

Independent Pricing and Regulatory Tribunal
New South Wales

WaterNSW

**Review of prices for rural bulk water services
from 1 July 2017 to 30 June 2021**

Final Report
Water

June 2017



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Contents

1	Executive summary	1
1.1	Introduction	1
1.2	Customer bills in most valleys fall in real terms, however bills increase in Murray and Murrumbidgee valleys	2
1.3	Key drivers of bill changes	5
1.4	Our prices are broadly lower than current prices, excluding inflation	8
1.5	IPART's review process	12
1.6	Structure of this report	13
1.7	List of decisions	14
2	Overview of our approach	20
2.1	WaterNSW's operating and regulatory framework	20
2.2	IPART's approach to the review	25
2.3	IPART's review process	28
3	Form of regulation	29
3.1	We have set a 4-year determination period	29
3.2	We have set price caps	31
3.3	We have established an efficiency carryover mechanism	31
4	Revenue requirement	36
4.1	We use building blocks to calculate the NRR	36
4.2	WaterNSW's NRR	38
4.3	Customer share of notional revenue requirement and target revenue	40
5	Operating expenditure allowance	43
5.1	Summary of operating expenditure	43
5.2	WaterNSW proposed lower operating expenditure	46
5.3	Our analysis broadly supports WaterNSW's proposal	48
6	Capital expenditure	53
6.1	Our decisions on capital expenditure	54
6.2	We have accepted past capital expenditure as prudent and efficient	57
6.3	WaterNSW is forecasting an increase in capital expenditure	58
6.4	We have allowed less expenditure than WaterNSW proposed	60
7	Allowance for a return on assets, regulatory depreciation and tax obligations	66
7.1	The value of the Regulatory Asset Base	66
7.2	Asset disposals	69
7.3	Return on capital	70
7.4	Regulatory depreciation	75
7.5	Allowance for tax	79
8	Other costs	81
8.1	MDBA and BRC payments	81
8.2	The unders and overs mechanism	86

8.3	We have included costs which reflect volatility risk	91
9	Sharing of WaterNSW's revenue requirements	97
9.1	Sharing of WaterNSW's revenue requirements for the 2017 determination period	97
10	Forecast entitlement and usage volumes	103
10.1	Licensed water entitlements	103
10.2	Usage volumes	105
10.3	Fish River Water Supply Scheme	110
11	Tariff structures	115
11.1	Fixed versus variable charges	115
11.2	High Security Premium	122
11.3	Structure of MDBA and BRC charges	129
11.4	Structure of Fish River Water Supply (FRWS)	132
12	Bulk water prices	135
12.1	Entitlement charges	136
12.2	Usage charges	140
12.3	Fish River Water Supply	145
12.4	Setting prices in valleys below full cost recovery	148
12.5	Yanco Creek levy	161
13	Miscellaneous charges and ICD discounts	163
13.1	Meter service charges	163
13.2	Water reading and assessment charge	167
13.3	Trade processing charge	168
13.4	Environmental gauging station charge	169
13.5	Meter accuracy testing charges	172
13.6	Fish River connection and disconnection charges	174
13.7	Credit card payment fee	176
13.8	Irrigation corporations and districts discounts	177
14	Impacts on customer bills	183
14.1	Customer bill impacts from WaterNSW's bulk water service charges	183
14.2	Impact on WaterNSW's financial viability and shareholders	204
	Appendices	211
A	Matters to be considered	213
B	Output measures	218
C	Annual reviews	221
D	Outstanding UOM balances	229
E	Efficiency carryover mechanism	231
F	Customer and NSW Government share of WaterNSW revenue requirements	245
G	Building blocks by valley	255
	Glossary	299

1 Executive summary

1.1 Introduction

The Independent Pricing and Regulatory Tribunal of NSW (IPART) has determined the maximum prices that WaterNSW can charge for the delivery of its rural bulk water services.¹

WaterNSW delivers bulk water to irrigators and other licence holders on regulated rivers across NSW.² WaterNSW operates 42 large dams and weirs and delivery infrastructure such as pipelines, to deliver water to around 6,300 customers.³

We regulate WaterNSW's prices for its rural bulk water services, which relate primarily to storing and delivering water to entitlement holders in 13 valleys⁴ across NSW.

Summary

Our decisions are that WaterNSW's efficient core costs are falling. There are significant reductions in our allowances for operating expenditure and return on capital. Whilst this is in part offset by a modest increase in our allowance for regulatory depreciation, the broad reduction in efficient costs means that, without inflation, prices and bills to recover WaterNSW's core costs are falling in most valleys.

In the Murray and Murrumbidgee valleys, customers also pay Murray-Darling Basin Authority (MDBA) pass-through charges to recover the costs of WaterNSW's payments in relation to the MDBA.⁵ While we have applied a reduction to the proposed MDBA payments, MDBA charges are increasing relative to the current determination period. This has put upward pressure on total bills in these valleys, in particular the Murray valley.

We have also made changes to tariff structures in the Peel, the Fish River Water Supply Scheme, North Coast and South Coast valleys. And we updated the high security premiums, which impacts entitlement charges, particularly in the Hunter and Gwydir valleys.

This report sets out our decisions on WaterNSW's maximum prices over the **4-year period** from 1 July 2017 to 30 June 2021 (the 2017 determination period).

¹ In June 2016, we released our Determination and Final Report setting out the maximum prices that WaterNSW can charge for its bulk water services for Greater Sydney.

² The difference between unregulated and regulated rivers is that regulated rivers are controlled by a major storage or dam to supply water.

³ Some irrigators are served directly by Irrigation Corporations or Districts (ICDs) in the Lachlan, Murray and Murrumbidgee valleys. These ICDs are the licence holders and as such the direct customers of WaterNSW. The final prices we have set apply to the ICDs. The infrastructure within ICDs is managed by the ICDs themselves and we do not regulate the prices or charges they levy on end users.

⁴ Including the Fish River Water Supply Scheme (FRWS).

⁵ The MDBA undertakes activities related to bulk water infrastructure services in these valleys. The NSW Government pays for the NSW share of MDBA costs. WaterNSW collects revenue from customers for the NSW Government's MDBA payments.

We outline how these prices will likely affect water licence holders across the state and the rationale and analysis that underpin our decisions.

There are three broad categories of prices that we set in this review:

- ▼ **Bulk water charges** – annual prices to recover customers’ share of the efficient costs of delivering WaterNSW’s rural bulk water services. These are levied as a two-part tariff, comprising:
 - fixed entitlement charges - \$ per megalitre (ML) of licensed entitlement, and
 - variable usage charges - \$ per ML of water used (extracted from the river).
- ▼ **MDBA and Barwon-Dumaresq Border Rivers Commission (BRC) charges** – which we have set for licence holders in the Murray and Murrumbidgee (MDBA) and Border (BRC) valleys to recover the costs of services delivered by the MDBA and BRC. These are also levied as a two-part tariff, comprising entitlement and usage charges.
- ▼ **Miscellaneous charges** – which include a range of charges for meter services and other miscellaneous activities.

Unless otherwise stated, the dollar figures in this report are in \$2016-17.

The sections below summarise the impact of our decisions on customers’ bills, key determinants of prices and bills, the prices for each valley, and the structure of this report. We conclude this chapter by listing our key decisions.

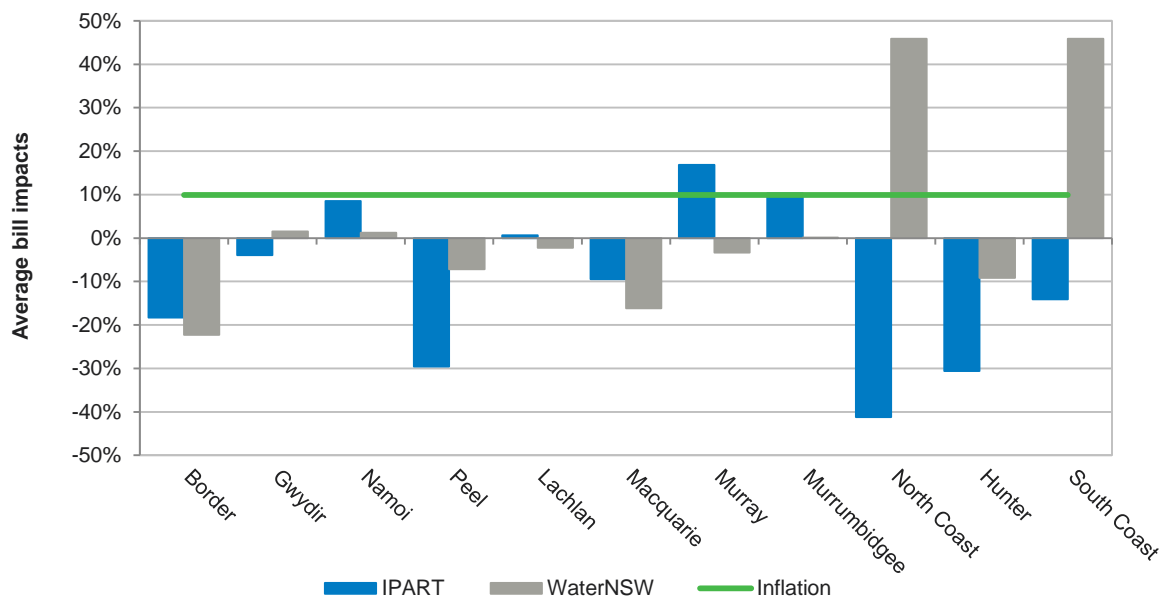
1.2 Customer bills in most valleys fall in real terms, however bills increase in Murray and Murrumbidgee valleys

Excluding MDBA and BRC charges, indicative bills fall in real terms in all valleys. However, due to the increase in MDBA and BRC charges, combined bills for customers in the Murray and Murrumbidgee increase in real terms.

High Security customers

Figure 1.1 below sets out indicative bill impacts for High Security (HS) customers arising from our determination.

Figure 1.1 Indicative bill impacts compared to current prices for high security customers – IPART decisions and WaterNSW proposal (% change from 2016-17 to 2020-21, \$nominal^a)



a Forecast inflation is 10.0% over the 2017 determination period.

Note: Includes BRC and MDBA charges. Lowbidgee is excluded as there are only supplementary entitlements in the valley.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Figure 1.1 shows that, under our determination, typical bills⁶ for HS customers will fall in the following valleys:

- ▼ Border
- ▼ Gwydir
- ▼ Peel
- ▼ Macquarie
- ▼ North Coast
- ▼ Hunter, and
- ▼ South Coast.

These reductions, over the period 2016-17 to 2020-21, range from 41% in the North Coast valley, to 4% in the Gwydir valley. Key drivers of these reductions include:

- ▼ lower efficient costs, including operating expenditure and return on capital (through a lower WACC⁷) in all valleys, and
- ▼ lower HS premiums, in particular in the Hunter, Gwydir and Macquarie valleys.

Typical HS customer bills will increase, but by less than inflation in the Namoi valley.

⁶ Including forecast inflation of 10.0% over the 2017 determination period.

⁷ Weighted Average Cost of Capital (WACC).

In the Murray valley, HS customers will see an increase (of 17%) in bills, including inflation. This is a result of:

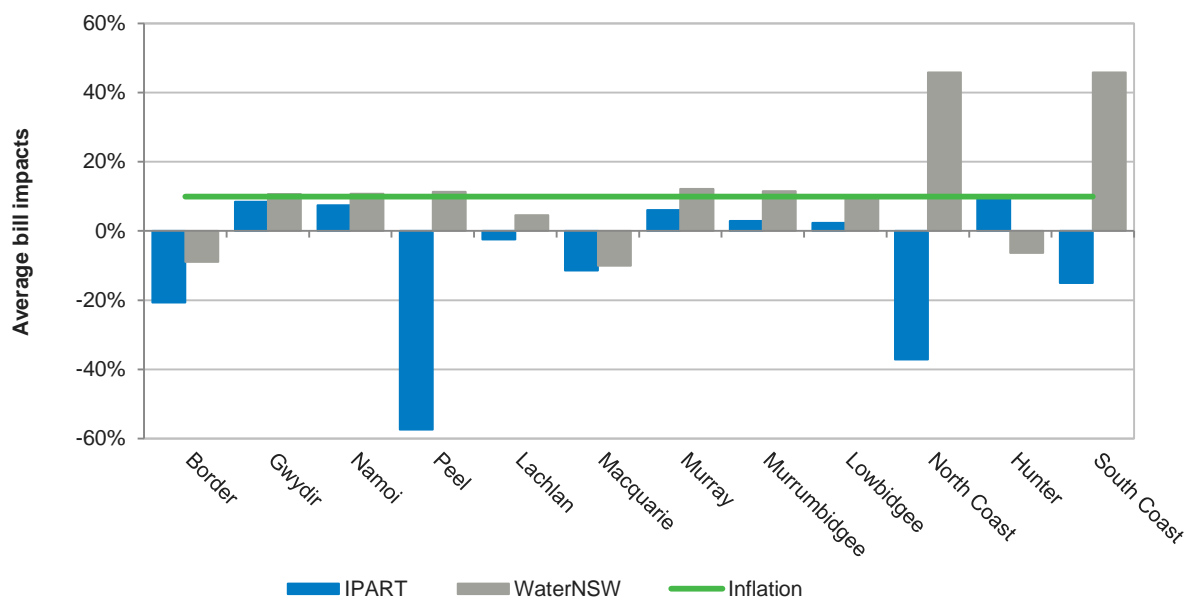
- ▼ higher MDBA pass-through charges
- ▼ our decision to restructure MDBA charges at 80:20 fixed to variable, and
- ▼ an increase in the HS premium in the Murray valley.

In the Murrumbidgee valley, HS customer bills will increase by around 10.4% over the determination period, which is close to the rate of inflation.

General Security customers

Figure 1.2 below sets out the bill impacts for General Security (GS) customers arising from our determination.

Figure 1.2 Indicative bill impacts compared to current prices for general security customers – IPART decisions and WaterNSW proposal (% change from 2016-17 to 2020-21, \$nominal^a)



^a Forecast inflation is 10.0% over the 2017 determination period.

Note: Includes BRC and MDBA charges.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Figure 1.2 shows that, under our determination, typical bills⁸ for GS customers will fall in the following valleys:

- ▼ Border
- ▼ Peel
- ▼ Lachlan
- ▼ Macquarie

⁸ Including forecast inflation of 10.0%.

- ▼ North Coast, and
- ▼ South Coast valleys.

These reductions are due to a general decrease in operating expenditure and the return on capital in these valleys, and changes to tariff structures.

All other valleys show an increase in GS customer bills at or below the forecast rate of inflation.

These modest increases are the result of lower efficient costs, being partially offset by:

- ▼ a rebalancing to recover more costs through general security charges (particularly in the Hunter valley due to the updates to the HS premiums)
- ▼ inflation, and
- ▼ higher MDBA pass-through charges (for the Murray and Murrumbidgee).

1.3 Key drivers of bill changes

Our allowances for WaterNSW's efficient costs have generally decreased across the State: the customer share of WaterNSW's average annual notional revenue requirement (or efficient costs) has decreased by \$7.3m (or 9.6%) for the 2017 determination period, compared to the average per year from 2014 to 2017.

However, the effects of this cost reduction have been offset, or at least partially offset, by:

- ▼ an increase in MDBA charges in some valleys
- ▼ our decision to update the HS premiums, and
- ▼ including an unders and overs mechanism (UOM) payback amount and a volatility allowance in prices.

The key elements of our pricing decisions, including some of the above-mentioned drivers behind bill decreases and increases, are explained further below.

1.3.1 WaterNSW's efficient costs are lower, excluding MDBA and BRC payments

Operating expenditure and return on assets are falling sharply

WaterNSW's proposed average annual customer share of operating expenditure over the 2017 determination period is 25% below its allowance for 2016-17. We have made only minor reductions to this proposal. This reflects the significant savings WaterNSW has identified from the integration and restructure of the former State Water Corporation and Sydney Catchment Authority.

WaterNSW's allowance for its return on capital is also lower than current levels. This largely reflects a reduction in the WACC, from the current level of 4.3% to 3.1% for the 2017 determination period.⁹

⁹ For the Murray-Darling Basin (MDB) valleys. Our decision on the WACC for the Coastal valleys is 4.7%.

For the 2017 determination period, WaterNSW's customer share of capital expenditure allowance is \$118 million, which is 21% lower than WaterNSW's proposal and 103% higher than its allowance for the previous four years.

1.3.2 Factors offsetting WaterNSW's lower costs

Several factors offset, or at least partially offset, the effect of WaterNSW's cost reductions in a number of valleys. These are outlined below.

MDBA payments are rising

WaterNSW proposed a 13% increase in the customer share of MDBA and BRC payments, from an average of \$13.6 million per year over the 2014 determination period to an average of \$15.4 million per year over the 2017 determination period.

MDBA payments are allocated to the Murray and Murrumbidgee valleys, and BRC payments to the Border valley.

We have applied a reduction of 1.25%, compounded per annum, to WaterNSW's proposed BRC and MDBA payments. We have made this adjustment given customer concern about lack of transparency. This reduces the customer share of MDBA and BRC related costs over the 2017 determination by around \$1.9 million.

We have set MDBA (in the Murray and Murrumbidgee valleys) and BRC (Border valley) charges to recover the customer share of MDBA and BRC payments.

MDBA charges are rising¹⁰, and when combined with changes to tariff structures, lead to increases in total bills in the Murray and Murrumbidgee valleys. BRC charges are decreasing marginally.

We have included a revenue volatility allowance

WaterNSW originally proposed to include \$3.6 million per year to manage its revenue volatility risk through its proposed risk transfer product (RTP). Our decision is to allow a volatility allowance of about \$1.3 million per year, which is consistent with WaterNSW's revised proposal in its submission to our Draft Report.¹¹ This recognises that WaterNSW is subject to revenue volatility risk, which arises from the difference between its largely fixed cost structure and its price structure (which is 40:60 fixed to variable in many valleys).

We have also decided to discontinue the unders and overs mechanism (UOM), as we consider that a revenue volatility allowance is a better approach to mitigating revenue volatility risk. To address the existing UOM balance, we have incorporated a UOM payback amount in prices so that the balances can be recovered over a 12-year period (potentially three determination periods). This UOM payback puts upward pressure on bills for some customers, namely for GS customers in the Macquarie, Lachlan, Gwydir and Namoi valleys. This is an increase, applicable until the UOM balance in each valley is returned to zero.

¹⁰ This is because the NSW Government has resumed paying its historical share of the MDBA's costs.

¹¹ Our decision of about \$1.3 million per year is based on WaterNSW's efficient cost of insuring its revenue volatility risk with a third party.

We have decided to set prices at a level which pays back the UOM over 12 years, to ameliorate impacts on customers' bills.

We have updated the High Security premium

The HS premium is the difference in entitlement charges between HS and GS licences. It represents the additional security and water availability of HS licences relative to GS licences.

We have updated the HS premiums in each valley, to incorporate data since 2006, when the HS premiums were set. This has led to a modest reduction in HS premiums in most valleys, but an increase in the Lachlan, Murray and Murrumbidgee valleys.

Whilst the HS premium reductions were generally modest, they were more pronounced in the:

- ▼ Hunter valley, where the HS premium has fallen from 3.10 to 1.29, and
- ▼ Gwydir valley, where the HS premium has fallen from 4.07 to 3.18.

However, the HS premium has increased in the Lachlan valley, rising from 5.02 to 5.63. This has put upward pressure on bills for HS licences in the Lachlan valley, and shifted costs from GS to HS entitlement holders.

Our draft prices for the Murray valley included a significant increase in the HS premium, from 1.84 to 2.45. We have revised the data used in our calculation, which has resulted in the HS premium in the Murray rising more modestly to 2.04.

We have changed some tariff structures

We have retained the existing fixed to variable tariff ratios in most valleys (typically 40:60). However, we have moved to an 80:20 fixed to variable ratio in:

- ▼ South Coast valley
- ▼ FRWS
- ▼ Peel valley from 1 July 2018, the second year of the determination period, and
- ▼ for the MDBA and BRC charges.

In the North Coast valley, we have moved to a 90:10 fixed to variable ratio.

This means that, for these valleys, more revenue is forecast to be received from entitlement charges and less from usage charges. We consider that, relative to 40:60, these tariff structures better reflect WaterNSW's cost structure, which is predominantly fixed.

Our decision to set the MDBA and BRC tariff structure at 80:20 means that the revenue required to pay for MDBA and BRC related payments shifts away from water usage,¹² to water entitlements.

¹² In its 2014 Decision, the ACCC set MDBA and BRC charges at 40:60 fixed to variable in the Border, Murray and Murrumbidgee valleys.

We have also set prices on the basis that the HS premium for bulk water charges in each valley also applies to MDBA and BRC charges. This is a reflection that MDBA and BRC payments should be shared between HS and GS customers consistent with WaterNSW's core costs.

1.3.3 We have adopted a different approach to setting prices on the North Coast and South Coast

Prices in the North Coast and South Coast valleys do not generate sufficient revenue to achieve full recovery of efficient costs. In our 2010 determination, we capped annual real price increases at 10% per year in both valleys.¹³

For our 2017 Determination, we have taken a different approach to setting prices in these valleys, after considering stakeholders' comments.

In the North Coast and South Coast valleys, we have set prices to recover about 10% and 38% of the efficient costs respectively, and changed the tariff structure to lower the usage charges and increase the fixed entitlement charges.

We have set these prices having reference to the estimated efficient pricing band. The upper bound of this pricing band represents customers' estimated capacity to pay, while the lower bound is an estimate of the costs WaterNSW would avoid if it did not have to supply an additional unit of water.

Our approach to setting prices in the North Coast and South Coast valleys is set out in Chapter 12.

1.4 Our prices are broadly lower than current prices, excluding inflation

Our bulk water entitlement and usage, MDBA and BRC and Fish River Water Supply Scheme prices are outlined in the sections below. They are presented in 'real' \$2016-17 - ie, they exclude the effects of inflation over 2017-18 to 2020-21.

We note that prices in the accompanying Determination are in \$2017-18 - ie, the prices outlined below adjusted for one year of inflation.¹⁴

¹³ IPART, *Review of bulk water charges for State Water Corporation – From 1 July 2010 to 30 June 2014*, June 2010, pp149.

¹⁴ The Determination then allows prices in \$2017-18 to be updated for inflation from 2018-19 onwards. We have applied 2.1% inflation to \$2016-17 prices to determine prices in \$2017-18 (in the Determination).

1.4.1 Entitlement charges are falling for most customers

Under our decision, entitlement charges for most customers are falling in real terms compared to current prices. Our entitlement charges are set out in Table 1.1 below. These charges exclude additional charges in the:

- ▼ Border valley to recover payments associated with the BRC, and
- ▼ Murray and Murrumbidgee valleys to recover payments associated with the MDBA.

Table 1.1 Bulk water entitlement charges by valley (\$/ML of entitlement, \$2016-17) – without inflation

	2016-17	2017-18	2018-19	2019-20	2020-21	% Change
High security entitlement charge						
Border	6.90	5.33	5.33	5.33	5.33	-22.8%
Gwydir	14.13	11.08	11.08	11.08	11.08	-21.6%
Namoi	17.29	17.08	17.08	17.08	17.08	-1.2%
Peel	35.27	20.78	41.57	41.57	41.57	17.9%
Lachlan	16.48	15.38	15.38	15.38	15.38	-6.7%
Macquarie	16.17	13.51	13.51	13.51	13.51	-16.5%
Murray	1.79	1.54	1.54	1.54	1.54	-14.0%
Murrumbidgee	3.08	2.95	2.95	2.95	2.95	-4.2%
Lowbidgee	N/A	N/A	N/A	N/A	N/A	N/A
North Coast	9.54	11.78	11.78	11.78	11.78	23.5%
Hunter	26.03	13.13	13.13	13.13	13.13	-49.6%
South Coast	21.12	30.81	30.81	30.81	30.81	45.9%
General security entitlement charge						
Border	2.43	1.98	1.98	1.98	1.98	-18.5%
Gwydir	3.47	3.48	3.48	3.48	3.48	0.3%
Namoi	8.25	7.96	7.96	7.96	7.96	-3.5%
Peel	3.88	2.01	4.02	4.02	4.02	3.6%
Lachlan	3.28	2.73	2.73	2.73	2.73	-16.8%
Macquarie	3.62	2.85	2.85	2.85	2.85	-21.3%
Murray	0.97	0.75	0.75	0.75	0.75	-22.7%
Murrumbidgee	1.26	1.11	1.11	1.11	1.11	-11.9%
Lowbidgee	0.84	0.78	0.78	0.78	0.78	-7.1%
North Coast	7.25	9.13	9.13	9.13	9.13	25.9%
Hunter	8.86	10.20	10.20	10.20	10.20	15.1%
South Coast	10.09	16.16	16.16	16.16	16.16	60.2%

Note: Prices exclude MDBA and BRC charges for the Border, Murray and Murrumbidgee valleys. There are only supplementary licences in Lowbidgee, and a 100% fixed charge will be continued to be levied.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 44-46; IPART analysis.

Our decision to update a parameter in the HS premiums (ie, security/conversion factor) has significantly reduced the HS premium in the Hunter valley. This has resulted in a 50% reduction in HS entitlement charges in the Hunter valley. In turn, this has increased the GS entitlement charge by about 15% in this valley. The HS premium is incorporated into the

calculation of HS entitlement charges, and represents the relative benefit of holding a HS over a GS entitlement.

Our decision to change the tariff structure in the Peel valley from 40:60 fixed to variable to 80:20 from 2018-19 onwards (ie, from the second year of the Determination) has led to a relatively large increase in entitlement charges (particularly for HS entitlement charges), with an associated reduction in the usage charge.

As discussed above and in Chapter 12, we have also changed price structures in the North Coast and South Coast valleys.

1.4.2 Usage charges are falling in most valleys

Our decisions on usage charges are set out in Table 1.2 below. These exclude MDBA and BRC charges, which are set out in section 1.4.3.

Table 1.2 Bulk water usage charges by valley (\$/ML, \$2016-17) – without inflation

	2016-17	2017-18	2018-19	2019-20	2020-21	% Change
Border	6.60	5.44	5.44	5.44	5.44	-17.6%
Gwydir	12.13	11.87	11.87	11.87	11.87	-2.1%
Namoi	20.26	19.98	19.98	19.98	19.98	-1.4%
Peel	58.26	55.09	18.36	18.36	18.36	-68.5%
Lachlan	21.12	19.04	19.04	19.04	19.04	-9.8%
Macquarie	16.97	13.78	13.78	13.78	13.78	-18.8%
Murray	2.31	1.91	1.91	1.91	1.91	-17.3%
Murrumbidgee	3.53	3.31	3.31	3.31	3.31	-6.2%
Lowbidgee	N/A	N/A	N/A	N/A	N/A	N/A
North Coast	45.04	17.42	17.42	17.42	17.42	-61.3%
Hunter	14.77	12.62	12.62	12.62	12.62	-14.6%
South Coast	40.38	17.27	17.27	17.27	17.27	-57.2%

Note: Prices exclude MDBA and BRC charges for the Border, Murray and Murrumbidgee valleys. There are only supplementary licences in Lowbidgee, and a 100% fixed charge will be continued to be levied.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 44-46; IPART analysis.

Usage charges are falling in all valleys. The largest reductions occur in valleys where we have changed the tariff structures, the Peel, North Coast and South Coast valleys.

In the Lowbidgee valley, we have decided to maintain the 100% fixed tariff structure. This is a change from our draft prices, where we set prices based on an 80:20 fixed to variable tariff structure.

1.4.3 BRC and MDBA entitlement charges are increasing and usage charges decreasing

As mentioned above, our decision on MDBA and BRC payments was to reduce WaterNSW's proposed amounts by 1.25% per annum, compounding. However, despite this, MDBA

payments are increasing. Table 1.3 and Table 1.4 below set out our MDBA and BRC entitlement charges and usage charges, respectively.

Table 1.3 MDBA and BRC entitlement charges by valley (\$/ML, \$2016-17) – without inflation

	2016-17	2017-18	2018-19	2019-20	2020-21	% Change
High security MDBA/BRC entitlement charge						
Border	4.22	4.61	4.61	4.61	4.61	9.2%
Murray	3.22	7.27	7.27	7.27	7.27	125.8%
Murrumbidgee	0.72	1.61	1.61	1.61	1.61	123.6%
General security MDBA/BRC entitlement charge						
Border	1.49	1.71	1.71	1.71	1.71	14.8%
Murray	1.74	3.56	3.56	3.56	3.56	104.6%
Murrumbidgee	0.29	0.61	0.61	0.61	0.61	110.3%

Source: WaterNSW Pricing Proposal to IPART, June 2016, p 146; IPART analysis.

Table 1.4 MDBA and BRC usage charges by valley (\$/ML, \$2016-17) – without inflation

	2016-17	2017-18	2018-19	2019-20	2020-21	% Change
Border	4.03	0.78	0.78	0.78	0.78	-80.6%
Murray	4.17	1.50	1.50	1.50	1.50	-64.0%
Murrumbidgee	0.82	0.30	0.30	0.30	0.30	-63.5%

Source: WaterNSW Pricing Proposal to IPART, June 2016, p 146; IPART analysis.

As discussed above, our decision is to change the MDBA and BRC tariff structure from 40:60 to 80:20 fixed to variable to be more cost-reflective. This means that entitlement charges increase and usage charges decrease. The large increases in entitlement charges are also driven by the larger MDBA payments, and for HS licence holders in the Murray valley, updates to the HS premium.

MDBA and BRC charges are discussed in more detail in Chapter 8 and Chapter 11.

1.4.4 Fish River Water Supply Scheme change to an 80:20 structure

Our decision is to set the tariff structure so that 80% of revenue is received from fixed charges and 20% of revenue from usage charges, for the FRWS as a whole.¹⁵ This better reflects WaterNSW's cost structure in the FRWS. Similar to MDBA and BRC charges, this shift means that the fixed Minimum Annual Quantity (MAQ) charges are rising and the usage charges are falling for all customers. The customer share of costs in the FRWS is falling by around 23%. This change in tariff structure has varying impacts on customer bills, with most customers receiving bill decreases. However, EnergyAustralia, which holds the largest MAQ, faces a bill increase above the rate of inflation.

Our pricing decisions for customers in the FRWS are set out in Table 1.5 below.

¹⁵ Currently, in aggregate, FRWS prices are set on a 57:43 fixed to variable tariff structure.

Table 1.5 Decision on prices for the FRWS (\$/kL, \$2016-17) – without inflation

	2016-17	2017-18	2018-19	2019-20	2020-21	Change 2017-21	% increase 2017-21
Bulk Raw Water							
Minimum Annual Quantity (MAQ)							
Major customers	0.38 ^a	0.39	0.39	0.39	0.39	0.01	2.6%
Minor customers	0.36	0.39	0.39	0.39	0.39	0.03	8.3%
Usage up to MAQ							
Major customers	0.43 ^a	0.24	0.24	0.24	0.24	-0.19	-44.2%
Minor customers	0.42	0.24	0.24	0.24	0.24	-0.18	-42.9%
Usage in excess of MAQ							
Major customers	0.81	0.63	0.63	0.63	0.63	-0.18	-22.2%
Minor customers	0.78	0.63	0.63	0.63	0.63	-0.15	-19.2%
Bulk Filtered Water							
Minimum Annual Quantity (MAQ)							
Major customers	0.57	0.63	0.63	0.63	0.63	0.06	10.5%
Minor customers	0.69	0.76	0.76	0.76	0.76	0.07	10.1%
Usage up to MAQ							
Major customers	0.61	0.36	0.36	0.36	0.36	-0.25	-41.0%
Minor customers	0.78	0.46	0.46	0.46	0.46	-0.32	-41.0%
Usage in excess of MAQ							
Major customers	1.18	0.99	0.99	0.99	0.99	-0.19	-16.1%
Minor customers	1.47	1.22	1.22	1.22	1.22	-0.25	-17.0%

^a In 2016-17, EnergyAustralia had the same price as the minor customers.

Note: WaterNSW currently has three major raw water customers – EnergyAustralia, WaterNSW (Greater Sydney) and Oberon Council. WaterNSW currently has only one major filtered water customer – Lithgow Council. Minor customers are individual minor customers.

Source: WaterNSW pricing proposal to IPART, June 2016, p 46; IPART analysis.

1.5 IPART's review process

In making our decisions, we have considered all submissions received throughout the review. We have also had regard to the matters listed under section 15 of the IPART Act (see Appendix A), and the matters we are required to consider under the Water Charge (Infrastructure) Rules 2010. As part of our review, we have undertaken an extensive investigation and public consultation process. We have:

- ▼ invited WaterNSW to make a pricing proposal in June 2016 detailing its prices, financial and performance data, and the future capital and operating expenditure necessary to maintain service levels and respond to regulatory demands
- ▼ released an Issues Paper in September 2016 to respond to WaterNSW's pricing proposal and assist stakeholders to identify and understand the key issues for the review
- ▼ invited stakeholders to make submissions on the Issues Paper and WaterNSW's proposal by October 2016¹⁶
- ▼ held four public hearings in October and November 2016 and April 2017 to discuss a wide range of issues raised by WaterNSW and other stakeholders
- ▼ engaged independent consultants to review:
 - WaterNSW's capital expenditure, asset planning and operating expenditure proposals: Aither Consulting, in association with Oakley Greenwood, WSP | Parsons Brinckerhoff and Australian Dams and Water Consultants (Aither)¹⁷
 - WaterNSW's proposed costs associated with payments related to the MDBA and BRC: Aither Consulting¹⁸
 - cost shares between water access licence holders (customers) and the NSW government: Frontier Economics (Frontier)¹⁹
 - principles for setting prices in valleys below full cost recovery: Aither Consulting²⁰
 - customers' capacity to pay in the North Coast and South Coast valleys: Agripath Pty Ltd.²¹
- ▼ released a Draft Report and Draft Determination and invited stakeholders to make submissions in response to the drafts by April 2017.²²

Our reports, stakeholder submissions, the transcripts from the public hearings, and consultants' reports are available on our website (www.ipart.nsw.gov.au).

1.6 Structure of this report

The remainder of this Report is structured around the key steps of our approach as follows:

- ▼ Chapter 2 sets out the context and IPART's approach to the review.
- ▼ Chapter 3 sets out the length of the regulatory period and the form of regulation to apply to WaterNSW over the 2017 determination period.
- ▼ Chapter 4 outlines WaterNSW's revenue requirements (or 'building block' costs) and the customer share of this revenue requirement over the determination period.

¹⁶ A total of 29 written submissions were received from interested parties.

¹⁷ Aither's final report was received in February 2017 and published on our website in March 2017. In response to submissions, Aither also provided further advice which was received in May 2017 and published on our website in June 2017.

¹⁸ Aither's final report was received in February 2017 and published on our website in March 2017.

¹⁹ Frontier's final report was received in December 2016 and published on our website in March 2017.

²⁰ Aither's final report was received in November 2016 and published on our website in March 2017.

²¹ Agripath's final report was received in January 2017 and published on our website in March 2017. In response to submissions, Agripath also provided further advice which was received in May 2017 and published on our website in June 2017.

²² A total of 30 written submissions were received from interested parties.

- ▼ Chapters 5 to 8 set out the cost items or components that we used to calculate WaterNSW's revenue requirements.
- ▼ Chapter 9 outlines the sharing of WaterNSW's revenue requirements between customers and the NSW Government for the 2017 determination period and beyond.
- ▼ Chapter 10 outlines the forecasts of entitlements and usage volumes used to calculate maximum prices.
- ▼ Chapter 11 sets out the structure of prices for WaterNSW's services, including the HS premiums.
- ▼ Chapters 12 and 13 set out the level of the maximum prices and miscellaneous charges for WaterNSW's services.
- ▼ Chapter 14 assesses the implications of our pricing decisions, in particular, on customers and WaterNSW.

1.7 List of decisions

Our decisions are outlined in the chapters of this report. For convenience, they are also listed below.

Form of regulation

- | | | |
|---|---|----|
| 1 | To adopt a 4-year determination period from 1 July 2017 to 30 June 2021 for all valleys. | 29 |
| 2 | To use the approach outlined in Appendix C to undertake annual price reviews for WaterNSW's Murray-Darling Basin (MDB) valleys and rural customers in the Fish River Water Supply Scheme, following applications by WaterNSW. | 30 |
| 3 | Not to undertake annual reviews of WaterNSW's prices in the Coastal valleys. | 30 |
| 4 | To set price caps. | 31 |
| 5 | To establish an efficiency carryover mechanism and apply it at WaterNSW's 2021 price review. This mechanism: | 31 |
| | – applies to controllable operating expenditure | 31 |
| | – is designed to apply to four years of historical expenditure but, in the first instance when applied at the next price review in 2020-21, would apply to three years of historical expenditure: 2017-18, 2018-19, and 2019-20 | 31 |
| | – ensures the business is able to retain permanent cost reductions for four years before they are passed on to customers through lower prices, and | 31 |
| | – allows the business to retain temporary over and under spends. | 31 |

Revenue requirement

- | | | |
|---|---|----|
| 6 | To set WaterNSW's total notional revenue requirement at \$411.0 million over the 2017 determination period as set out in Table 4.1. | 38 |
|---|---|----|

7	To set WaterNSW's customer share of notional revenue requirement (\$275.9 million) and target revenue from water prices (\$270.4 million) over the 2017 determination as set out in Table 4.3.	40
 Operating expenditure allowance		
8	To set the efficient level of WaterNSW's operating expenditure as shown in Table 5.1.	43
 Capital expenditure		
9	To set the level of WaterNSW's capital expenditure to be included in the RAB as:	54
	– actual capital expenditure for MDB valleys over the 2014-15 to 2016-17 period, excluding \$1.62 million on fishway offset expenditure in 2016-17, as set out in Table 6.1.	54
	– actual capital expenditure for Coastal valleys over the 2010-11 to 2016-17 period, as set out in Table 6.2, and	54
	– IPART's finding on forecast prudent and efficient capital expenditure for all valleys over the 2017 determination period, as set out in Table 6.3.	54
10	To require WaterNSW to report on the output measures outlined in Appendix B.	54
 Allowance for return on assets, regulatory depreciation and tax obligations		
11	To set WaterNSW's opening Regulatory Asset Base (RAB) for its rural operations at the commencement of the determination period (1 July 2017) at \$781.5 million (Table 7.1).	66
12	To deduct the regulatory value of actual and forecast asset disposals from the RAB, where the regulatory value is determined as:	69
	– for significant sales of assets purchased before the RAB line-in-the-sand: asset sales revenue x RAB/DRC at the time the RAB was established	69
	– for significant sales of assets purchased post RAB line-in-the-sand: purchase price + capital expenditure – depreciation + indexation	69
	– for significant asset write-offs: determined on a case-by-case basis	69
	– for non-significant write-offs: zero unless determined by exception on a case-by-case basis, and	69
	– for non-significant asset sales: receipts from asset sales.	69
13	To adopt WaterNSW's reported figure of zero historical asset disposals for the previous determination periods for Coastal and MDB valleys.	69
14	To adopt WaterNSW's forecast asset disposals as outlined in Table 7.5.	69
15	To apply a real post-tax WACC of 3.1% to calculate the return on WaterNSW's assets for MDB valleys.	71
16	To apply a real post-tax WACC of 4.7% to calculate the return on WaterNSW's assets for Coastal valleys.	71

17	To set an allowance for return on assets of \$106.7 million over the 2017 determination period, as shown in Table 7.6.	71
18	To set an allowance for return on working capital at \$0.76 million over the 2017 determination period.	71
19	To use:	76
	– a straight-line depreciation method for the 2017 determination period	76
	– for existing assets, the rolled forward asset lives from IPART's 2010 determination and the ACCC's 2014 determination, as outlined in Table 7.9	76
	– for new assets, the asset lives listed in Table 7.11.	76
20	To set WaterNSW's allowance for regulatory depreciation at \$66.3 million over the 2017 determination period (Table 7.1).	76
21	To adopt the regulatory tax allowance as set out in Table 7.13.	79
Other costs		
22	To:	82
	– apply a 1.25% per annum, compounding, adjustment to proposed BRC and MDBA payments to be passed through to customers in the Border, Murray and Murrumbidgee valleys (see Table 8.1), and	82
	– discontinue the Unders and Overs Mechanism (UOM) for MDBA and BRC charges and smooth recovery of the current balance over the 2017 determination period.	82
23	To discontinue the UOM.	87
24	With the exception of the UOM balance attributable to Wallerawang power station in the Fish River Water Supply Scheme (FRWS), to pay out the remaining UOM balances over a 12-year period (potentially 3 determination periods) by incorporating a return on and of capital from the UOM balances in the user share NRR of each valley.	87
25	To set the UOM balance attributable to the Wallerawang power station component of the FRWS to zero.	87
26	To include a revenue volatility allowance in the user share NRR (totalling \$1.3 million in 2017-18 and then \$1.27 million per year thereafter) for valleys that are at cost recovery and have a fixed to variable price ratio that is less than 80:20.	92
Sharing of WaterNSW's revenue requirements		
27	To maintain the current customer share ratios as shown in Table 9.1 for the 2017 determination period, consistent with WaterNSW's proposal.	98
Forecast entitlement and usage volumes		
28	To set the entitlement volumes for the MDB and Coastal valleys as shown in Table 10.1, subject to annual review for 2018-19 onwards for the MDB valleys.	104

29	To forecast usage volumes for each year of the 2017 determination period using a simple:	106
	– 20-year moving average of actual, historical usage for MDB valleys (with the exception of Lowbidgee), commencing with using average usage over 1996-97 to 2015-16 to forecast extraction volumes for 2017-18	106
	– 20-year average of actual, historical usage for the Hunter valley, using average usage over 1996-97 to 2015-16	106
	– 12-year average of actual, historical usage for the North Coast and South Coast valleys, using average usage over 2004-05 to 2015-16.	106
30	To set the minimum annual quantities as shown in Table 10.4 for the Fish River Water Supply.	110
31	To forecast usage volumes for the Fish River Water Supply Scheme using a simple:	112
	– 20-year moving average of actual, historical usage for individual minor customers (raw water and filtered water)	112
	– moving average of actual, historical usage for Mt Piper power station for EnergyAustralia, commencing with using average usage over the year period from 2001-02 to 2015-16 to forecast usage volumes for 2017-18	112
	– 20-year average of actual, historical usage for WaterNSW Greater Sydney, Oberon Council and Lithgow Council.	112
Tariff structures		
32	To set the fixed to variable price structures for each valley as set out in Table 11.1.	116
33	To:	125
	– maintain the existing approach to calculating the high security premium, and	125
	– update the security and reliability factors in the high security premium as shown in Table 11.5	125
34	To:	130
	– recover customers' share of MDBA and BRC payments through an 80:20 fixed to variable MDBA/BRC tariff structure	130
	– apply the high security premiums as set out in Table 11.6 for the Border, Murray and Murrumbidgee valleys to MDBA and BRC charges.	130
35	To apply a price structure which is 80:20 fixed to variable for the Fish River Water Supply Scheme.	133
Bulk water prices		
36	To set high security and general security entitlement charges as listed in Table 12.1 and Table 12.2.	136
37	To set usage charges as listed in Table 12.4 and Table 12.5.	140

38	To maintain levying usage charges on customers trading water allocation (also known as a 'temporary trade') to persons who do not hold a NSW water access licence with an associated water supply works and complying metering (eg, for interstate trades), to recover the prudent and efficient infrastructure costs WaterNSW incurs in holding and releasing bulk water when it is traded out of NSW.	140
39	To set prices for the FRWS as shown in Table 12.7.	146
40	Not to set prices based on full cost recovery (FCR) of the notional revenue requirement in valleys substantially below FCR, ie, in the North Coast and South Coast valleys.	148
41	To set prices in valleys substantially below full cost recovery, ie, in the North Coast and South Coast valleys, with reference to the efficient pricing band for each of these valleys, where the efficient pricing band lies between:	149
	– an upper limit that represents an irrigation customer's capacity to pay for WaterNSW's services, and	149
	– a lower limit that represents the cost that WaterNSW would avoid if it did not have to supply those services to that customer.	149
42	To set prices in valleys substantially below full cost recovery, ie, in the North Coast and South Coast valleys, by rebalancing fixed and variable charges to reduce the latter to the point where demand might be stimulated and revenue increased in the medium-term.	149
43	To set prices for the 2017 Determination for the:	149
	– North Coast valley based on a 90:10 fixed to variable tariff structure and to recover 10% of the customer share of the notional revenue requirement in this valley, as listed in Table 12.10, and	149
	– South Coast valley based on an 80:20 fixed to variable tariff structure and to recover 38% of the customer share of the notional revenue requirement in this valley, as listed in Table 12.11.	149
44	To set a maximum per annum Yanco Creek levy of \$0.90 per ML (\$ nominal) of entitlement for users in the Yanco Creek system.	162
Miscellaneous charges and ICD discounts		
45	To set prices for meter service charges as listed in Table 13.1.	164
46	To maintain the current approach to recovering meter reading and water use assessment costs through bulk water charges as opposed to setting a separate charge.	167
47	To set the trade processing charge as listed in Table 13.4, as a single, fixed charge.	168
48	To set the environmental gauging station charge at \$11,735 per year (indexed by CPI over the course of the determination), to be levied only:	170
	– on a holder of an Access Licence that nominates a WaterNSW Water Supply Works, where the licence holder's water usage is measured at an environmental gauging station, once the gauging station has reached end of life, and	170

	– when an upgrade of the gauging station is required to meet regulatory requirements.	170
49	To set charges for meter accuracy testing as listed in Table 13.7.	172
50	To set prices for the:	174
	– Fish River Water Supply connection charge based on the complexity of the connection service, as listed in Table 13.9.	174
	– Fish River Water Supply disconnection charge as listed in Table 13.10.	174
51	Not to regulate WaterNSW's credit card payment fees.	177
52	To set the value of rebates provided to eight irrigation corporations and districts (ICDs) as shown in Table 13.12.	177

2 Overview of our approach

In this review, we will set prices to apply from 1 July 2017 (the 2017 Determination) for WaterNSW's monopoly rural bulk water services.

WaterNSW (formerly State Water) delivers bulk water to irrigators and other licence holders on regulated rivers across NSW.²³ We regulate WaterNSW's prices for its rural bulk water services, which relate primarily to storing and delivering water to entitlement holders in 13 valleys across NSW. We also regulate its meter service charges and other 'miscellaneous' charges that are set on a fee for service basis.

This report sets out our decisions on WaterNSW's regulated charges²⁴ and maximum prices²⁵ for these services over the 4-year period from 1 July 2017 to 30 June 2021 (the 2017 determination period) and how these will likely affect WaterNSW's customers. It also explains how we reached these decisions and how our prices compare to WaterNSW's proposed prices.

This chapter outlines how we have approached this review and provides background information on the regulatory framework and our role as a regulator.

We also outline the matters we take into account in the course of our review and the approach we take. Our review can be represented as a sequence of steps. Each step involves making decisions on methods and key parameters.

We received WaterNSW's pricing proposal on 30 June 2016. We then released our Issues Paper on 13 September 2016. We received 29 submissions in response to this Issues Paper and WaterNSW's pricing proposal. We also held three public hearings to provide an opportunity for stakeholders to present their views – in Moree, Sydney and Coleambally.

We released a Draft Determination and Draft Report on 14 March 2017. We received 30 submissions in response to the Draft Report. We also held a further public hearing in Sydney to provide a forum for stakeholders to comment on and discuss our Draft Report.

We have taken all stakeholder views into account in setting our final prices.

The timetable and key activities of our review are set out at the end of this chapter.

2.1 WaterNSW's operating and regulatory framework

The sections below provide an overview of WaterNSW's services, customers and regulatory framework.

²³ A regulated river is one where downstream flows are regulated by a major storage or dam to supply irrigation water. Department of Primary Industries – Water, *Regulated rivers*, <http://www.water.nsw.gov.au/water-management/monitoring/regulated-rivers>, accessed 16 February 2017.

²⁴ Determined under the *Water Charge (Infrastructure) Rules 2010* (Cth).

²⁵ Determined under the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW).

2.1.1 WaterNSW's services and customers

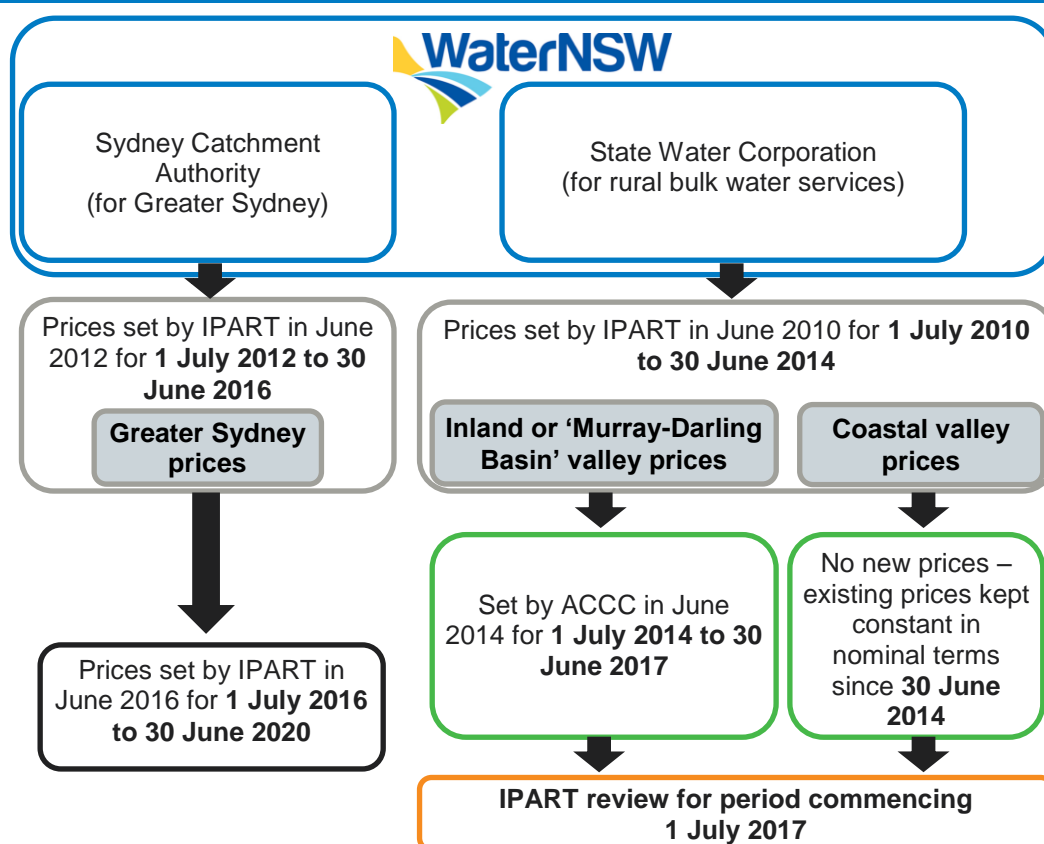
Our pricing functions for WaterNSW are contained in the *Water Charge (Infrastructure) Rules 2010* (Cth) (the WCIR) and the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW) (IPART Act). We start our review by making a decision on the scope of rural bulk water monopoly services provided by WaterNSW which are subject to our pricing functions (monopoly services). This section summarises WaterNSW's monopoly services.

WaterNSW was formed on 1 January 2015 under the *Water NSW Act 2014* (NSW) (the Act). The Act provided for the former State Water Corporation to become WaterNSW. It also abolished the former Sydney Catchment Authority and transferred its functions to WaterNSW.

WaterNSW supplies raw water to, and develops and delivers raw water infrastructure solutions for, rural NSW and the Greater Sydney area.²⁶ This price review applies to services provided by WaterNSW to its rural customers (ie, the former State Water Corporation component of WaterNSW). We recently completed a review of WaterNSW's prices for services provided to the Greater Sydney area (ie, the former Sydney Catchment Authority component of WaterNSW).²⁷ These prices took effect from 1 July 2016.

Figure 2.1 outlines the sequence of pricing reviews for WaterNSW's rural bulk water services and its Greater Sydney bulk water services.

Figure 2.1 WaterNSW's price regulation regime



²⁶ WaterNSW, *WaterNSW Annual Report 2015-16*, 2016, p 6.

²⁷ IPART, *Review of prices for WaterNSW: From 1 July 2016 to 30 June 2020 - Final Report*, June 2016.

In rural NSW, WaterNSW maintains, manages and operates major infrastructure to deliver bulk water to licensed water users on the State's regulated rivers. There are about 6,300 customers in 14 regulated river systems. WaterNSW owns and operates 20 dams and more than 280 weirs and regulators to deliver water for town water supplies, industry, irrigation, stock and domestic use, riparian use and environmental flows. It provides services to various customers including irrigation corporations, country town water supply authorities, farms, mines and electricity generators.²⁸

The scope of WaterNSW's services has evolved over time, as has the type of users of these services and the nature of their use. The roles and responsibilities of WaterNSW are prescribed by the *Water NSW Act 2014*. Under section 6 of the Act, WaterNSW is required to meet the following primary objectives:²⁹

- ▼ capture, store and release water in an efficient, effective, safe and financially responsible manner
- ▼ supply water in compliance with appropriate standards of quality
- ▼ ensure that declared catchment areas and water management works in such areas are managed and protected so as to promote water quality, the protection of public health and public safety, and the protection of the environment
- ▼ provide for the planning, design, modelling and construction of water storages and other water management works, and
- ▼ maintain and operate the works of WaterNSW efficiently and economically and in accordance with sound commercial principles.

It also has other objectives under the Act, including: to be a successful business; exhibit a sense of social responsibility towards the community and regional development; and conduct its operations in compliance with the principles of ecologically sustainable development.³⁰

WaterNSW provides services in the Murray-Darling Basin (MDB) and Coastal valleys. WaterNSW is also responsible for the Fish River Water Supply Scheme (FRWS), which sources water from Oberon Dam and supplies bulk water to four major customers (EnergyAustralia, Lithgow City Council, Oberon Council and WaterNSW Greater Sydney) and approximately 280 smaller customers.³¹

WaterNSW also recovers a portion of the NSW Government's contributions to the Murray-Darling Basin Authority (MDBA) and the Dumaresq-Barwon Border Rivers Commission (BRC) through its water prices. The MDBA and BRC have responsibility for coordinating and managing water resource management and water storage and delivery-related activities where the issues involve more than one state, with the costs of managing and maintaining assets under these arrangements jointly paid for by the signatory states.

Our Determination sets WaterNSW's bulk water charges for its monopoly services, including for:

²⁸ WaterNSW pricing proposal to IPART, June 2016, pp 10-12.

²⁹ *Water NSW Act 2014*, section 6.

³⁰ *Water NSW Act 2014*, section 6.

³¹ WaterNSW pricing proposal to IPART, June 2016, p 11.

- ▼ **water charges**, for the storage and delivery of water on regulated rivers, which:
 - are set on a valley basis
 - are generally comprised of two-part tariffs: \$ per ML of water entitlement and \$ per ML of water taken
 - for some valleys (ie, Border, Murray and Murrumbidgee), include the addition of MDBA and BRC charges, and
- ▼ **miscellaneous charges**, to recover the cost of non-routine services. These are discussed in detail in Chapter 13. They include **meter service charges**, which WaterNSW may levy on users of WaterNSW-owned meters on regulated rivers, to recover the costs of maintenance and administration related to WaterNSW-owned meters.

2.1.2 Regulatory framework

WaterNSW operates under the *Water NSW Act 2014* and its operating licence, which together define its functions and objectives. WaterNSW must comply with the terms of its operating licence, which contains performance standards, reporting obligations and requirements imposed by relevant legislation.³²

IPART is responsible for regulating the prices of Water NSW's rural bulk water services. However, at present, it does so under two distinct legislative and regulatory frameworks:

- ▼ IPART has determined regulated charges for WaterNSW's bulk water services supplied in the MDB valleys and to rural customers in the FRWS³³ under the *Water Charge (Infrastructure) Rules 2010* (the WCIR)³⁴, and
- ▼ IPART has also determined maximum prices for WaterNSW's bulk water services supplied in the three Coastal valleys and urban customers in the FRWS³⁵ under section 11 of the *Independent Pricing and Regulatory Tribunal Act 1992 (NSW)* (IPART Act).

Murray-Darling Basin valleys

The prices of WaterNSW's bulk water services supplied in the MDB valleys, and to rural customers in the FRWS are regulated under:

- ▼ the *Water Act 2007* (Cth)
- ▼ the *Water Charge (Infrastructure) Rules 2010* (WCIR) made under section 92 of the *Water Act 2007*, and
- ▼ the ACCC's *Pricing principles for price approvals and determinations under the Water Charge (Infrastructure) Rules 2010* of July 2011 (Pricing Principles).

Up until 2014, IPART determined the charges that WaterNSW (then the State Water Corporation) could levy for all its monopoly services under the IPART Act. However, in July 2014 the ACCC assumed pricing responsibility under the *Water Act 2007* (Cth). The

³² IPART audits WaterNSW's performance annually against the terms and conditions of the licence and reports the results to the portfolio Minister.

³³ EnergyAustralia and minor customers.

³⁴ The WCIR was made under section 92 of the *Water Act 2007* (Cth).

³⁵ Oberon and Lithgow City councils, and WaterNSW (Greater Sydney).

current prices for MDB valleys were established in the ACCC's 2014 Decision and updated by the ACCC in 2 annual reviews (the 2015-16 and 2016-17 annual reviews).

In September 2015, IPART was accredited by the ACCC under the WCIR to set regulated charges for WaterNSW's MDB valleys and rural customers in the FRWS. Under our accreditation conditions, we must set the regulated charges in accordance with the WCIR and the associated Pricing Principles. In particular, we must determine the regulated charges under rule 29 of the WCIR.

Under rule 29, IPART must not approve regulated charges set out in WaterNSW's pricing application unless we are satisfied that:

- ▼ WaterNSW's regulatory asset base (RAB), which is used to calculate the regulated charges, has been determined in accordance with Schedule 2 of the WCIR
- ▼ WaterNSW's total forecast revenue (from all sources) for the regulatory period is reasonably likely to meet the prudent and efficient costs of providing infrastructure services in that regulatory period, and
- ▼ the forecast revenue from regulated charges is reasonably likely to meet that part of the prudent and efficient costs of providing infrastructure services that is not met from other revenue.

If we are not satisfied of these matters, we must determine the regulated charges so as to be satisfied of them.

In determining regulated charges, IPART must have regard to whether the regulated charges would contribute to achieving the Basin Water Charging Objectives and Principles (BWCOP) of the *Water Act 2007* (Cth).³⁶

The WCIR and associated Pricing Principles differ from IPART's typical approach in a number of areas. For example, under the WCIR:

- ▼ the length of the determination is fixed at four years for WaterNSW (see Chapter 4)
- ▼ the regulatory asset base (RAB) and the weighted average cost of capital (WACC) are calculated differently to our usual approach:
 - the rules for including historical capital expenditure in the RAB differ (see Chapter 6)
 - the parameters we must use in determining the WACC differ (see Chapter 7)
- ▼ after setting indicative prices over the 4-year price path, prices can be reviewed and adjusted annually to account for actual water demand and changes in forecast demand, and
- ▼ the factors we must consider when setting prices differ:
 - in setting prices for the MDB valleys, we are required to take into account the BWCOP set out in schedule 2 of the *Water Act 2007* (Cth) (see Appendix A)
 - in setting prices for the Coastal valleys (discussed below), we must have regard to the matters listed in section 15 of the IPART Act (see Appendix A).

The ACCC has recently completed a review of the WCIR.³⁷ As part of its review, the ACCC has proposed handing back regulatory pricing responsibilities to state-based regulators.³⁸ If

³⁶ Section 15 of the IPART Act and the BWCOP are outlined in Appendix A.

the WCIR are amended in accordance with the ACCC's final advice, IPART would then determine WaterNSW's regulated charges for the MDB valleys and rural customers in the FRWS under the IPART Act (instead of the WCIR). However, as the WCIR have not yet been amended, this review of the regulated charges has been undertaken under the WCIR.

Our Issues Paper noted that in the event that the WCIR are amended during this price review, we would inform stakeholders and discuss any resultant changes in our Draft Report and our public hearings. However, in recognition of the uncertainty this may have caused, the ACCC proposed transitional arrangements that mean WaterNSW's prices for MDB valleys under this review will be determined under the WICR, which will continue to apply until the end of the 2017 determination period.³⁹

Coastal valleys

As part of this review, we have also determined WaterNSW's maximum prices in three Coastal valleys (the Hunter, North Coast and South Coast), as well as its prices for urban customers in the FRWS.

The pricing of bulk water services in these areas is regulated under section 11 of the IPART Act. When we determine prices under the IPART Act, we must have regard to a range of matters listed in section 15 of this Act, such as the costs of providing the services concerned, customer affordability, environmental impacts and the maintenance of customer service quality.⁴⁰

Prior to this 2017 Determination, the current maximum prices for Coastal valleys and urban customers in the FRWS were set in IPART's 2010 Determination for the former State Water Corporation. The prices set under the 2010 Determination had been scheduled to conclude on 30 June 2014. However, after requests from WaterNSW, IPART decided to defer the next review of prices in Coastal valleys until now (2016-17), to align with the MDB valleys. Consequently, until 1 July 2017, WaterNSW's prices for the Coastal valleys and urban customers in the FRWS have remained unchanged at 2013-14 levels in nominal terms.

2.2 IPART's approach to the review

While our approach to the review of the prices that WaterNSW can charge for its monopoly rural bulk water services has had to accommodate the two different regulatory frameworks described in section 2.1.2, the key elements of our approach are the same across all monopoly services.


Most fundamentally, we aim to set prices to allow WaterNSW to recover only water customers' share of the efficient costs of its monopoly services. Cost-reflective prices should

³⁷ ACCC, *Review of Water Charge Rules Final Advice*, September 2016.

³⁸ ACCC, *Review of Water Charge Rules Final Advice*, September 2016, p 214.

³⁹ The transitional arrangements provide that the current accreditation arrangements should continue until the end of the latest regulatory period for which an operator's infrastructure charges had been approved or determined before the transition date; or if the operator had lodged an application but its charges had not yet been approved or determined by the transition date, until the end of the upcoming regulatory period that the application related to. ACCC, *Review of the Water Charge Rules – Final Advice*, September 2016, p 214.

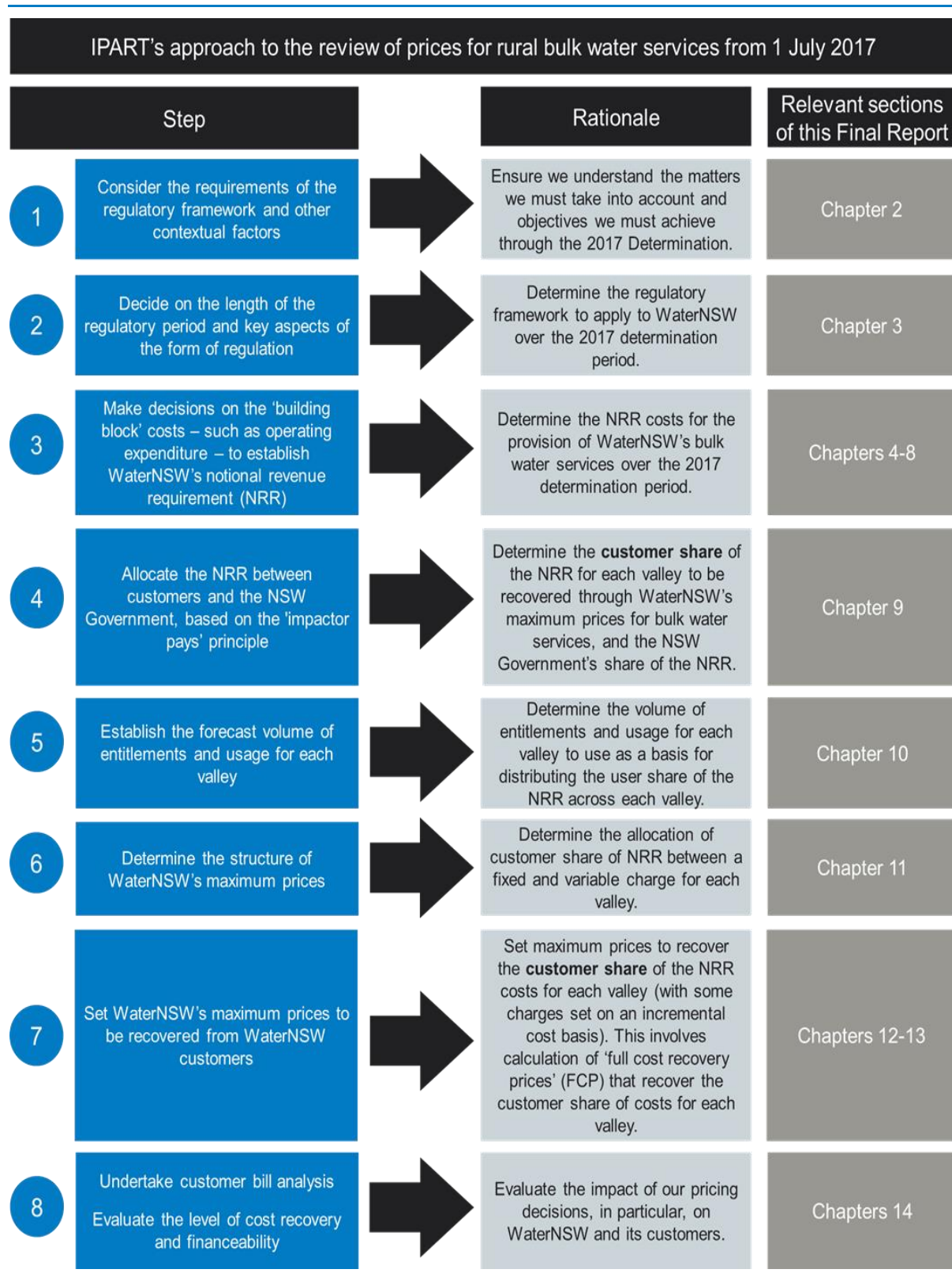
⁴⁰ Section 15 of the IPART Act is outlined in Appendix A.



signal to customers the costs of their consumption decisions and result in an efficient use and allocation of resources. They should also provide incentives for WaterNSW to enhance its efficiency over time.

As summarised in Figure 2.2, our approach to the review involves a sequence of eight broad steps, each of which involves making decisions on methods and key parameters.

Figure 2.2 IPART’s approach to the review of WaterNSW’s prices for rural bulk water services, from 1 July 2017



2.3 IPART's review process

As part of our review process, we have undertaken an extensive investigation and public consultation, including:

- ▼ inviting WaterNSW to make a pricing proposal detailing its proposed prices and forecast capital and operating expenditure necessary to maintain service levels and respond to regulatory demands
- ▼ releasing an Issues Paper to respond to WaterNSW's pricing proposal and assist stakeholders to understand the key issues under review
- ▼ inviting stakeholder submissions on the Issues Paper and WaterNSW's proposal
- ▼ holding public hearings in Moree, Sydney and Coleambally to discuss a wide range of issues raised by WaterNSW and other stakeholders
- ▼ engaging independent consultants to review and advise on key aspects of WaterNSW's proposal, including the proposed expenditure and cost sharing
- ▼ releasing a Draft Report and Draft Determination and inviting stakeholders to make submissions in response to the draft decisions
- ▼ holding a further public hearing in Sydney, and
- ▼ releasing this Final Report and Determination.

The timetable for this review is outlined in Table 2.1. Our Issues Paper, Draft Report, stakeholder submissions, the transcripts from the public hearings, and consultant's reports are available on our website (www.ipart.nsw.gov.au). We have taken all stakeholder views into account in setting our final prices.

Table 2.1 Review timetable

Milestone	Date
Pricing Proposal from WaterNSW received	30 June 2016
IPART Issues Paper released	13 September 2016
Public submissions received	17 October 2016
Public Hearing – Northern NSW – Moree	31 October 2016
Public Hearing – Sydney	8 November 2016
Public Hearing – Southern NSW – Coleambally	14 November 2016
Draft Determination and Draft Report released	14 March 2017
Public Hearing – Sydney	4 April 2017
Submissions on Draft Determination and Draft Report received	17 April 2017
Determination and Final Report released	13 June 2017

Concurrent to this price review, IPART has conducted a review of WaterNSW's operating licence. We recommended the terms and conditions of the new operating licence to the Minister⁴¹ in May 2017 and the new licence is to apply from 1 July 2017. Information on IPART's review of WaterNSW's operating licence is available on our website.⁴²

⁴¹ NSW Minister for Water.

⁴² <https://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Licensing-WaterNSW/Review-of-the-WaterNSW-operating-Licences>.

3 Form of regulation

The form of regulation includes some overarching elements of our approach to setting prices for the 2017 Determination period. It covers the length of the determination period, the form of price control, and the incorporation of an efficiency carryover mechanism. This chapter outlines our decisions on these issues.

3.1 We have set a 4-year determination period

We made a decision:

- 1 To adopt a 4-year determination period from 1 July 2017 to 30 June 2021 for all valleys.

3.1.1 Reasons for our decision

We consider it is appropriate to align the determination period for WaterNSW's MDB and Coastal valleys, and that a 4-year determination period is appropriate for all valleys (including the Fish River Water Supply (FRWS)).

IPART sets regulated prices for WaterNSW's bulk water services to the MDB valleys and rural customers in the FRWS under the *Water Charge (Infrastructure) Rules 2010 (WCIR)* and ACCC Pricing Principles. Under our accreditation conditions, we must set those regulated charges in accordance with the WCIR and ACCC Pricing Principles.

According to the WCIR, we are required to set a 4-year determination period for Murray-Darling Basin (MDB) valleys and rural customers in the FRWS.⁴³ This requirement does not apply when we set prices for bulk water services for the Coastal valleys and urban customers in the FRWS under the IPART Act.

WaterNSW proposed the 4-year determination period for the MDB valleys and rural customers in the FRWS be extended to the Coastal valleys and urban customers in the FRWS. WaterNSW considered that aligning the determination period for all the rural valleys will allow for synergies in producing operating and capital cost forecasts, consumption forecasts and other information required by IPART.

WaterNSW considers that a 4-year determination period:

- ▼ offers a reasonable period to provide certainty around expenditure and/or consumption forecasts
- ▼ provides a reasonable period for passing on efficiency gains that are expected from its restructuring program (following the merger of the former State Water and the former Sydney Catchment Authority)

⁴³ Unless IPART approves another period on application by WaterNSW under rule 24 of the WCIR.

- ▼ will achieve a reasonable balance between providing incentives to pursue efficiency gains and passing on forecast efficiency gains, and
- ▼ minimises regulatory cost and provides a reasonable level of regulatory certainty.⁴⁴

Other stakeholders that commented on the length of the Determination period generally supported aligning the determination period for all of WaterNSW's valleys and considered a 4-year determination period for all valleys appropriate.⁴⁵

Given our obligations under the WCIR, stakeholder submissions and our assessment of relevant factors such as the benefits of aligning the determination period for all of the valleys, and the need for regulatory certainty and financial stability, we consider that extending the 4-year determination period to all valleys is appropriate.

3.1.2 Approach to annual reviews

We made decisions:

- 2 To use the approach outlined in Appendix C to undertake annual price reviews for WaterNSW's Murray-Darling Basin (MDB) valleys and rural customers in the Fish River Water Supply Scheme, following applications by WaterNSW.
- 3 Not to undertake annual reviews of WaterNSW's prices in the Coastal valleys.

Under the WCIR, WaterNSW must apply to IPART for annual reviews of its regulated charges.⁴⁶ Therefore, we would undertake annual price reviews of WaterNSW's MDB valleys and rural customers in the FRWS following applications by WaterNSW (see Appendix C for further detail on our approach to annual reviews).⁴⁷

We will not undertake annual reviews of WaterNSW's prices in the Coastal valleys. Unlike the WCIR, the IPART Act does not require or provide for annual reviews. Further, we consider that the costs reviewing prices annually under the IPART Act would likely outweigh the benefits. This is because, to review these prices under the IPART Act, we would be required to consider the determination as a whole, and meet the procedural requirements for a full price review (such as holding a public hearing).

In response to the Draft Report, some stakeholders suggested the annual review process should be used to identify and apply additional efficiencies.⁴⁸ For example, Lachlan Valley Water suggests the annual review process should be used to identify over and under spending of capital expenditure allowances, with any under expenditure offset against the volatility allowance, UOM or a price adjustment.⁴⁹ We note the annual reviews have regard to changes in demand or consumption only. Any under or over spending of capital

⁴⁴ WaterNSW pricing proposal to IPART, June 2016, pp 14-15.

⁴⁵ Bega Valley Users Association submission to IPART Issues Paper, October 2016, p 7; Gwydir Valley Irrigators Association submission to IPART Issues Paper, October 2016, p 5; Coleambally Irrigation submission to IPART Draft Report, April 2017, p 1; Western Murray Irrigation to IPART Draft Report, April 2017, p 4; and Lachlan Valley Water submission to IPART Draft Report, April 2017, p 2.

⁴⁶ WCIR, Division 3.

⁴⁷ The WCIR (Division 3) provide for the annual review of regulated charges for second or subsequent years of a regulatory period following an application by the infrastructure operator.

⁴⁸ NSW Irrigators' Council submission to IPART Draft Report, April 2017, p 4; Western Murray Irrigation submission to IPART Draft Report, April 2017, p 4.

⁴⁹ Lachlan Valley Water submission to IPART Draft Report, April 2017, pp 2-3.

expenditure allowances over the determination period are taken into account when we set the notional revenue requirement at the subsequent determination. This is discussed further in Chapter 6.

3.2 We have set price caps

We made a decision:

4 To set price caps.

There are a number of regulatory options available to regulate prices. For this Final Report, we have decided to maintain the current approach of setting price caps. Relative to alternative approaches such as a revenue cap or weighted average price cap, price caps provide transparency and pricing certainty to customers and ensure that, as much as practical, prices reflect efficient costs. This means that we set maximum prices. WaterNSW can charge these prices or lower.⁵⁰

3.3 We have established an efficiency carryover mechanism

In our 2016 review of prices for services provided to WaterNSW's Greater Sydney customers, we decided to implement an efficiency carryover mechanism (ECM) – which we intend to apply at WaterNSW's Greater Sydney 2020 price review. The ECM is aimed at removing the potential incentive for an agency to delay efficiency savings from the end of one Determination period to the beginning of the next Determination period by allowing it to retain efficiency savings for a fixed period regardless of when they are achieved. In order to be consistent with our current approach for WaterNSW's Greater Sydney, we have decided to apply an ECM for WaterNSW's services provided to its rural bulk water customers. We intend to apply the ECM at WaterNSW's Rural 2021 price review.

We made a decision:

- 5 To establish an efficiency carryover mechanism and apply it at WaterNSW's 2021 price review. This mechanism:
- applies to controllable operating expenditure
 - is designed to apply to four years of historical expenditure but, in the first instance when applied at the next price review in 2020-21, would apply to three years of historical expenditure: 2017-18, 2018-19, and 2019-20
 - ensures the business is able to retain permanent cost reductions for four years before they are passed on to customers through lower prices, and
 - allows the business to retain temporary over and under spends.

Our intention is to apply an ECM to operating expenditure at the next price review that provides equal incentives for permanent efficiency savings (ie, permanent cost reductions) over the Determination period.

⁵⁰ In the Coastal valleys, which are regulated under the IPART Act, WaterNSW must obtain the NSW Treasurer's approval to set prices lower than the maximum in our determination, as set out in s18(2) of the IPART Act.

WaterNSW did not propose an ECM in its pricing proposal. It proposed to discuss this issue with its customers in the lead up to the 2021 determination, using its experience of its operation in the Greater Sydney part of its business.⁵¹

3.3.1 Reasons for our decision

Our current form of regulation for WaterNSW's rural bulk water services allows the business to keep any benefits resulting from cost savings it makes during the regulatory period. This intended feature of our form of regulation is referred to as 'incentive regulation' because it provides a financial reward to incentivise businesses to deliver cost savings. Cost savings are considered beneficial because, if they are permanent, they can be passed through to customers through lower prices in subsequent Determination periods (when the regulator re-sets prices based on its assessment of efficient costs).

A shortcoming of the current approach is that, to the extent there are opportunities to make permanent efficiency savings, the financial reward for achieving these savings deteriorates over the Determination period. That is, a saving made in year one of the Determination period results in four years of additional profit, whereas a saving made in year three of the regulatory period results in just two years of additional profit (before efficient cost allowances are reset at the next price determination).

The consequence of this feature of our current form of regulation for WaterNSW's rural bulk water services is that the business could have an incentive to delay savings from the latter years of one Determination period to the early years of the next Determination period. Delaying efficiency savings is wasteful and it means customers have to wait longer before they benefit from lower prices (see Appendix E).

The objective of the ECM is to equalise the incentive to make permanent efficiency savings regardless of when they are made within the Determination period. This is done by ensuring WaterNSW will be able to retain an efficiency saving for four years regardless of when it is made within the Determination period.

We consider the ECM improves the form of regulation by removing the current incentive to delay cost savings from the end of one Determination period to the beginning of the next. While the benefits of this are limited to accelerating the delivery of savings that would have occurred anyway, we consider this is still an improvement on the current regulatory framework and is in the long-term interests of WaterNSW's customers.

Our ECM is asymmetric in the sense that while it equalises the incentive to achieve permanent efficiency savings over time, it preserves all other features of the current form of regulation. That is:

- ▼ Permanent cost increases are held by the business until the next price review where they are assessed by the regulator and, if determined to be efficient, passed on to customers (through price increases as a result of an increase in the business's operating expenditure allowance) – this provides an incentive for the business to avoid inefficient increases in costs.

⁵¹ WaterNSW submission to IPART Issues Paper, October 2016, p 15.

- ▼ Temporary over and under spends are retained by the business – this provides an incentive for the business to manage costs within its budget.

Our ECM is the same as that we adopted in our 2016 Determination of WaterNSW's services provided to its Greater Sydney customers. We intend to apply the ECM to WaterNSW's operating expenditure.

We have decided not to apply an ECM to capital expenditure. Given the additional complexity associated with introducing an ECM for capital expenditure, the additional risk of unintended consequences (ie, incentivising the business to over forecast and to inefficiently defer capital expenditure), and the limited opportunities for efficient trade-offs between operating and capital expenditure, we have decided not to introduce a capex ECM at this time.

Application period

The ECM is designed to apply to the four years preceding its application (ie, to match the length of the determination). When the ECM is applied initially in 2020-21 as part of the next price review, the four years preceding this will be 2016-17 to 2019-20.

