our preliminary views. Our draft recommendations were released for public consultation on 23 July 2012, and submissions were received.

This report sets out our final recommendations to Government, taking into account our analysis and stakeholders' input during the public consultation process.

1.2 Billing of bulk water charges

In this review, we examined the relationship between water availability and customers' cash flows and explored ways the billing of bulk water charges might be better matched to business cash flows. We explored options for changes to:

- ▼ bill payment terms
- ▼ tariff structures – the ratio of fixed to variable costs, and
- ▼ the volatility allowance.

We recommend that the current tariff structures for NOW and State Water, combined with a conditional deferral of payment for fixed charges would better match most customers' cash flows in times of low water availability, whilst minimising negative impacts on State Water, NOW and the State Budget. We also recommend that State Water investigate offering a 90:10 fixed to variable tariff structure for specific customers.

We have focused our analysis on farm cash flows as it is specified in the Terms of Reference for this review.

In this paper, our recommendations on maintaining current tariff structures for State Water and NOW cover the full suite of tariffs charged by State Water and NOW. We have focused on the key tariff design of 40:60 fixed to variable for State Water and 70:30 fixed to variable for NOW, where a meter has been installed and 100% fixed where usage is not metered.

1.2.1 Bill payment terms

Our view is that a deferral of payment of fixed charges (with interest) is the most direct and simple way to reduce any negative cash flow impacts on customers during times of low water availability.

Some stakeholders argued for a waiver of fixed water charges, rather than our recommendation of a deferral in times of low water availability. Our view is that a waiver of fixed charges results in a negative impact on State Water and NOW's finances and the State Budget, and thus does not meet the requirements of the Terms of Reference for this review. Our view is that such a waiver would comprise an element of drought response policy which is for the Government to determine and not the subject of this review.²

The deferral of payment policy could be triggered when specific conditions are met or can be targeted at specific groups of customers (for example, by water source type, entitlement type or valley). The following sections outline our analysis and recommendations of such triggers for regulated rivers, unregulated rivers and groundwater sources.

Regulated rivers – both State Water and NOW charges

To define the trigger options, we initially conducted analysis to estimate the point at which income from water allocation trading³ would cease to cover fixed water charges for typical businesses. Selling seasonal allocations provides customers some flexibility in managing their cash flows. Based on this analysis, we identified 3 possible trigger options for detailed analysis of impact on farm cash flows and the potential administrative burden and financial impact on State Water and NOW. The trigger options we analysed were:

- ▼ option 1 - 2 consecutive years of zero allocation
- ▼ option 2 - 2 consecutive years of less than 5% of cumulative available water determinations at financial year end
- ▼ option 3 - 3 consecutive years of less than 5% of cumulative available water determinations at financial year end.

We recommend that customers should be able to choose to defer fixed charges with interest once there are 2 consecutive years of cumulative available water determinations at financial year end of below 5%⁴ (option 2). Our recommendation takes into account the negative impact of regulated water prices on farm cash flows from low water availability, the ability for customers to trade water allocations and the administrative burden on State Water and NOW on a deferral arrangement.

² Appendix B provides information on drought assistance measures and State Water and NOW's hardship policy.

³ Water allocation assignments.

⁴ Expressed as a percentage of the share component of a Water Access Licence.

We recommend that the interest rate charged on the deferred fixed water charges should be an appropriate estimate of State Water's holding costs, including any administration costs. Our view is that the interest rate should be set at the prescribed rate at which interest is payable under section 101(7) of the *Civil Procedure Act 2005* (NSW) (referred to in this report as the Supreme Court post-judgement rate) plus 2% as an appropriate estimate of State Water and NOW's holding and administration costs. We recommend the deferral period be no more than 2 years, having regard to the debt management costs of both State Water and NOW.

Our recommendations on a deferral arrangement will have implications for NOW and the State Budget during the deferral period, but has a neutral impact over time once the outstanding bill is repaid. NOW can seek a Treasurer's Advance from Treasury to cover the revenue shortfall during the deferral period, to be repaid to Treasury once customers repay the outstanding bills. Our recommendation of an interest charge on the deferred bill also means NOW and hence the Government's holding costs are covered.

Unregulated rivers – NOW charges only

Water availability on unregulated rivers can be highly variable and is dependent on local conditions and local rules for water access licence management. The water allocation process in unregulated rivers is different to that used in regulated rivers. As such, trigger levels based on available water determinations (such as those considered for regulated rivers) are not appropriate for unregulated rivers.

We recognise there are complexities in developing deferral arrangements that can be applied equally to all users in unregulated rivers and there is currently less information about water availability in unregulated rivers to inform a recommendation on trigger levels. However, as there over 21,000 licences in unregulated river systems, we recommend NOW develop a conditional deferral of fixed charges policy for unregulated river customers, informed by the following:

- ▼ for unregulated river customers that are on the minimum bill (currently set at an annual charge of \$95) - the deferral arrangement is not available
- ▼ for unregulated river customers that have meters installed and are subject to a water sharing plan - an option for customers to defer payment of fixed charges once there are 2 consecutive years where extraction is less than 5% of the LTAEL as defined in the water sharing plan
- ▼ for unregulated river customers that do not have meters installed - the deferral arrangement is available subject to assessment by NOW on application from customers
- ▼ interest rate applied to be the prescribed rate at which interest is payable under section 101(7) of the *Civil Procedure Act 2005* (NSW), plus 2%

- ▼ deferral period of no more than 2 years.

Groundwater – NOW charges only

Groundwater is managed by setting long term average annual extraction limits based on recharge estimates. In general, groundwater is less sensitive to short term variability driven by seasonal conditions than surface water. Given this, we do not consider a deferral of fixed charges arrangement is necessary for groundwater sources.

1.2.2 Tariff structures

Currently, prices for State Water's general security customers are based on a fixed to variable charge ratio of 40:60 with a revenue volatility allowance. NOW's general security entitlement prices are set using a fixed to variable ratio of 70:30 where a meter is installed, and 100% fixed where usage is not metered. We consider that the current tariff structures for State Water and NOW provide a fair sharing of risk between the service providers and customers.

In this review we have focused analysis on options to alter the tariff structure for State Water's prices. This is because NOW's charges generally make up a smaller proportion of water users' bills in regulated systems. In unregulated and groundwater systems, until more users are metered, the case for change of tariff structure is not clear or practical, nor is it advocated by stakeholders.

Analysis of options

We analysed 4 tariff structure options for State Water:

- ▼ option 1 - the current 40:60 fixed to variable tariff structure, with a volatility allowance for all customers
- ▼ option 2 - a fixed to variable ratio of 90:10, for all customers
- ▼ option 3 - a choice of high (90:10) or low (40:60, with volatility allowance)⁵ fixed charges for all customers
- ▼ option 4 - current 40:60 fixed to variable tariff structure for most customers, and a 90% fixed charge for specified licence holders that meet a set criteria established by State Water.

We analysed the impact on State Water's customers of the first 2 options, and found the total annual water charges paid by customers is significantly less in times of low water availability under a 40:60 tariff structure than under a 90:10 tariff structure. In some valleys where water availability is more variable, a 40:60 tariff structure is particularly beneficial.

⁵ Volatility allowance is calculated in the same way as per the 2010 Price Determination for State Water.

Analysis of the impact of option 1 (40:60, with volatility allowance) and option 2 (90:10) on State Water over a 20-year period showed a 2% difference in State Water's cumulative revenue. This suggests that, over the longer term, there is no material impact on State Water's revenue from adopting either of those 2 tariff options.

Our analysis of option 3 (choice between 90:10 or 40:60) showed that this creates an additional level of uncertainty to State Water's revenue stream. Furthermore, there are administrative costs (such as additional billing and customer support costs), trading complexities and risks associated with inherent incentives for customers to make arbitrage gains, at the expense of State Water.⁶

Our exploration of option 4 (40:60 for most customers, negotiated 90:10 for specified customers) was triggered by expressions of preference for such a tariff structure by large government customers, including the Commonwealth Environmental Water Holder and the NSW Office of Environment and Heritage. Option 4 is beneficial to all users, but as it is limited to specified licence holders, this option is administratively simpler than option 3, and there is less scope for any arbitrage.

More work is needed to scope the implementation of option 4. We recommend State Water give substance to this opportunity in the first instance with government environmental water holders, prior to submitting its proposal to the ACCC for the 2014 price determination. We also recommend State Water explore extending the 90:10 fixed to variable tariff structure to other specified customers in time.

Volatility allowance

In a commercial environment, firms may choose to insure against the risk of revenue volatility and incorporate the cost of insurance into prices. In our 2010 determination for State Water, we included a volatility allowance as a mechanism to take account of revenue volatility in the price review. We consider a volatility allowance under a 40:60 tariff structure for State Water appropriate to reflect the risk premium to State Water for taking on additional revenue volatility under this tariff structure.

We examined how the revenue volatility allowance could be implemented under the ACCC's review process. In our 2010 Determination for State Water, we calculated the volatility allowance based on holding costs to cover the revenue volatility over the 4 years of the determination period.⁷ Given that the ACCC will annually review prices with updated consumption forecasts, our view is that there is a case for calculating the volatility allowance to cover annual holding

⁶ State Water submission to the Review of Rural Water Charging System Discussion Paper, 10 July 2012, p 8.

⁷ IPART, *Review of bulk water charges for State Water Corporation From 1 July 2010 to 30 June 2014 – Final Report*, June 2010, pp 50-60.

costs only, rather than holding costs over 4 years. Our analysis shows that, using our 2010 Determination for State Water, such a change would result in the current annual allowance of \$2.2 million being reduced to \$930,000.⁸

We examined the loss capitalisation approach proposed by State Water for dealing with revenue volatility. The loss capitalisation approach involves estimating revenue shortfalls and capitalising this in the regulated asset base. We consider this approach to be more complex and less transparent than the volatility allowance approach.

Our recommendation on a tariff structure for State Water is a 40:60 fixed to variable ratio with a volatility allowance for annual holding costs. There is not a material impact on State Water's revenues between a 40:60 with a volatility allowance and 90:10 fixed to variable tariff structure over the longer term. In addition, a 40:60 tariff structure provides benefits to water users in times of low water availability.

1.3 Cost shares

Under ACCC's determination process, State Water's prices in the Murray-Darling Basin will be set based on efficient costs, taking into account contributions from sources other than users. The ACCC expects the NSW Government's cost share of activities, and any subsidies to users, to be known at the time it sets State Water's prices.

In this review, we explored options to enable the NSW Government to determine the amount of government contribution prior to the ACCC price review process. These included options for determining:

- ▼ government cost shares, and
- ▼ the subsidy (community service obligation) in the Peel Valley, where users' share of costs is under-recovered.

We recommend the continuation of our current approach to determining government costs shares, using the cost sharing ratios applied in our 2010 Determination for State Water until 1 July 2017. We recommend that we would review the cost share ratios every two years after 2017.

We recommend progressively increasing the average Peel Valley bill by 5% per annum until full cost recovery is achieved, with the residual of users' share of costs funded by a Community Service Obligation.

⁸ (\$2009/10), IPART, *Review of bulk water charges for State Water Corporation - From 1 July 2010 to 30 June 2014 - Final Report*, June 2010, p 58.

1.3.1 Government cost shares

We have developed a methodology over several price determinations for sharing the cost of activities of State Water and NOW between Government and users, based on the 'impactor pays' principle.

The cost sharing ratios for State Water were last reviewed in the 2010 Determination. In this review, we examined 4 options:

- ▼ option 1 – continue our existing method of reviewing cost sharing ratios at each determination
- ▼ option 2 – freeze the current cost sharing ratios
- ▼ option 3 – apply cost sharing ratios with reviews of methodology at every second determination period
- ▼ option 4 – Government to contribute a fixed amount.

We consider that reviewing the cost sharing ratios every second pricing determination as a suitable balance between the need to ensure that the cost sharing ratios remain appropriate, and the additional costs imposed in undertaking a separate review at every pricing determination. In practice, this means that we would next review activities and cost shares in time to inform State Water's submission to the ACCC in early 2016. Stakeholders broadly supported our recommendation to review cost share ratios and activities every second ACCC determination.⁹

As part of this review process, some stakeholders raised concerns that there are water users which impose costs on NOW and State Water, but who are not subject to water charges. Examples of these users include holders of basic rights and some planned environmental water, such as environmental contingency allowances.¹⁰ There is no framework to licence basic rights holders or to support the allocation of costs of associated with environmental contingency allowances. There is limited information available on the costs that these users impose on NOW and State Water, or how these costs are allocated between users and government.

To account for basic rights holders and planned environmental water explicitly in the cost share methodology means either the cost share ratios are adjusted such that Government's cost share is increased, which will have a negative impact on the State Budget, or by expanding the current customer base, which will require legislative change. Such steps would only be taken if it can be shown that basic rights holders and planned environmental water has a material impact on the system, under the impactor pays principle.

⁹ For example, NSW Irrigators' Council submission to the Review of Rural Water Charging System Discussion Paper, 10 July 2012, p 11.

¹⁰ For example, Murray Irrigation Ltd submission to the Review of Rural Water Charging System Discussion Paper, 11 July 2012, p 6.

Our view is that we do not have sufficient information to make recommendations in relation to charging these users. In its 2011 Determination, NOW undertook to consider and publish a policy or guidelines on levying water management charges on stock and domestic and other basic rights holders by the next price review (ie, September 2013).¹¹ We recommend that more detailed analysis be conducted by State Water and NOW, with IPART's assistance, to inform Government of options to address these issues.

1.3.2 Under recovery of user share of costs

We currently determine prices using a valley by valley methodology, to avoid cross subsidies between valleys. The Peel is the only valley in the Murray-Darling Basin that does not recover 100% of users' share of costs. Water charges in the Peel currently recover 90% of users' share of State Water's costs. In our 2010 State Water Determination, we took into account the impact of price increases on users in the Peel Valley and capped average bill increases at 10% per annum.¹²

In this review, stakeholders reiterated their concerns regarding their future financial viability, if full cost recovery is pursued.¹³ The Peel Valley Water Users Association stated in its submission to this review that the current valley based pricing approach is discriminatory and results in the Peel Valley customers paying higher prices than customers in other valleys.¹⁴

Valley based pricing avoids cross subsidies by allowing direct and indirect costs to be allocated to the relevant valley, and the approach provides the appropriate price signal for water users to operate efficiently. Our methodology is consistent with the National Water Initiative as agreed by the Council of Australian Governments (COAG).¹⁵

¹¹ IPART, *Review of prices for Water Administration Ministerial Corporation - from 1 July 2011 - Final Report*, February 2011, p 18.

¹² IPART, *Review of bulk water charges for State Water Corporation - From 1 July 2010 to 30 June 2014 - Final Report*, June 2010, p 133.

¹³ For example, NSW Irrigators' Council submission to the Review of Rural Water Charging Systems Discussion Paper, 10 July 2012, p 13.

¹⁴ Peel Valley Water Users Association submission to the Review of Rural Water Charging Systems Discussion Paper, 11 July 2012, p 1.

¹⁵ National Water Initiative pricing principles, 2010, p 15, <http://www.environment.gov.au/water/publications/action/nwi-pricing-principles.html>.

We explored 4 options as part of this review:

- ▼ option 1 - freeze current Peel Valley prices with the remainder of the costs covered by an explicit community service obligation (CSO)
- ▼ option 2 - progressively increase the average Peel Valley bill by 5% per annum in real terms until full cost recovery is achieved with the remainder of the costs covered by a CSO
- ▼ option 3 - target lower bound pricing with the remainder of the costs covered by an explicit CSO
- ▼ option 4 - increase Peel Valley prices by CPI only with the remainder of the costs covered by an explicit CSO.

We recommend progressively increasing the average Peel Valley bill by 5% per annum until full cost recovery is achieved (option 2). We consider this to be the most economically efficient option. If a 10% bill cap was applied in State Water's next determination, prices in the Peel would have achieved full cost recovery in the first year and there would be no government subsidy. Under our recommendation to reduce the bill cap from 10% per annum to 5% per annum means the government subsidy would be around \$65,000 (\$2011/12), all other things being equal. The move from a 10% bill increase to a 5% bill increase means users will have smaller bill increases compared to the 2010 State Water Determination.

1.4 Impact of future pricing arrangements

Through the course of this review, emerging issues have been identified relating to State Water's short term financial viability and its transition to pricing determinations by the ACCC.

State Water's short term financial viability is impacted by a number of factors including the currently low market interest rates, which results in a lower return on capital in the revenue building block.

Also, the change to ACCC's post-tax framework from the pre-tax building block framework we used to determine State Water's prices in 2010 has the potential to reduce State Water's revenue stream, and as such impact on the State budget.

Changing from a pre-tax framework to a post-tax framework means tax allowance is not part of the weighted average cost of capital (WACC) but is a separate notional revenue building block. The change to the ACCC framework locks in parameters for the WACC calculation that may impact State Water's financeability and the revenue able to be generated from the company's Regulated Asset Base (RAB). We recommend that State Water perform a financeability analysis and if necessary, submit to the ACCC a case for a financeability allowance as a temporary adjustment to notional revenue that will be returned to customers.

We also recommend that State Water submit a case to the ACCC to revalue its regulated asset base for the change from a pre-tax to a post-tax building block model.

The impact for customers from State Water moving to ACCC's pricing framework is potentially greater year to year price variation, as ACCC will conduct annual reviews using updated consumption forecasts.

In examining the need to revalue the regulated asset base, we also address the Commission of Audit recommendation of revaluing State Water's regulated asset base to Modern Engineering Equivalent Replacement Asset value.

1.4.1 Financeability

Financeability refers to the capacity of a business to finance its activities – including its day-to-day operations and its capital investments – to renew and expand the infrastructure required for these activities. A financeability allowance is an addition to the revenue calculated under the building block approach. It advances revenue that State Water will receive in the future and is a temporary adjustment to address any financeability concerns. It is not a mechanism to mitigate revenue volatility or to adjust revenue during drought conditions.

We analysed the potential impact on State Water's revenue, taking into account firstly, current market interest rates, and secondly, ACCC's pricing principles. For comparison, we used data for 2010/11 from the 2010 State Water Determination and assumptions based on guidance provided by ACCC's principles. Our analysis showed that under a 40:60 fixed to variable tariff structure, a volatility allowance,¹⁶ and a real post-tax WACC using June 2012 market parameters, State Water's notional revenue reduces by about 17%. The impact of this revenue reduction on the average bill for a general security customer, for example in the Murrumbidgee Valley, is a reduction of about 5%.

Stakeholders were concerned that the financeability allowance represents further risk transfers to customers and a permanent increase in prices without an increase in services.¹⁷ This view is not correct. The amount of any financeability allowance provided would be returned to customers by, for example, deducting it from the regulated asset base at subsequent price reviews. Moreover, we consider that the financeability allowance should be calculated based on forecast sales over the determination period, not on the worst case that might eventuate. We consider that a financeability allowance is a transparent way to address temporary potential revenue reductions.

¹⁶ Calculated as per the 2010 determination.

¹⁷ Lachlan Valley Water submission to the Review of Rural Water Charging Systems Draft Recommendations, 30 July 2012, p 2. Also Murrumbidgee Irrigation submission to the Review of Rural Water Charging Systems Draft Recommendations, 30 July 2012, p 4.