In the 2016 price review of WaterNSW's Greater Sydney prices, we decided not to apply the ECM to expenditure that has already taken place (ie, for this review the ECM should only include three years of expenditure from 2017-18 to 2019-20 when it is initially applied in 2020-21).

We consider that there is little to gain from applying an incentive mechanism retrospectively to expenditure that has already taken place. We also consider that excluding 2016-17 expenditure from the initial application of the ECM would avoid the potential of double-counting efficiency savings made during the previous determination period (before 2016-17).

We have decided to exclude 2016-17 expenditure from the initial application of the ECM. This means the initial application of the ECM would apply to three years of expenditure from 2017-18 to 2019-20. All subsequent applications of the ECM would apply to four years of expenditure (assuming a four year Determination period). This is explained in detail in Appendix E.

Implementing the ECM at future price reviews and the role of the expenditure review

The process for applying the ECM at the next price review can be described in four steps:

- ▼ Determine if WaterNSW **permanently** reduced costs below the allowance (\$X).
- ▼ Determine in which year this saving was achieved (n).
- ▼ Ensure the allowance in the next Determination period is reduced to reflect the saving = \$X.

- ▼ Carryover an efficiency benefit to the next Determination period equal to \$X multiplied by (n-1) to ensure WaterNSW retains the benefit for four years.⁵²

Our expression of intent to adopt an ECM as outlined above does not bind a future IPART Tribunal to adopt such a mechanism. Therefore, we cannot prevent a future Tribunal deciding to remove, amend, or replace the ECM. We acknowledge that the effectiveness of incentive mechanisms rests on the confidence businesses have in them. However, we consider this is the businesses' opportunity to respond to the improved incentives, demonstrate the value of the ECM and make a case for its continued use in the future.

A key feature of our ECM is that we retain discretion in resetting expenditure allowances at the start of each regulatory period. The role of the expenditure review is therefore maintained and we can continue to set expenditure allowances to reflect the best available information on efficient costs.

In preparation for the next price review, we will request the business populate and submit an ECM spreadsheet along with its pricing proposal. We will then use a populated ECM spreadsheet as a tool to inform the expenditure review. Our expectation is that by removing the incentive to delay savings and providing a tool for utilities to demonstrate their performance delivering efficiency savings over the regulatory period, the ECM would improve the amount and quality of information available to us at the next round of expenditure reviews.

The ECM does not remove the incentive businesses could have to underspend the allowance early in the Determination period and to increase spending towards the end of the Determination period. We would continue to monitor historical expenditure patterns and factor this information into our expenditure review process.

Appendix E sets out the design of the ECM in greater detail and provides worked examples showing how the ECM would be applied in various scenarios.

There was a mixed response from stakeholders to the introduction of the ECM in the Draft Report.

The NSW Farmers' Association and Namoi Water opposed the ECM, while Coleambally Irrigation supported the ECM.⁵³

Other stakeholders indicated support for the ECM in principle while suggesting improvements to its operation. The main area of concern relates to the sharing of benefits between WaterNSW and its customers, given the recent water reforms (such as the amalgamation of Sydney Catchment Authority and State Water, and the transfer of staff from DPI Water to WaterNSW). In particular:

⁵² For example, if the business makes a \$10 million (X=\$10m) saving in year 3 (n=3) of a 4-year regulatory period, the ECM ensures the \$10 million saving is factored into the expenditure allowance of the next regulatory period and it provides a carryover benefit of $\$10m * (3-1) = \20 million in the next regulatory period. Adding this \$20 million carryover benefit to the \$20 million gained from underspending in years 3 and 4 of the first regulatory period means the total benefit to the business is \$40 million (4 x \$10m).

⁵³ NSW Farmers' Association submission to IPART Draft Report, April 2017, p 3; Namoi Water submission to IPART Draft Report, April 2017, p 7; Coleambally Irrigation submission to IPART Draft Report, April 2017, p 2.

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- ▼ Lachlan Valley Water suggests the carryover efficiency should be 2-years to better share cost reductions between customers and WaterNSW⁵⁴
 - ▼ Western Murray Irrigation suggests the efficiency savings should be shared equally between customers and WaterNSW via the annual price reviews⁵⁵
 - ▼ NSWIC suggests the efficiency savings should be shared between customers and WaterNSW.⁵⁶

We consider the 4-year holding period is reasonable given the maximum holding period under our current form of regulation (ie, before we apply the ECM) is four years. This decision is also consistent with the ECM we provided for WaterNSW's Greater Sydney part of its business.

⁵⁴ Lachlan Valley Water submission to IPART Draft Report, April 2017, p 2.

⁵⁵ Western Murray Irrigation submission to IPART Draft Report, April 2017, p 4

⁵⁶ NSW Irrigators' Council submission to IPART Draft Report, April 2017, p 33.

4 Revenue requirement

Following our decision on the form of regulation, we then decide on our approach to calculating WaterNSW's revenue requirement and the amount of revenue to be recovered from customers through prices. This chapter discusses our building block approach to calculating WaterNSW's notional revenue requirement (NRR), our decision on the level of revenue required to cover WaterNSW's efficient costs, and the customer share of revenue to be recovered through the prices that we set.

4.1 We use building blocks to calculate the NRR

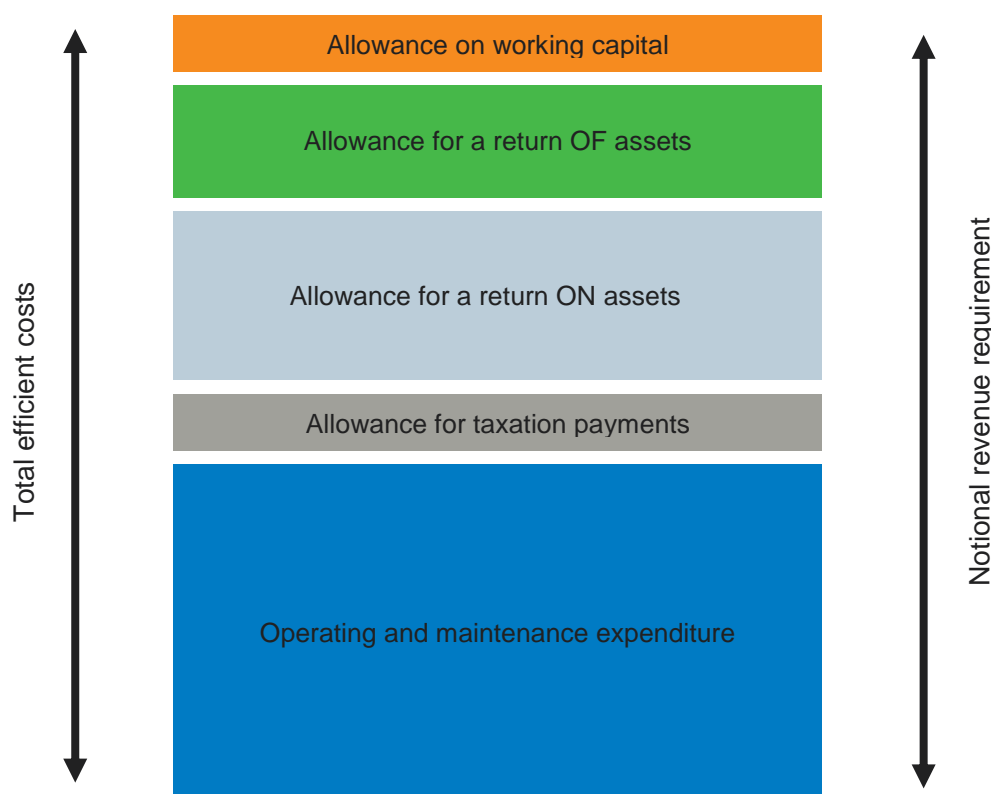
The NRR represents our view of the total efficient costs of providing WaterNSW's regulated services in each year of the determination period. In general, we set prices to recover this amount of revenue.

As in previous reviews, we used a 'building block' method to calculate WaterNSW's NRR. This method involves determining an allowance for each year of the determination period, including:

- ▼ **Operating expenditure.** This represents our estimate of the efficient level of WaterNSW's forecast operating, maintenance and administration costs (Chapter 5).
- ▼ A **return on the assets.** WaterNSW uses to provide its services. This amount represents our assessment of the opportunity cost of the capital invested in WaterNSW, and ensures that it can continue to make efficient capital investments in the future. To calculate this amount, we need to decide on the efficient and prudent levels of WaterNSW's past and forecast capital expenditure, the value of WaterNSW's regulatory asset base (RAB), and the appropriate weighted average cost of capital, the WACC (see Chapters 6 and 7).
- ▼ A **return of those assets (regulatory depreciation).** This allowance recognises that through the provision of services to customers, a utility's capital infrastructure will wear out over time, and therefore revenue is required to recover the cost of maintaining the RAB. To calculate this allowance, we need to decide on the appropriate asset lives and depreciation method (Chapter 7).
- ▼ An **allowance for meeting tax obligations.** We also use the real post-tax WACC and tax depreciation to calculate an allowance for tax as a separate cost block. We consider this method accurately estimates the tax liability for a comparable commercial business (Chapter 7).
- ▼ An **allowance for working capital.** This represents the holding cost of net current assets (Chapter 7).

The sum of these allowances is the NRR (Figure 4.1).

Figure 4.1 Building block approach to calculating NRR



Note: The building block components of NRR in the figure above are not to scale and are for illustrative purposes only.

For this review, there are a number of additional items that make up the NRR. These items include the following:

- ▼ MDBA and BRC payments (Chapter 8)
- ▼ a revenue volatility allowance (Chapter 8)
- ▼ costs related to the recovery of the unders and overs mechanism (UOM) balance (Chapter 8), and
- ▼ irrigation corporations and districts (ICD) rebates (Chapter 13).

Once we calculated WaterNSW's NRR, we decided on the approach we would use to convert this amount into prices. This involved deciding on the appropriate **customer share** of the NRR (see Chapter 9), and then the **target revenue from water prices** for each year. The target revenue is the actual revenue we expect WaterNSW to generate from prices. In determining the target revenue, we considered a range of factors, including:

- ▼ the implications of the customer share of the notional revenue requirement on price levels, and the rate and way in which they will change
- ▼ the impact of our decisions on WaterNSW and its customers, and
- ▼ the appropriate approach to pricing for valleys currently below full cost recovery (North and South Coast – discussed further in Chapter 12).

Section 4.2 below summarises our decision on WaterNSW's NRR. Section 4.3 then summarises our decisions on the customer share of this NRR and the target revenue to be recovered from prices over the 2017 determination period. Appendix G provides a breakdown of building blocks by valley.

4.2 WaterNSW's NRR

We made a decision:

- 6 To set WaterNSW's total notional revenue requirement at \$411.0 million over the 2017 determination period as set out in Table 4.1.

The total NRR reflects our decision on the efficient costs of delivering WaterNSW's monopoly bulk water services. It comprises both the customer share of costs and the share of costs allocated to the government.

Our decision is that WaterNSW's total NRR over the 2017 determination period is \$411.0 million, which is \$21.5 million or 5% lower than WaterNSW's proposed revenue requirement of \$432.5 million. Table 4.1 and Figure 4.2 compare our findings on NRR with WaterNSW's proposal.

Table 4.1 Decision on total notional revenue requirement (\$millions, \$2016-17)

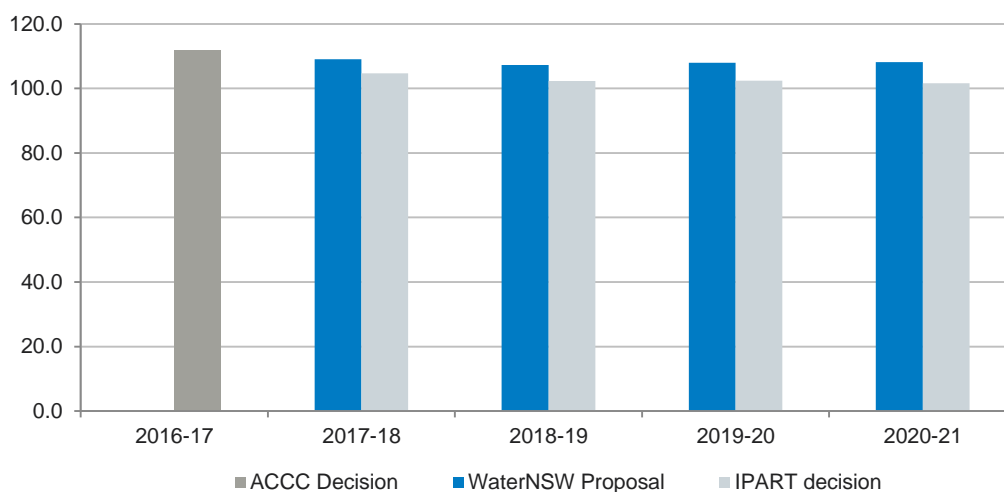
	2016-17	2017-18	2018-19	2019-20	2020-21	Total
WaterNSW Proposal		109.1	107.3	108.0	108.1	432.5
Decision	114.2 ^a	104.7	102.3	102.4	101.6	411.0
Difference		-4.4	-5.0	-5.6	-6.5	-21.5
Difference %		-4.0%	-4.7%	-5.2%	-6.0%	-5.0%

^a This figure represents the ACCC's 2016-17 decision.

Note: Figures include MDBA and BRC payments and include both customer share and Government share. Totals may not sum due to rounding.

Source: IPART analysis.

Figure 4.2 Proposed and allowed NRR over the 2017 determination period (\$millions, \$2016-17)



Note: Figures include MDBA and BRC payments and include both customer share and Government share.

Source: IPART analysis.

Table 4.2 compares each building block element of our decisions on NRR with WaterNSW's proposal. The main reasons for the differences are our decisions resulting in:

- ▼ a significant reduction in the volatility allowance (discussed in Chapter 8)
- ▼ a decrease in the tax allowance (Chapter 7)
- ▼ a decrease in the return on capital (Chapter 7)
- ▼ a reduction in MDBA and BRC payments (Chapter 8)
- ▼ an increase in the UOM allowance as a result of our decision to discontinue the UOM (Chapter 8), and
- ▼ an increase in ICD rebates (Chapter 13).

Table 4.2 Proposed and allowed total NRR building blocks – total for 2017-18 to 2020-21 (\$millions, \$2016-17)

Building block	WaterNSW proposed	IPART	Difference	Difference (%)
Operating expenditure	142.1	141.8	-0.3	-0.2%
ICD Rebates	3.9	5.2	1.3	32.3%
Return of capital	65.5	65.3	-0.2	-0.3%
Return on capital	115.8	106.7	-9.1	-7.9%
Tax allowance	5.7	3.8	-2.0	-34.2%
Volatility allowance	14.5	5.1	-9.3	-64.6%
UOM payback	4.6	7.0	2.4	52.3%
MDBA and BRC payments	80.5	76.2	-4.3	-5.3%
Notional revenue requirement	432.5	411.0	-21.5	-5.0%

Note: MDBA/BRC payments include a government share proportion. Operating expenditure includes fishways expenditure. Totals may not add due to rounding.

Source: IPART analysis.

4.3 Customer share of notional revenue requirement and target revenue

We made a decision:

- To set WaterNSW's customer share of notional revenue requirement (\$275.9 million) and target revenue from water prices (\$270.4 million) over the 2017 determination as set out in Table 4.3.

Table 4.3 Customer share notional revenue requirement and target revenue (\$millions, \$2016-17)

Building Blocks	2017-18	2018-19	2019-20	2020-21	Total
Operating expenditure	33.2	31.6	31.1	30.2	126.1
ICD Rebates	1.3	1.3	1.3	1.3	5.2
Return of capital	6.2	6.8	7.4	7.8	28.1
Return on capital	9.7	10.6	11.4	11.9	43.6
Tax allowance	0.4	0.4	0.4	0.4	1.7
Volatility allowance	1.3	1.3	1.3	1.3	5.1
UOM payback	1.8	1.8	1.7	1.7	7.0
MDBA and BRC payments	18.5	14.1	13.4	13.2	59.1
Notional revenue requirement (NRR)	72.4	67.9	67.9	67.7	275.9
Target Revenue	67.6	67.6	67.6	67.6	270.4
Difference NRR and Target Revenue	-4.8	-0.2	-0.3	-0.1	-5.4
Difference %	-6.6%	-0.4%	-0.4%	-0.1%	-2.0%

Note: This table represents the customer share of costs only. The remaining share of WaterNSW's efficient costs is allocated to the government.

Source: IPART analysis.

4.3.1 Reasons for our decision

We apportion costs between customers and the NSW Government (on behalf of the broader community) according to the impactor pays principle. That is, those that create the need to incur the costs, should pay the costs. For the 2017 determination period, we have maintained current customer shares of costs for each cost item or activity (which are based on earlier assessments and applications of the impactor pays principle), but we have flagged a more comprehensive review of cost shares to inform the next price determination. Chapter 9 provides further explanation of our decisions on the customer share of WaterNSW's NRR.

Once we determine the customer share of NRR, we then look to set prices to recover this share. However, for the 2017 determination period, the target revenue expected to be recovered from water prices is slightly lower than the customer share of the NRR. This is because of our decision to set prices below the full cost recovery level for the North Coast and South Coast valleys, which is discussed in Chapter 12.

We have decided to set target revenue that smooths customers' bills and prices over the 2017 determination period. That is, target revenue is smoothed over the four years of the

determination to provide a stable price path. For all services, target revenue is Net Present Value (NPV) neutral. This means that prices are set so that customers are no better or worse off over the whole determination period as a result of this smoothing process (in present value terms).

Comparison with the 2014 ACCC decision

Our annual average customer share of NRR is \$7.3 million, or 9.6%, below that which the ACCC used to set prices for its 2014 Decision. We compare our annual average customer share of NRR for each of the building blocks in our 2017 Determination with the ACCC's 2014 Decision in Table 4.4.

Table 4.4 Comparison of 2014 ACCC Decision and IPART 2017 Determinations customer share NRR (\$millions, \$2016-17)

Building block	ACCC annual average	IPART annual average	Difference	Difference (%)
Operating expenditure	42.6	31.5	-11.1	-26.1%
ICD Rebates	2.1	1.3	-0.8	-38.0%
Return of capital	5.5	7.0	1.5	28.0%
Return on capital	12.0	10.9	-1.1	-8.8%
Tax allowance	0	0.4	0.4	
Volatility allowance	0.0	1.3	1.3	
UOM allowance	0.5	1.7	1.2	239.8%
MDBA and BRC payments	13.6	14.8	1.2	8.8%
Notional revenue requirement	76.3	69.0	-7.3	-9.6%

Note: Totals may not add due to rounding. The ACCC decision did not include Coastal valleys. We have included our allowance for Coastal valleys for comparison purposes.

Source: WaterNSW Information Return, June 2016, IPART analysis.

The overall reduction in the customer share of NRR (and total NRR) between the 2014 and 2017 regulatory periods is primarily due to decisions relating to:

- ▼ lower operating expenditure (**-\$11.1 million**) due to:
 - efficiencies WaterNSW achieved over the 2012 determination period and our decision on further ongoing efficiencies over the 2017 determination period, and
- ▼ lower return on capital (**-\$1.1 million**) through:
 - a reduction in the WACC.

These effects are partly offset by:

- ▼ a higher UOM allowance as a result of our decision to discontinue and 'pay out' the UOM mechanism (**+\$1.2 million**), and
- ▼ higher MDBA and BRC payments (**+\$1.2 million**).

Our decision on the total NRR is \$15.3 million, or 3.6%, below our NRR in our Draft Report. This is due to our decisions relating to:

- ▼ a lower return on capital through a lower WACC for both the MDB valleys and Coastal valleys (**-\$10.1 million**)

-
- ▼ lower ICD rebates (-\$1.3 million)
 - ▼ a lower UOM allowance to be recovered through the NRR (-\$4.8 million), and
 - ▼ lower MDBA and BRC payments due to the updated MDBA/BRC UOM balance (-\$2.4 million).

These effects are partly offset by a higher volatility allowance (+\$2.1 million).

Our decision on the target revenue (revenue forecast to be recovered via prices) is \$9.4 million, or 3.4%, below the target revenue in our Draft Report.

5 Operating expenditure allowance

This chapter sets out our assessment of WaterNSW's efficient level of operating expenditure for the 2017 Determination. As Chapter 4 outlined, the allowance for operating expenditure within the notional revenue requirement reflects our view of the efficient level of operating costs WaterNSW will incur in providing its services over the 2017 determination period. These include, amongst others, the costs of labour, service contractors, energy, materials, plant and equipment.

In making our decision on the operating expenditure allowance, we engaged Aither (our expenditure consultant) to review the efficiency of WaterNSW's proposed expenditure over the 2017 determination period.⁵⁷ We asked Aither to recommend any further efficiency savings that it considered that WaterNSW should be able to achieve. We also sought further advice from Aither on WaterNSW's submission to our Draft Report.⁵⁸

5.1 Summary of operating expenditure

We made a decision:

8 To set the efficient level of WaterNSW's operating expenditure as shown in Table 5.1.

Table 5.1 Efficient operating expenditure compared to WaterNSW's proposal (\$millions, \$2016-17)

	2017-18	2018-19	2019-20	2020-21	Total
WaterNSW proposal ^a	37.04	35.47	34.86	33.57	140.94
IPART decision	36.68	35.05	34.48	33.24	139.45
Difference	-0.36	-0.42	-0.37	-0.33	-1.48
Difference %	-1.0%	-1.2%	-1.1%	-1.0%	-1.1%

^a WaterNSW's proposed operating expenditure (from its June 2016 proposal) has been modified to exclude the risk transfer product (RTP); and include additional expenditure on a Prioritised Fish Passage Program proposal that WaterNSW outlined in its October 2016 submission to IPART's Issues Paper.

Note: Totals may not add due to rounding.

Source: IPART analysis; WaterNSW Pricing Proposal to IPART, June 2016 pp 97-9; and, WaterNSW submission to IPART Issues Paper, October 2016, pp 5-6.

5.1.1 Summary of reasons for our decision

Since 2014, WaterNSW has realised efficiency gains. It has reduced its actual operating expenditure below the forecasts of efficient operating expenditure made by the ACCC in its 2014 Decision. This has largely been the result of savings achieved through the merger of the former State Water Corporation and the former Sydney Catchment Authority.

⁵⁷ Aither provided recommendations in the following report which was published on IPART's website in March 2017: *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017.

⁵⁸ Aither provided this additional advice in the following report which is also available on IPART's website: *Review of WaterNSW's response to IPART's draft decisions on proposed expenditure*, May 2017.

WaterNSW has proposed that continuing efficiency gains can be realised in operating expenditure in each year of the 2017 determination period.

WaterNSW has proposed total operating expenditure of around \$140.9 million over the four years of the 2017 determination period. This excludes WaterNSW's proposed risk transfer product (RTP), as our decision on this proposed expenditure item is outlined separately in Chapter 8.

Our decision sets WaterNSW's total allowance for operating expenditure at \$139.5 million over the 2017 determination period. In doing so, we reduced WaterNSW's total proposed operating expenditure by \$1.5 million (or 1.1%) as per Table 5.1 above.

Table 5.2 below shows our decision on allowed operating expenditure broken down by valley, and compares our decision on customer share operating expenditure to WaterNSW's proposal.

Table 5.2 Efficient operating expenditure by valley 2017-18 to 2020-21 (\$millions, \$2016-17)

	Total	Customer share	WNSW Proposed customer share ^a	% reduction in customer share compared to WNSW proposal
Border	4.99	4.27	4.40	-2.7%
Gwydir	14.98	13.48	13.64	-1.2%
Namoi	14.91	13.23	13.39	-1.2%
Peel	3.68	2.98	3.02	-1.2%
Lachlan	17.61	15.65	15.82	-1.1%
Macquarie	15.72	13.70	13.85	-1.1%
Murray	10.59	10.09	10.23	-1.4%
Murrumbidgee	25.30	23.22	23.49	-1.1%
Lowbidgee	1.45	1.45	1.45	-0.2%
North Coast	3.08	2.52	2.53	-0.5%
Hunter	12.42	10.41	10.51	-1.0%
South Coast	3.14	2.57	2.58	-0.5%
Fish River	11.59	11.59	11.72	-1.1%
Total	139.45	125.16	126.64	-1.2%

^a WaterNSW's proposed operating expenditure from its June 2016 proposal has been modified to exclude the risk transfer product (RTP); and includes additional expenditure on a Prioritised Fish Passage Program proposal that WaterNSW outlined in its October 2016 submission to IPART's Issues Paper.

Note: Totals may not add due to rounding.

Source: IPART analysis; WaterNSW pricing proposal to IPART, June 2016, pp 98-99; WaterNSW Information Return, September 2016; WaterNSW submission to IPART Issues Paper, October 2016, pp 5-6.

Our decision reflects our assessment of the level of the efficient operating expenditure WaterNSW should be able to achieve, given its operating environment. In making our decision, we considered:

- ▼ WaterNSW's actual operating expenditure in recent years compared to expenditure allowed in IPART's 2010 Determination, and the ACCC's 2014 Decision

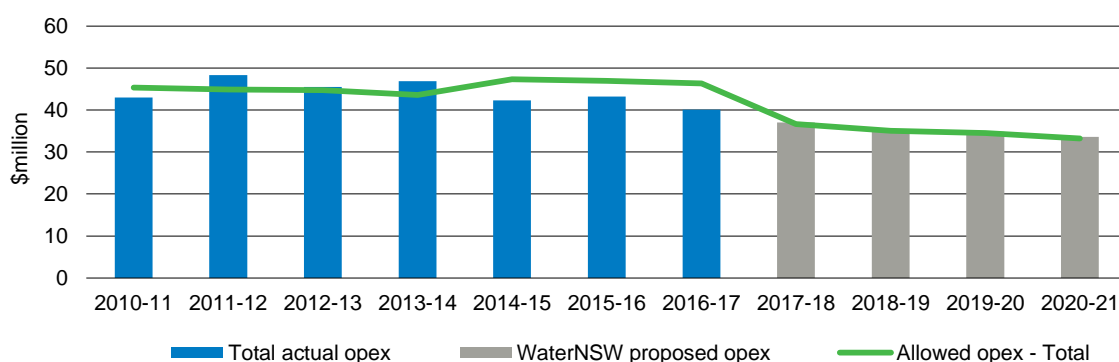
- ▼ the level of operating expenditure WaterNSW forecast over the 2017 determination period
- ▼ the steps WaterNSW has taken to continually improve its efficiency and the level of services it delivers, and
- ▼ the additional efficiency savings we consider WaterNSW could make.

Aither recommended that WaterNSW’s efficient level of operating expenditure should be \$1.5 million lower than the amount WaterNSW proposed.⁵⁹ This is based on reductions to 20-year asset management strategy costs (of \$1.1 million) and SCADA costs (of \$0.4 million), as outlined below.⁶⁰ We accepted Aither’s recommended reductions in our Draft Report. In its submission to our Draft Report, WaterNSW challenged the expenditure reduction for its asset management strategy.⁶¹ After reviewing WaterNSW’s submission, we have maintained our draft decision to apply a \$1.1 million reduction to its asset management strategy costs (discussed further below), as well as the \$0.4 million reduction to its proposed SCADA costs.

Other than these discrete adjustments, Aither found that WaterNSW’s forecast operating expenditure was generally efficient.

To provide context for our decision, WaterNSW’s operating expenditure since 2010-11 is shown in Figure 5.1. The operating expenditure customer share has consistently been around 91-92% of total operating costs over the period shown.

Figure 5.1 WaterNSW’s operating expenditure over time (\$2016-17)



Source: IPART Analysis.

WaterNSW’s total operating expenditure is expected to decline each year over the next four years. Under our decision, by 2020-21, we forecast WaterNSW’s total annual efficient operating expenditure will be \$33.2 million, compared to its expenditure in 2015-16 of \$43.2 million.⁶²

⁵⁹ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p 113.

⁶⁰ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p 113.

⁶¹ WaterNSW submission to IPART Draft Report, October 2016, pp 4-5.

⁶² WaterNSW pricing proposal to IPART, June 2016, p 97

Our assessment of WaterNSW's actual operating expenditure over the previous determination period and its forecast operating expenditure over the 2017 determination period are discussed further in the sections below.

5.2 WaterNSW proposed lower operating expenditure

WaterNSW proposed total operating expenditure of around \$140.9 million over the four years of the 2017 determination period.⁶³ This compares to actual operating expenditure of \$172 million over the four years from 2013-14 to 2016-17. The proposed average annual customer share of operating expenditure over the 2017 determination period is 25% below WaterNSW's allowance for 2016-17. According to WaterNSW, it has realised significant savings from the integration and restructure of the former State Water Corporation and Sydney Catchment Authority.⁶⁴

In its pricing proposal to IPART, WaterNSW attributes its forecast savings to a range of activities, including⁶⁵:

- ▼ routine maintenance
- ▼ asset management planning
- ▼ hydrometric monitoring, and
- ▼ environmental planning and protection.

These savings are partially off-set by higher expenditure on:

- ▼ customer support and compliance
- ▼ water delivery and other operations, and
- ▼ corporate systems.

WaterNSW's June 2016 pricing proposal flagged that fishway expenditure may need to be updated when WaterNSW completed discussions with DPI Fisheries about how to meet its regulatory obligations under the *Fisheries Management Act 1994* (NSW) (FMA).⁶⁶

In its October 2016 submission to IPART's Issues Paper, WaterNSW proposed an additional \$1.58 million of operating expenditure (across the Gwydir, Lachlan and Macquarie valleys), to fund the planning, design, optimised costing and business case activities needed to finalise its 'Long-term Prioritised Fish Passage Program' proposal.⁶⁷ WaterNSW noted this expenditure would lead to a small increase in bills in each of these three valleys (around 1% on average) compared to WaterNSW's initial proposal.⁶⁸

⁶³ WaterNSW proposed operating expenditure has been modified to exclude \$14.4 million for the risk transfer product (RTP); and include additional expenditure on a Prioritised Fish Passage Program proposal that WaterNSW outlined in its submission to IPART's Issues Paper.

⁶⁴ WaterNSW pricing proposal to IPART, June 2016, p 95.

⁶⁵ WaterNSW pricing proposal to IPART, June 2016, p 97.

⁶⁶ WaterNSW pricing proposal to IPART, June 2016, p 87.

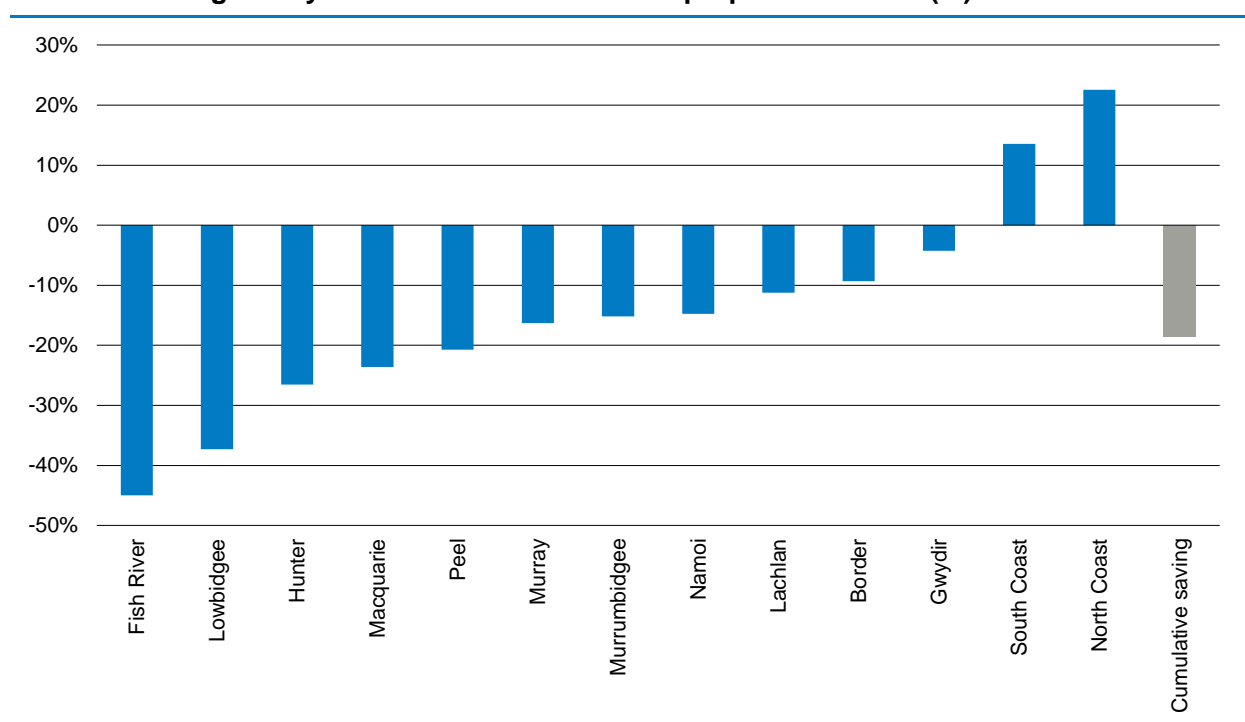
⁶⁷ WaterNSW proposed a total of \$2.01 million on this activity, comprising of \$1.58 million in operating expenditure, and \$0.44 million in capital expenditure (Chapter 6).

⁶⁸ WaterNSW submission to IPART Issues Paper, October 2016, p 6; Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p 111.

WaterNSW's proposed total operating expenditure is lower than the regulatory allowance for 2016-17 in most valleys.

The exceptions are the North Coast and South Coast valleys, where WaterNSW proposed increases of around \$138,000 and \$92,000, respectively, between 2016-17 and 2020-21. Figure 5.2 shows WaterNSW's proposed distribution of total operating expenditure reductions between valleys. A similar pattern occurs for the customer share of operating expenditure, with decreases for all valleys over the same period with the exception of the North and South Coast.

Figure 5.2 WaterNSW's proposed change in operating expenditure by valley from regulatory allowance for 2016-17 and proposed 2020-21 (%)



Data source: WaterNSW pricing proposal to IPART, June 2016, p 96.

Operating expenditure is forecast to decrease most significantly for the Fish River Water Supply Scheme, by around \$2.3 million between 2016-17 and 2020-21. This is due to a significant reduction in forecast demand due to the closure of Wallerawang power station.⁶⁹

5.2.1 Operating costs have been lower than forecast over recent years

Table 5.3 sets out WaterNSW's operating expenditure over the 2014 determination period. WaterNSW expects its actual operating expenditure to be 15.5 per cent below its regulatory (or determination) allowance over the 2014-15 to 2016-17 period. It attributes the reduced expenditure to a combination of:

- ▼ restructuring within the organisation, resulting in lower expenditure on salaries and wages and employee-related costs
- ▼ reductions in the use of contractors and consultancies, and

⁶⁹ WaterNSW pricing proposal to IPART, June 2016, p 41.

- ▼ reductions in the cost of materials, plant and equipment.⁷⁰

Table 5.3 Actual operating expenditure compared with determined over 2014-15 to 2016-17 (\$millions, \$2016-17)

	2014-15	2015-16	2016-17 ^b	Total
Determination ^a	46.9	46.6	45.9	139.4
Actual	41.7	36.1	40.0	117.8
Difference	-5.2	-10.5	-5.9	-21.6
Difference %	-11.0%	-22.6%	-12.8%	-15.5%

^a Prices in Coastal valleys have remained constant in nominal terms since 2013-14. For comparison, we have also held the allowance for operating expenditure for these valleys constant in nominal terms.

^b 2016-17 figures are forecasts.

Note: Totals may not add due to rounding.

Source: WaterNSW pricing proposal to IPART, June 2016, p 136; IPART analysis.

Table 5.4 below shows WaterNSW's customer share of operating expenditure relative to the allowances included in IPART's 2010 Determination and the ACCC's 2014 Decision. The operating costs for 2016-17 are forecast to be \$5.7 million or 13.6% less than the allowed operating expenditure.

The cumulative customer share of WaterNSW's actual operating expenditure over the 2014 determination period will be \$107.5 million, which is around \$20.4 million (15.9%) less than the operating expenditure allowed for in IPART's 2010 Determination and the ACCC's 2014 Decision.

Table 5.4 WaterNSW customer share of operating expenditure compared with IPART Determination and ACCC Decision (\$millions, \$2016-17)

	2014-15	2015-16	2016-17	Total
Allowed ^a	43.1	42.7	42.1	127.9
Actual	38.2	32.9	36.4	107.5
Difference	-4.8	-9.8	-5.7	-20.4
Difference %	-11.3%	-23.0%	-13.6%	-15.9%

^a Prices in Coastal valleys have remained constant in nominal terms since 2013-14. For comparison, we have also held the allowance for operating expenditure for these valleys constant in nominal terms.

Note: Allowed expenditure in 2013-14 is from IPART's 2010 Determination; Allowed expenditure from 2014-15 for Murray-Darling Basin valleys is from the ACCC's 2014 Decision.

Source: WaterNSW Information Return, June 2016; IPART, *Review of bulk water charges for State Water Corporation – From 1 July 2010 to 30 June 2014*, June 2010, pp 78-79.

5.3 Our analysis broadly supports WaterNSW's proposal

Aither, our expenditure review consultant, found that WaterNSW's proposed operating expenditure for the 2017 determination period was generally prudent and efficient, and only recommended two downward adjustments outlined in the sections below. Both of these reductions relate to 100% customer share activities.

⁷⁰ WaterNSW pricing proposal to IPART, June 2016, p 136.

Other than these discrete reductions, Aither found that WaterNSW's overall proposed operating expenditure is likely to represent a reasonable forecast of what an efficient service operator would need to incur in order to operate a similar business. Aither also considered WaterNSW's lower operating expenditure compared to the previous regulatory period would not compromise service delivery:

...if anything, WaterNSW's forecasts could represent a challenging and ambitious agenda to achieve. We do however acknowledge WaterNSW's efforts to tighten expenditure and reduce costs to customers, and WaterNSW did not suggest during the review that the proposed opex levels were not realistic, including having stated that it will be able to continue to deliver the levels of service its customers have been accustomed to.⁷¹

As mentioned above, WaterNSW's October 2016 submission to IPART's Issues Paper included additional forecast operating expenditure of \$1.58 million to enable it to complete its Prioritised Fish Passage Program proposal.⁷² Aither concluded a prudent service operator would undertake appropriate planning and design in support of any such strategy, as well as monitoring the program, and that the overall magnitude of the proposed additional expenditure is reasonable.⁷³ We have therefore included this expenditure in WaterNSW's operating expenditure allowance for the 2017 determination period.

5.3.1 Stakeholders generally welcomed the operating expenditure reduction

Submissions to our Issues Paper generally welcomed the forecast reduction in operating expenditure, with some recommending it be subject to an independent expenditure review.⁷⁴ A number of stakeholders also requested clarity on why certain categories of operating expenditure were increasing, in particular 'water delivery and other operations', 'dam safety compliance' and 'customer support, compliance and other'.⁷⁵

Aither examined the changes in expenditure by category, particularly where forecast expenditure for specific items increased by over 3.5 per cent, and acknowledged WaterNSW's comment that it is difficult to draw definitive conclusions regarding trends for individual categories, as some costs can shift between categories over time.⁷⁶ For example, maintenance and IT costs have shifted into the water delivery category due to changes in service unit functions and the revised organisation structure.⁷⁷ WaterNSW had also included the proposed costs of its risk transfer product (RTP) in the 'customer support, compliance and other' category.⁷⁸ Our response to WaterNSW's proposed expenditure on the RTP is considered separately in Chapter 8. Removing the allowance for the RTP lowers the forecast expenditure in this category by 53 per cent.

⁷¹ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p 114.

⁷² WaterNSW Submission to IPART Issues Paper, October 2016, p 6.

⁷³ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p 112.

⁷⁴ For example, Macquarie River Food and Fibre submission to IPART Issues Paper, October 2016 p 8, Lachlan Valley Water submission to IPART Issues Paper October 2016, p 6, Gwydir Valley Irrigators Association submission to IPART Issues Paper, October 2016, p 13 and NSWIC submission to IPART Issues Paper, October 2016 p 18.

⁷⁵ Namoi Water submission to IPART Issues Paper, October 2016, p 3; NSWIC submission to IPART Issues Paper, October 2016, p 6; Lachlan Valley Water submission to IPART Issues Paper, October 2016, p 6.

⁷⁶ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, pp 84 - 89.

⁷⁷ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p 84.

⁷⁸ A breakdown of proposed operating expenditure by category can be found at: WaterNSW pricing proposal to IPART, June 2016, p 97.

Overall, Aither found that proposed operating expenditure in categories where expenditure was increasing was efficient, with the exception of the SCADA costs in the 'Water Delivery and Other Operations' category discussed below.⁷⁹ Aither also recommended a reduction to 20-year asset management strategy costs.⁸⁰ These reductions, which we have accepted in full, are discussed below.

In submissions to our Draft Report, customer groups welcomed the reduced operating expenditure.⁸¹ However, NSWIC and Lachlan Valley Water queried whether the lower operating expenditure would lead to reduced service levels. In this regard, we note Aither's comments above, that while WaterNSW's operating expenditure proposal is ambitious, WaterNSW has confirmed the proposal is realistic, and will not compromise service levels.

NSWIC also recommended that IPART apply further efficiencies to incentivise WaterNSW to expedite the integration of DPI Water staff and responsibilities into WaterNSW's business and find additional efficiencies.⁸²⁻⁸³ We note that in 2016 we set prices for the Water Administration Ministerial Corporation's (WAMC's) water management services independent of the business delivering them. Our 2016 Final Report for the WAMC price review stated:

We have assessed the efficient costs of WAMC's monopoly services, currently delivered by DPI Water, as part of this review and used these estimates as the basis for setting WAMC's maximum prices. We note that activities related to these services could be delivered by other parties on behalf of WAMC, such as WaterNSW, through methods such as service agreements, amendments to WaterNSW's operating licences, and other arrangements. If that is done, we consider that our determination would nonetheless set appropriate maximum prices. That is because we have assessed the prudent and efficient costs of delivering the relevant services, regardless of who delivers them.⁸⁴

Finally, NSWIC and Western Murray Irrigation suggested that there should be a further reduction to operating expenditure to reflect that WaterNSW underspent on its allowance in the previous determination period.⁸⁵ In a given year, WaterNSW may underspend or overspend its operating expenditure allowance. For example, Figure 5.1 above shows that WaterNSW underspent its allowance during the 2014 determination period, and overspent its allowance in the previous three years (between 2011-12 and 2013-14). In either case, these costs are not repaid to (or recovered from) customers. Instead, in setting prices we seek to set WaterNSW's operating expenditure allowance based on our view of the efficient level of operating costs it will incur in providing its services over the 2017 determination period.

⁷⁹ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p 113.

⁸⁰ This expenditure is in the 'Asset Management and Planning' category where WaterNSW's proposed costs were decreasing.

⁸¹ Including NSWIC submission to IPART Draft Report, April 2017, pp 14-15; Lachlan Valley Water submission to IPART Draft Report, April 2017, p 3; and, Coleambally Irrigation Co-operative Limited submission to IPART Draft Report, April 2017, p 2.

⁸² NSWIC submission to IPART Draft Report, April 2017, p 15.

⁸³ On 31 May 2016 the *Water NSW Amendment (Staff Transfers) Bill 2016* passed the NSW Parliament, facilitating the transfer of employees of the Department of Primary Industries Water (DPI Water) to WaterNSW. This enables WaterNSW to carry out functions of the Water Administration Ministerial Corporation (WAMC) in relation to delivering water, all customer transactional dealings, all in-field services and resource management for groundwater and surface water.

⁸⁴ IPART, *Review of prices for Water Administration Ministerial Corporation from 1 July 2016*, *Water – Final Report*, June 2016, p 27.

⁸⁵ NSWIC submission to IPART Draft Report, April 2017, p 14; Western Murray Irrigation submission to IPART Draft Report, April 2017, p 5.

This provides WaterNSW with an incentive to pursue efficiency gains, which ultimately benefit customers.

5.3.2 We have allowed lower expenditure for two items

Based on advice from Aither, we have made two downward adjustments to WaterNSW's proposed operating expenditure allowance for the 2017 Determination. Both of these adjustments relate to 100% customer share activities.

20-year asset management strategy

WaterNSW proposed increasing its operating expenditure to develop a 20-year asset management strategy that covers all of its assets.⁸⁶ This involves developing a long-term strategy for each valley.⁸⁷ This is the only key material operating expenditure activity where WaterNSW forecast a significant increase in expenditure over the regulatory period.

Aither recommended a reduction in 20-year asset management strategy costs of \$1.1 million (30 per cent of the total proposed expenditure on this item).⁸⁸ It acknowledged that a long-term approach to asset management is consistent with a prudent service provider. This is because such an approach leads to more efficient outcomes in the long-term, which is to the benefit of customers in terms of lower cost and higher levels of service. However, Aither found the proposed costs were not efficient as they were based on preliminary estimates and did not incorporate any potential synergies of undertaking similar tasks across multiple valleys.⁸⁹

In its submission to our Draft Report, WaterNSW sought to have this expenditure reinstated as it argued that Aither had overstated the potential for efficiencies in completing this task across all valleys.⁹⁰ Aither reviewed WaterNSW's comments and outlined potential efficiencies that WaterNSW could gain as it undertakes the work across valleys. For example, Aither suggested the framework and supporting material developed to undertake customer consultation in the first valley could be re-used to support customer consultation in other valleys.⁹¹ Aither also noted that WaterNSW had not provided any specific information to support its claim that there would be substantive new individual work performed for each valley, and considered that WaterNSW should be able to apply lessons learnt to subsequent valleys.⁹²

⁸⁶ This expenditure was proposed within the 'Asset Management and Planning' category.

⁸⁷ WaterNSW pricing proposal to IPART, June 2016, p 102.

⁸⁸ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, pp 106-110.

⁸⁹ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p 110.

⁹⁰ WaterNSW submission to IPART Draft Report, October 2016, pp 4-5.

⁹¹ Aither, *Review of WaterNSW's response to IPART's draft decisions on proposed expenditure*, May 2017, pp 4-5.

⁹² Aither, *Review of WaterNSW's response to IPART's draft decisions on proposed expenditure*, May 2017, p 5.

Supervisory control and data acquisition (SCADA)

Supervisory control and data acquisition (SCADA) is a networked data collection, collation and interface system. WaterNSW's proposal included increased capital expenditure related to SCADA systems improvements (instrumentation and automation).⁹³

As part of its review of proposed capital expenditure (discussed in Chapter 6), Aither found the expenditure was poorly justified and recommended reducing allowed capital expenditure by 25 per cent for this activity. Given operating expenditure levels on this activity are linked to the rollout of the capital infrastructure, Aither consider it reasonable that WaterNSW's operating expenditure forecast should reflect any efficiency adjustment to the capital expenditure. Therefore, for consistency, Aither recommended a reduction in the operating expenditure allowance for SCADA of \$0.4 million (or 25 per cent).⁹⁴

⁹³ This expenditure was proposed within the 'Water Delivery and Other Operations' category.

⁹⁴ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, pp 110-111.

6 Capital expenditure

This chapter sets out our decisions on WaterNSW's prudent and efficient capital expenditure. As with operating expenditure, we engaged Aither to review WaterNSW's historical and forecast capital expenditure⁹⁵ and make recommendations on the amount of capital expenditure that should be added to the regulatory asset base (RAB).⁹⁶ We also sought further advice from Aither on WaterNSW's submission to our Draft Report.⁹⁷

Under the building block method, there is no explicit allowance for capital expenditure in the notional revenue requirement. Instead, the prudent and efficient capital expenditure is added to the RAB for each valley and recovered through allowances for a return on assets and regulatory depreciation (discussed in Chapter 4 and Chapter 7).

To decide how much capital expenditure is added to the RAB, we asked Aither to review WaterNSW's proposed expenditure and apply prudence and efficiency tests:

- ▼ The prudence test assesses whether any decision to invest in an asset is one that WaterNSW, acting prudently, would be expected to make. The test assesses both how the decision was made, and how the investment was executed (ie, the construction or delivery of the asset), having regard to information available at the time.
- ▼ The efficiency test assesses whether the proposed expenditure represents (over the life of the asset) the best way of meeting customer needs, subject to any regulatory requirements on WaterNSW.

As part of its review, Aither also reported on WaterNSW's performance against past output measures, and recommended new output measures for the 2017 determination period. The new output measures for the 2017 Determination and associated reporting timeframes are outlined in Appendix B.

⁹⁵ In this Chapter, any reference to WaterNSW's actual, forecast or proposed capital expenditure refers to an information return that WaterNSW provided to IPART in September 2016. WaterNSW's actual and forecast expenditure in Aither's expenditure review is based on updated expenditure forecasts provided by WaterNSW to Aither in October 2016. While we have not presented these updates as part of WaterNSW's actual and proposed expenditure, we have factored them into our expenditure allowances.

⁹⁶ Aither provided recommendations in the following report which was published on IPART's website in March 2017: *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017.

⁹⁷ Aither provided this additional advice in the following report which is also available on IPART's website: *Review of WaterNSW's response to IPART's draft decisions on proposed expenditure*, May 2017.

6.1 Our decisions on capital expenditure

We made decisions:

- 9 To set the level of WaterNSW's capital expenditure to be included in the RAB as:
 - actual capital expenditure for MDB valleys over the 2014-15 to 2016-17 period, excluding \$1.62 million on fishway offset expenditure in 2016-17, as set out in Table 6.1.
 - actual capital expenditure for Coastal valleys over the 2010-11 to 2016-17 period, as set out in Table 6.2, and
 - IPART's finding on forecast prudent and efficient capital expenditure for all valleys over the 2017 determination period, as set out in Table 6.3.
- 10 To require WaterNSW to report on the output measures outlined in Appendix B.

Table 6.1 Prudent and efficient capital expenditure in MDB valleys compared with 2014 Decision over 2014-15 to 2016-17 (\$millions, \$2016-17)

	2014-15	2015-16	2016-17 ^a	Total
ACCC 2014 Decision	41.86	31.29	46.56	119.70
Total actual expenditure	19.65	21.06	49.44	90.15
Customer share	5.94	5.46	29.77	41.17
Government share	13.71	15.60	19.66	48.98
Difference	-22.21	-10.23	2.88	-29.55
Difference %	-53.1%	-32.7%	6.2%	-24.7%

^a 2016-17 figures are forecasts; and \$1.62 million has been removed from the forecast for fishway offset expenditure.

Note: These figures are net of externally-funded contributions. Totals may not add due to rounding.

Source: WaterNSW Information Return, September 2016; IPART analysis.

Table 6.2 Prudent and efficient capital expenditure in Coastal valleys compared with 2010 Determination (\$millions, \$2016-17)

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17 ^a	Total
IPART 2010 Determination	0.79	0.48	0.39	0.23	-	-	-	
Total actual expenditure	1.01	0.87	1.30	0.87	0.26	0.55	1.98	6.84
Customer Share	0.97	0.87	1.24	0.79	0.26	0.51	1.15	5.78
Government Share	0.04	0.00	0.07	0.08	0.00	0.04	0.83	1.06
Difference	0.22	0.39	0.92	0.64				
Difference %	28.2%	79.6%	235.3%	277.2%				

^a 2016-17 figures are forecasts.

Note: These figures are net of externally-funded contributions. Totals may not add due to rounding.

Source: WaterNSW Information Return, September 2016; IPART analysis.

Table 6.3 Prudent and efficient forecast capital expenditure compared to WaterNSW's proposal (\$millions, \$2016-17)

	2017-18	2018-19	2019-20	2020-21	Total
WaterNSW's Proposal	65.59	49.91	47.64	32.63	195.77
IPART's decision ^a	50.51	50.14	26.53	24.42	151.60
Customer share	34.59	35.41	24.89	22.96	117.84
Government share	15.92	14.73	1.64	1.46	33.75
Difference	-15.08	0.23	-21.11	-8.21	-44.17
Difference %	-23.0%	0.5%	-44.3%	-25.2%	-22.6%

^a IPART's decision incorporates updated information from WaterNSW based on a reforecast for works at Keepit Dam.

Note: These figures are net of externally-funded contributions. Totals may not add due to rounding. Some values vary slightly from those presented in our Draft Report as they have been corrected for minor data discrepancies.

Source: WaterNSW Information Return, September 2016; IPART analysis.

6.1.1 Summary of reasons for our decisions

WaterNSW's past capital expenditure outcomes were mixed. For MDB valleys, WaterNSW spent less than the expenditure allowance in the ACCC's 2014 Decision; and for Coastal valleys, WaterNSW spent more than IPART's allowance in the 2010 Determination. Following a review by Aither, we have accepted WaterNSW's actual past capital expenditure as prudent and efficient. However, we have removed \$1.62 million in 2016-17 for a fishway project (discussed further below).

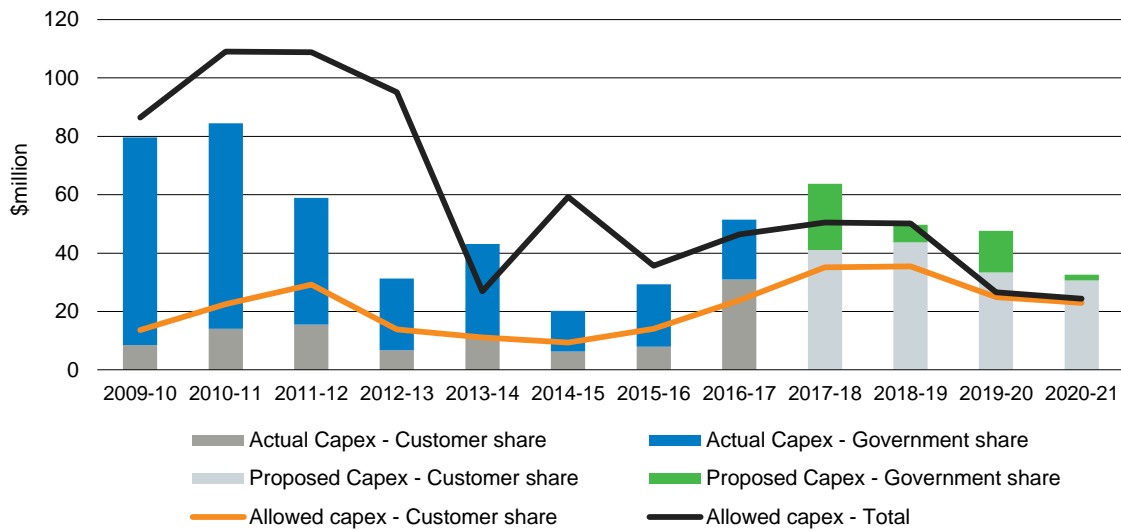
Our decision sets WaterNSW's allowance for capital expenditure at \$151.6 million over the 2017 determination period. In doing so, we have reduced WaterNSW's proposed capital expenditure by \$44.2 million (22.6%). In part, this reflects updated information provided by WaterNSW relating to reforecasting expenditure for works on Keepit Dam. We have also made the following reductions:

- ▼ \$21.0 million to WaterNSW's proposed general 'per valley' renewals expenditure (25% of WaterNSW's proposed expenditure on renewals)
- ▼ \$12.4 million relating to sampled projects that did not fully satisfy prudence and efficiency tests, and
- ▼ \$1.62 million for a fishway project in the Namoi RAB (all future expenditure proposed for this item).

These reductions are discussed in further detail below.

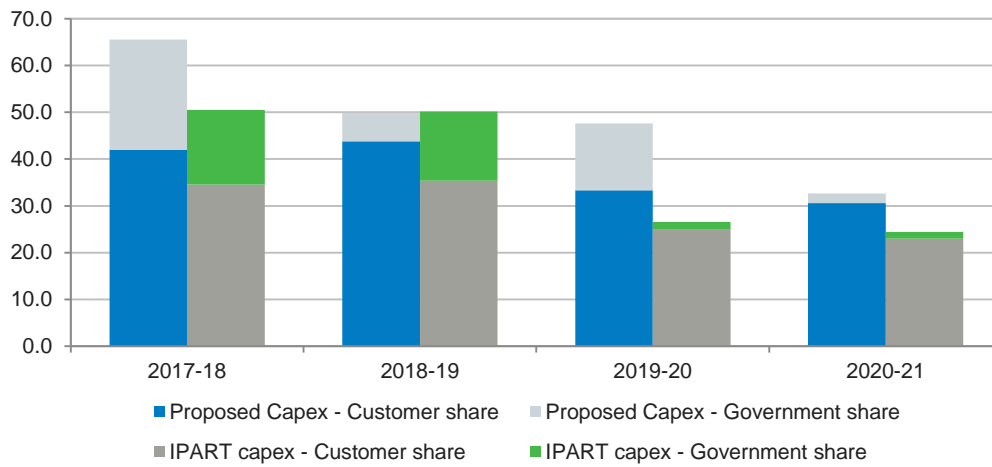
For context, Figure 6.1 below compares WaterNSW's capital expenditure to its allowance from 2009-10 to 2020-21, on a government and customer share basis. Figure 6.2 compares WaterNSW's proposed capital expenditure for the 2017 determination period with IPART's decision, on a government and customer share basis.

Figure 6.1 WaterNSW's capital expenditure over time (\$2016-17)



Source: IPART Analysis.

Figure 6.2 Prudent and efficient forecast capital expenditure compared to WaterNSW's proposal (\$millions, \$2016-17)



Source: IPART analysis.

Table 6.4 below shows our decision on total and customer share capital expenditure compared with WaterNSW's proposal, by valley.

Table 6.4 Capital expenditure by valley 2017-18 to 2020-21 (\$millions, \$2016-17)

	Total	Customer share	WaterNSW Proposed customer share	% reduction in customer share compared to proposal
Border	0.78	0.72	1.07	-32.1%
Gwydir	10.13	9.59	11.56	-17.0%
Namoi	37.36	10.85	14.62	-25.8%
Peel	2.74	2.45	2.87	-14.6%
Lachlan	17.37	15.76	19.83	-20.5%
Macquarie	12.11	11.19	14.61	-23.4%
Murray	6.11	5.68	6.40	-11.3%
Murrumbidgee	32.87	30.20	39.28	-23.1%
Lowbidgee	8.44	8.44	10.02	-15.8%
North Coast	1.50	1.38	1.64	-15.7%
Hunter	6.52	6.01	8.18	-26.5%
South Coast	1.37	1.25	1.46	-14.5%
Fish River	14.31	14.31	18.15	-21.2%
Total	151.60	117.84	149.71	-21.3%

Note: Totals may not add due to rounding. Some values vary slightly from those presented in our Draft Report as they have been corrected for minor data discrepancies.

Source: IPART analysis.

6.2 We have accepted past capital expenditure as prudent and efficient

Overall, WaterNSW's actual past capital expenditure compared to its regulatory allowances has varied between MDB and Coastal valleys.

In MDB valleys, WaterNSW's capital expenditure over 2014-15 to 2016-17 was approximately \$29.8 million (or 25%) less than the allowance in the ACCC's 2014 Decision. The majority of the underspend is on the government share (\$25.7 million, or 86%); with the customer share underspend at \$4.2 million (or 14%).⁹⁸

In Coastal valleys, during IPART's 2010-11 to 2013-14 determination period, WaterNSW overspent by approximately \$1.7 million.⁹⁹ Total capital expenditure in Coastal valleys between 2010-11 and 2016-17 is forecast to be \$6.9 million, of which \$5.8 million (85%) is allocated to the customer share RAB.

Aither found that past capital expenditure was prudent and efficient and did not recommend any adjustments. Aither noted WaterNSW's comments that the merger of State Water and the Sydney Catchment Authority contributed to lower than forecast expenditure, and Aither also found evidence of good decisions to defer expenditure (such as on business information systems) that otherwise may have been imprudent or inefficient.¹⁰⁰

⁹⁸ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p 59.

⁹⁹ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p xv.

¹⁰⁰ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p xv.

Our decision is therefore to accept WaterNSW's actual past capital expenditure as prudent and efficient. However, we have removed \$1.62 million in 2016-17 for fishway offset expenditure, as outlined further below.

6.3 WaterNSW is forecasting an increase in capital expenditure

WaterNSW proposed approximately \$195.8 million in capital expenditure for the 2017 determination period.¹⁰¹ On a total and customer share basis, WaterNSW's forecast represents a significant increase in expenditure from the current determination period; the average annual customer share for the next determination period is more than twice that of the current period.

WaterNSW's proposed total capital expenditure for the 2017 determination period is higher than the regulatory allowance in IPART's 2010 Determination (Coastal valleys) and the ACCC's 2014 Decision (MDB valleys) over the four years to 2016-17 in most valleys.

The exceptions are the Peel and Lachlan valleys, where WaterNSW proposed a lower annual average capital expenditure by around \$9.1 million (a reduction of 92%) and \$4.8 million (a reduction of 47%), respectively, over the 2017 determination period as compared to the allowed annual average capital expenditure for the four years to 2016-17.¹⁰²

On a customer share basis, WaterNSW's proposed capital expenditure is higher in all valleys when compared with annual average allowed capital expenditure over the four years to 2016-17. This reflects that expenditure is forecast to increase for activities with a higher customer share.

In terms of the mix of WaterNSW's forecast capital expenditure, the majority is allocated to the 'Maintaining capability' category (62%), which includes asset renewals or replacement. The next largest category is 'augmenting' (14.8%), followed by 'regulatory dam safety' (14.5%). WaterNSW's forecasts reflect a significant change in the mix of capital expenditure, with only \$17.6 million (average \$5.9 million per annum) allocated to the equivalent 'Maintaining capability' category in the current determination period versus a proposed \$115.6 million (\$28.9 million per annum) for the upcoming 2017 determination period.¹⁰³

WaterNSW identified the primary drivers of its capital program as:

- ▼ reducing risk of asset-related failure to the organisation, customers, and the community
- ▼ maintaining the required levels of service to customers
- ▼ reducing health and safety related risks to staff, customers and the community, and
- ▼ reducing risks associated with non-compliance with regulatory requirements.¹⁰⁴

¹⁰¹ This figure accounts for WaterNSW's adjustments to its June pricing proposal provided in its September update. The adjustments relate to Fishway expenditure and expenditure on Keepit Dam.

¹⁰² The large relative reductions in the Peel and Lachlan valleys are a result of significant capital expenditure over the 2014 determination period. The expenditure in both valleys over the 2014 determination period were largely government share, and as such had little impact on customer bills.

¹⁰³ This breakdown is based on additional information provided by WaterNSW on 11 October 2016. Source: Aither, *WaterNSW Expenditure Review Final Report*, February 2017, p xvi.

¹⁰⁴ WaterNSW pricing proposal to IPART, June 2016, p 84.

WaterNSW noted that its capital expenditure program is primarily aimed at the renewal and replacement of assets that are used to collect, store and deliver raw water to customers. This is to ensure asset reliability and capability is properly maintained.¹⁰⁵ As such, users bear a high proportion (50 per cent) of WaterNSW's proposed capital expenditure, based on the impactor pays principle.

In submissions to our Issues Paper, stakeholders were concerned about the proposed increase in capital expenditure, and the transparency of WaterNSW's approach to renewals capital expenditure.¹⁰⁶ For example, Gwydir Valley Irrigators (GVIA) submitted:

The GVIA does not support the high level approach by WaterNSW to budget and prepare for capital expenditure in the forthcoming determination. We were vocal throughout the consultation period that water users, who are paying the majority share of capital expenditure are entitled to have greater transparency and therefore, hold WaterNSW more accountable for the implementation of the program. The current proposal leaves water users, with less information and therefore, less confidence in WaterNSW's ability to implement the program than what we previously had.¹⁰⁷

In setting draft prices in our Draft Report and Draft Determination, we reduced WaterNSW's forecast capital expenditure by \$44.2 million (22.6%) to \$151.6 million. This was largely due to Aither's recommendations on expenditure that it considered did not satisfy prudence and efficiency tests (particularly in relation to renewals expenditure).

Although stakeholders generally welcomed our draft reductions to future capital expenditure (discussed further below), they remained concerned by WaterNSW's new approach to renewals expenditure. For example, Lachlan Valley Water submitted:

...we are concerned that the capital allowance approach has the potential to aggravate the existing problem for customers where WaterNSW customarily budgets for earlier and/or higher capex than is actually spent, and therefore receives an unearned rate of return on unspent capex.¹⁰⁸

Indeed, a number of stakeholders including NSWIC, Western Murray Irrigation and NSW Farmers' Association argued that WaterNSW should be held to account for past underspending.¹⁰⁹ For example, NSWIC recommended that IPART apply a penalty on forecast expenditure for past underspending.

We do not consider such an adjustment appropriate. As noted above:

- ▼ for Coastal valleys, WaterNSW overspent its 2010 Determination allowance, and
- ▼ for MDB valleys, the majority of the underspend (86%) related to the government share of costs.

¹⁰⁵ WaterNSW pricing proposal to IPART, June 2016, p 7.

¹⁰⁶ Stakeholders that commented on this issue included Bega Valley Water Users Association, Coleambally Irrigation, Gwydir Valley Irrigators Association, Lachlan Valley Water, Murrumbidgee Irrigation and NSW Irrigators Council.

¹⁰⁷ GVIA submission to IPART Issues Paper, October 2016, p 14.

¹⁰⁸ Lachlan Valley Water submission to IPART Draft Report, April 2017, p 4.

¹⁰⁹ NSWIC submission to IPART Draft Report, April 2017, p 17; NSW Farmers' Association submission IPART Draft Report, April 2017, p 4; and, Western Murray Irrigation submission to IPART Draft Report, April 2017, p 5.

Further, we seek to set WaterNSW's capital expenditure allowance based on our view of the prudent and efficient expenditure for the determination period. This provides an incentive for WaterNSW to target efficient capital expenditure, which ultimately benefits customers. It also ensures that, where WaterNSW undertakes higher capital expenditure than allowed over a determination period, that customers do not pay for the holding cost of that expenditure in the following determination period. We have accepted advice from Aither on the prudent and efficient level. Aither also considers that its recommended level of expenditure is deliverable by WaterNSW over the upcoming four year determination period.¹¹⁰

6.4 We have allowed less expenditure than WaterNSW proposed

We have made a number of reductions to WaterNSW's forecast capital expenditure, mainly relating to expenditure on asset renewals. In total, we have reduced WaterNSW's proposed capital expenditure by \$44.2 million (22.6%) to \$151.6 million. This reflects:

- ▼ updated information from WaterNSW on forecast expenditure for works on Keepit Dam¹¹¹
- ▼ the adjustments recommended by Aither (outlined below), which we have accepted in full, and
- ▼ a \$1.62 million reduction in fishway offset expenditure outlined below.

6.4.1 We have made reductions based on expenditure review recommendations

Reduction to renewals expenditure

Aither concluded that WaterNSW's proposed significant increase in capital expenditure was not efficient. The majority of proposed expenditure was for asset renewals determined largely by a modelling process that Aither found likely overestimated the expenditure required.¹¹² Aither noted that within each valley there were a handful of renewals projects that had undergone some level of investigation and design. However, it found most had not undergone sufficient work to validate the need, identify and assess options or undertake cost benefit analyses.¹¹³

Aither also identified other significant items of proposed expenditure that were immature in their development with little certainty over the need for the expenditure, or that the proposed amount of expenditure was efficient.¹¹⁴

Aither recommended a reduction in WaterNSW's proposed capital expenditure on renewals of \$21 million, or 25.6 per cent. Table 6.5 outlines how Aither came to this reduction in more detail.

¹¹⁰ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, pp 70-71.

¹¹¹ On 11 October 2016, as part of the expenditure review, WaterNSW provided Aither with new forecasts for expenditure on Keepit dam. Aither based its recommended adjustments on WaterNSW's proposal including these reforecasts. Source: Aither, *WaterNSW Expenditure Review Final Report*, February 2017, pp 52, 188.

¹¹² Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p xvii.

¹¹³ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p 65.

¹¹⁴ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p xvii.

Table 6.5 Aither’s recommended reductions to general renewals expenditure over the 2017 determination period

Item	Amount (\$million, \$2016-17)
WaterNSW’s proposed renewals expenditure	82.2
<i>Adjustment for risk averse nature of the risk assessment process</i> Aither found that the process of accelerating criticality of projects was too risk averse and adjusted for projects where it considered the risk score was advanced prematurely.	-2.7
<i>Adjustment for change in scope and inaccuracy in estimating</i> Aither examined previous period expenditure at the budgeting stage compared to actual expenditure, and found that actual expenditure was achieved at 10% below the budgeted expenditure.	-7.9
<i>Adjustment for deferrals from one determination period to the next</i> In the 2014 Determination, WaterNSW deferred 13.7% of its planned (or forecast) renewals expenditure due to its gateway approval to proceed process. Aither considered that some deferral was likely to occur to its proposed program for the 2017 determination period, but with a lower level of 5%, based on WaterNSW’s planning process improvements.	-3.6
<i>Adjustment for carry-over at the end of the regulatory period</i> Delays due to either capacity to construct or funding can push expenditure into the following regulatory period, in the current 2014 period, this carry-over was 18% of proposed renewals. Aither considers that carry-over into the 2021 determination period will still occur, but at a lower rate (10% rather than 18%), based on WaterNSW’s deliverability process improvements.	-6.8
<i>Total reduction</i>	-21.0
Aither’s recommended renewals expenditure	61.1

Source: Aither, *WaterNSW Expenditure Review Final Report*, February 2017, p 150.

In its submission to our Draft Report, WaterNSW challenged this reduction to renewals expenditure, and requested reinstatement of \$13 million of the \$21 million based on advice from its consultant, Covaris, which found that:

- ▼ WaterNSW’s risk assessment process was robust
- ▼ variance from the ACCC’s 2014 allowance was in part explained by strategic deferrals due to the ACCC’s significant reduction to capital expenditure, and
- ▼ the percentage reduction proposed by Aither could not be borne in some valleys due to their asset risk profile.

We re-engaged Aither to review WaterNSW’s submission and advise whether it contained any new arguments or information that warranted a change to its original recommendation. As part of its review, Aither sought additional information from WaterNSW and Covaris to understand the basis for arguments in the submission and accompanying consultant report.

Aither maintained its original recommendation as it did not agree with Covaris’ findings (Table 6.6).

Table 6.6 Aither's responses to Covaris' key arguments

Covaris finding	Aither response
The risk assessment process used by WaterNSW is robust.	<p>Aither considers the risk assessment coarse as there are only two categories representing poor condition (WaterNSW estimates that category 5 Very Poor typically contains only 1% of an asset's life and category 4 Poor typically contains 30% of an asset's life). They also note that:</p> <ul style="list-style-type: none"> ▼ Around 37% of risk assessments are based on 'limited knowledge' or 'some knowledge' and these uncertainties do not appear to be taken into account by WaterNSW when forecasting required capital. ▼ WaterNSW imprudently advances assets into higher risk categories (eg, assets with a replacement value over \$100,000 have their risk assessment advanced by 2 categories and assets with a replacement value over \$10,000 have their risk assessment advanced by 1 category).
The 25.6% reduction to renewals expenditure should only be 14.5%, as 13.7% should be removed for strategic deferrals in the current determination period, as this was due to the ACCC's decision to reduce the capex allowance by \$72 million.	<p>Aither disagrees, as Covaris appears to have assumed that the deferrals were determined from the original program of works proposed to the ACCC by WaterNSW, whereas the historic level of deferrals determined by the review team is based on information provided by WaterNSW for the revised program of works after the ACCC Determination.</p> <p>Further, Aither did not apply a similar level of deferrals to that experienced in the current determination period (13.7%), but recommended an adjustment of 5% (reflecting that WaterNSW has shown improvements to planning processes).</p>
Some valleys have high risk so there should be no reductions applied to those valleys at all.	<p>Aither disagrees with Covaris' logic and conclusions because:</p> <ul style="list-style-type: none"> ▼ Covaris appears to have use outdated data, which for some valleys has little resemblance to the expenditure proposed by WaterNSW. ▼ Much of the 'high risk' expenditure is for assets in category 4 (poor) with up to 30% of life remaining, meaning there is no reason to assume the expenditure will be needed in the next four years. ▼ Covaris concluded that some valleys can tolerate a 25.6% reduction while arguing that a 14.5% reduction should apply across the board.

Source: WaterNSW submission to IPART Draft Report, April 2017, Appendix A; and Aither, *Review of WaterNSW's response to IPART's draft decisions on proposed expenditure*, May 2017, pp 8-13.

Reduction based on review of sampled capital projects

Aither also recommended reducing WaterNSW's proposed capital expenditure by \$12.4 million based on its review of a sample of projects, as Aither considered these projects did not fully satisfy prudence and efficiency tests. Depending on the reason for each adjustment, Aither either applied a reduction to the sampled project (in total, a 45 per cent reduction to all sampled projects) or across all items in the expenditure category.¹¹⁵ Some examples of these reductions include:

- ▼ \$2.0 million (25 per cent of proposed expenditure) for corporate expenditure on 'supervisory control and data acquisition' and the Operational Systems Programme, as these were at a preliminary stage of budgeting. Aither noted that WaterNSW had developed a list of potential expenditures without analysis to determine what was actually required; it concluded that WaterNSW's process for determining the final suitable list of works would result in three quarters of the proposed expenditure.¹¹⁶

¹¹⁵ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, pp 67-68.

¹¹⁶ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, pp 168, 202.

- ▼ \$1.8 million (all of the proposed expenditure) for Renewal and Replacement Asset Engineering due to double-counting with the proposed general valley-based asset renewals allowance.
- ▼ \$2.8 million (45 per cent of proposed expenditure) for ICT renewals as the need for WaterNSW's proposed significant increase in ICT renewals was not supported by evidence. Aither therefore recommended an amount be included in line with WaterNSW's budgeted annual expenditure for 2016-17.

6.4.2 We have not allowed all of WaterNSW's proposed fishway expenditure

In its October 2016 submission to IPART's Issues Paper, WaterNSW proposed additional capital expenditure relating to fishways¹¹⁷, including:

- ▼ \$3.24 million (\$1.62 million each in 2016-17 and 2017-18) on a fishway offset arising from dam safety works in the Namoi valley (with a 50% customer share), and
- ▼ \$0.44 million across the Gwydir, Lachlan and Macquarie valleys, to fund the planning, design, optimised costing and business case activities needed to finalise its Long-term Prioritised Fish Passage Program proposal.¹¹⁸

Aither found that historical capital expenditure was prudent and efficient, including in relation to the additional fishway expenditure outlined above. However, our decision excludes the fishway offset expenditure of \$3.2 million.

The proposed fishway offset expenditure is driven by dam safety works that were completed in the Namoi valley (relating to Keepit and Split Rock Dam). These works triggered a requirement under section 218 of the *Fisheries Management Act 1994* (NSW) (FMA Act) to undertake works to enable fish to pass through. This requirement was originally to be met through offset works on Mollee Weir and Gunidgera Weir, both within the Namoi valley. The works on Mollee Weir have been completed, while the works on Gunidgera Weir are outstanding.

The ACCC's 2014 Decision and IPART's 2010 Determination both included approvals for proposed expenditure on Gunidgera Weir fishway (around \$4 million in 2014, and \$5.2 million in 2010¹¹⁹), however the expenditure was deferred.

The current estimated cost of a fishway on Gunidgera Weir is around \$9 million. WaterNSW has proposed to replace this fishway offset with an offset on Walgett Weir in the Barwon valley at a lower cost of \$3.2 million. WaterNSW argues this is the most efficient outcome for satisfying its regulatory requirements.¹²⁰ Aither supported this view in finding the expenditure to be prudent and efficient.¹²¹

¹¹⁷ WaterNSW's pricing proposal flagged that fishway expenditure may need to be updated when WaterNSW completed discussions with DPI Fisheries about how to meet its regulatory obligations under the *Fisheries Management Act 1994* (NSW) (FMA).

¹¹⁸ WaterNSW proposed a total of \$2.01 million on this activity, comprising of \$0.44 million in capital expenditure, and \$1.58 million in operating expenditure (Chapter 5).

¹¹⁹ Atkins Cardno, *Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation 2009*, Final, November 2009, p 60; and Deloitte, *Expenditure forecast review State Water Corporation*, Final Report, 20 December 2013, p 85.

¹²⁰ WaterNSW submission to IPART Issues Paper, October 2016, p 5.

¹²¹ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p 112.

Namoi-Peel Customer Service Committee (NPCSC) questioned whether the offset is appropriate given work would be undertaken in the Barwon rather than the Namoi.¹²² The offset would result in a situation where the value of an asset that is outside the Namoi valley would be included in the Namoi RAB.

In principle, we support this offset approach as WaterNSW is seeking to discharge its regulatory duties at least cost. While the fishway work is being undertaken in the Barwon, the approach satisfies the ‘impactor pays’ principle as the regulatory requirement was triggered by work on assets that benefit customers in the Namoi.¹²³ In its submission to the Draft Report, Namoi Water objected to our view that this approach satisfies the impactor pays principle.¹²⁴ It noted that the Walgett Weir serves no benefit to the delivery or storage of water for regulated Namoi customers and therefore Namoi customers should not pay for the offset. We understand that Namoi customers do not benefit from any works on Walgett Weir. However, the regulatory requirement was triggered by dam safety works that were completed in the Namoi valley, on dams that are used to supply Namoi customers.

While we consider the offset approach appropriate in principle, we have decided to exclude the proposed additional fishway offset expenditure of \$3.2 million from the Namoi RAB. The NPCSC and Namoi Water both stated they had not been consulted prior to learning of the expenditure in WaterNSW’s submission to IPART’s Issues Paper.¹²⁵ This raises uncertainty about the timing of the expenditure decision, given half of the expenditure is planned for the current financial year. There has also been a history of fishway offset expenditure being allowed and not spent.

Our Draft Report stated that we would consider allowing this expenditure if WaterNSW provided evidence that the project had progressed. WaterNSW did not provide any such evidence in its response to the Draft Report, and so we have maintained our draft decision on this expenditure.

The Department of Primary Industries (DPI) Fisheries submitted that WaterNSW had underestimated the regulatory costs of complying with its fishway obligations over the determination period.¹²⁶ It also stated the Strategic Fish Passage Program expenditure to facilitate planning for high priority fish passage barriers (which we have included in the operating expenditure allowance) will not diminish WaterNSW’s current legislative obligations.

WaterNSW has not proposed the expenditure referred to by DPI Fisheries. Further, WaterNSW has underspent in this category in recent determinations. It anticipates an underspend of \$12.3 million or (61 per cent) over the 2014 determination period due to the suspension of the fishway program following concerns over escalating costs of fishway construction and operation.¹²⁷

¹²² IPART Public Hearing, 31 October 2016, Moree, *Transcript*, p 20.