We recommend that State Water:

- ▼ illustrate the impact to notional revenue under ACCC's guidelines with reference to key financial ratios, a similar analysis to that performed by rating agencies
- ▼ submit to the ACCC a financeability allowance as an additional notional revenue building block, to the extent that the financial ratios illustrate an increase in State Water's cost of debt and lessened ability to fund future capital programs.

1.4.2 Regulated asset base (RAB)

In 2006, we determined State Water's RAB using a converted annuity approach and a pre-tax WACC. The RAB was set such that the return on and of assets in the first year of the determination provided the same revenue as the annuity approach that had previously been adopted. The resulting RAB valuation maintained the revenue generating capacity of the assets.

In our 2011 review on the incorporation of company tax in price reviews, State Water asserted that a higher initial RAB value would have been calculated using a post-tax WACC.¹⁸ State Water argued that it is appropriate to ensure that revenue neutrality is maintained in moving to a new approach. We supported the principle of making an adjustment to the initially created RAB.

Stakeholders expressed concern that a change to the RAB is unsubstantiated and would mean a change in prices. We consider that an adjustment to the initial RAB for the change to a post-tax WACC is needed to ensure State Water's revenue generating capacity is maintained, consistent with the line in the sand approach taken to determine State Water's initial RAB. The ACCC's pricing principles state that they will adopt the RAB value adopted by the state regulator for previous determinations.¹⁹ We consider that there is a case for revaluing State Water's RAB to account for the change from a pre-tax framework to a post-tax framework under the ACCC.

We recommend that State Water submits a case to the ACCC to revalue its regulated asset base for the change from a pre-tax to a post-tax building block model. Our analysis shows that to maintain State Water's revenue generating capacity under a post-tax model, a 3.8% increase in State Water's RAB of \$672.2m as at 1 July 2012 would be required. The potential change to the RAB is a small increase relative to the value of State Water's RAB and should not cause large price shocks, should the ACCC accept State Water's case.

¹⁸ State Water submission to The incorporation of company tax in pricing determinations draft report, 28 October 2011, p 2.

¹⁹ ACCC, *Pricing principles for price approvals and determinations under the Water Charge (Infrastructure) Rules 2010*, July 2011, p 25.

1.4.3 Methodologies for valuing the regulated asset base (RAB)

The Commission of Audit recommended that the regulator of State Water consider bringing the value of its RAB closer to the Modern Engineering Equivalent Replacement Asset value (MEERA).

Our view is that valuing State Water's RAB by considering an asset's revenue generating capacity is appropriate and is unrelated to the replacement costs of the assets. Revaluing State Water's RAB using MEERA would overstate the value of assets for pricing purposes, unless adjusted. The prudent and efficient costs of assets as replaced will be added to the RAB when incurred.

1.4.4 Impact of recommendations

Our recommendations ensure the financial impact on State Water, NOW and the State Budget under future pricing arrangements is broadly neutral when compared to the status quo. In summary, our recommendations:

- ▼ retain the current tariff structures for both NOW and State Water and seeking a higher fixed to variable tariff structure for specified State Water customers
- ▼ charge an appropriate interest rate to cover State Water's costs from providing a conditional deferral of payment of fixed charges
- ▼ keep the cost sharing ratios from the 2010 Determination for State Water until 2017
- ▼ maintain that the Peel Valley should gradually move towards full cost recovery
- ▼ adjust State Water's RAB for the change from a pre-tax to a post-tax building block model
- ▼ include, if necessary, a financeability allowance in addition to State Water's notional revenue under the building block approach, after State Water performs supporting analysis.

For State Water's customers, the ACCC's annual determination process is likely to mean that prices will be updated annually with new consumption forecasts. This would result in greater price variation from year to year. Our recommendations on tariff structures, combined with a conditional deferral of payment of fixed charges provides State Water's customers with more flexibility to deal with water charges in times of low water availability.

1.5 IPART's recommendations

- 1 For both State Water and NOW: in combination with the tariff structures in recommendation 3 and 4, provide regulated river customers the option to conditionally defer the payment of fixed charges, with interest, in times of low water availability: 24
 - the trigger for deferral to be set at 2 consecutive years of less than 5% of cumulative available water determinations (AWDs) at the end of the financial year when expressed as a percentage of the share component of a Water Access Licence 24
 - interest rate applied to the deferred water charges to be the prescribed rate at which interest is payable under section 101(7) of the *Civil Procedure Act 2005* (NSW), plus 2% 25
 - a deferral period of no more than 2 years. 25
- 2 NOW to develop a conditional deferral of fixed charges policy for unregulated river customers, informed by the following: 25
 - for unregulated river customers that are on the minimum bill - the deferral arrangement is not available 25
 - for unregulated river customers that have meters installed and are subject to a water sharing plan - an option for customers to defer payment of fixed charges once there are 2 consecutive years where extraction is less than 5% of the long term average extraction limit (LTAEL) as defined in the water sharing plan 25
 - for unregulated river customers that do not have meters installed - the deferral arrangement is available subject to assessment by NOW on request from customers 25
 - interest rate applied to deferred water charges to be the prescribed rate at which interest is payable under section 101(7) of the *Civil Procedure Act 2005* (NSW), plus 2% 25
 - deferral period of no more than 2 years. 25
- 3 Tariff structure for NOW: 38
 - Maintain the existing tariff structure (key tariff feature being 70:30 fixed to variable for customers where a meter is installed and 100% fixed charges where no meter is installed). 38

4	Tariff structure for State Water:	38
	– Maintain the current tariff structure (key tariff feature being 40:60 fixed to variable), combined with a volatility allowance. The volatility allowance should be calculated for the holding cost for an appropriate period, for example 1 year, under ACCC’s annual review process.	38
	– Maintain the rebate to large users (irrigation corporations).	38
	– Consult with government environmental water holders on a higher fixed to variable tariff structure (90:10), before submitting the proposal to the ACCC for the 2014 price determination. State Water to also explore extending the higher fixed to variable structure to other specified customers in time.	38
5	Government to pay State Water, until 1 July 2017, a community service obligation equivalent to the government’s share of efficient costs as calculated using the same cost sharing ratios determined by IPART in the 2010 price determination for State Water. After that, IPART would review the cost share ratios and activities prior to every second ACCC determination (ie, every 8 years), starting in 2017.	53
6	From 2014/15, progressively increase the average Peel Valley bill by 5% per annum until full cost recovery is achieved, with the residual of the full efficient costs not recovered from users in the interim period to be funded by a community service obligation.	61
7	State Water to perform a financeability analysis and if necessary, submit to the ACCC a case for a financeability allowance (a temporary adjustment to notional revenue that will be returned to customers in subsequent price determinations).	67
8	State Water to submit a case to the ACCC to revalue its regulated asset base to account for the change from a pre-tax to a post-tax building block model.	68

Structure of this report

The rest of this report provides further details on our recommendations, stakeholders’ views and the analysis we have conducted to support this review:

PART 1 – Introduction and context to the review

- ▼ Chapter 2 provides an overview of the review process and key dates.
- ▼ Chapter 3 outlines the assessment criteria.

PART 2 – Payment terms and tariff structures

Part 2 is relevant for all rural water users in NSW: NOW's customers in regulated, unregulated and groundwater sources in NSW and State Water's customers in regulated rivers. Recommendations in Chapter 4 and 5 are inter-related and should be read and considered as a package.

- ▼ Chapter 4 outlines our analysis and recommendations on payment terms for State Water and NOW charges.
- ▼ Chapter 5 outlines our analysis and recommendations on the tariff structures for State Water and NOW charges.

PART 3 – Cost shares and government contributions under ACCC determinations

Part 3 relates only to State Water charges for their customers in regulated rivers within the Murray-Darling Basin.

- ▼ Chapter 6 outlines our analysis and recommendations on an approach for determining cost share ratios.
- ▼ Chapter 7 outlines our analysis and recommendations on the appropriate level of cost recovery and government subsidy for the Peel Valley, where users' share of efficient costs are not fully recovered.

PART 4 – Impact of future pricing arrangements

Part 4 examines the impact of State Water moving to ACCC's regulatory regime from 1 July 2014.

- ▼ Chapter 8 outlines our recommendations in relation to financeability impacts and the regulated asset base value that are likely to result when State Water moves to ACCC's regulatory regime.

Part1 - Introduction and context to the review

Part 1 provides an introduction to this review. It includes an overview of the review process and the criteria against which we assessed different policy options.

This part is relevant for all rural water users in NSW.

2 | Review context

As part of its election commitments in September 2010, the current NSW Government promised a review into:

...the water charging system with a view to a new system that better reflects the cash flows of farmers, businesses and provides compassion for families doing it tough.²⁰

The NSW Government has expressed its intention to improve the manner in which bulk water charges are levied throughout the state. It has emphasised the importance of efficient and effective levying of bulk water charges for maintaining the viable provision of bulk water delivery services and profitable agricultural industry.

In May 2012, the Minister for Primary Industries wrote to us requesting we carry out a review of bulk water pricing in NSW. The specific Terms of Reference for the review are presented in Appendix A.

2.1 | Scope of this review

Consistent with the Terms of Reference, we considered there were 4 key areas for exploration:

1. Water **tariff structures and other policy options** to better match bulk water price structures to farm cash flows and the requirements of State Water and the NOW for all rural water users in NSW. This includes exploration of hardship and other policies that provide government assistance to farmers in times of low water availability.
2. Approaches for determining **Government cost shares** for State Water activities to inform the ACCC's price review process for valleys in the Murray-Darling Basin.
3. Approaches for determining **Government contributions** for State Water activities in valleys in the Murray-Darling Basin that are not yet at full cost recovery.
4. Implications for State Water, NOW, customers and the State Budget of future pricing arrangements.

²⁰ *Make NSW Number One Again*, Coalition pre-election policy, September 2010, p 20.

In examining each of these issues, the Terms of Reference required us to have regard to the Commission of Audit report, as it relates to State Water and NOW. We also considered the impacts on customers, State Water and NOW's financial position, the NSW budget, and statutory and policy barriers to implementation.

The ACCC's pricing principles are outlined in the Water Charge (Infrastructure) Rules 2010 (WCIR). Under these rules, revenue (from all sources) must recover 100% of the likely efficient costs in a single price determination period and annual price reviews will be conducted.²¹

Our analysis has focused on Basin related activities, given the ACCC will regulate State Water's Basin activities from 1 July 2014. We will address similar coastal valley issues and customer impacts in more detail in the course of our 2014 pricing determinations for NOW and State Water.

2.2 NSW Commission of Audit

The NSW Commission of Audit was an inquiry commissioned by the NSW Government into the fiscal situation of NSW and identify reform opportunities in public sector management and service delivery. The Commission of Audit final report, released on 9 August 2012,²² made no recommendations specific to NOW. There are 4 recommendations in the final report that relate to State Water:

- ▼ An examination into State Water's regulated asset base value and how it could be brought in line with Modern Engineering Equivalent Replacement Asset (MEERA) value. The report states that State Water's regulated assets are significantly understated and this means low equity returns and insufficient funding for asset renewals and replacement.
- ▼ An independent review into standards set by the Dam Safety Committee, through a thorough risk and cost benefit assessment. The report argues that a disproportionate amount is being spent on small reductions in risk.
- ▼ An examination into State Water's capital structure to help it be financially viable. The report argues that State Water's charges are not set at a commercial rate of return
- ▼ Streamlining of water utility Operating Licences and cost-benefit analysis of licence requirements, including State Water's Operating Licence.

These recommendations all have the aim of improving State Water's future financial position. The assessment criteria (see chapter 3) we use to analyse price structure and cost share options takes into account State Water's future financial viability.

²¹ *Water Charge (Infrastructure) Rules 2010 (WCIR)*, s.29 (b), s.34.

²² Commission of Audit Advisory Board, *Commission of Audit Final Report*, August 2012, available from: http://www.nsw.gov.au/sites/default/files/uploads/common/CommissionofAudit-FinalReport_RPT_v01.pdf

We address the issue of State Water's regulated asset base value and its financial viability under ACCC's pricing framework in Chapter 8.

2.3 Review process

As per the Terms of Reference for this review, we held regional workshops, a public hearing in Sydney, released a discussion paper and draft recommendations for stakeholder comment. Key milestones for the review are listed below.

Table 2.1 Key dates for the review

Milestone	Date
Stakeholder workshops (Griffith and Narrabri)	Week beginning 12 June
Release Discussion Paper	26 June 2012
Public hearing (Sydney)	3 July 2012
Release draft recommendations	23 July 2012
Release Final Report to Government	15 August 2012

In the course of the review, some stakeholders expressed concerns regarding the time available for submissions and for our analysis. Within the available time, every endeavour has been made to provide opportunities for stakeholder input. We have considered all of the submissions received. This report documents our response to these submissions.

3 Assessment criteria

The Terms of Reference provided for this review require us to consider the following when making recommendations:

- ▼ the cash flows, revenues streams and forward business planning of State Water and NOW
- ▼ the NSW Government's financial position
- ▼ statutory or policy barriers to implementation and
- ▼ the NSW Government's Commission of Audit into public sector management.

When evaluating options we also had regard to established pricing frameworks such as the National Water Initiative pricing principles,²³ the ACCC's pricing principles²⁴ and economic efficiency.

²³ Intergovernmental agreement on a National Water Initiative, June 2004, http://www.nwc.gov.au/__data/assets/pdf_file/0019/18208/Intergovernmental-Agreement-on-a-national-water-initiative2.pdf

²⁴ ACCC, *Pricing principles for price approvals and determinations under the Water Charge (Infrastructure) Rules 2010*, July 2011, <http://www.accc.gov.au/content/item.phtml?itemId=967534&nodeId=18b613006035400088ac9602a01b19ba&fn=Water%20charge%20rules%20-%20infrastructure%20-%20pricing%20principles.pdf>

3.1 Assessment criteria

Stakeholders' submissions to our discussion paper generally agreed with our proposed assessment criteria.²⁵ We have maintained the same assessment criteria for the final report.

1. Effectiveness in addressing customer impacts and community impacts

Does the option significantly improve (from the status quo or from the rules set out for the Water Charge Infrastructure Rules) the financial situation of farmers during times of low water availability?

2. Financial impact on State Water and the NSW Office of Water (NOW)

Does the option adversely affect the financial position of State Water and NOW?

3. Financial impact on the NSW Budget

Does the option adversely affect the NSW Budget? Does the option create extra costs for the state with little or no offsetting revenue in a financial year?

4. Consistency with ACCC's pricing principles and Water Charge Infrastructure Rules

Does the option comply with the Water Charge Infrastructure Rules and the ACCC's principles?

5. Consistency with National Water Initiative pricing principles

Does the option comply with the National Water Initiative principles?

6. Economic efficiency

Does the option create more benefits than costs for the economy? This includes external costs and benefits.

7. Ease of administration and implementation

Will the option be costly or difficult to administer and implement?

8. Transparency

Is the option easy to understand? Is the methodology transparent? Are stakeholders able to replicate any calculations independently?

Not all the criteria align with each other, and not all can be fully quantified. We have exercised a degree of judgement when assessing the options, for example when considering economic efficiency.

²⁵ For example, Macquarie River Food and Fibre submission to the Review of Rural Water Charging System Discussion Paper, 13 July 2012, p 2. Murray Irrigation Ltd submission to the Review of Rural Water Charging System Discussion Paper, 11 July 2012, p 4.

Part 2 – Payment terms and tariff structure

Part 2 (chapters 4 and 5) outlines our recommendations on payment terms and tariff structures. These recommendations are interrelated and should be read and considered as a package.

This part is relevant for all rural water users in NSW including NOW's customers in regulated, unregulated and groundwater sources in NSW and State Water's customers in regulated rivers.

4 Payment terms to address customer cash flow issues

In this review, we examined the relationship between water availability and customers' cash flows, and explored ways that the billing of bulk water charges might be better matched to business cash flows. Our view is that the current tariff structure, combined with a conditional deferral of payment for fixed charges, would better match most customers' cash flows in times of low water availability, whilst minimising negative impacts on State Water, NOW and the State Budget. The ability to conditionally defer fixed charges would apply equally to both State Water and NOW charges.

This chapter presents our analysis of the impacts of adopting different hydrological trigger points for the deferral of fixed charges to take effect. We focused our analysis on farm cash flows, as specified in the Terms of Reference for this review.

In this review, we have distinguished between options for billing of bulk water charges in times of low water availability and the Government's drought policy. Our recommendation reflects the Terms of Reference for this review which require us to consider options for billing water charges, with regard to the impact on State Water, NOW and the State Budget, as well as customers. Our view is that a waiver would comprise an element of drought response policy which is for the Government to determine, and it would also have negative impacts for State Water's finances and the NSW State Budget, and is such beyond the scope of this review.

4.1 IPART's recommendation

Recommendation

- 1 For both State Water and NOW: in combination with the tariff structures in recommendation 3 and 4, provide regulated river customers the option to conditionally defer the payment of fixed charges, with interest, in times of low water availability:
 - the trigger for deferral to be set at 2 consecutive years of less than 5% of cumulative available water determinations (AWDs) at the end of the financial year when expressed as a percentage of the share component of a Water Access Licence

- interest rate applied to the deferred water charges to be the prescribed rate at which interest is payable under section 101(7) of the *Civil Procedure Act 2005* (NSW), plus 2%
 - a deferral period of no more than 2 years.
- 2 NOW to develop a conditional deferral of fixed charges policy for unregulated river customers, informed by the following:
- for unregulated river customers that are on the minimum bill - the deferral arrangement is not available
 - for unregulated river customers that have meters installed and are subject to a water sharing plan - an option for customers to defer payment of fixed charges once there are 2 consecutive years where extraction is less than 5% of the long term average extraction limit (LTAEL) as defined in the water sharing plan
 - for unregulated river customers that do not have meters installed - the deferral arrangement is available subject to assessment by NOW on request from customers
 - interest rate applied to deferred water charges to be the prescribed rate at which interest is payable under section 101(7) of the *Civil Procedure Act 2005* (NSW), plus 2%
 - deferral period of no more than 2 years.

We consider a conditional deferral of fixed water charges to be an effective and targeted policy that will assist in addressing negative cash flow impacts on regulated river customers in times of low water availability. Stakeholders have argued for a waiver of fixed water charges, rather than a deferral in times of low water availability. Our view is that a waiver of fixed charges would not meet the requirements of the Terms of Reference for this review as it would have a negative impact on State Water's finances and the State Budget. Further, a waiver of fixed charges is also an element of drought response policy which is for the Government to determine.

Our recommendation of a trigger point for deferral of 2 consecutive years of less than 5% end of year allocations for regulated river customers reflects our analysis and stakeholders' views on the relationship between farm cash flows and water availability.

The interest rate charged on the deferred fixed water charges should be an appropriate estimate of State Water's holding costs, including any administration costs. Our view is that the interest rate should be set at the prescribed rate at which interest is payable under section 101(7) of the *Civil Procedure Act 2005* (NSW) (referred to in this report as the Supreme Court post-judgement rate), plus 2% as an appropriate estimate of State Water's holding and administration costs.