¹²³ In August 2016, DPI Fisheries confirmed the offset expenditure would discharge WaterNSW’s section 218 obligation to construct a fishway on Gunidgera Weir.

¹²⁴ Namoi Water submission to IPART Draft Report, April 2017, p 5.

¹²⁵ IPART Public Hearing, 31 October 2016, Moree, *Transcript*, pp 19-21.

¹²⁶ Department of Primary Industries Fisheries submission to IPART Draft Report, March 2017.

¹²⁷ WaterNSW pricing proposal to IPART, June 2016, pp 127, 132.

In setting prices we have included forecast efficient operating expenditure for WaterNSW to develop a fishway strategy (Chapter 5). This allows WaterNSW, DPI Fisheries and other stakeholders to further investigate and plan an integrated strategy.

WaterNSW has also noted it is seeking to secure full government funding for fishway expenditure, which is currently a 50:50 customer-government share activity.¹²⁸

Given the uncertainty about the timing and funding of fishway projects, we have not adjusted WaterNSW's capital expenditure allowance. We note that WaterNSW can still undertake fishway projects during the 2017 determination period, and this expenditure could be rolled into the RAB at the next determination as part of past capital expenditure.

6.4.3 WaterNSW should aim to more thoroughly justify its expenditure proposals

A number of our reductions to WaterNSW's proposed capital expenditure relate to expenditure that we consider has insufficient justification. Stakeholders have also expressed frustration with the lack of transparency in WaterNSW's new approach to renewals expenditure.

At the next determination of rural bulk water prices scheduled to commence in 2020, we will review WaterNSW's actual historical expenditure and forecast expenditure. If WaterNSW's capital expenditure exceeds the amount allowed in our current determination, and this expenditure is found to be prudent and efficient, it will be rolled into the RAB at that time.¹²⁹

To this end, we note Aither's comments

... we were not asked by IPART to approve individual projects but rather recommend a prudent and efficient overall level of expenditure. To do this, the review team needs to be satisfied that the evidence provided supports the level of expenditure proposed as being prudent and efficient. A consequence of the revised approach being taken by WaterNSW is that the justification and documentation for proposed future capital expenditure is limited in some areas (mainly renewals), partly because more robust assessment of the need for expenditure (and exploration of alternatives) is planned to occur post the determination.¹³⁰

In light of this, and the comments from stakeholders, WaterNSW should ensure at the next determination that any past or proposed expenditure is clearly justified, including by providing evidence that the need for the expenditure and options for meeting that need have been adequately considered.

¹²⁸ WaterNSW submission to IPART Issues Paper, October 2016, p 6.

¹²⁹ This assumes the next review of WaterNSW's prices is conducted under the IPART Act, in line with the ACCC's recommendations in its final advice to the Minister on amendments to the WCIR. Currently, under Schedule 2 of the WCIR all actual historical expenditure is rolled into the RAB, although we note that this provision may also be subject to change under future WCIR amendments. In its final advice, the ACCC recommended incorporating a prudence and efficiency test for historical capital expenditure in the WCIR. Source: ACCC, *Review of the Water Charge Rules Final Advice*, September 2016, pp 146-147, 165.

¹³⁰ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, February 2017, p xiii.

7 Allowance for a return on assets, regulatory depreciation and tax obligations

To calculate the allowances for a **return on assets** and **regulatory depreciation** in the revenue requirement, we need to determine three key inputs:

- ▼ the value of WaterNSW's regulatory asset base (RAB) for its rural bulk water regulated business, which represents the economic value of the assets used to deliver its monopoly services
- ▼ the appropriate asset lives and depreciation method for WaterNSW's RAB for its bulk water services, and
- ▼ the appropriate rate of return (eg, using the WACC) on WaterNSW's RAB for bulk water services.

The sections below provide an overview of our decisions.

7.1 The value of the Regulatory Asset Base

We made a decision:

- 11 To set WaterNSW's opening Regulatory Asset Base (RAB) for its rural operations at the commencement of the determination period (1 July 2017) at \$781.5 million (Table 7.1).

The RAB represents the value of WaterNSW's assets on which we consider it should earn a return on capital and an allowance for regulatory depreciation.¹³¹ We have calculated the value of the RAB for each year of the 2017 determination period. Our RAB roll-forward calculations for the 2017 determination period are shown in Table 7.1 below.

¹³¹ The RAB for each valley, other than the FRWS, was first set as of 1 July 2004 (line-in-the-sand). Since then, efficient and prudent capital expenditure has been added, depreciation deducted and indexation included. IPART, *Bulk Water Prices for State Water Corporation and Water Administration Ministerial Corporation from 1 October 2006 to 30 June 2010*, September 2006, p 7.

Table 7.1 Decision on WaterNSW total RAB for the 2017 Determination (\$millions, \$2016-17)

	2017-18	2018-19	2019-20	2020-21
Opening RAB	781.5	815.7	848.9	857.7
Plus: Efficient capital expenditure	50.5	50.1	26.5	24.4
Less: Regulatory depreciation	15.5	16.4	17.0	17.4
Less: Asset disposals	0.8	0.6	0.8	0.6
Closing RAB	815.7	848.9	857.7	864.1

Note: Capital expenditure is net of external funding. The opening RAB for each year presented in Table 7.1 is slightly lower than the opening RAB presented in our Draft Report, as we have updated our inflation estimate to 2.2%, to roll forward the RAB to 1 July 2017. The forecast inflation rate that we used in the Draft Report was 2.5% (mid-point of the RBA target inflation range).

Source: IPART analysis.

7.1.1 Reasons for our decision

Calculating the RAB over the 2017 determination period

We calculated the RAB in each year of the 2017 determination period by rolling forward the RAB to 2020-21 by:

- ▼ adding \$151.6 million of prudent and efficient forecast capital expenditure to the opening RAB over the period (discussed in Chapter 6), and
- ▼ deducting:
 - \$66.3 million for regulatory depreciation (see section 7.4)
 - \$2.8 million for the regulatory value of forecast asset disposals (see section 7.2).

We used our forecast RAB to generate the return on capital and allowance for depreciation over the 2017 determination period.

Our calculation of the RAB for the 2017 Determination results in a closing RAB that is \$62.6 million lower than WaterNSW's proposal. Table 7.2 compares our decisions on the RAB to WaterNSW's proposal.

Table 7.2 Decision on closing RAB compared to proposal (\$millions, \$2016-17)

	2016-17	2017-18	2018-19	2019-20	2020-21
WaterNSW proposal	802.3	849.9	882.7	912.4	926.7
IPART decision	781.5	815.7	848.9	857.7	864.1
Difference	-20.8	-34.2	-33.8	-54.8	-62.6
Difference %	-2.6%	-4.0%	-3.8%	-6.0%	-6.8%

Source: WaterNSW pricing proposal to IPART, June 2016; IPART analysis.

The main differences leading to a lower RAB than WaterNSW proposed are:

- ▼ our decisions to reduce WaterNSW's forecast capital expenditure by \$44.2 million, and
- ▼ the use of actual inflation for 2015-16 of 1.0% and an updated estimate of 2.2% for 2016-17 in the RAB roll-forward, which reduced the 2017-18 opening RAB by \$12.9 million.

Calculating the closing RAB for the 2010 Determination (for Coastal valleys) and 2014 Determination (for MDB valleys)

We have calculated the opening RAB for 2017-18 by rolling the RAB forward over the 2010 determination period for Coastal valleys and over the 2014 ACCC decision period for MDB valleys. For Coastal valleys, we started with the determined RAB at 1 July 2010. For MDB valleys, we commenced with the determined RAB at 1 July 2013. We then made the following adjustments for the relevant periods to 30 June 2017:

- ▼ added prudent and efficient capital expenditure (Chapter 6)
- ▼ deducted the regulatory value of asset disposals (section 7.2)
- ▼ deducted regulatory depreciation (section 7.4), and
- ▼ added the annual indexation of the RAB.

Our calculation of the opening RAB for the 2017 determination period for MDB and Coastal valleys is set out in Table 7.3 and Table 7.4 below.

Table 7.3 RAB calculation for WaterNSW's MDB valleys over the 2014 ACCC decision period (\$millions, \$nominal)

	2013-14	2014-15	2015-16	2016-17
Opening RAB	611.8	662.2	678.0	691.1
Plus: efficient capital expenditure	39.7	19.0	20.6	49.4
Less: Regulatory depreciation	8.3	13.3	14.4	15.4
Plus: Indexation	18.9	10.1	6.9	15.7
Closing RAB	662.2	678.0	691.1	740.9

Note: Capital expenditure is net of external funding.

Source: IPART analysis.

Table 7.4 RAB calculation for WaterNSW's Coastal valleys over the 2010 determination period (\$millions, \$nominal)

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Opening RAB	31.1	32.8	33.7	35.5	37.1	37.6	38.2
Plus: efficient capital expenditure	0.9	0.8	1.2	0.8	0.3	0.5	2.0
Less: Regulatory depreciation	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Plus: Indexation	1.1	0.4	0.8	1.1	0.6	0.4	0.9
Closing RAB	32.8	33.7	35.5	37.1	37.6	38.2	40.7

Note: Capital expenditure is net of external funding.

Source: IPART analysis.

7.2 Asset disposals

WaterNSW reported zero historical asset disposals for the previous determination periods for Coastal and MDB valleys. We have adopted WaterNSW's proposal on historical asset disposals for pricing purposes. We have deducted the value of any regulatory assets that WaterNSW proposes to dispose of during the 2017 determination period from the RAB. We did this to ensure that customers are not charged a return on assets or regulatory depreciation for assets that are no longer used to provide regulated services.

Disposals can include asset sales, write-offs and write-downs. We regard disposals as significant if they attract capital gains tax or account for more than 0.5% of the RAB.

We made decisions:

- 12 To deduct the regulatory value of actual and forecast asset disposals from the RAB, where the regulatory value is determined as:
 - for significant sales of assets purchased before the RAB line-in-the-sand: asset sales revenue x RAB/DRC at the time the RAB was established
 - for significant sales of assets purchased post RAB line-in-the-sand: purchase price + capital expenditure – depreciation + indexation
 - for significant asset write-offs: determined on a case-by-case basis
 - for non-significant write-offs: zero unless determined by exception on a case-by-case basis, and
 - for non-significant asset sales: receipts from asset sales.
- 13 To adopt WaterNSW's reported figure of zero historical asset disposals for the previous determination periods for Coastal and MDB valleys.
- 14 To adopt WaterNSW's forecast asset disposals as outlined in Table 7.5.

Table 7.5 Decision on forecast asset disposals (\$'000, \$2016-17)

	2017-18	2018-19	2019-20	2020-21
Border	4.2	3.4	4.3	3.5
Gwydir	123.9	99.6	128.3	103.8
Namoi	158.7	127.5	164.4	132.9
Peel	31.0	24.9	32.1	26.0
Lachlan	101.7	81.7	105.3	85.1
Macquarie	81.2	65.3	84.1	68.0
Murray	42.1	33.8	43.6	35.3
Murrumbidgee	117.9	94.7	122.1	98.7
Lowbidgee	0.2	0.1	0.2	0.1
North Coast	8.0	6.5	8.3	6.7
Hunter	8.0	6.5	8.3	6.7
South Coast	4.5	3.6	4.7	3.8
Fish River	77.5	62.3	80.3	64.9
Total	759.1	609.8	786.0	635.5

Source: WaterNSW Information Return, June 2016.

Our current approach to the treatment of asset disposals was outlined in our 2016 Sydney Water Final Report.¹³² WaterNSW has forecast a small amount of asset disposals under the category of “Corporate Systems” of approximately \$700,000 per year, which is all customer share.¹³³ Given the insignificant nature of the value of asset disposals, we will deduct the full forecast sales revenue from the RAB. This is in line with our position in the 2016 Sydney Water and Hunter Water price reviews, which stated that for asset sales which were valued at less than 0.5% of the opening RAB:

...we will remove the receipt from sales from the RAB. We consider that this approach is simple to administer, particularly for disposals that represent a relatively small proportion of the utility’s RAB (ie, less than 0.5%).¹³⁴

Our decision is to adopt WaterNSW’s forecast asset disposals for the 2017 Determination as outlined above in Table 7.5.

7.2.1 Reasons for our decision

We have changed the way we treat asset disposals compared with our previous WaterNSW Rural (formerly State Water) determinations.

Our approach to asset disposals reflects our view that the asset’s identifiable **regulatory value** should be removed from the RAB. This is the value of the asset as it entered the RAB (if known), adjusted for the effect of depreciation and indexation. We also consider that the business should pay any tax obligations from the regulatory profit it retains.

This approach means the business bears the risk of any profits or losses arising from the sale of an asset, and customers are not affected. We consider this appropriate because the benefit customers received came from consuming the service, not from ownership of the asset. We consider that the impact of any profit or loss should lie entirely with the business (or shareholder).

Our policy on the regulatory treatment of asset disposals is set out in detail in Appendix H of our Final Report of our 2016 review of Sydney Water’s prices.¹³⁵

7.3 Return on capital

We have included an allowance for a return on assets in the revenue requirement. This represents our assessment of the opportunity cost of the capital invested to provide the regulated services. Our approach ensures that the business can continue to make efficient capital investments in the future.

To calculate this allowance, we multiplied the value of the RAB in each year of the determination period by an appropriate rate of return. To do this, we have determined the rate of return using a weighted average cost of capital (WACC).

¹³² IPART, *Review of prices for Sydney Water Corporation - Final Report*, June 2016, Appendix H, pp 283-287.

¹³³ WaterNSW pricing proposal to IPART, June 2016, p 76 and WaterNSW Information Return, June 2016.

¹³⁴ IPART, *Review of prices for Sydney Water Corporation - Final Report*, June 2016, Appendix H, p 286.

¹³⁵ IPART, *Review of prices for Sydney Water Corporation, Final Report*, June 2016, Appendix H, p 283.

We made decisions:

- 15 To apply a real post-tax WACC of 3.1% to calculate the return on WaterNSW's assets for MDB valleys.
- 16 To apply a real post-tax WACC of 4.7% to calculate the return on WaterNSW's assets for Coastal valleys.
- 17 To set an allowance for return on assets of \$106.7 million over the 2017 determination period, as shown in Table 7.6.
- 18 To set an allowance for return on working capital at \$0.76 million over the 2017 determination period.

Based on the RAB values set out in section 7.1 and our decisions to apply a real post-tax WACC of 3.1% for MDB valleys and 4.7% for Coastal valleys, the resulting return on assets (WACC% x RAB) is shown in Table 7.6.

Table 7.6 Decision on return on capital compared to WaterNSW proposal (\$millions, \$2016-17)

	2017-18	2018-19	2019-20	2020-21	Total
WaterNSW proposal	27.2	28.6	29.6	30.4	115.8
IPART decision	25.4	26.5	27.2	27.5	106.7
Difference	-1.8	-2.1	-2.4	-2.9	-9.1
Difference %	-6.5%	-7.3%	-8.0%	-9.5%	-7.9%

Source: WaterNSW pricing proposal to IPART, June 2016, p 62; IPART analysis.

We also made an allowance for a return on working capital, which represents the holding cost of net current assets. The allowance is \$0.76 million over the four years of the 2017 determination period. This allowance is lower than the allowance presented in our Draft Report (\$0.86 million), as our decision on asset lives for existing assets has changed (see section 7.4.1).

7.3.1 Reasons for our decision

In response to our Draft Report, some stakeholders commented that:

- ▼ An equity beta lower than 0.7 should be used to calculate the WACC, if a volatility allowance is to be used to reduce WaterNSW's revenue risk.^{136,137}
- ▼ There is an apparent inconsistency in applying two different WACC values to different parts of the WaterNSW system (ie, WCIR method for MDB and IPART method for Coastal valleys), and that the WCIR method should also be applied to the coastal valleys.¹³⁸

We do not consider a move away from an equity beta of 0.7 is justified. This estimate is representative of the extent of systematic risk exposure of the water industry broadly. The volatility allowance, on the other hand, represents firm-specific revenue risk mitigation.

¹³⁶ NSWIC submission to IPART Draft Report, April 2017, pp 6, 20-21.

¹³⁷ LVW submission to IPART Draft Report, April 2017, pp 4-5.

¹³⁸ NSWIC submission to IPART Draft Report, April 2017, pp 6, 20-21.

Firm-specific risks are not relevant to the cost of capital under the Capital Asset Pricing Model (CAPM) because the marginal equity investor would be able to eliminate them through a diversification strategy. Therefore, we do not support adjusting the equity beta for firm-specific risk.

We do not consider that adoption of the WCIR WACC method for the Coastal valleys of WaterNSW would be appropriate. There are strong methodological reasons to prefer the IPART WACC method, including that it more accurately represents the actual cost of capital of a utility. While it is unusual that different WACCs apply to the MDB and Coastal valleys, there is no economic principle that requires them to be the same.¹³⁹

MDB valleys

We used the ACCC WCIR methodology to calculate the WACC for WaterNSW's MDB valleys. That methodology stipulates the use of a market risk premium of 6.0%, equity beta of 0.7 and gearing of 60%.

We used the following sampling dates for market observations:

- ▼ Nominal risk free rate sampled to 12 May 2017.
- ▼ Inflation forecast based on the May 2017 RBA Statement on Monetary Policy.
- ▼ Debt margin sampled to the end of April 2017.

The sampling dates and 40 day trailing averages used are consistent with the ACCC WCIR method.

Table 7.7 below shows our WACC calculation for the MDB valleys and compares it to the WaterNSW proposed WACC calculation.

¹³⁹ In the foreseeable future, we expect that the MDB component would no longer be subject to the WCIR restrictions. At that point, we anticipate moving the MDB component to the IPART WACC method. This step would remove the inconsistency noted in NSWIC's submission.

Table 7.7 WACC for MDB valleys – ACCC mandated methodology

	WaterNSW proposal	IPART Decision
Nominal risk free rate	2.4%	2.6%
Inflation		2.4%
Debt margin including debt raising cost		2.2%
Debt margin excluding debt raising cost	2.9%	2.1%
Market risk premium	6.0%	6.0%
Debt funding	60%	60%
Equity funding	40%	40%
Equity beta	0.70	0.70
Cost of equity (nominal post-tax)	6.6%	6.8%
Cost of equity (real post-tax)		4.3%
Cost of debt (nominal pre-tax)	5.4%	4.7%
Cost of debt (real pre-tax)		2.2%
Nominal Vanilla (Post-tax nominal) WACC	5.9%	5.5%
Post-tax real WACC		3.1%

Note: In its pricing proposal, WaterNSW proposed a nominal risk free rate of 2.4% and a debt margin of 2.9%. This gives a nominal pre-tax cost of debt of 5.3%. However, it had also listed the nominal pre-tax cost of debt as 5.4%. The difference is due to rounding.

Source: WaterNSW pricing proposal to IPART, pp 78-79; IPART analysis.

There are differences between our calculation and WaterNSW in the nominal risk free rate and the debt margin. These differences arise because different sampling dates were used. As a result, the nominal post-tax WACC we calculate is lower than that proposed by WaterNSW. It is also lower than that presented in our Draft Report as market observations have changed since our Draft Report was released.


Coastal valleys

We used our standard methodology to calculate the WACC for WaterNSW's Coastal valleys.¹⁴⁰ This methodology has been updated twice since 2013. In April 2014, we adopted a new approach to estimating the cost of debt.¹⁴¹ In March 2015, we adopted a new approach to forecasting the inflation adjustment.¹⁴²

¹⁴⁰ IPART, *Review of WACC Methodology, Final Report*, December 2013, <https://www.ipart.nsw.gov.au/Home/Industries/Special-Reviews/Reviews/WACC/Review-of-method-for-determining-the-WACC/09-Dec-2013-Final-Report/Final-Report-Review-of-WACC-Methodology-December-2013>

¹⁴¹ IPART, *WACC – IPART's New Approach to Estimating the Cost of Debt*, Fact Sheet, April 2014, https://www.ipart.nsw.gov.au/files/sharedassets/website/trimholdingbay/fact_sheet_-_iparts_new_approach_to_estimating_the_cost_of_debt_-_april_2014.pdf.

¹⁴² IPART, *New Approach to Forecasting the WACC Inflation Adjustment*, Fact Sheet, March 2015, https://www.ipart.nsw.gov.au/files/sharedassets/website/trimholdingbay/fact_sheet_-_new_approach_to_forecasting_the_wacc_inflation_adjustment_-_march_2015.pdf.



Under this methodology, we estimate one WACC based on current market data and one based on long-term average data. When our uncertainty index, which indicates the level of volatility in capital markets, is within one standard deviation of its mean value, we select the mid-point of the current and long-term WACC values. The uncertainty index is currently within this range.

We used the following sampling dates for market observations:

- ▼ Nominal risk free rate sampled to 12 May 2017.
- ▼ Inflation forecast based on the May 2017 RBA Statement on Monetary Policy.
- ▼ Debt margin sampled to the end of April 2017.
- ▼ Market risk premium sampled to the end of April 2017.
- ▼ Inputs to the uncertainty index sampled to the end of April 2017.

The table below shows the WACC parameters that were used to derive the 4.7% post-tax real WACC for WaterNSW's Coastal valleys.

Table 7.8 WACC for Coastal valleys

	Current market data	Long-term averages	Final WACC range		
			Lower	Mid-point	Upper
Nominal risk free rate	2.6%	4.2%			
Inflation	2.4%	2.4%			
Debt margin	2.2%	3.2%			
Market risk premium	9.5%	6.0%			
Debt funding	60%	60%			
Equity funding	40%	40%			
Total funding (debt+equity)	100%	100%			
Gamma	0.25	0.25			
Corporate tax rate	30%	30%			
Effective tax rate for equity	30%	30%			
Effective tax rate for debt	30%	30%			
Equity beta	0.70	0.70			
Cost of equity (nominal post-tax)	9.3%	8.4%			
Cost of equity (real post-tax)	6.7%	5.9%			
Cost of debt (nominal pre-tax)	4.8%	7.4%			
Cost of debt (real pre-tax)	2.3%	4.9%			
Nominal Vanilla (Post-tax nominal) WACC	6.6%	7.8%	6.6%	7.2%	7.8%
Post-tax real WACC	4.1%	5.3%	4.1%	4.7%	5.3%
Pre-tax nominal WACC	7.7%	8.8%	7.7%	8.2%	8.8%
Pre-tax real WACC point estimate	5.1%	6.2%	5.1%	5.7%	6.2%

Source: IPART analysis.

This WACC calculation is consistent with WaterNSW's pricing proposal. The minor differences in the post-tax nominal WACC (WaterNSW proposed 7.5%) can be explained by changes to the input parameters since our February 2016 market update, which WaterNSW used for its calculation. The post-tax real WACC proposed by WaterNSW (4.9%) (which was the same as our draft decision) is higher than our decision as market observations have changed since our Draft Report was released.

7.4 Regulatory depreciation

An allowance for regulatory depreciation is included in the revenue requirement (and used in calculating the value of the RAB, as discussed above). This is intended to ensure that the capital invested in the regulatory assets is returned over the useful life of each asset.

We have calculated this allowance by determining the appropriate asset lives for the assets in WaterNSW's RAB and the appropriate depreciation method to use.

This allowance is lower than the allowance presented in our Draft Report (\$0.86 million), as our decision on asset lives for existing assets has changed (see section 7.4.1).

We made decisions:

- 19 To use:
 - a straight-line depreciation method for the 2017 determination period
 - for existing assets, the rolled forward asset lives from IPART's 2010 determination and the ACCC's 2014 determination, as outlined in Table 7.9
 - for new assets, the asset lives listed in Table 7.11.
- 20 To set WaterNSW's allowance for regulatory depreciation at \$66.3 million over the 2017 determination period (Table 7.1).

7.4.1 Reasons for our decision

Depreciation method

The approach to depreciation set out in the ACCC's WCIR pricing principles states:

Fixed assets should be depreciated using a straight-line methodology. However, the regulator or the operator may adopt a different approach to depreciation where an operator can justify departure from this method or where it is appropriate for the regulator to do so. Where a different approach is used, the net present value (NPV) to the business must be the same as under a straight-line methodology.¹⁴³

As set out in the ACCC's WCIR pricing principles and as done for previous determinations and decisions, we recommend using the straight-line depreciation method. Under this method, the assets in the RAB are depreciated by an equal value in each year of their economic life, so that their real written down value follows a straight line over time, from the initial value of the asset to zero at the end of the asset's life.

We consider this method is superior to alternatives in terms of simplicity, consistency and transparency.

Asset lives for existing assets

We typically calculate the remaining lives of existing assets by rolling forward our previous determination.

In its pricing proposal, WaterNSW used the **approximate** historical asset lives of those set by the ACCC in the 2014 decision, rather than actual.¹⁴⁴

For the remaining lives of existing assets, we have adopted our typical approach, and rolled forward asset lives from the previous determination, namely:

¹⁴³ ACCC, *Pricing principles for price approvals and determinations under the Water Charge (Infrastructure) Rules 2010*, July 2011, p. 45.

¹⁴⁴ WaterNSW Information Return, June 2016.

- ▼ IPART's 2010 Determination for Coastal valleys, and
- ▼ ACCC's 2014 Decision for Murray-Darling Basin valleys.

In doing this we have based asset lives for existing assets on actual prudent capital expenditure. Government RAB asset lives for existing assets for the North Coast and Hunter valleys, and user RAB asset lives for existing assets for all valleys except the Border, Lachlan and Murrumbidgee valleys are lower than those presented in our Draft Report. This is because previously, asset lives for existing assets had been based on allowed capital expenditure, which differs from actual historical capital expenditure.

Our analysis shows that this results in asset lives broadly in line with those used by WaterNSW in generating its proposed prices. Our decision on asset lives for existing assets is shown below in Table 7.9.

Table 7.9 Decision on asset lives for existing assets (years)

Valley	User RAB	Government RAB
Border	52	52
Gwydir	47	56
Namoi	49	57
Peel	51	70
Lachlan	47	55
Macquarie	53	58
Murray	45	45
Murrumbidgee	40	38
Lowbidgee	79	N/A
North Coast	75	116
Hunter	86	131
South Coast	60	121
Fish River	45	N/A

Note: Valleys with N/A have no government share of the RAB.

Source: IPART analysis.

Asset lives for new assets

WaterNSW provided expected lives of new assets by activity. These are set out in Table 7.10 below.

Table 7.10 Asset lives proposed by WaterNSW for new assets by activity

Activity	Expected asset life
Water delivery and other operations	6
Flood Operations	15
Routine Maintenance	80
Asset Management Planning	80
Dam Safety Compliance	100
Environmental Planning and Protection	80
Corporate Systems	6
Renewal and Replacement	80
Dam safety compliance on pre-1997 capital projects	100

Source: WaterNSW Information Return, June 2016.

We then weighted these asset lives by activity in accord with our decisions on the efficient level of WaterNSW's capital expenditure (including customer cost shares) to derive the expected asset life for new assets on a by valley and customer and government share basis. Our decision on the asset lives calculated using this method is presented in Table 7.11.

Table 7.11 Decision on asset lives for new assets (years)

Valley	User RAB	Government RAB
Border	62	80
Gwydir	39	80
Namoi	30	100
Peel	40	91
Lachlan	59	82
Macquarie	57	80
Murray	56	80
Murrumbidgee	65	80
Lowbidgee	80	N/A
North Coast	61	80
Hunter	62	80
South Coast	67	80
Fish River	63	N/A

Note: Valleys with N/A have no government share of the RAB.

Source: IPART analysis.

Based on the RAB values set out in section 7.1 and our decisions on asset lives presented above, the resulting regulatory depreciation is shown in Table 7.12.

Table 7.12 Decision on return of capital compared to WaterNSW proposal (\$millions, \$2016-17)

	2017-18	2018-19	2019-20	2020-21	Total
WaterNSW Proposal	15.1	16.0	16.8	17.5	65.5
IPART decision	15.3	16.1	16.7	17.2	65.3
Difference	0.2	0.1	-0.1	-0.3	-0.2
Difference %	1.1%	0.4%	-0.6%	-1.8%	-0.3%

Note: Mid-year discounting has been applied to the values in Table 7.1 to determine the return of capital values presented in this table. Mid-year discounting has been applied to remove the opportunity for over-recovery that prices set on end-of-year values presents.

Source: WaterNSW pricing proposal to IPART, June 2016, p 62; IPART analysis.

7.5 Allowance for tax

We include an explicit allowance for tax, because we use a post-tax WACC to estimate the allowance for a return on assets in the revenue requirement. This tax allowance reflects the regulated business's forecast tax liabilities.

The tax allowance is one of the last building block items we calculate, due to its dependence on the notional revenue requirement (excluding tax).

The tax allowance presented in Table 7.13 is higher than that presented in our Draft Report, as taxable income is higher than under our draft decisions, as a result of a lower interest rate deduction.

We made a decision:

21 To adopt the regulatory tax allowance as set out in Table 7.13.

Table 7.13 Decision on regulatory tax allowance compared to WaterNSW proposal (\$millions, \$2016-17)

	2017-18	2018-19	2019-20	2020-21	Total
WaterNSW Proposal	1.3	1.4	1.5	1.5	5.7
IPART decision	0.8	0.9	1.0	1.1	3.8
Difference	-0.5	-0.5	-0.5	-0.5	-2.0
Difference %	-38.9%	-34.9%	-32.5%	-31.2%	-34.2%

Source: WaterNSW pricing proposal to IPART, June 2016, p 62; IPART analysis.

7.5.1 Reasons for decision

We calculate the tax allowance for each year by applying a 30% statutory corporate tax rate adjusted for franking credits to the business's (nominal) taxable income.¹⁴⁵ For this purpose, taxable income is the notional revenue requirement (excluding tax allowance) less operating cost allowances, tax depreciation, and interest expenses.

¹⁴⁵ Under a post-tax framework, the value of franking credits (gamma) enters the regulatory decision only through the estimate of the tax liability.

As part of calculating the appropriate tax allowance, the business is required to provide forecast tax depreciation for the determination period. Other items such as interest expenses are based on the parameters used for the WACC, and the value of the RAB.¹⁴⁶

WaterNSW proposed a tax allowance of \$5.7 million for the 2017 determination period.¹⁴⁷ Our decision is to include a tax allowance of \$3.8 million, which is \$2.0 million lower than WaterNSW's proposal. We have used a higher tax depreciation than that proposed by WaterNSW.¹⁴⁸ This has reduced the overall tax allowance as well as changed the distribution of tax allowance across valleys from that proposed by WaterNSW.

¹⁴⁶ The nominal cost of debt is the sum of the nominal risk free rate and nominal debt margin.

¹⁴⁷ WaterNSW pricing proposal to IPART, June 2016, p 62.

¹⁴⁸ As part of its pricing proposal, WaterNSW did not include tax depreciation for the Peel, Murrumbidgee and FRWS. We have included tax depreciation on existing assets in our calculation of the regulatory tax allowance.

8 Other costs

This chapter outlines our decisions on a number of cost items, which are in addition to those usually included in the building block. These include MDBA and BRC payments, the unders and overs mechanism (UOM) and its balance, and a revenue volatility allowance.

8.1 MDBA and BRC payments

The Murray-Darling Basin Authority (MDBA) and the Dumaresq-Barwon Border Rivers Commission (BRC) are cross-jurisdictional bodies that co-ordinate and manage water resource management and bulk water activities from a ‘whole of system’ perspective.

- ▼ The BRC was established under the provisions of the *New South Wales-Queensland Border Rivers Agreement 1946*. The agreement between the NSW and Queensland Governments specifies arrangements for the operation and maintenance of shared assets and water sharing in the border region. The BRC implements the agreement on behalf of the two states.
- ▼ The MDBA is a Commonwealth statutory agency empowered by the *Water Act 2007* (Cwth) that operates the River Murray system in the southern Murray-Darling Basin, which includes dams, weirs, locks, environmental works and salt interception schemes.

The costs of construction, operation and maintenance of assets under the MDBA’s and BRC’s arrangements are jointly paid for by the signatory States.¹⁴⁹ The costs are allocated to each State in a proportion defined under the terms of the agreement. The NSW Government pays the NSW share of these costs to the MDBA and the BRC.

The BRC’s activities, and hence the contributions to them, apply in the Border valley; while the MDBA’s activities are undertaken in the Murray and Murrumbidgee valleys.

In 2014 the NSW Treasurer issued a direction to State Water under section 59B of the *Public Finance and Audit Act 1983* (NSW) (PFA Act) to pay to the Consolidated Fund, by way of dividend, amounts equal to the BRC and MDBA costs. In its 2014 Decision, the ACCC concluded that the recovery of these costs was a “regulatory obligation” for State Water and allowed these costs to be passed directly through to customers.¹⁵⁰

WaterNSW incorporated BRC and MDBA pass-through charges in its pricing proposal based on advice from DPI Water on the WaterNSW share of funded activities relating to the BRC and MDBA.

WaterNSW noted in its proposal that it anticipated receiving a direction from the Treasurer under the PFA Act for the 2017 determination period.¹⁵¹ However, as at 24 May 2017, the

¹⁴⁹ The NSW and Queensland Governments for the BRC, and the Commonwealth, NSW, Victorian and South Australian Governments for the MDBA.

¹⁵⁰ ACCC, *Final decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, p 9.

¹⁵¹ WaterNSW pricing proposal to IPART, June 2016, p 17.

time of the Tribunal’s decision, such a direction had not been issued. WaterNSW has indicated that, in the absence of a direction, it will pass revenue it collects from customers’ MDBA and BRC charges to the NSW Government.¹⁵² This revenue will go towards the NSW Government’s contribution for the construction, operation and maintenance of assets which are used in delivering bulk water to customers in the Border, Murray and Murrumbidgee valleys.

WaterNSW proposed recovering MDBA and BRC payments via an annual 100 per cent fixed entitlement charge and adjusting the high security premium applied to MDBA and BRC costs.¹⁵³ Our decisions on these proposed changes are outlined in Chapter 11.

We made decisions:

22 To:

- apply a 1.25% per annum, compounding, adjustment to proposed BRC and MDBA payments to be passed through to customers in the Border, Murray and Murrumbidgee valleys (see Table 8.1), and
- discontinue the Unders and Overs Mechanism (UOM) for MDBA and BRC charges and smooth recovery of the current balance over the 2017 determination period.

Table 8.1 summarises the MDBA and BRC payments resulting from our decisions.

Table 8.1 Decision on MDBA/BRC pass-through payments (\$’000, \$2016-17)

	2017-18	2018-19	2019-20	2020-21
MDBA				
Customer share ^a	17,936	13,564	12,858	12,685
Government share	2,647	4,330	4,306	4,248
Customer share %	87%	76%	75%	75%
BRC				
Customer share ^a	685	700	688	679
Government share	401	372	370	365
Customer share %	63%	65%	65%	65%

^a Customer share excludes recovery of the remaining UOM balance over the four years of the determination.

Source: IPART analysis.

8.1.1 We have applied an adjustment to MDBA and BRC charges

WaterNSW proposed to pass through MDBA and BRC charges to users of around \$61.65 million over the four years of the 2017 determination period.¹⁵⁴ The level of MDBA pass-through charges is higher than the ACCC’s 2014 Decision. As highlighted at the Sydney public hearing and MDBA’s submission, MDBA’s costs are not rising over time, but rather the NSW Government chose not to meet its historic cost share over 2012-13 to 2015-16.

¹⁵² WaterNSW submission to IPART Draft Report, April 2017, p 20.

¹⁵³ WaterNSW pricing proposal to IPART, June 2016, pp 145-146.

¹⁵⁴ WaterNSW pricing proposal to IPART, June 2016, Table 106, p 145.

For the 2017 determination period, the NSW Government has agreed to resume paying its historical share.¹⁵⁵

MDBA and BRC payments represent a significant proportion of total customer share NRR proposed by WaterNSW. On average, proposed BRC costs represented 35% of total proposed customer share NRR for the Border valley, and proposed MDBA payments represented 69% and 22% of total proposed customer share NRR for the Murray and Murrumbidgee valleys, respectively.

Submissions to our Draft Report, Issues Paper and public hearings indicated a high degree of dissatisfaction among stakeholders with the lack of transparency in the development of MDBA charges.¹⁵⁶ Stakeholders argued that the lack of transparency means WaterNSW customers cannot assess the efficiency or validity of costs they are required to fund. They called for IPART to undertake an efficiency review or apply an efficiency dividend to these costs. Stakeholders have expressed similar concerns to our past reviews of State Water's bulk water prices.¹⁵⁷ In its submission to our Draft Report, the Ricegrowers' Association of Australia Inc (RGA) states that it:

...is frustrated by the lack of transparency in the determination of the Murray Darling Basin Authority charges, despite these charges being significant for ricegrowers...¹⁵⁸

We asked Aither to conduct a high-level review of MDBA expenditure and cost sharing arrangements in NSW.¹⁵⁹ Aither found the MDBA was generally able to explain its processes for promoting prudence and efficiency and did not identify any glaring issues. Aither also found that in allocating costs between customers and the Government within NSW, DPI Water had applied IPART's existing cost share framework.¹⁶⁰

Within the high-level scope of the review, Aither did not have sufficient evidence to identify any specific reductions in MDBA costs. It found that the reductions to asset renewals in its broader review of WaterNSW's expenditure (see Chapter 6) could not be applied to MDBA costs, as WaterNSW applies different processes to manage its own assets relative to the management of MDBA assets.¹⁶¹ It also did not find any clear or systematic evidence of MDBA overestimating expenditure in outyears and subsequently reducing estimates via the annual budget process.¹⁶²

However, Aither noted its findings should not be considered a definitive assessment that MDBA expenditure is prudent and efficient. Further, it identified some issues with historical underspend, documentation in support of proposed expenditures, and processes

¹⁵⁵ MDBA submission to IPART Draft Report, April 2017, p 2; and IPART Public Hearing, Sydney, 4 April 2017, *Transcript*, pp 36-38.

¹⁵⁶ Concerns were raised by NSW Irrigators' Council (Draft Report submission, p 21), Murrumbidgee Irrigation (Draft Report submission, p 2), Coleambally Irrigation (Draft Report submission, pp 3-4), Murray Irrigation (Draft Report submission, p 4), Murray Lower Darling CSC (Issues Paper submission, p 3). NSW Irrigators' Council also raised similar concerns about BRC payments.

¹⁵⁷ See for example, IPART, *Review of bulk water charges for State Water Corporation: From 1 July 2010 to 30 June 2014*, June 2010, p 63.

¹⁵⁸ Ricegrowers' Association of Australia Inc submission to IPART Draft Report, April 2017, p 1.

¹⁵⁹ Aither, *A review of MDBA expenditure and cost sharing in New South Wales*, February 2017.

¹⁶⁰ Aither did not review BRC costs as detailed information was not available. BRC costs are based on a historical contribution of \$1.1 million per annum (split between WaterNSW and DPI Water), which must be maintained. Aither, *A review of MDBA expenditure and cost sharing in New South Wales*, February 2017, p 10.

¹⁶¹ Aither, *A review of MDBA expenditure and cost sharing in New South Wales*, February 2017, p 38.

¹⁶² Aither, *A review of MDBA expenditure and cost sharing in New South Wales*, February 2017, p 21.

for developing, refining and approving capital expenditures. Aither made a number of suggestions for improving the MDBA's processes to ensure expenditure passed on to users was prudent and efficient (Box 8.1). Aither noted that many of its suggestions echoed recommendations in past reviews that MDBA is in the process of implementing.

Aither suggested IPART may consider applying a top-down or global efficiency target on the premise that all businesses in competitive markets need to continually improve their efficiency. In this regard, Aither noted that MDBA expenditure is based on costs developed by state water utilities (including WaterNSW) that are subject to economic regulation, and the MDBA has additional processes that help ensure efficiency. However, this is offset by the limited transparency around expenditure and the reduced incentives and checks to only propose efficient and prudent expenditure.¹⁶³

Aither also recommended that IPART present to the NSW Government that:

- ▼ MDBA expenditure is subject to periodic independent public review, to provide much needed transparency to customers
- ▼ the MDBA's state constructing authorities (such as WaterNSW) should be subject to incentives to out-perform historical levels of expenditure (particularly opex), and
- ▼ cost sharing arrangements and processes within NSW need to provide a greater degree of transparency.¹⁶⁴

While Aither did not have sufficient information to identify any specific reductions to MDBA costs, we have continuing concerns about the lack of independent scrutiny in the development of charges being passed through to customers. We also appreciate the concerns raised by users that insufficient transparency means there is no assurance that only prudent and efficient costs are passed through. Indeed, while Aither's review found the process was generally sound, it was unable to verify that these costs are efficient.

The MDBA requested that IPART acknowledge its costs are not rising, and customers are only facing higher MDBA charges because the NSW Government decided not meet its historic cost share from 2012 to 2016.¹⁶⁵ We acknowledge the MDBA's comment that MDBA charges are increasing, rather than MDBA costs. Aither noted that the MDBA's planned capital expenditure is returning to historical levels following a period of reduced expenditure driven by reduced NSW Government contributions. And, that planned expenditure is below the long-term average.¹⁶⁶

The MDBA also submitted that a 1% efficiency dividend has already been applied to the costs and it is unnecessary for IPART to apply an additional efficiency factor.¹⁶⁷ Cardno recommended applying a 1% efficiency dividend to the MDBA's operating expenditure from 2015-16 to 2017-18.¹⁶⁸ The MDBA noted in agreeing its corporate plan for 2017-18 it implemented an efficiency dividend of 1% across the entire program compounding annually from 2015-16.¹⁶⁹ However, we note Aither's comment:

¹⁶³ Aither, *A review of MDBA expenditure and cost sharing in New South Wales*, February 2017, p vi.

¹⁶⁴ Aither, *A review of MDBA expenditure and cost sharing in New South Wales*, February 2017, p v.

¹⁶⁵ Murray-Darling Basin Authority submission to IPART Draft Report, April 2017, p 1.

¹⁶⁶ Aither, *A review of MDBA expenditure and cost sharing in New South Wales*, February 2017, p iv.

¹⁶⁷ Murray-Darling Basin Authority submission to IPART Draft Report, April 2017, p 2.

¹⁶⁸ Cardno, *Efficiency review of River Murray Operations capital and operating expenditure*, Prepared for Commonwealth Department of the Environment, 28 November 2015, p 48.

¹⁶⁹ Murray-Darling Basin Authority submission to IPART Draft Report, April 2017, p 2.

The review team acknowledge a 1% efficiency dividend was previously recommended (and the MDBA has advised it has been applied since 2015) for operations and maintenance expenditure only. This may or may not continue to be the appropriate level or coverage, and may need to be considered in the context of pursuing any changes to broader regulatory frameworks.¹⁷⁰

Given that the determination period runs to June 2021, the 1% efficiency applied by Cardno is not necessarily the appropriate amount for the 2017 determination. Water utilities regulated by IPART are subject to periodic expenditure reviews to verify the prudence and efficiency of proposed expenditure (these typically occur every four years). These reviews often identify new opportunities for efficiency and the need for ongoing efficiency, regardless of any reductions that may have been applied in the past. In the absence of a periodic review of prudence and efficiency, we consider that our adjustment to MDBA and BRC charges is appropriate.

We have therefore maintained our draft decision to apply an adjustment of 1.25% compounded per annum to MDBA and BRC payments. We applied the same adjustment to MDBA costs in our 2006 and 2010 Determinations of State Water's bulk water charges.¹⁷¹

Box 8.1 Aither's suggested improvements to MDBA expenditure development

- ▼ Clearer requirements about when a business case is required, such as a clearly established dollar value (or similar metrics) to trigger a requirement for a business case.
- ▼ Minimum requirements or standards for expenditure justification under the program, such as general requirements to clearly investigate alternative options, cost proposals to a certain confidence level, or to complete business cases with minimum requirements.
- ▼ Clearer roles and responsibilities for development and completion of business cases, including which agencies lead their development, and how these should be resourced (e.g. via WaterNSW's (and other state constructing authority's) operational expenditure within the program, MDBA operating expenditure, or otherwise).
- ▼ A greater level of rigour around justifying proposals for operating expenditure, noting the MDBA advised that significant changes in operating expenditures would be tested.
- ▼ Greater requirements placed upon WaterNSW (and other state constructing authorities) to justify (including providing documentation for) expenditures that do not require a formal business case (noting the additional resources this may require).
- ▼ Modifying the committee structure so that there is a more formal and independent review of planned expenditures (based on better documented submission).
- ▼ Placing codified requirements into the committee structures (e.g. Terms of Reference) or other governance processes to explicitly require that only demonstrably prudent and efficient expenditures are included in the annual corporate plan and budget.
- ▼ Codifying and documenting the role the MDBA plays in verifying the prudence and efficiency of planned expenditure.
- ▼ Considering modifications to the various agreements that give effect to the roles of the MDBA, WaterNSW and other state constructing authorities, to explicitly require prudent and efficient asset expenditure.

Source: Aither, *A review of MDBA expenditure and cost sharing in New South Wales*, February 2017, pp 23-26.

¹⁷⁰ Aither, *A review of MDBA expenditure and cost sharing in New South Wales*, February 2017, p vi.

¹⁷¹ IPART, *Review of bulk water charges for State Water Corporation: From 1 July 2010 to 30 June 2014*, June 2010, p 64.

8.1.2 We have smoothed the remaining UOM balance over the determination

The 2014 ACCC Decision established a separate unders and overs mechanism (UOM) for MDBA and BRC revenue, which allows WaterNSW to recover any revenue shortfall arising from variation in water usage for each valley.¹⁷² WaterNSW currently faces an under-recovery of around \$0.7 million, and proposes to recover the outstanding amount by adding the UOM balance to MDBA and BRC charges, smoothed over each of the four years of the 2017 determination period.¹⁷³

We have decided to discontinue the UOM, and accept WaterNSW's proposal as the ACCC passed through the MDBA and BRC costs on the basis that these costs represent a 'regulatory obligation' that WaterNSW cannot control. And, smoothing recovery of the balance over four years will reduce bill impacts, compared with the mechanism established by the ACCC.¹⁷⁴

8.2 The unders and overs mechanism

In its 2014 Decision, the ACCC introduced a UOM for most of the MDB valleys, to address WaterNSW's revenue volatility risk.¹⁷⁵ This risk arises because WaterNSW's tariff structure (which is mostly 40:60 fixed to variable) does not match its cost structure (which is largely fixed), and water sales volumes can be volatile and difficult to forecast.

The ACCC's UOM uses an unders and overs account, which is a running balance of annual differences between actual and target revenues. An allowance is calculated using the overs-and-unders balance multiplied by WaterNSW's WACC. During the determination period, at each annual review, if the balance contains a surplus (ie, there have been higher than expected revenues to date), charges in the subsequent year would generally be reduced by the allowance (the surplus multiplied by the WACC). If the UOM balance contains a shortfall (ie, there have been lower than expected revenues to date), charges in the subsequent year would generally increase.¹⁷⁶ This UOM means prices reflect the holding cost of the account balance.¹⁷⁷

The mechanics of the UOM are:

¹⁷² ACCC, *Final decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, p 75.

¹⁷³ The MDBA and BRC UOM balance used to set draft prices in our Draft Report in March 2017 was \$2 million. Updated information provided by WaterNSW shows that the balance as at 1 July 2017 is forecast to be reduced to \$0.7 million.

¹⁷⁴ Unlike the UOM the ACCC established for prices for bulk water services (which was ongoing, with prices in each year reflecting the holding cost of the account balance), the full revenue shortfall of the UOM for MDBA and BRC charges was to be recovered (or paid back) in the subsequent regulatory year.

¹⁷⁵ The UOM currently applies to the Border, Gwydir, Namoi, Lachlan, Macquarie, Murray, Murrumbidgee and Fish River. It currently does not apply to the Peel, Lowbidgee, North Coast, South Coast and Hunter valleys. ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, p 68.

¹⁷⁶ Due to updates in forecast demand (ie, the 20-year rolling average), a surplus balance in the UOM, may not lead to a decrease in prices in the following year, vice-versa.

¹⁷⁷ However, for the MDBA and BRC charges, the UOM operates such that the amount in the account balance, in addition to the holding cost, is reflected in subsequent years' prices. ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, pp 75-77.

- ▼ Differences in actual versus expected revenue (from both fixed and usage charges)¹⁷⁸ are recorded in an account.
- ▼ The account balance is multiplied by a *nominal* WACC and the resulting value is then reflected in the subsequent year's NRR, and included in prices through the annual updates process (in both fixed and usage charges).

We made decisions:

- 23 To discontinue the UOM.
- 24 With the exception of the UOM balance attributable to Wallerawang power station in the Fish River Water Supply Scheme (FRWS), to pay out the remaining UOM balances over a 12-year period (potentially 3 determination periods) by incorporating a return on and of capital from the UOM balances in the user share NRR of each valley.
- 25 To set the UOM balance attributable to the Wallerawang power station component of the FRWS to zero.

8.2.1 Reasons for our decisions

We consider that a volatility allowance, rather than an UOM, will better address the revenue volatility risk faced by WaterNSW (see further below). We also consider that the negative UOM balance at 30 June 2017 should be recovered from customers through prices.

WaterNSW proposed to maintain the UOM in its pricing proposal

WaterNSW previously proposed to maintain the UOM. However, it argued that the UOM did not materially reduce revenue volatility and that the WACC is not a fair reflection of the holding cost of a negative UOM balance. It stated that it:

...cannot be expected to raise additional funds cheaply due to the indeterminate period of any source of finance.¹⁷⁹

Conversely, it also argues that due to the variable balance in the UOM account, the return that it can earn on that balance is *lower* than the WACC. Therefore, it submitted that due to the indeterminate period, a reasonable expected return on the UOM balance will be at the short-term risk free investment rate.

WaterNSW previously proposed that from 2017-18, in addition to continuing the UOM, its bulk water prices include the cost of a Risk Transfer Product (RTP) to mimic an 80:20 fixed to variable tariff structure (see Section 8.3 below).

However, in response to our Draft Report, its preference was for IPART to include the costs of an updated quote for its RTP of \$1.3 million which was conditional upon the UOM being set to zero or discontinued, and the existing balances being recovered separately.¹⁸⁰

¹⁷⁸ The UOM is applied to total revenue from users, including both revenue from entitlement charges and usage. However, it is usage revenue that usually varies substantially. ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, p 22.

¹⁷⁹ WaterNSW pricing proposal to IPART, June 2016, p 38.

¹⁸⁰ WaterNSW submission to IPART's Draft Report, April 2017, pp 6 & 12.

Most stakeholders in response to our Draft Report supported maintaining the UOM

In response to our draft decision to discontinue the UOM, several stakeholders submitted that they supported maintaining the status-quo - ie, continuing the UOM and not providing WaterNSW with a volatility allowance.¹⁸¹

A majority of stakeholders also argued against our draft decision to introduce a volatility allowance (discussed further below) on the basis that customers are paying a pre-determined amount based on historical usage, irrespective of how volatile revenue is over the upcoming 4-year period. Therefore, they expressed a preference for the UOM to be maintained given that, going forward, each year's prices incorporate (albeit, the holding cost) actual variations in usage revenue compared with expected usage revenue. Other stakeholders also supported continuing the UOM with the outstanding balances recovered from all water users over the long term. However, we note that one stakeholder supported IPART's draft decision to replace the UOM with a volatility allowance.¹⁸²

WaterNSW's balances for the UOM, for 1 July 2017, are set out in Table 8.2 below – the balance has increased from \$19.5 million to \$21.3 million.¹⁸³ With the exception of the UOM balance attributable to Wallerawang power station (discussed further below), the remaining outstanding UOM balance to recover from customers is about \$16.1 million.

Table 8.2 UOM balances: as at 1 July 2016 and 1 July 2017 (\$millions, \$2016-17)

Valley	UOM balances (1 July 2016)	UOM balances (1 July 2017)
Border	-\$1.0	-\$0.4
Gwydir	-\$2.4	-\$2.1
Namoi	-\$3.0	-\$3.6
Lachlan	-\$1.7	-\$1.6
Macquarie	-\$5.4	-\$6.1
Murray	-\$0.7	-\$0.5
Murrumbidgee	-\$0.7	-\$0.8
Fish River	-\$4.6	-\$6.2 ^a
Total	-\$19.5	-\$21.3

^a \$5.2 million of the \$6.2 million UOM balance for the Fish River is attributable to the reduction in usage brought about by the closure of Wallerawang power station.

Source: WaterNSW pricing proposal to IPART, June 2016, p 36 and Personal Communication WaterNSW, 26 April 2017.

We consider that there are better ways to manage volatility

We agree with WaterNSW that it faces revenue risk associated with unpredictable water sales. However, we consider that a volatility allowance will better address WaterNSW's revenue volatility risk, rather than an UOM. As a result, we have decided to maintain our draft decision to discontinue the UOM, and instead introduce a volatility allowance, which

¹⁸¹ New South Wales Irrigators' Council submission to IPART's Draft Report, April 2017, pp 24-25; Gwydir Valley Irrigators Association submission to IPART's Draft Report, April 2017, pp 2-4; Lachlan Valley Water submission to IPART Issues Paper, October 2016, pp 5-6; NSW Farmer's Association submission to IPART's Draft Report, April 2017, p 7.

¹⁸² Coleambally Irrigation Co-operative Limited submission to IPART Draft Report, April 2017, p 3.

¹⁸³ The updated UOM balances were provided by WaterNSW and have been calculated using forecast usage to the end of 2016-17, incorporating actual usage until the end of the March quarter (personal communication with WaterNSW, 26 April 2017).

is a premium included in prices to reflect WaterNSW's exposure to revenue volatility risk (arising from having mostly a 40:60 fixed to variable tariff structure when its costs are largely fixed).

Our volatility allowance will enable WaterNSW to manage the risk associated with having a 40:60 fixed to variable price structure relative to an 80:20 fixed to variable price structure – which it sought through the inclusion of a risk transfer product. We note that our decision to discontinue the UOM means that WaterNSW is exposed to revenue volatility risk, over the long term, for the remaining 20% of revenues. We consider it appropriate for WaterNSW to bear some revenue volatility risk, as business revenues are not guaranteed in markets.

The volatility allowance is discussed in Section 8.3 below.

The outstanding UOM balance will be returned to WaterNSW through prices

Over the ACCC's 2014 determination period, the UOM was the key mechanism for managing volatility risk. As such, we consider that the UOM balance should be returned to WaterNSW through an adjustment to prices, with an exception in the Fish River Water Supply (FRWS).¹⁸⁴

Our draft decision was to apply increases in both high security (HS) and general security (GS) entitlement charges in proportion to the respective contributions that HS and GS sales made to the balances in the UOM over the period in which the balances were generated (variations in actual versus expected usage over the 2014-15 to 2016-17 period). To do this we used the residual of the average percentage of water allocated to HS and GS entitlement charges over 2014-15 and 2015-16 as a *proxy* for HS and GS contributions to the UOM balances. This meant that in most valleys, given that HS generally received 100% of their water allocations in recent years, HS entitlements were not levied a UOM payback charge.

However, Gwydir Valley Irrigators Association submitted that despite HS customers receiving 100% of their allocations in the Gwydir, they did not use all their allocations each year and that this is not reflected in the calculations of the UOM payback mechanism.¹⁸⁵

We note that information available in NSW water register showing detailed usage from 2004-05 onwards indicates that HS customers do not always use all of their allocations each year, and that actual usage varies year to year - indicating that usage by HS customers is also difficult to accurately predict, and that they also therefore contribute to revenue volatility (this is certainly the case in recent years). This suggests that allocations may not be a reasonable proxy to use for contribution to the existing UOM balances.

Given that HS customers have varying usage year to year (and thus also contribute to revenue volatility), we do not consider it appropriate to maintain our draft approach of using percentage water allocations as a reasonable proxy for contribution to the existing UOM balances.

¹⁸⁴ At the 2021 price review, we would examine variations in total actual usage in 2016-17, to potentially incorporate into prices in that review.

¹⁸⁵ Gwydir Valley Irrigators Association also supported the continuation of the UOM and the outstanding balances being recovered from all customers over the long-term. Gwydir Valley Irrigators Association submission to IPART's Draft Report, April 2017, p 3.

We note that currently under the ACCC's UOM framework, the holding cost arising from the UOM balances are incorporated in the user share NRR of each valley, and recovered from all customers and both entitlement and usage charges. Therefore, we have decided to maintain a similar approach to recover the outstanding balances. That is, a return on and of capital on the outstanding UOM balances will be incorporated into the user share NRR for each valley so that WaterNSW is able to recover the UOM balances.¹⁸⁶

In terms of the period over which the outstanding balances are to be recovered, we have decided on 12 years (which is potentially 3 determination periods) for each valley. This is to achieve a reasonable balance between stakeholders' expressing a preference that the outstanding balances be recovered over the long term, and returning the funds to WaterNSW within a reasonable timeframe.

Most of the UOM balance in Fish River Water Supply (FRWS) has been written off

In 2014, EnergyAustralia announced the closure of the Wallerawang power station. This single customer accounted for around 45% of total water usage in the FRWS.

The design of the UOM meant that the loss of almost half of the usage revenue in FRWS led to a large and growing negative UOM balance. We provide a breakdown of the UOM balance of \$6.2 million for the Fish River for 1 July 2017 in Table 8.3 below.

Table 8.3 UOM balance for Fish River Water Supply (\$2016-17)

	Balance as at 1 July 2017
Raw water	
EnergyAustralia - Mt Piper	\$190,846
EnergyAustralia - Wallerawang	\$5,205,830
Others (eg, Sydney Catchment Authority (now part of WaterNSW), Oberon Council and Individual minor customers)	\$234,326
Sub-total (raw water)	\$5,631,003
Filtered water	
Lithgow Council and Individual minor customers	\$593,012
Sub-total (filtered water)	\$593,012
Total (raw and filtered water)	\$6,224,015

Note: In the Draft Report, the total UOM balance for the Fish River as at 1 July 2016 was about \$4.6 million. The updated figure of \$6.2 million incorporates variations in actual versus forecast usage over 2016-17 (actuals up to March 2017, and forecasts for the remaining quarter).

Source: WaterNSW personal communication, 2 May 2017 and IPART calculations.

Our draft decision was to write off the UOM balance attributable to the closure of Wallerawang power station. We considered that the shutdown of Wallerawang power station represented a structural change in water consumption, which is different to ordinary climate volatility and represents a step change to a new permanent lower level of usage. We

¹⁸⁶ An alternative option would be to disaggregate the ACCC's 20-year rolling forecasts (which uses data beginning from 1994) into separate forecasts for HS and GS customers, to calculate the variations in actual versus forecast usage, and hence their contribution to the outstanding balances. However, due to the lack of availability in disaggregated usage data across all the valleys, particularly between 1994 to 2004, we have not adopted this approach.

did not consider that it was appropriate for the general customer base to bear the resulting shortfall in usage revenue.

In its response to our Draft Report, WaterNSW disagreed with our draft decision. It submitted that whilst a structural change has occurred in the Fish River Water Supply Scheme, it should not be disadvantaged, and stated that “the closure of the Wallerawang power station was a commercial decision made by EnergyAustralia”.¹⁸⁷ Therefore, it argued that the UOM balance attributable to Wallerawang power station should be repaid by EnergyAustralia.

However, we have decided to maintain our draft decision and write off the balance of the UOM attributable to Wallerawang power station to zero, as it the result of structural change, and not of weather or climate driven variability, and as such we consider it inappropriate for EnergyAustralia to pay this amount. This removes around \$5.2 million from the balance as at 1 July 2017. We note that going forward, our decision to restructure tariffs in the Fish River to around 80:20 fixed to variable means that EnergyAustralia will pay a higher share of costs (see Chapter 11).

The remaining UOM balance to be recovered from raw water customers is about \$0.4 million. For filtered water customers, the existing balance is about \$0.6 million. Consistent with our approach outlined previously for recovering other UOM balances, our decision is to recover these balances from raw water and filtered customers, over a 12 year period, by incorporating a return on and of capital of \$0.4 million and \$0.6 million into the raw water and filtered water user share NRR of Fish River customers, respectively.

We show in Appendix D:

- ▼ the amount of return on and of capital (\$2016-17) we have included in the user share NRR for each valley over the 2017 determination period, and
- ▼ the commencing UOM balances (\$2016-17) for each valley for the 2021 Determination.

8.3 We have included costs which reflect volatility risk

WaterNSW’s costs are largely fixed, whereas around 60% of its revenue in most valleys is raised through its usage charges. This difference between its cost structure and its tariff structure, combined with the difficulty in accurately forecasting water extractions, means that WaterNSW is exposed to revenue volatility and hence some financial risk.

In its 2014 decision, the ACCC introduced the UOM as a mechanism for managing the financial impacts of revenue variability caused by variations in bulk water sales. As discussed in section 8.2 above, we have decided to discontinue the UOM and introduce a volatility allowance.

This allowance recognises the risk associated with revenue variability, and means that customers pay a cost-reflective premium where prices are set to recover more than 20% of revenue in a valley through usage charges. As previously mentioned, we note that our decision to discontinue the UOM and instead provide a volatility allowance means that WaterNSW is effectively exposed to revenue volatility risk, over the long term, for 20% of its

¹⁸⁷ WaterNSW’s response to the IPART Draft Determination - Supplementary Submission, April 2017, p 4.

revenues. We consider it appropriate for WaterNSW to bear some revenue volatility risk, as business revenues are not guaranteed in markets.

We made a decision:

- 26 To include a revenue volatility allowance in the user share NRR (totalling \$1.3 million in 2017-18 and then \$1.27 million per year thereafter) for valleys that are at cost recovery and have a fixed to variable price ratio that is less than 80:20.

8.3.1 WaterNSW has proposed purchasing a Risk Transfer Product (RTP)

WaterNSW argues that its current tariff structures, 40:60 fixed to variable in most valleys, exposes it to an unreasonable amount of revenue volatility risk. Hence, it has proposed the inclusion of a Risk Transfer Product (RTP) of \$3.6 million (\$2016-17) to be applied to GS entitlement charges, as it considers revenue from GS customers to be the main source of revenue variability.^{188, 189}

WaterNSW proposes the RTP apply to valleys that are at cost recovery and with fixed to variable tariff structure ratios of less than 80%.^{190, 191} It also proposes to allocate the cost to the 9 valleys, based on their relative revenue volatility.¹⁹² The RTP:

- ▼ Is in addition to its proposal to continue the UOM. WaterNSW argues that the UOM does not materially address the year-to-year volatility in revenues.
- ▼ Involves WaterNSW entering into a financial swap arrangement with a third party to mimic an 80:20 tariff structure to address its year-to-year revenue volatility issue. For valleys that have a tariff structure of 40:60,¹⁹³ the third party would receive two-thirds of actual usage revenue and in exchange provide WaterNSW with two-thirds of expected usage revenue.¹⁹⁴ This means that WaterNSW would receive 80% of its expected user NRR each year.¹⁹⁵
- ▼ Would not be charged to a particular valley if the tariff structure for that valley were to be switched to an 80:20 tariff structure.

Stakeholders' comments in response to our Issues Paper and Draft Report were generally against WaterNSW's proposal to include the costs of an RTP. Most stakeholders preferred WaterNSW to continue the UOM to address revenue volatility risk. Lachlan Valley Water

¹⁸⁸ WaterNSW pricing proposal model, June 2016.

¹⁸⁹ WaterNSW pricing proposal to IPART, June 2016, p 41.

¹⁹⁰ There are 9 Valleys proposed to be included – Border, Gwydir, Namoi, Peel, Lachlan, Macquarie Murray, Murrumbidgee and Hunter (WaterNSW pricing proposal to IPART, June 2016, p 39). Fish River Water Supply is not included because we have set the fixed to variable ratio 80:20 fixed to variable. North Coast and South Coast are not included because prices are below the level required to achieve full cost recovery.

¹⁹¹ The costs of the volatility allowance will be allocated proportionally to the Hunter valley adjusting for the fact that it has a 60:40 fixed to variable tariff structure, whereas other valleys have a 40:60 fixed to variable tariff structure.

¹⁹² WaterNSW has calculated the relative revenue volatility using the mean absolute deviation calculation used in IPART's 2010 Determination for the volatility allowance. WaterNSW pricing proposal to IPART, June 2016, p 41.

¹⁹³ All Valleys proposed to be included in the RTP have a 40:60 tariff structure with the exception of the Hunter which has a 60:40 fixed to variable price structure. WaterNSW pricing proposal to IPART, June 2016, p 39 & WaterNSW pricing proposal model, June 2016.

¹⁹⁴ Typically, under a 'swap' arrangement the net difference is exchanged, not the full amounts.

¹⁹⁵ 40% is provided from the existing fixed charges, and the remaining 40% is provided from the swap (2/3 x 60% = 40%). WaterNSW pricing proposal to IPART, June 2016, p 40.

Users Association submitted that it would be willing to move to an 80:20 fixed to variable tariff structure, if WaterNSW's proposed costs of the RTP were to be included in its prices. However, it did note that some members, depending on their usage, did not support moving to an 80:20 fixed to variable price structure.¹⁹⁶

8.3.2 We have included a volatility allowance of \$1.3 million in 2017-18 and then \$1.27 million each year thereafter

Through the RTP, WaterNSW is proposing to swap funds with a third-party to mimic an 80:20 fixed to variable tariff structure. We consider that an 80:20 fixed to variable tariff could be a reasonable price structure for WaterNSW as it better reflects its underlying cost structure, while not eliminating all business risk.

In our draft decision we considered that it was more efficient for WaterNSW to undertake "self-insurance" and become its own third-party and swap funds with itself (between years), rather than entering into an arrangement with a third-party provider. That is, it could reserve funds when actual usage is higher than expected or borrow, to support its cashflows, when actual usage is less than expected. Under our draft decision, we estimated the cost of "self-insurance" to WaterNSW at \$3.062 million in total over the 4-year period, or \$0.765 million per year.¹⁹⁷

In response to our draft decision, stakeholders reiterated their support for continuing the UOM and opposed providing WaterNSW with a volatility allowance, as mentioned previously above.

WaterNSW submitted that it did not agree with our draft approach, and has provided an updated market quote of \$1.3 million per year for a risk transfer product (RTP).¹⁹⁸ It argued that a market tested price is the best evidence of the efficient cost and that it has undertaken a competitive tender process.

However, it noted that if IPART were to maintain its draft decision of providing WaterNSW with a volatility allowance to manage its revenue volatility risk by undertaking self-insurance, then it provided specific comments on our methodology that would result in an amount of \$1.35 million per year, thus enabling it to purchase its RTP. Of the issues raised by WaterNSW, we agree with it on a calculation issue which meant that the volatility

¹⁹⁶ Lachlan Valley Water submission to IPART Issues Paper, October 2016, p 12.

¹⁹⁷ IPART, *Review of prices for rural bulk water services from 1 July 2017 to 30 June 2021 – Draft Report*, March 2017, pg 86.

¹⁹⁸ WaterNSW submission to IPART Draft Report, April 2017, p 5.

allowance should otherwise have been about \$1 million per year in our Draft Report rather than about \$0.8 million per year.^{199, 200}

We note that WaterNSW has undertaken a competitive tender process for its RTP and received quotes from several providers.²⁰¹ We also note that the RTP would give WaterNSW greater certainty in cashflows each year, compared with undertaking self-insurance, which would be the case if its valleys had an 80:20 fixed to variable tariff structure. Therefore, we consider its proposal and updated quote of \$1.3 million per year to be reasonable for this greater level of certainty, than about \$1 million per year under a self-insurance option.

The volatility allowance we have incorporated into prices is \$1.3 million in 2017-18 and then \$1.274 million each year thereafter. This is based on WaterNSW's updated market quote, adjusted for our decision to adopt an 80:20 tariff structure in the Peel valley from the second year of the determination period ie, in 2017-18 the tariff structure in the Peel valley will be maintained at 40:60 but from 2018-19 onwards the tariff structure will be 80:20 fixed to variable (see Chapter 11).²⁰²

At the public hearing on our Draft Report, stakeholders queried whether the market risk premium in the calculation of the WACC already compensated WaterNSW for revenue volatility risk, and hence whether there was double-counting by providing WaterNSW with a volatility allowance.²⁰³ In response, we do not consider there to be double-counting. The market risk premium and the beta in the cost of equity calculation in the WACC,²⁰⁴ used to provide WaterNSW with a return on capital (on its regulated asset base), provides WaterNSW with compensation for systematic risk (or market-wide risk) - ie, risk that is not business specific and which cannot be diversified away. The revenue volatility risk that WaterNSW faces is a business specific risk that arises due to its current tariff structures and is something that can be addressed eg, either through adjusting its tariff structures or providing it with an efficient volatility allowance to address the risk. This was discussed in Chapter 7.

¹⁹⁹ In our draft decision we used 20-years of historical usage, as an indication of future actual usage, to examine how many years, at a portfolio level (ie, combining all affected valleys), usage is likely to be less than 2/3rds of actual usage (ie, how many years is WaterNSW likely to receive less than 80% of its expected revenue and hence revenue volatility likely to be an issue). This resulted in potentially 4 out of 20 years in which actual usage could potentially be less than 2/3rds of expected usage, thus suggesting there is a 20% chance of WaterNSW not receiving at least 80% of its expected user share revenue in any given year. However, WaterNSW's submission suggested that when valleys are combined at a portfolio level, given the differing usage prices in each valley, we should multiply potential future actual usage with the relevant price in that valley, and then combine the revenues to examine how many years WaterNSW is not likely to receive at least 80% of its user share revenue in each year. This results in there being potentially 5 out of 20 years in which WaterNSW may not receive at least 80% of its user share NRR each year ie, a 25% chance of WaterNSW not receiving at least 80% of its user NRR each year, rather than 20% in our Draft Report. This correction would have otherwise resulted in a volatility allowance of about \$1 million per year.

²⁰⁰ Other issues raised where such as, removing diversification benefits as WaterNSW considered this to be minimal. However, we consider it appropriate to include diversification benefits as water usage is not perfectly correlated across all valleys. WaterNSW's response to IPART's Draft Determination on rural bulk water services, April 2017, pp 6-12.

²⁰¹ Personal communication with WaterNSW, 28 February 2017.

²⁰² WaterNSW advised that the cost of the RTP would broadly change in line with changes in the sum insured (ie, two-thirds of expected usage revenue).

²⁰³ IPART Public Hearing, 4 April 2017, Sydney, *Transcript*, pp 66-67.

²⁰⁴ The cost of equity in the WACC is calculated according to the Capital Asset Pricing Model formula: risk free rate + beta x MRP.

Allocating the cost of the Volatility Allowance to each valley

In terms of allocating the volatility allowance to each valley, we have based this on the relative sum insured for each valley, given that WaterNSW advised that the cost of the RTP would broadly move in line with the sum insured for each valley. We provide the percentage allocations to each valley in Table 8.5 below. The approach differs from our Draft Report, which was broadly based on relative usage volatility between valleys, using 20-years of historical usage data.

We are mindful of Lachlan Valley Water’s submission in response to our Draft Report. It wanted consideration of an 80:20 fixed to variable tariff structure, where it noted that the proposed methods of allocating the volatility allowance (both WaterNSW’s pricing proposal and our Draft Report), broadly based on 20-years of historical usage, meant that it would be allocated a higher share of the allowance due to it experiencing substantially lower usage during the drought period.²⁰⁵ However, under our decision to allocate the allowance based on the potential sum insured, it would receive a lower allocation.

Table 8.5 Allocation of the volatility allowance to each valley

	Draft Report	Final Decision 2017-18	Final Decision 2018-19 to 2020-21
Border	1%	3%	3%
Gwydir	16%	12%	13%
Namoi	17%	13%	13%
Peel	3%	3%	0%
Lachlan	21%	16%	16%
Macquarie	13%	14%	15%
Murray	13%	12%	12%
Murrumbidgee	16%	23%	23%
Hunter	1%	5%	5%
Total	100%	100%	100%

Note: For the Peel valley it is only allocated a share of the volatility allowance in 2017-18 as it has a 40:60 fixed to variable tariff structure in that year. In subsequent years it is not allocated a share of the volatility allowance as it has an 80:20 fixed to variable tariff structure.

Allocating the cost of the Volatility Allowance to customers within each valley

We have decided to incorporate the volatility allowance in the user share NRR of each valley, consistent with how we are recovering the outstanding UOM balances for each valley. Compared with our Draft Report, HS customers will now pay a share of the volatility allowance (through their entitlement and usage charges). This reflects that HS customers:

- ▼ contribute to revenue volatility, as their usage varies year to year and is thus difficult to accurately predict, and

²⁰⁵ Lachlan Valley Water submission to IPART Draft Report, p 7; IPART, *Review of prices for rural bulk water services from 1 July 2017 to 30 June 2021 – Draft Report*, March 2017, pp 87-88 and WaterNSW pricing proposal model, June 2016.

- ▼ benefit from a 40:60 tariff structure because they have a lower allocation of costs, and thus are paying less per ML overall, than under an 80:20 tariff structure.

The above approach differs from the approach we adopted in the Draft Report, which was based on percentage water allocations, and hence meant that HS customers in most valleys did not pay a contribution towards the volatility allowance. However, as discussed above, based on stakeholder comments, we acknowledge that percentage water allocations are not a reasonable proxy for customers' contribution to volatility, as actual water used can vary year to year for both HS and GS customers.

8.3.3 We have decided not to include 'valley' choice in the 2017 Determination

WaterNSW's proposal for the inclusion of the RTP also included the option for valleys to opt to have an 80:20 fixed to variable price structure to avoid the costs of an RTP. In our Draft Report we sought comment on what would be a reasonable basis to apply an 80:20 fixed to variable tariff structure to a particular valley. In response to our Draft Report, stakeholders had mixed views.

We note that it is unlikely to be practical to achieve consensus view in a valley to determine a different tariff structure for the whole valley. Therefore, we have decided not to introduce 'valley' choice in the 2017 Determination. However, we note that WaterNSW's initial proposal for enabling tariff choice at the valley level was a 'stepping stone' to introducing tariff choice at the '*individual*' customer level as part of the 2021 Determination. Therefore, we intend to work with WaterNSW and stakeholders in advance of the next price review, to investigate the possibility of introducing '*individual*' customer tariff choice at the 2021 Determination (see Chapter 11 for further details).

9 Sharing of WaterNSW's revenue requirements

WaterNSW provides a range of services to the rural NSW community including water storage and transportation services, flood mitigation services, environmental services, retailing and customer service activities as well as a range of other miscellaneous services.

Since IPART's 2001 Bulk Water Price Determination, WaterNSW (previously State Water Corporation) has operated under a framework that allocates its costs between customers and the broader community based on the impactor pays principle. Under the impactor pays approach, costs are allocated to different individuals or groups in proportion to the contribution that each individual or group makes to creating the costs (or the need to incur the costs).

This chapter provides an overview of our approach to allocating WaterNSW's revenue requirements (costs) between customers and the NSW Government, based on the 'impactor pays' principle.

Consistent with the Draft Report and Determination, we have maintained existing cost share ratios for each cost item or activity for the 2017 Determination. However, we will conduct a review of the cost sharing framework prior to the 2021 Determination of WaterNSW's prices, drawing on Frontier Economics' proposed approach (outlined below) and the views of stakeholders.

9.1 Sharing of WaterNSW's revenue requirements for the 2017 determination period

WaterNSW proposed to maintain the existing customer shares (Table 9.1) as applied by the ACCC in its 2014 Decision. These cost shares were established in IPART's 2006 Determination and have remained constant since that time.

In 2012, the NSW Government asked IPART to conduct a review into bulk water charges to identify options for determining the NSW Government's cost share for bulk water charges in NSW. IPART recommended the continuation of the existing approach to determining government cost shares, using the cost allocation ratios applied in the 2010 Determination until 1 July 2017. IPART recommended a review of the cost share ratios every second pricing determination.²⁰⁶ WaterNSW recommended that such a review is best conducted after the conclusion of this determination process as this will allow sufficient resources to be allocated to the process, and ensure proper consideration and consultation.²⁰⁷

As part of this determination process, we considered it important to review the cost shares used to allocate WaterNSW's revenue requirement between WaterNSW's customers and the NSW Government given:

²⁰⁶ IPART, *Review of Rural Water Charging Systems - Final Report*, August 2012, p 8.

²⁰⁷ WaterNSW pricing proposal to IPART, June 2016, pp 70-71.

- ▼ The importance of cost shares in determining the charges for extractive users (and the amounts to be recovered from the NSW Government).
- ▼ The cost shares have not been revisited for some time, and there is significant stakeholder comment as to the appropriate sharing of WaterNSW's revenue requirements.
- ▼ The share of WaterNSW's revenue requirements borne by the NSW Government (either on behalf of past or current impactors) has changed due to changes to WaterNSW's activities.
- ▼ The changes in WaterNSW's operating environment mean there may be a number of users of WaterNSW's services (beyond billed customers) that are not currently taken into account in setting the customer shares.²⁰⁸

In this context, Frontier Economics was engaged to review the cost shares framework proposed by WaterNSW for the 2017 determination period.²⁰⁹

We made a decision:

- 27 To maintain the current customer share ratios as shown in Table 9.1 for the 2017 determination period, consistent with WaterNSW's proposal.

Table 9.1 IPART's decision on customer shares of operating and capital expenditure for the 2017 Determination

Cost item or activity	Customer Share
Operating expenditure	
Customer support, Customer Billing, Metering & Compliance, Water delivery and Other Operations, Corrective Maintenance, Routing Maintenance, Asset Management Planning, Insurance	100%
Hydrometric monitoring	90%
Flood Operations, Water Quality Monitoring, Dam Safety Compliance, Environmental Planning & Protection	50%
Dam Safety Compliance Capital Projects pre-1997	0%
Capital expenditure	
Asset Management Planning, Routine Maintenance, Structural and Other Enhancement, Corporate Systems, Office Accommodation Capital Projects, Information Management Projects, Water Delivery and Other Operations	100%
Renewal & Replacement	90%
Dam Safety Compliance, Environmental Planning and Protection, Flood Operations	50%
Dam Safety Compliance pre-1997 Construction	0%

Source: WaterNSW pricing proposal to IPART, pp 68-70.

9.1.1 Reasons for our decision

Stakeholder submissions highlight a significant diversity in views as to the appropriate sharing of WaterNSW's revenue requirements, specifically the proportion of efficient costs

²⁰⁸ See Murray Lower Darling – WaterNSW Customer Service Committee (2016), *Water NSW Regulated Water Charge Review*, Murray Irrigation (2016), *Review of Prices for WaterNSW submission to IPART*, The Macquarie River Food and Fibre, NSWIC (2016), *Water NSW Regulated Water Charge Review*.

²⁰⁹ Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016.

that should be recovered from ‘billed customers’ of these services relative to the NSW Government (on behalf of past users or other current and future ‘unbilled’ users). Factors influencing this divergence in views are likely to be the:

- ▼ different interpretations of the rationale for cost sharing and the appropriate principles to guide its practical applications²¹⁰
- ▼ changes to WaterNSW’s services and operating environment (reflecting evolving government obligations and community expectations, as well as its corporate structure), and changes in the types of users of WaterNSW’s services and the nature of their use, and
- ▼ changes to WaterNSW’s mix of expenditure in providing these services, which results in changes in the proportion of costs borne by customers (i.e. billed customers such as extractive users) who pay WaterNSW’s charges.²¹¹

Frontier Economics’ recommended framework for cost sharing

At a high level, Frontier Economics supports the impactor pays approach and states that it should be applied in a way which:

- ▼ Focuses on the efficient forward-looking costs of undertaking activities to meet the needs of users/impactors, and
- ▼ Reflects the existing property rights established in legislation and regulation.²¹²

Frontier Economics has recommended a recast of the approach to determining cost shares in each valley between customers and the NSW Government for each of WaterNSW’s services.²¹³ The approach (Figure 9.1) involves:

1. establishing the efficient costs of providing WaterNSW’s services
2. allocating efficient costs to specific services provided by WaterNSW
3. subtracting legacy costs to determine the efficient forward-looking costs to be recovered from current and future impactors
4. allocating efficient forward-looking costs between current and future impactors, and
5. recovering costs from customers or the NSW Government through prices and the NSW Government’s contribution (or other cost-recovery mechanism).

Frontier Economics considers that the proposed approach is likely to:²¹⁴

- ▼ ensure that the cost sharing framework provides the right incentives for extractive water use, flood mitigation and other community activities, and for WaterNSW to invest to provide these services

²¹⁰ See Toonumbar Water Users Group submission to IPART Issues Paper, October 2016; Lachlan Valley Water submission to IPART Issues Paper, October 2016; The Macquarie River Food and Fibre submission to IPART Issues Paper, October 2016.

²¹¹ Frontier Economics, *Review of WaterNSW cost shares*, December 2016, p 8.

²¹² Frontier Economics, *Review of WaterNSW cost shares*, December 2016, pp 25-26.

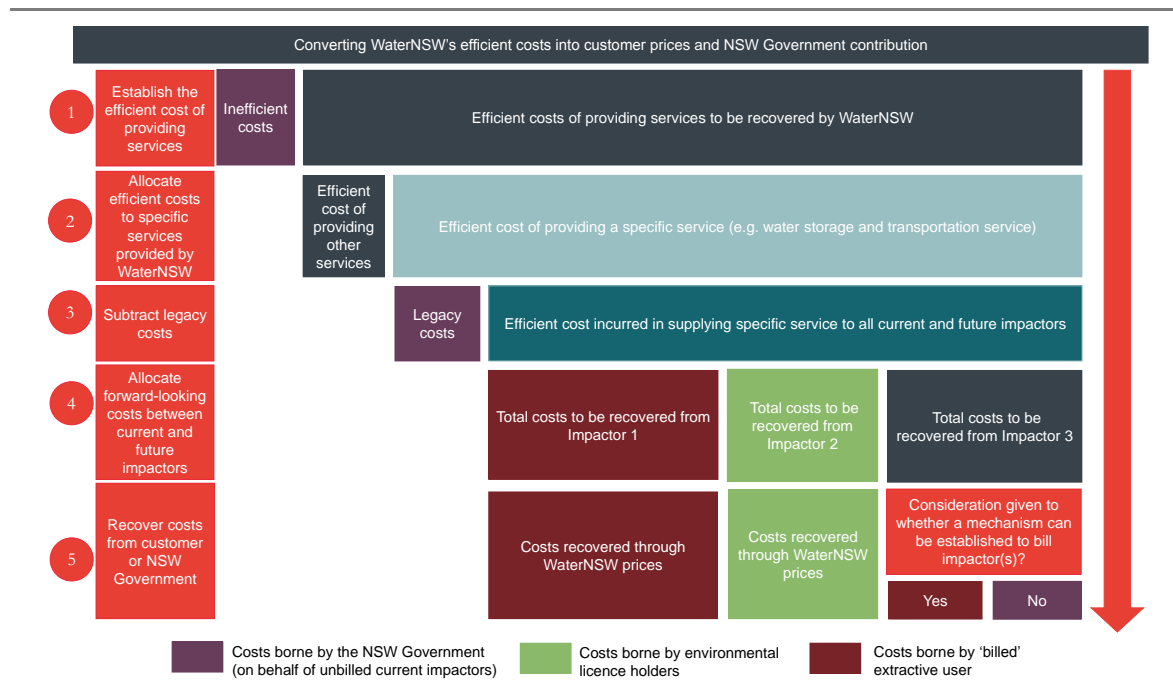
²¹³ Frontier Economics, *Review of WaterNSW cost shares*, December 2016, pp 34.

²¹⁴ Frontier Economics, *Review of WaterNSW cost shares*, December 2016, pp 34-35.

- ▼ encourage greater consistency in the application of the principles for cost sharing over time and with other industries (including the treatment of costs associated with the imposition of Government standards and obligations)
- ▼ make the cost of providing specific services - for example, flood mitigation services - more transparent, which should in turn allow for informed decision making regarding the provision of these services relative to alternative measures and the appropriate set of tariff structures to recover the costs of these services²¹⁵
- ▼ make the sharing of these costs between customers and the NSW Government more transparent, including the quantum and basis on which the government is providing funding to WaterNSW. This should provide stronger incentives to consider any barriers to the application of charges to those current and future impactors that are not currently billed by WaterNSW, and should ensure that any funding provided by the NSW Government on equity grounds is excluded from the cost sharing framework, and
- ▼ support IPART's preferences for the continuation of valley-based pricing.²¹⁶

Further detail on Frontier Economics' findings are available in Appendix F and in its report on our website.

Figure 9.1 Frontier Economics' proposed approach to allocating costs between users and establishing a customer and Government cost sharing framework



Source: Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, p 36.

Frontier Economics assessed both our current approach to cost sharing together with WaterNSW's proposal, against its proposed framework. In doing so, it identified a number

²¹⁵ For instance, investment in other measures to mitigate and/or manage the impacts of flooding, consistent with the Productivity Commission's recommendations regarding cost-benefit analysis and the transparency, and therefore, accountability, it brings to decision making. Productivity Commission, *Natural Disaster Funding Arrangements*, Inquiry Report, Volume 1, December 2014, pp 22-25.

²¹⁶ Frontier Economics, *Review of WaterNSW cost shares*, December 2016, p vii.

of activities in the current framework that are likely to be inconsistent with its proposed framework including:²¹⁷

- ▼ **Shared or common costs** – where 100% of these costs are allocated to customers, even though there may be other impactors who are not billed (e.g. ‘Water delivery and Other Operations’).
- ▼ **Dam safety compliance costs** – where:
 - An allocation of 0% of dam safety compliance costs (pre-1997) is likely to be overstating the true legacy costs and understating the forward-looking nature of these cost. That is, any expenditure relating to dam safety compliance (pre-1997) may be required to provide services to current and future users.
 - An allocation of 50% of dam safety compliance costs (post-1997) is likely to be understating the contribution of users to the need for this forward-looking expenditure. However, some of the impactors of the need to incur this expenditure may not be extractive users (i.e. some of the expenditure may be incurred for flood mitigation services).
- ▼ **Environmental Planning & Protection** – while 50% of costs are currently allocated to customers (and 50% to the Government, on behalf of the broader community), extractive users (both customers and unbilled users) rather than the broader community can be seen as the primary impactors for these activities.

We agree with Frontier Economics’ findings that given the changes in WaterNSW’s services and users of these services, there are components of the existing cost sharing framework that may not be consistent with the impactor pays principle. We consider that Frontier Economics’ proposed approach may represent a more robust approach in how we share WaterNSW’s revenue requirements between customers and the NSW Government.

Frontier Economics also notes that the following pre-conditions are required for the proposed cost sharing approach:

- ▼ a range of detailed information covering:
 - description of WaterNSW’s services in order to allocate costs to each of them
 - a detailed register of dedicated and shared assets and activities, and
 - a clear and well-documented process (including specification of an appropriate causal allocator), for allocating the costs of shared assets and/or activities across impactors and services
- ▼ potential changes to the current information collection and billing systems
- ▼ potential legislative, policy or regulatory changes to enable the allocation of costs to unbilled impactors, and
- ▼ broader consultation and stakeholder engagement to ensure that the cost sharing framework is both a long-term and sustainable approach.²¹⁸

Given these pre-conditions, it is not feasible to implement aspects of the proposed approach in the 2017 determination period. As such, our view is to maintain the current cost share

²¹⁷ Frontier Economics, *Review of WaterNSW cost shares*, December 2016, pp 52-55.

²¹⁸ For more detail regarding the pre-conditions necessary to implement the proposed approach see: Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, pp 49-51

ratios for the 2017 determination period, but implement an extensive review of the cost share framework (with involvement of stakeholders and drawing on Frontier Economics' proposed framework) before the 2021 determination. This will:

- ▼ offer the best opportunity to address these complex issues and minimise the risk of applying incorrect cost shares that may need to be reversed in subsequent determinations, and
- ▼ address a number of the pre-conditions necessary to implement aspects of the proposed approach, including allowing for targeted engagement with stakeholders regarding the proposed approach, consistent with the views submitted by some stakeholders,²¹⁹ including WaterNSW.²²⁰

In response to our Draft Report, stakeholders supported our draft decision to maintain the current cost sharing framework in anticipation of a full review of cost shares before the next price determination.²²¹ Areas of stakeholder concern for consideration in the cost shares review include:

- ▼ the share of costs being recovered from WaterNSW customers²²²
- ▼ the need to account for changing community expectations²²³
- ▼ the need to ensure all impactors and beneficiaries are captured within the cost sharing framework - eg, basic rights holders, environmental water²²⁴
- ▼ consideration of MDBA and BRC costs within the cost sharing framework²²⁵ (we note they are subject to the existing cost share ratios)
- ▼ treatment or allocation of costs in valleys where full cost recovery is not viable.²²⁶

These issues, as well as others raised by stakeholders, will be considered as part of the review of the cost sharing framework.

²¹⁹ See Murray Lower Darling – WaterNSW Customer Service Committee (2016), *Water NSW Regulated Water Charge Review*, Murray Irrigation (2016), *Review of Prices for WaterNSW submission to IPART*, The Macquarie River Food and Fibre, NSWIC (2016), *Water NSW Regulated Water Charge Review*.

²²⁰ WaterNSW pricing proposal to IPART, June 2016, pp 70-71.

²²¹ NSW Irrigators' Council submission to IPART Draft Report, April 2017, pp 26-27; Lachlan Valley Water submission to IPART Draft Report, April 2017, pp 6-7; Gwydir Valley Irrigators Association submission to IPART Draft Report, April 2017, p 4; Coleambally Irrigation submission to IPART Draft Report, April 2017, p 3.

²²² NSW Irrigators' Council submission to IPART Draft Report, April 2017, pp 26-27; Western Murray Irrigation submission to IPART Draft Report, April 2017, p 8.

²²³ Gwydir Valley Irrigators Association submission to IPART Draft Report, April 2017, p 4; Coleambally Irrigation submission to IPART Draft Report, April 2017, p 3.

²²⁴ NSW Irrigators' Council submission to IPART Draft Report, April 2017, pp 26-27; Coleambally Irrigation submission to IPART Draft Report, April 2017, p 3; Lachlan Valley Water submission to IPART Draft Report, April 2017, p 6; Murray Irrigation submission to IPART Draft Report, March 2017, p 3.

²²⁵ NSW Farmers' Association submission to IPART Draft Report, April 2017, p 5

²²⁶ NSW Farmers' Association submission to IPART Draft Report, April 2017, p 5.

10 Forecast entitlement and usage volumes

Our decision on price structures is to set a two-part tariff, comprising:

- ▼ a usage charge (\$ per ML of water extracted), and
- ▼ a fixed entitlement charge (\$ per ML of entitlement²²⁷, per year)
 - the exception is in the Fish River Water Supply Scheme (FRWS), where we have set fixed charges based on Minimum Annual Quantities (MAQs) rather than entitlements.

To set these fixed and usage charges for each valley at the levels required to recover the customer share of efficient costs for each valley over the determination period, we need to forecast water usage and entitlement²²⁸ volumes (or MAQs for the FRWS).

For a given level of costs allocated to a valley, the higher the volumes of entitlement/usage for that valley, then the lower the corresponding entitlement/usage price in that valley (and vice-versa). Entitlement volumes are generally stable over time. In contrast, water usage can be volatile and more uncertain. It is important that forecasts are reasonable. If the forecast water usage is not reflective of the actual water usage over the 2017 determination period, then WaterNSW may either over recover or under recover its target revenue (costs).

In this chapter, we outline and explain our forecast entitlements, MAQs and usage volumes, which are used to convert the customer share of WaterNSW's revenue requirement into maximum prices.

As discussed in Chapter 3, under the WCIR 2010, WaterNSW must apply for an annual review of its regulated charges in MDB valleys and for some FRWS customers. That is, IPART may vary the regulated charges annually in the MDB valleys, and for EnergyAustralia (EA) and individual minor customers (bulk and raw) in the FRWS if it is reasonably necessary to vary the charges, having regard to:

- ▼ changes in the demand or consumption forecasts submitted by WaterNSW in its annual application (the 'change in forecasts' variation test)
- ▼ price stability (the 'price stability' variation test).

10.1 Licensed water entitlements

Customers across all valleys hold different types of water entitlement (mainly general and high security). These entitlements give customers access to a share of the water resource. The volume of entitlements is influenced by the issuing of access licences, which is governed

²²⁷ For some licence types entitlements are referred to as 'unit shares'.

²²⁸ This is also known as the share component of a licence, which entitles the licence holder to a "share", as measured in megalitres, of water available in a water source. Source: DPI Water, <http://www.water.nsw.gov.au/water-licensing/about-licences/new-access-licences>, accessed on 25 May 2017.

by the *Water Management Act 2000* (NSW). DPI Water issues these water entitlements on behalf of the Minister for Primary Industries, Lands and Water.

In its June 2016 pricing proposal, WaterNSW provided entitlement numbers sourced from its Water Accounting System, which were actual entitlement volumes as of January 2016. It proposed to carry forward these water entitlement numbers for each year of the upcoming determination period. We used these entitlement numbers in modelling prices for the Draft Determination.

We made a decision:

- 28 To set the entitlement volumes for the MDB and Coastal valleys as shown in Table 10.1, subject to annual review for 2018-19 onwards for the MDB valleys.

Table 10.1 Decision on entitlement volumes for the 2017 Determination (ML)

	High Security	General Security
Border	3,121	263,238
Gwydir	26,920	509,665
Namoi	8,866	256,212
Peel	17,367	30,428
Lachlan	57,304	633,166
Macquarie	42,712	632,466
Murray	263,603	2,083,271
Murrumbidgee	438,328	2,267,963
Lowbidgee	N/A	747,000
North Coast	137	9,531
Hunter	70,714	138,109
South Coast	1,175	13,946
Total	930,247	7,584,995

^a Lowbidgee consists of supplementary licences only.

Source: WaterNSW information update, April 2017.

10.1.1 Reasons for our decision

Following the release of our Draft Report, WaterNSW provided updated entitlement volumes, which included actual entitlement volumes for 2015-16. We accept WaterNSW's actual entitlement volumes for 2015-16 on the basis that:

- ▼ entitlement volumes have remained relatively stable over time, as shown in Figure 10.1, and
- ▼ WaterNSW's entitlement volumes for 2015-16 represent the most recent actual information available.

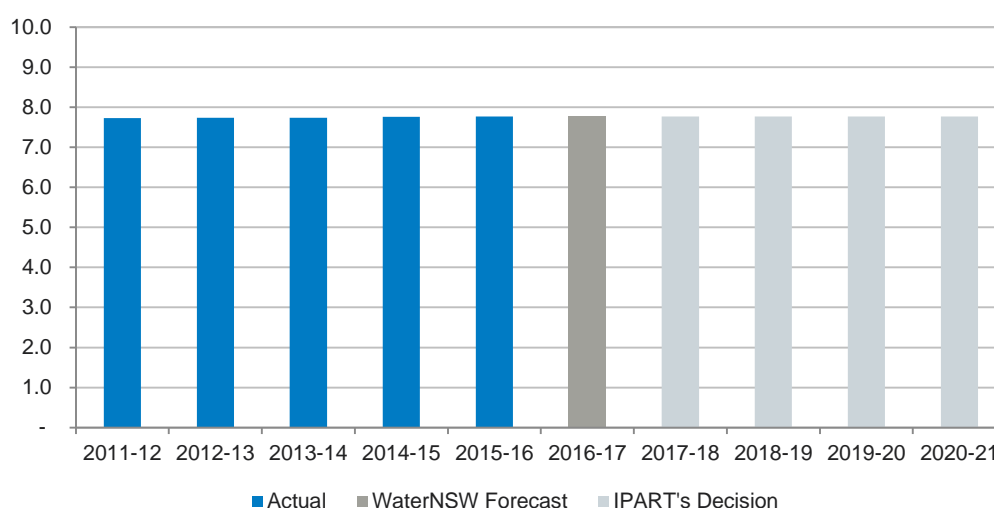
The total entitlements in Table 10.1 are only marginally higher than the entitlement volumes in our Draft Report – less than 1% in total.

The entitlement volumes in Table 10.1 above are broadly consistent with the entitlement volumes for regulated rivers we used in the 2016 determination of the Water Administration

Ministerial Corporation's (WAMC's) water management charges. The aggregate entitlement volume²²⁹ used in this 2017 WaterNSW determination is less than 1% lower than the entitlement volume used to set prices in the 2016 WAMC determination.

We received no stakeholder comments on forecast entitlement volumes.

Figure 10.1 Historical and forecast high security and general security entitlements (millions, ML)



Note: Excludes Lowbidgee valley which only includes supplementary entitlements.

Source: IPART, *Review of prices for the Water Administration Ministerial Corporation – Final Report*, June 2016, p 111; WaterNSW Information Update, April 2017.

As discussed above, WaterNSW must apply for annual reviews of its regulated charges in MDB valleys within the 2017 determination period. These annual reviews can allow for prices to change to reflect updates or changes to entitlement volumes in MDB valleys (eg, issue of new entitlements).

Prices for the Coastal valleys, and therefore the entitlement volumes used to set these prices, are not subject to annual reviews and will be fixed for the four years of the 2017 Determination period.

10.2 Usage volumes

For the MDB valleys, WaterNSW proposes to retain the current forecasting methodology of a 20-year moving average of actual water usage.²³⁰ That is, data from the period 1996-97 to 2015-16²³¹ would be used to forecast usage for the first year of the 2017 determination period, 2017-18.²³² For subsequent years, WaterNSW has proposed to update the moving average using a 12-month lag (ie, forecasts for 2018-19 would be based on the period 1997-98 to 2016-17).

²²⁹ Excluding entitlements in Lowbidgee valley

²³⁰ WaterNSW pricing proposal to IPART, June 2016, p 31.

²³¹ Actual data for 2016-17 is not available for this report.

²³² WaterNSW pricing proposal to IPART, June 2016, p 31.

To forecast water usage in the Coastal valleys, WaterNSW proposes to maintain a similar approach, but without moving the averaging period. Specifically, for each year of the four year determination period, forecast water usage volumes would be based on:

- ▼ a 20-year average of actual water usage for the Hunter valley, data from 1996-97 to 2015-16, and
- ▼ due to data availability, a 12-year average of actual water usage for the North Coast and South Coast valleys, using data from 2004-05 to 2015-16.²³³

Table 10.2 WaterNSW’s proposed forecast usage volumes for the 2017 Determination (ML)

Valley	WaterNSW’s forecast usage volumes
Border	147,829
Gwydir	264,774
Namoi	168,133
Peel	11,291
Lachlan	205,079
Macquarie	258,621
Murray	1,537,145
Murrumbidgee	1,743,637
North Coast	619
Hunter	123,211
South Coast	3,781
Total	4,464,119

Note: Forecast usage for the North Coast and South Coast valleys are based on 12 years of data.

Source: WaterNSW Information Return, June 2016.

We made a decision:

- 29 To forecast usage volumes for each year of the 2017 determination period using a simple:
- 20-year moving average of actual, historical usage for MDB valleys (with the exception of Lowbidgee), commencing with using average usage over 1996-97 to 2015-16 to forecast extraction volumes for 2017-18
 - 20-year average of actual, historical usage for the Hunter valley, using average usage over 1996-97 to 2015-16
 - 12-year average of actual, historical usage for the North Coast and South Coast valleys, using average usage over 2004-05 to 2015-16.

We have not forecast usage volumes for the Lowbidgee valley as our decision is to set the tariff structure for the Lowbidgee valley at 100:0 fixed to variable (see Chapter 11).

The usage volumes for the MDB valleys in Table 10.3 are subject to annual review or update, to maintain a 20-year moving average of actual water usage.

²³³ WaterNSW pricing proposal to IPART, June 2016, p 31 and WaterNSW Information Return, June 2016.

Table 10.3 Decision on forecast usage volumes for the 2017 Determination (ML)

Valley	2017-18	2018-19	2019-20	2020-21
Border	148,174	148,174	148,174	148,174
Gwydir	262,135	262,135	262,135	262,135
Namoi	164,799	164,799	164,799	164,799
Peel	11,496	11,496	11,496	11,496
Lachlan	206,001	206,001	206,001	206,001
Macquarie	259,099	259,099	259,099	259,099
Murray	1,557,396	1,557,396	1,557,396	1,557,396
Murrumbidgee	1,736,133	1,736,133	1,736,133	1,736,133
Lowbidgee	N/A	N/A	N/A	N/A
North Coast	570	570	570	570
Hunter	123,592	123,592	123,592	123,592
South Coast	3,792	3,792	3,792	3,792
Total	4,473,186	4,473,186	4,473,186	4,473,186

Note: For the North Coast and South Coast valleys, forecast usage is based on a 12-year average due to data availability of actual usage. For the Hunter valley and all MDB valleys (except for Lowbidgee), 20-years of actual usage were used to forecast usage. Subject to annual review for the MDB valleys from 2018-19.

Source: WaterNSW Information Update, April 2017; and IPART analysis.

10.2.1 Reasons for decision

In response to our Draft Report, stakeholders that addressed this issue generally argued against WaterNSW's proposed 20-year simple moving average approach and favoured the use of a long-run average using data from the Integrated Quantity and Quality Model (IQQM). Specifically:

- ▼ NSW Irrigators' Council (NSWIC) submitted that the 20-year moving average would incorporate the Millennium Drought years that may possibly lead to over-recovery in revenue by WaterNSW. It points to the annual reviews to update usage volumes, highlighting that, in some valleys, years of higher than average usage volumes have replaced years of lower than average usage. It also added that the Murray-Darling Basin Authority (MDBA) has recently abandoned the 20-year forecast approach in favour of the IQQM as its approach for forecasting in the Murray-Darling Basin Plan.²³⁴
- ▼ Gwydir Valley Irrigators' Association (GVIA) reiterated its view from the public hearing, stating that the IQQM is the only robustly constructed and tested model that is used as a policy testing tool to determine Long-Term Average Annual Extraction Limits (LTAAEL), and to provide long-term usage estimates to manage extractions for the Murray Darling Basin Ministerial Cap. It submitted that the 20-year average provides only a short-term solution, whereas the IQQM outputs are calculated on more than 100 years of data over various climatic scenarios. It stated that no model would ever predict the Millennium Drought, but the IQQM provides long-term cycles of droughts and floods that the 20-year moving average cannot replicate.²³⁵

²³⁴ NSWIC submission to IPART Draft Report, April 2017, pp 27-28.

²³⁵ Gwydir Valley Irrigators Association submission to IPART Draft Report, April 2017, pp 4-5.

- ▼ Western Murray Irrigation (WMI) submitted that the use of a longer-term water dataset (eg, IQQM) would deliver more equitable outcomes.²³⁶
- ▼ Lachlan Valley Water (LVW) highlighted that the 20-year moving average would incorporate the drought years and therefore forecasts using this approach are well below the long-term modelled usage under IQQM and usage allowed under Water Sharing Plans, which may potentially lead to over-recovery of revenue. It notes that the drought years would be continually incorporated over the next 10 years if the forecast approach was maintained.²³⁷

We agree with stakeholders that the IQQM is used by DPI Water and the MDBA as a policy tool for planning purposes. However, for the purpose of setting prices, we consider the 20-year simple moving average using actual historical data superior to the long-run average using IQQM data, for the following reasons:

- ▼ The IQQM was developed for the purposes of assessing the impacts of various water management strategies on the average long-term behaviour of the water system and not for the purpose of forecasting billable usage to set prices over an immediate four-year period. DPI Water states that:

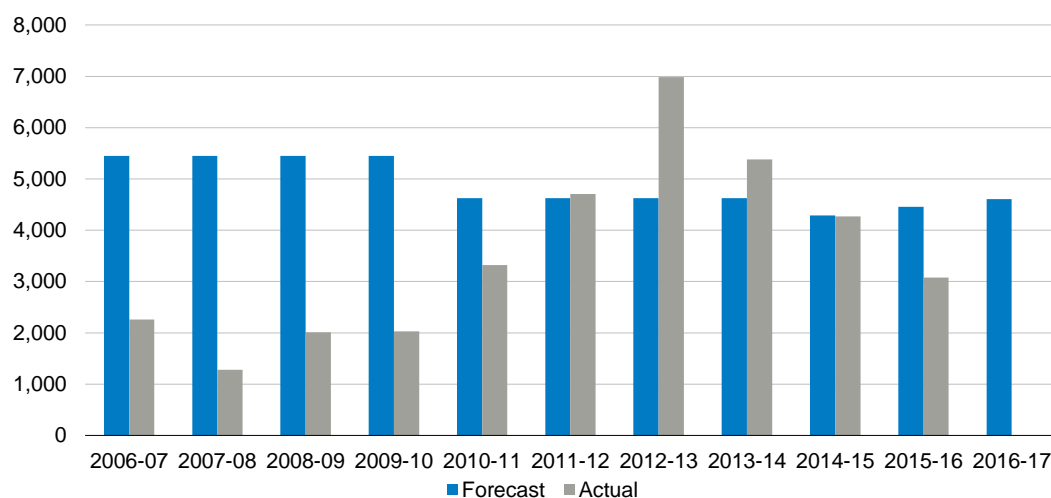
IQQM has been developed to assess the impacts of different management strategies on all water users. The models have been developed to simulate the major hydrological processes in river valleys, along with relevant management rules, and have been calibrated to match observed reservoir levels, diversions and flows over the calibration periods. The models are set up in such a way to reproduce average long term behaviour of the river system for planning purposes and not specifically designed to reproduce individual daily flow behaviour in any particular year or forecast any future year.²³⁸
- ▼ A 20-year time frame will better reflect recent climatic and rainfall conditions than a longer time frame (eg, 100 years of IQQM data).
 - To the extent that there have been structural changes in climatic conditions over the past century, then a long-run average approach may be less likely to reflect climatic conditions over the upcoming determination period.
- ▼ Consistent use of the 20-year moving average has an element of ‘catch-up’ or reconciliation, which is significant given the inherent uncertainty associated with forecasting rural water usage.
 - Use of 20-year averages (particularly a moving average) means recent actual usage volumes are regularly incorporated into forecasts. If actual usage is greater (lower) than forecast usage, these higher (lower) usage volumes would be included in the next 20-year average reset (annually for the MDB valleys, and at the next price determination for the Coastal valleys), which would increase (decrease) the 20-year average and (all other things being equal) decrease (increase) the usage price.

²³⁶ Western Murray Irrigation submission to IPART Draft Report, April 2017, p 3.

²³⁷ Lachlan Valley Water submission to IPART Draft Report, April 2017, p 7.

²³⁸ DPI Water, <http://www.water.nsw.gov.au/water-management/modelling/river-systems>, accessed on 15 May 2017.

Figure 10.2 Forecast versus actual usage over the 2006 Determination, 2010 Determination and 2014 Decision (GL)



Note: Forecast and actual usage for the 2006 Determination and 2010 Determination are for MDB and Coastal valleys. Forecast and actual usage for the 2014 Decision are for the MDB valleys only (excluding Lowbidgee valley).

Source: IPART, *Review of bulk water charges for State Corporation: From 1 July 2010 to 30 June 2014 – Final Report*, June 2010, p 119–125; ACCC annual price control model 2016-17; WaterNSW Information Return, June 2016; personal communication with WaterNSW October – December 2016; WaterNSW Information Update, April 2017.

Similar to entitlement volumes, WaterNSW has provided us with updated actual historical usage.²³⁹ Excluding the Lowbidgee valley, updated usage data is marginally higher than the total forecast usage in our Draft Report (less than 1%). Given that there are no significant differences in usage data, we have forecast usage based on the latest information update as we consider this the best available information.

We note that our forecast usage volumes are slightly different to those in WaterNSW’s June 2016 pricing proposal. This is because our forecast usage includes:

- ▼ 2015-16 actual usage rather than forecast usage
- ▼ 2013-14 and 2014-15 Belubula usage data for the Lachlan valley, which WaterNSW had excluded from its submission. This has resulted in higher forecast usage volumes compared to WaterNSW’s proposal.

For the MDB valleys, excluding the Lowbidgee valley, the period of data used to forecast usage volumes is from 1996-97 to 2015-16, for 2017-18.

For the Coastal valleys, the period of data used to forecast usage volumes is from:

- ▼ 1996-97 to 2015-16 for Hunter valley, and
- ▼ 2004-05 to 2015-16 for the North Coast and South Coast valleys, due to data availability.

Annual reviews will allow for prices in the MDB valleys to change to reflect updates or changes to usage volumes. Specifically, prices would be updated to reflect the 20-year moving average. That is, for the MDB valleys (with the exception of Lowbidgee):

²³⁹ Updated usage volumes for 1996-97 to 2015-16 were provided in April 2017.

- ▼ for 2017-18, the first year of the 2017 determination period, usage volume forecasts will be based on the average of actual usage over the 20-year period of 1996-97 to 2015-16
- ▼ for 2018-19, usage forecasts will be based on the average of actual usage over the 20-year period 1997-98 to 2016-17, and
- ▼ for 2019-20 and 2020-21, the 20-year averaging periods will be 1998-99 to 2017-18 and 1999-2000 to 2018-19, respectively.

Forecast extraction volumes for the Coastal valleys (North Coast, Hunter and South Coast) will be fixed for the four years of the 2017 Determination.

10.3 Fish River Water Supply Scheme

The FRWS delivers raw bulk water to three major customers and 83 individual customers. Major customers are:

- ▼ EnergyAustralia (EA)
 - Wallerawang power station (now closed), and
 - Mt Piper power station
- ▼ Oberon Council
- ▼ WaterNSW for its Greater Sydney bulk water supply services.

The FRWS also delivers treated (filtered) water to Lithgow City Council and 216 individual customers.

10.3.1 Minimum Annual Quantities

Access to water in the FRWS is regulated through a MAQ for each major customer, and (collectively) for minor customers, as users in the scheme do not hold statutory water access entitlements.

Access (fixed) charges are set with reference to each major customer's actual MAQ. For each minor customer, these charges are set with reference to a deemed MAQ of 200kL.

WaterNSW's proposed MAQs for the FRWS are shown in Table 10.4, which we have decided to accept.

We made a decision:

- 30 To set the minimum annual quantities as shown in Table 10.4 for the Fish River Water Supply.

Table 10.4 Decision on minimum annual quantities for FRWS for the 2017 Determination (ML)

Customer	2017-18	2018-19	2019-20	2020-21
Raw Water				
EnergyAustralia	8,184	8,184	8,184	8,184
WaterNSW – Greater Sydney	3,650	3,650	3,650	3,650
Oberon Council	1,064	1,064	1,064	1,064
Individual customers (kL)	200	200	200	200
Filtered Water				
Lithgow Council	1,778	1,778	1,778	1,778
Individual customers (kL)	200	200	200	200

Note: Subject to annual review for EnergyAustralia and individual minor customers from 2018-19 onwards. MAQs are based on those in WaterNSW's Water Management Licence for the FRWS and are subject to change.

Source: WaterNSW pricing proposal to IPART, June 2016, p 34.

Reasons for our decision

MAQs are specified in the water sharing arrangements for the FRWS and are analogous to entitlements in other valleys. The share of the water resource assigned to specific customers is specified in WaterNSW's Water Management Licence for the FRWS.²⁴⁰ The MAQ is the Supply Availability in Number of Shares under no restrictions in Schedule 3 of this licence. We note that the MAQs in Table 10.4 are based on those specified in the licence as of June 2017, but are subject to change if there are any changes in the licence.

In 2014-15, EA closed and decommissioned the Wallerawang power station.²⁴¹ Although the closure of Wallerawang will influence EA's forecast water usage, it will not change the forecast MAQs over the 2017 determination period. From our understanding, EA will retain its MAQs. Therefore, MAQs are forecast to be the same as the 2014-17 period.

Similar to the MDB valleys, annual reviews of prices for EA and individual minor customers (both raw and filtered) can allow for prices to change to reflect updates or changes in the number of individual customers and MAQs.

Prices for WaterNSW – Greater Sydney, Oberon Council and Lithgow Council, and therefore the MAQs used to set these prices, will be fixed for the four years of the 2017 Determination.

10.3.2 Usage volumes

Similar to the MDB and Coastal valleys, WaterNSW has proposed to use data on 20-years of actual, historical water use to forecast water use of all FRWS customers over the 2017 determination period, except EA. WaterNSW's proposed forecast usage for the 2017 determination period is shown in Table 10.5 below. Water usage in the FRWS has reduced

²⁴⁰ This water management licence for WaterNSW is issued under Part 9 of the *Water Act (1912)*.

²⁴¹ WaterNSW pricing proposal to IPART, June 2016, p 41.

significantly as a result of the closure of EA's Wallerawang power station. Total annual water use by EA dropped by around 5,000 ML (about 55% of total FRWS usage in 2013-14) due to the closure of Wallerawang. WaterNSW does not expect a significant increase in usage by other customers to take up the excess capacity. WaterNSW stated that, following the closure of Wallerawang power station in 2014-15, the drop in usage led to a fall in revenue of around \$1.8 million per year.²⁴²

As such, WaterNSW has submitted that it would not be appropriate to use average annual usage volumes over the preceding 20 years to forecast EA's annual usage volumes over the 2017 determination period. Instead, WaterNSW proposes to forecast usage for EA based on 2014-15 usage from EA's remaining Mt Piper power station (ie, 1,200 ML per annum).

Table 10.5 WaterNSW's proposed forecast usage volumes for the FRWS for the 2017 Determination (ML)

Customer	2017-18	2018-19	2019-20	2020-21
Raw Water				
EnergyAustralia	1,200	1,200	1,200	1,200
WaterNSW – Greater Sydney	2,299	2,299	2,299	2,299
Oberon Council	710	710	710	710
Individual minor customers	51	51	51	51
Filtered Water				
Lithgow Council	868	868	868	868
Individual minor customers	117	117	117	117
Total	5,244	5,244	5,244	5,244

Source: WaterNSW Information Return, June 2016.

We made a decision:

- 31 To forecast usage volumes for the Fish River Water Supply Scheme using a simple:
- 20-year moving average of actual, historical usage for individual minor customers (raw water and filtered water)
 - moving average of actual, historical usage for Mt Piper power station for EnergyAustralia, commencing with using average usage over the year period from 2001-02 to 2015-16 to forecast usage volumes for 2017-18
 - 20-year average of actual, historical usage for WaterNSW Greater Sydney, Oberon Council and Lithgow Council.

The volumes for some customers in the FRWS in Table 10.6 are subject to annual review or update, to maintain a moving average of actual water usage.

²⁴² WaterNSW pricing proposal to IPART, June 2016, p 41.

Table 10.6 Decision on forecast usage volumes for the FRWS for the 2017 Determination (ML)

Customer	2017-18	2018-19	2019-20	2020-21
Raw Water				
EnergyAustralia	1,541	1,541	1,541	1,541
WaterNSW – Greater Sydney	2,298	2,298	2,298	2,298
Oberon Council	709	709	709	709
Individual minor customers	50	50	50	50
Filtered Water				
Lithgow Council	866	866	866	866
Individual minor customers	116	116	116	116
Total	5,580	5,580	5,580	5,580

Notes: We used actual usage in 2015-16, whereas WaterNSW used forecast usage in 2015-16. Subject to annual review for EnergyAustralia and individual minor customers from 2018-19 onwards.

Source: WaterNSW Information Return, June 2016; WaterNSW Information Return, September 2016; WaterNSW Information Update, April 2017.

Reasons for our decision

In WaterNSW's other valleys, we decided to use the 20-year moving average of historical usage to forecast annual usage volumes over the 2017 Determination period. This approach was also used in the 2014 ACCC Decision for Fish River. We consider it appropriate to maintain the same approach for all customers in the FRWS **other** than EA.

For this Determination, we have adjusted our forecasts for EA to take the closure of Wallerawang power station into account. We consider WaterNSW's proposal to forecast usage based on one year of EA's usage data to be inappropriate as it does not capture trends in EA's usage. Moreover, WaterNSW's proposal does not account for EA's actual usage in 2015-16. As discussed above, we consider a 20-year moving approach to be the most appropriate method to forecast usage for EA. However, due to data availability, we only have 15 years of actual usage data (2001-02 to 2015-16) for the Mt Piper power station.²⁴³ As this is the latest and best available information, we have adopted a 15-year average of actual historical usage for Mt Piper power station to forecast water usage for EA.

We note that our forecast usage volumes for other customers in FRWS are slightly different to those in WaterNSW's June 2016 pricing proposal as we have used 2015-16 actual usage rather than forecast usage.

For customers in the FRWS, the period of data used to forecast usage volumes is from:

- ▼ 1996-97 to 2015-16 for all major and minor customers, except EA, and
- ▼ 2001-02 onwards for EA's Mt Piper power station due to data availability issues, with an extra year of actual usage data from EA to be added to the averaging period during each year of the 2017 Determination period.

²⁴³ Personal communication with WaterNSW, 20 April 2017

Annual reviews can allow for prices for individual minor customers (bulk raw water and bulk filtered water) in the FRWS to be updated to reflect the 20-year moving average.

Annual reviews for prices for EA will be updated to include each extra year of available data on actual usage volumes (eg, for the 2018-19 annual review, forecast usage will be based on actual usage data from 2001-02 to 2016-17).

Prices, and hence forecast usage volumes, for WaterNSW – GS, Oberon Council and Lithgow Council are not subject to annual reviews and therefore will be fixed for the four years of the 2017 Determination.

11 Tariff structures

WaterNSW currently levies a two-part tariff for most valleys, comprised of:

- ▼ a **Fixed charge** for each valley – an annual fixed charge that applies to the share component specified on each water access licence (\$ per ML of general security (GS) and high security (HS) water entitlement or unit share), and
- ▼ a **Usage charge** for most valleys²⁴⁴ – that applies to the quantity of water recorded as taken for a water access licence in the billing period (\$ per ML of water take or ‘usage’).

This chapter discusses our decision in determining price structures for WaterNSW. This includes:

- ▼ the balance between fixed and usage charges (ie, tariff structures),
- ▼ the balance between HS and GS entitlement charges (ie, HS premium), and
- ▼ the balance between HS and GS entitlement charges for MDBA and BRC charges.

It also includes the structures of WaterNSW’s prices for the Fish River Water Supply Scheme (FRWS).

11.1 Fixed versus variable charges

WaterNSW has proposed to broadly maintain the existing price structures. This includes:

- ▼ valley-based pricing,
- ▼ two-part tariff (ie, a fixed and usage charge),
- ▼ prices being set to achieve a fixed to variable revenue split of 40:60 for most valleys, and
- ▼ revenue being allocated to HS and GS customers using a HS premium (the HS premium is discussed below in section 11.2).

WaterNSW proposed to maintain the predominantly 40:60 fixed to variable price structure due to strong stakeholder support. However, it notes that its current proportion of fixed charges (mostly 40%) exposes it to considerable revenue volatility because of variability in water availability and hence sales. It submitted that this revenue volatility, combined with the difference between its cost structure (which is largely fixed) and its 40:60 fixed to variable price structure, exposes it to sales volume-related risk.²⁴⁵ Our decision in addressing WaterNSW’s revenue volatility was discussed in Chapter 8.

²⁴⁴ The exception is Lowbidgee where WaterNSW only levies a fixed charge (customers hold supplementary licences that entitle them to water use only when excess water is available).

²⁴⁵ WaterNSW pricing proposal to IPART, June 2016, p 25.

32 To set the fixed to variable price structures for each valley as set out in Table 11.1.

Table 11.1 Decision on price structures for the 2017 Determination

Valley	Price structure (fixed to variable)
Border	40:60
Gwydir	40:60
Namoi	40:60
Peel	40:60 in 2017-18 and 80:20 in 2018-19 to 2020-21
Lachlan	40:60
Macquarie	40:60
Murray	40:60
Murrumbidgee	40:60
Lowbidgee	100:0
Fish River	80:20
North Coast	90:10
Hunter	60:40
South Coast	80:20

Note: We discuss the North Coast and South Coast valleys in Chapter 12.

11.1.1 Reasons for our decision

In this chapter, we discuss our decisions on tariff structures for MDB valleys, the Hunter valley and the Fish River Water Supply Scheme. Chapter 12 discusses our decisions on tariff structures for the North Coast and South Coast valleys.

With the exception of the Peel valley, we have maintained the existing price structure for all MDB valleys and the Hunter valley

In making our decision, we have taken into consideration issues raised during our public hearings and in submissions (to our Issues Paper and Draft Report). For example, we note that:

- ▼ For all MDB and Coastal valleys, WaterNSW submitted that it is largely a fixed cost business. That is, it incurs relatively little, if any, cost in supplying an additional unit of water; hence avoids relatively little, if any, cost in not supplying an additional unit of water. This reflects the nature of its operations: it manages and operates dams and associated works to deliver water to licensed water users via the river system. WaterNSW submitted that, based on its preliminary analysis, a cost-reflective tariff structure would be close to 100% fixed.²⁴⁶
- ▼ For all MDB valleys excluding the Peel and Lowbidgee valleys, irrigators expressed a preference for broadly maintaining the existing price structures (in addition to maintaining the UOM for WaterNSW to manage its revenue volatility, rather than the inclusion of a risk transfer product as discussed in Chapter 8). For example:

²⁴⁶ WaterNSW Pricing Proposal, June 2016, p35; and WaterNSW submission to IPART Issues Paper, October 2016, p12.

- NSWIC rejected the idea that a higher fixed component would be appropriate and considers the current tariff structures (mostly 40:60 fixed to variable) provide a reasonable balance of risk sharing between WaterNSW and its customers. Moreover, it considered the current tariff structures would provide a degree of security for customers against low or no water availability. It suggested that without a 'fixed charges relief trigger' policy, current tariff structures are appropriate.²⁴⁷
 - Murray Irrigation submitted that a 40:60 fixed to variable tariff structure is appropriate given the relationship between water availability and customers' cash flows.²⁴⁸
 - Gwydir Valley Irrigators Association supported maintaining the current 40:60 fixed to variable tariff structure for the 2017 Determination.²⁴⁹
- ▼ For the Peel valley, irrigators proposed an alternative tariff structure as a means to reduce the usage charge (eg, move away from the current 40:60 to an 80:20 fixed to variable tariff structure).²⁵⁰ However, Tamworth Regional Council (TRC) expressed a preference to maintain the existing tariff structure.²⁵¹
 - ▼ For the Lowbidgee valley, Australian Modern Dairy (AMD) were supportive of an introduction of a variable component whilst WaterNSW submitted that it is premature to introduce a variable charge – our draft decision was to adopt an 80:20 fixed to variable tariff structure rather than the existing 100% fixed charge.²⁵²

We consider that, ideally, fixed costs should be recovered through fixed charges, and variable costs should be recovered through variable (usage) charges, as this can promote the economically efficient use of water infrastructure assets.²⁵³ Given that WaterNSW's costs are largely fixed, we do not consider its current tariff structure, which is mostly 40:60 fixed to variable, to be cost-reflective.

However, we acknowledge that WaterNSW's customers expressed a preference for broadly maintaining the existing price structures (in addition to maintaining the UOM for WaterNSW to manage its revenue volatility, rather than the inclusion of a risk transfer product as discussed in Chapter 8). Moreover, we note that WaterNSW proposed to maintain its existing tariff structures, based on customer preferences, but sought the inclusion of a risk transfer product to replicate an 80:20 fixed to variable tariff structure for the valleys that are at cost recovery and were proposed to have a fixed to variable price structure of less than 80% - ie, the 8 MDB valleys (excluding Fish River and Lowbidgee valley) and the Hunter valley.

Given stakeholders' preferences, we have decided to maintain the existing tariff structures, with the exception of Peel valley and Fish River, and provide WaterNSW with an efficient

²⁴⁷ NSWIC submission to IPART Issues Paper, October 2016, p 36; and NSWIC submission to IPART Draft Report, pp 28-29.

²⁴⁸ Murray Irrigation submission to IPART Issues Paper, October 2016, p 4.

²⁴⁹ Gwydir Valley Irrigators Association submission to IPART Draft Report, April 2017, p 1.

²⁵⁰ IPART Public Hearing, Sydney, 4 April 2017, *Transcript*, pp 82-84; Peel Valley Water Users Association submission to IPART Draft Report, April 2017, p 1; Laurie Pengelly submission to IPART Draft Report, April 2017, p 3; and Thomas Woolaston submission to IPART Draft Report, April 2017, p 2.

²⁵¹ Tamworth Regional Council submission to IPART Draft Report, April 2017, pp 4-5.

²⁵² Australian Modern Dairy submission to IPART Draft Report, April 2017, p 1; and WaterNSW submission to IPART Draft Report, April 2017, pp 13-17.

²⁵³ This principle is stated in the *ACCC Pricing Principles*, section 3.11.

volatility allowance to deal with the risk of not having an 80:20 fixed to variable tariff structure. Our efficient allowance to address this revenue volatility was discussed in Chapter 8.

We discuss our decision on the Peel and Lowbidgee valleys in the section below. We discuss the tariff structure for the Fish River Water Supply Scheme in Section 11.4

We are maintaining the existing 100:0 tariff structure for the Lowbidgee valley

The current tariff structure for Lowbidgee licences is 100:0 fixed to variable, as per the ACCC's 2014 Decision. In our Draft Report, we considered restructuring the tariff structure to 80:20 fixed to variable as the 100% fixed pricing structure does not reflect the variability of supplementary water access experienced by Lowbidgee customers. Moreover, we considered that the introduction of a variable component to the pricing structure would provide an incentive for WaterNSW to investigate and address the metering issues identified by some Lowbidgee customers in response to our Issues Paper.²⁵⁴

In response to our Draft Report, Australian Modern Dairy (AMD) supported the restructure and recommended that the variable component should be larger to be more similar to other MDB valleys (eg, 40:60 fixed to variable tariff structure).²⁵⁵ However, WaterNSW submitted that there are 18 'potential' customers in Redbank North who are in the process of obtaining their individual licences through the subdivision of Balranald Council's entitlements. WaterNSW raised concerns about how to accurately differentiate usage between these potential customers in a floodplain. Specifically:²⁵⁶

- ▼ WaterNSW states that its current obligations for metering water usage are only at the point of diversions from the Murrumbidgee River into the Lowbidgee. Given the nature of floodplains, water may cascade over neighbouring properties before reaching the user that made the water order.
- ▼ Water that cascades into the neighbouring properties cannot be accurately measured. To accurately measure these flows, there must be a review of the Lowbidgee distribution rules and installation of a meter that complies with Australian standards, the latter which may be impractical in a floodplain area. If open channel meters are installed, WaterNSW queried whether the cost burden would be shared with the remaining two licences held outside of Redbank North.
- ▼ Forecast usage is based only on the 4 years of historical usage data that is available, which may not be appropriate given the highly variable nature of supplementary water allocations. As such, WaterNSW is at a risk of under-recovering its target revenue over a substantial number of years.

Given these difficulties, WaterNSW argued that the introduction of a variable pricing component is premature. It submitted that it should be given the opportunity to work with

²⁵⁴ AMD submitted that there are accuracy issues with the current meter along Redbank North channel, especially under low flow conditions. Moreover, it submitted that there are significant volumes of water loss along the channel due to lack of capital upgrade and maintenance. Australian Modern Dairy submission to IPART Issues Paper, October 2017, p 2.

²⁵⁵ Australian Modern Dairy submission to IPART Draft Report, April 2017, p 1

²⁵⁶ WaterNSW submission to IPART's Draft Report, April 2017, pp 13-17.

its customers to resolve any issues and set up the adequate billing arrangements before introducing a variable charge.²⁵⁷

We acknowledge that within Redbank North, if meters were to be installed at AMD's three points of extractions, usage may be accurately differentiated between the two current licence holders (AMD and Balranald Council).²⁵⁸ However, given that there are uncertainties in the number of licence holders in Redbank North over the next four years and the difficulties in differentiating usage (particularly over a floodplain), we consider it more appropriate to consider the introduction of a variable component at the next determination. This would give WaterNSW the opportunity to review its current processes and consult with its current and potential customers to identify and resolve issues regarding measuring water usage reliably.

We are restructuring the tariff structure in the Peel valley from 40:60 to 80:20

In our Draft Report, we considered maintaining the current 40:60 fixed to variable tariff structure for the Peel valley. In response to our Draft Report, we received opposing views on what tariff structure would be appropriate for the Peel valley. Specifically, irrigators²⁵⁹ argued for a restructure of the tariff structure to an 80:20 fixed to variable ratio as a means to reduce the usage charge and therefore bring the charge applicable in the Peel valley closer to the other MDB valleys. Peel Valley Water Users Association (PVWUA) highlighted that IPART has undertaken considerable efforts to alleviate the financial burden on customers in the North Coast and South Coast valleys without considering the capacity to pay of irrigators in the Peel valley who face a higher usage charge.²⁶⁰ Irrigators also noted that whilst overall usage in the Peel valley may not be falling, usage from irrigators were reducing as a result of the high usage charge.²⁶¹

However, Tamworth Regional Council (TRC), the major HS entitlement customer in the Peel valley, submitted that it was not supportive of the 80:20 tariff structure that was proposed to it by WaterNSW and the PVWUA.²⁶² As part of its decision, it considered a range of factors including forgone savings in the short term, the likelihood of additional forgone savings in the long term, and what it considered as subsidisation from TRC to GS irrigators.²⁶³ TRC opposed a move from the 40:60 fixed to variable tariff structure and proposed postage stamp pricing as an option to alleviate high usage prices in the Peel valley.²⁶⁴

On balance, our decision is to adopt an 80:20 fixed to variable structure for the Peel valley, but to maintain the current 40:60 tariff structure for 2017-18 only. That is, in 2017-18 charges will be set on a 40:60 basis, and then in 2018-19 onwards, on an 80:20 basis. We consider the move to an 80:20 fixed to variable tariff structure to be appropriate on the basis that:

²⁵⁷ WaterNSW submission to IPART's Draft Report, April 2017, p 16.

²⁵⁸ Personal communication with AMD, 19 April 2017.

²⁵⁹ Peel Valley Water Users Association submission to IPART's Draft Report, April 2017, p 1; Laurie Pengelly submission to IPART's Draft Report, April 2017, p 3.; and Thomas Woolaston submission to IPART's Draft report, April 2017, p 2.

²⁶⁰ IPART Public Hearing, 4 April 2017, Sydney, *Transcript*, pp 82-83.

²⁶¹ Peel Valley Water Users Association submission to IPART's Draft Report, April 2017, pp 7-9; and Laurie Pengelly submission to IPART's Draft Report, April 2017, p 2.

²⁶² Tamworth Regional Council submission to IPART's Draft Report, April 2017, p 4.

²⁶³ Tamworth Regional Council submission to IPART's Draft Report, April 2017, pp 4-5.

²⁶⁴ Tamworth Regional Council submission to IPART's Draft Report, April 2017, pp 5-6.

- ▼ an 80:20 fixed to variable tariff structure better reflects WaterNSW's largely fixed cost structure, and strikes a reasonable balance of risk sharing between WaterNSW and its customers
- ▼ the relatively low level of water allocations to licence holders in the Peel valley leads to a high usage charge under a 40:60 tariff, with associated low fixed charges.

Adopting an 80:20 tariff structure would mean that the usage price in the Peel valley decreases from the current \$58.26 per ML (the highest amongst all valleys²⁶⁵) to \$18.36 (\$2016-17) from 1 July 2018 onwards.

We acknowledge that TRC proposed postage stamp pricing as a means of reducing the high usage charge. However, as the cost of supplying water can be differentiated between valleys, we consider postage stamp pricing inappropriate for pricing WaterNSW's bulk water services on regulated rivers. Setting a uniform price across MDB valleys (or a move away from valley-based pricing to more aggregated pricing in general) would mean that prices are **less cost-reflective and less transparent**. In turn, this would mean that:

- ▼ Prices would not signal to customers the cost of servicing their locations, thereby distorting location-based consumption and investment decisions. Cost-reflective prices are important to provide efficient pricing signals to users and subsequently promote the efficient use of water.
- ▼ Lower cost valleys would subsidise higher cost valleys – ie, users in some valleys would pay prices that are higher than the efficient costs of supplying services to them, so that users in other valleys could pay prices that are lower than the efficient costs of servicing them.

We note TRC's concerns regarding its potential forgone savings in the long term under an 80:20 versus 40:60 fixed to variable tariff structure. However, given the augmentation of Chaffey Dam, increasing it from a capacity of 62 GL to 100 GL, there would be increased security in long-term water supply in the Peel valley, benefiting both TRC and irrigators. As water availability and usage increases, we would expect the HS premium to decrease through a:

- ▼ lower security factor, as we would expect the LTAAEL²⁶⁶ to increase through the increase to water supply and therefore extractions, and
- ▼ lower reliability ratio, as a result of the higher allocations to both HS and GS entitlements.

All other things being equal, a lower HS premium would result in lower HS entitlement charges for TRC.

For prices in 2017-18, we have decided to maintain the existing 40:60 fixed to variable tariff structure. This allows TRC 12 months to assess the change in its price structure and to plan accordingly. This decision also means that customers in the Peel valley will contribute to a volatility allowance in 2017-18, but not in subsequent years when the tariff structure is set at 80:20 fixed to variable (see Chapter 8 for more details).

²⁶⁵ The second highest usage charge in the MDB valleys is currently Lachlan at \$21.12 per ML (also under a 40:60 tariff structure).

²⁶⁶ Long-term average annual extraction limit.

We note that an alternative option was put forward by the NSW Farmers Association, which suggested abandoning full cost recovery in the Peel valley and applying the same principles applied to the North and South Coast valleys.²⁶⁷ It submitted that components of the RAB should be written down or assets that do not contribute to efficiency and appropriate provision of water to existing and future users should be written off.²⁶⁸ However, we consider it more appropriate to address the large usage charge in the Peel valley through the tariff structure given that the Peel valley has achieved full cost recovery.

We have decided not to introduce ‘valley’ choice in the 2017 Determination

In our Draft Report, we sought comment on what set of requirements would need to be satisfied for a change to a valley’s tariff structure within a determination period. That is, what should be required to allow a valley to opt out of one schedule of regulated prices (eg, determined on a 40:60 fixed to variable ratio) and opt into another schedule of regulated prices (eg, determined on an 80:20 fixed to variable ratio).

Specifically, we asked:²⁶⁹

- ▼ To apply an 80:20 fixed to variable price structure to a valley, would 100% of customers in that valley need to express written support for the change, or would a majority suffice? If a majority would suffice, then would a majority be based on number of customers or the volume of entitlements in that valley? If based on entitlements, should HS entitlements receive greater weighting? Or
- ▼ Would it be reasonable to apply an 80:20 fixed to variable price structure if all the members of a Customer Service Committee (CSC) for the valley were in support, or would majority support be sufficient? Under this, we would expect that all customers in the valley would at least need to be informed of the potential change.

Submissions in response to ‘valley choice’ unanimously agreed that consensus amongst all customers in a valley would be unrealistic and may create an unnecessary burden. However, we received opposing views about whether or not a CSC should be able to make decisions on behalf of a valley. Specifically:

- ▼ Some irrigation organisations opposed allowing CSC’s to make decisions on behalf of customers in a valley on the basis that members of CSC are not representative of all stakeholders in a valley.
 - NSWIC stated that the views of a CSC are not necessarily representative of all customers in the valley and that further consultation between stakeholders is required.²⁷⁰
 - Western Murray Irrigation noted that the CSC represents a subset of customers in the valley. It argued that CSCs are not elected bodies but serve an advisory role and that giving CSCs the power to make a decision on behalf of the valley would represent a major shift in its responsibilities. It also added that, for a change in tariff structures to occur, there must be a compelling reason for a change and agreement on the need for a change.²⁷¹

²⁶⁷ NSW Farmers Association submission to IPART’s Draft Report, April 2017, p 7.

²⁶⁸ NSW Farmers Association submission to IPART’s Draft Report, April 2017, p 8.

²⁶⁹ IPART, *Review of prices for rural bulk water services from 1 July 2017 to 30 June 2021*, March 2017, p 19.

²⁷⁰ NSWIC submission to IPART Draft Report, April 2017, p 29.

²⁷¹ Western Murray Irrigation submission to IPART Draft Report, April 2017, p 14.

- Murrumbidgee Irrigation submitted that members of a CSC are not elected representatives and that IPART should be in the position to make a decision on tariff structures in a determination process while accounting for stakeholder submissions.²⁷²
- ▼ WaterNSW and other irrigation organisations supported the idea of allowing CSC’s to make the decision on tariff structure on behalf of the whole valley, as members of a CSC would be more informed than an individual customer.
 - LVW stated that majority support from a CSC would be more achievable and sufficient given that members of a CSC are generally well informed and up-to-date on the relevant issues.²⁷³
 - GVIA shared a similar view, adding that for the CSC to make an informed decision, all individual members should be surveyed to incorporate the views of a range of users.²⁷⁴
 - WaterNSW submits that support from the CSC should be sufficient, as members of the CSC will need to achieve a consensus before declaring their support for a change in tariff structures.²⁷⁵

While we support the principle of providing customers with choice, we have concerns on how to effectively implement choice at the *valley level* (ie, the tariff structure would apply to all customers in the valley regardless of their individual preferences). Given the mixed views on what would be a reasonable basis upon which WaterNSW could apply different tariff structures to a particular valley, we have decided to not allow choice at a valley level within the 2017 determination period.

We note that it is unlikely to be practical to achieve consensus in a valley to determine a different tariff structure for the whole valley. We also note that WaterNSW’s initial proposal for enabling tariff choice at the valley level was a ‘stepping stone’ to introducing tariff choice at the ‘*individual*’ customer level as part of the 2021 Determination.²⁷⁶

Therefore, we intend to work with WaterNSW and stakeholders in advance of the next price review, to investigate the possibility of introducing ‘*individual*’ customer tariff choice at the 2021 Determination.

11.2 High Security Premium

A HS entitlement charge is levied on HS entitlement holders for each valley and incorporates a HS premium to reflect the greater security (ie, priority in water allocations) and reliability of water supply enjoyed by HS entitlement holders relative to GS entitlement holders. This charge is applied regardless of whether a HS entitlement holder receives or uses the full allocation of their entitlement in any given year.

²⁷² Murrumbidgee Irrigation submission to IPART Draft Report, April 2017, pp 2-3.

²⁷³ Lachlan Valley Water submission to IPART Draft Report, April 2017, pp 7-8; and Sydney Public Hearing, 4 April 2017.

²⁷⁴ IPART Public Hearing, 4 April 2017, Sydney, *Transcript*, p 68.

²⁷⁵ WaterNSW submission to IPART Draft Report, p 13.

²⁷⁶ WaterNSW pricing proposal to IPART, June 2016, p 19.

Box 11.1 The difference between HS and GS entitlements

A water access entitlement provides the holders the right to a specific share of the water available within a specified water source. There are two types of entitlements relevant to this pricing determination:

- ▼ **HS entitlements** provide holders with their full allocation (except in severe drought periods). Holders of this entitlement are generally given priority before general security entitlement holders,²⁷⁷ and
- ▼ **GS entitlements** provide holders with an allocation of water subject to storage and demand circumstances, generally after HS entitlement holders have received their allocations.

HS premiums are calculated for **each valley** and are used to set the relative difference in HS and GS entitlement charges (per ML). In terms of modelling, once the customer share of notional revenue requirement (NRR) for each valley is established, an appropriate price structure (eg, 40% fixed and 60% variable for most valleys) is selected. Then the HS premiums are used to allocate the fixed component of the user NRR between the HS and GS entitlement charges.²⁷⁸ Therefore, changes in the HS premium do not represent changes in revenue for WaterNSW, but rather a redistribution of revenue raised between HS and GS entitlement charges within a valley.

The current and WaterNSW's proposed approach is calculated as follows:

$$(1) \quad \text{HS Entitlement Charge} = \text{GS Entitlement Charge} \times \text{HS Premium.}$$

Where:

$$(2) \quad \text{HS Premium} = \text{Conversion Factor} \times \text{Reliability Ratio.}$$

Conversion factors are interpreted as the units of GS entitlements required to convert into one unit of HS entitlement. As discussed below, conversion factors account for the fact that HS entitlements are given priority in water allocations before GS entitlements.²⁷⁹

We first established **conversion factors** in the 2006 Determination based on the then State Water's submission. The intention of this factor was to reflect the relative security of supply between HS and GS entitlements. These conversion factors were based on data from each valley's respective Water Sharing Plan (WSP), and from secondary sources if no WSP was in

²⁷⁷ In all valleys, except the Murrumbidgee, Murray (excluding Lower Darling), and Coastal valleys, allocations to GS entitlement holders occur after HS entitlement holders receive 100% of their entitlements. In the Murrumbidgee, Murray, and Coastal valleys, GS entitlement holders receive water allocations after HS entitlements receive between 75% - 97% of their entitlements. Source: Respective valleys water sharing plans.

²⁷⁸ For example, if the HS premium for a particular valley (with a 40:60 tariff structure) is 4, then HS entitlement charges would be four times that of GS entitlement charges. Therefore, if there were, say, 2,000ML of HS entitlements and 10,000ML GS entitlements then, the per ML GS entitlement charge would = $(40\% \times \text{user NRR}) / (2,000 \times 4 + 10,000)$. The HS entitlement charge per ML would then be four times that of the GS entitlement charge per ML.

²⁷⁹ In all valleys, except the Murrumbidgee, Murray (excluding Lower Darling), and Coastal valleys, allocations to GS entitlement holders occur after HS entitlement holders receive 100% of their entitlements. In the Murrumbidgee, Murray, and Coastal valleys, GS entitlement holders receive water allocations after HS entitlements receive between 75% - 97% of their entitlements. Source: Respective valleys water sharing plans.

place. For the majority of valleys, the following formula was used to calculate the conversion factor.

- (3) Conversion Factor = $\text{GS unit shares} / (\text{Long-Term Average Annual Extraction Limit} - \text{HS unit shares})$.

For all valleys, a minimum conversion factor of 1.25 was applied.

The **reliability ratio** was introduced as an additional factor in the HS premium in IPART's 2010 Determination. The reliability ratio is calculated as follows:

- (4) Reliability Ratio = $\text{20-year average actual allocations to HS entitlement holders} / \text{20-year average actual allocations to GS entitlement holders}$.²⁸⁰

This ratio represents the reliability of water HS entitlements received relative to GS entitlements. The 20-year period is consistent with the period used for forecasting usage.

Box 11.2 Why the reliability ratio was introduced

The reliability ratio was first introduced in the then State Water's submission to the 2010 Determination. State Water argued that the existing conversion factors underestimated the benefit of HS entitlements over GS entitlements, especially in periods of low rainfall.

"In dry times however, the value of HS holders 'gain' is the security of their water supply which is, on average, close to a full allocation. Since this water has greater value in times of scarcity, as demonstrated by the spot price for water, the value of the gain by HS holders is greater than the value of the loss incurred during wet years. ...The massive demand for conversions and the subsequent embargo by the then DWE [Department of Water and Energy] (now Office of Water), is evidence that the 'price' of converting, that is, the conversion factors, are too low and need to rise in order to restore equilibrium."²⁸¹

To rebalance this inequity and better equate the costs and benefits of HS and GS entitlements, IPART, in consultation with State Water, introduced the reliability ratio in its 2010 Determination. The reliability ratio accounts for the scarcity effect – individuals generally value goods inversely to its availability.

Although reliability ratios address the extra reliability of HS entitlements, using reliability ratios alone fails to account for water allocation priorities, ie, the extra security of HS entitlements. For example, using a reliability ratio of 2 as the HS premium would reflect that HS entitlement holders receive, on average, two times the amount of allocations as GS entitlement holders per ML, and hence would pay two times the per ML charge applied to GS entitlement charges. On face value, this may make customers indifferent from being a HS entitlement holder versus a GS entitlement holder, as their entitlements have been priced equivalently.

However, customers would not be indifferent, because the HS entitlement charges would only be reflecting the fact that the HS entitlements receive twice the amount of allocations on average per ML, and not for the fact that they have priority (or security) in water allocations each year.²⁸² Therefore, the reliability ratio alone fails to account for the priority (or security) in water allocations that HS entitlement holders enjoy over GS entitlement holders.

As such, as part of the 2010 Determination, the HS premium was based on both the conversion factors and reliability ratio.

²⁸⁰ Allocations are a proportion of water allocation compared to their entitlements.

²⁸¹ State Water Corporation submission to IPART 2010 Pricing Determination, 16 September 2009, p 10-5.

We made a decision:

33 To:

- maintain the existing approach to calculating the high security premium, and
- update the security and reliability factors²⁸³ in the high security premium as shown in Table 11.5

Table 11.2 Decision on HS premiums for the 2017 Determination

Valley	High security premium
Border	2.69
Gwydir	3.18
Namoi	2.15
Peel	10.35
Lachlan	5.63
Macquarie	4.75
Murray	2.04
Murrumbidgee	2.65
North Coast	1.29
Hunter	1.29
South Coast	1.91

Source: WaterNSW Information Return, June 2016; IPART analysis.

11.2.1 Reasons for our decision

HS premium

We consider the existing approach is appropriate on the basis that the combination of the two factors is aimed at addressing both the **security** and **reliability** of water supply from holding HS over GS entitlements. Specifically:

- ▼ the conversion factor is a *proxy* for the security in HS entitlements that stems from the differential allocation priority, and
- ▼ the reliability ratio accounts for the reliability in HS entitlements, especially in periods of low rainfall.

As part of our decision, we have adjusted the conversion factors and reliability ratio. Specifically:

²⁸² In all valleys, except the Murrumbidgee, Murray (excluding Lower Darling), and Coastal valleys, allocations to GS entitlement holders occur after HS entitlement holders receive 100% of their entitlements. In the Murrumbidgee, Murray, and Coastal valleys, GS entitlement holders receive water allocations after HS entitlements receive between 75% - 97% of their entitlements. Source: Respective valleys water sharing plans.

²⁸³ We have changed the terminology from 'conversion factor' to 'security factor' in the calculations underlying the high security premiums. This is to avoid confusion as certain valleys do not allow for conversion between GS and HS entitlements.

- ▼ We have updated the conversion factors using data from current WSPs. Existing (and proposed by WaterNSW) conversion factors have not been updated since they were first established in 2006. We consider updating the conversion factors appropriate given that:
 - WSPs have been developed and/or updated since 2006, and
 - existing conversion factors were calculated using different approaches and sources, which means that HS entitlement holders are being treated inconsistently across valleys (eg, Hunter valley – we provide further discussion below).

Updating the conversion factors will ensure that the best available information is used and that all valleys are treated consistently.

- ▼ We have updated reliability ratios, using the latest 20-year data (ie, 1996-97 to 2015-16).^{284,285}

Following the release of our Draft Report, we reviewed our calculation of the conversion factors in the Murray and South Coast valleys. As a result, the HS premium has decreased for the Murray (from 2.45 to 2.04) and South Coast (from 1.94 to 1.91).

In response to our Draft Report, stakeholder submissions were broadly supportive of the current approach for setting the HS premium for WaterNSW’s bulk water entitlement charges. However, most stakeholders noted that the reliability ratio could be adjusted. For example:

- ▼ Western Murray Irrigation submitted that the 20-year period undermines the value of HS entitlements as it is the long-term relative reliability that is the primary driver of the value of HS entitlements.²⁸⁶
- ▼ NSWIC submitted that since entitlements are issued in perpetuity, it is more appropriate to use a longer period for calculating the reliability ratio.²⁸⁷
- ▼ GVIA raised concerns about the reliability ratio, specifically it argued that the reliability ratio should be based on IQQM outputs on usage rather than a 20-year average.^{288,289}
- ▼ One stakeholder suggested that start of year allocations, rather than end of season allocation, are most important to irrigators.²⁹⁰

We acknowledge that stakeholders have expressed a preference for a longer period for calculating the reliability ratio. However, we consider the shorter averaging period (ie, 20 years) to be more appropriate as it would reflect the short-term reliability in allocations. Moreover, the conversion factor incorporates the LTAAEL and therefore reflects the

²⁸⁴ With the exception of the North Coast valley where only 13-years of HS allocation and 14-years of GS allocation data are available.

²⁸⁵ We considered reducing the averaging period of the reliability ratio to a shorter time frame (for example, 4 years in line with the determination length). However, a shorter averaging period would introduce price volatility for all customers. We consider the 20-year average to be more appropriate and in line with our forecasts for water usage.

²⁸⁶ Western Murray Irrigation submission to IPART Draft report, April 2017, p 11.

²⁸⁷ NSWIC submission to IPART Draft Report, April 2017, p 29.

²⁸⁸ Gwydir Valley Irrigators Association Inc. submission to IPART Issues Paper, October 2016, p 18.

²⁸⁹ GVIA also suggested that IQQM outputs should be adopted rather than the 20-year moving average for the reliability ratio. However, we consider this inappropriate as the reliability ratio is based on allocation whereas IQQM outputs are modelled extractions. Gwydir Valley Irrigators Association Inc. submission, October 2016.

²⁹⁰ Laurie Pengelly submission to IPART Draft Report, April 2017, p 3.

long-term allocation priority of HS entitlements. The combination of both the conversion factor and reliability ratio would mean that the HS premium would reflect the short-term and long-term benefits of holding HS over GS entitlements. Moreover, as mentioned above, the 20-year averaging period would match the period used to forecast usage, and therefore would reflect more recent climatic and rainfall conditions.

We also understand that the start of year allocations may influence the behaviour of some irrigators. However, we consider whole of year allocations would be more reflective of actual usage across all entitlements. Using start of the year allocations would not capture any water allocations made through the remainder of the year, which can be carried over in some valleys. To the extent that water allocations are carried over and actually used in the following year, this behaviour and usage would not be captured in start of year water allocations.

We also received a submission from the Murray-Darling Basin Authority (MDBA) that a separate (higher) HS premium could be applied to urban water users.²⁹¹ It submitted that provision made under the Murray Darling Plan means that urban users are provided with greater security than other HS entitlements. We acknowledge that in some scenarios (eg, very dry or drought conditions), urban HS entitlements would receive higher and earlier water allocations than HS irrigators. However, our decision is to not apply a separate HS premium as it would add extra price complexity and not necessarily materially change the resulting HS entitlement charges.

We note that our decision for the HS premium would largely affect the customers in the Hunter valley. The current conversion factor for Hunter, calculated at the 2006 Determination, was directly sourced from its then WSP. However, this conversion factor has since been removed and is no longer in the current Hunter WSP.^{292, 293} Therefore, we have calculated an appropriate factor for the Hunter valley, to reflect the (average) relative security of water, consistent with the approach adopted for the other valleys using available information in its WSP.

In updating the HS premiums we have also renamed the 'conversion factor' used in our calculations of the HS premium to '**security factor**'. This is to avoid confusion with terminology in WSPs, where conversions between licences are prohibited in certain valleys.

Table 11.3, Table 11.4 and Table 11.5 demonstrate how IPART's decisions on HS premiums have been determined. Table 11.5 also compares IPART's HS premiums to WaterNSW's proposed HS premiums.

We note that following the release of our Draft Report, we received updated allocation data from WaterNSW. Given that there are no significant differences in allocation data, we have used the updated data for the calculations of the reliability ratio as this represents the latest and best available information. Compared to the Draft Report, updated allocation data has decreased the HS premium for Gwydir valley slightly (from 3.19 to 3.18). Moreover, the reliability ratios for the Border (from 2.16 to 2.15) and Murrumbidgee (from 1.56 to 1.57) valleys have changed, but this has not impacted the final HS premium.

²⁹¹ Murray-Darling Basin Authority submission to IPART Draft Report, April 2017, p 2.

²⁹² New South Wales Government Gazette No 81 of 2 July 2008.

²⁹³ DPI Water has advised that the previous conversion factor of 3 was calculated on a hydrologic basis (under extreme drought conditions). Personal communication with DPI Water, 16 December 2016.

Table 11.3 Decision on security (conversion) factors for the 2017 Determination

Valley	HS Entitlements	GS Entitlements	Long-term average annual extraction limit (LTAAEL)	Security Factor
	A	B	C	D = B / (C - A) (Minimum 1.25)
Border	3,058	265,000	399,400	1.25
Gwydir	27,374	509,500	392,000	1.40
Namoi	7,932	256,421	238,000	1.25
Peel	17,373	30,335	15,100	6.54 ^a
Lachlan ^b	59,455	631,078	312,370	2.50
Macquarie	56,365	632,428	391,900	1.88
Murray	426,435	1,915,325	1,890,200	1.31
Murrumbidgee	742,738	2,001,533	1,925,000	1.69
North Coast ^c	135	10,203	10,740	1.25
Hunter ^d	70,714	138,109	228,175	1.25
South Coast	1,219	13,954	16,728	1.25

a The security factor for Peel valley is adjusted for 6,910 inactive HS entitlements (ie, security factor = 30,335/(15,100-17,373+6,910). This maintains the approach we adopted at the 2006 Determination which was done on a materiality basis of the Peel valley having a substantial number of inactive HS entitlements. Without the adjustment the security factor would be about '13' (without the adjustment, the LTAAEL is less than the number of HS entitlements, suggesting there is a negative amount of water available for GS entitlement holders).

b Includes Belubula regulated river.

c We have not explicitly used the security factor for the North Coast, as our draft decision is to hold prices constant in real terms. Therefore, it has been displayed for information purposes only. We have also adjusted the number of HS entitlements for the North Coast to reflect current information, as the data in the WSP indicates that there are over 26,000 HS entitlements.

d Includes Paterson regulated river.

Note: (i) HS entitlements include domestic and stock, local water utility, major utility and regulated river (HS) access licences. This information, including the number of GS entitlements, has been sourced from each valley's WSP. (ii) A minimum security (conversion) factor of 1.25 applies (iii) Conveyance access licences for Lachlan, Murrumbidgee and Murray valleys were categorised into HS and GS entitlements according to available water determinations outlined in each valley's WSP. (iv) The LTAAEL for the Murray, North Coast and South Coast valleys are not explicitly stated in the WSP. The LTAAEL for these valleys were sourced directly from DPI Water.

Table 11.4 Decision on reliability ratios for the 2017 Determination

Valley	20-year average HS water allocations	20-year average GS water allocations	Reliability Ratio
	A	B	
Border	100%	46%	2.15
Gwydir	100%	44%	2.28
Namoi	100%	58%	1.72
Peel	98%	62%	1.58
Lachlan	83%	37%	2.26
Macquarie	100%	40%	2.52
Murray	95%	61%	1.56
Murrumbidgee	97%	62%	1.57
North Coast ^a	93%	90%	1.03
Hunter	100%	97%	1.03
South Coast	99%	65%	1.53

^a 14-year average HS water allocations and 13-year average GS water allocations.

Source: WaterNSW Information Update, April 2017.

Table 11.5 Decision on HS premiums for the 2017 Determination compared to WaterNSW's proposal

Valley	Security Factor	Reliability Ratio	HS Premiums	WaterNSW's proposed HS premiums
	A	B	C = A × B	
Border	1.25	2.15	2.69	2.76
Gwydir	1.40	2.28	3.18	4.13
Namoi	1.25	1.72	2.15	2.15
Peel	6.54	1.58	10.35	10.64
Lachlan	2.50	2.26	5.63	5.53
Macquarie	1.88	2.52	4.75	4.74
Murray	1.31	1.56	2.04	1.95
Murrumbidgee	1.69	1.57	2.65	2.55
North Coast	1.25	1.03	1.29	1.29
Hunter	1.25	1.03	1.29	3.09
South Coast	1.25	1.53	1.91	2.60

Note: Compared to the existing security (conversion) factors, our updated security factors are generally lower across most valleys. This is due to a combination of reasons including the introduction of WSPs for certain valleys (in 2006 for valleys where WSPs did not exist we estimated the LTAAELs), changes in the number of HS and/or GS entitlements in WSPs, and changes in the LTAAEL in WSPs.

Source: WaterNSW Information Return, June 2016; WaterNSW Information Update, April 2017; and IPART analysis.

11.3 Structure of MDBA and BRC charges

As discussed in Chapter 4, WaterNSW's proposed revenue requirement includes a customer share for the pass-through of MDBA and BRC payments. WaterNSW proposed to recover these payments via an annual 100% fixed entitlement charge on the basis that these are unavoidable costs.

WaterNSW has also proposed reducing the HS premium for the BRC and MDBA charges, recognising that shifting to a 100% fixed charge would have a large bill impact on HS entitlement holders. Since the HS premium for BRC and MDBA charges is used to allocate the fixed component of these charges, the larger the fixed component in the tariff, the more of the BRC/MDBA charges are borne by HS entitlement holders. The proposed amended HS premiums are shown in Table 11.6 below.

Reducing the HS premium would shift some of the bill impact to GS entitlement holders. However, as there are substantially more GS entitlement holders than HS entitlement holders, the impacts of changing to 100% fixed charges would be spread and the average impact per customer would be smaller.

Table 11.6 WaterNSW proposed MDBA/BRC HS premiums

	IPART's HS premium	WaterNSW's adjusted HS premium ^a
Border	2.69	1.48
Murray	2.04	1.44
Murrumbidgee	2.65	1.39

^a WaterNSW has proposed to adjust the HS premium (for MDBA/BRC charges only) such that it results in a neutral bill impact, *on average* for all customers, from changing to 100% fixed charges.