In unregulated rivers, water extraction in unregulated rivers would be limited by the LTAEL set out in water sharing plans once all plans are in place by the end of 2013. A deferral policy for unregulated river customers that are metered can be developed based on actual extraction against LTAEL. For unregulated customers that do not have meters installed, the deferral arrangement can be available on request by customers but subject to assessment by NOW. The policy should take into account that unregulated river customers on the minimum bill are unlikely to need a deferral arrangement.

In the following sections, we explore approaches to defining trigger levels. The triggers are described in terms of the regulated river cumulative available water determinations (AWDs) at the end of the financial year. For simplicity, we refer to these as end of year allocations.

4.2 Stakeholder comments

4.2.1 Regulated rivers

Lachlan Valley Water submitted that a deferral arrangement would help with reducing negative cash flow impacts in times of low water availability and that a sequence of low water availability is an appropriate measure for a trigger of deferral.²⁶ Lachlan Valley Water proposed a trigger of less than 5% of new AWDs, and argued this was administratively simple and easy to understand.²⁷ Similarly, Murray Irrigation contended in its submission that an appropriate level for a trigger was when general security allocations fell below 5% for 2 consecutive years.²⁸

Some stakeholders expressed the view that the timing of allocations is important, and that allocations after October can come late for annual farming decisions.²⁹ The NSW Irrigators' Council suggested that the 5% trigger level be based on water allocations in individual valleys, stating that:

The trigger should be defined as 'when water allocation or cumulative AWD as at 31st October in any year is within the lowest 5% of historical allocations for that valley for two consecutive years'.³⁰

²⁶ Lachlan Valley Water submission to the Review of Rural Water Charging System Discussion Paper, 11 July 2012, pp 4, 5, 7.

²⁷ Lachlan Valley Water submission to IPART on Rural Water Charging System Review Discussion Paper, 10 July 2012, p 2.

²⁸ Murray Irrigation submission to IPART Review on Rural Water Charging Systems Discussion Paper, 10 July 2012, p 5.

²⁹ For example, NSW Irrigators' Council submission to the Review of Rural Water Charging System Discussion Paper, 10 July 2012, pp 7, 8.

³⁰ NSW Irrigators' Council submission to IPART on Review of Rural Water Charging Systems Discussion Paper, 10 July 2012, p 8.

Some stakeholder submissions to our draft recommendations sought a waiver of fixed water charges during times of low water availability, and suggested that failure to recommend this option was inconsistent with the Terms of Reference.³¹

Murray Irrigation Ltd stated that while a waiver is the preference, a deferral at least provides irrigators with an option to manage cash flow.³²

Namoi Water contends that sustained periods of low water availability not only have a negative impact on farmers' cash flows but also on the general community. Namoi Water provided us with a study which showed that a 13.1% reduction in water availability could lead to a decline of 2% in the total value of agricultural production in the Namoi Catchment.³³

In its submission, State Water revised its estimate of an interest rate to cover its holding costs as the Supreme Court post judgement rate plus 3.5%, increased from the Supreme Court set rate plus 2.5% set out in its submission to the Discussion Paper.³⁴

NOW submitted that a deferral arrangement presented it with financial challenges. As a government agency, NOW argued that it cannot carry over funding from one year to the next, and as such is less able to manage the revenue volatility without budget supplementation.³⁵

Some stakeholders interpreted our deferral recommendation as being compulsory for customers.³⁶ This was not our intention and we have amended our recommendation in this report to clarify that deferral would be an option provided to customers.

³¹ For example, Murray Irrigation Ltd submission to IPART on Rural Water Charging System Review Draft Recommendations, 30 July 2012, p 2. Also Murrumbidgee Irrigation, Gwydir Valley Irrigation Association, NSW Irrigators' Council.

³² Murray Irrigation Ltd submission to IPART on Rural Water Charging System Review Draft Recommendations, 30 July 2012, p 2.

³³ Deloitte Access Economics, *The value of water to Namoi Catchment*, 31 May 2012, p i.

³⁴ State Water submission to IPART on Rural Water Charging System Review Draft Recommendations, 30 July 2012, p 15.

³⁵ NOW submission to IPART on Rural Water Charging System Review Draft Recommendations, 30 July 2012, p 1.

³⁶ NOW submission to IPART on Rural Water Charging System Review Draft Recommendations, 30 July 2012, p 1.

4.2.2 Unregulated rivers

In relation to the development of an equivalent deferral arrangement for unregulated river customers as has been recommended for regulated rivers, NOW submitted that this would be difficult due to:

...the significant flow variation that occurs between unregulated streams and within years within a river, the general absence of meters and the huge assessment and analysis task that would be required to apply such an approach to the hundreds of unregulated rivers. In an unregulated river it is the amount and timing of when flows meet or exceed the commence to pump level for that reach which are the key determinates of water availability – not water allocation announcements.³⁷

NOW's view regarding its inability to manage revenue volatility is also relevant for unregulated water sources.³⁸

4.3 IPART's analysis

4.3.1 Regulated rivers – State Water's charges

In this review, we have distinguished between options for billing of bulk water charges in times of low water availability and the Government's drought policy. Appendix B provides a summary of recent government drought policies. Our view is that a waiver approach would not meet the requirements of the Terms of Reference for this review as it would have a negative impact on State Water's finances and the State Budget, and would be an element of drought response policy for the Government to determine. As such, we focused on bill payment term options.

The following sections describe our analysis for regulated rivers, unregulated rivers and groundwater sources.

Assessment of options

To define the trigger options that we would analyse in this review, we initially conducted analysis to estimate the point at which income from water allocation trading³⁹ would cease to cover fixed water charges for typical businesses. Selling seasonal allocations provides customers some flexibility in managing their cash flows.

³⁷ NOW submission to IPART on Rural Water Charging System Review Draft Recommendations, 30 July 2012, p 2.

³⁸ NOW submission to IPART on Rural Water Charging System Review Draft Recommendations, 30 July 2012, p 2.

³⁹ Water allocation assignments.

We analysed the costs of irrigated farm businesses in the Namoi Valley (northern NSW) and the Murrumbidgee Valley (southern NSW) using general security water to grow annual crops. We used conservative estimates of the traded price of allocation assignments during times of low water availability. Our analysis showed that allocations of 3%, if traded, would cover the total fixed water charges of a typical farm business in the Murrumbidgee Valley. In the Namoi Valley, 8% of allocations, if traded, would meet annual fixed water charges.⁴⁰ The percentage of water allocation required to cover fixed water charges varies, depending on location and type of farm business.

Table 4.1 Analysis of trading income and water charges in periods of low water availability

	Namoi	Murrumbidgee
Regulated entitlement	1,500	1,400
Assumed usage	0	0
Entitlement charges \$/ML		
State Water	\$8.84	\$1.59
NOW	\$1.21	\$1.04
Usage charge\$/ML		
State Water	\$19.11	\$3.61
NOW	\$1.46	\$0.26
Water charges		
State Water charges	\$13,260	\$2,226
NOW charges	\$1,815	\$1,456
Total water charges	\$15,075	\$3,682
Trading - Allocation assignment		
Price received (\$/ML)	\$125	\$80
Volume required to meet water charges (ML)	121	46
ML as a percentage	8.0%	3.3%

Note: Refer to Appendix E for discussion of typical farm entitlements.

Based on the above analysis and stakeholders' comments, we identified three trigger options for more detailed analysis of impact on farm cash flows and the administrative burden and financial impact on State Water and NOW. The options, described in terms of end of year allocations, were:

- ▼ option 1 - 2 years of zero allocation
- ▼ option 2 - 2 years of less than 5%
- ▼ option 3 - 3 years of less than 5%.

⁴⁰ Based on State Water's and NOW's 2010/11 regulated river prices.

While there may be a case for different trigger levels for the availability of bill deferral between valleys, we consider that the degree of variation in activating the triggers between valleys (3% to 8% based on estimated water allocations to cover total water charges) does not justify the complexity of such a system. As such, our view is that the trigger should be uniformly applied across all valleys.

Some stakeholders argued for deferral triggers based on lowest 5% of historical allocations for individual valleys for 2 consecutive years. Our analysis of hydrological data showed that such an option would result in the deferral policy being triggered for mid-range allocations. For example, in the Murrumbidgee the lowest 5% of historical allocations equates to an allocation of 46%. In these circumstances, users would have options to manage cash flow as they are able to trade and cover their fixed water charges. Our view is that such a trigger is not sufficiently targeted to periods of low allocations.

We used hydrological modelling data from NOW's Integrated Quantity and Quality Model (IQQM) to examine how often triggers would be activated according to different levels of water availability. We were interested in determining an appropriate level for a trigger mechanism that could be applied equally to all valleys.

The number of times that the conditional deferral policy would be activated under the different trigger options is shown in Table 4.2. This is based on the most recent IQQM data provided by NOW, that extends back more than 120 years and takes account of the rules included in the recent water sharing plans.

Table 4.2 Number of times conditional deferral mechanism would have been activated under different trigger levels

Valley	Option 1 Trigger based on 2 years of zero allocation		Option 2 Trigger based on 2 successive years of less than 5% allocation		Option 3 Trigger based on 3 successive years of less than 5% allocation	
	No. of times activated since beginning of IQQM modelling	% of year s	No. of times activated since beginning of IQQM modelling	% of years	No. of times activated since beginning of IQQM modelling	% of years
Border Rivers	0	0%	0	0%	0	0%
Gwydir	3	2.5%	5	4.1%	0	0%
Namoi	0	0%	0	0%	0	0%
Peel	0	0%	0	0%	0	0%
Lachlan	3	2.7%	5	4.5%	4	4%
Murrumbidgee	0	0%	0	0%	0	0%
Macquarie	0	0%	1	0.8%	0	0%
Hunter	4	3.4%	4	3.4%	2	1.7%
Murray	0	0%	0	0%	0	0%
Average across valleys		1.0%		1.4%		0.6%

Source: NOW IQQM data, NOW water allocations data.

The first 2 trigger options produce similar results in the number of times the trigger would be activated. Under option 1, based on 2 consecutive years of zero end of year allocations, the trigger would be activated between 3 and 4 times in 120 years, and in 3 valleys only. This means that under option 1 the bill deferral policy, across all valleys, would be triggered on average about 1% of the time. The second option (2 consecutive years of less than 5% end of year allocations), the trigger would be activated between 1 and 5 times in 120 years, and in 4 valleys. Across all valleys, option 2 would trigger the policy on average 1.4% of the time.

Option 3 (3 successive years of less than 5% allocation) is the most restrictive option. Our analysis shows that using this trigger, only 2 valleys would be eligible for deferral in 120 years. The trigger would be activated an estimated 0.6% of the time across all the valleys.

In Table 4.3 we summarise the assessment of the different trigger levels against the assessment criteria.

Table 4.3 Performance of trigger mechanisms against assessment criteria

Assessment Criteria	2 consecutive years of zero allocation	2 consecutive years of less than 5% allocation	3 consecutive years of less than 5% allocation
1. Effectiveness in addressing customer impacts and community impacts	Positive impact – average possibility of deferral of 1%.	Positive impact – average possibility of deferral of 1.4%. Closer link to cash flows.	Neural impact – average possibility of deferral of 0.6%.
2. Financial impact on State Water	Neutral impact - if State Water receives interest to cover holding costs.	Neutral impact - if State Water receives interest to cover holding costs.	Neutral impact - if State Water receives interest to cover holding costs.
Financial impact on NOW	Neutral impact – if Government provides funding.	Neutral impact – if Government provides funding.	Neutral impact – if Government provides funding.
3. Financial impact on the NSW budget	Negative impact - if Government provides funding to cover NOW's holding costs.	Negative impact - if Government provides funding to cover NOW's holding costs.	Negative impact - if Government provides funding to cover NOW's holding costs.
4. Consistency with ACCC's pricing principles and WCIR	Consistent.	Consistent.	Consistent.
5. Consistency with National Water Initiative pricing principles	Consistent.	Consistent.	Consistent.
6. Economic efficiency	Neutral impact – if State Water recovers holding costs.	Neutral impact – if State Water recovers holding costs.	Neutral impact – if State Water recovers holding costs.
7. Ease of administration and implementation	Medium – need some change to State Water's financial processes. But possibility of deferral low.	Medium – need some change to State Water's financial processes. But possibility of deferral low.	Medium – need some change to State Water's financial processes. But possibility of deferral low.
8. Transparency	Medium – trigger set is easily verifiable.	Medium – trigger set is easily verifiable.	Medium – trigger set is easily verifiable.

The main difference between the 3 options is the degree of effectiveness in addressing customer and community impacts. Our view is that:

- ▼ Farm businesses are able to trade water allocations to cover fixed water charges in times of low water availability. Water allocations between 3% and 8%, if traded, would cover annual fixed water charges, depending on the location and type of farm business.
- ▼ Farm businesses can generally manage 1-year of low water allocations through water and cash reserves, but by the end of the second consecutive year of low allocations, these reserves are generally depleted.⁴¹
- ▼ While water allocations that occur later in the year may not be useful for farming purposes, the water in regulated rivers can generally be carried over or traded.

On balance, we recommend that customers have access to a deferral of fixed charges with interest once there are 2 consecutive years of below 5% announced water allocations at year end. Our view is that this recommendation takes into account the impact on farm cash flows from low water availability.

The interest rate charged on deferred fixed water charges should be based on State Water's holding costs, plus administration costs for providing a deferral arrangement. State Water's current interest rate for customers who experience hardship and negotiate longer payment terms is the post-judgement rate. In its submission, State Water submitted that the post-judgement rate plus 3.5% would be sufficient to cover their holding (2.5%) and administration costs (1%).⁴² The current Supreme Court post-judgement rate is 9.5%, which means State Water is proposing an interest rate of 13%, if the deferral arrangement is implemented now.

We note that commercial rates for agricultural loans and overdrafts have generally been within the range of 6% to 10%.⁴³ We also estimate that the long term cost of debt is about 7% to 8%.⁴⁴ Therefore, we consider the post-judgement rate plus 2% is an appropriate interest rate to apply to deferred fixed water charges.

Setting the interest rate at this level should mean customers who do not require finance, or are able to find a cheaper source of finance, will choose to pay their State Water bills rather than deferring them. We recommend the deferral period be no more than 2 years, having regard to State Water's debt management costs.

⁴¹ Lachlan Valley Water submission to the Review of Rural Water Charging System Discussion Paper, 11 July 2012, p 5.

⁴² State Water submission to IPART on Rural Water Charging System Review Draft Recommendations, 30 July 2012, p 15.

⁴³ National Farmers Federation, *Agribusiness Loan Monitor*, July 2012, p 2.

⁴⁴ Based on 10-year average debt margin estimate of 2% (Bloomberg; RBA; UBS AG, Australia Branch) and 10-year nominal risk free rate for 5-year maturity is 5.18% (Bloomberg to 20 July 2012).

Illustrative examples of how the bill deferral policy would work in practice, including the timing of the issue of bills and impacts on NOW and State Water revenue are provided in Appendix C.

Our recommendations on a deferral arrangement will have short term implications for NOW and the State Budget during the deferral period, but has a neutral impact over time once the outstanding bill is repaid. NOW can seek an advance from Treasury to cover the revenue shortfall during the deferral period, to be repaid to Treasury once customers repay the outstanding bills. Our recommendation of an interest charge on the deferred bill also means NOW and hence Government's holding costs are covered.

4.3.2 Unregulated rivers – NOW's charges

Flows in unregulated rivers are not controlled by dam releases but depend solely on rainfall and natural river flows. Water availability is therefore highly variable and depends more on local conditions. Entitlement holders in unregulated rivers are generally credited with an available water determination (AWD) of 100% to begin the season. Various rules such as commence and cease to pump and daily extraction limits then affect the availability of water over the season. As such, a trigger based on AWDs is not appropriate for unregulated rivers.

We recognise there may be complexities in developing deferral arrangements that can be applied equally to all users in unregulated rivers. With the exception of the Barwon-Darling River, the volumes of water extracted from unregulated rivers are small in comparison to regulated rivers. Despite this, there are approximately 21,000 unregulated water licences (serviced by NOW) compared to the 12,000 regulated water licences (serviced by State Water and NOW).

Given the large number of licences in unregulated rivers, we recommend that NOW develop a conditional deferral of fixed charges policy for unregulated river customers, informed by the following:

- ▼ for unregulated river customers that are on the minimum bill - the deferral arrangement is not available
- ▼ for unregulated river customers that have meters installed and are subject to a water sharing plan - an option for customers to defer payment of fixed charges once there are 2 consecutive years where extraction is less than 5% of the LTAEL as defined in the water sharing plan
- ▼ for unregulated river customers that do not have meters installed - the deferral arrangement is available subject to assessment by NOW on request from customers
- ▼ interest rate applied to deferred water charges based on the Supreme Court post-judgement rate plus 2%
- ▼ deferral period of no more than 2 years.

Water extraction in unregulated rivers are governed by LTAEL as set out in water sharing plans. Where meters are installed, we consider a trigger level based on extractions against LTAEL appropriate. We recognise that trading of water allocations is limited in unregulated rivers and the relationship between customers' cash flows and water availability is different in unregulated rivers. However, given bills for most unregulated river customers are significantly less than regulated river customers, a trigger of 2 consecutive years where extraction is less than 5% of the LTAEL is reasonable.

About 60% of unregulated customers are on the minimum bill, which will be \$95 by 2013/14.⁴⁵ We consider it is unlikely that customers on the minimum would require a deferral arrangement.

All inland water sharing plans (WSP) are planned to be gazetted by the end of 2012⁴⁶. The remaining coastal macro WSPs are planned to be finalised by the end of 2013⁴⁷. The current reporting of extractions against water sharing plan limits for unregulated rivers is not comprehensive due to the lack of meters. This will improve under the NSW Metering Project, which will install 1,600 new surface water meters in unregulated river systems⁴⁸.

For customers that do not have meters installed, the deferral arrangement is available subject to assessment by NOW, on request from customers. An assessment process could involve:

- ▼ assess the pumping opportunities available under water sharing plan rules
- ▼ analyse the flows over previous 2 years against statistical data and determine if it ranks in the driest 5% compared to historical data
- ▼ use meteorological data where there is no historical or current flow data available.

Implications for NOW and the State Budget under a deferral arrangement as discussed under section 4.3.1 for regulated river customers also applies under a deferral arrangement for unregulated river customers.

⁴⁵ IPART, *Review of prices for the Water Administration Ministerial Corporation, for the NSW Office of Water - from 1 July 2011 – Final Report*, February 2011, p 198.

⁴⁶ Barwon-Darling Unregulated and Alluvial Water Sources, Belubula Regulated River Water Source, Lachlan Unregulated and Alluvial Water Sources, Macquarie Bogan Unregulated and Alluvial Water Sources, Murrumbidgee Unregulated and Alluvial Water Sources, Namoi Unregulated and Alluvial Water Sources. See: <http://www.water.nsw.gov.au/Water-management/Water-sharing-plans/Draft-water-sharing-plans/default.aspx>

⁴⁷ Advised by Lyndal Betteridge, Manager, Water Planning, NOW.