Note: The HS premium is used to determine how the fixed component of charges is split between GS and HS entitlement holders. So, for example, a HS premium of 2 would mean that HS entitlement holders pay double the fixed charges compared to GS entitlement holders.

Source: WaterNSW pricing proposal to IPART, June 2016, p 146; WaterNSW Information Return, June 2016; IPART analysis.

We made a decision:

34 To:

- recover customers' share of MDBA and BRC payments through an 80:20 fixed to variable MDBA/BRC tariff structure
- apply the high security premiums as set out in Table 11.6 for the Border, Murray and Murrumbidgee valleys to MDBA and BRC charges.

11.3.1 Reasons for our decision

MDBA and BRC pass-through charges

Our draft decision was to adopt an 80:20 fixed to variable tariff structure on the basis that, ideally, WaterNSW should have a tariff structure that better reflects its cost structure. From WaterNSW's perspective, its BRC and MDBA payments are 100% fixed, meaning a 40:60 fixed to variable tariff structure is not cost-reflective. However, we considered WaterNSW's proposal to move to a 100:0 tariff structure in a single year would create substantial bill impacts for HS customers. It would also mean WaterNSW is transferring all of its revenue risk to customers. As such, our draft decision was to adopt an 80:20 fixed to variable tariff structure on the basis this would be an appropriate share of risk between WaterNSW and its customers.

In response to our Draft Report, stakeholders were opposed to the move away from the current 40:60 to 80:20 fixed to variable tariff structure for BRC and MDBA charges. Specifically:

- ▼ WaterNSW argued that an 80:20 fixed to variable tariff structure (rather than 100:00), combined with the removal of the UOM, would put it at considerable risk.²⁹⁴
- ▼ All WaterNSW's customers that commented on the MDBA charges opposed an 80:20 fixed to variable tariff structure and called for the 40:60 tariff structure to be maintained.²⁹⁵ Customers noted that whilst 80:20 is preferable to WaterNSW's proposed 100:0 tariff structure, the shift to a higher fixed component (combined with the higher HS premium) would contribute to a significant bill increase.
- ▼ MDBA noted that, while 80:20 was a step in the right direction, its cost structure is essentially fixed.²⁹⁶

While we understand that customers prefer to maintain the current 40:60 fixed to variable tariff structure, we note that under the current 2014 Decision, the 40:60 tariff structure was combined with a UOM that ensured that the full revenue shortfall, including the holding cost, for MDBA/BRC costs was to be recovered (or paid back) in the subsequent regulatory year. This meant that, over the 2014 determination period, MDBA and BRC prices mimicked a 100:0 tariff structure.

We have maintained our decision to adopt an 80:20 fixed to variable tariff structure. Our decision, combined with the removal of the UOM for MDBA and BRC charges, is likely to impose a smaller customer impact than if we maintained the current structure (ie, 40:60 fixed to variable) and allowed the continuation of the UOM for MDBA and BRC charges (which would result in prices reflecting a 100:0 fixed to variable tariff structure). That is, given that forecast usage is based on a 20-year moving average, bill impacts would be less stable under the current 40:60 fixed to variable arrangement and more stable under 80:20 fixed to variable tariff structure.

We note that the large MDBA bill impact on customers in the Murray and Murrumbidgee valleys, particularly on HS customers, is not solely due to the 80:20 fixed to variable tariff structure. Rather the bill impact can mainly be attributed to the level of the NSW Government's contribution to the MDBA's costs. As highlighted at the Sydney public hearing and MDBA's submission, MDBA's costs are not rising over time, but rather the NSW Government chose not to meet its historic cost share over 2012-13 to 2015-16. For the 2017 determination period, the NSW Government has agreed to resume paying its historical share.²⁹⁷

²⁹⁴ WaterNSW submission to IPART Draft Report, April 2017, pp 20-21.

²⁹⁵ See for example, Murray Group submission to IPART Draft Report, April 2017, p 2; Southern Riverina Irrigators submission to IPART Draft Report, April 2017, p 2; Western Murray Irrigation submission to IPART Draft Report, p 1 and p 11.

²⁹⁶ MDBA submission to IPART Draft Report, April 2017, p 2.

²⁹⁷ MDBA submission to IPART Draft Report, April 2017, p 2; and IPART Public Hearing, Sydney, 4 April 2017, *Transcript*, pp 36-38.

MDBA and BRC HS premium

In its pricing proposal, WaterNSW recognised that a shift to a 100% fixed tariff structure would disproportionately impact HS entitlement holders. To mitigate bill impacts on HS customers, WaterNSW proposed to adjust the HS premium for BRC and MDBA charges.

WaterNSW's proposed change to the MDBA/BRC HS premium is based on calculating the premium that leads to a neutral bill outcome *on average* for all customers. That is, to reduce HS entitlement holders' bill impacts, WaterNSW has proposed adjusting the premium to shift the burden to GS entitlement holders through higher prices per entitlement. This means that GS entitlement holders with relatively low usage could face large bill impacts.

The Commonwealth Environmental Water Office (CEWO) supported the proposed 100% fixed charge as the MDBA/BRC payments are fixed. However, CEWO considered it was unclear how the reduction in the HS premium was calculated, and how it fed through to prices. CEWO noted an apparent assumption that the savings provided to HS entitlement holders will be borne by GS entitlement holders. CEWO was unable to comment on the reasonableness of the proposed adjustment without further clarification on these issues.²⁹⁸

We note that without an adjustment to the premium, the bill impact on HS entitlement holders would be larger. However, we consider it is not appropriate, in principle, to reduce the bill impact on these entitlement holders by manipulating the HS premium and shifting costs onto GS entitlement holders. The HS premium serves a specific purpose – it is set to reflect the security and reliability of supply afforded to HS entitlement holders. As discussed above, the premium for each valley has been calculated using parameters that reflect each of these benefits to HS entitlement holders.

As such, our decision is to not apply a different HS premium for BRC and MDBA, but maintain the same HS premium we calculated for WaterNSW's bulk water charges. We note that due to the HS premium for the Murray decreasing from 2.45 to 2.04, the total bill impact on customers in the Murray would be substantially lower than compared to our Draft Determination (see Chapter 14 for bill impacts).

11.4 Structure of Fish River Water Supply (FRWS)

In the FRWS, customers face a two-part tariff. However, as discussed in Chapter 10, they have a "minimum annual quantity" (MAQ) rather than a licensed entitlement, and fixed charges are based on a customer's MAQ.

Water usage in the FRWS has reduced significantly as a result of the closure of Wallerawang power station in 2014 (see Chapter 10). Wallerawang power station was the largest single water consumer in the FRWS. The power station is currently being decommissioned.

With the closure of Wallerawang, total annual water use by EA dropped by around 5,000 ML (about 55% of total FRWS usage in 2013-14). WaterNSW does not expect a significant increase in usage by other customers to take up the excess capacity. WaterNSW

²⁹⁸ CEWO submission to IPART Issue Paper, October 2016, pp 3-4.

stated that, following the closure of Wallerawang power station in 2014-15, the drop in usage led to a fall in revenue of around \$1.8 million per year.²⁹⁹

MAQs are forecast to be the same as the 2014-17 period, as EA retains its MAQ.

In the FRWS, the ACCC set prices in 2014 to recover 55% of total revenue from fixed charges (ie, 55:45), though this ratio varies significantly between customers. To address the fall in usage, WaterNSW proposed to shift to an 80:20 tariff structure (80% fixed) for the FRWS.³⁰⁰ This would shift the revenue burden from usage to fixed charges. By moving towards a higher proportion of fixed charges, this places more of the revenue burden on EA. WaterNSW stated that the majority of FRWS customers will not experience a bill increase by moving to an 80% fixed charge structure.³⁰¹

We made a decision:

35 To apply a price structure which is 80:20 fixed to variable for the Fish River Water Supply Scheme.

11.4.1 Reasons for our decision

We considered WaterNSW's proposal and have decided to move to an 80:20 fixed to variable charge price structure for the FRWS. Moving to this structure means that:

- ▼ the price structure better reflects WaterNSW's (largely fixed) cost structure
- ▼ EA contributes an appropriate share of WaterNSW's costs incurred in providing infrastructure related to its MAQs, and
- ▼ other customers are not unduly impacted by the fall in usage resulting from the closure of Wallerawang power station.

As discussed earlier in this chapter, we consider an 80:20 fixed to variable tariff structure for WaterNSW achieves a reasonable balance between matching WaterNSW's largely fixed cost structure and distributing volume-related risk between WaterNSW and its customers. We note that at a customer level the tariff structure is different for each customer but at the valley level the tariff structure is 80:20.

At the April 2017 Sydney Public Hearing, EA raised concerns about the 80:20 fixed to variable tariff structure. Specifically, it noted that the 80:20 fixed to variable tariff structure:³⁰²

- ▼ is different to the tariff structures applied to other valleys
- ▼ results in high charges per ML of water delivered
- ▼ would not encourage water savings
- ▼ would mean WaterNSW faces only 20% business risk, which is substantially lower than the risk faced by other businesses, and

²⁹⁹ WaterNSW pricing proposal to IPART, June 2016, p 41.

³⁰⁰ WaterNSW pricing proposal to IPART, June 2016, p 42.

³⁰¹ WaterNSW pricing proposal to IPART, June 2016, p 43.

³⁰² IPART Public Hearing, Sydney, 4 April 2017, *Transcript*, p 29 and pp 65 -66.

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- ▼ EA is in a 30 year contractual arrangement with WaterNSW and therefore exposed to significant business risk.

We recognise that EA would face a higher charge as a result of the move to an 80:20 fixed to variable tariff structure. However, as outlined above, we generally favour an 80:20 price structure as we consider it strikes a reasonable balance between better reflecting WaterNSW's largely fixed cost structure and distributing risk between WaterNSW and its customers. In particular, the decision to move to an 80:20 fixed to variable tariff structure in the FRWS, combined with our decision to remove the UOM balance for the Wallerawang power station (see Chapter 8), is part of a combined package of measures to address a one-off structural change in demand.

The UOM was originally designed to respond to variations in usage arising from variability in climate - ie, it is not suited to addressing large structural changes in demand. Our decisions on the price structure and the UOM will ensure that both EA and WaterNSW bear some of the costs related to the structural change. This will mean that while EA will bear most of the costs of the move to an 80:20 fixed to variable tariff structure (as its MAQ is unchanged due to contractual arrangements), WaterNSW will bear the cost of our decision to set the Wallerawang component of the UOM to zero. This effectively shares the costs of a major one-off structural change in demand in the FRWS across the relevant stakeholders.

12 Bulk water prices

In this chapter we outline our decisions on prices for each valley (and the Fish River Water Supply in section 12.3), which reflect our decisions on WaterNSW's revenue requirement, forecast water sales and entitlement numbers, and price structures discussed in the previous chapters. We discuss our decisions on WaterNSW's:

- ▼ length of regulatory period and form of regulation in Chapter 3
- ▼ revenue requirements, including MDBA/BRC payments and costs that reflect volatility risk and the UOM; as well as how these will be shared between customers and the Government in Chapters 4 to 9
- ▼ forecast water sales and entitlement numbers in Chapter 10, and
- ▼ price structures in Chapter 11.

We have considered valleys that are substantially below full cost recovery (FCR), ie, the North Coast and South Coast valleys, separately. We discuss our approach to setting prices in these valleys in section 12.4. We have also considered the Fish River Water Supply (FRWS) separately, and present our prices for the FRWS in section 12.3.

In presenting our bulk water prices, we report three prices:

1. bulk water prices for all valleys (based on WaterNSW's revenue requirement, excluding MDBA and BRC pass-through charges)
2. MDBA and BRC pass-through charges for three valleys (the Border, Murray and Murrumbidgee valleys), and
3. final prices (bulk water prices and pass-through costs - ie, 1 and 2 combined).

We consider it is important to present bulk water charges and MDBA/BRC prices transparently. Additionally, it is important that customers can understand the prices they will pay under our decisions, accounting for all bulk water services provided in their valley.

The price tables presented in this chapter contain our prices for bulk water services. Each of these tables also include the current 2016-17 price as a comparator and the percentage change from 2016-17 to the last year of the 2017 determination period, 2020-21.

We discuss the impacts of our prices on customer bills and WaterNSW in Chapter 14.

We note that the prices presented in this chapter and Chapter 13 are in 'real' \$2016-17 - ie, they exclude the effects of inflation over 2017-18 to 2020-21 (in contrast, bill impacts in Chapter 14 include forecast inflation over 2017-18 to 2020-21). Prices in the accompanying Determination are in \$2017-18 - ie, the prices outlined in this chapter and Chapter 13 adjusted for one year of inflation.³⁰³

³⁰³ The Determination then allows the prices in \$2017-18 to be updated for inflation from 2018-19 onwards. We have applied 2.1% inflation to \$2016-17 prices to determine prices in \$2017-18 (in the Determination).

12.1 Entitlement charges

We made a decision:

36 To set high security and general security entitlement charges as listed in Table 12.1 and Table 12.2.

Table 12.1 shows our prices for WaterNSW's fixed bulk water charges for high security (HS) and general security (GS) entitlements by valley for the 2017 Determination. The prices exclude MDBA and BRC charges.

Table 12.1 Decision on bulk water entitlement charges by valley (\$/ML of entitlement, \$2016-17)

	2016-17	2017-18	2018-19	2019-20	2020-21	% Change
High security entitlement charge						
Border	6.90	5.33	5.33	5.33	5.33	-22.8%
Gwydir	14.13	11.08	11.08	11.08	11.08	-21.6%
Namoi	17.29	17.08	17.08	17.08	17.08	-1.2%
Peel	35.27	20.78	41.57	41.57	41.57	17.9%
Lachlan	16.48	15.38	15.38	15.38	15.38	-6.7%
Macquarie	16.17	13.51	13.51	13.51	13.51	-16.5%
Murray	1.79	1.54	1.54	1.54	1.54	-14.0%
Murrumbidgee	3.08	2.95	2.95	2.95	2.95	-4.2%
Lowbidgee	N/A	N/A	N/A	N/A	N/A	N/A
North Coast	9.54	11.78	11.78	11.78	11.78	23.5%
Hunter	26.03	13.13	13.13	13.13	13.13	-49.6%
South Coast	21.12	30.81	30.81	30.81	30.81	45.9%
General security entitlement charge						
Border	2.43	1.98	1.98	1.98	1.98	-18.5%
Gwydir	3.47	3.48	3.48	3.48	3.48	0.3%
Namoi	8.25	7.96	7.96	7.96	7.96	-3.5%
Peel	3.88	2.01	4.02	4.02	4.02	3.6%
Lachlan	3.28	2.73	2.73	2.73	2.73	-16.8%
Macquarie	3.62	2.85	2.85	2.85	2.85	-21.3%
Murray	0.97	0.75	0.75	0.75	0.75	-22.7%
Murrumbidgee	1.26	1.11	1.11	1.11	1.11	-11.9%
Lowbidgee	0.84	0.78	0.78	0.78	0.78	-7.1%
North Coast	7.25	9.13	9.13	9.13	9.13	25.9%
Hunter	8.86	10.20	10.20	10.20	10.20	15.1%
South Coast	10.09	16.16	16.16	16.16	16.16	60.2%

Note: Prices exclude MDBA and BRC charges for the Border, Murray and Murrumbidgee valleys. There are only supplementary licences in Lowbidgee, and a 100% fixed charge will be continued to be levied.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 44-46; IPART analysis.

Table 12.2 shows our MDBA and BRC entitlement charges, which apply to the Border, Murray and Murrumbidgee valleys, for the 2017 Determination (based on our decisions in Chapter 8).

Table 12.2 Decision on MDBA and BRC entitlement charges by valley (\$/ML of entitlement, \$2016-17)

	2016-17	2017-18	2018-19	2019-20	2020-21	% Change
High security MDBA/BRC entitlement charge						
Border	4.22	4.61	4.61	4.61	4.61	9.2%
Murray	3.22	7.27	7.27	7.27	7.27	125.8%
Murrumbidgee	0.72	1.61	1.61	1.61	1.61	123.6%
General security MDBA/BRC entitlement charge						
Border	1.49	1.71	1.71	1.71	1.71	14.8%
Murray	1.74	3.56	3.56	3.56	3.56	104.6%
Murrumbidgee	0.29	0.61	0.61	0.61	0.61	110.3%

Source: WaterNSW pricing proposal to IPART, June 2016, p 146; IPART analysis.

Table 12.3 shows the effective combined entitlement charges for the 2017 Determination, ie, the bulk water charges, including MDBA and BRC charges.

Table 12.3 Combined entitlement charges – bulk water charges including MDBA/BRC charges by valley (\$/ML of entitlement, \$2016-17)

	2016-17	2017-18	2018-19	2019-20	2020-21	% Change
High security entitlement charge						
Border	11.12	9.94	9.94	9.94	9.94	-10.6%
Gwydir	14.13	11.08	11.08	11.08	11.08	-21.6%
Namoi	17.29	17.08	17.08	17.08	17.08	-1.2%
Peel	35.27	20.78	41.57	41.57	41.57	17.9%
Lachlan	16.48	15.38	15.38	15.38	15.38	-6.7%
Macquarie	16.17	13.51	13.51	13.51	13.51	-16.5%
Murray	5.01	8.81	8.81	8.81	8.81	75.8%
Murrumbidgee	3.80	4.56	4.56	4.56	4.56	20.0%
Lowbidgee	N/A	N/A	N/A	N/A	N/A	N/A
North Coast	9.54	11.78	11.78	11.78	11.78	23.5%
Hunter	26.03	13.13	13.13	13.13	13.13	-49.6%
South Coast	21.12	30.81	30.81	30.81	30.81	45.9%
General security entitlement charge						
Border	3.92	3.69	3.69	3.69	3.69	-5.9%
Gwydir	3.47	3.48	3.48	3.48	3.48	0.3%
Namoi	8.25	7.96	7.96	7.96	7.96	-3.5%
Peel	3.88	2.01	4.02	4.02	4.02	3.6%
Lachlan	3.28	2.73	2.73	2.73	2.73	-16.8%
Macquarie	3.62	2.85	2.85	2.85	2.85	-21.3%
Murray	2.71	4.31	4.31	4.31	4.31	59.0%
Murrumbidgee	1.55	1.72	1.72	1.72	1.72	11.0%
Lowbidgee	0.84	0.78	0.78	0.78	0.78	-7.1%
North Coast	7.25	9.13	9.13	9.13	9.13	25.9%
Hunter	8.86	10.20	10.20	10.20	10.20	15.1%
South Coast	10.09	16.16	16.16	16.16	16.16	60.2%

Note: Prices include MDBA and BRC charges for the Border, Murray and Murrumbidgee valleys. There are only supplementary licences in Lowbidgee, and a 100% fixed charge will be continued to be levied.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 44-46, 146; IPART analysis.

12.1.1 Reasons for our decision

Our HS and GS entitlement charges reflect our decisions on WaterNSW's revenue requirement, forecast water sales and entitlement numbers, and price structures discussed in the previous chapters.³⁰⁴

³⁰⁴ For the North Coast and South Coast valleys, the charges follow from our decisions on setting prices below FCR in section 12.4

High security entitlement charges

Under our decision, combined HS entitlement charges per megalitre decrease in most valleys compared to current prices. HS entitlement charges increase compared to current prices in some valleys:

- ▼ **Peel valley** – The charge increases from 2018-19 (and is higher than our draft charge) in the Peel valley as a result of our decision to adopt an 80:20 fixed to variable tariff structure from 2018-19 onwards (see Chapter 11).
- ▼ **Murray and Murrumbidgee valleys** – Increases in these valleys are mainly due to the large increase in BRC and MDBA charges (see Chapter 8). In the Murray valley, the increase is also partly attributable to our decision to update the HS premium, which results in a higher premium (see Chapter 11).³⁰⁵
- ▼ **North Coast and South Coast valleys** – The charge increases in these valleys (and are higher than our draft charges) as a result of our decision to restructure the tariff structure for:
 - North Coast to a 90:10 fixed to variable tariff structure
 - South Coast to an 80:20 fixed to variable tariff structure (see section 12.4).

Compared to our draft prices, our HS entitlement charges are generally higher due to our decision to recover the outstanding UOM balances and the volatility allowance from all customers (see Chapter 8) in the MDB valleys, and our decisions to adopt predominately fixed tariff structures in the Peel (from 2018-19), North Coast and South Coast valleys.³⁰⁶ However, in the Murray valley, the HS premium has been reduced since the Draft Report. As such, HS entitlement charges in the Murray valley are substantially lower than our draft prices.³⁰⁷

Our combined HS entitlement charges per megalitre are higher than WaterNSW proposed prices in most valleys, including:

- ▼ **Peel³⁰⁸, North Coast³⁰⁹ and South Coast valleys** – This is primarily due to our decision to adjust the tariff structures in these valleys (see section 12.4).
- ▼ **Border, Murray³¹⁰ and Murrumbidgee valleys** – This is primarily due to our decision to maintain the same HS premiums we calculated for WaterNSW's bulk water charges for the MDBA and BRC components. WaterNSW proposed reducing the HS premium for MDBA and BRC charges (see Chapter 11).
- ▼ **Namoi, Lachlan and Macquarie valleys** – This can be attributed to our decisions to include a UOM payment, allocate a share of the volatility allowance to HS customers, and to update the HS premiums (our HS premium for Lachlan is higher than proposed by WaterNSW).

³⁰⁵ Although this increase is smaller compared to our draft charge as a result of further updates to the HS premium since our Draft Report.

³⁰⁶ For the valleys affected by MDBA and BRC charges, HS entitlement charges for the 2017 determination period are generally more favourable compared with our draft charges due to the overall updated UOM balance for the MDBA and BRC charge, which is expected to be in surplus from 2016-17.

³⁰⁷ Combined charges are the bulk water charges plus MDBA/BRC charges.

³⁰⁸ Except for the first year of the determination period.

³⁰⁹ For the first two years of the determination period.

³¹⁰ Except for the first year of the determination period.

General security entitlement charges

Under our decision, combined GS entitlement charges per megalitre increase in a number of valleys compared to current prices, including:

- ▼ **Gwydir and Hunter valleys** – Increases in these valleys are mainly due to our decision to update the HS premiums, which results in a lower premium for these two valleys (including others), and an increase in the GS entitlement charges (see Chapter 11).
- ▼ **Murray and Murrumbidgee valleys** – Increases in these valleys are primarily due to the large increase in BRC and MDBA charges (see Chapter 8).
- ▼ **Peel, North Coast and South Coast valleys** – Increases in these valleys follow from our decision to restructure the tariff structures in these valleys (see section 12.4).

Compared to our draft charges, our combined GS entitlement charges are generally lower due to lower WACCs (see Chapter 7) and changes to how the UOM payback and volatility allowance are spread across charges (see Chapter 8), except for the **Peel, North Coast and South Coast valleys**, again, due to our decision to restructure the tariff structures in these valleys.

Compared to WaterNSW's proposed prices, our combined GS entitlement charges per megalitre are also lower for most valleys, excluding the:

- ▼ **Hunter valley** – This is mainly due to our decision to update the HS premiums, which results in a reduction in the HS premium for the Hunter, and an increase in GS entitlement charges (Chapter 11).
- ▼ **North Coast and South Coast valleys** – This is primarily due to our decision to adjust the tariff structures in these valleys (see section 12.4).

12.2 Usage charges

We made decisions:

- 37 To set usage charges as listed in Table 12.4 and Table 12.5.
- 38 To maintain levying usage charges on customers trading water allocation (also known as a 'temporary trade') to persons who do not hold a NSW water access licence with an associated water supply works and complying metering (eg, for interstate trades), to recover the prudent and efficient infrastructure costs WaterNSW incurs in holding and releasing bulk water when it is traded out of NSW.

Table 12.4 shows our usage charges for WaterNSW bulk water over the 2017 Determination. The prices exclude MDBA and BRC charges.

Table 12.4 Decision on bulk water usage charges by valley (\$/ML, \$2016-17)

	2016-17	2017-18	2018-19	2019-20	2020-21	% Change
Border	6.60	5.44	5.44	5.44	5.44	-17.6%
Gwydir	12.13	11.87	11.87	11.87	11.87	-2.1%
Namoi	20.26	19.98	19.98	19.98	19.98	-1.4%
Peel	58.26	55.09	18.36	18.36	18.36	-68.5%
Lachlan	21.12	19.04	19.04	19.04	19.04	-9.8%
Macquarie	16.97	13.78	13.78	13.78	13.78	-18.8%
Murray	2.31	1.91	1.91	1.91	1.91	-17.3%
Murrumbidgee	3.53	3.31	3.31	3.31	3.31	-6.2%
Lowbidgee	N/A	N/A	N/A	N/A	N/A	N/A
North Coast	45.04	17.42	17.42	17.42	17.42	-61.3%
Hunter	14.77	12.62	12.62	12.62	12.62	-14.6%
South Coast	40.38	17.27	17.27	17.27	17.27	-57.2%

Note: Prices exclude MDBA and BRC charges for the Border, Murray and Murrumbidgee valleys. There are only supplementary licences in Lowbidgee, and a 100% fixed charge will be continued to be levied.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 44-46; IPART analysis.

Table 12.5 shows our prices for MDBA and BRC usage charges, which apply to the Border, Murray and Murrumbidgee valleys, for the 2017 Determination (based on our decisions in Chapter 8).

Table 12.5 Decision on MDBA and BRC usage charges by valley (\$/ML, \$2016-17)

	2016-17	2017-18	2018-19	2019-20	2020-21	% Change
Border	4.03	0.78	0.78	0.78	0.78	-80.6%
Murray	4.17	1.50	1.50	1.50	1.50	-64.0%
Murrumbidgee	0.82	0.30	0.30	0.30	0.30	-63.5%

Source: WaterNSW pricing proposal to IPART, June 2016, p 146; IPART analysis.

Table 12.6 shows the effective combined usage charges for the 2017 Determination, ie, the bulk water charges, including MDBA and BRC charges.

Table 12.6 Combined usage charges – bulk water charges including MDBA/BRC charges by valley (\$/ML, \$2016-17)

	2016-17	2017-18	2018-19	2019-20	2020-21	% Change
Border	10.63	6.22	6.22	6.22	6.22	-41.5%
Gwydir	12.13	11.87	11.87	11.87	11.87	-2.1%
Namoi	20.26	19.98	19.98	19.98	19.98	-1.4%
Peel	58.26	55.09	18.36	18.36	18.36	-68.5%
Lachlan	21.12	19.04	19.04	19.04	19.04	-9.8%
Macquarie	16.97	13.78	13.78	13.78	13.78	-18.8%
Murray	6.48	3.41	3.41	3.41	3.41	-47.4%
Murrumbidgee	4.35	3.61	3.61	3.61	3.61	-17.0%
Lowbidgee	N/A	N/A	N/A	N/A	N/A	N/A
North Coast	45.04	17.42	17.42	17.42	17.42	-61.3%
Hunter	14.77	12.62	12.62	12.62	12.62	-14.6%
South Coast	40.38	17.27	17.27	17.27	17.27	-57.2%

Note: Prices include MDBA and BRC charges for the Border, Murray and Murrumbidgee valleys. There are only supplementary licences in Lowbidgee, and a 100% fixed charge will be continued to be levied.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 44-46, 146; IPART analysis.

12.2.1 Reasons for our decision

Our usage charges reflect our decisions on WaterNSW's revenue requirement, forecast water sales and entitlement numbers, and price structures discussed in the previous chapters.³¹¹

Under our decision, combined usage charges per megalitre decrease in all valleys compared to current prices. Substantial usage charge decreases seen in the **Peel, North Coast and South Coast valleys** are the result of our decisions to restructure the tariff structures in these valleys (see Chapter 11 and section 12.4).

Compared to our draft charges, our combined usage charges per megalitre are generally higher for most valleys as a result of changes to how the UOM payback and volatility allowance are spread across charges (see Chapter 8).³¹²

Compared to WaterNSW's proposed prices, our combined usage charges per megalitre are also generally higher for most valleys, mainly due to the same reasons mentioned above regarding our final charges being higher than draft charges. However, for the **Border, Murray and Murrumbidgee valleys**, our combined usage charges in these valleys are higher than those proposed by WaterNSW due to our decision to adopt an 80:20 fixed to variable charge for the MDBA and BRC charges, whereas WaterNSW proposed a 100% fixed charge (see Chapter 11).

³¹¹ For the North Coast and South Coast valleys, the charges follow from our decisions on setting prices below FCR in section 12.4

³¹² Charges for the Hunter valley (usage and entitlement) are higher than our draft prices because we have applied the volatility allowance according to sum insured (ie, value at risk) rather than based on historical revenue volatility. This has resulted in a slightly higher allocation to the Hunter valley, compared with our Draft Report.

Usage charges levied on customers trading water allocation

WaterNSW proposed continuing to levy usage charges on customers trading water allocation³¹³ to persons who do not hold a NSW water access licence (eg, as for interstate trades).³¹⁴

ACCC review of the WCIR

In November 2015, the ACCC released a proposed rule change under the WCIR review that would, in effect, prohibit WaterNSW from levying usage charges for temporary allocation trades to a buyer who does not hold a NSW water access licence with an associated water supply works and complying metering.³¹⁵ The ACCC's draft advice proposed that the rules should be extended to prohibit infrastructure charges imposed by an operator as a condition of, or as a result of, trade of a tradeable water right that are beyond the operator's actual trade processing administrative costs.³¹⁶

In its pricing proposal, WaterNSW indicated that it did not support the ACCC's draft rule change.³¹⁷ Under its two-part tariff, WaterNSW uses the volume of water entitlement held and used by a customer as a proxy for that customer's consumption of infrastructure services (ie, the storage and delivery of water) and therefore its liability for infrastructure charges (levied via entitlement and usage charges).^{318,319}

However, in its submission to our Issues Paper and Draft Report, another stakeholder, Waterfind Australia Pty Ltd, stated that the usage charges levied on customers trading water allocation interstate create a significant trade barrier in the Southern Connected MDB temporary water market. As such, Waterfind supported the ACCC's proposed rule change.³²⁰

WaterNSW stated in its pricing proposal that failure to consider trade usage would lower the effective total volume of water 'used', which would increase the price per megalitre of water, thereby moving the cost burden to water users who do not trade their water.³²¹

Currently, to address this issue, WaterNSW bills usage charges where the receiver of a water allocation trade does not have a NSW Works Approval³²² at the time of trade to recover prudent and efficient infrastructure costs it incurs in holding and releasing bulk water when it is traded out of NSW.³²³ WaterNSW considers this approach an equitable, transparent and administratively feasible solution to the loss of revenue that would otherwise be

³¹³ A water allocation is a type of 'water access right' and refers to a specific volume of water allocated to a water access entitlement (WAE) in a given accounting period (ie, the transfer of a current year allocation or part thereof). Trade of a water allocation is sometimes referred to as a 'temporary trade'. ACCC, *Review of the Water Charge Infrastructure Rules – Final Advice*, September 2016, pp vii, 8-9.

³¹⁴ WaterNSW pricing proposal to IPART, June 2016, pp 114-117.

³¹⁵ WaterNSW pricing proposal to IPART, June 2016, p 116.

³¹⁶ ACCC, *Review of the Water Charge Infrastructure Rules – Final Advice*, September 2016, p 83.

³¹⁷ WaterNSW pricing proposal to IPART, June 2016, pp 114-117.

³¹⁸ ACCC, *Review of the Water Charge Infrastructure Rules – Final Advice*, September 2016, p 9.

³¹⁹ Water allocation can be assigned (or transferred) on a temporary basis (for that year). This assignment or dealing has no permanent effect on the share component of the licence (ie, on the WAE). WaterNSW pricing proposal to IPART, June 2016, p 114.

³²⁰ Waterfind Australia Pty Ltd submission to IPART Issues Paper, October 2016, pp 1-3, and Waterfind Australia Pty Ltd submission to IPART Draft Report, April 2017, pp 1-3.

³²¹ WaterNSW pricing proposal to IPART, June 2016, p 115.

³²² As there is currently no mechanism to track and charge for usage outside of NSW.

³²³ Ie, when WaterNSW receives an application for an assignment of water allocation dealings.

incurred from interstate trade. WaterNSW also considers that this approach improves trade outcomes by preventing market distortions that exist when prudent and efficient infrastructure costs are not reflected in a trade transaction.³²⁴

In our 2010 Determination, we considered that the usage of water included the extraction and trade of water, and endorsed WaterNSW's approach as we considered that it was a fair and reasonable proposition from the then State Water to recover the costs that it incurs from those who benefit from the sale of water which it delivers.³²⁵

In the ACCC's final advice (made public in November 2016), the proposed rule change regarding usage charges levied on customers trading water allocation, was not recommended. The ACCC noted that the initially proposed rule change would have been too inflexible and involve significant regulatory costs.³²⁶

The ACCC also recognised that in a situation where variable charges (levied on the volume of water delivered, as WaterNSW's usage charges are) are used to recover fixed costs, a decision by a customer not to have water delivered has the potential to impact on the operator's cost recovery – ie, where a customer trades water allocation such that the buyer is not able to be charged a variable charge by the operator providing the infrastructure service (eg, because the buyer is located beyond the jurisdiction of the operator).³²⁷

The ACCC also acknowledged that as WaterNSW currently recovers a portion of its fixed costs through variable charges, and is limited to levying a single variable charge to encompass a bundle of infrastructure services, it could be considered reasonable to impose the variable charge on all customers receiving any relevant infrastructure service.³²⁸

The ACCC's final rule advice 5-D (and proposed rule 10) advises that an infrastructure operator should not be able to impose an infrastructure charge when a person applies to trade, as a condition of trade, or because a person has traded, other than a charge which reflects the reasonable and efficient administrative costs incurred to process a trade or to recover the costs of an infrastructure service provided in relation to a trade.³²⁹

Rule advice 5-D (and proposed rule 10A) also state that the rules should not prohibit an infrastructure operator from levying an infrastructure charge in relation to trade, when:

1. the operator has provided an infrastructure service for the harvesting or storage of the water relating to the water access right being traded; or
2. the operator is required to provide a service for the storage or delivery of water to give effect to the trade; or
3. both the following apply:
 - a) the operator is required to provide a service for the storage or delivery of water to the buyer after a trade occurs; and

³²⁴ WaterNSW pricing proposal to IPART, June 2016, p 115.

³²⁵ IPART, *Review of bulk water charges for State Water Corporation – Final Report*, June 2010, p 166.

³²⁶ ACCC, *Review of the Water Charge Infrastructure Rules – Final Advice*, September 2016, p 91.

³²⁷ ACCC, *Review of the Water Charge Infrastructure Rules – Final Advice*, September 2016, p 90.

³²⁸ ACCC, *Review of the Water Charge Infrastructure Rules – Final Advice*, September 2016, p 91.

³²⁹ ACCC, *Review of the Water Charge Infrastructure Rules – Final Advice*, September 2016, p 83; and ACCC, *Water Charge Rules 2010 – Version for Minister*, September 2016, Rule 10, Rule 10A.

- b) the operator is unable to levy a charge on the person receiving the service because the operator has no authority to levy a charge on that person (for example, because that person is located in a different jurisdiction to the infrastructure operator).^{330,331}

The revised advice acknowledges WaterNSW's current practice of levying a charge equivalent to the valley-of-origin variable (ie, usage) charge when water is traded interstate.³³²

Our approach

We have decided to levy usage charges on all customers trading water, irrespective of whether the water is traded inside or outside of NSW. Usage fees payable by customers who trade their allocations should be referable to the best available information held by WaterNSW as to usage by a trade recipient. For trade recipients with a WaterNSW meter, this will be the metered volume of water extracted by that person. For trade recipients without a WaterNSW meter, we have decided that usage fees should be based on:

- ▼ the metered volume of water extracted by that person where WaterNSW has access to relevant and reliable metering information, or
- ▼ where such information is not reasonably available, WaterNSW's best estimate of the volume of water extracted by that person (up to the amount of the allocation transferred).

We note that this represents a change from the characterisation of usage in the previous determination. We consider that this change is better adapted to balancing:

- ▼ the need to ensure an even playing field for trades involving trade recipients with and without WaterNSW meters,
- ▼ with the need to allow WaterNSW to recover the prudent and efficient infrastructure costs it incurs in holding and releasing bulk water that is traded.

To do otherwise would result in lost revenue to WaterNSW for traded water allocations, which would shift the cost burden to water users that do not trade their water.

WaterNSW is supportive of our decision to levy usage charges on all customers trading water, irrespective of whether the water is traded inside or outside of NSW.³³³ We expect WaterNSW, in determining usage fees, to engage with the new usage calculation criteria set out in the determination, including by revising its practices to the extent necessary to do so.

12.3 Fish River Water Supply

The FRWS was originally constructed in the 1940s, to provide more secure water supplies to Oberon, Lithgow and the NSW Central Tablelands. It originally included a 105 km pipeline to bring water from Oberon to the shale oil works at Glen Davis, a WWII fuel production

³³⁰ ACCC, *Review of the Water Charge Infrastructure Rules – Final Advice*, September 2016, p 83.

³³¹ ACCC, *Water Charge Rules 2010 – Version for Minister*, September 2016, Rule 10, Rule 10A.

³³² ACCC, *Review of the Water Charge Infrastructure Rules – Final Advice*, September 2016, p 92.

³³³ WaterNSW submission to IPART Draft Report, April 2017, p 19.

project. The scheme was extended in the 1950s to cater for demand at the new Wallerawang power stations, and again in the 1960s to divert water to Katoomba.

The FRWS delivers raw bulk water and filtered water to local councils, Energy Australia and individual customers. Recently, water usage in the FRWS has reduced markedly as a result of the closure of Wallerawang power station by EnergyAustralia in 2014-15.

In the FRWS, customers face a two-part tariff. However, customers' fixed charges are based on a minimum annual quantity (MAQ) rather than a licensed entitlement (see Chapter 10).

12.3.1 Prices for FRWS

[We made a decision:](#)

39 To set prices for the FRWS as shown in Table 12.7.

Table 12.7 Decision on prices for the FRWS (\$/kL, \$2016-17)

	2016-17	2017-18	2018-19	2019-20	2020-21	Change 2017-21	% increase 2017-21
Bulk Raw Water							
Minimum Annual Quantity (MAQ)							
Major customers	0.38 ^a	0.39	0.39	0.39	0.39	0.01	2.6%
Minor customers	0.36	0.39	0.39	0.39	0.39	0.03	8.3%
Usage up to MAQ							
Major customers	0.43 ^a	0.24	0.24	0.24	0.24	-0.19	-44.2%
Minor customers	0.42	0.24	0.24	0.24	0.24	-0.18	-42.9%
Usage in excess of MAQ							
Major customers	0.81	0.63	0.63	0.63	0.63	-0.18	-22.2%
Minor customers	0.78	0.63	0.63	0.63	0.63	-0.15	-19.2%
Bulk Filtered Water							
Minimum Annual Quantity (MAQ)							
Major customers	0.57	0.63	0.63	0.63	0.63	0.06	10.5%
Minor customers	0.69	0.76	0.76	0.76	0.76	0.07	10.1%
Usage up to MAQ							
Major customers	0.61	0.36	0.36	0.36	0.36	-0.25	-41.0%
Minor customers	0.78	0.46	0.46	0.46	0.46	-0.32	-41.0%
Usage in excess of MAQ							
Major customers	1.18	0.99	0.99	0.99	0.99	-0.19	-16.1%
Minor customers	1.47	1.22	1.22	1.22	1.22	-0.25	-17.0%

^a In 2016-17, Energy Australia had the same price as the minor customers.

Note: WaterNSW currently has three major raw water customers – Energy Australia, WaterNSW (Greater Sydney) and Oberon Council. WaterNSW currently has only one major filtered water customer – Lithgow Council. Minor customers are individual minor customers.

Source: WaterNSW pricing proposal to IPART, June 2016, p 46; IPART analysis.

Reasons for our decision

Usage prices for FRWS raw and filtered water are decreasing over the 2017 determination period. For the 2017 Determination, WaterNSW proposed a reduction in customer share operating expenditure for the Fish River of approximately \$2.4 million (or 45.2%) per annum relative to the 2014 Determination period.³³⁴

Our decision on WaterNSW's operating expenditure for the Fish River is broadly in line with WaterNSW's forecasts. This, along with our decision to move the tariff structure towards 80:20 fixed to variable, results in usage charges in the FRWS that are generally

³³⁴ IPART, *Review of prices for WaterNSW – Rural bulk water service from 1 July 2017 – Issues Paper*, September 2016, p 39.

decreasing over the 2017 determination period. However, MAQ charges increase due to our decision to move the tariff structure towards 80:20 fixed to variable (see Chapter 11).

Compared to our draft charges, our FRWS charges are all lower due to a combination of the reduction in the WACC and a reduction in the outstanding UOM balance to recover from customers (excluding the amount attributable to Wallerawang)³³⁵ (see Chapter 8).

Our determination sets prices for any new customers in the FRWS. Any new customers in the FRWS would have a MAQ of zero, and pay only the usage charge in excess of the MAQ. This ensures that new customers pay cost-reflective charges which are broadly in line with existing customers.

12.4 Setting prices in valleys below full cost recovery

When possible, we aim to set prices that fully recover the customers' share of WaterNSW's efficient costs (ie, the customer's share of the NRR). This approach ensures customers receive efficient price signals, which means that resources are used and allocated efficiently, and customers and taxpayers fairly share the costs of services.

Currently two valleys are well below FCR:

- ▼ North Coast valley, and
- ▼ South Coast valley.

WaterNSW's prices currently recover only about 12% and 42% of the customers' share of its efficient costs for the North Coast and South Coast valleys, respectively.³³⁶ All other valleys are currently at FCR. FCR is likely to be unattainable in the North Coast and South Coast valleys over the 2017 Determination period and beyond.

For the 2017 Determination, we have decided not to set prices in these valleys based on FCR prices. Instead we have decided to set prices in valleys substantially below FCR using a different approach that considers:

- ▼ WaterNSW's customers' 'capacity to pay'³³⁷ in these valleys and WaterNSW's avoided costs, and
- ▼ stakeholder submissions to our Draft Report and comments made at the public hearing held in Sydney on 4 April 2017, particularly with regard to the level of current usage prices in these valleys.

We made decisions:

- 40 Not to set prices based on full cost recovery (FCR) of the notional revenue requirement in valleys substantially below FCR, ie, in the North Coast and South Coast valleys.

³³⁵ Incorporating usage over 2016-17, the outstanding UOM balance attributable to the closer of Wallerawang power station has deteriorated, but improved for the other customers.

³³⁶ IPART, *Review of prices for WaterNSW – Rural bulk water service from 1 July 2017 – Issues Paper*, September 2016, p 8, IPART analysis.

³³⁷ A customer's capacity to pay represents the dollar value up to which they would pay for a unit of a good or service, in this case, a ML of bulk water supply.

- 41 To set prices in valleys substantially below full cost recovery, ie, in the North Coast and South Coast valleys, with reference to the efficient pricing band for each of these valleys, where the efficient pricing band lies between:
- an upper limit that represents an irrigation customer’s capacity to pay for WaterNSW’s services, and
 - a lower limit that represents the cost that WaterNSW would avoid if it did not have to supply those services to that customer.
- 42 To set prices in valleys substantially below full cost recovery, ie, in the North Coast and South Coast valleys, by rebalancing fixed and variable charges to reduce the latter to the point where demand might be stimulated and revenue increased in the medium-term.
- 43 To set prices for the 2017 Determination for the:
- North Coast valley based on a 90:10 fixed to variable tariff structure and to recover 10% of the customer share of the notional revenue requirement in this valley, as listed in Table 12.10, and
 - South Coast valley based on an 80:20 fixed to variable tariff structure and to recover 38% of the customer share of the notional revenue requirement in this valley, as listed in Table 12.11.

12.4.1 Reasons for our decisions

Below we explain why we have decided to adopt a different approach to setting prices in valleys below FCR and how we have determined prices using this new approach. We also present our prices for the North Coast and South Coast valleys for the 2017 determination period.

Current approach would price customers out before FCR is achieved

FCR is likely to be unattainable in the North Coast and South Coast valleys over this Determination and going forward.

In our 2010 Determination, we decided to transition prices in the North Coast and South Coast valleys towards levels that would achieve FCR. Given the low level of cost recovery, real price increases were capped at 10% per year, to reduce adverse customer impacts.³³⁸

For the 2017 Determination, WaterNSW proposed to continue the transition towards FCR and to cap annual price increases at 10% per year in these valleys (see Table 12.8). Under WaterNSW’s proposed prices, both these valleys would continue to be well below FCR, recovering only 12% and 44% (respectively) of the customer share of costs.³³⁹

³³⁸ Prices in the North Coast and South Coast valleys have remained constant in nominal terms since 2013-14, due to the deferral of our scheduled 2014 Determination.

³³⁹ Net present value over the 4-year determination period. IPART, *Review of prices for WaterNSW – Rural bulk water service from 1 July 2017 – Issues Paper*, September 2016, p 120.

Table 12.8 WaterNSW proposed prices for the North Coast and South Coast for the 2017 determination period (\$/ML, \$2016-17)

	2016-17	2017-18	2018-19	2019-20	2020-21	% Change
North Coast						
Usage charge	45.04	48.34	51.87	55.67	59.74	32.6%
HS entitlement charge	9.54	10.24	10.99	11.79	12.65	32.6%
GS entitlement charge	7.25	7.78	8.35	8.96	9.62	32.6%
South Coast						
Usage charge	40.38	43.33	46.51	49.91	53.56	32.6%
HS entitlement charge	21.12	22.67	24.32	26.10	28.01	32.6%
GS entitlement charge	10.09	10.83	11.62	12.47	13.38	32.6%

Source: IPART, *Review of prices for WaterNSW – Rural bulk water service from 1 July 2017 – Issues Paper*, September 2016, p 101.

FCR prices in the North Coast and South Coast valleys are substantially higher compared to other valleys. This is due to a number of factors including that these valleys have:

- ▼ the fewest customers of all of WaterNSW’s valleys
- ▼ the lowest volume of entitlements and average annual water usage
- ▼ a low level of extractions relative to the volume of entitlements, suggesting significant under-utilisation of entitlements by licence holders (in the North Coast valley in particular)³⁴⁰, and
- ▼ relatively small dams, with a higher cost per unit of storage capacity.

At current prices and the 10% glide path towards FCR, there have been **declining customer numbers and average water sales in the North Coast and South Coast valleys**.³⁴¹ This indicates that prices may be approaching customers’ capacity to pay in these valleys and that further substantial price increases towards FCR may price customers out of the market *before* FCR is achieved in these valleys.

At prices above a customer’s capacity to pay, the customer would no longer purchase water. As such, the demand for rural bulk water services would reduce, further reducing the number of customers, usage and entitlement volumes, and revenue and level of cost recovery in that valley. This would result in further FCR price increases to recover costs, as costs would then need to be recovered from a smaller number of customers. Setting prices based on FCR is therefore unlikely to be achieved in the North Coast and South Coast valleys.

³⁴⁰ In 2016, we commissioned a scoping study to investigate utilisation of system capacities in the North Coast and South Coast valleys. Findings of the study indicate that the North Coast and South Coast systems are substantially under-used (with utilisation at about 5% and 23% respectively). In comparison, utilisation in the Hunter and Peel systems is about 57% to 75%, and 77% to 83% respectively, and utilisation in other valleys ranges from about 60% in the Gwydir to 93% in the Murrumbidgee.

³⁴¹ WaterNSW states that there have been declining customer numbers and average water sales in these valleys. WaterNSW, *Pricing Proposal to IPART for Rural Bulk Water Services*, June 2016, p 30. Analysis of historical extraction data from 2004-05 to 2015-16 indicates that extractions have reduced by 46% in the North Coast and 66% in the South Coast. Forecast usage volumes (based on the 20-year rolling average, have reduced between the previous determination period and the 2017 Determination by 32% for the North Coast and 35% for the South Coast.

In response to our Issues Paper, a number of stakeholders commented on prices in the North Coast and South Coast valleys (see Box 12.1).

Box 12.1 Stakeholders call for investigation into options for valleys below FCR

In their submissions to our Issues Paper, water users groups in the North Coast and South Coast valleys provided submissions which focused on high prices in these valleys.

Bega Valley Water Users' Association (BVWUA), Bega Valley Shire Council and Bega RSL Club Limited highlighted that customers will be priced out of the market before FCR occurs, thereby increasing the cost burden on remaining customers.

NSWIC requested IPART freeze current prices and conduct a separate review for NSW Coastal valleys on the preliminary options outlined in the Issues Paper. WaterNSW noted that any price freeze will result in an increase in Government's customer service obligation.

Submissions also highlighted a WaterNSW pilot study currently underway in the North Coast (and proposed study in the South Coast) valley looking at long-term options for customers. The study plans to take into account a broad range of factors including:

- ▼ the future regional economic development needs of the North Coast;
- ▼ tariff and pricing structure changes;
- ▼ policy changes; and
- ▼ opportunities to leverage off other water utility and local government water strategies to achieve a more coherent and integrated approach to water management.

Richmond and Wilson Combined Water Users Association (RWCWUA) and Toonumbar Water Users' Group (TWUG) stated that the primary principles considered in price determinations should be:

- ▼ affordability
- ▼ community benefit
- ▼ water availability, and
- ▼ the future value of water storage.

Source: BVWUA submission to IPART Issues Paper, October 2016, pp 2, 4, 6 and 8; RWCWUA submission to IPART Issues Paper, October 2016, pp 1, 3 and 6; TWUG submission to IPART Issues Paper, October 2016, pp 2-3, 6-8; Bega Valley Shire Council submission to IPART Issues Paper, October 2016, p 1; Bega RSL Club Limited submission to IPART Issues Paper, October 2016, p 1; NSWIC submission to IPART Issues Paper, October 2016, p 42 and WaterNSW submission to IPART Issues Paper, October 2016, p 17, 19 and 20.

We have investigated options for pricing in valleys below FCR

We have considered a number of broad approaches for establishing a long-term pricing strategy for valleys (such as the North Coast and South Coast valley) which are well below FCR, including:

- ▼ continuing the transition to FCR, but capping annual real price increases (at 10%, for example)
- ▼ freezing prices at a point in time
- ▼ reassessing the efficient or optimal cost base in these valleys given prevailing market conditions (including entitlement volumes and customer numbers)

- ▼ introducing consideration of capacity to pay
- ▼ setting prices that only recover operating costs
- ▼ setting lower-bound prices (ie, that exclude a return on assets).

In 2016, we engaged consultants (Aither Pty Ltd) to undertake a review to establish key principles for setting prices in valleys where FCR is unattainable. We asked Aither to develop:

- ▼ a set of economic principles to guide us in setting prices, and
- ▼ a set of criteria against which price-setting options could be assessed.

Aither's Final Report to IPART recommends, as a key pricing principle for valleys below FCR, that prices be set:

- ▼ to align with those that would prevail in a reasonably competitive market, and
- ▼ with reference to the efficient pricing band such that the overall revenue that WaterNSW recovers from a customer lies between:
 - the lesser of customer's capacity to pay³⁴² for WaterNSW's services and the stand-alone cost (**upper limit**), and
 - the cost that WaterNSW would avoid if it did not have to supply those services to that customer (**lower limit**) (which in most cases would be close to zero).

Thus, the lesser of capacity to pay and stand-alone cost becomes the critical determinant, placing an upper limit on the prices that WaterNSW can charge going forward.³⁴³

We support, using this key principle in setting prices for WaterNSW's rural bulk water services in valleys well below FCR, rather than continuing to transition towards FCR.

In our Draft Report, we proposed setting prices in valleys below FCR at (or close to) the mid-point of the efficient pricing band, which was close to prices in 2016-17, and substantially lower than those proposed by WaterNSW.^{344,345} For our Draft Report, we estimated the:

- ▼ **Upper limit** of the efficient pricing band by estimating the bulk water prices at which the cost of irrigation pasture production would be equal to the cost of bought-in feed as a proxy for the prices at which a 'reasonably efficient' irrigator's estimated capacity to pay for bulk water would be reached.³⁴⁶

³⁴² Aither suggest 'willingness to pay' as the upper limit, however we have opted to instead refer to 'capacity to pay' in recognition of the fact that our approach has regard to the production function of water users (ie, how the level of output varies as the quantity of inputs vary) rather than their preferences. We define a customer's capacity to pay as the dollar amount above which that customer would not purchase water.

³⁴³ Aither Pty Ltd, *WaterNSW Prices for Rural Bulk Water Services – Cost recovery scoping study*, November 2016, pp 26-27.

³⁴⁴ IPART, *Review of prices for rural bulk water services from 1 July 2017 to 30 June 2021 - Draft Report*, pp 133-144.

³⁴⁵ WaterNSW pricing proposal to IPART, June 2016, p 46.

³⁴⁶ We used estimates of the cost of irrigation pasture production and the cost of dry matter bought-in feed (as a substitute) in the North Coast and South Coast valleys provided by our consultants, Agripath Pty Ltd. In 2016, we engaged Agripath to investigate willingness (or capacity) to pay for rural bulk water services in the North Coast and South Coast valleys. This study aimed to assess customers' estimated capacity to pay for bulk water in the dairy industry by comparing the cost of irrigation pasture production (to which water costs are a substantial input) to the cost of dry matter bought-in feed (a substitute for pasture) in valleys that are below FCR.

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- ▼ **Lower limit** of the efficient pricing band was estimated as 1% of WaterNSW's total cost of supplying bulk water services, reflecting the high fixed cost nature of WaterNSW's rural bulk water services business, and thus the low avoided cost of not supplying an additional customer.³⁴⁷

We also noted that the upper (in particular) and lower limit estimates were likely to require refinement over time.

In response to our Draft Report, a number of stakeholders commented on our draft approach and draft prices in the North Coast and South Coast valleys. In particular stakeholders commented that:

- ▼ the upper limit of the efficient pricing band had been set too high
- ▼ lower usage prices are required to stimulate demand (see Box 12.2 and Box 12.3).

³⁴⁷ Variable operating costs represent less than 1% of costs (excluding Fish River). Deloitte, *Expenditure forecast review State Water Corporation – Final Report*, December 2013, p 20.

Box 12.2 Stakeholders indicate upper limit of efficient pricing band too high

Stakeholders considered the upper limit of the efficient pricing band was set too high

Stakeholders generally supported the approach recommended by Aither and adopted for our draft decision. They welcomed IPART's acknowledgement that some valleys may never be able to achieve FCR. However, most stakeholders expressed the view that the upper limit of the efficient pricing band (ie, capacity to pay) had been set too high for both valleys. They consider that for usage prices, the upper limit is closer to current usage prices in these valleys, ie, around \$40/ML, and that the mid-point of this range (and prices for 2017 Determination) should thus be closer to about \$20/ML.

We re-engaged Agripath, who provided a response to stakeholder submissions on capacity to pay and generally supported stakeholder views that the upper limit of the efficient pricing band had been set too high. Agripath recommended setting the upper limit based on a 'typical or average' irrigator rather than a 'reasonably efficient' one. Agripath noted that most of the irrigation infrastructure in the North Coast and South Coast valleys are older systems, which are more labour-intensive and less efficient at irrigating. Agripath commented that stakeholders have indicated that this is a result of uncertainty around current and future water pricing and markets. Agripath provided revised parameters and assumptions for a 'typical or average' irrigator, although noted that in any case, there will be a large range amongst irrigators based on their irrigation efficiency, and there is insufficient data to comment on an individual irrigator.

Stakeholders suggested using an alternative method for estimating capacity to pay

Rather than using the substitution methodology outlined above to estimate capacity to pay (as we did for the Draft Report), TWUG and RWCWUA consider that a better indicator of capacity to pay would be the estimated marginal profit from using one additional megalitre of bulk water, and suggest a methodology for this in their submissions. That is, a business should continue to increase its water usage to a point where marginal revenue is equal to the marginal cost of using the additional ML of water. At this point, the marginal profit is zero, and capacity to pay is reached as any further use of water would create a negative return.^a

Agripath consider that this is a viable alternative method for estimating capacity to pay and support estimating the marginal profit from using one additional megalitre of bulk water to refine our Draft Report estimate of capacity to pay.

^a TWUG and Bega Cheese Pty Ltd provided additional data that, in conjunction with Agripath's irrigation cost estimates, has been used to approximate the marginal profit from using the additional megalitre of water.

Source: NSW Farmers submission to IPART Draft Report, April 2017, pp 7-8; BVWUA submission to IPART Draft Report, April 2017, p 1; TWUG submission to IPART Draft Report, April 2017, pp 1-3; RWCWUA submission to IPART Draft Report, April 2017, pp 1-2; NSWIC submission to IPART Draft Report, April 2017, p 31.

Box 12.3 Stakeholders call for lower usage prices through tariff structure adjustment

Most stakeholders commented on the particular need to reduce usage charges in the North Coast and South Coast valleys, which are comparatively high compared to all other valleys (except the Peel valley). Stakeholders consider that reducing usage prices in the North Coast and South Coast valleys would stimulate increased bulk water usage in these valleys.

Stakeholders suggested that a reduction in usage charges could be achieved by adjusting the fixed to variable tariff structure, ie, by increasing fixed charges.

- ▼ TWUG and RWCWUA suggested for the North Coast a usage price of \$18.87/ML, and a fixed price of \$8.91/ML for GS customers.
- ▼ BVWUA suggested for the South Coast a usage price of \$20/ML, and a fixed price of \$13/ML for GS customers and \$26/ML for HS customers.

TWUG and RWCWUA consider that at current prices there is no incentive to continue to irrigate as fixed charges remain relatively low compared to the usage charge. TWUG also point out that its suggested usage price is similar to the usage price modelled by WaterNSW (\$18.65) as part of the Pilot Review of Toonumbar Dam, merging prices for all regulated coastal valleys.

BVWUA considers that a change from a 40:60 towards a 60:40 fixed to variable tariff structure would be acceptable if more water use can be encouraged. It comments that lifting usage and generating investment in infrastructure relies on this Determination setting a benchmark for future determinations, so that irrigators have certainty that any future investment is going to be profitable.

NSW Farmers comment that any shortfall in revenue that results from abandoning FCR in valleys where FCR is unattainable, should be covered by the Government (or WaterNSW), rather than other bulk water users within the system.

Source: NSW Farmers submission to IPART Draft Report, April 2017, p 8; BVWUA submission to IPART Draft Report, April 2017, pp 1-2; TWUG submission to IPART Draft Report, April 2017, pp 1-3; RWCWUA submission to IPART Draft Report, April 2017, pp 1-2.

Further analysis lowers the upper limit of the efficient pricing band

We consider that we should still set prices for the North Coast and South Coast valleys with reference to the efficient pricing band.

Applying this approach should provide price stability and certainty for customers.³⁴⁸ This should provide customers with greater confidence when making long-term investment decisions. It also provides a clear signal to WaterNSW and the NSW Government that transitioning to FCR in these valleys is unattainable and that they need to assess long-term options and viability in these valleys, particularly in the North Coast.³⁴⁹

Following feedback and additional information provided by stakeholders, we have undertaken further analysis on capacity to pay (ie, the upper limit of the efficient pricing band) using:

³⁴⁸ ie, as prices will no longer be transitioned towards FCR in these valleys (ie, the North Coast and South Coast valleys).

³⁴⁹ In both our 2006 and 2010 determinations we stated that the then State Water should consult with the NSW Government to assess the long-term viability of valleys that are below FCR, and to consider how to fund services in those valleys. IPART, *Review of bulk water charges for State Water Corporation, From 1 July 2010 to 30 June 2014 – Final Report*, June 2010, p150.

- ▼ the marginal profit method, as suggested by TWUG
- ▼ parameters/assumptions provided by Agripath for a 'typical/average irrigator'.

Our revised capacity to pay estimates result in a lower upper limit for the efficient pricing band for both valleys when compared to our draft decision (see Figure 12.1 to Figure 12.4). This indicates that the upper limit under our draft decision was likely too high. However, given limitations associated with additional data provided³⁵⁰, we recommend using these revised estimates of capacity to pay as reference points (or a sense-check) to be considered, rather than using them specifically to calculate prices for the 2017 Determination.

We have decided to rebalance fixed and variable charges to stimulate demand and increase revenue

In addition, given stakeholder submissions and arguments for reducing usage prices to stimulate demand in these valleys, for the 2017 Determination we have decided, rather than using the mid-point of the efficient pricing band to set prices, to:

- ▼ Determine prices by **adjusting the fixed to variable tariff structure in order to achieve a lower usage charge.**
 - We have rebalanced the fixed and variable charges to reduce the latter to the point where demand might be stimulated and revenue maximised on sunk investments in the medium-term.
- ▼ Set prices for the 2017 Determination for the:
 - North Coast valley based on a 90:10 fixed to variable tariff structure and to recover 10% of the customer share of the notional revenue requirement in this valley, as listed in Table 12.10, and
 - South Coast valley based on an 80:20 fixed to variable tariff structure and to recover 38% of the customer share of the notional revenue requirement in this valley, as listed in Table 12.11.

For both valleys, the fixed component of the tariff structure increases, and the variable component decreases (see Table 12.9). This leads to usage prices below \$20/ML in both valleys, which are similar to those suggested by stakeholders, and overall prices that fall within our revised efficient pricing band estimates (see Table 12.10 and Table 12.11, and Figure 12.1 to Figure 12.4).

The reduction in usage charges should help stimulate demand for bulk water in the North Coast and South Coast valleys for both active and non-active entitlement holders, whilst increased fixed charges should reduce the incentive for inactive users to obtain/hold an entitlement.³⁵¹ Our decision to set the level of cost recovery:

- ▼ slightly lower than current levels in these valleys helps to reduce the increase in fixed charges (and impact on customers) as a result of rebalancing the tariff structure, and

³⁵⁰ Additional data used to estimate marginal profit is for only one year, ie, 2015-16 for the North Coast and 2012-13 for the South Coast. Additional parameters/assumptions provided by Agripath for a 'typical/average irrigator' are caveated by potentially large variabilities.

³⁵¹ Active entitlement holders represent about only 13% and 31% of total entitlements, and inactive entitlement holders represent about 87% and 69% of total entitlements in the North Coast and South Coast (respectively).

- ▼ slightly higher than if current prices were to be maintained for the 2017 Determination provides a buffer to offset revenue that may be lost as a result of inactive users choosing to reduce or surrender their entitlement(s).

Lower usage charges should also provide a signal to water users and result in an incentive for water users to invest in irrigation infrastructure now, given current incentives for accelerated tax write-offs.

The rebalanced tariff structures also better reflect WaterNSW's cost structure, which is predominantly fixed.

Table 12.9 Changes to tariff structure for North and South Coast for 2017 Determination

	Current - target (2016-17)	Current - actual (2016-17)	WaterNSW proposed prices	Decision for 2017 Determination
North Coast				
Revenue recovered from entitlement (fixed) charges	60%	65%	73%	90%
Revenue recovered from usage (variable) charges	40%	35%	27%	10%
South Coast				
Revenue recovered from entitlement (fixed) charges	40%	41%	52%	80%
Revenue recovered from usage (variable) charges	60%	59%	48%	20%

Source: WaterNSW pricing proposal to IPART, June 2016; IPART analysis.

Future price determinations

For future price determinations, we will consider refining our efficient pricing band estimates, and whether prices should be set within this refined range.

Setting prices below the upper limit in the short-term may help to stimulate demand and confidence.³⁵² We will assess the impact of our decisions on water usage and revenue in future price reviews.

Prior to the 2021 Determination:

- ▼ We plan to undertake further investigation and analysis to improve the accuracy and reliability of the inputs to the capacity to pay estimates, eg, via additional studies and/or monitoring the demand response.
- ▼ WaterNSW/NSW Government should undertake:
 - Further investigation and analysis to improve the accuracy and reliability of the avoided costs, eg, via a targeted level of service study and/or engineering-based cost assessment.

³⁵² Water Services Association of Australia, *Pricing for Recycled Water – Occasional Paper No. 12*, February 2005, p 40.

- A full structural review of demand and supply (levels of service study) for the North Coast and South Coast valleys.

12.4.2 Prices for North Coast and South Coast valleys

North Coast valley

Table 12.10 presents our prices for the North Coast valley.

Table 12.10 Prices for the North Coast for the 2017 determination period (\$/ML, \$2016-17)

	2016-17	2017-18	2018-19	2019-20	2020-21	% Change
Usage charge	45.04	17.42	17.42	17.42	17.42	-61.3%
HS entitlement charge	9.54	11.78	11.78	11.78	11.78	23.5%
GS entitlement charge	7.25	9.13	9.13	9.13	9.13	25.9%

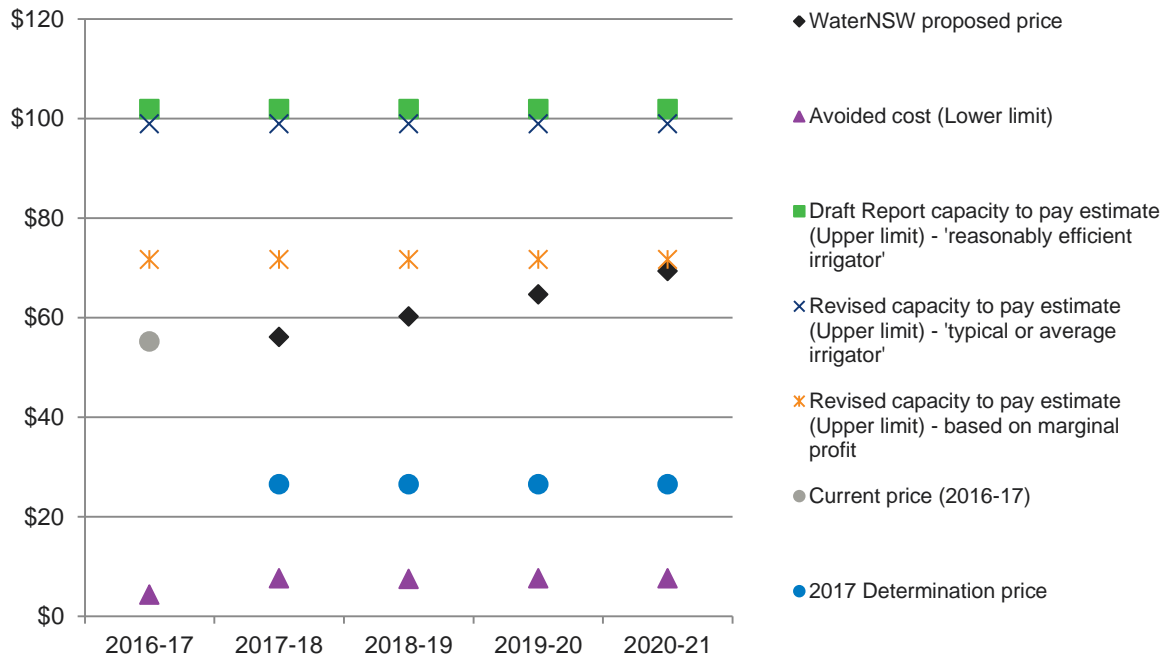
Source: IPART analysis.

Whilst there is an increase in entitlement charges compared to current charges (and our draft charges), this is offset by a substantial reduction (61.3%) in usage charges.

North Coast usage prices substantially lower than WaterNSW's proposed prices

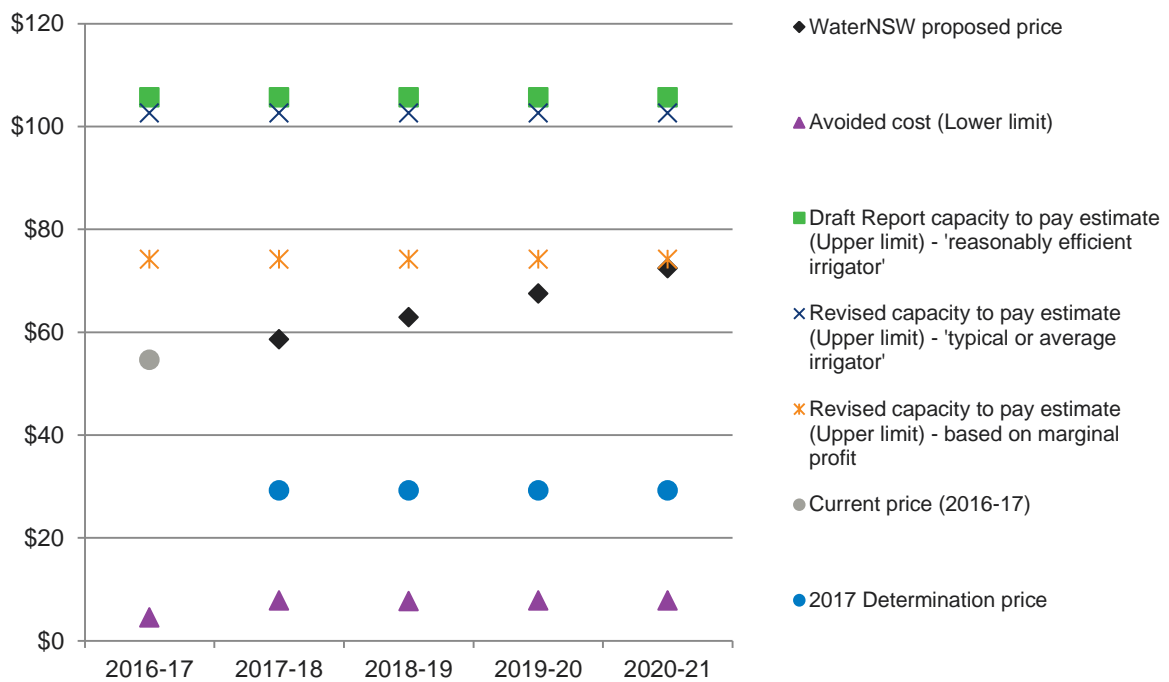
Our entitlement charges for the North Coast are higher than those proposed by WaterNSW at the beginning of the determination period (by 15.0% for HS charges, and 17.4% for GS charges in 2017-18), but lower by the end of the determination period (by 6.9% for HS charges, and 5.1% for GS charges in 2020-21). Compared to WaterNSW's proposed charges, our usage charges are also substantially lower (by 64.0% in 2017-18, and 70.8% in 2020-21) in usage charges.

Figure 12.1 Efficient pricing band estimates for North Coast valley – GS customer (entitlement plus usage charge, \$/ML)



Note: The FCR price for a GS customer is above \$700/ML for the 2017 Determination.
Data source: IPART analysis.

Figure 12.2 Efficient pricing band estimates for North Coast valley – HS customer (entitlement plus usage charge, \$/ML)



Note: The FCR price for a HS customer is above \$700/ML for the 2017 Determination.
Data source: IPART analysis.

South Coast valley

Table 12.11 presents our prices for the South Coast valley.

Table 12.11 Prices for the South Coast for the 2017 determination period (\$/ML, \$2016-17)

	2016-17	2017-18	2018-19	2019-20	2020-21	% Change
Usage charge	40.38	17.27	17.27	17.27	17.27	-57.2%
HS entitlement charge	21.12	30.81	30.81	30.81	30.81	45.9%
GS entitlement charge	10.09	16.16	16.16	16.16	16.16	60.2%

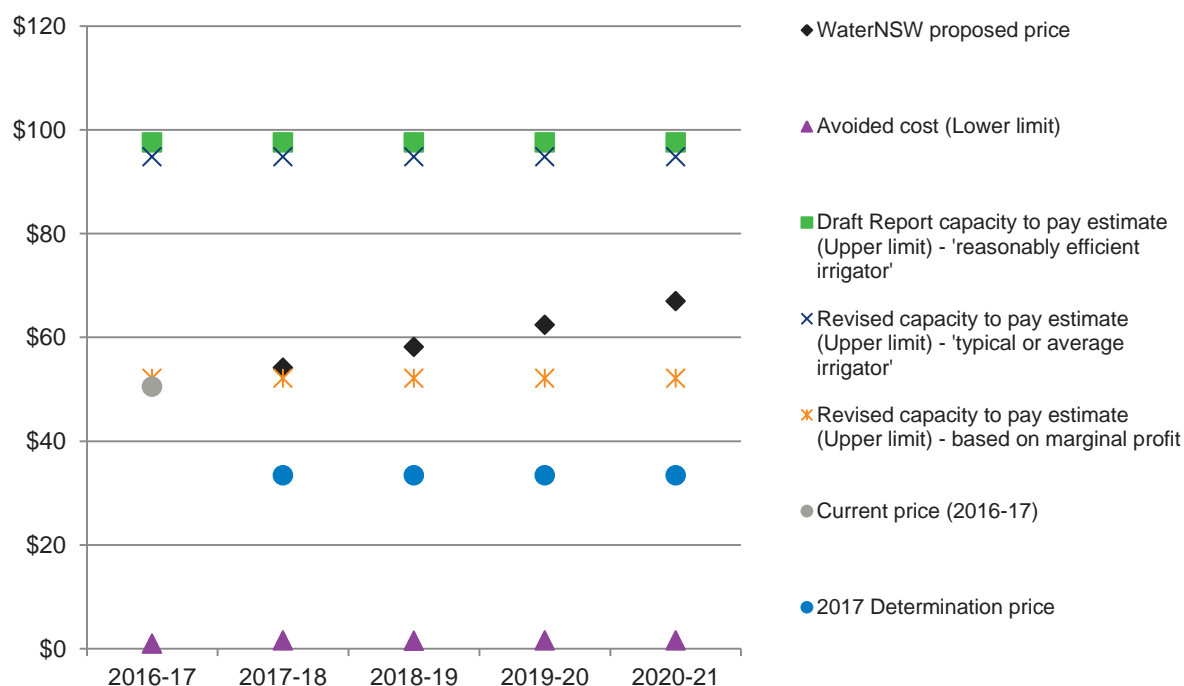
Source: IPART analysis.

Whilst there is an increase in entitlement charges compared to current charges (and our draft charges), this is offset by a substantial reduction (57.2%) in usage charges.

South Coast usage prices substantially lower than WaterNSW's proposed prices

Our entitlement charges for the South Coast are higher than those proposed by WaterNSW (by 35.9% for HS charges, and 49.2% for GS charges in 2017-18). Compared to WaterNSW's proposed charges, our usage charges are also substantially lower (by 60.1% in 2017-18, and 67.8% in 2020-21) in usage charges.

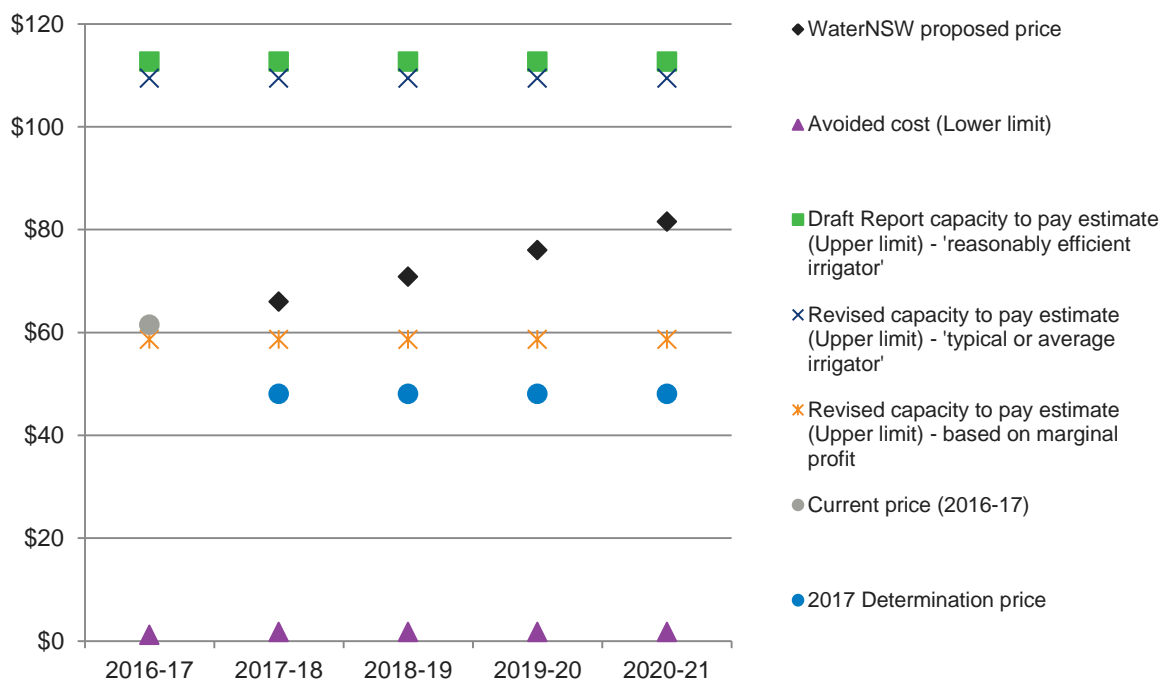
Figure 12.3 Efficient pricing band estimates for South Coast valley – GS customer (entitlement plus usage charge, \$/ML)



Note: The FCR price for a GS customer is above \$150/ML for the 2017 Determination.

Data source: IPART analysis.

Figure 12.4 Efficient pricing band estimates for South Coast valley – HS customer (entitlement plus usage charge, \$/ML)



Note: The FCR price for a HS customer is above \$150/ML for the 2017 Determination.

Data source: IPART analysis.

12.5 Yanco Creek levy

The Yanco Creek natural resources management levy (Yanco Creek levy) was first approved by IPART in its 2005 Determination, and continued through its 2006 and 2010 determinations of State Water's prices.³⁵³ The Yanco Creek levy was also approved as part of the ACCC's 2014 Decision, on the basis that it was endorsed by Yanco Creek customers and there is no change (in nominal terms) to the level of the charge.

The levy applies to customers in the Yanco Creek system, and is intended to fund the rehabilitation of the Yanco Columbo system, to improve flows and provide significant water efficiencies for the system and the Murrumbidgee valley. The Yanco Creek and Tributaries Advisory Council (YACTAC) has advised IPART that there is a new five-year work program. The work programs include a mixture of physical works (eg, willow extractions and aquatic and riparian weed removal and maintenance), program reviews, and monitoring and management of projects.

The levy has not been included in the calculation of WaterNSW's NRR.

We did not receive any stakeholder submissions to our Draft Report on the Yanco Creek levy, and so have maintained our draft decision.

³⁵³ IPART, *State Water Corporation and Water Administration Ministerial Corporation, Bulk Water Prices Determination: for 2005/06*, August 2005, p 23; IPART, *Bulk Water Prices for State Water Corporation and Water Administration Ministerial Corporation: from 1 October 2006 to 30 June 2010*, September 2006, pp 142-143; IPART, *Review of bulk water charges for State Water Corporation: From 1 July 2010 to 30 June 2014*, June 2010, p 158.