⁴⁸ NSW Office of Water, *NSW Sustaining the Basin Program Metering project Socio-economic assessment*, 2010, p ii.

4.3.3 Groundwater – NOW

In this review, we considered whether a conditional deferral arrangement would be appropriate for groundwater customers.

Groundwater is managed by setting long term average annual extraction limits based on recharge estimates. In general, groundwater is less sensitive than surface water to short term variability driven by seasonal conditions.

We have examined groundwater allocations and found that the AWDs are almost always 100%. There has only been one instance of an AWD for groundwater that was below 100% at the start of the year (the AWD was 95%). This was subsequently revised to 100% after investigation by NOW.⁴⁹

Due to the very high reliability of groundwater, we do not consider a deferral of fixed charges arrangement is necessary for users in groundwater sources.

⁴⁹ Email correspondence with NOW, 24 July 2012.

5 Tariff structures to address customer cash flow issues

This chapter examines tariff structure options to mitigate the negative impact of water charges on customers' cash flow in times of low water availability. The recommendations made in this chapter should be read as a package along with the recommendations made on payment terms in chapter 4.

Our recommendations in this chapter relate to the entire suite of tariffs charged by State Water and NOW. Our focus has been on the key tariff design of 40:60 fixed to variable for State Water charges and 70:30 fixed to variable for NOW, where a meter has been installed and 100% fixed where usage is not metered.

In this chapter, we have focused on analysis of options that alter the tariff structure for State Water charges. This is because NOW's charges generally comprise a smaller proportion of water users' bills in regulated systems. The tariff options considered for State Water in this review were:

- ▼ option 1 - the current 40:60 fixed to variable tariff structure with a volatility allowance, for all customers
- ▼ option 2 - a fixed to variable ratio of 90:10, for all customers
- ▼ option 3 - a choice of high (90:10) or low (40:60) fixed charges for all customers
- ▼ option 4 - current 40:60 fixed to variable tariff structure for all customers, but a 90% fixed charge for specified licence holders that meet a set criteria.

In unregulated and groundwater systems, until more users are metered, the case for change of tariff structure is not clear, nor is it advocated by stakeholders.

5.1 IPART's recommendation

Recommendation

3 Tariff structure for NOW:

- Maintain the existing tariff structure (key tariff feature being 70:30 fixed to variable for customers where a meter is installed and 100% fixed charges where no meter is installed).

4 Tariff structure for State Water:

- Maintain the current tariff structure (key tariff feature being 40:60 fixed to variable), combined with a volatility allowance. The volatility allowance should be calculated for the holding cost for an appropriate period, for example 1 year, under ACCC's annual review process.
- Maintain the rebate to large users (irrigation corporations).
- Consult with government environmental water holders on a higher fixed to variable tariff structure (90:10), before submitting the proposal to the ACCC for the 2014 price determination. State Water to also explore extending the higher fixed to variable structure to other specified customers in time.

Throughout this review, State Water's customers expressed different preferences on tariff structure. Whilst farm businesses generally find a 40:60 fixed to variable tariff structure beneficial in times of low water availability, other customers such as government environmental water holders suggest that a higher fixed to variable tariff structure would better suit their needs.

We consider that the current tariff structure, with a volatility allowance, provides an appropriate sharing of risk between State Water and its customers in most instances. The current tariff structure combines a structure that matches customers' cash flows with a mechanism to provide State Water with additional revenue for taking on more revenue risk.

We also recognise some customers would prefer to pay a higher fixed charge, which is better matched to State Water's cost structure. We recommend State Water investigate offering a 90:10 fixed to variable tariff structure to specified customers, in the first instance with government environmental water holders such as the Commonwealth Environmental Water Holder and the Office of Environment and Climate Change.

We recommend that the current tariff structure be maintained for NOW charges in regulated, unregulated and groundwater systems. Given that NOW's charges are lower than those of State Water's in regulated rivers, and until more users are metered in unregulated rivers and groundwater sources, the case for a change of tariff structure for NOW is not clear or practical, nor is it advocated by stakeholders.

5.2 Stakeholder comments

Most of State Water's stakeholders have expressed a preference for the current 40:60 fixed to variable ratio. Some stakeholders expressed support for a choice between a higher or the current fixed to variable ratio tariff structure.⁵⁰ Most submissions to our draft recommendations expressed support for retaining the current tariff structure and suggested that State Water further explore opportunities to offer a choice of tariff structures to customers.⁵¹

The Commonwealth Environmental Water Holder submitted that there may be potential for it to pay a higher proportion of fixed charges, on the basis that if a higher fixed charge was paid, the volatility allowance under a 40:60 fixed to variable tariff structure would no longer need to be paid.⁵² Similarly, the NSW Office of Environment and Heritage, who manages the NSW Government environmental water holdings, submits that a 90:10 fixed to variable tariff structure may better suit their budget processes.⁵³

State Water submitted that the volatility allowance, which accompanies the 40:60 fixed to variable tariff structure, should be redesigned to account for the lower level of revenue that is likely to result from pricing determinations under ACCC's post-tax framework.⁵⁴ State Water offered an alternative calculation of the volatility allowance, where revenue shortfalls are capitalised into the regulated asset base and the notional revenue building block would provide a return on and of the capitalised revenue shortfalls.⁵⁵

Murrumbidgee Irrigation submitted that the revenue risk for State Water is significantly overstated and questioned the need for a volatility allowance.⁵⁶

⁵⁰ For example, NSW Irrigators' Council submission to the Review of Rural Water Charging System Discussion Paper, 10 July 2012, pp 9, 10.

⁵¹ For example Gwydir Valley Irrigators submission to the Review of Rural Water Charging System Draft Recommendations, 30 July 2012, p 2. Also Murray Irrigation Ltd submission to the Review of Rural Water Charging System Draft Recommendations, 30 July 2012, p 3.

⁵² Commonwealth Environmental Water Holder submission to the Review of Rural Water Charging System Discussion Paper, 5 July 2012, p 1.

⁵³ Office of Environment and Heritage submission to the Review of the Rural Water Charging System Draft Recommendations, 27 July 2012, p 1.

⁵⁴ State Water submission to the Review of Rural Water Charging Systems Draft Recommendations, 30 July 2012, pp 6, 7.

⁵⁵ State Water submission to the Review of Rural Water Charging Systems Draft Recommendations, 30 July 2012, pp 8-10.

⁵⁶ Murrumbidgee Irrigation submission to the Review of Rural Water Charging Systems Draft Recommendations, 30 July 2012, p 3.

5.3 IPART's analysis

We analysed 4 tariff structure options for State Water:

1. option 1 - the current 40:60 fixed to variable tariff structure, with a volatility allowance for all customers
2. option 2 - a fixed to variable ratio of 90:10, for all customers
3. option 3 - a choice of high (90:10) or low (40:60, with volatility allowance) fixed charges, for customers
4. option 4 - current 40:60 fixed to variable tariff structure for all customers, and a 90% fixed charge for specified licence holders that meet a set criteria established by State Water.

5.3.1 Assessment of tariff options

We assessed the State Water tariff structure options against the assessment criteria outlined in chapter 3, focussing on:

- ▼ the impact on State Water's revenue over time
- ▼ the impact on customer bills under different water availability scenarios.

We focused our analysis on farm cash flows, as specified in the Terms of Reference for this review.

To analyse the impact of the options on State Water and its customers, we used the pricing model we used in our 2010 Determination for State Water. All model inputs were kept the same, including efficient cost, weighted average cost of capital, regulated asset base and consumption forecast. For each option, we applied the prices for 2010/11 to actual usage over the past 20 years to look at the impact on State Water's revenue.⁵⁷ In other words, we have held prices constant to analyse the impact on State Water's revenue from usage patterns under different tariff structures.

The prices we used for the analysis in this section are shown in the Table 5.1.

⁵⁷ 20 years of historical data is from 1990 to 2009.

Table 5.1 Prices under a 40:60 and a 90:10 tariff structure (\$2009/10)

Valley	High security entitlement charge (\$/ML)		General security entitlement charge (\$/ML)		Usage charge (\$/ML)	
	40:60	90:10	40:60	90:10	40:60	90:10
Border Rivers	6.32	14.21	3.49	7.39	7.84	7.84
Gwydir	9.23	20.77	4.01	7.77	11.85	1.98
Namoi	11.28	25.39	8.61	17.22	18.61	3.10
Peel	13.78	13.78	1.88	1.88	28.29	28.29
Macquarie	6.84	15.39	3.64	7.03	11.30	1.88
Lachlan	8.60	19.35	3.85	7.25	14.88	2.48
Murrumbidgee	2.43	5.48	1.55	3.14	3.51	0.59
Murray	2.61	5.87	2.22	4.46	4.66	0.78
North Coast	6.25	6.25	4.93	4.93	30.62	30.62
Hunter	24.33	36.50	8.46	12.06	13.95	3.49
South Coast	12.34	12.34	6.86	6.86	27.45	27.45

Note: Peel, North Coast and South Coast have other pricing constraints that affect the degree of change under the two pricing structures.

Source: IPART, *Review of bulk water charges for State Water Corporation - From 1 July 2010 to 30 June 2014 – Final Report*, June 2010.

A summary of our assessment of each of the tariff structure options against the review criteria is provided in Table 5.2.

Table 5.2 Assessment of proposed options against criteria

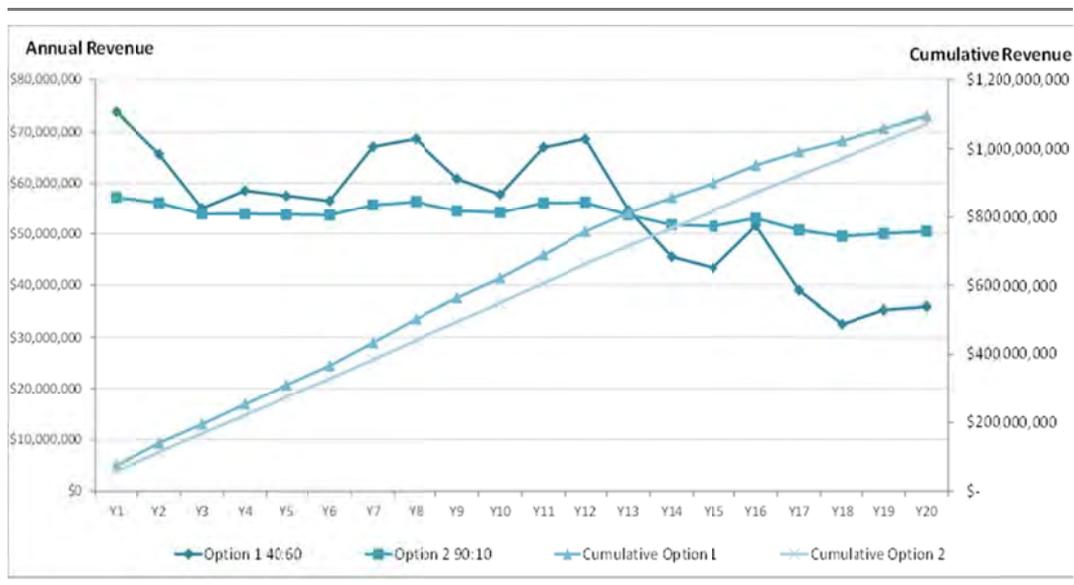
Criteria	Option 1	Option 2	Option 3	Option 4
1. Effectiveness in addressing customer impacts	Neutral impact – maintain low fixed charges in times of low water availability.	Negative impact – higher fixed charges in times of low water availability.	Potentially positive impact.	Potentially positive impact.
2. Financial impact on State Water	Neutral impact.	Neutral impact.	Potentially negative – arbitrage opportunities at the loss of State Water.	Potentially positive – may reduce volatility.
3. Financial impact on State Budget	Neutral impact.	Neutral impact.	Potentially negative.	Potentially positive.
4. Consistent with ACCC principles and WCIR	Consistent.	Consistent.	Consistent.	Consistent.
5. Consistency with NWI pricing principles	Consistent.	Consistent.	Consistent.	Consistent.
6. Economic efficiency	Neutral impact – provides incentives for water use efficiency.	Negative impact – minor efficiency incentive removed.	Neutral impact – if risk premium is robust.	Neutral impact – if risk premium is robust.
7. Ease of administration	High – no change to current system.	High – easy to change current system.	Low – additional administrative costs and complexity.	Medium – some additional administrative costs and complexity.
8. Transparency	Medium to high – customers understand current structure.	Medium to high – customers understand 2-part tariffs.	Low – more complex to current structure.	Low - more complex than current structure.

The following sections provide more detailed analysis and discussion of each option.

Option 1 – retain 40:60 fixed to variable tariff structure versus option 2 – 90:10 fixed to variable tariff structure

We found that over a 20-year period, there would be a 2% difference in State Water’s cumulative revenue between a fixed to variable tariff structure of 90:10, compared with the current tariff structure of 40:60, with a volatility allowance (Figure 5.1).⁵⁸ This suggests that, over the longer term, there is no material difference in State Water’s cumulative revenue between either of these 2 tariff options. The key difference between the 2 options is that a 90:10 fixed to variable tariff structure provides a revenue stream for State Water that would be less volatile.

Figure 5.1 Indicative State Water annual revenue under a 90:10 and a 40:60 tariff structure



Note: IPART calculations.

We examined the impact of water charges on a typical farm business in periods of low water availability, defined here as the lowest 25% of the last 20 years of historical records on water availability. Appendix E contains the descriptions and assumptions adopted for typical farm businesses.

Table 5.2 shows that annual general security water charges for a typical State Water farm business customer would be significantly less under a 40:60 tariff structure than under a 90:10 tariff structure. This is particularly the case for valleys such as the Lachlan, Namoi, Gwydir and Border Rivers, where water availability is more variable.

⁵⁸ Volatility allowance is calculated in the same way as per the 2010 price determination for State Water.

Table 5.3 Comparison of annual water charges for State Water’s general security customers under option 1 and option 2

Valley	Entitlement (ML)	Option 1 charges as a percentage of Option 2 charges at 25% percentile water allocation	Option 1 charges as a percentage of Option 2 water charges at 5% water allocation
Border Rivers	2,000	60%	50%
Gwydir	2,000	81%	59%
Namoi	1,500	90%	55%
Peel	500	100%	100%
Macquarie	1,400	92%	59%
Lachlan	1,100	79%	62%
Murrumbidgee	1,400	99%	54%
Murray	1,300	97%	55%
North Coast	200	100%	100%
Hunter	150	98%	75%
South Coast	200	100%	100%

Note: This table assumes the same usage charge would be applied during a determination period. This may not be the case under ACCC’s annual reviews process for customers within the Basin. The Peel, North Coast and South Coast do not vary as alternative price rules mean that there are no changes to prices between option 1 and option 2.

Source: IPART analysis using indicative prices only from 2010/11.

Option 3 – customers choice

Under option 3, State Water’s customers can choose between a 40:60 tariff structure with a volatility allowance or a 90:10 fixed to variable tariff structure. Enabling the customer or their representatives to choose the tariff structure that suits their circumstance is one way of matching the tariff structure to the customers’ cash flows.

Specifically, we considered a choice policy that had the following characteristics:

- ▼ a choice of high (90:10) or low (40:60) fixed charges for customers
- ▼ customers would choose and option for the period of a price determination, prior to the start of a price review process (such that State Water could incorporate the information into its price submission)
- ▼ all customers would be eligible
- ▼ the selection is tagged to a licence and a meter
- ▼ a volatility allowance would be paid by those on the 40:60 tariff to reflect revenue volatility.

A variance between actual and forecast usage for one preference group (either the group that chose the 40:60 tariff structure with a volatility allowance or the group that chose the 90:10 tariff structure), could result in a significant variation in forecast revenue for State Water.

Table 5.4 illustrate a simple example where 20% of State Water’s customers, with 20% of the total forecast annual usage choose the 90:10 option and 80% of customers, with 80% of the total forecast annual usage choose the 40:60 tariff structure. Our analysis shows if actual usage by the 90:10 preference group increases over the 40:60 preference group by 12.5%, then the decrease in State Water’s annual revenue per annum is on average \$2.4m (or 4.4%). This is an additional level of uncertainty for State Water’s revenue introduced under the choice option.

Table 5.4 Revenue under a different usage scenario

	Forecast: 20% of usage on 90:10	Actual:: 30% of usage on 90:10
Group 1 (40:60) 80% of customers	\$43,803,019	\$40,759,251
Group 2 (90:10) 20% of customers	\$10,728,809	\$11,395,732
Total	54,531,828	52,154,982
Difference		2,376,845
Percentage		4.4%

Note: This table assumes the same usage charge would be applied during a determination period. This may not be the case under ACCC’s annual reviews process for customers within the Basin.

Source: IPART analysis using indicative prices only.

A further complexity of the choice option is the potential for users to make arbitrage gains. Table 5.5 highlights this incentive. If a water user has 2 licences – A and B- and chooses the 40:60 fixed tariff structure for licence A and the 90:10 fixed to variable tariff structure for licence B, the water user will make a gain by shifting usage from licence A to licence B, which has a lower usage price.

Table 5.5 Analysis of incentive to minimise water charges under a tariff choice scheme

	Licence A (40:60)	Licence B (90:10)	Total
Entitlement	1,100	1,100	2,200
Assumed usage	750	750	1,500
Entitlement charge \$/ML ^a	3.85	7.25	
Usage charge\$/ML ^a	14.88	2.48	
Scenario 1			
Usage	750	750	1,500
Entitlement charges	\$4,240	\$7,979	\$12,218
Usage charges	\$11,163	\$1,861	\$13,024
Total water charges			\$25,242
Scenario 2			
Usage	650	850	1,500
Entitlement charges	\$4,240	\$7,979	\$12,218
Usage charges	\$9,675	\$2,109	\$11,783
Total water charges			\$24,002
Difference between total water charges under scenario 1 and 2			\$1,240 5%

^a Prices as per Table 5.1 for Lachlan Valley General Security. Prices for each option were calculated assuming 100% of usage would be under a single tariff structure. Example is for illustrative purposes, prices would be slightly different if we assume usage would be split between 2 tariff structures.

Note: Totals may not sum due to rounding.

The analysis highlights the risk of customers gaming the system, once a tariff choice has been made. Depending on the policy design of the choice option, a change in level of usage could occur through a number of mechanisms. Even if all the licences of an owner were required to have the same pricing structure, this would not satisfactorily address opportunities for gaming due to complexities in ownership structures and potential for trade.

Currently interstate trades out of NSW activate payment of a usage charge so that State Water does not lose revenue from usage occurring in other states. For intrastate trade, the choice option may require a similar system where a seller has to pay usage charges on transfer. Alternatively, the water could be tagged so the buyer pays the usage charge associated with the original tariff structure chosen by the seller, and only 1 set of usage charges are collected by State Water.

The customer choice option is complex. State Water outlined in its submission some of the risks and administrative complexities associated with this option, including additional billing and customer support costs, trading complexities and the potential for water users to make arbitrage gains, at the expense of State Water.⁵⁹

Under the ACCC's annual price setting process, it is expected that the determination would be updated each year to incorporate new information on consumption between the 2 pricing groups. This means the difference between the total annual charges between the 2 tariff structures is likely to be less. As such, there is less rationale for a choice option under an annual review process.

Option 4 – current tariff structure with 90:10 fixed to variable for specified customers

Lastly, we explored the option of retaining the current tariff structure for State Water but for specified licence holders that meet set criteria, negotiate an agreement for a 90:10 fixed to variable tariff structure, without a volatility allowance. The Commonwealth Environmental Water Holder and the NSW Office of Environment and Heritage are large customers that have expressed a preference for this type of tariff.

Under this option, there is greater revenue certainty for State Water. Option 4 is beneficial to all users, but as it is limited to specified licence holders, this option is administratively simpler than option 3, and there is less scope for any arbitrage.

Our view is that further work is needed to scope the implementation of this option, including:

- ▼ identifying any legislative constraints
- ▼ establishing appropriate criteria for the selection of eligible customers
- ▼ obtaining customers' forecast of future water usage
- ▼ reaching agreement with customers
- ▼ billing and treatment of entitlement trades by environmental water holders.

We recommend State Water explore a higher fixed to variable tariff structure (90:10) in the first instance with government environmental water holders, prior to submitting its proposal for the 2014 price determination to the ACCC. We also recommend State Water explore extending the 90:10 fixed to variable tariff structure to other specified customers.

⁵⁹ State Water submission to the Review of Rural Water Charging System Discussion Paper, 10 July 2012, p 8.

Other issues

Our recommendations in this chapter on maintaining the current tariff structures for State Water and NOW refers to the entire suite of tariffs charged by State Water and NOW. Through the course of the review, stakeholders have asked us to explore 2 specific tariff issues, the larger customer rebate and the tariffs for the Fish River Water Supply Scheme.

Murray Irrigation asked us to address whether the rebate that State Water currently makes available to large customers such as irrigation corporations should continue.⁶⁰ We consider there is merit in continuing this rebate under future pricing arrangements, in recognition of the economies of scale and avoided costs involved in providing metering services to specific irrigation corporations.⁶¹

In its submission to our draft recommendations, State Water sought clarification on recommended charging arrangements for customers of the Fish River Water Supply Scheme. State Water noted that the structure of prices for these customers differs significantly to that for prices in other regulated valleys.⁶² Our view is that we have not been presented with evidence to justify a change to the current tariff structure for the Fish River. In line with our other recommendations on State Water's and NOW's tariff structures, we recommend that the existing tariff structure for the Fish River be maintained for the 2014 determination.

5.3.2 Volatility allowance

In a commercial environment, firms may choose to insure against this revenue risk and incorporate the cost of insurance into prices. In our 2010 Determination for State Water, we included a volatility allowance as a mechanism to manage revenue volatility. We consider a volatility allowance under a 40:60 tariff structure for State Water appropriate to reflect the risk premium to State Water for taking on additional revenue volatility under this tariff structure. Over the longer term, the volatility allowance compensates State Water for this revenue risk.

⁶⁰ Murray Irrigation Ltd submission to the Review of Rural Water Charging System Discussion Paper, 11 July 2012, p 6.

⁶¹ Specific irrigation corporations subject to the rebate are outlined in IPART's *Review of bulk water charges for State Water Corporation, from 1 July 2010 to 30 June 2014 - Determination and Final Report*, 2010, p 138.

⁶² State Water submission to the Review of Rural Water Charging System Draft Recommendations, 30 July 2012, p 16.

Stakeholders have argued that a volatility allowance is unwarranted. However, our analysis suggests State Water's revenue is more volatile under a 40:60 fixed to variable tariff structure than a 90:10 fixed to variable tariff structure (see Figure 5.1). The mean absolute deviation (MAD) of State Water's revenue over the last 20 years, under a 40:60 tariff structure, is 18% of the estimated average annual revenue over the same period. Under a 90:10 tariff structure, the MAD of State Water's revenue is 3% of the estimated average annual revenue over the same period.

We examined how the revenue volatility allowance could be implemented under the ACCC's review process. In our 2010 Determination for State Water, we calculated the volatility allowance based on holding costs to cover the revenue volatility over the 4 years of the determination period.⁶³ Given that the ACCC will review prices for updated consumption forecasts on an annual basis, there is a case for calculating the volatility allowance to cover annual holding costs only, rather than holding costs over 4 years. To illustrate the impact of this, our analysis shows that using our 2010 Determination for State Water, this would result in the current annual allowance of \$2.2 million being reduced to \$930,000.⁶⁴

State Water proposed an alternative approach to a volatility allowance, based on changes to the regulated asset base (RAB).⁶⁵ The 'loss capitalisation approach' involves estimating revenue shortfalls and capitalising this in the RAB.

The ACCC considered the loss capitalisation approach, as submitted by the Australian Rail Track Corporation in relation to its Hunter Valley rail network undertaking. The ACCC decided it is an approach that is suited to a particular circumstance - in that case the circumstance was where there is new infrastructure investment with low demand, which does not apply to State Water's business.

The intent of loss capitalisation is to allow under-recovery of economic cost for a period and then recovery of the relevant shortfall at a later date. In appropriate circumstances, loss capitalisation may therefore operate to facilitate investment in new assets where there is limited initial demand by allow initial under-recovery of relevant costs in the expectation of 'making up' the shortfall when demand reaches an appropriate level.⁶⁶

Our view is that the loss capitalisation approach is a more complex approach which does not transparently estimate the costs to State Water of revenue shortfalls. State Water has not yet made a case that over the long term, the volatility allowance approach leads to an under recovery of revenue.

⁶³ IPART, *Review of bulk water charges for State Water Corporation - From 1 July 2010 to 30 June 2014 - Final Report*, June 2010, pp 50-60.

⁶⁴ (\$2009/10), IPART, *Review of bulk water charges for State Water Corporation - From 1 July 2010 to 30 June 2014 - Final Report*, June 2010, p 58.

⁶⁵ State Water submission to the Review of Rural Water Charging Systems Draft Recommendations, 30 July 2012, pp 8-10.

⁶⁶ ACCC, *Australian Competition and Consumer Commission Decision In relation to Australian Rail Track Corporation's Hunter Valley Rail Network Undertaking*, 29 June 2011.

Our view is that a volatility allowance is a transparent method for compensating State Water for revenue risk. We recommend that a volatility allowance that accounts for the annual holding costs associated with revenue volatility be maintained under a 40:60 fixed to variable tariff structure.

Part 3 - Cost shares and government contributions under ACCC determinations

Part 3 examines the approaches we considered to determine government cost shares for State Water activities in the Murray-Darling Basin and those for determining government contributions for valleys that are not yet at full cost recovery.

This part relates only to State Water charges for their customers in regulated rivers within the Murray-Darling Basin. We will deal with similar coastal valley issues in the course of our 2014 price determinations for NOW and State Water.

6 Setting the NSW Government's cost share for ACCC determined bulk water charges

We have developed the method of cost shares between Government and users for State Water over several determinations, based on the impactor pays principle. Using this method, costs are allocated to users according to the contribution they make to the costs of activities being incurred.

From 1 July 2014, the ACCC will set prices for State Water's activities in the Murray-Darling Basin under the Water Charge (Infrastructure) Rules. The ACCC expects the NSW Government's cost share to be known at the time it sets State Water's prices.

In this review, we explored options to enable the NSW Government to determine the government cost share prior to the ACCC price review process. These options were:

- ▼ option 1 - continue our existing method of reviewing cost sharing ratios at each determination
- ▼ option 2 - freeze the current cost sharing ratios
- ▼ option 3 - apply cost sharing ratios with reviews of methodology at every second determination period
- ▼ option 4 - Government to contribute a fixed amount.

There is a potential role for us to continue to advise the NSW Government on the amount of government cost share of activities for State Water under ACCC's price review process.

As part of this review process, some stakeholders raised concerns regarding costs that are imposed on NOW and State Water by users that do not pay charges. Other stakeholders noted concerns regarding users' share of costs for the Murray-Darling Basin Authority.

This chapter explores our analysis of each of the cost share options, as well as our consideration of the additional issues raised by stakeholders.

6.1 IPART's recommendation

Recommendation

- 5 Government to pay State Water, until 1 July 2017, a community service obligation equivalent to the government's share of efficient costs as calculated using the same cost sharing ratios determined by IPART in the 2010 price determination for State Water. After that, IPART would review the cost share ratios and activities prior to every second ACCC determination (ie, every 8 years), starting in 2017.

We recommend the continuation of our current approach to determining government costs shares, using the cost sharing ratios applied in our 2010 Determination for State Water until 1 July 2017. We recommend that we would review the cost share ratios every 8 years after 2017.

In practice, this means we are likely to start our review of cost sharing ratios in October 2015, to inform State Water's submission to the ACCC in early 2016.

The cost sharing ratios for State Water were last reviewed in the 2010 Determination. We consider reviewing the cost sharing ratios every second pricing determination period as a suitable balance between the need to ensure that the cost sharing ratios remain appropriate, and the additional costs imposed in undertaking a separate review of cost shares at every pricing determination.

6.2 Stakeholder comments

6.2.1 Government cost shares

Most stakeholders⁶⁷ at the Sydney Public Hearing agreed with our preferred approach to apply the cost share ratios, with reviews of methodology at every second determination. In its submission, the NSW Irrigators' Council supported a review of cost share ratios every 8 years, but would prefer the first review to be in 2014.⁶⁸ In response to our draft recommendations, the Council argued that a review of the cost shares is urgent.⁶⁹ Similarly, Gwydir Valley Irrigators Association⁷⁰ and Macquarie River Food and Fibre⁷¹ also supported a cost sharing framework, with the first review in 2014.

⁶⁷ This includes Murray Irrigation, Lachlan Valley Water, Macquarie River Food and Fibre and NSW Irrigators' Council, Transcript - Sydney Public Hearing, 3 July 2012.

⁶⁸ NSW Irrigators' Council submission to the Review of Rural Water Charging System Discussion Paper, 10 July 2012, p 11.

⁶⁹ NSW Irrigators' Council submission to the Review of Rural Water Charging System Discussion Paper, 10 July 2012.

⁷⁰ Gwydir Valley Irrigators Association submission to the Rural Water Charging Systems Draft Recommendations, 30 July 2012, p 2.

⁷¹ Macquarie River Food and Fibre submission to the Rural Water Charging Systems Draft Recommendations, 2 August 2012, p 3.

6.2.2 Costs incurred by users who are not charged

Throughout the review, many stakeholders⁷² raised concerns that there are water users who impose costs on NOW and State Water, but are not subject to water charges. Examples of these users include holders of basic rights and some planned environmental water, such as environmental contingency allowances.⁷³ Stakeholders have suggested either expanding the customer base to these users, or adjusting the current cost sharing ratios so that these costs are incurred by government.⁷⁴

State Water is of the view that we have sufficient information available to determine cost shares for these users⁷⁵. Similarly, Macquarie River Food and Fibre⁷⁶ argued that the information regarding the environmental contingency allowance is contained in the water sharing plans and thus the issue should be addressed immediately. In response to our draft recommendations, Macquarie River Food and Fibre⁷⁷ suggested that billing individual basic rights would be administratively complex so changing the current cost share ratios is more appropriate.

NOW⁷⁸ submitted that the reason for the environmental contingency allowance was to acknowledge and to offset the impacts of, regulation and extraction by consumptive users. That is, under the impactor pays principle it is the extractive users that have caused the need to incur the costs.

⁷² Including Gwydir Valley Irrigators Association, Hunter Valley Water Users Association, Lachlan Valley Water, Macquarie River Food and Fibre and NSW Irrigators' Council, submissions to the Rural Water Charging System Draft Recommendations.

⁷³ Murray Irrigation Ltd submission to the Review of Rural Water Charging System Discussion Paper, 11 July 2012, p 6.

⁷⁴ For example, Lachlan Valley Water, Macquarie River Food and Fibre, Murray Irrigation and Gwydir Valley Irrigators Association, raised this in their submissions to the Rural Water Charging System Draft Recommendations.

⁷⁵ State Water submission to the Rural Water Charging System Draft Recommendations, 30 July 2012, p 4.

⁷⁶ Macquarie River Food and Fibre submission to the Rural Water Charging System Draft Recommendations, 2 August 2012, p 3.

⁷⁷ Macquarie River Food and Fibre submission to the Rural Water Charging System Draft Recommendations, 2 August 2012, p 3.

⁷⁸ NOW submission to the Rural Water Charging System Draft Recommendations, 2 August 2012, p 2.

6.2.3 Murray Darling Basin Authority's (MDBA) River Murray Water costs

Murray Irrigation⁷⁹ raised concerns that the MDBA, and specifically the River Murray Water cost component of State Water's charges, will be subjected to minimal scrutiny because the MDBA is not subject to the Water Charge Infrastructure Rules. Murray Irrigation's view is that we should ensure that irrigators only pay their fair share of the efficient costs, and that we should identify opportunities to ensure the MDBA is subject to scrutiny and input from customers.

Further, at the Sydney Public Hearing, Murray Irrigation stated that there is no transparency in the current arrangement and that the MDBA's business costs have risen dramatically.⁸⁰ The MDBA has responded to these claims arguing that:

- ▼ River Murray Water's costs are transparent. They note that they have provided detailed costs about their operations in response to past reviews by IPART.
- ▼ River Murray Operations asset costs have not risen dramatically.
- ▼ MDBA is not regulated by the ACCC because the funding arrangement is set out under the MDBA agreement, not because of a failure of water charge infrastructure rules to meet the objectives of the *Water Act 2007*.⁸¹

6.3 IPART's analysis

6.3.1 Government cost shares

This review is to provide recommendations on options for setting the government cost share in a way that is consistent with the Water Charge Infrastructure Rules. The NSW Government will make the final decision on how the government cost shares will be determined. We identified and examined 4 options:

- ▼ option 1 – continue our existing method of reviewing cost sharing ratios at each determination.
- ▼ option 2 – freeze the current cost sharing ratios.
- ▼ option 3 – apply cost sharing ratios with reviews of methodology at every second determination period (ie, initially for the 1 July 2017 price review, then every second determination (8 years)).

⁷⁹ Murray Irrigation submission to the Rural Water Charging System Discussion Paper, 11 July 2012, 2 and Murray Irrigation submission to the Rural Water Charging System Draft Recommendations, 30 July 2012, p 1.

⁸⁰ Murray Irrigation, presentation at the Sydney Public Hearing Transcript, 3 July 2012, p 5.

⁸¹ See, Letter – Murray Darling Basin Authority Rural Water Charging Systems Review, 1 August 2012, available on IPART's website, www.ipart.nsw.gov.au

- ▼ option 4 – Government to contribute a fixed amount.

Our assessment of the options against the assessment criteria (see Chapter 3) is provided in Table 6.1. We consider each option against the status quo (which is the 2010 State Water Determination), assuming that State Water's expenditure across activity codes remains stable.⁸²

Table 6.1 Assessment of proposed options against criteria

Criteria	Option 1: Status quo	Option 2: Freeze ratios	Option 3: Review every 8 years	Option 4: Fixed amount
1. Effectiveness in addressing customer impacts	Neutral impact.	Neutral impact.	Neutral impact.	Uncertain – based on government's decision on its contribution.
2. Financial impact on State Water	Neutral impact.	Neutral impact.	Neutral impact.	Neutral impact.
3. Financial impact on State Budget	Neutral impact – if cost shares component remains similar to current.	Neutral impact – if cost shares component remains similar to current.	Neutral impact – if cost shares component remains similar to current.	Uncertain – could be positive or negative.
4. Consistent with ACCC principles and WCIR	Consistent.	Consistent.	Consistent.	Consistent.
5. Consistency with NWI pricing principles	Consistent.	Consistent.	Consistent.	Uncertain – based on government's decision.
6. Economic efficiency	Neutral impact.	Neutral impact.	Neutral impact.	Potentially less efficient.
7. Ease of administration	Low.	High.	Medium.	Potentially high.
8. Transparency	High.	Low.	Medium.	Potentially low.

Note: We have assessed each option against the status quo (ie, 2010 State Water Determination), using the criteria described in Chapter 3.

Options 1, 2 and 3 mainly differ in the degree of third party supervision and administration required to maintain a transparent method of determining cost shares between users and government. As these 3 options are all based on the impactor pays principle, all are consistent with National Water Initiative pricing principles, are economically efficient, and are likely to have neutral impact on customers, State Water's finances and the NSW budget.

⁸² Note State Water's allocation of costs to activities may change, depending on the programs planned for the regulatory period. The government's and users' contribution will also change if State Water's allocation of costs to activities changes.

Under option 4, where the Government determines the amount of its contribution without independent advice, many of the outcomes under the assessment criteria are uncertain, and this could be the least transparent option.

Based on our assessment, and stakeholder feedback, we recommend option 3. We consider that reviewing the cost sharing ratios every second determination period as an appropriate balance between the need to ensure that the cost sharing ratios remain appropriate and consistent with the impactor pays principle, and the additional costs imposed in undertaking a separate review at every determination period. Under this option, we see a role for an independent body to review the cost sharing ratio methodology for any new evidence or activities and review the application of the ratios by State Water.

We note that while most stakeholders support our recommendation, some suggested that we should review the cost shares in time for the 2014 ACCC price determination. Concerns were raised about particular cost sharing ratios, but our view is that these issues were considered in detail in our 2010 price review. We note that the issue of basic rights holders (see section 6.3.2) cannot be addressed until NOW completes its actions associated with the 2011 Determination. We therefore consider it appropriate that any new information regarding the cost shares be considered in detail in time for the 2017 price review.

6.3.2 Options for addressing costs incurred by users who are not charged by State Water or NOW

Many stakeholders raised concerns that there are water users who impose costs on NOW and State Water, but are not subject to water charges. Examples of these users include holders of basic rights and some planned environmental water, such as environmental contingency allowances.⁸³

At present, there is no framework for licensing basic rights holders and there is limited information on the actual costs that these users impose on NOW and State Water. This issue was raised at the 2011 NOW Determination, and we asked NOW to consider and publish a policy or guidelines on levying water management charges on stock and domestic and other basic rights holders by the next price review (ie, September 2013).⁸⁴

⁸³ For example, NSW Irrigators' Council submission to the Review of Rural Water Charging System Discussion Paper, 10 July 2012, p 11.

⁸⁴ IPART, *Review of prices for Water Administration Ministerial Corporation from 1 July 2011– Final Report*, February 2011, p 18.

To account for basic rights holders and planned environmental water explicitly in the cost share methodology means firstly identifying the management activities that arise due to the impacts of these customers. This could then be presented as either adjusted cost share ratios such that Government's cost share is increased to reflect the residual costs of these activities not attributable to users' impacts, which will have a negative impact on the State Budget, or alternatively expanding the current customer base, which will require legislative change. Expanding the customer base would enable basic rights to be billed directly for their impact. However, such steps would only be taken if it can be shown that basic rights holders and planned environmental water has a material impact on the system, under the impactor pays principle.

Our view is that despite stakeholder comments, we do not have sufficient information to estimate and assign the costs arising from the managing basic rights holders and planned environmental water. However, we consider that it is appropriate that these issues be investigated in more detail, to enable recommendations to be made.