We made a decision:

- 44 To set a maximum per annum Yanco Creek levy of \$0.90 per ML (\$ nominal) of entitlement for users in the Yanco Creek system.

12.5.1 Reasons for our decision

Our decision to maintain the Yanco Creek levy is on the basis that:

- ▼ the levy was approved in the ACCC's 2014 Decision under the *Water Charge (Infrastructure) Rules 2010*,
- ▼ YACTAC 2014-15 and 2015-16 financial reports have been audited by an independent auditor in accordance with the Australian Auditing Standards,
- ▼ there are no submissions opposing the levy in response to our Issues Paper or at the Public Hearings,
- ▼ the levy has decreased in real terms from the originally proposed levy (\$1.16/ML to \$0.90/ML (\$2016-17)), and
- ▼ the total cost of the proposed work program for the next five years is similar to the work program established at the 2005 Determination.

We note that we initially had concerns regarding the YACTAC's governance. However, YACTAC has been co-operative in answering our queries and has provided its constitution and audited financial reports to support its proposal. Moreover, it has indicated that it aims to improve its governance and due diligence.

It is important to note that if this type of levy is proposed in the 2020-21 WaterNSW price submission, we will review this type of levy under the *IPART Act 1992*.

13 Miscellaneous charges and ICD discounts

WaterNSW proposed a number of miscellaneous charges for which we have determined prices. These miscellaneous charges include:

- ▼ meter service charges
- ▼ a trade processing charge
- ▼ an environmental gauging station charge
- ▼ meter accuracy testing charges
- ▼ Fish River connection and disconnection fees, and
- ▼ credit card payment fees.

The environmental gauging station charge is an annual charge, whereas the other charges are fee for service.

As part of our assessment of these charges, we asked Aither (our expenditure consultants), to review the rationale for imposing the charges, their cost-reflectivity, and the efficiency of the underlying costs.

WaterNSW has also stated that it intends to restructure its approach to meter reading over the determination period.³⁵⁴ This is discussed further below.

Finally, WaterNSW has proposed discounts for irrigation corporations and districts (ICDs) to reflect that ICDs undertake activities which create avoided costs for WaterNSW.

Our decisions on the miscellaneous charges and ICD discounts are outlined below.

13.1 Meter service charges

WaterNSW owns and operates around 2,000 meters, which were funded by the Commonwealth Government under the NSW Metering Project. These meters were installed in the Murray and Murrumbidgee valleys.³⁵⁵

In the 2010 Determination, we decided to introduce a meter service charge (MSC), which applied to new meters installed under the NSW Metering Project. MSCs are levied to customers with WaterNSW-owned meters on regulated rivers. The current MSCs cover the cost of operating, maintaining and reading the WaterNSW-owned meters, as well as the costs of information systems to process water meter data.³⁵⁶

³⁵⁴ WaterNSW pricing proposal to IPART, June 2016, pp 111-112.

³⁵⁵ WaterNSW pricing proposal to IPART, June 2016, p 110.

³⁵⁶ ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, p 24.

Under the ACCC's 2014 Decision, MSCs were set according to meter size, whether the meter is telemetered or non-telemetered, and whether the meter was funded by the Commonwealth or WaterNSW.

For the 2017 Determination, WaterNSW proposed to continue levying a MSC on customers who extract water through a WaterNSW-owned meter. The charge will recover the costs of meter maintenance and administration (including overheads).³⁵⁷ The MSC does not cover the maintenance costs of **customer-owned meters**, which are paid for by customers themselves.

We made a decision:

45 To set prices for meter service charges as listed in Table 13.1.

Table 13.1 Decision on meter service charges (telemetry and non-telemetry) (\$2016-17)

Meter Size	2016-17	2017-18	2018-19	2019-20	2020-21	% Change (2016-17 to 2020-21)
50mm	398.65	441.84	441.84	441.84	441.84	10.8%
80mm	398.79	443.89	443.89	443.89	443.89	11.3%
100mm	399.55	443.88	443.88	443.88	443.88	11.1%
150mm	420.27	449.10	449.10	449.10	449.10	6.9%
200mm	442.79	451.68	451.68	451.68	451.68	2.0%
250mm	448.46	454.07	454.07	454.07	454.07	1.3%
300mm	450.46	460.24	460.24	460.24	460.24	2.2%
350mm	463.04	487.96	487.96	487.96	487.96	5.4%
400mm	515.41	504.47	504.47	504.47	504.47	-2.1%
450mm	623.99	507.65	507.65	507.65	507.65	-18.6%
500mm	633.40	521.17	521.17	521.17	521.17	-17.7%
600mm	667.59	538.50	538.50	538.50	538.50	-19.3%
700mm	681.27	559.09	559.09	559.09	559.09	-17.9%
750mm	682.95	587.92	587.92	587.92	587.92	-13.9%
800mm	720.82	607.40	607.40	607.40	607.40	-15.7%
900mm	775.11	613.57	613.57	613.57	613.57	-20.8%
1,000mm	780.59	624.98	624.98	624.98	624.98	-19.9%
Channel	7,637.95	5,790.65	5,790.65	5,790.65	5,790.65	-24.2%

Note: MSCs to be indexed by CPI for each year of the determination period.

Source: IPART analysis; Aither, *WaterNSW rural bulk water services expenditure review- Final Report*, December 2016, p 129, adjusted from nominal to real dollars.

MSCs for the 2017 Determination have been set to be cost-reflective. They are based on the current third-party contract between WaterNSW and the service provider for meter maintenance services, which is due to end in mid-2020. These are slightly higher than the MSCs in our Draft Report, as the draft MSCs excluded the effect of inflation in 2016-17.³⁵⁸

³⁵⁷ WaterNSW pricing proposal to IPART, June 2016, p 110.

³⁵⁸ Personal communication with WaterNSW, 4 April 2017.

13.1.1 Reasons for our decision

WaterNSW has proposed:

- ▼ the same level of charging for both telemetered and non-telemetered meters, with differential pricing by meter size for administrative simplicity given that:
 - the large majority of meters are currently telemetered, and
 - there is only about a 2% to 4% difference in MSCs between the two meter types
- ▼ MSCs for Commonwealth-funded meters only, as no WaterNSW-funded meters have been installed at customer sites
- ▼ to retain the allowance to fund asset failures for the 2017 Determination
- ▼ an increase in most MSCs, up to 35% higher than current MSCs by 2020-21, including a large increase between 2019-20 and 2020-21 (Table 13.2).

Table 13.2 WaterNSW's current and proposed MSCs (telemetry and non-telemetry) (\$2016-17)

Meter Size	2016-17	2017-18	2018-19	2019-20	2020-21	% Change (2016-17 to 2020-21)
50mm	398.65	429.29	449.19	469.09	528.71	32.6%
80mm	398.79	431.14	451.12	471.09	530.31	33.0%
100mm	399.55	429.98	450.38	470.77	534.06	33.7%
150mm	420.27	433.12	454.28	475.45	548.65	30.5%
200mm	442.79	434.73	456.25	477.76	560.12	26.5%
250mm	448.46	435.23	457.44	479.65	565.11	26.0%
300mm	450.46	438.37	461.70	485.02	574.97	27.6%
350mm	463.04	454.82	482.29	509.76	625.98	35.2%
400mm	515.41	462.70	493.34	523.97	657.98	27.7%
450mm	623.99	463.52	495.02	526.52	661.43	6.0%
500mm	633.40	472.19	505.48	538.76	668.58	5.6%
600mm	667.59	480.30	516.97	553.64	682.10	2.2%
700mm	681.27	491.69	531.74	571.78	695.63	2.1%
750mm	682.95	518.05	559.03	600.01	760.64	11.4%
800mm	720.82	523.27	569.48	615.69	781.54	8.4%
900mm	775.11	524.93	572.79	620.65	788.16	1.7%
1,000mm	780.59	527.99	578.91	629.83	800.39	2.5%
Channel	7,637.95	5,674.46	5,737.92	5,801.39	6,051.33	-20.8%

Note: WaterNSW propose the charge increase by inflation for each year of the determination period.

Source: IPART analysis; IPART, *Review of prices for WaterNSW - Rural bulk water services from 1 July 2017 - Issues Paper*, September 2016, p 108.

Aither agreed with the rationale for applying the MSC. However, it found that WaterNSW's proposed charges should be adjusted to:

- ▼ **Include a revised asset failure rate of 0.32%** – The ACCC’s 2014 Decision included an allowance to fund meter and telemetry asset failures outside of warranty, based on an estimated failure rate of 1% per year, to be adjusted in future price reviews to reflect actual failure rates.³⁵⁹ Aither found the actual annual asset failure rate over the current regulatory period was 0.32%.³⁶⁰
- ▼ **Account for annualised telemetry costs once** – Aither found that the annualised telemetry cost had been double-counted in the calculation of the charge.³⁶¹
- ▼ **Apply a consistent annuity of meter replacement costs** – Aither found that the annuity calculation should be revised to ensure it was consistent over the life of the asset.³⁶² This results in higher charges in the near-term and lower charges in the future.

These changes result in a small increase in MSCs compared to those proposed by WaterNSW for 2017-18 and, for some meter sizes, 2018-19. However, the revised replacement annuity results in lower MSCs for all meter sizes from 2019-20.³⁶³

WaterNSW’s current contract for meter maintenance services (with the third-party service provider) runs from May 2015 to 30 June 2020. There is also an option to extend the contract for an additional five years (ie, from 1 July 2020 to 30 June 2025).³⁶⁴ The comparatively large increase (up to 27%) in WaterNSW’s proposed MSCs from 2019-20 to 2020-21 is due to an increase in maintenance costs being incorporated in the contract bid for the 2020 to 2025 contract extension.³⁶⁵ We note that the contract costs for 2020-21 to 2024-25 were quoted up to ten years in advance. As such, we consider that the increase in 2020-21 included a premium for the uncertainty and risk associated with including costs to be incurred five (to 10) years in the future in the maintenance proposal.

NSWIC opposed the MSCs in its submissions to the Issues Paper and Draft Report, and commented that the charge should be reduced for smaller meters.³⁶⁶ It considered WaterNSW had not justified the basis for these charges. It also questioned the cost difference between telemetered and non-telemetered meters being only 2% to 4% as it would expect larger cost savings from telemetry.

Aither considered the charge (with its amendments outlined above) to be cost-reflective, and that applying the same charge for both telemetered and non-telemetered meters appears reasonable based on WaterNSW’s costs. WaterNSW indicated that:

- ▼ Maintenance and administration costs (ie, those reflected in the MSCs) for telemetered meters are not necessarily less than for non-telemetered meters, and that the difference between the MSCs for the different meter types under the ACCC 2014 Decision mainly related to additional travel cost estimates.

³⁵⁹ ACCC, *Attachments to ACCC Final Decision on State Water Pricing Application 2014-15 – 2016-17*, June 2014, p 143.

³⁶⁰ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, December 2016, p 128.

³⁶¹ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, December 2016, p 128.

³⁶² Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, December 2016, p 128.

³⁶³ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, December 2016, p 128.

³⁶⁴ Personal communication with WaterNSW, 8 December 2016.

³⁶⁵ Depending on meter size, the increase is between 13% and 27% (excludes channels). IPART analysis.

³⁶⁶ NSW Irrigators Council submission to IPART Issues Paper, October 2016, p 39; and NSW Irrigators Council submission to IPART Draft Report, April 2017, p 30.

- ▼ Currently, about 90% of meters are telemetered, and that for the 2017 Determination, it is expected that only 0.1% of meters will be non-telemetered.³⁶⁷
- ▼ There are greater efficiencies under the proposed MSC compared to the current MSC for non-telemetered meters.³⁶⁸

Other stakeholders expressed concerns that budgetary failures relating to the Southern Basin Metering project had been passed on to users via higher MSCs, and considered the cost of this failure should not be borne by users.³⁶⁹ We note that MSCs recover the costs of maintenance and administration and do not include the costs of installing the meters.

Finally, Western Murray Irrigation noted it has self-funded up-to-date metering technology for 20 years and there is no recognition of this contribution in past or current determinations.³⁷⁰ With regard to this concern, WaterNSW has confirmed that the MSCs would be levied on WaterNSW-owned meters only and not on telemetry units installed on customer-owned meters; and that, for the 2017 Determination, the cost of maintaining such telemetry units will be borne by WaterNSW.³⁷¹

13.2 Water reading and assessment charge

Currently, WaterNSW's meter reading and water use assessment costs are recovered through bulk water charges and are not subject to a separate charge. WaterNSW has flagged developing a new charging regime, but has noted this will take considerable analysis and customer consultation, and so proposes to do this in the lead up to the 2021 Determination.³⁷²

We made a decision:

- 46 To maintain the current approach to recovering meter reading and water use assessment costs through bulk water charges as opposed to setting a separate charge.

13.2.1 Reasons for our decision

WaterNSW intends to restructure its approach to meter reading over the 2017 determination period (Table 13.3).

- ▼ Historically, WaterNSW provided a uniform meter reading service of four meter reads per annum for all meters. Having reviewed this policy, it proposes to provide fewer readings for smaller meters. It considers this would save costs and target compliance towards areas with higher perceived risks.
- ▼ It also plans to investigate different options for recovering meter reading and water use assessment costs. It stated a fixed minimum charge for small customers and a separate charge for larger customers may be appropriate.

³⁶⁷ Personal communication with WaterNSW, 20 December 2016.

³⁶⁸ Personal communication with WaterNSW, 10 May 2017.

³⁶⁹ Murray Valley Private Diversers Council submission to IPART Draft Report, April 2017, pp 2-4; NSW Farmers' Association submission to IPART Draft Report, April 2017, pp 3-4; Rice Growers Association of Australia submission to IPART Draft Report, April 2017, p 1.

³⁷⁰ Western Murray Irrigation submission to IPART Draft Report, April 2017, p 11.

³⁷¹ Personal communication with WaterNSW, 8 May 2017.

³⁷² WaterNSW, *Pricing Proposal for Bulk Water Services*, June 2016, p 112.

Table 13.3 WaterNSW’s proposed meter reading program

Meter size	Number of meter reads
Less than 100ML	Minimum 4 (customer self) reads per annum (no meter reads performed by WaterNSW). At least one compliance check annually.
101ML to 500ML	Minimum of 2 meter reads performed by WaterNSW per annum
501ML or greater	Minimum of 4 meter reads performed by WaterNSW per annum

Source: WaterNSW pricing proposal to IPART, June 2016, p 112.

Some stakeholders support meter reading charges, for example, Tamworth Regional Council considered it would provide greater transparency and Western Murray Irrigation argued the costs should be more transparent to provide a chance for customer scrutiny.³⁷³ Others are not supportive of immediate change, NSWIC recommended that new charges not be approved prior to the completion of DPI Water’s *Water Take Measurement Strategy*.³⁷⁴

We have decided to maintain the current pricing structure. It is appropriate for WaterNSW to undertake consultation and review the costs of its new meter reading approach prior to introducing a separate charge. We will consider WaterNSW’s proposal at the next determination, including reviewing the forecast reduction in meter reading costs resulting from the foreshadowed change to the meter reading program.

13.3 Trade processing charge

WaterNSW currently levies a trade processing charge as a two-part tariff consisting of a:

- ▼ fixed charge per trade application, and
- ▼ variable charge per ML of allocated trade.³⁷⁵

WaterNSW proposed to continue levying this charge at the current level (in real terms) over the 2017 Determination period.³⁷⁶

We made a decision:

47 To set the trade processing charge as listed in Table 13.4, as a single, fixed charge.

Table 13.4 Decision on trade processing charge (\$2016-17)

Charge	2017-18	2018-19	2019-20	2020-21
Trade processing charge per application	\$50.36	\$47.58	\$47.35	\$45.84

Source: Aither, *WaterNSW rural bulk water services expenditure review – Final Report*, December 2016, p 135.

³⁷³ Lachlan Valley Water submission to IPART Issues Paper, October 2016, p 13; Gwydir Valley Irrigators Association submission to IPART Issues Paper, October 2016, p 9; Tamworth Regional Council submission to IPART Issues Paper, October 2016, p 6; Western Murray Irrigation submission to IPART Draft Report, April 2017, p 11.

³⁷⁴ NSWIC submission to IPART Issues Paper, October 2016, p 39.

³⁷⁵ Up to a maximum of \$154.56. WaterNSW pricing proposal to IPART, June 2016, p 113.

³⁷⁶ WaterNSW pricing proposal to IPART, June 2016, p 113.

13.3.1 Reasons for our decision

Whilst we agree with the rationale for the trade processing charge, we have decided to set the charge as a single, fixed charge per application, rather than a two-part tariff as proposed by WaterNSW (Table 13.5). This is based on Aither's recommendations outlined below.

Table 13.5 WaterNSW's current and proposed trade processing charge (\$2016-17)

Charge	Current (2016-17)	Proposed (2017-18) ^a
Trade processing charge	\$39.01 per application \$0.51 per ML of allocation traded	\$39.01 per application \$0.51 per ML of allocation traded

^a WaterNSW propose the charge increase by inflation for each year of the determination period.

Source: WaterNSW pricing proposal to IPART, June 2016, p 113.

Aither found that a fixed charge would better reflect the costs incurred by WaterNSW, as its costs are correlated with the number of applications received (and not with the volume of water traded).³⁷⁷

In revising the charge, Aither accepted WaterNSW's direct cost per hour and overhead percentages, but adjusted the forecast number of applications as it considered WaterNSW's forecast optimistic.³⁷⁸ Aither also recommended the charge be reduced in real terms over the regulatory period to reflect expected reductions in overhead costs throughout the business.³⁷⁹

In response to our draft decision, a number of stakeholders supported applying a single fixed charge.³⁸⁰ However, NSWIC questioned the need for minimal differences over the determination and recommended a consistent charge.³⁸¹

We consider it is appropriate for the charge to decline to reflect forecast efficiency improvements. As such, we have accepted Aither's findings and decided to set the trade processing charge as listed in Table 13.4.

13.4 Environmental gauging station charge

There are currently 21 environmental gauging stations operated by WaterNSW. Most of these were operated under a Service Level Agreement (SLA) with DPI Water, until recently being transferred to WaterNSW. The ACCC's 2014 Decision introduced an environmental gauging charge to recover the incremental costs of upgrading the environmental gauging stations to achieve the level of accuracy required under the *Commonwealth National*

³⁷⁷ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, December 2016, p 131.

³⁷⁸ WaterNSW forecast 2,400 hours per annum would be required based on 1.5 FTEs. Using the average processing time (from 2012-13 to 2015-16) of 0.49 hours per trade, this equates to 4,904 trade applications per year. Aither estimated only 1,988 hours per annum, based on 4,063 trade applications per year, which it considered better reflected the long-term annual trend in trade applications. Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, December 2016, pp 133-134.

³⁷⁹ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, December 2016, p 134.

³⁸⁰ Lachlan Valley Water submission to IPART Draft Report, April 2017, p 8; Western Murray Irrigation submission to IPART Draft Report, April 2017, p 11; NSW Irrigators Council submission to IPART Draft Report, April 2017, p 31; Coleambally Irrigation Co-operative Limited submission to IPART Draft Report, April 2017, p 4.

³⁸¹ NSW Irrigators Council submission to IPART Draft Report, April 2017, p 31.

Measurement Standards.^{382,383} The upgrades are intended to allow a higher grade of metering to encourage more efficient water use. WaterNSW indicated that they are currently required to meet the *NSW Interim Water Meter Standards for Open Channel Metering*³⁸⁴ provided by DPI Water. No upgrades were made during the 2014 determination period, and so the charge is yet to be levied.

The recurrent costs of managing the environmental gauging stations at the current level of accuracy are recovered through bulk water charges and are socialised across all customers. For the 2017 Determination, WaterNSW has not proposed that these costs be recovered via the environmental gauging charge.

We made a decision:

- 48 To set the environmental gauging station charge at \$11,735 per year (indexed by CPI over the course of the determination), to be levied only:
- on a holder of an Access Licence that nominates a WaterNSW Water Supply Works, where the licence holder's water usage is measured at an environmental gauging station, once the gauging station has reached end of life, and
 - when an upgrade of the gauging station is required to meet regulatory requirements.

13.4.1 Reasons for our decision

WaterNSW proposed to increase the charge significantly for 2017-18, arguing that the current charge is insufficient to recover the incremental costs of upgrading the stations to achieve the level of accuracy required under the *Commonwealth National Measurement Standards*. WaterNSW's proposed charge is presented in Table 13.6 and includes:

- ▼ a capital expenditure annuity for the instruments required to capture water flow information
- ▼ installation costs, and
- ▼ additional operational costs to maintain the gauging station at the required level of accuracy.

³⁸² ACCC, *Final decision on State Water Pricing Application: 2014-2015 – 2016-17*, June 2014, p 26.

³⁸³ WaterNSW pricing proposal to IPART, June 2016, pp 117-118.

³⁸⁴ NSW Department of Primary Industries, NSW Office of Water, *NSW Interim Water Meter Standards for Open Channel Metering*, Version 2.0, July 2013. Under the national standards for water meters (developed under the National Water Initiative), new water meters installed after 2010 are required to be pattern approved in accordance with requirements of the National Measurement Institute. Until pattern approved meters are readily available, and the national standards are fully operational, DPI Water, in conjunction with WaterNSW, has developed interim water meter standards. WaterNSW, *Standards for water meters*, <http://www.water.nsw.gov.au/water-licensing/metering/standards-for-water-meters>, accessed 23 May 2017.

Table 13.6 WaterNSW’s proposed environmental gauging station charge (\$2016-17)

Charge	Current (2016-17)	Proposed (2017-18) ^a	Basis of charge
Environmental gauging station charge	\$8,789.45 per year	\$18,658 per year	Per site as end of life is reached

^a WaterNSW propose the charge increase by inflation for each year of the determination period.

Source: WaterNSW pricing proposal to IPART, June 2016, p 113.

Stakeholders who commented on the environmental gauging station charge in their submissions to our Issues Paper had mixed views. Lachlan Valley Water considered the charge reasonable.³⁸⁵ However, the Office of Environment and Heritage (OEH) and the Commonwealth Environmental Water Office (CEWO) did not support the charge.³⁸⁶

The CEWO also considered that environmental gauging stations are used by all customers, not just environmental customers and that the charge potentially discriminates against environmental water holders, by shifting the cost of operating and maintaining these stations to environmental customers.³⁸⁷

Aither reviewed WaterNSW’s proposed charge and recommended:

- ▼ excluding incremental costs for non-SLA sites
- ▼ increasing the estimated useful lives of instruments to six years as WaterNSW did not provide evidence to justify shorter useful lives³⁸⁸, and
- ▼ incorporating a ‘blended instrumentation annuity’ based on the likely proportions of the two different types of instruments being installed.³⁸⁹

By making these adjustments, Aither calculated an environmental gauging station charge of \$11,735 (\$2016-17) per year for 2017-18.

In our Draft Report we accepted Aither’s findings and set the draft environmental gauging station charge at \$11,735 per year for 2017-18 (\$2016-17) indexed by CPI over the determination, which is 37% lower than initially proposed by WaterNSW.

In response to our Draft Report, Murray Valley Private Diverters commented that irrigators should not be subject to these costs as they should be borne by Government.³⁹⁰ Western Murray Irrigation put forward that such costs must be recovered from the customer that drives them.³⁹¹ We note that WaterNSW has proposed recovering these costs from those whose works approval is linked to a gauging station, which are generally Government entities.

³⁸⁵ Lachlan Valley Water submission to IPART Issues Paper, October 2016, p 13.

³⁸⁶ OEH submission to IPART Issues Paper, October 2016, p 4; CEWO submission to IPART Issues Paper, October 2016, pp 4-5.

³⁸⁷ CEWO submission to IPART Issues Paper, October 2016, p 5.

³⁸⁸ WaterNSW proposed that either an Acoustic Doppler Current Profiler (ADCP) or Transit Time instruments be installed at each site, in estimating its costs it has used expected useful lives of three years for the ADCP and four years for the Transit Time. Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, December 2016, pp 136-137.

³⁸⁹ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, December 2016, p 137.

³⁹⁰ Murray Valley Private Diverters submission to IPART Draft Report, April 2017, pp 5-6.

³⁹¹ Western Murray Irrigation submission to IPART Draft Report, April 2017, p 11.

OEH did not support the charge in quantum or in principle.³⁹² It noted that:

- ▼ this is a new charge, included in the 2014 ACCC Decision, that has not previously been levied or consulted on
- ▼ the national measurement standards have not been demonstrated to create benefits, and
- ▼ final requirements for meters would depend on the *Water Take Measurement Strategy* that is currently being developed by DPI Water.

OEH therefore recommends removing the charge from the determination as it has not been levied to date, there is uncertainty about the standards that will apply, and the necessary consultation has not occurred.

Whilst the charge was put in place for the 2014 Determination, it has not been levied as no gauging stations reached end of life and so none were upgraded. However, WaterNSW indicated that over the 2017 determination period, some gauging stations will require upgrades as they reach end of life.³⁹³ As such, WaterNSW proposed continuing the charge, with improved expenditure forecasts.

OEH has previously been required to link its works approvals to the gauging stations. WaterNSW indicated its intention to consult with OEH and DPI Water on whether there may be other more cost-effective ways to order water other than through linking works approvals to gauging stations. This is because there may be other ways for OEH as a water holder to deliver its objectives and minimise costs.

After further consultation with OEH, DPI Water and WaterNSW, we have maintained our decision to set the environmental gauging station charge at **\$11,735 per year** for 2017-18 (\$2016-17) indexed by CPI over the determination, but also included specific criteria for when it may be applied. We will consider whether this charge should apply to all customers (and be incorporated into entitlement and/or usage charges) or only environmental customers as part of our review of customer cost shares prior to the 2021 Determination (see Chapter 9).

13.5 Meter accuracy testing charges

Where a customer requests accuracy testing on a WaterNSW-owned meter, WaterNSW currently levies a refundable deposit which is returned if the meter is found to be inaccurate and forfeited by the customer if the meter is within accuracy standards.³⁹⁴

We made a decision:

49 To set charges for meter accuracy testing as listed in Table 13.7.

³⁹² OEH submission to IPART Draft Report, April 2017, p 2.

³⁹³ Stations are 'operated to failure'.

³⁹⁴ WaterNSW pricing proposal to IPART, June 2016, p 118.

Table 13.7 Decision on charges for meter accuracy testing (\$2016-17)

Meter accuracy charges	Charge
Refundable meter accuracy deposit	\$1,750 ^a per request
Total charge where meter is found to be within accuracy standards	
Verification and testing in situ	\$6,045 ^b
Laboratory verification and testing	\$8,177 ^b

^a This charge is presented in \$2016-17, and would not be indexed by CPI for each year of the determination period.

^b This charge is presented in \$2016-17, and would be indexed by CPI for each year of the determination period.

Source: IPART analysis.

13.5.1 Reasons for our decision

For the 2017 Determination, WaterNSW proposed to separate the charge into two testing methods: in situ and laboratory tests (Table 13.8). WaterNSW also noted the current deposit significantly under-recovers the actual costs of these tests, which are:

- ▼ \$6,045 for meter testing in situ; and
- ▼ \$8,177 for meter testing in laboratory (estimated cost).

It therefore included in its proposal that:

...if the meter is found to be within accuracy standards, the deposit will be forfeited by the customers, and WaterNSW may recover the outstanding costs from the customer of verifying the accuracy of the meter.³⁹⁵

Table 13.8 WaterNSW's current and proposed refundable meter accuracy deposit charges (\$2016-17)

Refundable meter accuracy deposit	Current (2016-17)	Proposed (2017-18) ^a	Basis of proposed charge
Verification and testing in situ	\$1,710.26 per request	\$3,000.00 per request	Corresponds to half the actual cost of conducting this test.
Laboratory verification and testing	N/A	\$1,795.19 per request	Corresponds to IPART's equivalent charge in the 2016 WAMC determination

^a WaterNSW propose the charge increase by inflation for each year of the determination period.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 113, 118.

We have decided to introduce a two-part tariff:

- ▼ a relatively low deposit, which is returned if the meter is found to be inaccurate, and
- ▼ a cost-reflective charge if the meter is found to be accurate.

Our approach balances the need to avoid deterring customers from questioning the accuracy of the meter where they have a genuine concern about its accuracy, with the need to ensure WaterNSW is not significantly under-recovering costs for testing meters that are found to be within accuracy standards.

³⁹⁵ WaterNSW pricing proposal to IPART, June 2016, p 118.

Under our approach, the refundable deposit is not intended to reflect costs. Rather, it aims to balance customer incentives to question the accuracy of their meter. As such, we determined a deposit roughly half way between the current deposit and the deposit WaterNSW proposes for laboratory testing. As the deposit does not reflect meter testing costs, we also consider there is no need to index it by CPI over the determination period.

We consider it is appropriate for WaterNSW to recover its full testing costs where the meter is found to be within accuracy standards. We have accepted the total testing costs put forward by WaterNSW as:

- ▼ the costs reflect market rates, as WaterNSW contracts the testing out to private vendors
- ▼ Aither examined the breakdown of services provided and costs, and was satisfied with the associated process and costs, and
- ▼ Aither and WaterNSW have confirmed the costs are likely to only vary substantially by the type of test being performed (in situ or laboratory).³⁹⁶

Murray Valley Private Diverters (MVPD) submitted that there is no transparency on why the charges are so high. It recommended that IPART reject the proposal and enable a 'test sample' of meters across different locations to demonstrate accuracy, and require WaterNSW to supply verification reports on meters to individual irrigators.³⁹⁷ We have found that the current deposit substantially under-recovers WaterNSW's costs, and is therefore not cost-reflective. We also consider it is appropriate for the cost of testing a meter to be borne by the customer that requested the test. The costs of a test sample, as suggested by MVPD, would need to be borne by all customers in the valley.

13.6 Fish River connection and disconnection charges

In its proposal, WaterNSW stated that each new connection in the Fish River entails different requirements (location of tapping point and time taken to travel to location), which results in a variable cost of connection. WaterNSW also stated that the current charge does not cover the full cost of the connection services, and that it currently receives two to three requests for connection per annum.³⁹⁸

We made a decision:

50 To set prices for the:

- Fish River Water Supply connection charge based on the complexity of the connection service, as listed in Table 13.9.
- Fish River Water Supply disconnection charge as listed in Table 13.10.

³⁹⁶ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, December 2016, pp 140-141.

³⁹⁷ Murray Valley Private Diverters submission to IPART Draft Report, April 2017, p 5.

³⁹⁸ WaterNSW pricing proposal to IPART, June 2016, pp 118-119.

Table 13.9 Decision on Fish River Water Supply connection charge (\$2016-17)

Service type	Connection charge
Low complexity – no tapping band or pressure reducing valve required (PRV)	\$850.67
Medium complexity – tapping band required	\$3,225.33
High complexity – pressure reducing valve required	\$6,594.40

Note: These charges would be indexed by CPI for each year of the determination period.

Source: WaterNSW Information Request; IPART analysis.

Table 13.10 Decision on Fish River Water Supply disconnection charge (\$2016-17)

Charge	2017-18	2018-19	2019-20	2020-21
Fish River disconnection charge	\$263.06	\$248.55	\$247.35	\$239.48

Note: These charges would be indexed by CPI for each year of the determination period.

Source: Aither, *WaterNSW rural bulk water services expenditure review – Final Report*, December 2016, p 143.

13.6.1 Reasons for our decision

WaterNSW's proposed changes are set out in Table 13.11 below. WaterNSW proposed:

- ▼ **For connections** – providing individual quotes using a bottom-up build-up of costs based on labour, material, equipment hire and travel time required.³⁹⁹
- ▼ **For disconnections** – maintaining the existing charge in real terms as the service is less complex than connection as (it involves removing the meter and turning the tap off).⁴⁰⁰

Table 13.11 WaterNSW's proposed change in Fish River Water Supply connection/ disconnection charges (\$2016-17)

Charge	Current (2016-17)	Proposed (2017-18) ^a	Basis of charge
Fish River connection charge	\$473.51 per request	Fee for service by quote	As agreed between the customer and WaterNSW
Fish River disconnection charge	\$263.06 per request	\$263.03 per request	Before the works are carried out as requested by the customer

^a WaterNSW propose the charge increase by inflation for each year of the determination period.

Source: WaterNSW pricing proposal to IPART, June 2016, p 113.

Aither agreed that the current connection charge under-recovers costs.⁴⁰¹

In considering whether to accept WaterNSW's connection charge proposal or determine a different charge, we have balanced the benefits of accurate cost-reflective pricing against

³⁹⁹ WaterNSW pricing proposal to IPART, June 2016, p 119.

⁴⁰⁰ WaterNSW pricing proposal to IPART, June 2016, p 119.

⁴⁰¹ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, December 2016, p 142.

administration costs and practicality, while also having regard to the ACCC pricing principles.⁴⁰²

We have decided to set three maximum charges reflecting each level of service complexity, as presented in Table 13.9. WaterNSW described three stages of connection.⁴⁰³ We examined the cost breakdowns for 11 meter connections provided by WaterNSW and found that connection service costs varied substantially within these stages. However, costs were driven by the components of the service. Specifically, the most expensive components of the service are installation of a tapping band and pressure reducing valve. We have therefore set the maximum connection charges to reflect the average cost of the sampled connection costs where the service:

- ▼ does not involve installing a tapping band or pressure reducing valve (PRV)
- ▼ involves installing a tapping band (but no PRV), and
- ▼ involves installing a PRV (but no tapping band).

We consider this approach is relatively simple, and that it balances the potential risks of WaterNSW under-recovering its costs and customers overpaying for the service.

We have accepted WaterNSW's proposed Fish River disconnection charge with an adjustment to reflect the expected reduction in overhead costs. Aither found the service is more straightforward and the charge reflects around 3.5 hours of labour which Aither considered reasonable. Aither recommended an adjustment to reflect the expected decline in WaterNSW's overhead costs of labour and then escalating the charge by inflation (as presented in Table 13.10).⁴⁰⁴ We have accepted Aither's recommendation.

13.7 Credit card payment fee

WaterNSW proposed to introduce credit cards as a payment option.⁴⁰⁵ However, by offering this payment channel to customers, it will incur credit card payment fees. WaterNSW has proposed to pass on to customers an amount in respect of these fees which is set by NSW Treasury based on the normal cost of merchant interchange fees. This is currently 0.44% for Visa/Mastercard and 1.54% for American Express cards. WaterNSW has proposed to vary the charges as NSW Treasury varies the charges.

According to WaterNSW, its proposal is in response to a direction from NSW Treasury (in May 2012) to NSW Government agencies and State Owned Corporations (SOCs) to recoup their merchant interchange fees. Merchant interchange fees are incurred by SOCs and government agencies when they accept credit card payments from the public or customers.

The NSW Government requires recoupment of these fees through surcharging for payments accepted using debit or credit cards issued by card schemes such as Visa, MasterCard,

⁴⁰² IPART is required to have regard to the ACCC's pricing principles under WCIR. The pricing principles state that charges should be clear to customers and promote pricing transparency. ACCC, *Pricing principles for price approvals and determinations under the Water Charge (Infrastructure) Rules 2010*, July 2011, p 51.

⁴⁰³ WaterNSW pricing proposal to IPART, June 2016, p 119.

⁴⁰⁴ Aither, *WaterNSW rural bulk water services expenditure review - Final Report*, December 2016, p 143.

⁴⁰⁵ IPART, *Review of prices for WaterNSW - Rural bulk water services from 1 July 2017 - Issues Paper*, September 2016, p 157.

American Express and Diners. This does not include payments accepted using ATM cards issued by banks and other deposit taking institutions.⁴⁰⁶

We made a decision:

51 Not to regulate WaterNSW's credit card payment fees.

13.7.1 Reasons for our decision

We have decided not to regulate the maximum amount of a credit card payment fee levied by WaterNSW, because:

- ▼ customers can avoid the fee by choosing a different payment method, and
- ▼ the fee is not charged for the provision of a monopoly service.⁴⁰⁷

Stakeholders have not expressed any concerns about the fee in our consultation, and our decision is consistent with our 2016 decision not to regulate Sydney Water's credit card payment fee.

13.8 Irrigation corporations and districts discounts

Irrigation corporations and districts (ICDs), located in the Lachlan, Murray and Murrumbidgee valleys, undertake activities such as billing, metering and monitoring for customers that are serviced within their irrigation distribution network. The structure of ICDs and their activities means that WaterNSW services one large customer rather than many smaller customers.

Past determinations have included discounts via rebates to ICDs to reflect WaterNSW's 'avoided costs' of not having to directly service a larger number of smaller customers.⁴⁰⁸ The avoided costs are calculated based on the services WaterNSW does not need to provide due to the activities of ICDs. These include billing, metering and compliance, telemetry installation and data transfer.

The discounts have been paid annually to ICDs in the form of rebates, with the value of the rebates collected from other users. While the size of the rebate does not affect WaterNSW's total revenue requirement, it affects the value of bulk water charges paid by all customers.

We made a decision:

52 To set the value of rebates provided to eight irrigation corporations and districts (ICDs) as shown in Table 13.12.

⁴⁰⁶ NSW Treasury, *Treasury Circular*, 24 May 2012.

⁴⁰⁷ This means we cannot regulate the fee under section 11 of the IPART Act and would require a section 12A referral from the Premier to specify a maximum fee. A credit card payment fee also falls outside the definition of a 'regulated charge' under the WCIR.

⁴⁰⁸ Including IPART's 2006 Determination and 2010 Determinations, and the ACCC's 2014 Decision, for the former State Water Corporation. IPART, *Bulk Water Prices for State Water Corporation and Water Administration Ministerial Corporation: from 1 October 2006 to 30 June 2010*, September 2006, p 114; IPART, *Review of bulk water charges for State Water Corporation: From 1 July 2010 to 30 June 2014 – Final Report*, June 2010, p 138; ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, p 65.

Table 13.12 Irrigation corporations and districts discounts (\$2016-17)

	2016-17	2017-18	2018-19	2019-20	2020-21
Jemalong	63,032	40,410	38,276	38,243	37,510
Murray Irrigation	926,340	593,246	575,402	575,217	568,444
Western Murray	32,368	18,315	17,765	17,759	17,550
West Corurgan	51,408	32,678	31,695	31,685	31,312
Moira	25,687	15,231	14,773	14,768	14,594
Eagle Creek ^a	9,060	24	24	24	23
Murrumbidgee Irrigation	649,655	437,548	427,817	427,715	424,027
Coleambally Irrigation	285,096	193,407	189,106	189,061	187,430
Total discounts	2,042,647	1,330,861	1,294,856	1,294,470	1,280,890

^a The significant reduction for Eagle Creek reflects a large reduction in its entitlement holdings from 13,620 in 2013-14, to 60 in 2017-18.

Source: ACCC, *Final decision on State Water Pricing Application*, June 2014, p 65; IPART, *Review of prices for WaterNSW - Rural bulk water services from 1 July 2017 - Issues Paper*, September 2016, p 62; IPART analysis.

13.8.1 Reasons for our decision

WaterNSW proposed continuing to pay ICD rebates annually, but reducing the value of the rebates between 2016-17 and 2017-18 by around 50% in total (Table 13.13). WaterNSW reported the lower discounts are largely driven by a step change reduction in its metering, compliance and customer billing operational expenditure compared to the 2014 ACCC Decision.⁴⁰⁹ And, that other contributing factors include:

- ▼ a reduction in the number of entitlements held by ICDs (particularly Eagle Creek), and
- ▼ a reduction in the proposed WACC, which has contributed to a reduction in incremental avoided costs of telemetry installation.

Table 13.13 WaterNSW's proposed ICD discounts compared to current (\$2016-17)

	2016-17	2017-18	2018-19	2019-20	2020-21
Jemalong	63,032	39,268	37,134	37,101	36,368
Murray Irrigation	926,340	553,805	535,961	535,776	529,003
Western Murray	32,368	17,098	16,547	16,541	16,332
West Corurgan	51,408	30,506	29,523	29,512	29,139
Moira	25,687	14,218	13,760	13,756	13,582
Eagle Creek ^a	9,060	23	22	22	22
Murrumbidgee Irrigation	649,655	248,547	238,815	238,713	235,025
Coleambally Irrigation	285,096	109,864	105,562	105,517	103,887
Total discounts	2,042,647	1,013,328	977,323	976,938	963,358

Source: ACCC, *Final decision on State Water Pricing Application*, June 2014, p 65; IPART, *Review of prices for WaterNSW - Rural bulk water services from 1 July 2017 - Issues Paper*, September 2016, p 62; WaterNSW pricing proposal to IPART, June 2016, p 109.

⁴⁰⁹ Personal communication with WaterNSW, 10 August 2016.

Stakeholder submissions to our Issues Paper argued that WaterNSW had not provided evidence to substantiate such a large reduction in rebates and urged IPART to review WaterNSW's method of calculating the discount.⁴¹⁰

We have reviewed WaterNSW's calculation of the discounts and found the overall method appears reasonable and generally reflective of its avoided costs. However, we have adjusted the customer numbers used in the calculation to reflect actual numbers reported by customers (discussed below).

WaterNSW calculated its avoided costs relating to **billing, metering and compliance** based on the entitlements held by ICDs. This approach has been used historically and is consistent with WaterNSW's overall distribution of these operating costs, which is based on entitlement volumes.

WaterNSW calculated its avoided costs for **telemetry installation and data transfer**, based on a proxy⁴¹¹ for the number of customers that would require telemetry. The ACCC's 2014 Decision had used actual customer numbers reported by ICDs.⁴¹²

To calculate our draft rebates, we used customer sites⁴¹³ instead of WaterNSW's proxy for customer numbers to calculate the avoided cost of telemetry and data transfer. At the time, we considered this was a more appropriate cost driver, reflecting where WaterNSW would install telemetry if it serviced individual customers. This resulted in a significant increase in the discounts relative to WaterNSW's proposal. Under our draft decision, the total reduction in the rebates between 2016-17 and 2017-18 was 19%, compared with WaterNSW's proposed 50% reduction.

ICDs supported our draft decision to calculate the rebate based on customer sites, as it resulted in higher rebates.⁴¹⁴ However, Coleambally Irrigation and Murrumbidgee Irrigation expressed concern that the reduction was significantly larger in Murrumbidgee than Murray.⁴¹⁵

Murray Irrigation argued there is no justification for any reduction as real costs to ICDs have not reduced.⁴¹⁶ At the public hearing it noted IPART's reduction of 19% was inappropriate given its site numbers have only dropped by 8%.⁴¹⁷ Western Murray Irrigation also submitted the rebate should be maintained at historically higher levels to reflect it being responsible for activities including managing a large number of entitlements, main meters,

⁴¹⁰ These included submissions from ICDs, including Coleambally Irrigation and Murrumbidgee Irrigation, and other stakeholders such as NSWIC and Lachlan Valley Water. Coleambally Irrigation submission to IPART Issues Paper, October 2016, p 5; Murrumbidgee Irrigation submission to IPART Issues Paper, October 2016; p 1; NSWIC submission to IPART Issues Paper, October 2016, p 29; Lachlan Valley Water submission to IPART Issues Paper, October 2016, p 10.

⁴¹¹ The proxy was estimated by dividing the number of entitlements held by the ICD by the average number of entitlements per licence holder in the valley (excluding ICDs). WaterNSW Information Return, June 2016.

⁴¹² ACCC, *Attachments to ACCC Final Decision on State Water Pricing Application 2014-15 – 2016-17*, June 2014, p 126.

⁴¹³ Customer sites are the 'outlets', 'wheels' or 'metering points' where customers extract water. Individual customers may have more than one outlet that would be metered separately.

⁴¹⁴ Murray Irrigation submission to IPART Draft Report, April 2017, p 1; Coleambally Irrigation submission to IPART Draft Report, April 2017, p 4.

⁴¹⁵ Coleambally Irrigation submission to IPART Draft Report, April 2017, p 4; Murrumbidgee Irrigation submission to IPART Draft Report, April 2017, p 1.

⁴¹⁶ Murray Irrigation submission to IPART Draft Report, April 2017, p 1.

⁴¹⁷ IPART public hearing, 4 April 2017, Sydney, *Transcript*, p 61.

internal metering, internal telemetry, data provision, environmental compliance and various other minor costs.⁴¹⁸

We note that the avoided costs are not intended to reflect the costs incurred by the ICDs themselves, but rather the costs WaterNSW avoids because of ICD activities. For example, any costs ICDs may incur by providing additional services to their customers that WaterNSW would not provide itself are not reflected in the rebate.

WaterNSW argued that telemetry and data transfer costs should be based on customers.⁴¹⁹ It put forward that using customer sites over-estimates its avoided costs because its cost inputs reflect the avoided costs per customer, rather than per outlet. For example, the data transfer avoided costs are based on the cost of a data sim pack of \$5 per month, which offers customers the ability to use multiple sim cards for one data plan. WaterNSW reports that it would purchase one mobile plan per customer and could use this for multiple outlets.⁴²⁰

WaterNSW also says it would not install telemetry at every outlet as some of the ICD outlets are not compatible (eg, Dethridge wheels), and WaterNSW is not under any obligation to install telemetry on every meter.⁴²¹ Rather, installing telemetry is an alternative mode of meter reading that may be employed where it is efficient. Further, it noted that, if telemetry were installed at each outlet, its metering and compliance avoided costs would reduce as it would not need to undertake manual meter reads (other than occasional compliance visits).

WaterNSW also noted that, while it appears common for ICD customers to have multiple outlets, this diverges from its own servicing practices. It argued that applying customer sites does not recognise that ICDs may use an inefficient number of outlets per customer.⁴²²

We have considered WaterNSW's comments and concluded that using customer sites results in double-counting avoided costs, and does not reflect WaterNSW's own metering practices (and therefore does not reflect its avoided costs appropriately).

We have therefore decided to calculate the avoided cost of telemetry installation and data transfer based on actual customer numbers⁴²³ reported to IPART by ICDs, rather than the proxy applied by WaterNSW.⁴²⁴ Table 13.14 provides a comparison of avoided costs based on WaterNSW's proposal and our decision.

Murrumbidgee valley ICDs benefit from the adjustment more than those in the other two valleys. This is because WaterNSW's proxy significantly under-estimated the actual customer numbers reported by these ICDs. This is likely due to the significant number of

⁴¹⁸ Western Murray Irrigation Limited submission to IPART Draft Report, April 2017, pp 11-12.

⁴¹⁹ WaterNSW submission to IPART Draft Report, April 2017, p 17.

⁴²⁰ WaterNSW submission to IPART Draft Report, April 2017, p 19.

⁴²¹ WaterNSW submission to IPART Draft Report, April 2017, pp 18-19.

⁴²² WaterNSW submission to IPART Draft Report, April 2017, p 19.

⁴²³ Less stock and domestic only customers, as WaterNSW would not install telemetry for these customer types.

⁴²⁴ We note WaterNSW's comment that IPART accepted the number of customers reported by ICDs, and its view that this may lead to unclear or inconsistent numbers being reported (WaterNSW submission to IPART Draft Report, April 2017, p 18). We consulted with each ICD to ensure that we had adopted a consistent definition of customer numbers and sites between the ICDs, and requested that they provide a source for the customer numbers and sites reported.

entitlements held by one licence holder, the Commonwealth Environmental Water Office (which holds around 10% of entitlements in Murrumbidgee).

On the other hand, WaterNSW's proxy was relatively close to the numbers reported by ICDs in the Murray and Lachlan, and so our decision has a limited impact relative to WaterNSW's proposal.

Table 13.14 Avoided costs by valley (average 2017-18 to 2020-21)

Activity	Lachlan		Murray		Murrumbidgee	
	IPART Decision	WaterNSW Proposal	IPART Decision	WaterNSW Proposal	IPART Decision	WaterNSW Proposal
Metering and compliance	\$214,189	\$214,189	\$504,165	\$504,165	\$393,726	\$393,726
Billing	\$31,633	\$31,633	\$45,843	\$45,843	\$35,796	\$35,796
Telemetry installation	\$17,003	\$13,068	\$265,018	\$242,139	\$372,706	\$101,743
Data transfer	\$11,106	\$7,618	\$173,105	\$141,158	\$243,446	\$59,312
Total Cost	\$273,932	\$266,508	\$988,132	\$933,305	\$1,045,673	\$590,576
No of Entitlements ^a	680,791	680,791	2,481,056	2,481,056	2,872,162	2,872,162
Average avoided cost per entitlement	\$0.40	\$0.39	\$0.40	\$0.38	\$0.36	\$0.21

^a Entitlement numbers for calculating ICD Discounts differ to those used for calculating prices as they exclude stock and domestic users and include supplementary users.

Source: WaterNSW Annual Information Return to IPART, June 2016 and IPART analysis.

Under our decision ICD discounts are declining relative to the ACCC's 2014 Decision. The total reduction between 2016-17 and 2017-18 is around 35% (compared with 50% under WaterNSW's proposal). This reflects that WaterNSW's avoided costs have fallen, and most ICDs hold less entitlements than at the time of the ACCC's 2014 Decision.

Average avoided cost per entitlement have fallen

WaterNSW's operating expenditure on billing, metering and compliance are forecast to reduce. The average reduction relative to WaterNSW's proposal to the ACCC for the 2014 Decision is 45% in Lachlan, 47% in Murray and 36% in Murrumbidgee. Coleambally Irrigation noted that, while ICD rebates are reducing due to expected operating expenditure efficiencies, these anticipated efficiencies may not be realised. It cited that rebates in the 2014 Determination under-estimated actual operating expenditure for metering and compliance.⁴²⁵ However, our expenditure consultants have concluded that WaterNSW's operating expenditure reductions are achievable (Chapter 5).

WaterNSW's avoided costs for telemetry and data transfer are also forecast to reduce, due to:

- ▼ a reduction in the WACC (Chapter 7) which reduces the incremental avoided costs of telemetry installation, and
- ▼ lower data transfer costs per customer per annum (from \$68.46 to \$63.83).

⁴²⁵ Coleambally Irrigation submission to IPART Draft Report, April 2017, p 4.



Entitlements held by ICDs have fallen

The number of entitlements has fallen for most ICDs since the 2014 Decision. This means the avoided costs per entitlement (in Table 13.14) are applied to fewer entitlements when calculating the total annual rebate per ICD. The exceptions are Murray Irrigation and West Corurgan, where entitlements have increased (somewhat offsetting the fall in average cost per entitlement).

14 Impacts on customer bills

This chapter outlines the impact of our pricing decisions on WaterNSW's customers. It also discusses the implications of our pricing decision on other matters we must consider under section 15 of the IPART Act (see Appendix A). These include:

- ▼ WaterNSW's financial viability
- ▼ WaterNSW's shareholders, and
- ▼ the environment.

We are satisfied that the 2017 Determination achieves an appropriate balance between these matters.

We note that in presenting customer bill impacts in this chapter, we present nominal dollar impacts – ie, **bill impacts including forecast inflation**. In calculating bill impacts for the 2017 Determination period, we apply an inflation rate of 2.1% per annum for the first year of the determination period, and an inflation rate of 2.5% per annum for each year thereafter.

WaterNSW must apply for an annual review of its prices under the WCIR 2010 (refer to Appendix C). Bill impacts presented in this chapter are based on our final prices and do not account for potential updates in prices following these annual reviews.

14.1 Customer bill impacts from WaterNSW's bulk water service charges

In reaching our decisions, we considered the likely impact on WaterNSW's HS and GS customers, assuming different patterns of usage and entitlement.

We note that in response to our Issues Paper, WaterNSW stated that it is in the process of developing an online bill calculator. This will allow individuals to determine the impact of prices set in determinations.

14.1.1 MDB and Coastal valleys

For the MDB and Coastal valleys, our analysis of bill impacts is based on:

- ▼ HS entitlement holders at 100% of usage, and
- ▼ GS entitlement holders at 60% of usage.⁴²⁶

For both HS and GS entitlements, customers are broken down into three categories:

⁴²⁶ We note that Gwydir Valley Irrigators Association stated that bill impacts should also be presented at varying water usage (eg, 30% and 60%). However, WaterNSW has indicated that 60% water usage is representative of the average usage for GS entitlement holders over the past 20-years (approximately 57% of billable entitlements). Gwydir Valley Irrigators Association submission to IPART Issues Paper, October 2016, p 18; WaterNSW submission to IPART Issues Paper, October 2016, p 19.

- ▼ small customers with 100 ML of entitlements
- ▼ medium customers with 500 ML of entitlements, and
- ▼ large customers with 1,000 ML of entitlements.

For the Murray and Murrumbidgee valleys, we have included additional bill impacts (excluding MDBA pass-through charges) for customers with a WaterNSW-owned meter. These bill impacts are based on:

- ▼ small customers (100 ML of entitlements) with a 100mm WaterNSW-owned meter
- ▼ medium customers (500 ML of entitlements) with a 250mm WaterNSW-owned meter, and
- ▼ large customers (1,000 ML of entitlements) with a 450mm WaterNSW-owned meter.

We note that customers with a WaterNSW-owned meter, compared to customers with a customer-owned meter, will have a larger bill due to the former incurring a meter service charge.

For the Lowbidgee valley, customers only own supplementary entitlements. Analysis of bills is based on the valley as a whole (ie, 747, 000 ML of entitlements and forecast usage at 57,261 ML).

Figure 14.1 to Figure 14.4 below present the percentage change in bills from 2016-17 to 2020-21 on HS and GS customers in the MDB and Coastal valleys, compared to WaterNSW's proposed bill impacts. Table 14.1 to Table 14.14 set out the WaterNSW bulk water bill impacts in more detail based on customer size and entitlement type, by valley.

Our analysis of bill impacts indicate that from 2016-17 to 2020-21 (\$nominal, ie, with inflation) for bulk water charges:

- ▼ **all HS customers would expect a bill decrease, or a small bill increase below the rate of inflation, and**
- ▼ **all GS customers would expect a bill decrease, or a small bill increase below the rate of inflation.**

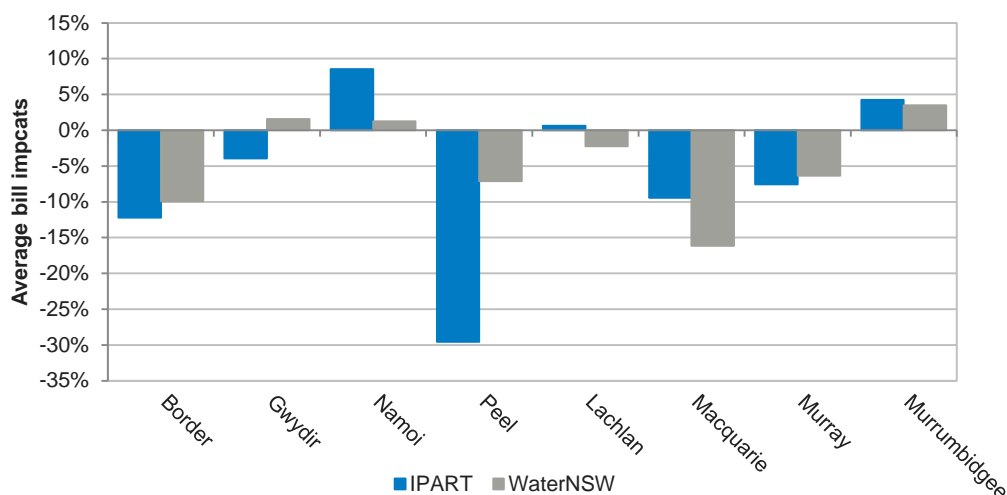
This excludes the impact of BRC and MDBA charges, which are discussed further below.

We note that, compared to WaterNSW's proposal, bills (in nominal terms) for:

- ▼ **HS customers in the Namoi valley** would increase more than WaterNSW's proposed increase. This is mainly due to our decision to recover the volatility allowance from all customers (including HS customers) and the deterioration in the UOM balance in the Namoi over 2016-17 (see Chapter 8).
- ▼ **HS customers and GS customers in the Peel valley** would decrease more than WaterNSW's proposed decrease. This is mainly due to our decision to restructure tariffs to 80:20 fixed to variable from 2018-19 onwards (see Chapter 11).

- ▼ **GS customers in the Hunter valley** would increase rather than WaterNSW’s proposed decrease. This is due to the updated HS premium as discussed in Chapter 11. The HS premium we applied (1.29) is lower than the HS premium proposed by WaterNSW (3.09).⁴²⁷ This means that under our prices, GS customers bear a greater proportion of the fixed component of WaterNSW’s customer share of NRR, resulting in a decrease in bills for HS customers.
- ▼ **Customers in the North and South Coast valleys** would decrease compared with WaterNSW’s proposal, due to our decision to change the way in which we set prices in these valleys and to restructure their tariffs to 90:10 fixed to variable for the North Coast and 80:20 for the South Coast (see Chapter 12).

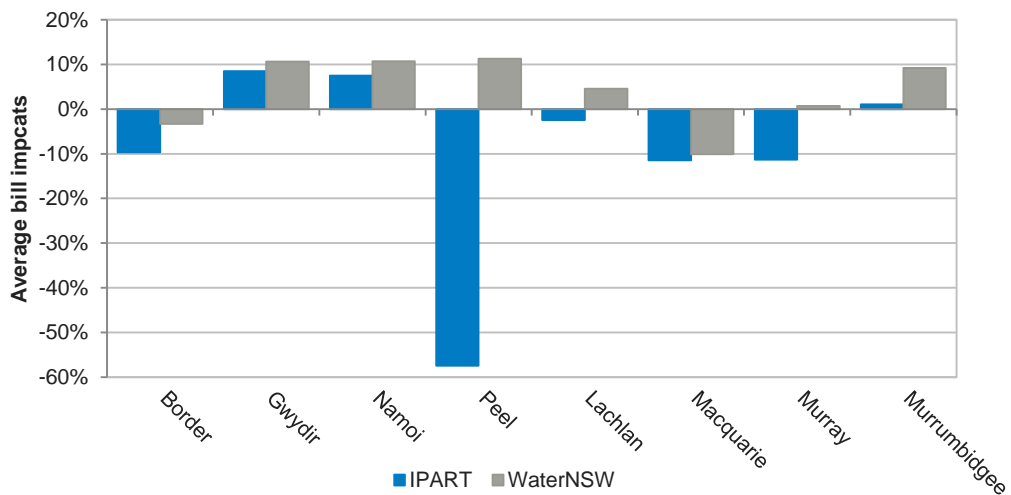
Figure 14.1 Indicative bill impacts compared to current prices for high security customers in MDB valleys – IPART decisions and WaterNSW proposal (% change from 2016-17 to 2020-21, \$nominal)



Note: Excludes BRC and MDBA payments. Lowbidgee is excluded as there are only supplementary entitlements in the valley.
Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

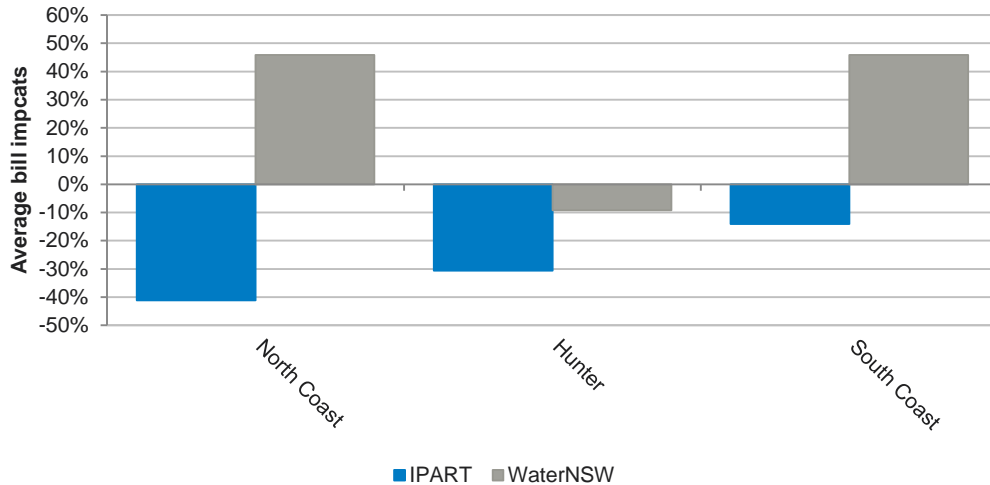
⁴²⁷ WaterNSW Information Return, June 2016.

Figure 14.2 Indicative bill impacts compared to current prices for general security customers in MDB valleys – IPART decisions and WaterNSW proposal (% change from 2016-17 to 2020-21, \$nominal)



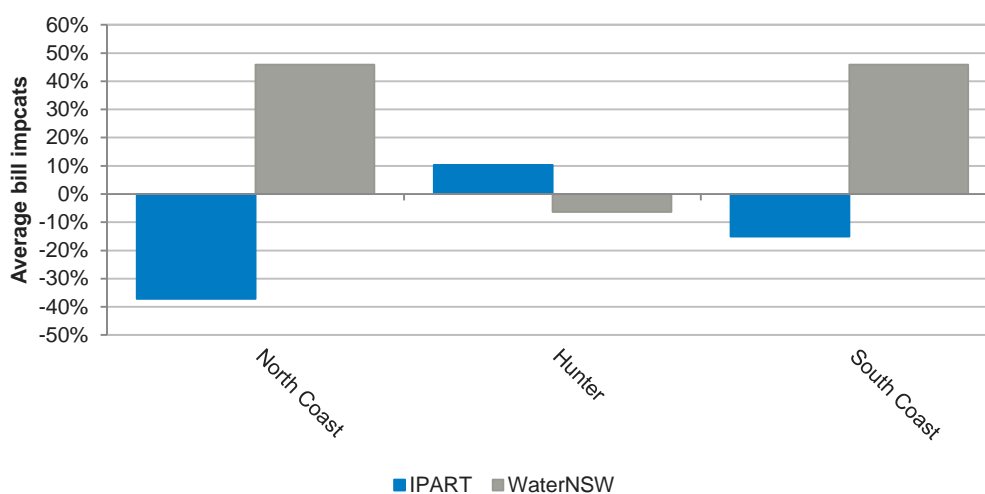
Note: Excludes BRC and MDBA payments. Lowbidgee is excluded as there are only supplementary entitlements in the valley.
Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Figure 14.3 Indicative bill impacts compared to current prices for high security customers in Coastal valleys – IPART decisions and WaterNSW proposal (% change from 2016-17 to 2020-21, \$nominal)



Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Figure 14.4 Indicative bill impacts compared to current prices for general security customers in Coastal valleys – IPART decisions and WaterNSW proposal (% change from 2016-17 to 2020-21, \$nominal)



Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Border valley

Table 14.1 Border valley bill impacts compared to current prices (\$nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$1,350	\$1,100	\$1,185	-3.2%	-12.2%	-9.9%
Medium	\$6,750	\$5,500	\$5,925	-3.2%	-12.2%	-9.9%
Large	\$13,500	\$11,000	\$11,850	-3.2%	-12.2%	-9.9%
General security						
Small	\$639	\$536	\$577	-2.5%	-9.6%	-3.3%
Medium	\$3,195	\$2,678	\$2,887	-2.5%	-9.6%	-3.3%
Large	\$6,390	\$5,356	\$5,774	-2.5%	-9.6%	-3.3%

Note: Excludes BRC & MDBA pass-through charges.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Gwydir valley

Table 14.2 IPART analysis of Gwydir valley bill impacts compared to current prices (\$ nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$2,626	\$2,343	\$2,523	-1.0%	-3.9%	1.6%
Medium	\$13,130	\$11,715	\$12,615	-1.0%	-3.9%	1.6%
Large	\$26,260	\$23,430	\$25,230	-1.0%	-3.9%	1.6%
General security						
Small	\$1,075	\$1,082	\$1,166	2.1%	8.5%	10.7%
Medium	\$5,374	\$5,411	\$5,830	2.1%	8.5%	10.7%
Large	\$10,748	\$10,822	\$11,660	2.1%	8.5%	10.7%

Source: WaterNSW Pricing WaterNSW's proposal, June 2016, pp49-58, and IPART analysis 2017.

Namoi valley

Table 14.3 IPART analysis of Namoi valley bill impacts compared to current prices (\$ nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$3,755	\$3,784	\$4,075	2.1%	8.5%	1.3%
Medium	\$18,775	\$18,920	\$20,375	2.1%	8.5%	1.3%
Large	\$37,550	\$37,840	\$40,750	2.1%	8.5%	1.3%
General security						
Small	\$2,041	\$2,037	\$2,193	1.8%	7.5%	10.7%
Medium	\$10,203	\$10,185	\$10,966	1.8%	7.5%	10.7%
Large	\$20,406	\$20,370	\$21,932	1.8%	7.5%	10.7%

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Peel valley

Table 14.4 IPART analysis of Peel valley bill impacts compared to current prices (\$ nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$9,353	\$7,747	\$6,589	-8.4%	-29.6%	-7.1%
Medium	\$46,765	\$38,735	\$32,945	-8.4%	-29.6%	-7.1%
Large	\$93,530	\$77,470	\$65,890	-8.4%	-29.6%	-7.1%
General security						
Small	\$3,884	\$3,580	\$1,653	-19.2%	-57.4%	11.3%
Medium	\$19,418	\$17,900	\$8,267	-19.2%	-57.4%	11.3%
Large	\$38,836	\$35,800	\$16,534	-19.2%	-57.4%	11.3%

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Lachlan valley

Table 14.5 IPART analysis of Lachlan valley bill impacts compared to current prices (\$ nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$3,760	\$3,514	\$3,784	0.2%	0.6%	-2.2%
Medium	\$18,800	\$17,570	\$18,920	0.2%	0.6%	-2.2%
Large	\$37,600	\$35,140	\$37,840	0.2%	0.6%	-2.2%
General security						
Small	\$1,595	\$1,445	\$1,556	-0.6%	-2.5%	4.6%
Medium	\$7,976	\$7,227	\$7,779	-0.6%	-2.5%	4.6%
Large	\$15,952	\$14,454	\$15,558	-0.6%	-2.5%	4.6%

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Macquarie valley

Table 14.6 IPART analysis of Macquarie valley bill impacts compared to current prices (\$nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$3,314	\$2,787	\$3,002	-2.4%	-9.4%	-16.1%
Medium	\$16,570	\$13,935	\$15,010	-2.4%	-9.4%	-16.1%
Large	\$33,140	\$27,870	\$30,020	-2.4%	-9.4%	-16.1%
General security						
Small	\$1,380	\$1,135	\$1,223	-3.0%	-11.4%	-10.1%
Medium	\$6,901	\$5,676	\$6,113	-3.0%	-11.4%	-10.1%
Large	\$13,802	\$11,352	\$12,226	-3.0%	-11.4%	-10.1%

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Murray valley

Table 14.7 IPART analysis of Murray valley bill impacts compared to current prices (\$nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$410	\$352	\$379	-1.9%	-7.6%	-6.3%
Medium	\$2,050	\$1,760	\$1,895	-1.9%	-7.6%	-6.3%
Large	\$4,100	\$3,520	\$3,790	-1.9%	-7.6%	-6.3%
General security						
Small	\$236	\$194	\$209	-3.0%	-11.3%	0.7%
Medium	\$1,178	\$970	\$1,045	-3.0%	-11.3%	0.7%
Large	\$2,356	\$1,940	\$2,090	-3.0%	-11.3%	0.7%

Note: Excludes BRC & MDBA pass-through charges.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Table 14.8 IPART analysis of Murray valley bill impacts for customers with WaterNSW-owned meters compared to current prices (\$nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$810	\$805	\$867	1.7%	7.1%	20.3%
Medium	\$2,498	\$2,224	\$2,394	-1.1%	-4.2%	1.8%
Large	\$4,724	\$4,038	\$4,348	-2.1%	-8.0%	-3.3%
General security						
Small	\$635	\$647	\$697	2.4%	9.7%	30.2%
Medium	\$1,626	\$1,434	\$1,544	-1.3%	-5.1%	11.3%
Large	\$2,980	\$2,458	\$2,648	-2.9%	-11.1%	4.1%

Note: Excludes BRC & MDBA pass-through charges.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Murrumbidgee valley

Table 14.9 IPART analysis of Murrumbidgee valley bill impacts compared to current prices (\$nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$661	\$640	\$689	1.0%	4.2%	3.5%
Medium	\$3,305	\$3,200	\$3,445	1.0%	4.2%	3.5%
Large	\$6,610	\$6,400	\$6,890	1.0%	4.2%	3.5%
General security						
Small	\$338	\$317	\$341	0.3%	1.1%	9.2%
Medium	\$1,689	\$1,584	\$1,707	0.3%	1.1%	9.2%
Large	\$3,378	\$3,168	\$3,414	0.3%	1.1%	9.2%

Note: Excludes BRC & MDBA pass-through charges.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Table 14.10 IPART analysis of Murrumbidgee valley bill impacts with WaterNSW-owned meters compared to current prices (\$nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$1,061	\$1,093	\$1,177	2.6%	11.0%	20.1%
Medium	\$3,753	\$3,664	\$3,944	1.2%	5.1%	7.7%
Large	\$7,234	\$6,918	\$7,448	0.7%	3.0%	4.6%
General security						
Small	\$737	\$770	\$829	3.0%	12.5%	30.0%
Medium	\$2,137	\$2,048	\$2,206	0.8%	3.2%	15.5%
Large	\$4,002	\$3,686	\$3,972	-0.2%	-0.7%	10.4%

Note: Excludes BRC & MDBA pass-through charges.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Lowbidgee valley

Table 14.11 IPART analysis of Lowbidgee valley bill impacts compared to current prices (\$nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
All customers	\$627,480	\$597,600	\$642,420	0.6%	2.4%	10.3%

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

North Coast valley

Table 14.12 IPART analysis of North Coast valley bill impacts compared to current prices (\$nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$5,458	\$2,980	\$3,210	-12.4%	-41.2%	45.8%
Medium	\$27,290	\$14,900	\$16,050	-12.4%	-41.2%	45.8%
Large	\$54,580	\$29,800	\$32,100	-12.4%	-41.2%	45.8%
General security						
Small	\$3,427	\$1,999	\$2,153	-11.0%	-37.2%	45.8%
Medium	\$17,137	\$9,994	\$10,765	-11.0%	-37.2%	45.8%
Large	\$34,274	\$19,988	\$21,530	-11.0%	-37.2%	45.8%

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Hunter valley

Table 14.13 IPART analysis of Hunter valley bill impacts compared to current prices (\$nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$4,080	\$2,629	\$2,831	-8.7%	-30.6%	-9.2%
Medium	\$20,400	\$13,145	\$14,155	-8.7%	-30.6%	-9.2%
Large	\$40,800	\$26,290	\$28,310	-8.7%	-30.6%	-9.2%
General security						
Small	\$1,772	\$1,814	\$1,955	2.5%	10.3%	-6.4%
Medium	\$8,861	\$9,072	\$9,774	2.5%	10.3%	-6.4%
Large	\$17,722	\$18,144	\$19,548	2.5%	10.3%	-6.4%

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

South Coast valley

Table 14.14 IPART analysis of South Coast valley bill impacts compared to current prices (\$nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$6,150	\$4,908	\$5,285	-3.7%	-14.1%	45.8%
Medium	\$30,750	\$24,540	\$26,425	-3.7%	-14.1%	45.8%
Large	\$61,500	\$49,080	\$52,850	-3.7%	-14.1%	45.8%
General security						
Small	\$3,432	\$2,708	\$2,915	-4.0%	-15.1%	45.9%
Medium	\$17,159	\$13,539	\$14,574	-4.0%	-15.1%	45.9%
Large	\$34,318	\$27,078	\$29,148	-4.0%	-15.1%	45.9%

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

14.1.2 Customer bill impacts from BRC and MDBA pass-through charges

For the Border, Murray and Murrumbidgee valleys, bills are presented:

- ▼ with BRC and MDBA pass-through charges only, and
- ▼ a combination of WaterNSW bulk water charges plus BRC and MDBA pass-through charges.

Bills are presented for both:

- ▼ HS entitlement holders at 100% of usage, and
- ▼ GS entitlement holders at 60% of usage.

For both HS and GS entitlements, customers are broken down into three categories:

- ▼ small customers with 100 ML of entitlements
- ▼ medium customers with 500 ML of entitlements, and
- ▼ large customers with 1,000 ML of entitlements.

As discussed in Chapter 8, the BRC and MDBA revenue requirements have been smoothed over the 4 years of the determination period with a 1.25% global adjustment, compounded per annum. The BRC and MDBA UOM balance has also been included, smoothed over 4 years.

Our BRC and MDBA charges are sometimes higher than WaterNSW's proposed charges, due to our decision to change the:

- ▼ price structure for BRC and MDBA charges to 80:20, fixed to variable, and
- ▼ BRC and MDBA HS premiums.

Figure 14.5 and Figure 14.6 present the impact of BRC and MDBA charges on HS and GS customers in the Border, Murray and Murrumbidgee valleys. Table 14.15 to Table 14.20 set out the BRC and MDBA bill impacts in more detail.

The effect of the pass-through charges would be **most pronounced in HS customer bills in Murray and Murrumbidgee** (ie, increase in bill impacts). This is due to the **combination** of:

- ▼ a **substantially larger MDBA pass-through charges** over the 2017 determination period
- ▼ our decision to **adopt an 80:20 tariff structure for MDBA charges**, which means that a larger portion of the (larger) pass-through charges would be recovered as a fixed charge, and
- ▼ applying the **updated (increased) HS premium**, which means that HS customers would bear more of the larger pass-through charges through a higher entitlement charge.

We note that **compared to WaterNSW's proposal**, our bill impacts indicate that **HS customers** in the:

- ▼ **Border valley** would experience a smaller decrease than WaterNSW's proposed decrease in bills
- ▼ **Murray valley** would experience an increase rather than WaterNSW's proposed decrease in bills, and
- ▼ **Murrumbidgee valley** would experience an increase rather than WaterNSW's proposed decreased in bills.

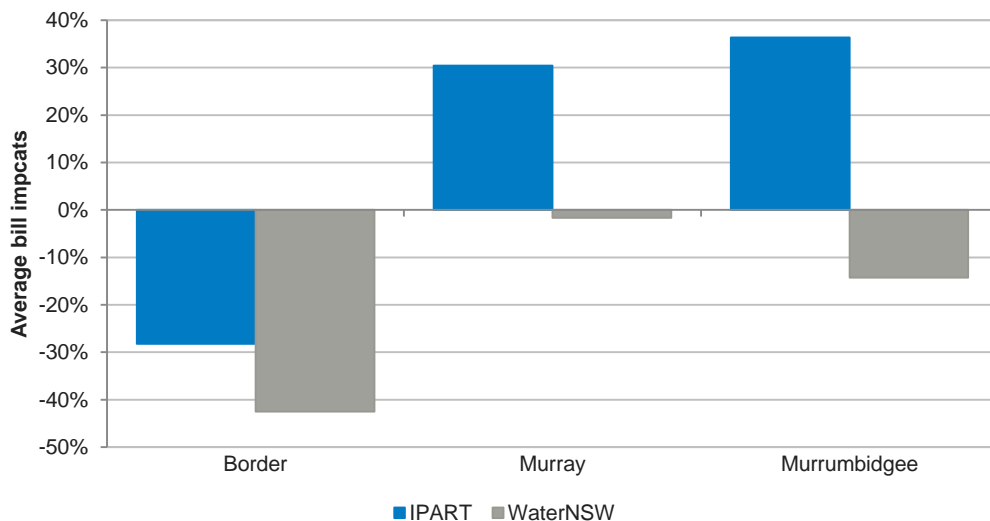
This is primarily driven by **WaterNSW's proposal to adjust the HS premium** for BRC and MDBA pass-through charges to reduce the impact on HS customers and subsequently

increase the impact on GS customers. That is, under WaterNSW’s proposal, HS customer bill impacts would reduce by shifting the burden to GS customers through higher prices per entitlement. In contrast, we have applied the standard HS premium. As discussed in Chapter 11, we do not consider it appropriate, in principle, to adjust the HS premiums for this purpose.

Other factors that have contributed to the difference between the IPART’s and WaterNSW’s BRC and MDBA bill impacts are due to our decisions to, as mentioned above:

- ▼ adopt an 80:20 fixed to variable tariff structure for MDBA and BRC charges, whereas WaterNSW proposed a 100:0 fixed to variable tariff structure, and
- ▼ apply a 1.25% global adjustment, compounded per annum, to BRC and MDBA payments.

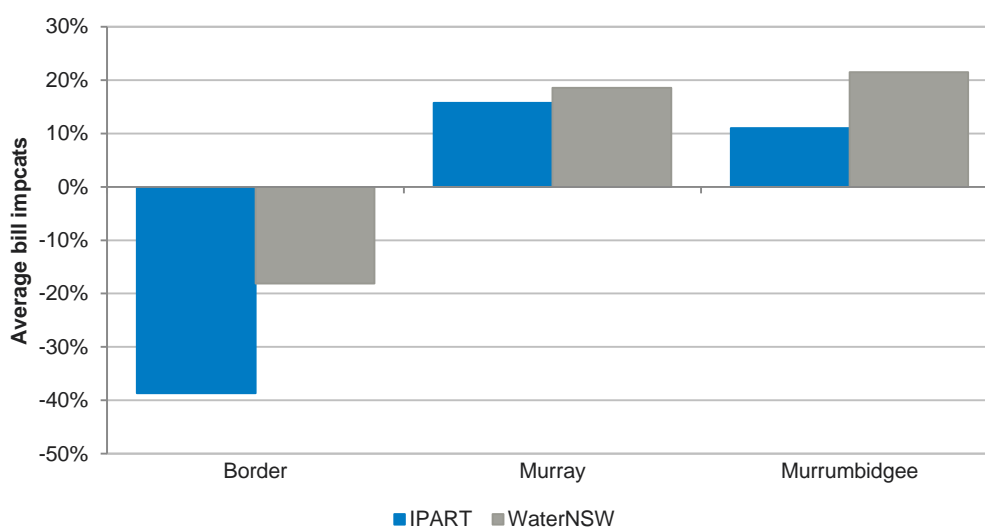
Figure 14.5 Indicative BRC and MDBA bill impacts compared to current prices for high security customers – IPART decisions and WaterNSW proposal (% change from 2016-17 to 2020-21, \$nominal)



Note: Excludes WaterNSW’s bulk water services charges.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Figure 14.6 Indicative BRC and MDBA bill impacts compared to current prices for general security customers – IPART decisions and WaterNSW proposal (% change from 2016-17 to 2020-21, \$nominal)



Notes: Excludes WaterNSW’s bulk water services charges.