We recommend that following steps be taken by State Water and NOW, with IPART's assistance, to inform Government on the matter:

1. NOW and State Water to determine the magnitude of the costs, if any, they individually incur arising from providing services to basic rights holders and in managing environmental contingency allowances.
2. If the magnitude of the cost as determined under step 1 is significant and the costs can be accurately recorded, further consideration of who should pay for these costs under the impactor pays principle should be undertaken, separately for basic right holders costs and the environmental contingency allowances.
3. If there is a case for change, then consider the following options:
 - option 1: create a separate activity code for basic rights holders and providing for environmental contingency allowances and allocate 100% government share to this activity code
 - option 2: determine which of the existing activity codes are impacted by basic rights holders and in providing for environmental contingency allowance and adjust the cost sharing ratios based on an allocation of the current costs consistent with the impactor pays principle
 - option 3: create new water licences for basic rights holders and for environmental contingency allowance, and bill these new licence holders for the costs that they incur.

These options are discussed below.

Create a separate activity code with applicable cost shares (option 1) or adjust existing cost shares to reflect impact of unlicensed users (option 2)

Both options 1 and 2 are relatively simple to implement and do not require legislative change to account for new customers. The government's cost share of activities would be increased to take on NOW and State Water's costs of providing services for basic rights holders and for providing environmental contingency allowances, less any costs associated with the impact of irrigators.

Under option 1, State Water and NOW may incur additional administrative costs to account for costs associated with a new activity code. Option 2 does not require State Water or NOW to account for a new activity code, only to change the current cost sharing ratios.

Expanding the customer base (option 3)

Under the *Water Management Act 2000*, basic rights holders are not required to hold a water access licence and they do not pay water management charges. This reflects a long standing right for basic rights holders to access reasonable amounts of water free of charge. A move to introduce licences for basic rights holders would require legislative change, which could be a significant and costly process for NOW. Once licences are established, it would be possible to charge basic rights holders a fee that represents the costs that basic rights holders impose on NOW and State Water. This could be a minimum bill representing the administration costs of the services they receive.

Similarly, as environmental contingency allowances are planned environmental water, and not licenced entitlements, water management charges and other service costs are not payable. There may be a case for expanding the customer base to include the environmental contingency allowance but information on costs associated with the environmental contingency would need to be identified to assess whether changes to the legislation are appropriate and cost effective.

6.3.3 MDBA – River Murray Water Costs

River Murray Water is a division of the MDBA responsible for the management and operation of the River Murray system. The NSW Government pays the NSW share of River Murray Water costs to the MDBA. Under the existing framework, the NSW Government's contribution is allocated to State Water's business. State Water currently recovers the user share component of these costs through its bulk water prices, which it then pays to Government.

Murray Irrigation⁸⁵ has raised concerns that the MDBA will be subjected to minimal scrutiny because they are not subject to the Water Charge Infrastructure Rules. This will be a matter for the ACCC to determine.

In the past, we have made recommendations that signatories to the Murray-Darling Basin Agreement should ensure that the MDBA's costs are efficient. While our legislation does not extend to the review of the efficiency of MDBA's expenditures, in our past pricing determinations, we have applied general efficiency targets to the MDBA related costs that State Water seeks to recover from users. Our view is unchanged since our last determination.

⁸⁵ Murray Irrigation submission to the Review of Rural Water Charging System Discussion Paper, 11 July 2012, p 4.

7 Valleys not at full costs recovery and the Government contribution

The previous chapter outlined our recommendation for determining the users' and the government's contribution of bulk water services provided by State Water for regulated water users in the Murray-Darling Basin.

In this chapter we consider whether an explicit government subsidy should continue to be made to recover those State Water's costs that are not recovered from users. The Peel is the only valley in the Murray-Darling Basin where State Water does not fully recover users' share of costs. State Water's prices for the Peel Valley currently recover 90% of the users' share of costs.

State Water's operations in the Murray-Darling Basin will be subject to the ACCC's framework from 1 July 2014. Under section 29(2)(b) of the Water Charge (Infrastructure) Rules, an operator's prices are to be set so that they are reasonably likely to recover the full cost of service delivery, less subsidy or other revenues. In this review we explored 4 options to enable the NSW Government to set the level of subsidy for Peel users, prior to the ACCC determination process. These options were:

- ▼ option 1 - freeze current Peel Valley prices with the remainder of the costs covered by an explicit community service obligation (CSO).
- ▼ option 2 - progressively increase the average Peel Valley bill by 5% per annum in real terms until full cost recovery is achieved, with the remainder of the costs covered by a CSO.
- ▼ option 3 - target lower bound pricing with the remainder of the costs covered by an explicit CSO.
- ▼ option 4 - increase Peel Valley prices by CPI only with the remainder of the costs covered by an explicit CSO.

7.1 IPART's recommendation

Recommendation

- 6 From 2014/15, progressively increase the average Peel Valley bill by 5% per annum until full cost recovery is achieved, with the residual of the full efficient costs not recovered from users in the interim period to be funded by a community service obligation.

We consider a valley based pricing methodology to be appropriate to avoid cross subsidies between valleys. Valley based pricing allows direct and indirect costs to be allocated to the relevant valley and provides the appropriate price signal for water users to operate efficiently. Valley based pricing is also one of the pricing principles agreed by the Council of Australian Governments.⁸⁶ Differences in prices between valleys are a necessary consequence of valley based prices.

We consider progressively increasing the average Peel Valley bill by 5% per annum in real terms until full cost recovery is achieved to be the most economically efficient option. Our view is that this option provides an appropriate balance between the interests of users in the Peel Valley, and the cost of the subsidy paid by Government.

7.2 Stakeholder comments

In this review, we sought stakeholder input on the economic case for an ongoing subsidy for the Peel Valley.

Stakeholders have expressed concerns about their future financial viability if full cost recovery is pursued.⁸⁷ For example, at the Sydney Public Hearing, Bega Cheese argued that option 2 (5% real per annum bill increases) is allowing farms to sink financially at a slower rate, and creates ongoing uncertainty for investment in these valleys.⁸⁸

Options suggested by stakeholders include increasing the bills annually by the movement in the Consumer Price Index⁸⁹ or freezing the 90% cost recovery ratio.⁹⁰ Similarly, in response to our draft recommendations Murrumbidgee Irrigation and the NSW Irrigators' Council argued for freezing the cost recovery rate at 90%.⁹¹ Bega Cheese suggested that since price determinations cannot fix the subsidy over longer periods of time, CPI increases should be locked in by the Government, with the difference funded by a community service obligation (CSO).

⁸⁶ National Water Initiative Steering Committee, National Water Initiative pricing principles, 2010, p 15, <http://www.environment.gov.au/water/publications/action/nwi-pricing-principles.html>.

⁸⁷ For example, Bega Valley Water Users, Hunter Valley Water Users Association, the Member for Tamworth, Peel Valley Water Users Association, Tamworth Regional Council and Southern Riverina Irrigators submissions to the Rural Water Charging System Draft Recommendations.

⁸⁸ Bega Cheese, presentation at the Sydney Public Hearing Transcript, 3 July 2012, p 11.

⁸⁹ Bega Cheese, presentation at the Sydney Public Hearing Transcript, 3 July 2012, p 11.

⁹⁰ For example, Peel Valley Water Users Association submission to the Review of Rural Water Charging Systems Discussion Paper, 11 July 2012, p 18.

⁹¹ Murrumbidgee Irrigation submission to Rural Water Charging System Draft Recommendations, 30 July 2012 and NSW Irrigators' Council submission to the Rural Water Charging System Draft Recommendations, 30 July 2012, p 8.

Peel Valley stakeholders argued for postage stamp pricing, where a uniform charge is set for the whole state. The Peel Valley Water Users Association has argued that valley based pricing is discriminatory and breaches the Water Charge Infrastructure Rules.⁹² In response to our draft recommendations, the Peel Valley Water Users Association stated that they intended to seek a legal opinion on whether the current pricing approach is consistent with the Basin charging objectives.⁹³

7.3 IPART's analysis

In this review we explored methods for setting the value of government subsidy for State Water's Peel Valley services in a way that is consistent with the Water Charge Infrastructure Rules and the National Water Initiative.

In the early stages of the review, we canvassed 3 options to decide the appropriate level of cost recovery and government subsidy in the Peel Valley. Following stakeholder consultation, a fourth option of CPI only increases was included. The options examined were:

- ▼ option 1 - freeze current Peel Valley prices, with the remainder of the costs covered by an explicit community service obligation (CSO)
- ▼ option 2 - progressively increase the average Peel Valley bill by 5% per annum in real terms until full cost recovery is achieved, with the remainder of the costs covered by a CSO
- ▼ option 3 - target lower bound pricing (ie, exclude the return on capital)⁹⁴, with the remainder of the costs covered by an explicit CSO
- ▼ option 4 - increase Peel Valley prices by CPI only, with the remainder of the costs covered by an explicit CSO.

7.3.1 Assessment of options against criteria

Table 7.1 summarises our analysis of each of the options against the assessment criteria (from Chapter 3). We have assessed the options against the status quo. That is, we have compared the impact of our recommendations against the 2010 Determination, where a 10% real increase in bills was imposed and prices recover 90% of costs. We have used 2013/14 as the base year and held all other factors (including costs) constant.

⁹² Peel Valley Water Users Association submission to the Review of Rural Water Charging Systems Discussion Paper, 11 July 2012, p 1.

⁹³ Peel Valley Water Users Association submission to the Review of Rural Water Charging System Draft Recommendations, 30 July 2012, p 1.

⁹⁴ To determine the lower bound price, we have excluded the return on capital component from prices in the Peel Valley.

The effectiveness of each option in addressing customer impacts depends on a range of factors. For example, our recommendations on price structures to deal with cash flows may provide some assistance for customers in the Peel Valley.

Table 7.1 Assessment of proposed options against criteria

Criteria	Option 1: Freeze prices	Option 2: 5% increase	Option 3: Lower bound ^a	Option 4: CPI only ^b
1. Effectiveness in addressing customer impacts	Positive impact.	Positive impact.	Positive impact.	Positive impact.
2. Financial impact on State Water	No or low impact.	No or low impact.	No or low impact.	No or low impact.
3. Financial impact on NSW Budget	Negative impact.	Negative impact.	Most negative impact – higher relative to the other 3 options.	No or low impact.
4. Consistent with ACCC principles and WCIR	Consistent.	Consistent.	Consistent.	Consistent.
5. Consistency with NWI pricing principles	Consistent.	Consistent.	Consistent.	Consistent.
6. Economic efficiency	Low.	Medium.	Medium.	Low.
7. Ease of administration	High.	Medium.	High.	Medium.
8. Transparency	Medium.	Medium.	Potentially low.	Medium.

a To estimate the lower bound price, we have excluded the return on capital component from prices.

b We have assumed a CPI of 2.5%.

Note: Each of the options are compared to the status quo (which is the 2010 State Water Determination) using the criteria discussed in Chapter 3.

Source: IPART analysis.

We estimated the likely size of the Government subsidy under the 4 options in 2014/15. To do this, we assumed that the costs to be recovered through prices are the same as per the 2010 Determination. Table 7.2 shows that option 3 results in the highest subsidy, while option 2 results in the lowest subsidy.

Table 7.2 Size of Government subsidy under the proposed options in 2014/15 (\$2011/12)

Option	Description	Government subsidy in 2014/15
Option 1	Freeze \$2013/14 Peel Valley prices	\$119,801
Option 2	Increase prices by 5% real per annum	\$64,763
Option 3	Lower bound pricing – exclude return on capital component	\$242,908
Option 4	CPI only increase	\$116,879

Note: Historical CPI March on March and assume forecast inflation of 2.5% per annum.

Source: IPART modelling.

Stakeholders in the Peel Valley have argued for postage stamp pricing as a means for addressing financial viability concerns in the Peel Valley. In effect, postage stamp pricing means averaging the costs across valleys so that the lower cost valleys pay a higher price, and higher cost valleys pay a lower price. This pricing approach introduces cross subsidies.

Competition agreements by COAG in 1994 and the National Water Initiative in 2004 were key initiatives introduced to encourage cost reflective pricing, including the removal of cross subsidies between different users. In line with these reforms, we have set prices on a valley by valley basis since our first interim bulk water price review in 1994/95. Any move to reintroduce postage stamp pricing is, in our view, a backward step, going against nearly 20 years of water pricing reforms aimed at setting cost reflective prices. Appendix D explores postage stamp pricing in further details.⁹⁵

Indicative analysis from the 2010 Determination suggests that the average general security bill represents around 3.7% of total cash costs for a typical farm business in the Peel Valley. If a 10% bill cap was applied in State Water's next determination, prices in the Peel would have achieved full cost recovery in the first year and there would be no government subsidy. Under our recommendation to reduce the bill cap from 10% per annum to 5% per annum in 2014/15 means the government subsidy would be around \$65,000 (\$2011/12), all other things being equal. The move from a 10% bill increase to a 5% bill increase means users will have smaller bill increases compared to the 2010 State Water Determination.

Given this and the fact that the Peel Valley is already at 90% cost recovery, we consider slowly transitioning to full cost recovery at 5% per annum is an appropriate balance between the users in the Peel Valley and the need to achieve full cost recovery as agreed in the NWI pricing reforms.

⁹⁵ At the Sydney Public Hearing, it was suggested that the Peel Valley could consider striking an average charge across the valleys around the Peel Valley, for example, the Namoi and Manila regions. The Peel valley Users Association have not considered this as prices in the Namoi are equally as high as the Peel Valley. Transcript, Sydney Public Hearing, 3 July 2012, p 25.

Part 4 - Impact of future pricing arrangements

Part 4 examines the impact of State Water moving to ACCC's regulatory regime from 1 July 2014.

This part is relevant for State Water's customers.

8 Impact of future pricing arrangements

Through the course of this review, emerging issues have been identified that relate to State Water's short term financial viability and its transition to pricing determinations by the ACCC.

State Water's short term financial viability is impacted by a number of factors including currently low market interest rates, which results in a lower return on capital in the revenue building block.

The shift from the pre-tax building block framework that we used to determine State Water's prices, to the post-tax framework that will be adopted by the ACCC also has the potential to affect State Water's revenue stream, and as such impact on the State budget.

Changing from a pre-tax framework to a post-tax framework means tax allowance is not part of the weighted average cost of capital (WACC) but is a separate notional revenue building block. At the same time, the ACCC pricing principles locks in parameters for the WACC calculation that may also impact the financeability of State Water and the revenue able to be generated from the State Water's regulated asset base (RAB).

The impact for customers from State Water moving to ACCC's pricing framework is potentially more price variation from year to year as ACCC conducts annual reviews on updated consumption forecasts.

In examining the need to revalue the regulated asset base, we also address the NSW Commission of Audit recommendation of revaluing State Water's regulated asset base to Modern Engineering Replacement Asset Value.

This chapter present discussion, analysis and recommendations to address these issues.

8.1 IPART's recommendations

Recommendation

- 7 State Water to perform a financeability analysis and if necessary, submit to the ACCC a case for a financeability allowance (a temporary adjustment to notional revenue that will be returned to customers in subsequent price determinations).

8 State Water to submit a case to the ACCC to revalue its regulated asset base to account for the change from a pre-tax to a post-tax building block model.

A financeability allowance is a transparent mechanism used by economic regulators to provide a temporary adjustment to notional revenue, in certain circumstances. Specifically if it can be shown that a reduction in notional revenue over the next regulatory period could lead to a higher cost of debt and reduced ability to fund capital programs. Where applied, the allowance for financeability in one period is matched by a reduction in revenue in subsequent periods, for example through a reduction in the regulated asset base (RAB).

Our analysis shows that there is the potential for a significant drop in State Water's notional revenue as a result of a number of factors, including the currently low interest rates which results in a lower return on capital. The change from a pre-tax framework that we adopted in the 2010 Determination to a post-tax framework adopted by ACCC also has a negative impact on State Water's notional revenue.

We consider there is a case for adjusting the value of State Water's RAB for the change from a pre-tax to a post-tax framework. In 2006, we determined State Water's RAB using a converted annuity approach using a pre-tax weighted average cost of capital (WACC). A higher initial RAB value would have been calculated had we used a post-tax WACC.

We note that the recommended RAB adjustment would not fully compensate State Water for the expected drop in its notional revenue, and recommend a full assessment of State Water's financeability be undertaken to inform its submission to the ACCC.

8.2 Stakeholder comments

8.2.1 Financeability allowance

Stakeholders generally did not support including a financeability allowance as an additional revenue building block in the case of a significant reduction in State Water's revenue under ACCC's pricing principles.⁹⁶ Murrumbidgee Irrigation stated that while it would support a mechanism to contain growth in bulk water prices within current levels in real terms, it would not support:

...the inclusion of a further potential cost 'block' in the building block approach that could be used to deliver further real cost increases through gaming and advocacy without tangible increases in services.⁹⁷

⁹⁶ For example, Murray Irrigation Ltd submission to the Review of Rural Water Charging Systems Draft Recommendations, 30 July 2012, p 5. Other submissions include, Gwydir Valley Irrigators and NSW Irrigators' Council.

⁹⁷ Murrumbidgee Irrigation submission to the Review of Rural Water Charging Systems Draft Recommendations, 10 July 2012, p 4.

State Water favours a financeability allowance that would allow it to achieve an investment grade credit rating and estimates a financeability allowance of \$9.4 million per annum (in 2012/13 prices) would be required to achieve this goal.⁹⁸

8.2.2 Regulated asset base value

Stakeholders did not support changing the RAB value to adjust for the change from a pre-tax to a post-tax framework on the basis that the change was unsubstantiated and unnecessary.⁹⁹ Murray Irrigation submitted that further information was needed to justify the case for State Water's RAB to be changed.¹⁰⁰

8.3 IPART's analysis

8.3.1 Financeability

Financeability refers to the capacity of a business to finance its activities – including its day-to-day operations and its capital investments – to renew and expand the infrastructure required for these activities. A financeability allowance is an addition to the revenue calculated under the building block approach. It advances revenue that State Water will receive in the future and is a temporary adjustment to address any financeability concerns. It is not a mechanism to mitigate revenue volatility or to adjust revenue during drought conditions. We consider that the financeability allowance should be calculated based on the forecast sales over the determination period, not the worst case scenario.

Financeability concerns can arise from a number of factors. In State Water's case, current low interest rates results in a lower return on capital, which would have a negative impact on State Water's notional revenue if current conditions continue into ACCC's price review process. The shift from the pre-tax building block framework that we used to determine State Water's prices, to the post-tax framework that will be adopted by the ACCC also has the potential to negatively affect State Water's revenue stream, and as such impact on the State budget.

⁹⁸ State Water submission to the Review of Rural Water Charging Systems Draft Recommendations, 30 July 2012, p 13.

⁹⁹ For example, NSW Irrigators' Council submission to the Review of Rural Water Charging Systems Draft Recommendations, 30 July 2012, p 9. Also, Gwydir Valley Irrigators Association and Murrumbidgee Irrigation.

¹⁰⁰ Murray Irrigation Ltd submission to the Review of Rural Water Charging Systems Draft Recommendations, 30 July 2012, p 5.

The return on capital, in the form of a WACC, compensates shareholders of a business for committing capital to the business. The WACC accounts for the systematic or market-wide risk of holding shares in the relevant business that cannot be avoided by holding it as part of a diversified portfolio (beta value). Business-specific risks such as revenue volatility are not accounted for in the WACC.

Under a post-tax building block framework, tax allowance is a separate revenue building block, instead of being part of the WACC under a pre-tax framework. The tax allowance calculated under a post-tax framework provides a better estimate of tax paid by a well-managed business in a competitive market.

We used 3 scenarios to examine the impact on State Water's revenue from current market conditions, isolated from the impact of the change from a pre-tax to a post-tax methodology:

- ▼ scenario 1 - our 2010 Determination for State Water, real pre-tax WACC
- ▼ scenario 2 - market parameters as per our 2010 Determination for State Water, real post-tax WACC, beta of 0.7
- ▼ scenario 3 - 2012 market parameters, real post-tax WACC, beta of 0.7.

We used the data from our 2010 Determination to analyse State Water's revenue under the 3 scenarios.

The first scenario is our 2010 Determination for State Water. In scenario 2, we analysed the impact of moving to a real post-tax framework with a beta of 0.7 under the ACCC's stated principles,¹⁰¹ but keeping all other market parameters as per our 2010 Determination. In the third scenario we analysed the impact from moving to a real post-tax framework, a beta of 0.7 and updated the market parameters as at 25 June 2012, based on the ACCC's pricing principles. For ease of comparison we have used a real post-tax WACC in the analysis. We note the ACCC's pricing principles state a nominal post-tax WACC would be used. The parameter values and calculated notional revenue are provided in Table 8.1.

¹⁰¹ ACCC, *Pricing principles for price approvals and determinations under the Water Charge (Infrastructure) Rules 2010*, p 26-40.

Table 8.1 Comparison of real pre-tax and post-tax WACC for State Water for 2010/11 (\$2009/10)

	Scenario 1 IPART's 2010 Determination Real pre-tax WACC	Scenario 2 Market parameters per 2010 Determination Real post-tax WACC Beta of 0.7	Scenario 3 2012 market parameters Real post-tax WACC Beta of 0.7
Risk free rate (nominal)	5.8%	5.8%	3.0% ^c
Market risk premium	5.5% - 6.5%	5.5% - 6.5%	6.0% ^b
Equity beta	0.8 – 1.0	0.7	0.7 ^b
Debt risk premium	1.8% - 3.8%	1.8% - 3.8%	2.9% ^d
Gearing (debt to total assets)	60%	60%	60% ^b
Gamma	0.5 – 0.3	0.5 – 0.3	0.25 ^e
Inflation	3.0%	3.0%	2.7% ^e
Tax allowance	N/A	\$2.67m	\$3.44m ^f
WACC- real pre-tax	7.4%	6.8%	4.4%
WACC – real post-tax (6.2% - 8.7%)	6.4% ^a	6.0%	3.6%
Notional revenue (including Fish River)	\$94.1m	\$89.6m	\$78.0m

^a Value of post-tax WACC depends on which value of each parameter in the range shown is chosen.

^b Specified in the ACCC pricing principles.

^c ACCC's pricing principles state that the risk free rate should be based on a 10-year Commonwealth Government Security, using an averaging period of 10-40 days. We have used 20 days averaging period in this example, updated as at 25 June 2012.

^d ACCC's pricing principles state that debt risk premium is to be estimated based on the yields of BBB+ rated corporate bonds with 10-year maturity. There are currently no BBB+ 10-year instruments in the Australian market. In this example, we have used BBB+ 7-year bonds extrapolated to 10 years, as at 25 June 2012.

^e Inflation and gamma are not specified by ACCC's pricing principles. IPART's current policy has been used to derive values in this example.

^f Based on tax depreciation for 2010/11 as provided by State Water. Revenue and expenses as calculated in the model based on the 2010 Determination.

Note: 1) The volatility allowance has been calculated in the same way as per the 2010 Determination for State Water. 2) Statutory tax rate is 30%.

Source: IPART's analysis, ACCC's principles, IPART, *Review of bulk water charges for State Water Corporation - From 1 July 2010 to 30 June 2014 - Final Report*, June 2010.

Once the market parameters are updated based on ACCC's pricing guidelines, our analysis shows a potential 17% reduction in State Water's notional revenue (the difference between scenarios 1 and 3). This translates to a reduction of about 5% on the average bill for a general security customer in the Murrumbidgee Valley.

The current lower than historical interest rates is the major contributing factor to the potential reduction in State Water's notional revenue. There is potentially a need for a financeability allowance to address any short term financial issues for State Water, subject to changes in market conditions.

We do not consider the volatility allowance an appropriate adjustment mechanism for the potential reduction in revenue for State Water under ACCC's pricing principles. A financeability allowance is a more transparent way to address any potential revenue reductions.

Murrumbidgee Irrigation expressed concern that the financeability allowance represents further price increases without tangible increase in services.¹⁰² Responding to that concern, we note that the financeability allowance would be a temporary advance to address financeability concerns and returned to customers in future price determinations by, for example, deducting the allowance from the regulated asset base. Further, we note that unless financial viability issues are addressed, a loss in service delivery or quality could occur.

State Water would need to demonstrate the need for a financeability allowance under ACCC's pricing principles, with reference to the impact on key financial ratios. This analysis would be similar to that which we conducted in our 2012 Determination for Sydney Water. In our Sydney Water Determination,¹⁰³ we analysed key ratios such as, funds from operations interest cover, funds from operations over total debt, debt gearing and earnings before interest and tax interest cover. These are ratios commonly used by credit rating agencies.

To the extent that the financial ratios indicate a lessened ability to fund debt costs and future capital programs, State Water could submit to the ACCC a case for a financeability allowance as an additional notional revenue building block.

8.3.2 Regulated asset base value

In our 2006 Determination for State Water, we retrospectively determined the RAB at July 2004 using a line-in-the-sand approach and a pre-tax weighted average cost of capital (WACC). The RAB was set such that the return on and of assets in the year of State Water's corporatisation (2004/05) provided the same revenue as the annuity approach which had previously been used.¹⁰⁴ The resulting RAB valuation reflects a line-in-the-sand approach, maintaining the revenue generating capacity of the assets in 2004/05.

¹⁰² Murrumbidgee Irrigation submission to the Review of Rural Water Charging Systems Draft Recommendations, 10 July 2012, p 4.

¹⁰³ IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services - from 1 July 2012 to 30 June 2016 - Final Report*, June 2012, p 184.

¹⁰⁴ Under the annuity approach, State Water's annuity was set such that State Water received sufficient returns to fund planned capital investment in the ensuing 30 years.

In our 2011 review on the incorporation of company taxation into our pricing, State Water asserted that a higher initial RAB value would have been calculated using a post-tax WACC. It argued that the 2004/05 RAB should be increased to maintain the revenue neutrality that had been established in our 2006 Determination between the annuity and the return on the initial RAB. We supported the principle of making an adjustment to the initially created RAB to reflect the change to a post-tax WACC.¹⁰⁵

Stakeholders expressed concern at a change to the RAB that is unsubstantiated and would mean an increase in prices.¹⁰⁶

If a post-tax WACC return was to be applied without a commensurate adjustment to the RAB, the revenue generating capacity of State Water's assets would decrease as at 2004/05. This is because a post-tax rate of return is lower than a pre-tax rate of return. Although we allow an additional tax allowance under the post-tax WACC framework, it does not fully offset the decrease in return from moving to a post-tax WACC.

We recommend adjusting the RAB so that the post-tax rate of return, plus the additional tax allowance, equals the pre-tax rate of return from State Water's annuity in 2004/05. In our view, this preserves our line-in-the-sand approach, which requires that the revenue generating capacity of State Water's assets to be maintained with respect to the annuity in 2004/05.

Price determinations under ACCC's pricing principles calculate the rate of return on the RAB under a post-tax WACC framework.¹⁰⁷ The ACCC's pricing principles state that where an operator has had its RAB set by a state regulator in a period before the initial regulatory period under Part 6 of the *Water Charge (Infrastructure) Rules 2010*, this value must form the opening RAB value for the initial determination process under Part 6.¹⁰⁸ However, we consider that there is a case for revaluing State Water's RAB to account for the change from a pre-tax framework to a post-tax framework under the ACCC.

We recommend that State Water submits a case to the ACCC to revalue its RAB to adjust for the change from a pre-tax to a post-tax building block model. We estimate a 3.8% adjustment from State Water's opening RAB on 1 July 2012 of \$672.2 million to a RAB of \$697.9 million would be required to maintain revenue. Our view is that this is a small increase relative to the value of State Water's RAB as at 2012/13 and should not cause large price shocks if the ACCC decides to update the RAB.

¹⁰⁵ IPART, *The incorporation of company tax in pricing determinations*, December 2011.

¹⁰⁶ For example, Gwydir Valley Irrigators Association submission to the Review of Rural Water Charging Systems Draft Recommendations, 30 July 2012, p 3.

¹⁰⁷ ACCC, *Pricing principles for price approvals and determinations under the Water Charge (Infrastructure) Rules 2010*, July 2011, p 29.

¹⁰⁸ ACCC, *Pricing principles for price approvals and determinations under the Water Charge (Infrastructure) Rules 2010*, July 2011, p 25.

To illustrate the potential impact on customers of this recommendation, we used inputs from our 2010 Determination but under a post-tax model to estimate the change in the average bill from the recommended RAB adjustment. We estimate an increase of 0.4% in the average bill in 2010/11 from the change to the RAB based on our recommendation.¹⁰⁹

As we remain the pricing regulator for State Water's operations in coastal valleys, we will consider this issue in the upcoming State Water price determination for these valleys.

8.3.3 Methodologies for valuing the regulated asset base (RAB)

The Commission of Audit final report recommended State Water's regulator examine how to bring State Water's RAB closer to the Modern Engineering Equivalent Replacement Asset value (MEERA).¹¹⁰ We consider valuing State Water's RAB based on MEERA would overstate the value of assets for pricing purposes, unless adjusted.

Revaluing State Water's RAB based on MEERA or the Depreciated Optimised Replacement Cost (DORC) method would include the cost of assets that were originally funded from external revenue. In the case where assets were originally funded by developer contributions, to value the asset based on MEERA for pricing purposes means the users would be paying for the assets twice. Where assets have been funded by Government, there would have been an explicit Government intent not to impose the cost of the asset on users.

Using MEERA to revalue State Water's RAB also means the value of stranded assets and assets not utilised for productive purposes are included in the asset base, unless adjusted.

The Productivity Commission considered the issue of asset valuation in its Inquiry Report into Australia's Urban Water Sector and concluded that taking a 'line in the sand' and valuing assets commissioned after that point based on replacement cost is a reasonable approach. In particular, the Productivity Commission considered the replacement cost method would provide both windfall gains and losses to infrastructure owners.

If an infrastructure owner had recovered the cost of an investment, and a DORC valuation allowed increased returns, this would provide an element of economic rent to the infrastructure owner.¹¹¹

¹⁰⁹ Using the equivalent recommended RAB adjustment as at 1 July 2010, from \$466.4 million to \$491.1 million, an increase of 5.3%. The average bill increase is calculated for medium general security customers.

¹¹⁰ Commission of Audit Final Report, August 2012, p 232.

¹¹¹ Productivity Commission, *Inquiry Report – Australia's Urban Water Sector*, No. 55, 31 August 2011, pp 274-275.

The converse would hold if the application of the DORC approach lead to sub-optimal assets being written down.¹¹²

Upward revaluation of State Water's RAB towards MEERA would increase State Water's notional revenue and hence increase both the users' and the Government's share of State Water's efficient costs.

The gross replacement cost (before depreciation) of State Water's assets as at 30 June 2011 was \$3.5 billion.¹¹³ Compared to the closing RAB of \$571 million as at 30 June 2011 (after depreciation),¹¹⁴ this is a significant change if State Water's RAB was to be revalued based on MEERA, which would result in a sizeable increase in State Water's notional revenue, to be funded by users and the Government.

We consider that valuing State Water's RAB using a converted annuity approach and considering an asset's revenue generating capacity is appropriate and is unrelated to the replacement costs of the assets. The prudent and efficient costs of assets as replaced will be added to the RAB when incurred.

¹¹² Ibid.

¹¹³ State Water, *State Water Corporation 2010-11 Annual Report*, p 130. Note the net cost after depreciation is \$386 million as at 30 June 2011.

¹¹⁴ \$2010/11 using data from the 2010 Determination for State Water.



Appendices

A Terms of Reference



The Hon Katrina Hodgkinson MP
Minister for Primary Industries
Minister for Small Business

OM12/2231

Mr James Cox PSM
Chief Executive Officer
Independent Pricing and Regulatory Tribunal
PO Box Q290
QVB POST OFFICE NSW 1230

Dear Mr Cox *James,*

The NSW Government seeks to improve the manner in which bulk water charges are levied throughout the state. Ensuring efficient and effective levying of bulk water charges is important in maintaining profitable agricultural industry and the viable provision of bulk water delivery services.

As you are aware, bulk water charges in the Murray Darling portion of NSW will soon be levied in accordance with the Australian Competition and Consumer Commission (ACCC) pricing principles. It is timely to examine bulk water charges at this time such that the State Water Corporation (SWC) is able to provide the strongest possible pricing submission to the ACCC.

As such, I seek your assistance under Section 9 of the *Independent Pricing and Regulatory Tribunal Act 1992* (the Act) to carry out a review of bulk water charges in NSW.

The terms of reference are at Attachment A.

A report should be provided to me by 15 August 2012, to allow SWC to incorporate the findings into their pricing submission to the ACCC.

Section 9 of the Act requires that the Premier approve of IPART to provide services to me under that section, accordingly I have obtained the approval of Cabinet for this work to be undertaken by IPART.

I look forward to receiving IPART's report on this important topic.

Yours sincerely

Katrina Hodgkinson MP
Minister for Primary Industries

22 MAY 2012

Attachment A

Consistent with the NSW Government's Commission of Audit into Public Sector Management to review the current state fiscal situation and to establish a framework for future reform, the Independent Pricing and Regulatory Tribunal (IPART) is to conduct a review, and provide a final report to the Minister for Primary Industries by 15 August 2012 on the following:

1. Examine ways that the billing of bulk water charges might be better matched to business cash flows, for example may examine:
 - Varying the timing of water bills and payment terms in relation to farm cash flow
 - Varying the ratio of fixed to variable charges
 - Options for differential fixed charges (based on seasonal conditions)
 - Options for differential variable (e.g. stepped or volume based) charges
 - Use of modern telemetered meters.
2. Potential methods of determining the Government cost share for ACCC determined bulk water charges in NSW, which may include a role for IPART.
3. The potential impacts to customers, State Water Corporation, and the NSW Office of Water of future pricing arrangements, and make recommendations that will assist the NSW Government to maintain viable and economically sustainable provision of services to customers.

IPART should produce an initial issues paper to facilitate consultation, hold at least one public hearing, and conduct targeted consultation as necessary and appropriate, including at least one workshop in each the north and the south of the NSW portion of the Murray-Darling Basin.

All advice and recommendations should consider:

- Impacts on customers', SWC and Office of Water cash flows, revenue streams, and forward business planning
- Potential impacts on the NSW financial position
- Statutory or policy barriers to the implementation of any recommendations
- The NSW Government's Commission of Audit into public sector management

B Hardship policy and government assistance for farmers

B.1 Hardship policy

State Water fulfils the billing function for its own customers as well as issuing invoices to NOW's licence holders on NOW's behalf. State Water bills all regulated river customers (its own and NOW's) quarterly (October, January, April and August), in arrears. State Water bills NOW's unregulated river and groundwater customers annually in arrears.¹¹⁵ All accounts are payable in full, within 30 days of the date of issue.¹¹⁶

If an account is not paid by the due date, interest will be charged on the outstanding amount. If a customer does not pay his/her bill, State Water may suspend the customer's licence and this will affect the customer's ability to order and take water.¹¹⁷

Interest is charged on overdue bills in accordance with the prescribed rate at which interest is payable under section 101(7) of the *Civil Procedure Act 2005* (NSW), sometimes referred to as the post-judgement interest rate. The current rate post-judgement rate is 9.5%. Interest will be charged even if a customer has negotiated a payment plan with State Water. Customers may request for interest to be waived.¹¹⁸

For State Water's hardship policy, which applies equally to NOW customers, see Box B.1.

¹¹⁵ As per NOW website. See:

<http://www.water.nsw.gov.au/Water-management/water-management-charges/default.aspx>

¹¹⁶ As per State Water website. See

<http://www.statewater.com.au/Customer+service/Billing+and+accounts>

¹¹⁷ Ibid.

¹¹⁸ Ibid.

Box B.1 State Water's Hardship Policy^a

State Water can negotiate a payment plan for your account if you are experiencing genuine hardship. This will reduce the risk of your licence being suspended for non-payment.

To be eligible for a deferred payment plan longer than three months, you must satisfy one or more of the following conditions:

- ▼ You are receiving direct benefits from the Commonwealth Exceptional Circumstances Scheme.
- ▼ You are receiving benefits under a State-operated drought or other natural disaster relief scheme.
- ▼ You are suffering conditions arising from a drought of record in your valley/area, and have no carryover water or access to other water.
- ▼ You are experiencing conditions that create a direct and significant impact on your ability to pay water charges.

Your application must be supported by one or more of the following:

- ▼ Documentary evidence from Centrelink or the Rural Assistance Authority that demonstrates financial hardship.
- ▼ Evidence that farm income has been reduced by at least 70% due to the abnormal conditions being experienced.
- ▼ A Statutory Declaration of off-farm income and investment levels, with evidence that annual off-farm income is less than \$20,000 per annum.
- ▼ Evidence that you have attempted to trade any available water on the temporary or permanent market, eg, copies of water transfer applications.

a As per State Water website. See <http://www.statewater.com.au/Customer+service/Billing+and+accounts>

B.2 Government assistance

Both State and Commonwealth Governments have offered financial and other assistance to drought-stricken farmers. Many of these have been one-off or fixed-term relief programs or schemes which have been terminated (See Box B.2). Others, such as Exceptional Circumstances (EC),¹¹⁹ are ongoing programs, triggered by drought declarations.

In 2008, the Commonwealth Government announced a review of drought policy, including a request for a report from the Productivity Commission (PC). The PC, in its Government Drought Support report,¹²⁰ reviewed the drought relief assistance measures described here. It recommended abolishing many of the forms of assistance. Many of these recommendations have been implemented.

¹¹⁹ <http://www.daff.gov.au/agriculture-food/drought/ec/>

¹²⁰ Productivity Commission, *Government Drought Support Report, No 46*, 27 February 2009, http://www.pc.gov.au/_data/assets/pdf_file/0010/86275/drought-support.pdf

The PC also recommended that income support payments be maintained, but to abolish the system which restricted benefits to those living in a defined EC area.¹²¹ This recommendation has not yet been implemented.

The Commonwealth Government's review into drought policy is still in progress.¹²²

Non-financial assistance is also provided during drought, for example, financial and social counselling advice,¹²³ and mediation services.