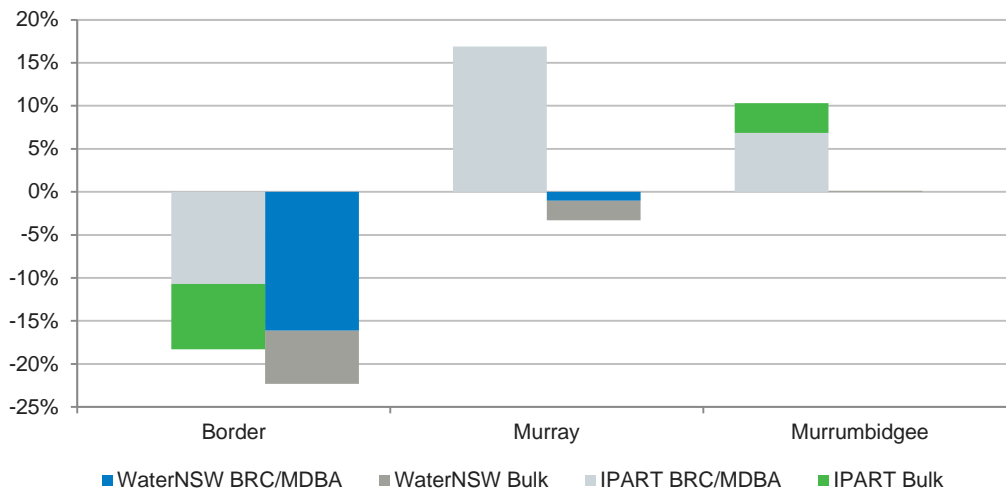
Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Figure 14.7 and Figure 14.8 below present the total bill impact of WaterNSW’s bulk water charges plus BRC and MDBA pass-through charges on customers in the Border, Murray and Murrumbidgee valleys (in nominal terms).

In these figures, we note that for:

- ▼ HS customers in the Murrumbidgee valley, WaterNSW’s proposed bill impacts indicate that the impact of the increase in bulk water services bills negate the impact of the decrease in MDBA bills (Figure 14.7).
- ▼ GS customers in the Murray valley, IPART’s analysis of bill impacts indicate that the impact of the increase in MDBA bills negate the impact of the decrease in bulk water services bills (Figure 14.8).

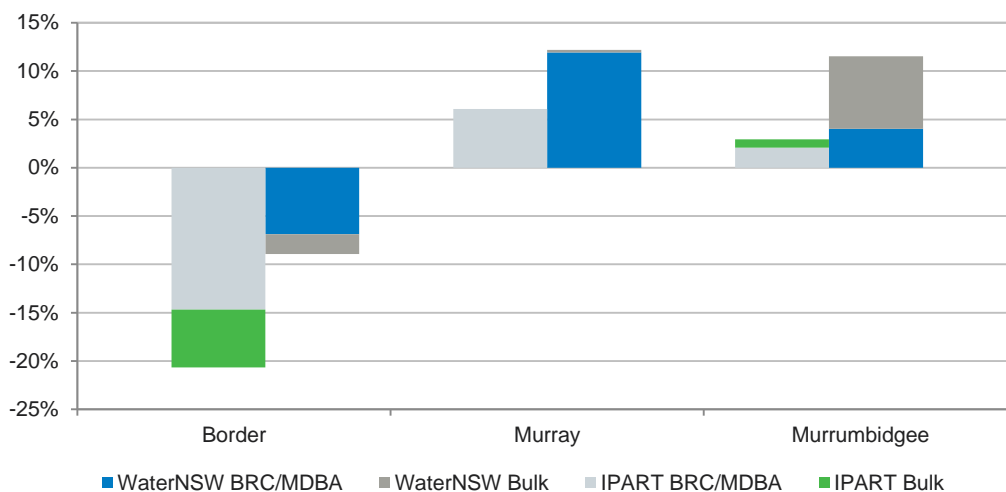
Figure 14.7 Indicative bill impacts (bulk water charges plus BRC & MDBA) compared to current prices for high security customers – IPART decisions and WaterNSW proposal (% change from 2016-17 to 2020-21, \$nominal)



Notes: WaterNSW’s analysis of bill impacts for HS customers in the Murrumbidgee valley indicate that the impact of increased bulk water bills outweighed the impact of decreased MDBA bills. Analysis does not include customers with WaterNSW-owned meters.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Figure 14.8 Indicative bill impacts (bulk water charges plus BRC & MDBA) compared to current prices for general security customers – IPART decisions and WaterNSW proposal (% change from 2016-17 to 2020-21, \$nominal)



Notes: IPART’s analysis of bill impacts for GS customers in the Murray valley indicate that the impact of increased MDBA bills outweighed the impact of decreased bulk water bills. Analysis does not include customers with WaterNSW-owned meters.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Table 14.15 IPART analysis of BRC bill impacts in the Border valley compared to current prices (\$ nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$825	\$550	\$592	-8.0%	-28.2%	-42.5%
Medium	\$4,125	\$2,750	\$2,960	-8.0%	-28.2%	-42.5%
Large	\$8,250	\$5,500	\$5,920	-8.0%	-28.2%	-42.5%
General security						
Small	\$391	\$223	\$240	-11.5%	-38.7%	-18.1%
Medium	\$1,954	\$1,115	\$1,198	-11.5%	-38.7%	-18.1%
Large	\$3,908	\$2,230	\$2,396	-11.5%	-38.7%	-18.1%

Notes: Excludes WaterNSW bulk water charges.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Table 14.16 IPART analysis of MDBA bill impacts in the Murray valley compared to current prices (\$ nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$739	\$895	\$964	6.9%	30.4%	-1.6%
Medium	\$3,695	\$4,475	\$4,820	6.9%	30.4%	-1.6%
Large	\$7,390	\$8,950	\$9,640	6.9%	30.4%	-1.6%
General security						
Small	\$424	\$456	\$491	3.7%	15.7%	18.6%
Medium	\$2,121	\$2,279	\$2,455	3.7%	15.7%	18.6%
Large	\$4,242	\$4,558	\$4,910	3.7%	15.7%	18.6%

Note: Excludes WaterNSW bulk water charges.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Table 14.17 IPART analysis of MDBA bill impacts in the Murrumbidgee valley compared to current prices (\$ nominal)

	2016-17 (Current)	2017-18	2020-21	Annuited % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$154	\$196	\$210	8.1%	36.4%	-14.3%
Medium	\$770	\$980	\$1,050	8.1%	36.4%	-14.3%
Large	\$1,540	\$1,960	\$2,100	8.1%	36.4%	-14.3%
General security						
Small	\$78	\$81	\$87	2.6%	11.0%	21.5%
Medium	\$391	\$403	\$434	2.6%	11.0%	21.5%
Large	\$782	\$806	\$868	2.6%	11.0%	21.5%

Note: Excludes WaterNSW bulk water charges.

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Table 14.18 IPART analysis of total bill impact in the Border valley (bulk water charges plus BRC) compared to current prices (\$ nominal)

	2016-17 (Current)	2017-18	2020-21	Annuited % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$2,175	\$1,650	\$1,777	-4.9%	-18.3%	-22.3%
Medium	\$10,875	\$8,250	\$8,885	-4.9%	-18.3%	-22.3%
Large	\$21,750	\$16,500	\$17,770	-4.9%	-18.3%	-22.3%
General security						
Small	\$1,030	\$759	\$817	-5.6%	-20.7%	-8.9%
Medium	\$5,149	\$3,793	\$4,085	-5.6%	-20.7%	-8.9%
Large	\$10,298	\$7,586	\$8,170	-5.6%	-20.7%	-8.9%

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Table 14.19 IPART analysis of total bill impact in the Murray valley (bulk water charges plus MDBA) compared to current prices (\$ nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$1,149	\$1,247	\$1,343	4.0%	16.9%	-3.3%
Medium	\$5,745	\$6,235	\$6,715	4.0%	16.9%	-3.3%
Large	\$11,490	\$12,470	\$13,430	4.0%	16.9%	-3.3%
General security						
Small	\$660	\$650	\$700	1.5%	6.1%	12.2%
Medium	\$3,299	\$3,249	\$3,500	1.5%	6.1%	12.2%
Large	\$6,598	\$6,498	\$7,000	1.5%	6.1%	12.2%

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Table 14.20 IPART analysis of total bill impact in the Murrumbidgee valley (bulk water charges plus MDBA) compared to current prices (\$ nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
High security						
Small	\$815	\$836	\$899	2.5%	10.3%	0.1%
Medium	\$4,075	\$4,180	\$4,495	2.5%	10.3%	0.1%
Large	\$8,150	\$8,360	\$8,990	2.5%	10.3%	0.1%
General security						
Small	\$416	\$397	\$428	0.7%	2.9%	11.5%
Medium	\$2,080	\$1,987	\$2,141	0.7%	2.9%	11.5%
Large	\$4,160	\$3,974	\$4,282	0.7%	2.9%	11.5%

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

14.1.3 Fish River Water Supply Scheme

For the FRWS scheme, our analysis of bill impacts is based on:

- ▼ MAQs in the water sharing plan for major customers, and a deemed MAQ of 200kL for minor individual customers (both raw and filtered)
- ▼ 20-year average (ie, forecast) water usage for each customer type excluding EnergyAustralia, and

- ▼ 1,541ML usage for EnergyAustralia.⁴²⁸

Figure 14.9 and Figure 14.10 below present the bill impacts of our determination on bulk raw water and bulk filtered water customers in the Fish River Water Supply Scheme. Table 14.21 sets out the bill impacts for customers in the FRWS scheme in more detail.

In nominal terms, all customers, except EnergyAustralia, would experience a bill decrease, or a small bill increase below the rate of inflation, over the 2017 determination period. EnergyAustralia would experience a bill increase (15.1% from 2016-17 to 2020-21, \$nominal, ie, including inflation) due to the shift from a 54:46 to 89:11 fixed to variable ratio. For more details about prices in the FRWS scheme, refer to Chapter 12.

In nominal terms, Lithgow Council would experience a small bill increase compared to current bills. This can be attributed to a combination of:

- ▼ Our decision to change from a 55:45 to an 80:20 fixed to variable tariff structure for the FRWS. Because of this, tariff structures for Lithgow Council changed from 65:35 to 78:22. This results in higher MAQ prices and lower usage prices for bulk filtered water customers (see Chapter 12), and
- ▼ Lithgow Council uses only 50% of its MAQ, compared to other bulk filtered water customers who use about three times their MAQ.⁴²⁹

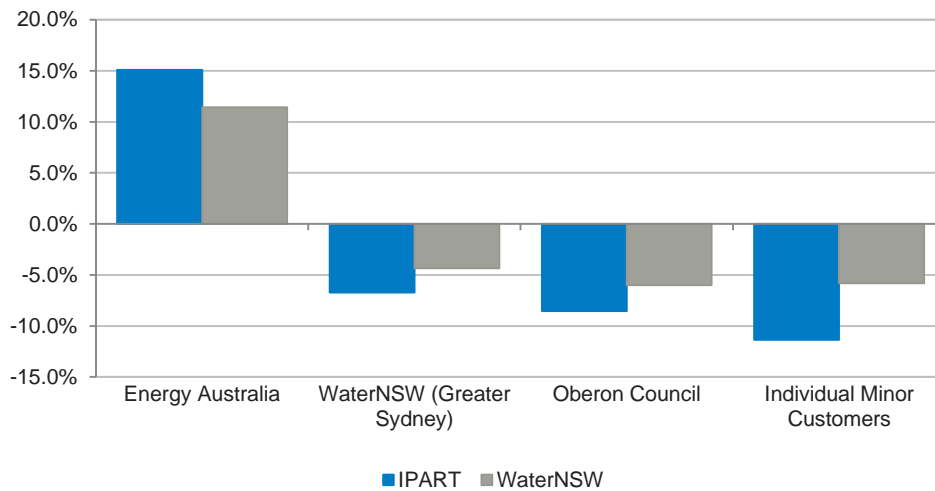
Our bill impacts analysis shows that, **compared to WaterNSW's proposal:**

- ▼ **Individual bulk filtered water customers** would experience a smaller bill decrease than WaterNSW's proposed decrease, which can be attributed to the UOM payback and the change in tariff structures (from 17:83 to 23:77). The impact on individual minor customers is larger (ie, a significantly smaller decrease) than the impact on Lithgow Council, as usage by individual customers is forecast to be three times higher than Lithgow Council's forecast usage.

⁴²⁸ To account for the closure of Wallerawang Power Station, forecast usage is based only on EnergyAustralia's Mt Piper Station as discussed in Chapter 10.

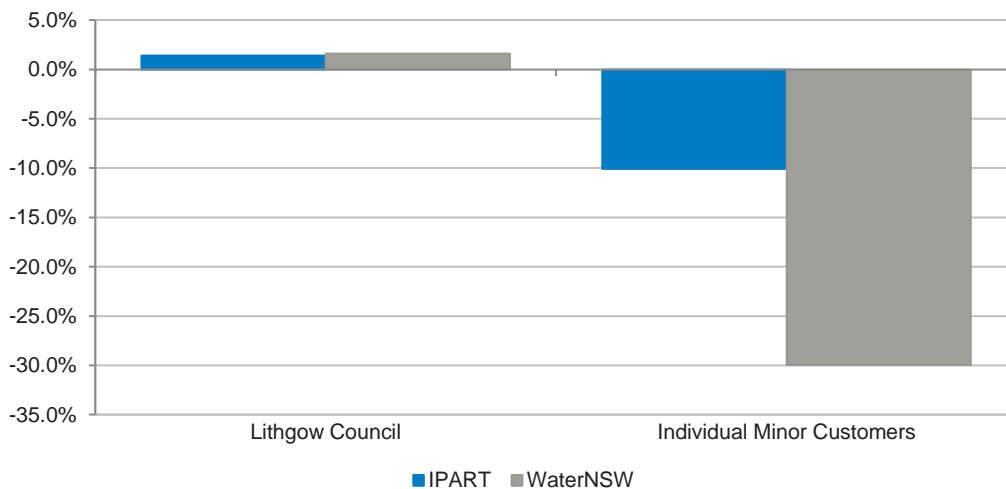
⁴²⁹ IPART analysis.

Figure 14.9 Indicative bill impacts compared to current prices for FRWS bulk raw water customers – IPART decisions and WaterNSW proposal (% change from 2016-17 to 2020-21, \$nominal)



Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Figure 14.10 Indicative bill impacts compared to current prices for FRWS bulk filtered water customers – IPART decisions and WaterNSW proposal (% change from 2016-17 to 2020-21, \$nominal)



Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

Table 14.21 IPART analysis of bill impacts for customers in the FRWS scheme compared to WaterNSW's proposal (\$ nominal)

	2016-17 (Current)	2017-18	2020-21	Annuitised % change 2016-17 to 2020-21	% change 2016-17 to 2020-21	% change 2016-17 to 2020-21 (WaterNSW's proposal)
Bulk raw water						
EnergyAustralia	\$3,418,816	\$3,658,850	\$3,935,190	3.6%	15.1%	11.4%
WaterNSW (Greater Sydney)	\$2,348,127	\$2,034,500	\$2,189,960	-1.7%	-6.7%	-4.4%
Oberon Council	\$709,534	\$602,850	\$648,950	-2.2%	-8.5%	-6.0%
Individual minor customers	\$476	\$392	\$422	-3.0%	-11.4%	-5.8%
Bulk filtered water						
Lithgow Council	\$1,542,666	\$1,449,680	\$1,564,560	0.4%	1.4%	1.6%
Individual customers	\$794	\$666	\$714	-2.6%	-10.1%	-30.0%

Source: WaterNSW pricing proposal to IPART, June 2016, pp 49-58; IPART analysis.

14.2 Impact on WaterNSW's financial viability and shareholders

The sections below consider other impacts of our pricing decisions, including impacts on WaterNSW and the NSW Government, as well as potential implications for the environment.

14.2.1 Impact on WaterNSW's financial viability

We undertake financeability tests to assess the short-term financial sustainability of utilities that we regulate. This means that we assess whether the utility will be able to raise finance, consistent with an investment grade-rated firm, during the regulatory period. Our December 2013 Final Decision on Financeability tests in price regulation states that this test will examine the firm's actual gearing ratio and a forecast of the actual interest expense.⁴³⁰

Our financeability test involves calculating three credit metrics and comparing them to the Baa2 benchmarks:⁴³¹

- ▼ Funds from operations (FFO) interest cover: calculated as FFO plus interest expense divided by interest expense. This is a coverage ratio and measures a utility's ability to service its debt prior to repayment.
- ▼ Debt gearing (Debt/RAB): calculated as debt divided by the regulatory value of fixed assets plus working capital. This is a leverage ratio and measures a utility's ability to repay its debt.

⁴³⁰ IPART, *Financeability tests in price regulation - Final Report*, December 2013.

⁴³¹ IPART, *Financeability tests in price regulation - Final Report*, December 2013, p10.

- ▼ FFO over net debt: calculated as FFO divided by net debt. This is a more dynamic measure of leverage than debt gearing and a useful indicator of a utility's ability to generate cash flows.

In applying the financeability test to WaterNSW's rural valleys, we considered whether the test should be performed on the entire WaterNSW entity, which includes WaterNSW Greater Sydney, or the rural valley business of WaterNSW only.

Our decision is to apply the financeability test to the entire WaterNSW entity, for the following reasons.

- ▼ It is the legal entity that borrows money. It has a single credit rating across the entire organisation.
- ▼ If the whole enterprise is solvent, it is not possible for part of it to be insolvent. Similarly, if the whole enterprise is insolvent, it is not possible for part of it to be solvent.
- ▼ WaterNSW Greater Sydney financeability was tested at the corporate level:
 - In our 2016 Final Report on WaterNSW Greater Sydney, we tested financeability at the WaterNSW corporate level, not treating WaterNSW Greater Sydney as a stand-alone business.
 - A key reason for this approach was that WaterNSW was unable to provide separate actual debt levels and interest costs for its Greater Sydney and Rural regulated businesses.⁴³²

The benchmarks for each metric are shown in Table 14.22 below. We target a Baa2 credit rating.

Table 14.22 IPART rating categories and benchmarks

Ratio	A3	Baa1	Baa2	Baa3	Ba1
FFO interest cover	>2.9	2.3 - 2.9	1.7 - 2.5	1.4 / 1.5 - 1.7	<1.4 / 1.5
Debt gearing	<60%	80-85%	60-91%	90-100%	>100%
FFO over debt	>10%	>10%	6-10%	5-8%	<4%

Source: IPART, *Final Decision – Financeability tests in price regulation*, December 2013, p 10.

The results of the financeability test on WaterNSW are shown in Table 14.23 below.

Table 14.23 Financeability test results for WaterNSW

Financial Year	2016-17	2017-18	2018-19	2019-20	2020-21
FFO Interest Cover	4.1	3.5	3.3	3.2	3.3
Debt / RAB	32%	33%	33%	33%	33%
FFO / Debt	13%	12%	12%	12%	13%

Source: IPART analysis.

Each of WaterNSW's ratios is better than the benchmark for a Baa2 credit rating in all of the years of the determination. Therefore, we consider that WaterNSW will be able to raise finance, consistent with an investment grade-rated firm, under our Determination.

⁴³² IPART, *Review of prices for WaterNSW: From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, p 86.

14.2.2 Implications on the Consolidated Fund

Under the IPART Act 1992 (NSW), Section 16, we are required to report on the likely impact to the Consolidated Fund if prices are not increased to the maximum levels permitted. If this is the case, then the level of tax equivalent and dividends paid to the Consolidated Fund would fall. The extent of this fall would depend on Treasury's application of its financial distribution policy and how the change affects after-tax profit.

Our financial modelling is based on a tax rate of 30% for pre-tax profit and dividend payments at 70% of after-tax profit. A \$1 decrease in pre-tax profit would result in a loss of revenue to the Consolidated Fund of 49 cents in total, which is 70% of the decrease in after-tax profit of 70 cents.

Impact from Government share of WaterNSW's NRR

Chapter 3 provides our decision on allocating WaterNSW's costs to the Government, on behalf of the community. Table 14.24 indicates that the government share of WaterNSW's NRR would impact the Consolidated Fund by \$33.8 million per year. For the 2017 Determination, the average Government share of NRR per year is 10.7% lower than the current share of NRR, and 3.5% lower compared to WaterNSW's proposed Government share of NRR.

Table 14.24 Government share of WaterNSW's NRR for the 2017 Determination period (\$'000, \$2016-17)

	2016-17	2017-18	2020-21	Total 2017-18 to 2020-21 (NPV)	Average per year 2017-18 to 2020-21	Average compared to 2016-17	Average compared to WaterNSW proposed
Operating expenditure	3,819	4,036	3,646	14,529	3,931	2.9%	11.0%
ICD rebates	-	-	-	-	-	-	-
Return of capital (depreciation)	9,308	9,128	9,388	34,499	9,293	-0.2%	-3.9%
Return on capital	22,168	15,664	15,637	58,476	15,760	-28.9%	-6.3%
Tax allowance	-	396	629	1,928	523		-24.9%
Volatility allowance	-	-	-	-	-	-	-
UOM payback	-	-	-	-	-	-	-
MDBA and BRC payments	2,507	3,047	4,613	15,747	4,260	69.9%	-
Total NRR	37,802	32,272	33,914	125,179	33,766	-10.7%	-3.5%

Source: WaterNSW pricing proposal to IPART, June 2016; WaterNSW Information Return, June 2016; IPART analysis.

Impact from BRC and MDBA pass-through charges

Chapter 8 outlines our decision on BRC and MDBA pass-through charges. Table 14.25 and Table 14.26 indicate that the BRC and MDBA pass-through charges (including the application of the 1.25% global adjustment, compounded annually) would impact the

Consolidated Fund by \$4.872 million per year. That is, the Consolidated Fund would be impacted by:

- ▼ \$4.260 million per year as indicated in Table 14.24 above, and
- ▼ a further \$0.612 million per year as a result of the application of the 1.25% global adjustment, compounded annually.

Table 14.25 Impact of BRC pass-through charges on the Consolidated Fund (\$'000, \$2016-17)

	2017-18	2018-19	2019-20	2020-21	Total 2017-18 to 2020-21 (NPV)	Average per year 2017-18 to 2020-21
WaterNSW proposal						
BRC revenue requirement	\$1,100	\$1,100	\$1,100	\$1,100	\$4,400	\$1,100
Customer share	\$694	\$718	\$715	\$715	\$2,842	\$711
Government share	\$406	\$382	\$385	\$385	\$1,558	\$390
Customer share %	63.1%	65.3%	65.0%	65.0%	64.6%	64.6%
Impact on Consolidated Fund	\$406	\$382	\$385	\$385	\$1,558	\$390
IPART adjusted						
Adjusted BRC revenue requirement (with global adjustment)	\$1,086	\$1,072	\$1,058	\$1,044	\$4,261	\$1,065
Customer share	\$685	\$700	\$688	\$679	\$2,752	\$688
Government share	\$401	\$372	\$370	\$365	\$1,509	\$377
Customer share %	63.1%	65.3%	65.0%	65.0%	64.6%	64.6%
Impact on Consolidated Fund	\$415	\$400	\$412	\$421	\$1,648	\$412
Impact of global adjustment	\$14	\$28	\$42	\$56	\$139	\$35

Note: The BRC UOM balance is not included.

Source: WaterNSW pricing proposal to IPART, June 2016; IPART analysis.

Table 14.26 Impact of MDBA pass-through charges on the Consolidated Fund (\$'000, \$2016-17)

	2017-18	2018-19	2019-20	2020-21	Total 2017-18 to 2020-21 (NPV)	Average per year 2017-18 to 2020-21
WaterNSW proposal						
MDBA revenue requirement	\$20,843	\$18,356	\$17,842	\$17,842	\$74,883	\$18,721
Customer share	\$18,163	\$13,914	\$13,366	\$13,366	\$58,809	\$14,702
Government share	\$2,680	\$4,442	\$4,476	\$4,476	\$16,074	\$4,019
Customer share %	87.1%	75.8%	74.9%	74.9%	78.5%	78.5%
Impact on Consolidated Fund	\$2,680	\$4,442	\$4,476	\$4,476	\$16,074	\$4,019
IPART adjusted						
Adjusted MDBA revenue requirement (with global adjustment)	\$20,582	\$17,894	\$17,165	\$16,933	\$72,574	\$18,144
Customer share	\$17,936	\$13,564	\$12,858	\$12,685	\$57,043	\$14,261
Government share	\$2,647	\$4,330	\$4,306	\$4,248	\$15,531	\$3,883
Customer share %	87.1%	75.8%	74.9%	74.9%	78.6%	78.6%
Impact on Consolidated Fund	\$2,907	\$4,792	\$4,984	\$5,157	\$17,840	\$4,460
Impact of global adjustment	\$261	\$462	\$677	\$909	\$2,309	\$577

Note: The MDBA UOM balance is not included.

Source: WaterNSW pricing proposal to IPART, June 2016; IPART analysis.

Impact from under-recovery of customer share of costs in North Coast and South Coast valleys

Section 12.4 outlines our decision on setting prices for the North Coast and South Coast valleys. Prices in these valleys do not fully recover the customers' share of costs in the North Coast and South Coast (see Table 14.27 and Table 14.28).

This under-recovery of costs and revenue shortfall would need to be borne by WaterNSW or recovered from the NSW Government as shareholder. Table 14.27 and Table 14.28 indicate the level of under-recovery for the North Coast and South Coast under our prices. If the under-recovery was to be borne by the NSW Government, this would impact the Consolidated Fund by \$1.4 million per year.

Table 14.27 IPART and WaterNSW proposed customer NRR and target revenue for the North Coast valley (\$'000, \$2016-17)

	IPART	WaterNSW proposed
Customer NRR	3,560	3,636
Target revenue	356	423
Amount under-recovered	3,204	3,122
Cost recovery %	10.0%	11.6%

Note: Figures presented in this table are net present value (NPV) over the 4-year determination period.

Source: WaterNSW Information Return, June 2016; WaterNSW Information Return, September 2016; IPART analysis.

The level of under-recovery in the North Coast valley is particularly low (10.0% cost recovery), recovering about 16% of operating costs only. If the under-recovery in the North Coast was to be borne by the NSW Government, this would impact the Consolidated Fund on average by \$0.89 million per year.

Table 14.28 IPART and WaterNSW proposed customer NRR and target revenue for the South Coast valley over 2017 Determination period (\$'000, \$2016-17)

	IPART	WaterNSW proposed
Customer NRR	3,090	3,096
Target revenue	1,174	1,355
Amount under-recovered	1,916	1,741
Cost recovery %	38.0%	43.8%

Note: Figures presented in this table are net present value (NPV) over the 4-year determination period.

Source: WaterNSW Information Return, June 2016; WaterNSW Information Return, September 2016; IPART analysis.

The level of cost recovery in the South Coast valley (38.0% FCR) is higher than in the North Coast valley, and recovers about 51% of operating costs. If the under-recovery in the South Coast was to be borne by the NSW Government, this would impact the Consolidated Fund on average by \$0.53 million per year.

14.2.3 Implications for the environment

WaterNSW's environmental impacts are regulated by relevant Commonwealth, NSW and local environmental legislation, regulation and regulatory bodies.

As discussed in Chapter 5 and Chapter 6, we consider that our decisions on prudent and efficient capital and operating expenditure should allow WaterNSW to continue to meet its environmental requirements over the 2017 determination period.

Our approach to considering the environment (as well as broader issues of 'liveability') in our price determinations is outlined further in Chapter 2 of our 2016 report on our determination of Sydney Water's prices.⁴³³

⁴³³ IPART, *Review of prices for Sydney Water Corporation – From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, pp 34-41.



Appendices



A Matters to be considered

A.1 Matters to be considered by IPART under section 15 of the IPART Act

In making determinations, IPART is required, under Section 15 of the IPART Act, to have regard to the following matters (in addition to any other matters IPART considers relevant):

- a) the cost of providing the services concerned
- b) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services
- c) the appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales
- d) the effect on general price inflation over the medium-term
- e) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers
- f) the need to maintain ecologically sustainable development (within the meaning of section 6 of the *Protection of the Environment Administration Act 1991*) by appropriate pricing policies that take account of all the feasible options available to protect the environment
- g) the impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets
- h) the impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body
- i) the need to promote competition in the supply of the services concerned
- j) considerations of demand management (including levels of demand) and least cost planning
- k) the social impact of the determinations and recommendations
- l) standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

Table A.1 outlines the sections of the report that address each matter.

Table A.1 Consideration of section 15 matters by IPART

Section 15(1)	Report reference
a) the cost of providing the services	Chapter 4 to 9, and 13
b) the protection of consumers from abuses of monopoly power	Chapter 2 to 9, 11 to 14, and Appendix B
c) the appropriate rate of return and dividends	Chapter 7
d) the effect on general price inflation	Chapter 14 generally. We note that in most instances, prices are decreasing and impacts on general price inflation are likely to be minimal.
e) the need for greater efficiency in the supply of services	Chapter 5 and 6
f) ecologically sustainable development	Chapter 5 and 6, and Section 14.2.3
g) the impact on borrowing, capital and dividend requirements	Chapter 7 and section 14.2.1 and 14.2.2
h) impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body	Not applicable
i) need to promote competition	Chapter 3, 12 and 13
j) considerations of demand management and least cost planning	Chapter 6, 10, 12 and 13
k) the social impact	Chapter 14
l) standards of quality, reliability and safety	Chapter 5 and 6, and Appendix B

A.2 Matters to be considered by IPART under the Water Act (2007)

Rule 29 of the WCIR (2010)⁴³⁴ sets out the matters that we are required to consider in determining charges for MDB valleys. Rule 29(2) and (3) specify the matters that IPART must be satisfied of when approving or determining regulated charges. Rule 29(4) explains the relevance of the Basin water charging objectives and principles that are set out below.⁴³⁵

Schedule 2—Basin water charging objectives and principles⁴³⁶

Part 2 – Water charging objectives

The water charging objectives are:

- a) to promote the economically efficient and sustainable use of:
 - i) water resources; and
 - ii) water infrastructure assets; and
 - iii) government resources devoted to the management of water resources; and
- b) to ensure sufficient revenue streams to allow efficient delivery of the required services; and

⁴³⁴ Water Charge (Infrastructure) Rules 2010 (Cth).

⁴³⁵ Under the Water Act 2007, schedule 2 (Cth).

⁴³⁶ See Water Act 2007, schedule 2 (Cth), <https://www.legislation.gov.au/Details/C2016C00469>

- c) to facilitate the efficient functioning of water markets (including inter-jurisdictional water markets, and in both rural and urban settings); and
- d) to give effect to the principles of user-pays and achieve pricing transparency in respect of water storage and delivery in irrigation systems and cost recovery for water planning and management; and
- e) to avoid perverse or unintended pricing outcomes.

Part 3 – Water charging principles

Water storage and delivery

1. Pricing policies for water storage and delivery in rural systems are to be developed to facilitate efficient water use and trade in water entitlements.
2. Water charges are to include a consumption-based component.
3. Water charges are to be based on full cost recovery for water services to ensure business viability and avoid monopoly rents, including recovery of environmental externalities where feasible and practical.
4. Water charges in the rural water sector are to continue to move towards upper bound pricing where practicable.
5. In subclause (4): upper bound pricing means the level at which, to avoid monopoly rents, a water business should not recover more than:
 - a) the operational, maintenance and administrative costs, externalities, taxes or tax equivalent regimes; and
 - b) provision for the cost of asset consumption; and
 - c) provision for the cost of capital (calculated using a weighted average cost of capital).
6. If full cost recovery is unlikely to be achieved and a Community Service Obligation is deemed necessary:
 - a) the size of the subsidy is to be reported publicly; and
 - b) where practicable, subsidies or Community Service Obligations are to be reduced or eliminated.
7. Pricing policies should ensure consistency across sectors and jurisdictions where entitlements are able to be traded.

Cost recovery for planning and management

1. All costs associated with water planning and management must be identified, including the costs of underpinning water markets (such as the provision of registers, accounting and measurement frameworks and performance monitoring and benchmarking).
2. The proportion of costs that can be attributed to water access entitlement holders is to be identified consistently with the principles set out in subclauses (3) and (4).
3. Water planning and management charges are to be linked as closely as possible to the costs of activities or products.
4. Water planning and management charges are to exclude activities undertaken for the Government (such as policy development and Ministerial or Parliamentary services).

5. States and Territories are to report publicly on cost recovery for water planning and management annually. The reports are to include:
 - a) the total cost of water planning and management; and
 - b) the proportion of the total cost of water planning and management attributed to water access entitlement holders, and the basis upon which this proportion is determined.

Environmental externalities

1. Market-based mechanisms (such as pricing to account for positive and negative environmental externalities associated with water use) are to be pursued where feasible.
2. The cost of environmental externalities is to be included in water charges where found to be feasible.

Benchmarking and efficiency reviews

1. Independent and public benchmarking or efficiency reviews of pricing and service quality relevant to regulated water charges is or are to be undertaken based on a nationally consistent framework.
2. The costs of operating these benchmarking and efficiency review systems are to be met through recovery of regulated water charges.

Table A.2 outlines the sections of the report that address each matter.

Table A.2 Consideration of Water Act 2007 schedule 2 matters by IPART

Schedule 2	Report reference
Part 2 – Water charging objectives	
a) to promote the economically efficient and sustainable use of: <ol style="list-style-type: none"> (i) water resources; and (ii) water infrastructure assets; and (iii) government resources devoted to the management of water resources; and 	Chapter 2 to 9, and 11 to 14
b) to ensure sufficient revenue streams to allow efficient delivery of the required services; and	Chapter 4
c) to facilitate the efficient functioning of water markets (including inter-jurisdictional water markets, and in both rural and urban settings); and	Chapter 2
d) to give effect to the principles of user-pays and achieve pricing transparency in respect of water storage and delivery in irrigation systems and cost recovery for water planning and management; and	Chapter 4, 8, 9 and 13
e) to avoid perverse or unintended pricing outcomes.	Chapter 2 to 4, 8, 9, 11 and 13
Part 3 – Water charging principles	
<i>Water storage and delivery</i>	
1. Pricing policies for water storage and delivery in rural systems are to be developed to facilitate efficient water use and trade in water entitlements.	Chapter 4, 12 and 13
2. Water charges are to include a consumption-based component.	Chapter 1, 11, 12 and 13
3. Water charges are to be based on full cost recovery for water services to ensure business viability and avoid monopoly rents, including recovery of environmental externalities where feasible and practical.	Chapter 2, 3, 4, 12, 13 and 14

4. Water charges in the rural water sector are to continue to move towards upper bound pricing where practicable.	Chapter 2, 3, 4, 12 and 13
5. In subclause (4): upper bound pricing means the level at which, to avoid monopoly rents, a water business should not recover more than: <ul style="list-style-type: none"> a) the operational, maintenance and administrative costs, externalities, taxes or tax equivalent regimes; and b) provision for the cost of asset consumption; and c) provision for the cost of capital (calculated using a weighted average cost of capital). 	Chapter 2 to 8, 12 and 13
6. If full cost recovery is unlikely to be achieved and a Community Service Obligation is deemed necessary: <ul style="list-style-type: none"> a) the size of the subsidy is to be reported publicly; and b) where practicable, subsidies or Community Service Obligations are to be reduced or eliminated. 	Chapter 12 and section 8.1
7. Pricing policies should ensure consistency across sectors and jurisdictions where entitlements are able to be traded.	Chapter 12
<i>Cost recovery for planning and management</i>	Not applicable. We have considered this as part of our 2016 review of prices that the Water Administration Ministerial Corporation (WAMC) can charge for its monopoly water planning and management services. (See our Final Report, <i>Review of prices for the Water Administration Ministerial Corporation from 1 July 2016</i> .) ⁴³⁷
<i>Environmental externalities</i>	
1. Market-based mechanisms (such as pricing to account for positive and negative environmental externalities associated with water use) are to be pursued where feasible.	Chapter 9 and Appendix F
2. The cost of environmental externalities is to be included in water charges where found to be feasible.	Chapter 5, 6, 9 and 14
<i>Benchmarking and efficiency reviews</i>	
1. Independent and public benchmarking or efficiency reviews of pricing and service quality relevant to regulated water charges is or are to be undertaken based on a nationally consistent framework.	Chapter 5, 6 and Appendix B
2. The costs of operating these benchmarking and efficiency review systems are to be met through recovery of regulated water charges.	Chapter 4, 12 and 13

⁴³⁷ IPART, *Review of prices for the Water Administration Ministerial Corporation from 1 July 2016*, Final Report, June 2016.

B Output measures

We set output measures for the water agencies that we regulate to inform us and stakeholders whether they are delivering on their planned capital expenditure. This is important because we set prices to enable them to recover the forecast costs of those plans. Moreover, ongoing inability to meet output measure targets could indicate that the required levels of service, to which we have linked our prices, are not being met and there is a deficiency in the planning and delivery of capital projects.

While meeting output measure targets is important, conclusions about WaterNSW's performance should not be drawn on the basis of whether or not it has met these targets. There may be reasonable explanations why it does not meet targets. In fact, as circumstances evolve over a determination period, changing a target may result in a better outcome for stakeholders. In such cases, the output measures can provide a reference point for articulating changes in priorities.

B.1 Output measures - 2010 determination period

We set output measures as part of our 2010 Determination.⁴³⁸ The measures included milestone dates for major projects; the percentage of maintenance jobs reported on the facilities maintenance and management system (FMMS); reporting on existing asset conditions, and environmental output measures to assess fish passage and reduced cold water pollution. Output measures were not specified for recent years given the deferred price review.

Aither assessed WaterNSW's performance against these output measures as part of its expenditure review, and found that output measures in the 2010 determination period have largely been met. And, in areas where measures were not fully met, Aither found these were adequately explained by WaterNSW. This included where there were issues with the output measures themselves, or where WaterNSW had made strategic decisions to defer works to reduce costs or improve delivery.⁴³⁹

Aither found output measures were generally met but with delays in some cases. For example, in most cases WaterNSW successfully delivered on dam safety output measures but not always within the specified time. Similarly, the results reported for the FMMS output measures showed relatively good performance, but with high backlogs in some years.⁴⁴⁰

⁴³⁸ IPART, *Review of bulk water charges for State Water Corporation - From 1 July 2010 to 30 June 2014 – Final Report*, June 2010, Appendix D, pp 210-213.

⁴³⁹ Aither, *WaterNSW Expenditure Review Final Report*, February 2017, p x.

⁴⁴⁰ Aither, *WaterNSW Expenditure Review Final Report*, February 2017, p xxi.

With respect to the fish passage output measure, Aither found that while there had been a gradual increase in the total length of river open to fish, many of the associated output targets were not met.⁴⁴¹

In some cases, Aither considered there were issues with the output measures themselves. For example, the cold water pollution output measure did not appear practically achievable.

B.2 Output measures - 2017 Determination

Table B.1 below lists our output measures for the 2017 Determination. These have been developed based on advice from Aither, our expenditure review consultants, and refined in consultation with WaterNSW. In developing the output measures, Aither gave consideration to:

- ▼ past output measures, including any that should be continued
- ▼ issues raised in its expenditure review, including broad and project-specific issues, and any that may need monitoring to ensure they are addressed
- ▼ specific project-based outcomes that would be expected from the expenditure, and
- ▼ dam safety issues.⁴⁴²

Some of the output measures relate to capital expenditure projects achieving objectives set out in the business case for the expenditure.

⁴⁴¹ Aither, *WaterNSW Expenditure Review Final Report*, February 2017, p xxi.

⁴⁴² Aither, *WaterNSW Expenditure Review Final Report*, February 2017, p 19.

Table B.1 Output measures for 2017 Determination

Project or area	Output measure	Target completion	Rationale and further detail
Asset renewals and condition	Report on: <ul style="list-style-type: none"> ▼ Service orders requiring reactive maintenance, broken down by asset sub-types. ▼ Number of assets with a criticality rating of 4 or above, broken down by asset sub-types. 	Report annually	This provides information to help inform WaterNSW forecasting, as well as give confidence to reviewers about asset condition and expenditure requirements.
WaterNSW Enterprise Resource Planning (ERP)	Ceased use of legacy information/ERP systems.	1 July 2020	Realisation of benefits that the business case for this project in part relied upon.
Regulatory Health and Safety expenditure by valley on 'Renewals – Safety'	WHS risks lowered to As Low As Reasonably Practicable (ALARP), providing a safe working environment for staff, reducing risk to the public, and maintaining operability.	30 June 2020	Realisation of benefits that the business case for by valley 'Renewals – Safety' projects in part relied upon. This measure would be difficult to quantify so can be reported against qualitatively.
Keepit Dam	Completion of works meeting the stated needs & requirements.	30 June 2020	Measure of WaterNSW's performance with executing major projects (this relates to the delivery of the project).
Keepit Dam safety project	Life safety risk position from Keepit Dam reduced to below Australian National Committee on Large Dams (ANCOLD) Limit of Tolerability for societal risk (ANCOLD Guidelines on Risk Assessment Figure 7.4).	30 June 2020	This was argued by WaterNSW as a key rationale for undertaking the works. The output measure is designed to ensure the required risk reduction outcome is achieved.
Future Dam Safety capital works strategy	Following expected changes in dam safety regulations, formulate a medium-term (5-10 year) plan of capital works required.	24 months following confirmation of applicable dam safety regulations in NSW	Develop a coherent long-term plan for capital investment for dams.

C Annual reviews

Below we outline our approach to annual reviews of prices within the 2017 Determination period for the MDB valleys and the coastal valleys separately, given that our regulation of prices within each of these operational areas is subject to different requirements and legislation (as discussed in Chapter 2).

C.1 MDB valleys

As discussed in Chapter 2, we are accredited by the ACCC to set bulk water prices for MDB valleys in line with the Water Charge (Infrastructure) Rules 2010 (WCIR) and ACCC Pricing Principles.⁴⁴³ Under the WCIR, we are required to set a four year determination period and to undertake an annual review of prices for MDB valleys.⁴⁴⁴

Given our obligations under the WCIR, we will undertake annual price reviews of WaterNSW's MDB valleys following applications by WaterNSW.⁴⁴⁵

The annual price review process requires us to vary regulated charges to the extent that such variation is reasonably necessary having regard to changes in demand or consumption forecasts and price stability.⁴⁴⁶

In its 2014 Decision, the ACCC determined charges for 2014-15 and included a formula to calculate charges for 2015-16 and 2016-17 for MDB valleys, which allows for an update in forecast entitlements and usage, and the inclusion of the unders and overs mechanism (UOM).⁴⁴⁷

Under the ACCC 2014 Decision, the annual price review for MDB valleys involved updating prices for the upcoming year, by valley, for the:

- ▼ expected number of entitlements issued for the valley in that year (for updating entitlement charges)
- ▼ expected water usage for the valley in that year based on the 20-year rolling average of past water usage (for updating usage charges)
- ▼ calculated allowance for the UOM (using the balance from the previous year multiplied by WaterNSW's WACC).⁴⁴⁸

⁴⁴³ Reference to the MDB valleys also includes the FRWS (excluding Oberon and Lithgow Councils).

⁴⁴⁴ See WCIR, Part 1(3) and Part 6, Division 3.

⁴⁴⁵ The WCIR (Part 6, Division 3) provide for the annual review of regulated charges for second or subsequent years of a regulatory period following an application by the infrastructure operator. The application must include the operator's forecast of demand for, or consumption of, services for the year to which the application relates; the operator's estimate of demand or consumption during the current year; information about how the forecast and estimate were calculated; and proposed regulated charges in respect of the year to which the application relates. The regulator may request the operator to provide further information relating to an application.

⁴⁴⁶ See WCIR, rule 37(2).

⁴⁴⁷ ACCC, *Final Decision on State Water Pricing Application: 2014-15 to 2016-17*, June 2014, pp 68-77.

⁴⁴⁸ The UOM was only applied in valleys at full cost recovery.

The updated factors were then used to update prices by valley accounting for the:

- ▼ tariff structure applied in each valley
- ▼ nominal revenue allowance for each valley for that year
- ▼ water sharing plans and average water allocation ratios for each valley (which are used to determine the HS premiums).⁴⁴⁹

For the 2017 Determination, in calculating prices for 2018-19, 2019-20 and 2020-21, we intend to apply the same annual review approach as previously used by the ACCC. However, we would no longer update prices to reflect the balance of the UOM as we have decided to discontinue the UOM (see section 8.2).⁴⁵⁰

Annual price reviews for MDB valleys would therefore involve updating prices for the upcoming year, by valley, for the:

- ▼ expected number of entitlements issued for the valley in that year (for updating entitlement charges)
- ▼ expected water usage for the valley in that year based on the 20-year rolling average of past water usage (for updating usage charges).

In updating prices, we would also account for the:

- ▼ tariff structure applied in each valley
- ▼ nominal revenue allowance for each valley for that year
- ▼ water sharing plans and average water allocation ratios for each valley (which are used to determine the HS premiums).

We intend to use the formulas presented in Box C.1 to Box C.3 as part of the annual review process to determine charges for WaterNSW.

⁴⁴⁹ ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, pp 68-77.

⁴⁵⁰ We have also decided to discontinue the UOM for MDBA and BRC charges (see section 8.1).

Box C.1 Calculation of charges for MDB valleys, excluding FRWS

In valley i , at time t , the allowed charges are:

- a) For high-security entitlements (\$/ML of entitlement):

$$HSEC_{i,t} = \frac{HSP_{i,t} \times Share \times Rev_{i,t}^{NRR}}{(HSP_{i,t} \times EHSE_{i,t} + EGSE_{i,t})}$$

- b) For general-security entitlements (\$/ML of entitlement):

$$GSEC_{i,t} = \frac{Share \times Rev_{i,t}^{NRR}}{(HSP_{i,t} \times EHSE_{i,t} + EGSE_{i,t})}$$

- c) For usage (\$/ML):

$$UC_{i,t} = \frac{(1 - Share) \times Rev_{i,t}^{NRR}}{EWU_{i,t}}$$

The terms used in the above formulas are defined in Table C.1.

Source: ACCC, ACCC Final Decision on State Water Pricing Application: 2014-15 – 2016-17, June 2014, pp 68-69, and IPART analysis.

Table C.1 Description of terms used in formulas for calculation of charges for MDB valleys, excluding FRWS

Definitions	
i	Valley: Border, Gwydir, Namoi, Peel, Lachlan, Macquarie, Murray, and Murrumbidgee.
t	Year: 2018-19, 2019-20, and 2020-21.
$HSP_{i,t}$	High security premium for valley i , in year t , calculated as set out below.
$Share$	The share of entitlement charges in WaterNSW's tariff structure for valley i .
$Rev_{i,t}^{NRR}$	The component of the (nominal) notional revenue requirement to be recovered from WaterNSW customers (ie, customer share of NRR) for valley i , in year t , given by the Building Block Model at the start of the regulatory period.
$EHSE_{i,t}$	The expected number of high-security entitlements issued for valley i , in year t .
$EGSE_{i,t}$	The expected number of general-security entitlements issued for valley i , in year t .
$EWU_{i,t}$	The expected water usage for valley i , in year t , based on a 20-year moving average of past water usage.
$HSEC_{i,t}$	High security entitlement charge for valley i , in year t .
$GSEC_{i,t}$	General security entitlement charge for valley i , in year t .
$UC_{i,t}$	Usage charge for valley i , in year t .

Source: ACCC, Final Decision on State Water Pricing Application: 2014-15 – 2016-17, June 2014, pp 68-69; IPART analysis.

The high security premium for valley i , in year t , $HSP_{i,t}$, is the product of the Security Factor SF_i , and the Average Water Allocation ratio $AWA_{i,t}$:

$$HSP_{i,t} = SF_i \times AWA_{i,t}$$

The Security Factor for a valley, SF_i , is given in Table C.2 below.

Table C.2 Security Factors for each valley

Valley	Security Factor
Border	1.25
Gwydir	1.40
Namoi	1.25
Peel	6.54
Lachlan	2.50
Macquarie	1.88
Murray	1.31
Murrumbidgee	1.69

Source: IPART analysis.

Box C.2 Calculation of charges for FRWS

At time t , the allowed charges are:

- a) For the MAQ charge (\$/kl):

$$MAQC_t^{Raw} = \frac{MAQShare_t \times RawShare_t \times Rev_t^{NRR}}{(MAQMajort_t^{Raw} + DeemedMAQMinort_t^{Raw} + ExcessUsage_t^{Raw})}$$

AND

$$MAQC_t^{Filter} = \frac{MAQShare_t \times (1 - RawShare_t) \times Rev_t^{NRR}}{(MAQMajort_t^{Filter} + DeemedMAQMinort_t^{Filter} + ExcessUsage_t^{Filter})}$$

- b) For the usage charge (\$/kl):

$$UC_t^{Raw} = \frac{(1 - MAQShare_t) \times RawShare_t \times Rev_t^{NRR}}{(UsageMajort_t^{Raw} + ExcessUsageMinort_t^{Raw} + NonExcessUsage_t^{Raw})}$$

AND

$$UC_t^{Filter} = \frac{(1 - MAQShare_t) \times (1 - RawShare_t) \times Rev_t^{NRR}}{(UsageMajort_t^{Filter} + ExcessUsageMinort_t^{Filter} + NonExcessUsage_t^{Filter})}$$

The terms used in the above formulas are defined in Table C.3.

Note: For the FRWS, prices are recovered via minimum annual quantity (MAQ) and usage charges which differ from the charges applied in MDB valleys. These MAQ and usage charges are updated annually using expected MAQ and usage above and below the MAQ.

Source: ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, pp 72-75; IPART analysis.

Table C.3 Description of terms used in formulas for calculation of charges for FRWS

Definitions	
t	Year: 2018-19, 2019-20, and 2020-21.
$Rev_{i,t}^{NRR}$	The component of the (nominal) notional revenue requirement to be recovered from WaterNSW customers (ie, customer share of NRR) for Fish River water type i = Raw, Filter, in year t , given by the Building Block Model at the start of the regulatory period.
$MAQShare_t$	Is the share of total Fish River allowed revenue recovered in the MAQ charges in year t
$RawShare_t$	Is the share of the total Fish River allowed revenue recovered from raw water customers in year t
$MAQMajor_t^i$	Is the total MAQ of the major customers of water of type i =Raw, Filtered, in year t .
$UsageMajor_t^i$	Is the total expected usage of the major customers of water of type i =Raw, Filtered, in year t
$DeemedMAQMinor_t^i$	Is the deemed MAQ of the minor customers of water of type i =Raw, Filtered, in year t (equal to 200 times the number of minor customers).
$ExcessUsage_t^i$	Is the total expected usage in excess of the MAQ for customers of water of type i =Raw, Filtered, in year t .
$NonExcessUsageMinor_t^i$	Is the total expected usage below the deemed MAQ for minor customers of water of type i =Raw, Filtered, in year t .
$MAQC_t^{Filter}$	MAQ charge for filtered water in year t
$MAQC_t^{Raw}$	MAQ charge for raw water in year t
UC_t^{Filter}	Usage charge for filtered water in year t
UC_t^{Raw}	Usage charge for raw water in year t

Source: ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, pp 72-75; IPART analysis.

Box C.3 Calculation of MDBA and BRC charges

In valley i , at time t , the allowed charges are:

- a) For high-security entitlements (\$/ML of entitlement):

$$HSEC_{i,t}^{AC} = \frac{HSP_{i,t} \times Share \times Rev_{i,t}^{AC}}{(HSP_{i,t} \times EHSE_{i,t} + EGSE_{i,t})}$$

- b) For general-security entitlements (\$/ML of entitlement):

$$GSEC_{i,t}^{AC} = \frac{Share \times Rev_{i,t}^{AC}}{(HSP_{i,t} \times EHSE_{i,t} + EGSE_{i,t})}$$

- c) For usage (\$/ML):

$$UC_{i,t}^{AC} = \frac{(1 - Share) \times Rev_{i,t}^{AC}}{EWU_{i,t}}$$

The terms used in the above formulas are defined in Table C.4.

Source: ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, pp 75-77; IPART analysis.

Table C.4 Description of terms used in formulas for calculation of MDBA and BRC charges

Definitions	
i	Valley: Border, Murray, and Murrumbidgee.
t	Year: 2018-19, 2019-20, and 2020-21.
$HSP_{i,t}$	Security factor for valley i , in year t , calculated as set out below.
$Share$	The share of entitlement charges in WaterNSW's MDBA/BRC tariff structure for valley i .
$Rev_{i,t}^{AC}$	The MDBA/BRC component of the (nominal) notional revenue requirement to be recovered from WaterNSW customers (ie, customer share of NRR) for valley i , in year t , given by the Building Block Model at the start of the regulatory period.
$EHSE_{i,t}$	The expected number of high-security entitlements issued for valley i , in year t .
$EGSE_{i,t}$	The expected number of general-security entitlements issued for valley i , in year t .
$EWU_{i,t}$	The expected water usage for valley i , in year t , based on a 20-year moving average of past water usage.
$HSEC_{i,t}^{AC}$	High security entitlement charge for valley i , in year t .
$GSEC_{i,t}^{AC}$	General security entitlement charge for valley i , in year t .
$UC_{i,t}^{AC}$	Usage charge for valley i , in year t .

Source: ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, pp 75-77; IPART analysis.

The high security premium for valley i , in year t , $HSP_{i,t}$, is the product of the Security Factor SF_i , and the Average Water Allocation ratio $AWA_{i,t}$:

$$HSP_{i,t} = SF_i \times AWA_{i,t}$$

The Security Factor for a valley, SF_i , is given in Table C.5 below.

Table C.5 Security Factors for each valley

Valley	Security Factor
Border	1.25
Murray	1.31
Murrumbidgee	1.69

Source: IPART analysis.

C.2 Coastal valleys

As discussed in Chapter 3, we have decided on a four year determination period, from 1 July 2017 to 30 June 2021 for coastal valleys that are regulated under the IPART Act.⁴⁵¹

We will not undertake annual reviews of WaterNSW's prices in the coastal valleys. Unlike the WCIR, the IPART Act does not require annual reviews. WaterNSW did not propose an annual review process for the coastal valleys in its pricing proposal.

Other stakeholders that commented on the approach to annual price reviews in their submissions to our Issues Paper considered that annual reviews should not be extended to coastal valleys, as this would result in additional costs for coastal valleys and uncertainty for customers around future regulated water charges.⁴⁵²

We consider that the costs of undertaking annual reviews that would meet the requirements for a pricing review under the IPART Act would likely outweigh the benefits.

⁴⁵¹ Coastal valleys include the Hunter, North Coast and South Coast valleys, as well as the Oberon and Lithgow Councils.

⁴⁵² Bega Valley Users Association submission to IPART Issues Paper, October 2016, pp 7-8; and NSW Irrigators' Council submission to IPART Issues Paper, October 2016, p 15.

D Outstanding UOM balances

In Table D.1 below we outline the outstanding UOM balances for each valley which will be recovered over a 12-year period (potentially three determination periods), including the return on and of capital that we have incorporated into the user share NRR for each valley over the 2017 determination period.⁴⁵³

For example, for the Border valley, the outstanding UOM balance commencing 1 July 2017 is \$0.378 million, the amount of return of capital and return on capital we have incorporated into the user share NRR in the Border valley, are: \$0.031 million per year (return of capital), and between \$0.009 million to \$0.012 million per year (return on capital) (\$2016-17). At the start of the next price review, the outstanding UOM balance for consideration in prices (ie, the return on and of capital) would be \$0.252 million, including an adjustment for variations in final actual versus expected usage for 2016-17 (the current UOM balances incorporate actual usage until the March quarter of 2016-17, but include forecasts for the final quarter).

⁴⁵³ The 'return on capital' for each valley in Table D.1 is inclusive of debt raising costs. The 'return of capital' and 'return on capital' are the amounts that we have included in the user share NRR of each valley. The 'return of capital' has been calculated using a financial asset life of 12 years, and the 'return on capital' has been calculated using the WACC applicable to the MDB valleys of 3.1%.

Table D.1 Outstanding UOM balances for each valley, including return on and of capital included in prices (\$2016-17, \$000s)

	2017-18	2018-19	2019-20	2020-21
Border				
Opening UOM value	378	346	315	283
Closing UOM value	346	315	283	252
-Return of capital	31	31	31	31
-Return on capital	12	11	10	9
Gwydir				
Opening UOM value	2,063	1,891	1,719	1,547
Closing UOM value	1,891	1,719	1,547	1,375
-Return of capital	169	169	169	169
-Return on capital	64	59	54	48
Namoi				
Opening UOM value	3,599	3,299	2,999	2,699
Closing UOM value	3,299	2,999	2,699	2,399
-Return of capital	295	295	295	295
-Return on capital	113	103	94	84
Lachlan				
Opening UOM value	1,583	1,451	1,319	1,187
Closing UOM value	1,451	1,319	1,187	1,056
-Return of capital	130	130	130	130
-Return on capital	50	45	41	37
Macquarie				
Opening UOM value	6,125	5,615	5,104	4,594
Closing UOM value	5,615	5,104	4,594	4,084
-Return of capital	503	503	503	503
-Return on capital	192	176	160	144
Murray				
Opening UOM value	522	479	435	392
Closing UOM value	479	435	392	348
-Return of capital	43	43	43	43
-Return on capital	16	15	14	12
Murrumbidgee				
Opening UOM value	764	700	637	573
Closing UOM value	700	637	573	509
-Return of capital	63	63	63	63
-Return on capital	24	22	20	18
Fish River				
Opening UOM value	1,018	933	848	764
Closing UOM value	933	848	764	679
-Return of capital	84	84	84	84
-Return on capital	32	29	27	24

Source: IPART calculations.

E Efficiency carryover mechanism

In its pricing proposal, Sydney Water identified that under the current form of regulation the financial reward for making efficiency savings deteriorates over the regulatory period.⁴⁵⁴ That is, a saving made in year 1 can be held for four years while a saving made in year 3 can be held for just two years before it is passed on to customers through lower prices.

This can result in an incentive to delay revealing efficiency savings from the end of one regulatory period until the beginning of the next regulatory period. Figure E.1 illustrates how there can be an incentive to delay efficiency savings and how this can be addressed by an efficiency carryover mechanism (ECM).

Figure E.1 Problem identified with the current form of regulation

Present value	Regulatory period 1				Regulatory period 2				Regulatory period 3				Terminal value
	1	2	3	4	5	6	7	8	9	10	11	12	
Panel 1 - Making a saving in year 3 results in the business receiving two years of benefit													
Year													
Opex allowance	100	100	100	100	90	90	90	90	90	90	90	90	
Actual opex	100	100	90	90	90	90	90	90	90	90	90	90	
Profit to business	\$16.87	-	-	10	10	-	-	-	-	-	-	-	
Benefit to customers	\$159.24	-	-	-	-	10	10	10	10	10	10	10	200
	\$176.10												
Panel 2 - The business has an incentive to delay making the saving until year 5 so that it can receive four years of benefit													
Year													
Opex allowance	100	100	100	100	100	100	100	100	90	90	90	90	
Actual opex	100	100	100	100	90	90	90	90	90	90	90	90	
Profit to business	\$29.17	-	-	-	-	10	10	10	10	-	-	-	
Benefit to customers	\$130.06	-	-	-	-	-	-	-	-	10	10	10	10
	\$159.24												200
	\$176.10												
Panel 3 - Under an Efficiency Carryover Mechanism, efficiencies are held for four years before being passed to customers													
Year													
Opex allowance	100	100	100	100	100	100	90	90	90	90	90	90	
Actual opex	100	100	90	90	90	90	90	90	90	90	90	90	
Profit to business	\$32.16	-	-	10	10	10	10	-	-	-	-	-	
Benefit to customers	\$143.94	-	-	-	-	-	-	10	10	10	10	10	10
	\$176.10												200

Note: Terminal Value is the present value of the benefit to customers into perpetuity (ie, \$10 / discount rate).

Data source: IPART analysis using a discount rate of 5%.

- ▼ Panel 1: if the business makes a permanent efficiency saving in year 3, it can retain this benefit for two years before it is passed to customers in year 5 through a lower allowance leading to lower prices.
 - The present value to the business is \$16.87.
 - The present value to customers is \$159.24.
 - While this would be the best outcome for customers, the business may have an incentive to delay the saving in order to hold onto it for longer as shown in the next panel.
- ▼ Panel 2: if the business decides to delay this efficiency saving until year 5, it retains the benefit for four years before it is passed to customers in year 9.

⁴⁵⁴ Sydney Water pricing proposal to IPART, June 2015, p 255.

- The present value to the business is \$29.17 (ie, greater than \$16.87). Therefore the business may have an incentive to delay this saving.
 - Delaying the saving results in waste (ie, it is inefficient because the total present value falls from \$176.10 in panel 1 to \$159.24 in panel 2).
 - Delaying the saving makes customers worse off (ie, the present value to customers falls from \$159.24 in panel 1 to \$130.06 in panel 2).
- ▼ Panel 3: With an ECM in place, the business retains the benefit from an efficiency saving for four years regardless of when the saving is made. In theory, the business will then have an incentive to deliver efficiency savings as soon as possible.
- The key difference in panel 3 (compared to panel 1) is the allowance remains at \$100 in years 5 and 6, allowing the business to retain the saving for four years before it is passed on to customers.
 - The present value to the business is \$32.16 (ie, greater than \$29.17). With an ECM, the business has an incentive to make the saving as soon as possible.
 - Bringing savings forward makes customers better off (ie, the present value to customers increases from \$130.06 in panel 2 to \$143.94 in panel 3).
 - Note that under the ECM the total present value (\$176.10) is the same as in panel 1. Therefore, removing the incentive to delay savings results in a more efficient outcome.

E.1 CEPA's efficiency carryover mechanism

We engaged Cambridge Economic Policy Associates (CEPA) to review Sydney Water's proposed efficiency benefit sharing scheme (EBSS), our modified EBSS and other options in light of experiences in other jurisdictions and having regard to the particular circumstances in NSW's urban water sector.⁴⁵⁵

CEPA considered both symmetric and asymmetric options and recommended that we adopt an asymmetric approach. Key features of CEPA's recommended ECM include:

- ▼ It applies to controllable operating expenditure (ie, total operating expenditure less bulk water costs). This is consistent with Sydney Water's proposal.
- ▼ It does not apply to capex. Although CEPA supports an ECM for capital expenditure in principle, it did not consider there to be evidence of significant substitutability between operating and capital expenditure.⁴⁵⁶ Given the additional costs and complexity involved in extending the ECM to include capex, the risk of unintended consequences (ie, over forecasting and inefficient deferral of capex), and the limited potential for substitutability between operating and capital expenditure, CEPA recommended that we not apply the ECM to capex at this time.

⁴⁵⁵ CEPA, Advice on Efficiency Carryover Mechanisms, February 2016. Available online: https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/investigation-legislative-requirements-water-metropolitan-water-sydney-water-corporation-pricing-investigation-commencing-from-1-july-2016/consultant_report_-_cepa_-_advice_on_efficiency_carryover_mechanisms_-_february_2016.pdf.

⁴⁵⁶ Evidenced by Sydney Water's proposal to limit the capital expenditure EBSS to about 9.5% of capital expenditure which it considers to be more recurrent and clearly substitutable with operating expenditure.

- ▼ It is an asymmetric mechanism that rewards permanent cost reductions and does not additionally penalise permanent cost increases. A feature of symmetric schemes is that permanent cost increases are retained by the business for a fixed number of years before being passed on to customers. CEPA considers that the regulator should retain discretion to reset expenditure allowances, which would include reviewing permanent cost increases to ensure they are efficient before passing them on to customers. Sydney Water expressed that it is open to the regulator retaining discretion to reset the allowance. We consider this view is more consistent with an asymmetric approach rather than a symmetric approach.
- ▼ It ensures permanent efficiency savings are held for four years. Although the ECM would be simplified by allowing savings to be held for five years as per Sydney Water's proposal, CEPA considers that a 4-year holding period provides sufficient incentive for the business to find and deliver cost savings.
- ▼ Temporary over and under spends are retained by the business. This is the major difference between the ECM and the modified EBSS and directly addresses Sydney Water's concern with the modified EBSS.

E.2 Design and operation of the efficiency carryover mechanism

The following four examples show how the ECM is built up from a simple concept to a more complex model capable of handling the fact that we will implement the ECM during year 4 of the determination when we do not know the actual expenditure for that year. Each step builds on the last.

In this section, we also make it clear where we have clarified or extended CEPA's recommended ECM.

Figure E.2 provides a simple worked example. If a permanent saving is made in year 3, the ECM ensures that the business will carry the benefit over into the next regulatory period so that the business gets to retain the benefit for four years.

Figure E.2 Simple example of how the ECM works

Year	Regulatory Period 1				Regulatory Period 2			
	1	2	3	4	5	6	7	8
Base allowance	100	100	100	100	80	80	80	80
Actual	100	100	80	80	80	80	80	80
Under (over)	-	-	20	20	-	-	-	-
Outperformance	-	-	20	20	-	-	-	-
Permanent gain	-	-	20	20				
Incremental gain	-	-	20	-				
ECM calc								
- year 1	-	-	-	-				
- year 2		-	-	-	-			
- year 3			20	20	20	20		
- year 4				-	-	-	-	
ECM benefit					20	20	-	-
Total allowance	100	100	100	100	100	100	80	80
Total gain (loss)	-	-	20	20	20	20	-	-

Data source: IPART analysis.

The ECM involves the following steps:

- ▼ Under (over): this gives the difference between the base allowance and actual expenditure.
- ▼ Outperformance: is the same as the under (over) when this is an under-spend and is zero when the under (over) is an over-spend.
- ▼ Permanent gain: working backwards from year 4 to year 1, this calculates how much of the outperformance in year 4 also occurred in year 3; how much of the outperformance that occurred in both years 4 and 3 also occurred in year 2; and how much of this outperformance that occurred in years 4, 3, and 2 also occurred in year 1.
- ▼ Incremental gain: working forwards from year 1 to 4, this calculates the first year that a permanent saving occurred. It is the 'incremental gain' that the ECM ensures is carried forward for four years.
- ▼ ECM calculations: ensures that any incremental gain is held for four years.
- ▼ The regulator retains discretion to reset the base allowance in regulatory period 2. The permanent reduction in expenditure of \$20 is factored into the next period's base allowance. In this example, there are no other adjustments to the base allowance in regulatory period 2.

Figure E.3 shows how the ECM is lagged one year to account for the fact that we do not know actual expenditure for the last year of a regulatory period when the ECM is implemented.

Figure E.3 ECM is lagged one year so that it is based on actuals

Year	Regulatory Period 1				Regulatory Period 2				
	0	1	2	3	4	5	6	7	8
Base allowance	100	100	100	100	100	80	80	80	80
Actual	100	100	100	80	80	80	80	80	80
Under (over)	-	-	-	20	-	-	-	-	-
Outperformance	-	-	-	20	-	-	-	-	-
Permanent gain	-	-	-	20	-	-	-	-	-
Incremental gain	-	-	-	20	-	-	-	-	-
ECM1 calc									
- year 0	-	-	-	-	-	-	-	-	-
- year 1	-	-	-	-	-	-	-	-	-
- year 2	-	-	-	-	-	-	-	-	-
- year 3	-	-	-	20	20	20	20	-	-
ECM benefit	-	-	-	20	20	20	20	-	-
Total allowance	100	100	100	100	100	100	100	80	80
Total gain (loss)	-	-	20	20	20	20	-	-	-

Data source: IPART analysis.

In practice, there is a complicating factor. That is, we do not know year 4 actual expenditure when we implement the ECM during the price review (which occurs during year 4). The solution to this problem involves **looking back at four years of actual data**.

- ▼ When we implement ECM1 in year 4, we look at the four previous years of actual data (ie, years 0, 1, 2, and 3). This is implicit in CEPA's model. Our presentation of the ECM makes this explicit.

- ▼ Figure E.3 shows what happens when a permanent efficiency saving is made in year 3, the benefit is assumed to be held in both years 3 and 4. The ECM ensures that the benefit is carried forward a further two years (years 5 and 6).
- ▼ Any further saving made in year 4 will be captured by ECM2. That is, ECM2 will calculate the under (over) spend in year 4 as the lesser of:
 - the base allowance in year 4 minus actual spend in year 4, and
 - the actual spend in year 3 minus the actual spend in year 4.

Figure E.4 shows how the ECM has an adjustment factor to ensure permanent savings made in the last year of the previous determination are only held for four (not five) years.

Figure E.4 ECM adjustment

Real WACC 5%	Regulatory Period 1				Regulatory Period 2				
	ECM1				ECM2				
Year	0	1	2	3	4	5	6	7	8
Base allowance	100	100	100	100	100	80	80	80	80
Actual	80	80	80	80	80	80	80	80	80
Under (over)	20	20	20	20	-	-	-	-	-
Outperformance	20	20	20	20	-	-	-	-	-
Permanent gain	20	20	20	20	-	-	-	-	-
Incremental gain	20	-	-	-	-	-	-	-	-
ECM1 calc									
- year 0	20	20	20	20	20				
- year 1		-	-	-	-				
- year 2			-	-	-				
- year 3				-	-				
- year 4 adjustment						-21			
ECM benefit						-21	-	-	-
Total allowance		100	100	100	100	59	80	80	80
Total gain (loss)	20	20	20	20	20	-21	-	-	-

Data source: IPART analysis.

In this example, a permanent efficiency saving of \$20 is made in year 0. Without an adjustment factor, the business would be able to retain this saving for five years.

If this is not corrected, the business may have an incentive to delay savings until the last year of a determination in order to retain a benefit for five years and maximise returns.⁴⁵⁷

Retaining the saving for five years would be inconsistent with the purpose of the ECM of equalising incentives over time. We have therefore decided to include an adjustment term to ensure efficiency savings are retained for four years.

ECM1 has an adjustment term ('year 4 adjustment') which, in this case, offsets the fifth year of benefit (received in year 4) with a corresponding negative adjustment to the allowance in the first year of the next regulatory period (ie, year 5). We have adjusted the formula used by CEPA to be clear that the adjustment factor only applies when a permanent efficient saving made in year 0. This is consistent with the intent of CEPA's adjustment factor.

⁴⁵⁷ This incentive already exists under the current form of regulation and is precisely the incentive the ECM is designed to remove.

Note that we are inflating this adjustment term by the WACC⁴⁵⁸ in order to ensure incentives are fully equalised (assuming the WACC represents whatever benefit the business receives from the additional 5th year cash flow in year 4). This is an extension to CEPA's model. CEPA recognised and discussed the effect of the time value of money, but, for simplicity, did not include time value of money adjustments in its recommended model.

The adjustment term recognises when a permanent efficiency saving is made in year 0. Because the business receives this benefit for five years (years 0, 1, 2, 3, and 4), the adjustment term inflates the fifth year of this benefit (received in year 4) by the WACC and returns to its customers in year 5.

Given permanent savings made in year 4 are not observed by the regulator and consequently could be held for five years, we include an adjustment to the carryover calculation that claws back 1-year worth of benefit for savings made in year 4 of the previous determination period.

E.3 Initial application of efficiency carryover mechanism

In response to our Draft Report, Sydney Water argued that the ECM should apply prospectively from 1 July 2016 and should therefore exclude 2015-16 expenditure when it is applied at the next review.

We agree with Sydney Water that incentive mechanisms should apply prospectively not retrospectively. That is, there is little point applying an incentive mechanism to something that has already happened. We also note that Sydney Water made efficiency savings during the last regulatory period which we have factored into the allowance going forward. If we include 2015-16 expenditure in the initial application of the ECM, we risk double-counting efficiency savings made before 2015-16.

Therefore, we have decided to limit the initial application of the ECM in 2019-20 to three years from 2016-17 to 2018-19. The implication is that there will be no need for an adjustment factor for the initial application of the ECM because any under spend that occurs in 2015-16 will not be included in the mechanism. All subsequent applications of the ECM would apply to the four years immediately preceding that application. For example, the second application of the ECM would occur in 2023-24 and would apply to the four years from 2019-20 to 2022-23. This is shown in Figure E.5 below.

⁴⁵⁸ If cash flows are assumed to occur at the end of each year, this should be the nominal WACC calculated for regulatory period 2.

Figure E.5 Initial application of ECM

Real WACC	5%	2015-16	Regulatory Period 2016				Regulatory Period 2020			
			ECM 1			2019-20	ECM2			2023-24
Year			2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Base allowance			100	100	100	100	80	80	80	80
Actual			80	80	80	80	80	80	80	80
Under (over)			20	20	20	-	-	-	-	-
Outperformance			20	20	20	-	-	-	-	-
Permanent gain			20	20	20					
Incremental gain			20	-	-					
ECM1 calc										
- 2016-17			20	20	20	20	-	-	-	-
- 2017-18				-	-	-	-	-	-	-
- 2018-19					-	-	-	-	-	-
ECM benefit							-	-	-	-
Total allowance			100	100	100	100	80	80	80	80
Total gain (loss)			20	20	20	20	-	-	-	-

Data source: IPART analysis.

E.4 Measuring outperformance in year four

Although this does not affect ECM1 which does not apply to 2015-16, we consider it important to be clear about how outperformance would be measured in year four of the next regulatory period (ie, 2019-20) which would be the first year included in ECM2.

Generally, outperformance in a year is measured relative to the base allowance in that year. However, if a permanent efficiency saving is identified and included in ECM1, we have to take this into account to ensure the same saving isn't also included in ECM2.

Therefore, outperformance in 2019-20 would be measured against the base allowance less any permanent efficiency identified and included in ECM1.

E.5 Reasons for not applying the efficiency carryover mechanism to capex

A potential side-effect of introducing a rolling incentive mechanism is that it can change the relationship between operating and capital expenditure. On the face of it, there is an argument to introduce ECMs for both operating and capital expenditure on the grounds that this will balance incentives and trade-offs between operating and capital expenditure. However, we have decided to limit the ECM to apply only to operating expenditure at this time for the following reasons:

- ▼ The rationale behind rolling incentive mechanisms like the EBSS and ECM is that businesses have an incentive to delay cost savings because, once revealed, this information will be used to reduce the allowance in the next period. It is clear how this rationale applies to operating expenditure, which is relatively stable over time. It is less clear how this rationale applies to capital expenditure, which can vary over time as capex plans are delayed or accelerated. A reduction in capex could be a deferral or an efficiency saving, it is difficult to know.
- ▼ Applying the ECM to a small portion of capital expenditure is problematic because it could result in inefficient cost shifting for the purpose of generating benefits through the mechanism.
- ▼ We consider that introducing an ECM for capital expenditure would strengthen the incentive to over forecast and inefficiently defer capital expenditure. Due to asymmetric information, it is difficult to distinguish between efficiency savings and deferrals. Due to the lag between capital expenditure deferral and the resulting deterioration in service standards, it can be difficult to distinguish between efficient and inefficient deferrals.
- ▼ The relationship between operating and capital expenditure is influenced by a range of factors.⁴⁵⁹ The premise that operating and capital expenditure incentives will be balanced by applying the same mechanisms to both may not hold in practice and there may be better approaches available to achieve this outcome. For example, balancing incentives for operating and capital expenditure solutions was a major reason in Ofwat's decision to move away from separate operating and capital expenditure allowances (and rolling incentive mechanisms) and to adopt a total expenditure approach.⁴⁶⁰
- ▼ The potential risk of introducing an operating expenditure ECM and not a capital expenditure ECM is that businesses could have an incentive to increase capital expenditure in order to reduce operating expenditure late in the determination period. We consider this risk is limited by ex-post capital expenditure reviews that assess whether increases in capex are prudent and efficient.

E.6 Examples of how the efficiency carryover mechanism would apply under various scenarios

⁴⁵⁹ Including the extent of substitutability between opex and capex, the actual cost of capital relative to the allowed WACC, governance frameworks, and management incentives.

⁴⁶⁰ Ofwat, *Setting price controls for 2015-20 – Final methodology and expectations for companies' business plans*, July 2013, pp 18-19.
http://www.ofwat.gov.uk/wp-content/uploads/2015/11/pap_pos201307finalapproach.pdf

Example 1 of 6: When a permanent saving is made in year 1 (2016-17)

- ▼ The saving is made in year 1 of the regulatory period. There is no additional carryover benefit under the ECM. The business retains the saving for four years.

		Input Values															
		WACC	5%														
		Base allowance RP2016	100														
		Base allowance RP2020	90														
		Base allowance RP2024	90														
Regulatory Period		RP2012				RP2016				RP2020				RP2024			
Efficiency Carryover Mechanism						ECM1				ECM2				ECM3			
ROW	Year	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	Base allowance	100	100	100	100	100	100	100	100	90	90	90	90	90	90	90	90
2	Actual expenditure	100	100	100	100	90	90	90	90	90	90	90	90	90	90	90	90
3	Gain (loss)					10	10	10									
4	Out performance					10	10	10									
5	Permanent gain					10	10	10									
6	Incremental gain					10	-	-									
7	ECM calculations																
8	ECM1 - 2015-16																
9	ECM1 - 2016-17					10	10	10	10								
10	ECM1 - 2017-18						-	-	-								
11	ECM1 - 2018-19							-	-								
12	ECM1 - 2019-20 adjustment																
13	ECM1 benefit									-	-	-	-				
14	Gain (loss)																
15	Out performance																
16	Permanent gain																
17	Incremental gain																
18	ECM2 calculations																
19	ECM2 - 2019-20																
20	ECM2 - 2020-21																
21	ECM2 - 2021-22																
22	ECM2 - 2022-23																
23	ECM2 - 2023-24 adjustment																
24	ECM2 benefit																
25	Total allowance	100	100	100	100	100	100	100	100	90	90	90	90	90	90	90	90
26	Total gain / loss	-	-	-	-	10	10	10	10	-	-	-	-	-	-	-	-

Source: IPART analysis.

Example 2 of 6: When a saving is made in year 2 (2017-18)

- ▼ The saving is made in year 2 of the regulatory period. The ECM carries the benefit forward one year into the next regulatory period (ie, the benefit is carried forward to 2020-21). The business retains the saving for four years.