Box B.2 Discontinued drought relief measures

Waived charges: In the most recent drought, the NSW Government waived fixed water charges if a valley received zero water allocation for 2 consecutive years^a.

Rate rebates: The Victorian^b and Queensland^c governments have offered one-off or short term rebates for municipal rates and water rates to drought-stricken communities.

EC Interest Rate Subsidy: This provided 50% to 80% relief for interest payable on loans up to a fixed total cap. Closed after June 2012 as it was found to be 'ineffective and could result in farm businesses being less responsive to drought conditions'.^d

EC Exit Grant: The Exceptional Circumstances Exit Grant was targeted at low-income and low-asset farm owners who had a significant long-term personal and financial attachment to their property and chose to leave farming. The program has been closed since 10 August 2011^e.

Murray-Darling Basin Irrigation Management Grants: Available for implementing water management strategies in response to temporarily reduced water allocations. Program concluded in 2009/10^f.

^a Media release from the Premier of NSW 14 December 2009, *Make NSW Number One Again*, Coalition pre-election policy, September 2010.

^b Media releases from the Premier of Victoria, 13 October 2008 and 22 October 2009.

^c See QRAA Media Release, 10 Sept 2008. See also: <http://www.qraa.qld.gov.au/images/documents/20080103163805Rate%20Rebate%20Fact%20Sheet%20121207%20vers%205.pdf>.

^d <http://www.daff.gov.au/agriculture-food/drought/assistance/business-support>

^e <http://www.daff.gov.au/agriculture-food/drought/assistance/exit-grants>

^f Media release by Minister for Agriculture, Fisheries and Forestry, 8 May 2009

http://www.maff.gov.au/media_office/media_releases/Burke-media-releases/2009/may_2009/irrigators_given_more_time_to_implement_water_saving_grant

¹²¹ Productivity Commission, *Government Drought Support Report, No 46*, 27 February 2009, Chapter 6 Key points, p 123.

¹²² See also Media Release from the Hon Joe Ludwig 27 April 2012, accessible at: http://www.daff.gov.au/ludwig/media_office/media_releases/media_releases/2012/april/Australia-to-be-drought-free

¹²³ <http://www.raa.nsw.gov.au/rfc>; <http://www.daff.gov.au/agriculture-food/drought/assistance/counselling>

Exceptional Circumstances Relief Payment (Household Income Support)

This support is delivered by Centrelink on behalf of the Department of Agriculture, Fisheries and Forestry. It is a payment, generally at the same rate as Newstart Allowance (employment benefit), and is available to anyone in an EC declared area. Other conditions, such as Australian residency and a receipt of other allowances or pensions also apply. Under certain circumstances, it is available to small business owners.¹²⁴

Interim Income Support

Interim Income Support is equivalent to the Newstart Allowance, but available for up to 6 months while an application for an EC area declaration is being made. Under certain circumstances, it is available to small business owners.¹²⁵

Farm Management Deposits

Farm Management Deposits (FMD) allow farmers to deposit money in bank accounts and receive tax benefits if kept for at least 12 months. Tax is not payable on the income earned until the financial year it is withdrawn, when primary producers may benefit from a lower marginal tax rate. The FMD Scheme encourages individual farmers to set aside pre-tax income in good years for use in low-income years.¹²⁶

Tax Relief

The Taxation Office provides assistance to people who find it difficult to pay their tax debts due to the impact of the drought on their income. Assistance is available to farmers and other taxpayers, whose income is derived from drought affected areas.

There are 2 forms of assistance available:

- ▼ more time to pay tax debts without interest charges, or
- ▼ payment by instalment without interest charges.

In special circumstances, the Taxation Commissioner may release individuals from payment of income tax, fringe benefits taxes and some other taxes where it is shown that payment would cause serious hardship¹²⁷.

¹²⁴ <http://www.centrelink.gov.au/internet/internet.nsf/payments/ecrp.htm>

¹²⁵ http://www.centrelink.gov.au/internet/internet.nsf/payments/interim_income.htm

¹²⁶ <http://www.daff.gov.au/agriculture-food/drought/assistance/fmd>

¹²⁷ <http://www.ato.gov.au/businesses/content.aspx?doc=/content/43900.htm>

C Examples of how the deferral policy would work

In this appendix we set out 2 examples to illustrate how the conditional deferral of fixed charges would work in practice, using our recommended trigger of 2 consecutive years of less than 5% end of year allocations. The examples are:

- ▼ 2 years of end of year allocations below 5% followed by a year of above 5% end of year allocations
- ▼ 3 years of end of year allocations below 5% followed by a year of above 5% end of year allocations.

Box C.1 Example 1 – 2 years of end of year allocations below 5% followed by a year of above 5% end of year allocations

	30 June Year1	30 June Year 2	30 June Year3
End of year allocations	2%	3%	20%

Note: State Water and NOW issues quarterly bills in August, October, January and April of each year.

When does the deferral occur?

The first bill in relation to year 3, issued in October of year 3 and subsequent bills issued in January, April and August (issued in year 4) relating to year 3. Customers can also choose to pay their bills within the normal payment terms of 30 days.

What charges are deferred?

The fixed water charges on the bills can be deferred.

How long is the deferral period?

The bills will be issued by State Water and NOW with payment terms of 2 years. For example, the bill issued in October of year3 will be due for payment in October of year 5.

When do payment terms revert to 30 days?

The first bill in relation to year 4, issued in October of year 4.

We have calculated the value of revenue (including holding costs) that would have to be deferred by State Water and NOW, under example 1. This analysis assumes there was 2 years of less than 5% allocation occurring in 2008/09 and 2009/10 in every valley, resulting in a deferral of charges for the 2010/11 year. The value of the amounts deferred for State Water and NOW's fixed charges are shown in Table C.1. For illustrative purposes, we have used the current Supreme Court post-judgement rate of 9.5%, plus 2%, and have calculated interest as compounded annually.

Table C.1 Value of fixed charge revenue deferred in 2010/11 including holding costs \$'000 (\$2009/10)

Regulated rivers	State Water		NOW	
	Deferred revenue	Holding cost	Deferred revenue	Holding cost
Border Rivers	939	228	373	91
Gwydir	2,243	546	416	101
Namoi	2,297	559	321	78
Peel	298	72	57	14
Lachlan	2,962	720	674	164
Macquarie	2,591	630	655	159
Murray	5,291	1,287	3,221	784
Murrumbidgee	4,561	1,109	2,804	682
Hunter	2,973	723	256	62
North Coast	51	12	31	8
South Coast	109	27	45	11

Source: IPART calculations.

Example 2 in Box C.2 represents conditions of extreme drought. In this case, that there are 3 consecutive years of less than 5% allocations, the deferral would apply to fixed charges incurred in years 3 and 4.

Box C.2 Example 2 – 3 years of end of year allocations below 5% followed by a year of above 5% of end of year allocations

	30 June Year 1	30 June Year 2	30 June Year 3	30 June Year 4
End of year allocations	1%	2%	3%	25%

Note: State Water and NOW issues quarterly bills in August, October, January and April of each year.

When does the deferral occur?

The first bill in relation to year 3, issued in October of year 3 and subsequent bills issued in January, April and August (issued in year 4) that relate to year 3. The deferral would also apply to bills in relation to year 4. Customers can also choose to pay their bills within the normal payment terms of 30 days.

What charges are deferred?

The fixed water charges on the bills can be deferred.

How long is the deferral period?

The bills will be issued by State Water with payment terms of 2 years. For example, the bill issued in October of year 3 will be due for payment in October of year 5. The bill issued in October of year 4 will be due for payment in October of year 6.

When do payment terms revert to 30 days?

The first bill in relation to year 4, issued in October of year 5.

Table C.2 shows the value of revenue from fixed charges that would be deferred (including holding costs) if there were 3 consecutive years of allocations below 5%, in every valley. For illustrative purposes, we have used the current Supreme Court post-judgement rate of 9.5%, plus 2%, and have calculated interest as compounded annually.

Table C.2 Value of revenue from fixed charges deferred under 3 consecutive years of allocations below 5% \$'000(\$2009/10)

Regulated rivers	State Water		NOW	
	Deferred revenue	Holding cost	Deferred revenue	Holding cost
Border	1,827	444	891	217
Gwydir	4,480	1,090	957	233
Namoi	4,575	1,113	793	193
Peel	647	157	127	31
Lachlan	6,005	1,461	1,482	361
Macquarie	5,268	1,281	1,538	374
Murray	10,525	2,560	6,247	1,520
Murrumbidgee	9,089	2,211	5,561	1,353
Hunter	5,905	1,436	613	149
North Coast	107	26	67	16
South Coast	230	56	93	23

Source: IPART calculations.

We note there has been an instance of 4 consecutive years of zero allocations in historical IQQM modelling. Under such exceptional circumstances, the Government may consider drought relief measures.

D Valley based pricing versus postage stamp pricing

National pricing reforms that began with COAG in 1994 aimed to drive improved economic, environmental and social outcomes by setting cost reflective prices. Prior to this, there were no clear signals for the industry to operate and invest efficiently. Equity and affordability concerns were to be addressed separately and transparently through customer service obligations to avoid distorting efficient pricing outcomes.¹²⁸

Cost reflective pricing requires that charges vary to reflect regional differences in the cost of bulk water services. The question is how far to disaggregate water charges. At one extreme, the whole state could be regarded as one region with a uniform charge. This is known as postage stamp pricing. The Peel Valley Water Users'¹²⁹ Association, Tamworth Regional Council¹³⁰ and the Member for Tamworth¹³¹ have argued for postage stamp pricing. At the other extreme, attempts could be made to determine charges specific to each individual user.

Since 1995/96, we have found that an appropriate balance between these 2 extremes was to set prices on a valley (catchment) basis.¹³² This recognises the different costs of servicing different valleys. Before this, prices were averaged across the state, resulting in cross subsidies between water users in high cost and low cost valleys.¹³³ Any move to re-introduce postage stamp pricing (as suggested by some stakeholders) will re-introduce cross-subsidies between different water users and negate the progress that has been made in setting cost reflective prices on a valley basis since 1995.

¹²⁸ National Water Commission, *Review of pricing reform in the Australian water sector*, 2011, p 14.

¹²⁹ Peel Valley Water Users Association submission to Rural Water Charging System Discussion Paper, 11 July 2012, p 6.

¹³⁰ Tamworth Regional Council submission to Rural Water Charging System Discussion Paper, 10 July 2012, p 2.

¹³¹ Kevin Anderson MP for Tamworth submission to Rural Water Charging Systems Discussion Paper, 10 July 2012.

¹³² IPART, *Bulk Water Prices - An interim report*, October 1996, p 92.

¹³³ IPART, *Bulk Water Prices - An interim report*, October 1996, p 85.

D.1 Background on water pricing reforms

National pricing reforms (see Box D.1) aimed to overcome the inefficient practice of setting prices to achieve numerous conflicting objectives. Specifically, the NWI pricing reforms seek to give effect to the principle of user pays for water storage and delivery in irrigation systems in order to promote more efficient use of water resources and the infrastructure and services used to provide water.¹³⁴ User pays pricing is important for sending a price signal to water users. In this context, the National Water Commission considers that water charges should be set to reflect costs, on the basis of location, to the extent that it is practicable to do so and where the benefits of doing so outweigh the costs.¹³⁵ This results in the removal of inefficient cross subsidies and inequities and provides a rational and defensible approach to pricing.¹³⁶

Box D.1 Background on National Pricing Reforms

COAG Water Reform Framework (1994)^a

The 1994 COAG Water Reform Framework provided the first agreed set of national reforms for the urban and rural water sector. It had a strong focus on pricing and institutional reform. The framework embraces pricing reform based on the principles of consumption based pricing and full cost recovery, the reduction or elimination of cross-subsidies and making the remaining subsidies transparent.

The National Water Initiative (2004)^b

The 2004 NWI covers 8 elements, including best practice pricing and institutional arrangements. The NWI pricing reforms seek to promote water use efficiency and innovation in urban and rural areas.

Sources

^a Council of Australian Governments: Hobart, 25 February 1994, Communique.

^b National Water Initiative Pricing Principles, <http://www.environment.gov.au/water/policy-programs/urban-reform/nwi-pricing-principles.html>, accessed 7 August 2012.

¹³⁴ National Water Initiative pricing principles, p 2.

¹³⁵ National Water Commission, *Review of pricing reform in the Australian water sector 2011*, April 2011, p 30 and 44.

¹³⁶ National Water Commission, *Review of pricing reform in the Australian water sector 2011*, April 2011, p 11.

D.2 IPART's basis for setting valley based prices

In our first bulk water review in 1996¹³⁷, we found that there was a case for better catchment based charging, reflecting different catchment based activities and costs. Prior to this, water charges were set by averaging the costs across all regions, rather than being region specific. Specifically we stated that:

Any aggregation of charges implies some deviation from full cost reflectivity and creates some cross subsidies between users. However, this is unavoidable in any realistic pricing arrangement. In principle, our view is that costs that are incurred on behalf of a specific region should be paid for by that region alone.¹³⁸

We found that there were a number of factors that caused costs (and therefore prices) to be different across valleys. This included:

- ▼ system complexity
- ▼ variation in importance of 'allocation' water in total consumption
- ▼ natural resource constraints and environmental maintenance requirements
- ▼ physical asset capacity and age
- ▼ ease of regulatory enforcement
- ▼ variations in the cost of supplying high security needs in different systems.¹³⁹

On this basis, we made a recommendation in the 1996 review that regional differences in the cost of bulk water services be reflected in the water charges to each particular region.¹⁴⁰ This has required State Water and NOW to develop their systems to ensure that costs are recorded on a regional basis. This approach has led to valley based prices being implemented over 5 separate determinations including the most recent determinations for State Water¹⁴¹ and NOW¹⁴². This approach is well accepted by most stakeholders¹⁴³ because it reduces cross subsidies and allows greater accountability of costs.

¹³⁷ IPART, *Bulk Water Prices - An interim report*, October 1996.

¹³⁸ IPART, *Bulk Water Prices - An interim report*, October 1996, p 29.

¹³⁹ IPART, *Bulk Water Prices - An interim report*, October 1996, p 79.

¹⁴⁰ IPART, *Bulk Water Prices - An interim report*, October 1996, p 92.

¹⁴¹ IPART, *Review of bulk water charges for State Water Corporation from 1 July 2010 to 30 June 2014 - Final Report*, June 2010.

¹⁴² IPART, *Review of prices for the Water Administration Ministerial Corporation for the NSW Office of Water - from 1 July 2011 - Final Report*, February 2011.

¹⁴³ For example, NSW Irrigators Council submission to Rural Water Charging Systems Discussion Paper, 10 July 2012, p 6.

E Typical farms

In order to analyse the relationship between water availability and farm cash flows, we estimated regulated river typical entitlement volume and annual usage for irrigation businesses in each valley.

The entitlement size of irrigation businesses varies between valleys, primarily due to historical licensing decisions based on agronomic conditions and the estimate of water resources at the time. In the north of the State, significant numbers of area based licences were converted to a general security licenced volume of 972 ML. Many irrigation businesses have multiple licences. We have estimated typical water holdings in the Murrumbidgee and Murray Valleys based on studies conducted in these areas by Murray Irrigation and the former NSW Department of Primary Industries.¹⁴⁴

The entitlement estimates for the Namoi Valley are based on work by NSW Department of Trade and Investment.¹⁴⁵ We have adjusted the estimate by the NSW Department of Trade and Investment as their report was focussed on the Lower Namoi.

More information on licences held in each water source can be found on the Water Access Licence Conditions Register.¹⁴⁶

Information on reliability, or average usage, for regulated water sources in the Basin was sourced from NOW.¹⁴⁷ For valleys outside the Basin, we derived the average usage based on extraction figures over the past 20 years as a proportion of entitlement on issue, with some adjustment to allow for the volume of high security entitlements and usage in a valley.

¹⁴⁴ Singh, R.P., Mullen, J.D., and Jayasuriya, R.T., *Farming Systems in the Murrumbidgee Irrigation Area in NSW, Economic Research Report No. 10*, NSW Department of Primary Industries, Yanco, 2005, p 22.

¹⁴⁵ Powell, J. and Scott, F., *A Representative Irrigated Farming System in the Lower Namoi Valley of NSW: An Economic Analysis*. Economic Research Report No. 46, Industry & Investment NSW, Narrabri, January 2011, p 32.

¹⁴⁶ www.registers.water.nsw.gov.au/wma/AccessLicenceSearch.jsp?selectedRegister=AccessLicence

¹⁴⁷ Ribbons, C., *Water availability in New South Wales Murray-Darling Basin regulated rivers*, NSW Department of Water and Energy, Sydney, 2009.

Estimates of the variability in usage are also based on an analysis of the 20 years of data used in the 2010 Determination. We calculated the usage in the 25th percentile over the last 20 years as a percentage of average usage over the same period - an indication of variability in usage in each valley. This degree of variability is then applied to the average usage for a typical farm,¹⁴⁸ to derive water usage at the 25th percentile, ie estimated typical farm usage in times of less than average availability.

For the North Coast and South Coast, actual usage figures were not available so a factor of 10% is used to estimate usage that is higher and lower than typical.

Table E.1 Typical irrigation business used to assess alternative tariff structures (ML)

Regulated rivers	Entitlement	Average usage	Estimated usage at 25th percentile	Estimated usage 5% water allocation
Border Rivers	2,000	800	627	100
Gwydir	2,000	800	451	100
Namoi	1,500	1,125	661	75
Peel	500	100	73	25
Macquarie	1,400	700	417	70
Lachlan	1,100	550	160	55
Murrumbidgee	1,400	840	756	70
Murray	1,300	910	694	65
North Coast	200	40	36	10
Hunter	150	60	48	8
South Coast	200	70	63	10

Note: North coast and South Coast estimates are 10% above and below average usage estimated for the past 20 years.

Source: IPART calculations.

Entitlement and Usage data

In our 2010 Determination for State Water, we decided to use a 20-year moving average of modelled and actual extractions data. However, 20-years of reliable actual extractions data are 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

¹⁴⁸ Ribbons, C., *Water availability in New South Wales Murray-Darling Basin regulated rivers*, NSW Department of Water and Energy, Sydney, 2009.

- ▼ a forecast for the most recent year provided by State Water (2009/10).

Table E.2 Entitlement and usage forecasts used in 2010 Determination

Regulated rivers	High security entitlement (ML)	General security entitlements (ML)	Average annual usage (ML)
Border Rivers	3,125	263,085	148,535
Gwydir	21,458	509,665	247,734
Namoi	8,527	255,780	165,558
Peel	17,381	30,911	13,052
Macquarie	42,594	631,716	300,832
Lachlan	60,778	632,946	258,319
Murrumbidgee	436,928	2,264,065	1,805,846
Murray	257,438	2,076,223	1,541,376
North Coast	137	10,193	906
Hunter	70,738	147,909	139,141
South Coast	967	14,197	5,804
Total	920,071	6,836,689	4,627,102

Source: IPART, *Review of bulk water charges for State Water Corporation - From 1 July 2010 to 30 June 2014 - Final Report*, June 2010, pp, 119-120,127-128.