		Input Values															
		WACC		5%		Base allowance RP2016		100		Base allowance RP2020		90		Base allowance RP2024		90	
Regulatory Period		RP2012				RP2016				RP2020				RP2024			
Efficiency Carryover Mechanism						ECM1		ECM2		ECM3							
ROW	Year	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	Base allowance	100	100	100	100	100	100	100	100	90	90	90	90	90	90	90	90
2	Actual expenditure	100	100	100	100	100	90	90	90	90	90	90	90	90	90	90	90
3	Gain (loss)					-	10	10									
4	Out performance					-	10	10									
5	Permanent gain					-	10	10									
6	Incremental gain					-	10	-									
7	ECM calculations																
8	- 2015-16																
9	- 2016-17					-	-	-	-								
10	- 2017-18						10	10	10	10							
11	- 2018-19							-	-	-	-						
12	- 2019-20 adjustment																
13	ECM1 benefit									10	-						
14	Gain (loss)									-	-	-					
15	Out performance									-	-	-					
16	Permanent gain									-	-	-					
17	Incremental gain									-	-	-					
18	ECM calculations																
19	- 2019-20								-	-	-	-					
20	- 2020-21									-	-	-	-				
21	- 2021-22										-	-	-	-			
22	- 2022-23											-	-	-	-		
23	- 2023-24 adjustment												-	-	-	-	
24	ECM2 benefit													-	-		
25	Total allowance	100	100	100	100	100	100	100	100	100	90	90	90	90	90	90	90
26	Total gain / loss	-	-	-	-	-	10	10	10	10	-	-	-	-	-	-	-

Source: IPART analysis.

Example 3 of 6: When a saving is made in year 3 (2018-19)

- ▼ The saving is made in year 3 of the regulatory period. The ECM carries the benefit over two years into the next regulatory period. The business keeps the saving for four years.

		Input Values															
		WACC	5%														
		Base allowance RP2016	100														
		Base allowance RP2020	90														
		Base allowance RP2024	90														
Regulatory Period		RP2012				RP2016				RP2020				RP2024			
Efficiency Carryover Mechanism						ECM1				ECM2				ECM3			
ROW	Year	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	Base allowance	100	100	100	100	100	100	100	100	90	90	90	90	90	90	90	90
2	Actual expenditure	100	100	100	100	100	100	90	90	90	90	90	90	90	90	90	90
3	Gain (loss)					-	-	10									
4	Out performance					-	-	10									
5	Permanent gain					-	-	10									
6	Incremental gain					-	-	10									
7	ECM calculations																
8	- 2015-16																
9	- 2016-17					-	-	-	-								
10	- 2017-18						-	-	-	-							
11	- 2018-19							10	10	10	10						
12	- 2019-20 adjustment																
13	ECM1 benefit									10	10						
14	Gain (loss)									-	-	-					
15	Out performance									-	-	-					
16	Permanent gain									-	-	-					
17	Incremental gain									-	-	-					
18	ECM calculations																
19	- 2019-20								-	-	-	-					
20	- 2020-21									-	-	-	-				
21	- 2021-22										-	-	-	-			
22	- 2022-23											-	-	-	-		
23	- 2023-24 adjustment												-	-	-	-	
24	ECM2 benefit													-	-		
25	Total allowance	100	100	100	100	100	100	100	100	100	100	90	90	90	90	90	90
26	Total gain / loss	-	-	-	-	-	-	10	10	10	10	-	-	-	-	-	-

Source: IPART analysis.

Example 4 of 6: When a saving is made in year 4 (2019-20)

- ▼ The saving is made in year 4 of the regulatory period. The business keeps this saving for five years. However, the ECM returns the fifth year of saving (after adjusting this amount by the WACC) to customers in year 1 of the next determination period (ie, 2024-25).

		Input Values															
		WACC	5%														
		Base allowance RP2016	100														
		Base allowance RP2020	100														
		Base allowance RP2024	90														
Regulatory Period		RP2012				RP2016				RP2020				RP2024			
Efficiency Carryover Mechanism						ECM1				ECM2				ECM3			
ROW	Year	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	Base allowance	100	100	100	100	100	100	100	100	100	100	100	100	90	90	90	90
2	Actual expenditure	100	100	100	100	100	100	100	90	90	90	90	90	90	90	90	90
3	Gain (loss)					-	-	-									
4	Out performance					-	-	-									
5	Permanent gain					-	-	-									
6	Incremental gain					-	-	-									
7	ECM calculations																
8	- 2015-16																
9	- 2016-17					-	-	-	-								
10	- 2017-18						-	-	-	-							
11	- 2018-19							-	-	-	-						
12	- 2019-20 adjustment																
13	ECM1 benefit									-	-						
14	Gain (loss)								10	10	10	10					
15	Out performance								10	10	10	10					
16	Permanent gain								10	10	10	10					
17	Incremental gain								10	-	-	-					
18	ECM calculations																
19	- 2019-20								10	10	10	10	10				
20	- 2020-21									-	-	-	-				
21	- 2021-22										-	-	-	-			
22	- 2022-23											-	-	-			
23	- 2023-24 adjustment													- 10.5			
24	ECM2 benefit													- 10.5			
25	Total allowance	100	100	100	100	100	100	100	100	100	100	100	100	80	90	90	90
26	Total gain / loss	-	-	-	-	-	-	-	10	10	10	10	10	- 10.5	-	-	-

Source: IPART analysis.

Example 5 of 6: When there are temporary over and under spends

- Temporary over and under spends are retained by the business. The ECM treats temporary over and under spends symmetrically.

		Input Values															
		WACC															
		5%															
		100															
		100															
		100															
		100															
Regulatory Period		RP2012				RP2016				RP2020				RP2024			
Efficiency Carryover Mechanism						ECM1				ECM2				ECM3			
ROW	Year	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	Base allowance	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2	Actual expenditure	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
3	Gain (loss)					10	- 10	-									
4	Out performance					10	-	-									
5	Permanent gain					-	-	-									
6	Incremental gain					-	-	-									
7	ECM calculations																
8	- 2015-16																
9	- 2016-17					-	-	-	-								
10	- 2017-18						-	-	-	-							
11	- 2018-19							-	-	-	-						
12	- 2019-20 adjustment																
13	ECM1 benefit									-	-						
14	Gain (loss)									-	-						
15	Out performance									-	-						
16	Permanent gain									-	-						
17	Incremental gain									-	-						
18	ECM calculations																
19	- 2019-20								-								
20	- 2020-21									-	-						
21	- 2021-22										-						
22	- 2022-23											-					
23	- 2023-24 adjustment												-				
24	ECM2 benefit													-	-		
25	Total allowance	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
26	Total gain / loss	-	-	-	-	10	- 10	-	-	-	-	-	-	-	-	-	-

Source: IPART analysis.

Example 6 of 6: The ECM should not apply to temporary under spends in year 3

- ▼ If a temporary under spend in year 3 is mistaken as a permanent saving under the ECM, this could result in a loss for the business. This is not an intended outcome of the ECM. If there is doubt whether the saving is permanent, we consider the business is unlikely to apply for a carryover under the ECM. We will continue to assess historical expenditure when resetting of the allowance.

		Input Values															
		WACC	5%														
		Base allowance RP2016	100														
		Base allowance RP2020	90														
		Base allowance RP2024	100														
Regulatory Period		RP2012				RP2016				RP2020				RP2024			
Efficiency Carryover Mechanism						ECM1				ECM2				ECM3			
ROW	Year	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	Base allowance	100	100	100	100	100	100	100	100	90	90	90	90	100	100	100	100
2	Actual expenditure	100	100	100	100	100	100	90	100	100	100	100	100	100	100	100	100
3	Gain (loss)					-	-	10									
4	Out performance					-	-	10									
5	Permanent gain					-	-	10									
6	Incremental gain					-	-	10									
7	ECM calculations																
8	- 2015-16																
9	- 2016-17					-	-	-	-								
10	- 2017-18						-	-	-								
11	- 2018-19							10	10	10	10						
12	- 2019-20 adjustment																
13	ECM1 benefit									10	10						
14	Gain (loss)							-	10	-	10	-	10				
15	Out performance							-	-	-	-	-	-				
16	Permanent gain							-	-	-	-	-	-				
17	Incremental gain							-	-	-	-	-	-				
18	ECM calculations																
19	- 2019-20								-								
20	- 2020-21									-	-	-	-				
21	- 2021-22										-	-	-				
22	- 2022-23											-	-				
23	- 2023-24 adjustment																
24	ECM2 benefit																
25	Total allowance	100	100	100	100	100	100	100	100	100	100	90	90	100	100	100	100
26	Total gain / loss							10				10	-				

Source: IPART analysis.

F Customer and NSW Government share of WaterNSW revenue requirements

This appendix provides a brief history of our development of the cost sharing ratios, and the key concepts used in our approach. In particular:

- ▼ Section F.1 provides an overview of the argument for a government contribution
- ▼ Section F.2 provides an overview of Frontier Economics' review of our approach to cost sharing and further detail on its proposed approach to sharing costs between WaterNSW's customers and the NSW government

F.1 Argument for government contribution

Consistent with the National Water Initiative (NWI) principles, prices and charges for water should in general recover the full efficient cost of providing the service to water users. However, as in other industries that we regulate (such as public transport), there are economic arguments for some government contribution to the cost of providing water services. These include:

- ▼ the existence of public goods,
- ▼ the existence of unavoidable legacy costs, and
- ▼ where it is impracticable to recover costs from specific users or beneficiaries of these services.

F.1.1 The existence of public goods

There is an economic argument for long-term under-recovery of costs (that is, a government contribution) when the services provided by monopolies have public good aspects, as otherwise, such services may be under-provided.

WaterNSW's services contain a public good element as the costs incurred in managing dams, weirs, canals, monitoring and flow control assets and other parts of the bulk water system do not exclusively relate to bulk water delivery. These infrastructure assets provide broader community services, such as flood mitigation and environmental monitoring benefits.

F.1.2 The existence of unavoidable legacy costs

There is an economic argument for government contribution to the costs of activities which would continue to be required, even if extractive use were to cease. In this sense, such costs (e.g. costs of remediating past environmental damage) may be required regardless of any future users. Such legacy costs therefore do not form part of the avoidable, full efficient cost of providing the service to water users. Therefore, there is no economic efficiency argument

for signalling these costs to users as these costs will not change regardless of water users' consumption decisions, and as such, they should be borne by the government.

F.1.3 Where it is impractical to recover costs

As noted by a number of stakeholders,⁴⁶¹ and as shown in Table F.1, there may be a number of types of 'users' of WaterNSW's services beyond billed customers (e.g. basic landholder rights, planned environmental water, downstream communities who receive flood mitigation benefits). To the extent that such parties cause WaterNSW to incur costs in providing these services, there may be a legitimate case for assigning a share of these costs to these users rather than irrigators.

Table F.1 Establishing whether impactors of WaterNSW's water storage and transportation services are billed customers

Users of WaterNSW's services	Users	Impactor	Billed customer
Irrigators	✓	✓	✓
Local councils	✓	✓	✓
Holders of basic landholder water rights	✓	✓	✗
The Environment (planned water)	✓	✗	✗
Environmental water holders	✓	✓	✓
Downstream communities	✗	✓	✗
Broader NSW/Australian community	✓	✓	✗
Recreational water users	✓	✓	✗

Source: Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, p 46.

However, it may not be efficient and cost-effective to:

- ▼ identify the specific impactor,
- ▼ identify the proportion of forward-looking costs that current and future impactors may contribute to the costs of providing WaterNSW's services, and
- ▼ levy WaterNSW's charge on the impactors (say, due to policy, regulatory or commercial billing barriers).

In these contexts, it may be appropriate for taxpayers, through the NSW Government, to bear the costs created by these impactors on their behalf.

⁴⁶¹ See Toonumbar Water Users Group submission, October 2016; Lachlan Valley Water submission, October 2016, pp 4-5; and The Macquarie River Food and Fibre submission, October 2016, p 3, pp 6-7.

F.2 Reviewing IPART's cost sharing framework

Given we consider there is an economic case for the government to contribute to WaterNSW's efficient costs, we have developed and applied an approach for determining the cost shares of activities (see Chapter 9). This approach involves allocating cost shares by expenditure activity, with these shares being set uniformly across all valleys.

IPART engaged Frontier Economics to review the cost sharing framework (which underpinned WaterNSW's proposal). Frontier Economics proposed that IPART implement a cost sharing framework that provides a clear and transparent process for allocating costs between users to establish a set of customer and NSW Government cost shares, which can then be used to derive WaterNSW's charges.⁴⁶²

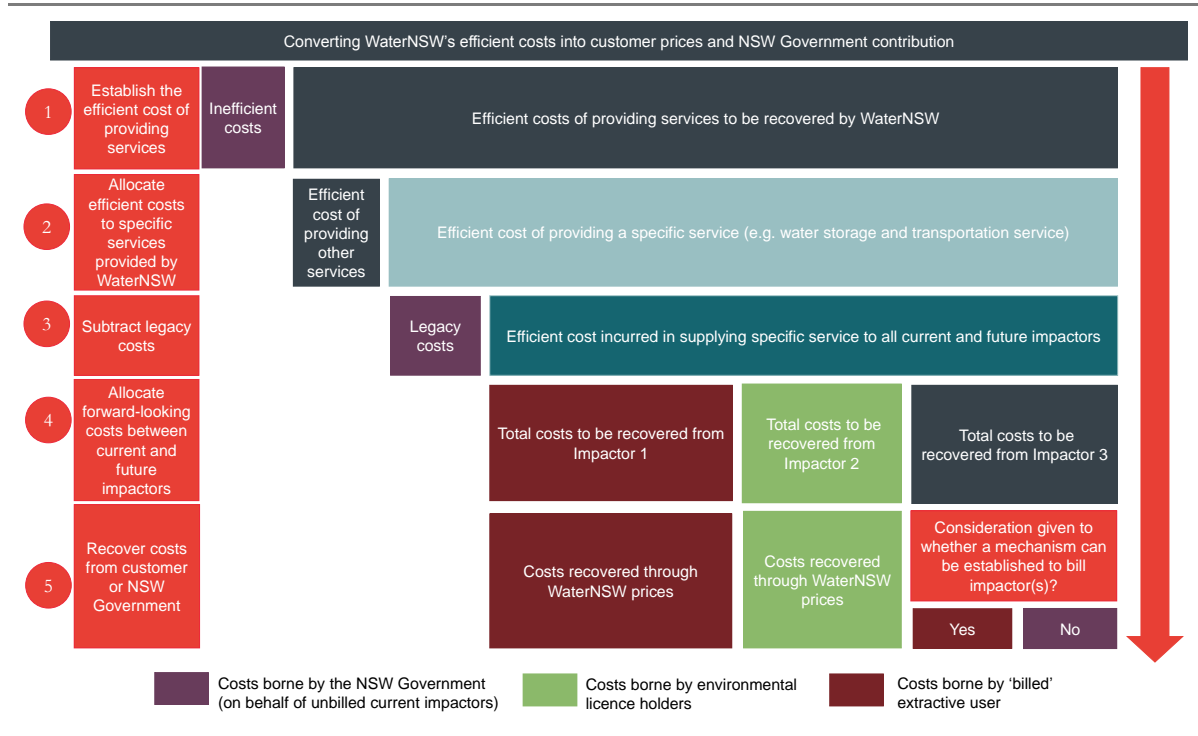
As discussed in Chapter 9, we have decided to maintain the current cost share ratios for the 2017 determination period, but implement an extensive review of the cost share framework (with involvement of stakeholders and drawing on Frontier Economics' proposed framework) before the 2021 Determination.

Frontier Economics' proposed framework for allocating costs between users to establish a set of customer and NSW Government cost shares is outlined in Figure F.1 and involves five key stages:

1. establish the efficient costs of providing WaterNSW's services
2. allocate efficient costs to specific services provided by WaterNSW
3. subtract legacy costs to determine the efficient forward-looking costs to be recovered from current and future impactors
4. allocate efficient forward-looking costs between current and future impactors
5. recover costs from customer or NSW Government through prices and NSW Government contribution (or other cost recovery method).

⁴⁶² Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, 34.

Figure F.1 Frontier Economics' proposed approach to allocating costs between customers and establishing a customer and Government cost sharing framework

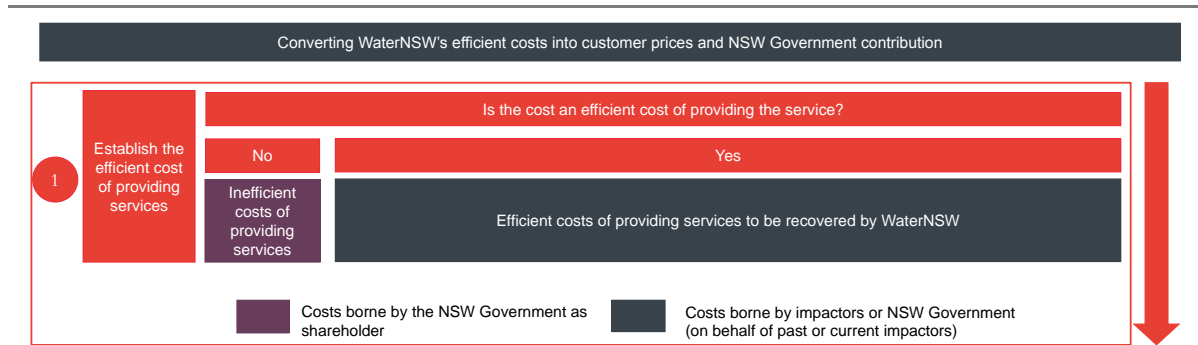


Source: Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, p 36

F.2.1 Establish the efficient costs of providing WaterNSW services

As shown in Figure F.2, the first step of the proposed approach for converting WaterNSW's efficient costs of service provision into prices (reflecting assigned cost shares) is to establish the efficient cost of providing those services.

Figure F.2 Step one of the proposed approach: Establish the efficient cost of providing services



Source: Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, p 37.

As noted in our Issues Paper⁴⁶³ and set out in Chapter 4 of this report, prices should be set to allow WaterNSW to recover only the efficient costs of the services that it provided. This is a well-accepted principle and reflects the need to:

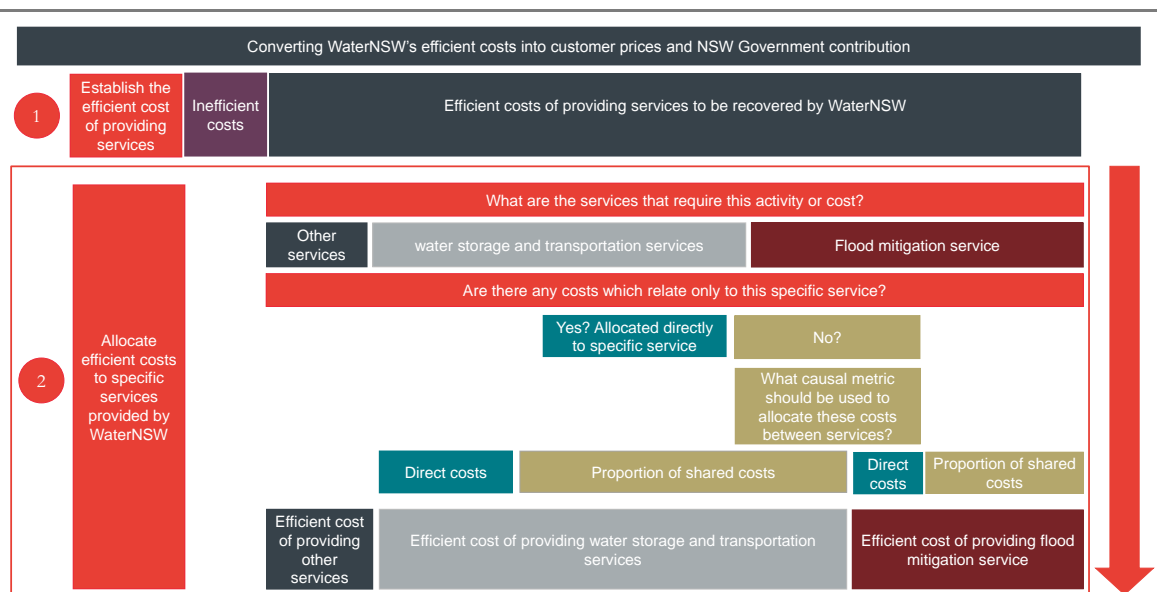
- ▼ signal to consumers the costs of their consumption decisions and result in an efficient use and allocation of resources,
- ▼ provide incentives for efficient investment in service provision, and
- ▼ mimic outcomes expected in a competitive market.

It is important to note that the efficient costs of service provision may include unavoidable costs that could be considered ‘legacy costs’.

F.2.2 Allocate costs to specific services provided by WaterNSW

As shown in Figure F.3, step two of the proposed approach for converting WaterNSW’s efficient costs of service provision into prices involves allocating WaterNSW’s efficient costs to its key services.

Figure F.3 Step two of the proposed approach: allocate efficient costs to specific services provided by WaterNSW



Source: Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, p 38.

Customers should only pay for the efficient costs of providing services for which they are impactors. Allocating WaterNSW’s efficient costs to its key services is likely to ensure that:

- ▼ Customers or impactors (noting these parties may be different) only pay for the services that they use or costs they create. Some services will be provided to many customers, while others will only be provided to some customers.
- ▼ The cost sharing framework can cater for a more granular level of cost allocation between impactors across valleys.

⁴⁶³ IPART, *Review of prices for WaterNSW Rural bulk water services from 1 July 2017 – Issues Paper*, September 2016.

- ▼ There are clear incentives for WaterNSW to efficiently invest in and operate specific services.
- ▼ There is transparency regarding the costs of providing those services, particularly when some of these services involve different activities and utilise different assets (recognising that there will be some common costs, such as dam safety compliance and corporate overheads).
- ▼ The cost sharing framework can accommodate changes in the policy, regulatory and operating environment, say by facilitating a move to light-handed forms of regulation for a specific service or facilitate the introduction of competition for that specific service.

Frontier Economics has recommended a number of potential services that could be specified in step two for regulatory price-setting purposes including:⁴⁶⁴

- ▼ **water storage and transportation services** - which involves capturing, storing and transporting water to downstream users
- ▼ **flood mitigation services** - which involves reducing the risk of extreme downstream flooding
- ▼ **environmental management services** - which involves planning and management activities as a result of water use or the need to mitigate the impacts of water use
- ▼ **retailing, metering and customer service activities** - for example, WaterNSW provides a metering service to those customers who extract water through a WaterNSW-owned meter
- ▼ **other services, including ancillary or miscellaneous services**, such as costs of facilitating water trading, Fish River connections/disconnections.⁴⁶⁵

These services would need to be specified for each valley given the mixture of services provided by WaterNSW and the varying cost of providing these services across each valley.

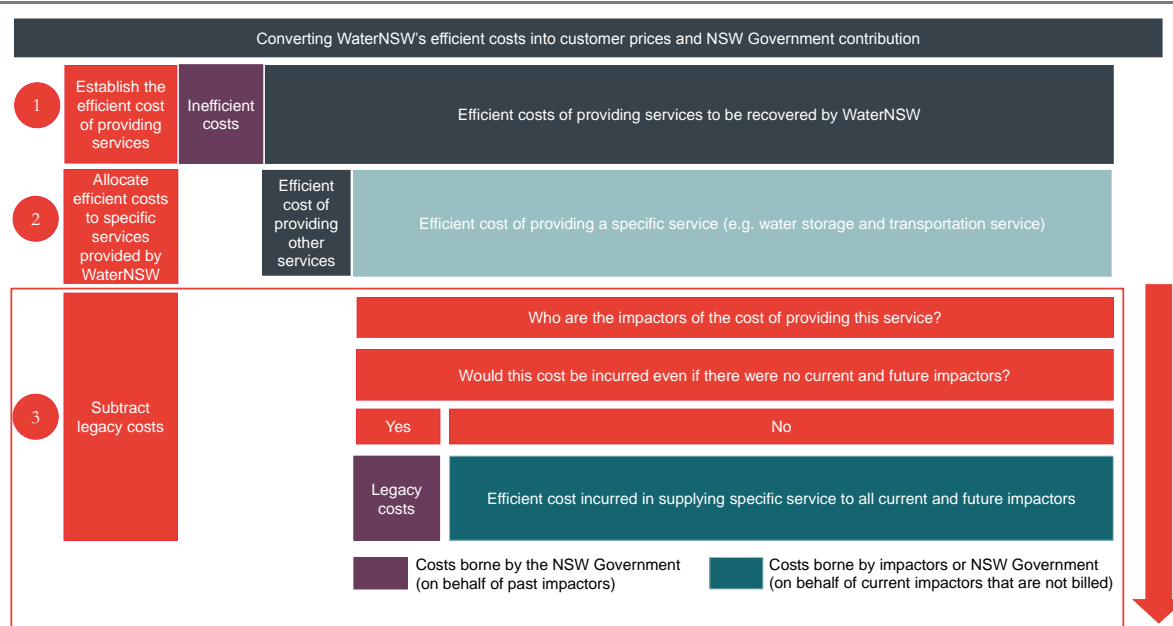
F.2.3 Subtract legacy costs to determine the forward-looking costs to be recovered from current and future impactors

As shown in Figure F.4, step three of the proposed approach for converting WaterNSW's efficient costs of service provision into prices involves subtracting 'true' legacy costs from the estimate of the efficient cost of providing specific services.

⁴⁶⁴ Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, pp 41-42.

⁴⁶⁵ For more detail around allocating WaterNSW's efficient costs to specific services provided by WaterNSW see: Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, pp 38-42.

Figure F.4 Step three of the proposed approach: subtract legacy costs



Source: Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, p 42.

Legacy costs include costs that would be incurred if there were no current and future impactors. Under the proposed approach, only costs which are unavoidable are properly categorised as 'legacy costs', with these costs to be assigned to the NSW Government on behalf of past impactors.

Identifying any legacy costs requires:

- ▼ identifying the impactors of the costs of providing a specific service
- ▼ establishing whether any costs are unavoidable in that they are driven by past impactors (i.e. would be incurred even if there were no current and future impactors), and
- ▼ allocating costs to past impactors (i.e. establishing any true legacy costs) using an appropriate metric that clearly links costs to the actions of past impactors.⁴⁶⁶

Frontier Economics' report suggests that IPART may have interpreted legacy costs as requiring government (rather than users) to pay for any costs associated with changed regulatory standards and Frontier Economics notes that:⁴⁶⁷

- ▼ Legislation and regulation is constantly changing in a range of activities and the costs of complying with such regulation is typically absorbed by the party which has to comply and then passed on to users of the products or services which they supply.

⁴⁶⁶ For more detail around identifying legacy costs associated with the provision of WaterNSW's services see: Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, pp 16-17.

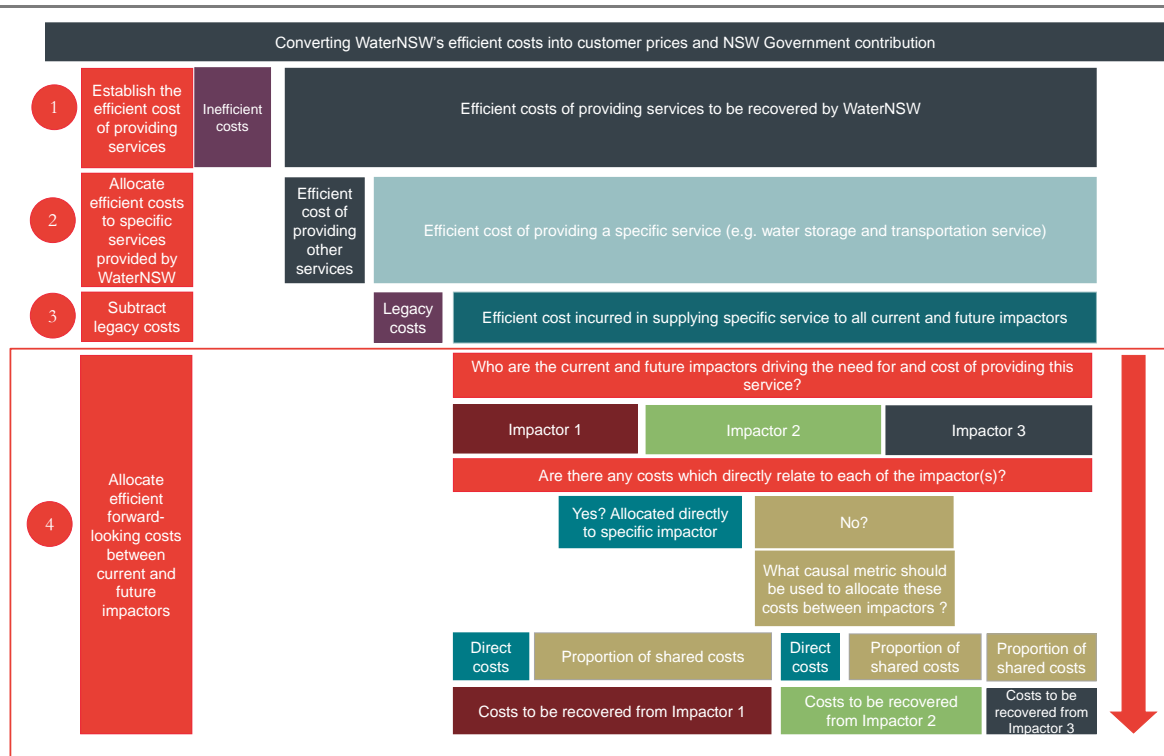
⁴⁶⁷ Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, p 16.

- ▼ Legislation or regulation requires Water NSW to comply with certain obligations, and this represents part and parcel of the costs to Water NSW of supplying its services and should properly be recovered from users.⁴⁶⁸ To do otherwise would be to subsidise the costs of activities required in supplying services to those users.
- ▼ Other regulatory frameworks generally applied by IPART and other economic regulators generally explicitly provide that the costs able to be recovered by regulated businesses include the prudent and efficient costs of meeting all clearly imposed legal and regulatory obligations. In many cases these regulatory obligations are imposed to protect the broader community. For example, the prudent and efficient cost to Sydney Water of complying with wet weather overflow requirements imposed by the EPA as a licence condition are permitted by IPART to be passed through to customers.

F.2.4 Allocate forward-looking costs between current and future impactors

As shown in Figure F.5, step four of the proposed approach for converting WaterNSW's efficient costs of service provision into prices is to allocate efficient forward-looking costs between various identified current and future impactors.

Figure F.5 Step four of the proposed approach: allocate forward-looking costs between various current and future impactors



Source: Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, p 43.

There are several key steps in allocating the efficient forward-looking costs between current and future impactors, including:⁴⁶⁹

⁴⁶⁸ In some sense, this is no different to the cost of electricity generators needing to comply with the Carbon Pollution Reduction Scheme (CPRS), or the costs of electricity retailers complying with the Renewable Energy Target (RET).

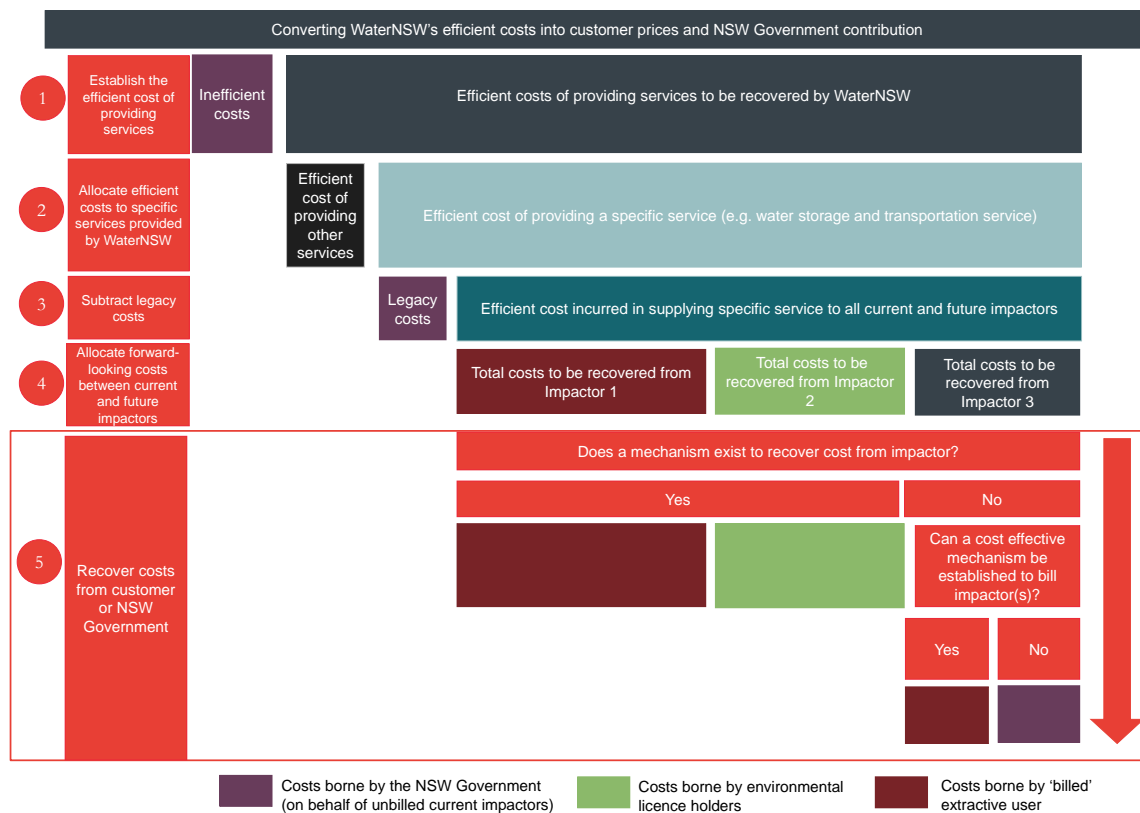
⁴⁶⁹ Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, p 44.

- ▼ Identifying all the current and future impactors of the costs of providing a specific service. In most cases, it is likely that there is more than one impactor.
- ▼ Allocating the direct costs (such as dedicated assets) to each of the specific impactors where appropriate.
- ▼ Allocating the shared costs of providing the specific service across multiple impactors. This will require:
 - Using a causal allocator where possible—consistent with the ACCC pricing principles for cost allocation— which is likely to vary depending on the nature of the shared cost and ensuring that the same cost is not allocated more than once (i.e. avoid double-counting).
 - Ensuring that the aggregate costs allocated to each impactor service or user of a service are between the stand-alone and avoidable cost of providing services. This ensures that costs recovered from specific users are not outside the bounds defined by economic efficiency and would mean that all impactors of Water NSW services should be allocated at least the incremental costs associated with the provision of these services to them but no user or group of impactors should pay more than the stand-alone costs of providing the service.

F.2.5 Recover costs from WaterNSW’s customers or NSW Government

As shown in Figure F.6, step five of the proposed approach involves recovering the efficient costs of each of the specific services from customers or the NSW Government (or via another cost recovery mechanism).

Figure F.6 Step five of the proposed approach: recover costs from billed customers or the NSW Government



Source: Frontier Economics, *Review of WaterNSW cost shares: Report prepared for IPART*, December 2016, p 45.

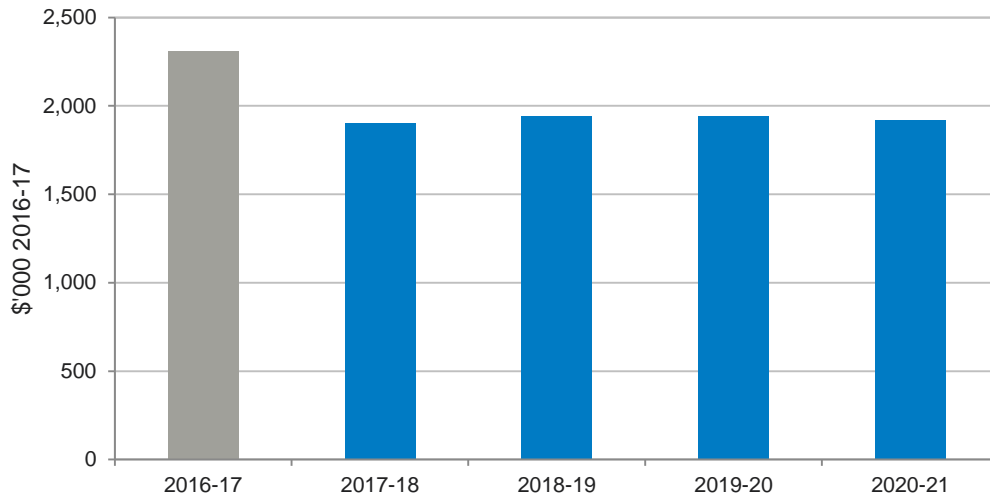
As highlighted in Table F.1, there are likely to be a number of impactors that are not currently billed customers, in that there is no existing mechanism to recover from these customers the costs they potentially create. For example, holders of basic landholder water rights are not currently billed for the costs of providing WaterNSW's water storage and transportation services.

In cases where it is too costly or infeasible to levy WaterNSW's charges on the specific impactor, it may be appropriate for taxpayers, through the NSW Government, to bear the costs created by these impactors on their behalf, at least until it is possible to recover the costs from the relevant impactors.

G Building blocks by valley

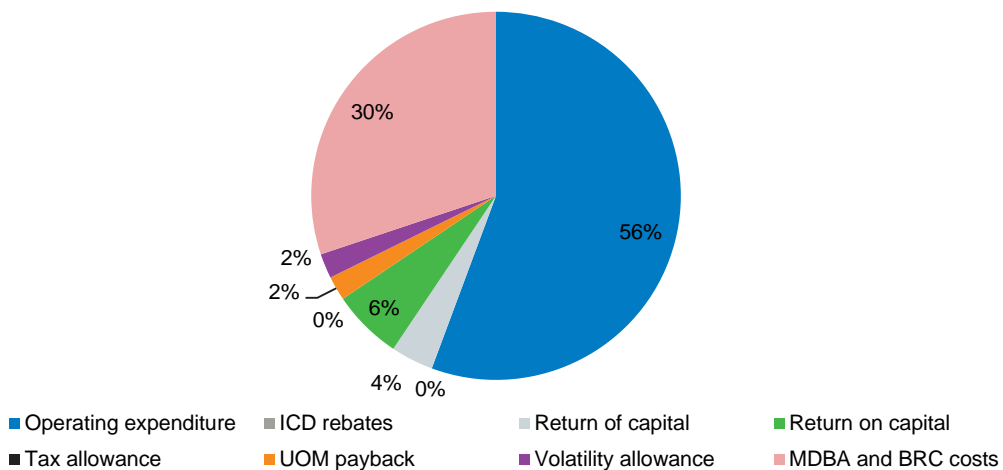
G.1 Border valley

Figure G.1 Customer revenue requirement for Border valley (\$'000, \$2016-17)



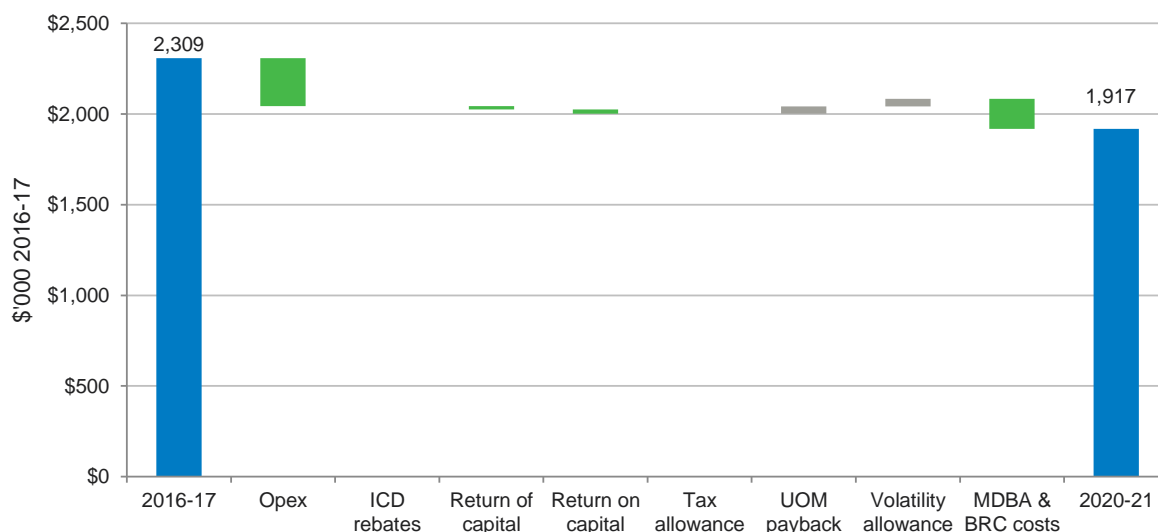
Data source: IPART analysis.

Figure G.2 Components of total customer revenue requirement for Border valley over the 2017 Determination period



Data source: IPART analysis.

Figure G.3 Change in customer revenue requirement for Border valley from 2016-17 to 2020-21 (\$'000, \$2016-17)



Data source: IPART analysis.

Table G.1 Bulk water charges for Border valley 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18 to 2020-21)	% Change (2016-17 to 2020-21)
High security charge	↓	6.90	5.33	-22.8%
General security charge	↓	2.43	1.98	-18.5%
Usage charge	↓	6.60	5.44	-17.6%

Source: IPART analysis.

Table G.2 BRC charges for Border valley for 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18 to 2020-21)	% Change (2016-17 to 2020-21)
High security charge	↑	4.22	4.61	9.1%
General security charge	↑	1.49	1.71	15.1%
Usage charge	↓	4.03	0.78	-80.6%

Source: IPART analysis.

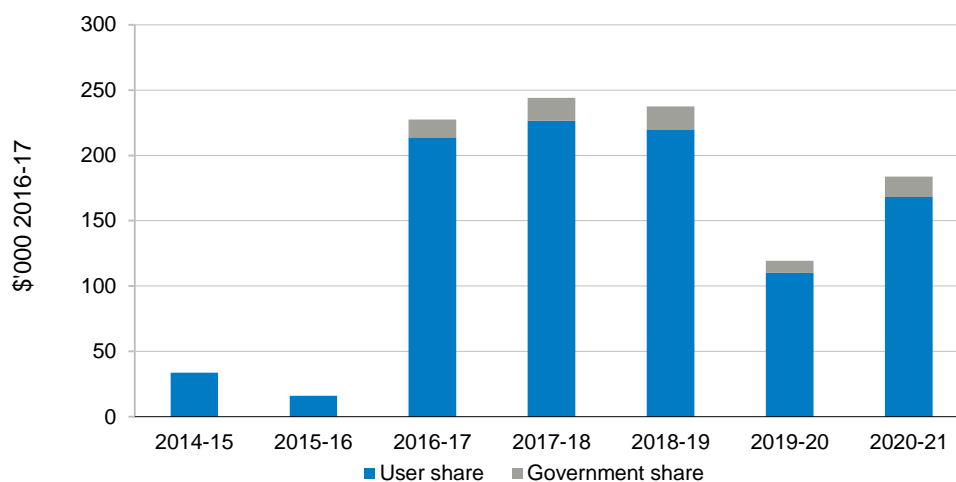
Table G.3 Indicative bill impact of bulk water charges (plus BRC) for Border valley 2017 Determination (\$ nominal – ie, with inflation)

		Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
High security - small		\$2,175	\$1,650	\$1,777	
High security - medium	↓	\$10,875	\$8,250	\$8,885	-18.3%
High security - large		\$21,750	\$16,500	\$17,770	
General security - small		\$1,030	\$759	\$817	
General security - medium	↓	\$5,149	\$3,793	\$4,085	-20.7%
General security - large		\$10,298	\$7,586	\$8,170	

Note: Includes BRC charges.

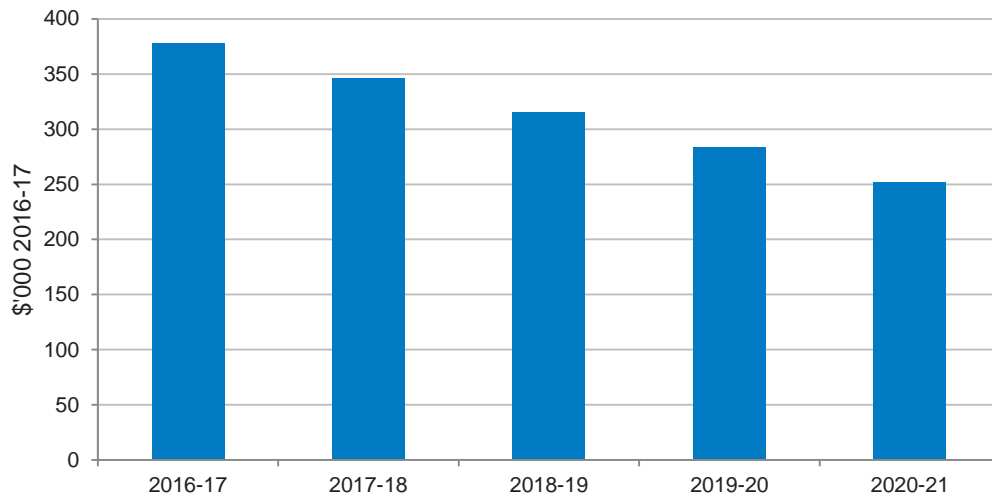
Source: IPART analysis.

Figure G.4 Capital expenditure net of externally-funded contributions for Border valley (\$'000, \$2016-17)



Data source: IPART analysis.

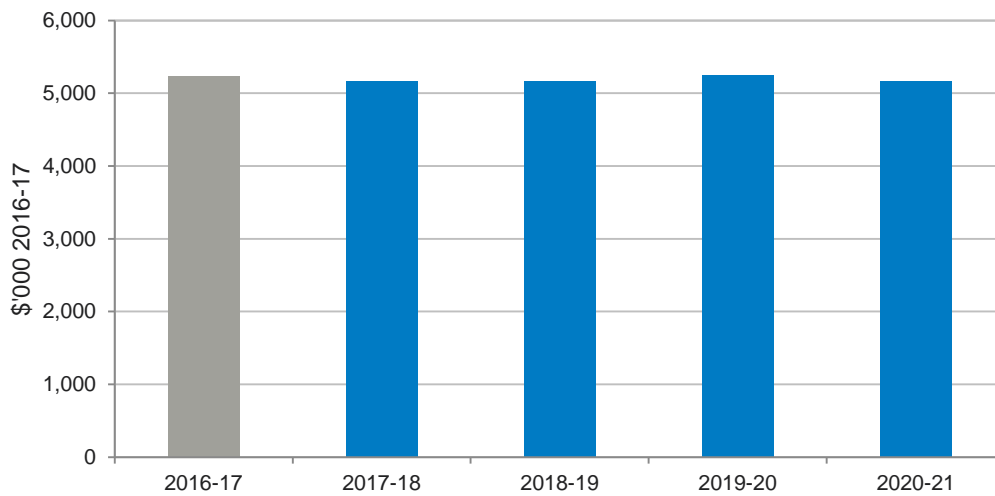
Figure G.5 UOM closing balance for Border valley (\$'000, \$2016-17)



Data source: IPART analysis.

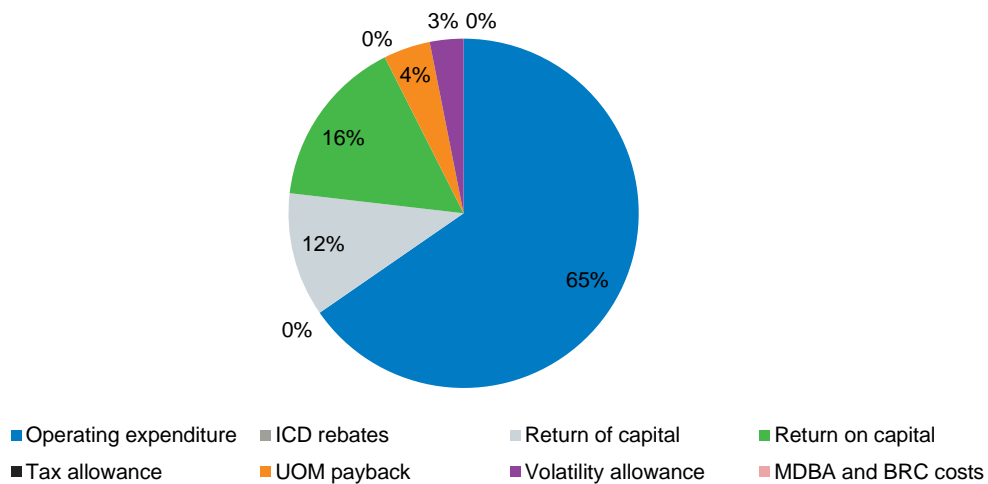
G.2 Gwydir Valley

Figure G.6 Customer revenue requirement for Gwydir valley (\$'000, \$2016-17)



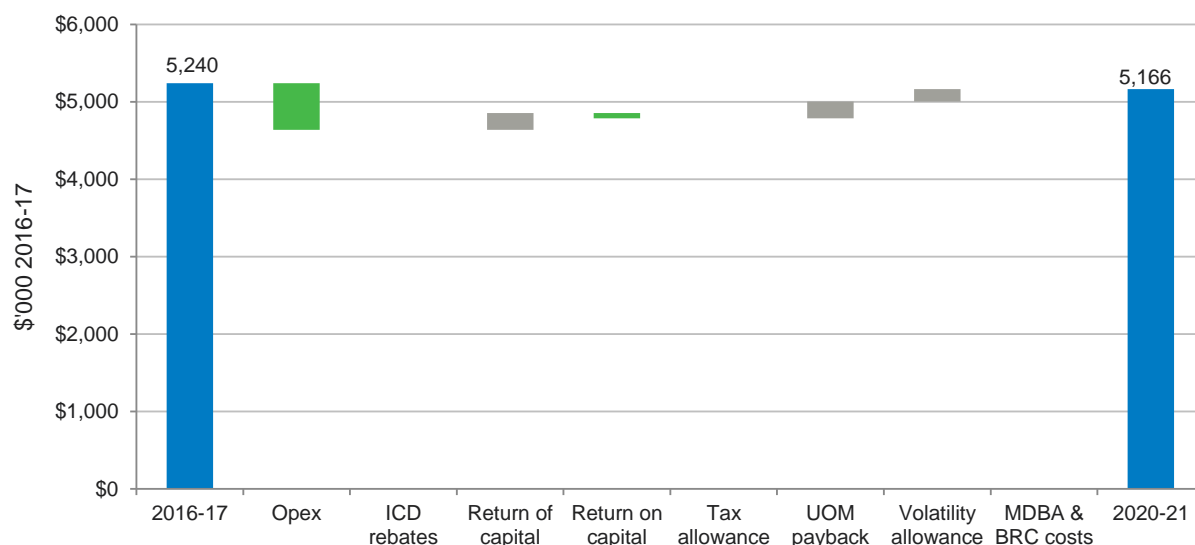
Data source: IPART analysis

Figure G.7 Components of total customer revenue requirement for Gwydir valley over the 2017 Determination period



Data source: IPART analysis.

Figure G.8 Change in customer revenue requirement for Gwydir valley from 2016-17 to 2020-21 (\$'000, \$2016-17)



Data source: IPART analysis.

Table G.4 Bulk water charges for Gwydir valley 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18 to 2020-21)	% Change (2016-17 to 2020-21)
High security charge	↓	14.13	11.08	-21.6%
General security charge	↑	3.47	3.48	0.3%
Usage charge	↓	12.13	11.87	-2.1%

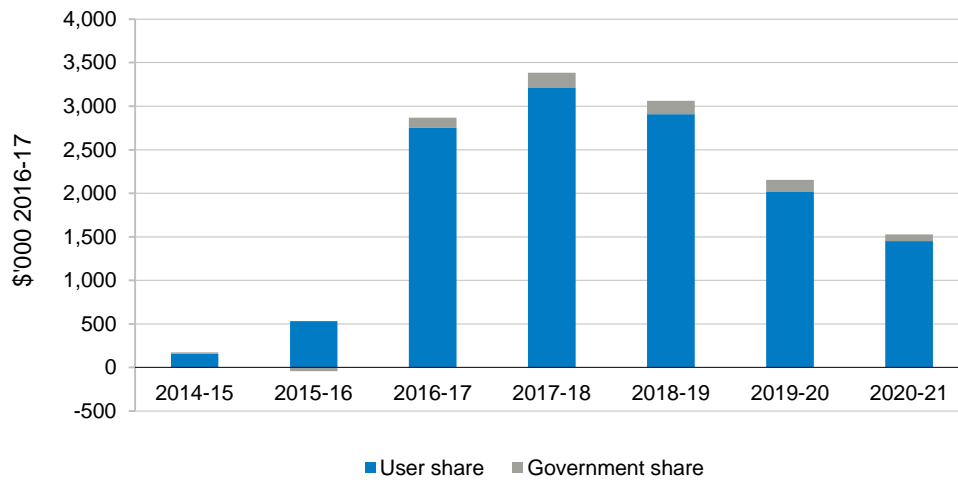
Source: IPART analysis.

Table G.5 Indicative bill impact of bulk water charges for Gwydir valley 2017 Determination (\$ nominal – ie, with inflation)

		Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
High security - small		\$2,626	\$2,343	\$2,523	
High security - medium	↓	\$13,130	\$11,715	\$12,615	-3.9%
High security - large		\$26,260	\$23,430	\$25,230	
General security - small		\$1,075	\$1,082	\$1,166	
General security - medium	↑	\$5,374	\$5,411	\$5,830	8.5%
General security - large		\$10,748	\$10,822	\$11,660	

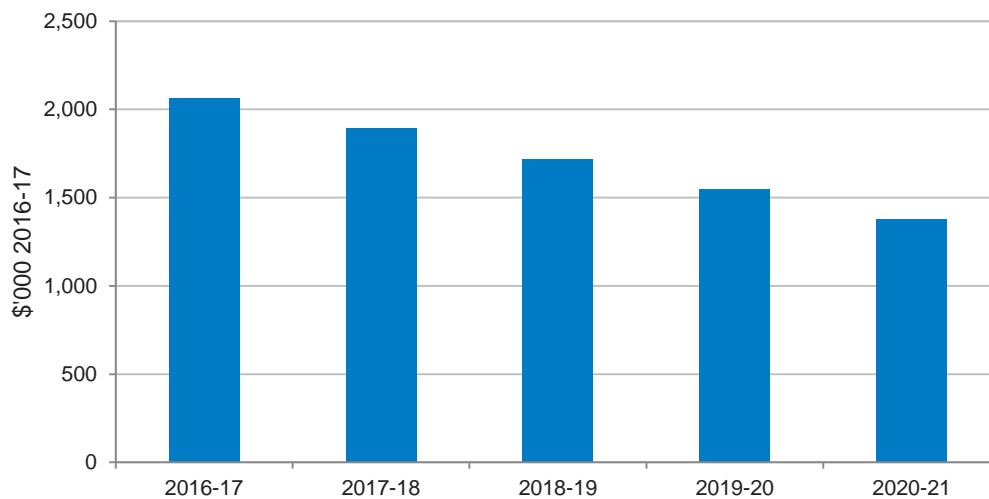
Source: IPART analysis.

Figure G.9 Capital expenditure net of externally-funded contributions for Gwydir valley (\$'000, \$2016-17)



Data source: IPART analysis.

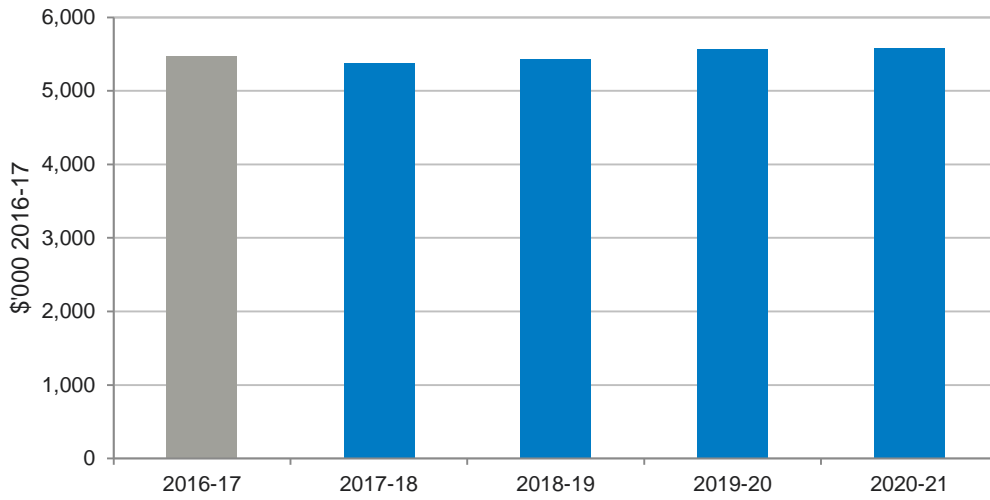
Figure G.10 UOM closing balance for Gwydir valley (\$'000, \$2016-17)



Data source: IPART analysis.

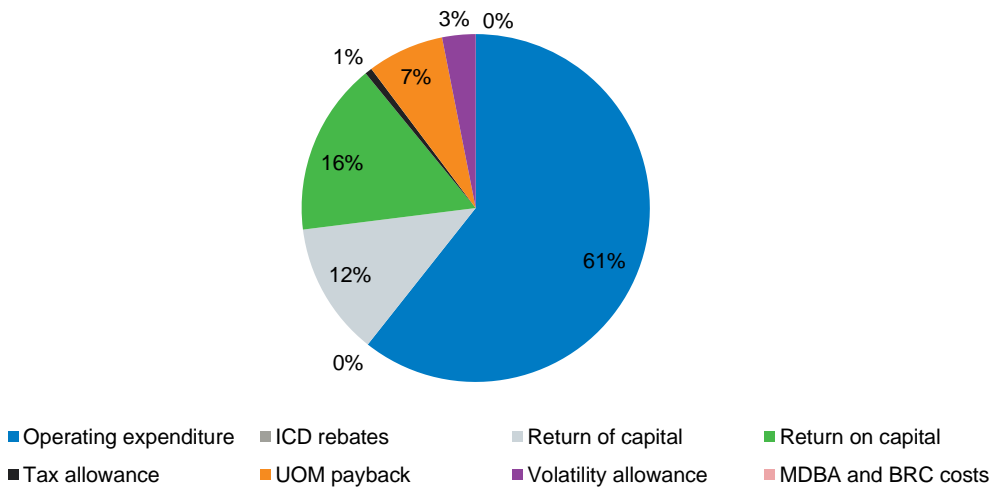
G.3 Namoi Valley

Figure G.11 Customer revenue requirement for Namoi valley (\$'000, \$2016-17)



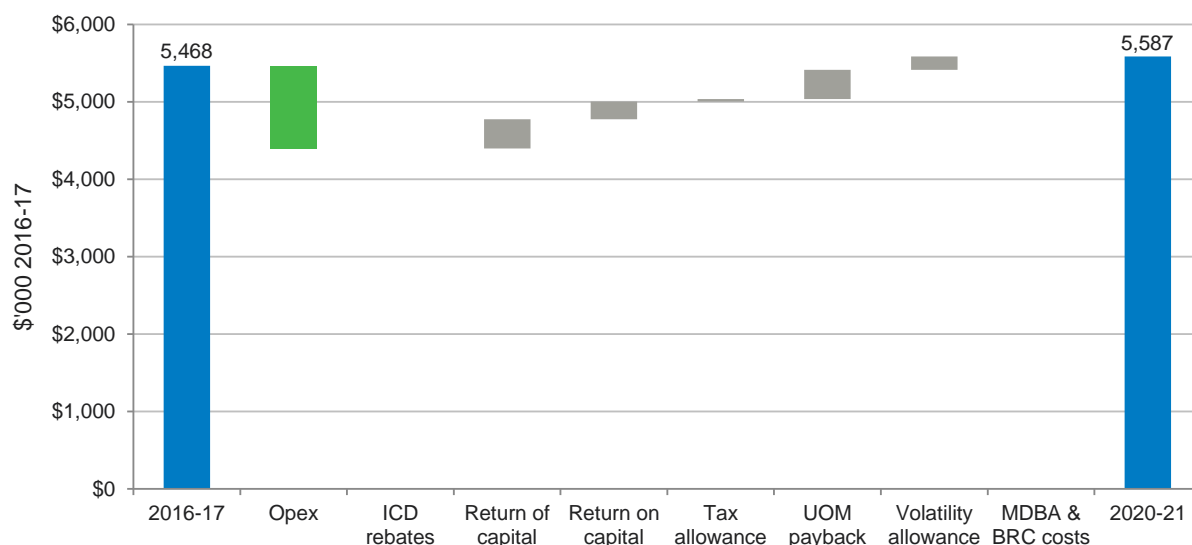
Data source: IPART analysis.

Figure G.12 Components of total customer revenue requirement for Namoi valley over the 2017 Determination period



Data source: IPART analysis.

Figure G.13 Change in customer revenue requirement for Namoi valley from 2016-17 to 2020-21 (\$'000, \$2016-17)



Data source: IPART analysis.

Table G.6 Bulk water charges for Namoi valley 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18 to 2020-21)	% Change (2016-17 to 2020-21)
High security charge	↓	17.29	17.08	-1.2%
General security charge	↓	8.25	7.96	-3.5%
Usage charge	↓	20.26	19.98	-1.4%

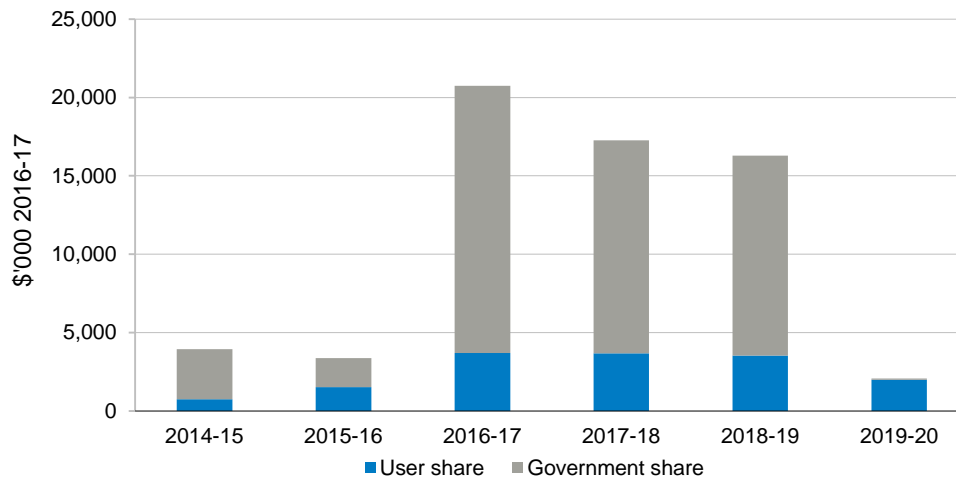
Source: IPART analysis.

Table G.7 Indicative bill impact of bulk water charges for Namoi valley 2017 Determination (\$ nominal – ie, with inflation)

		Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
High security - small		\$3,755	\$3,784	\$4,075	
High security - medium	↑	\$18,775	\$18,920	\$20,375	8.5%
High security - large		\$37,550	\$37,840	\$40,750	
General security - small		\$2,041	\$2,037	\$2,193	
General security - medium	↑	\$10,203	\$10,185	\$10,966	7.5%
General security - large		\$20,406	\$20,370	\$21,932	

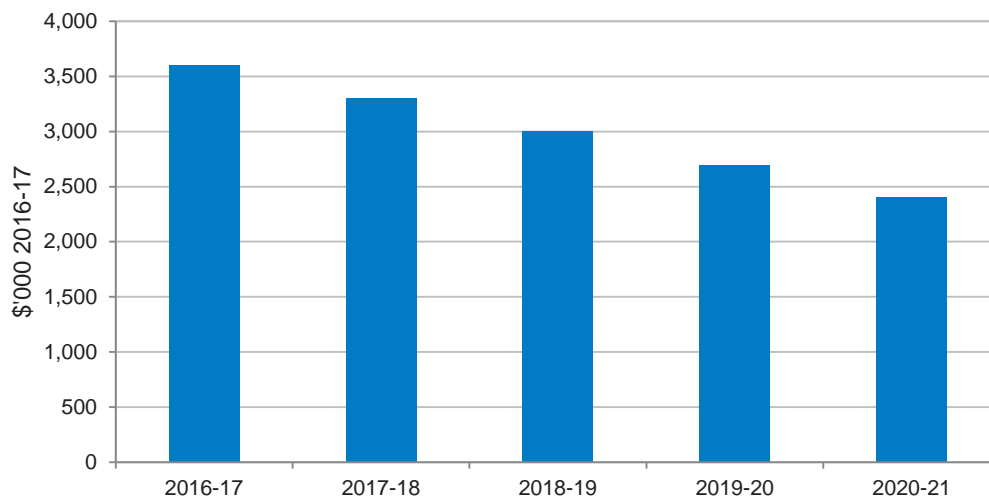
Source: IPART analysis.

Figure G.14 Capital expenditure net of externally-funded contributions for Namoi valley (\$'000, \$2016-17)



Data source: IPART analysis.

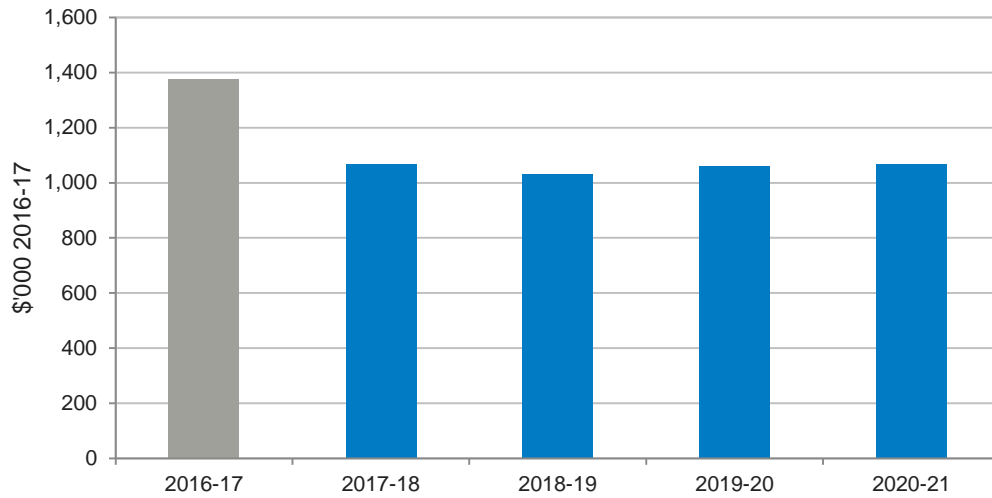
Figure G.15 UOM closing balance for Namoi valley (\$'000, \$2016-17)



Data source: IPART analysis.

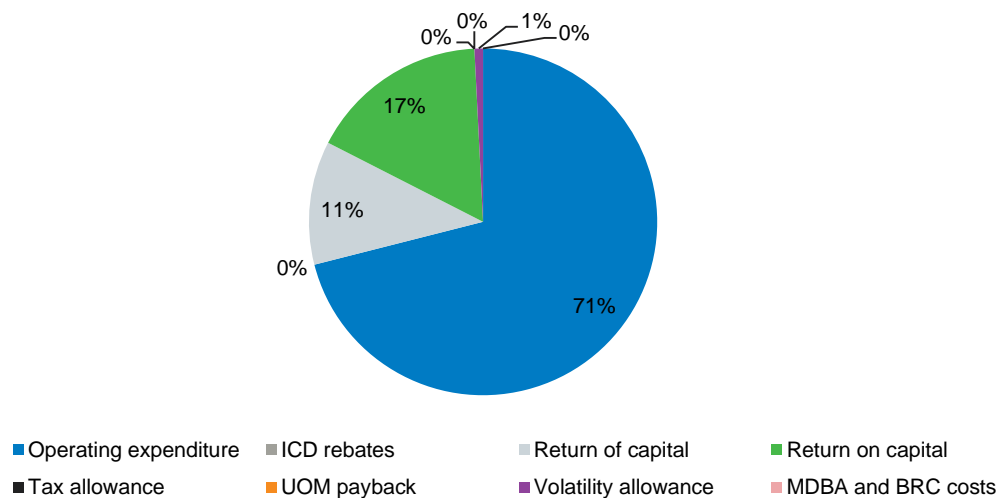
G.4 Peel Valley

Figure G.16 Customer revenue requirement for Peel valley (\$millions, \$2016-17)



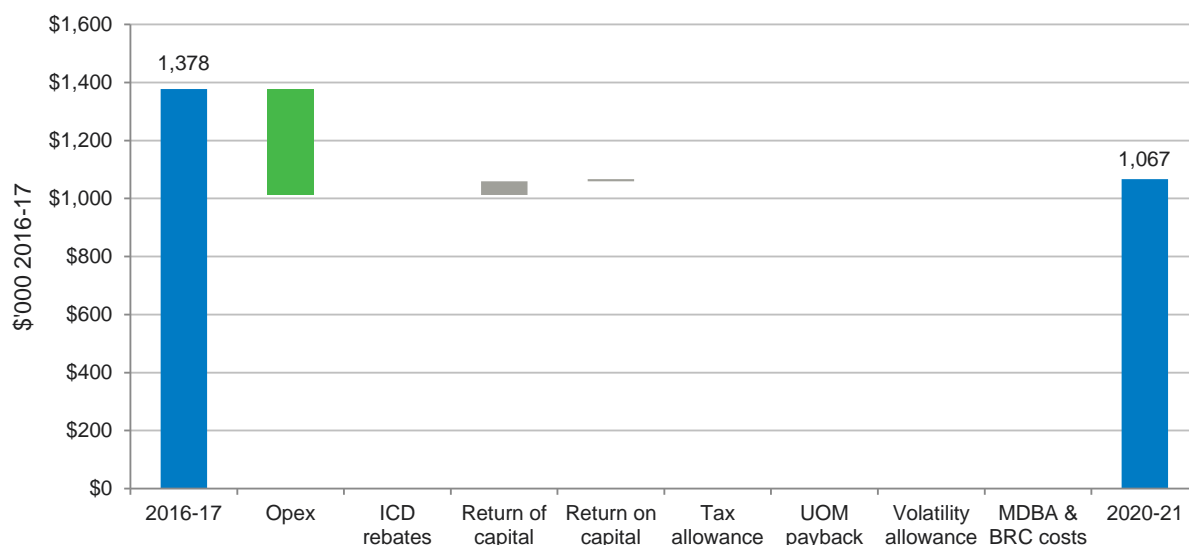
Data source: IPART analysis.

Figure G.17 Components of total customer revenue requirement for Peel valley over the 2017 Determination period



Data source: IPART analysis.

Figure G.18 Change in customer revenue requirement for Peel valley from 2016-17 to 2020-21 (\$'000, \$2016-17)



Data source: IPART analysis.

Table G.8 Bulk water charges for Peel valley 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
High security charge	↑	35.27	20.78	41.57	17.9%
General security charge	↑	3.88	2.01	4.02	3.6%
Usage charge	↓	58.26	55.09	18.36	-68.5%

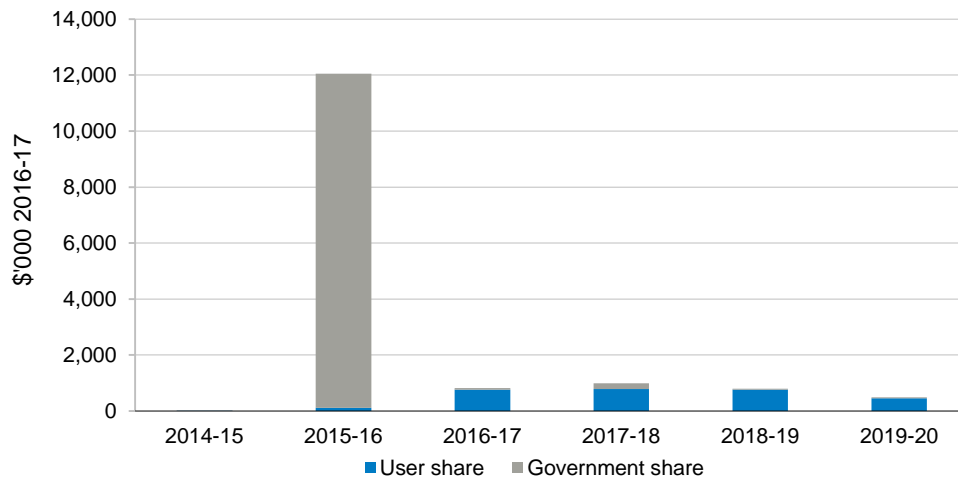
Source: IPART analysis.

Table G.9 Indicative bill impact of bulk water charges for Peel valley 2017 Determination (\$ nominal – ie, with inflation)

		Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
High security - small		\$9,353	\$7,747	\$6,589	
High security - medium	↓	\$46,765	\$38,735	\$32,945	-29.6%
High security - large		\$93,530	\$77,470	\$65,890	
General security - small		\$3,884	\$3,580	\$1,653	
General security - medium	↓	\$19,418	\$17,900	\$8,267	-57.4%
General security - large		\$38,836	\$35,800	\$16,534	

Source: IPART analysis.

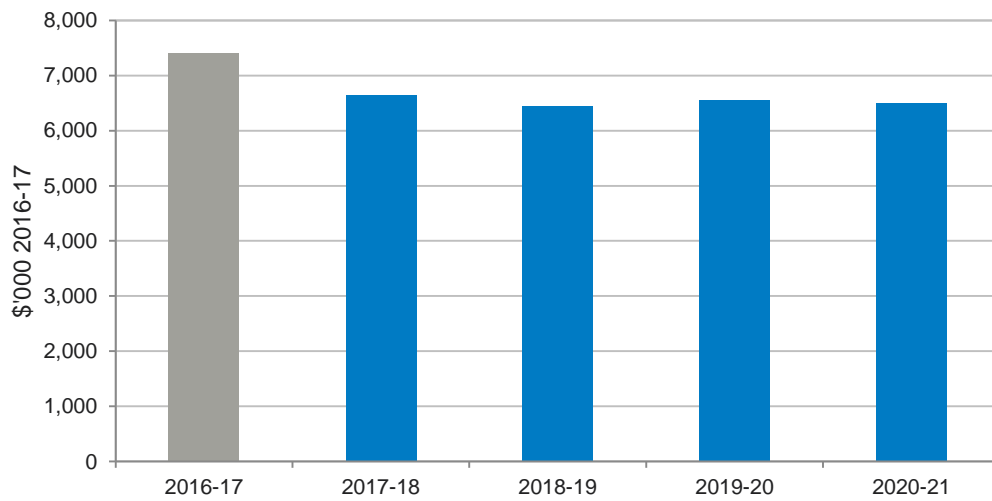
Figure G.19 Capital expenditure net of externally-funded contributions for Peel valley (\$'000, \$2016-17)



Data source: IPART analysis.

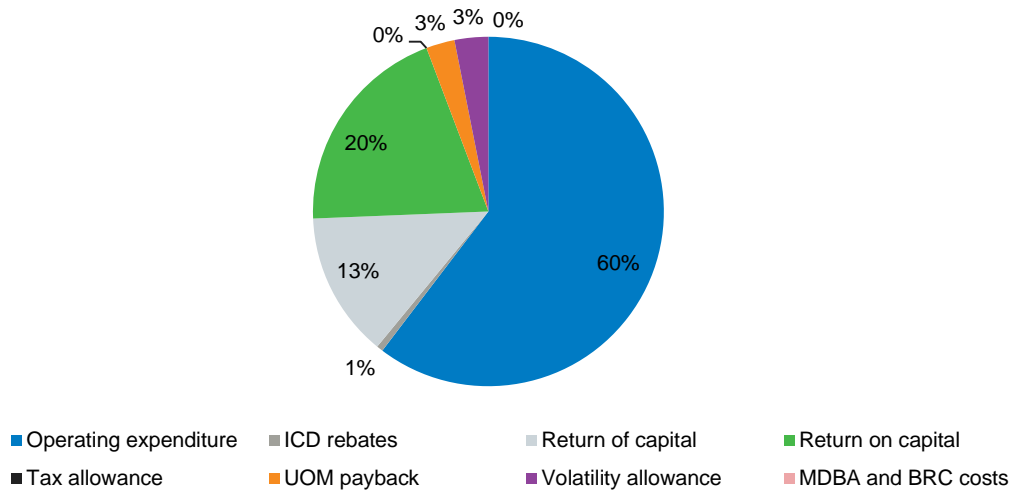
G.5 Lachlan Valley

Figure G.20 Customer revenue requirement for Lachlan valley (\$'000, \$2016-17)



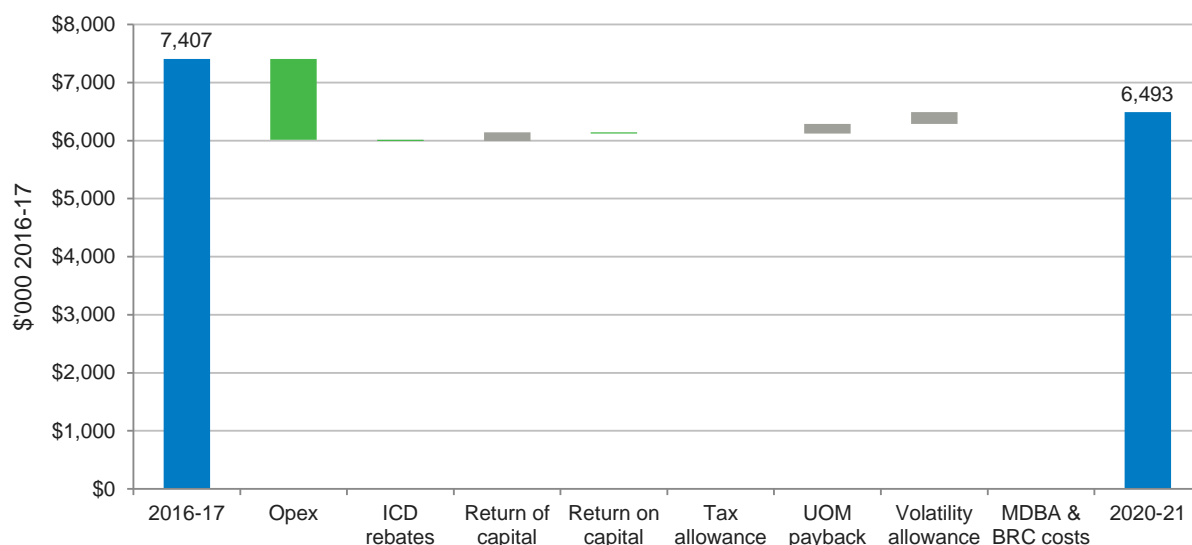
Data source: IPART analysis.

Figure G.21 Components of total customer revenue requirement for Lachlan valley over the 2017 Determination period



Data source: IPART analysis.

Figure G.22 Change in customer revenue requirement for Lachlan valley from 2016-17 to 2020-21 (\$'000, \$2016-17)



Data source: IPART analysis.

Table G.10 Bulk water charges for Lachlan valley 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18 to 2020-21)	% Change (2016-17 to 2020-21)
High security charge	↓	16.48	15.38	-6.7%
General security charge	↓	3.28	2.73	-16.8%
Usage charge	↓	21.12	19.04	-9.8%

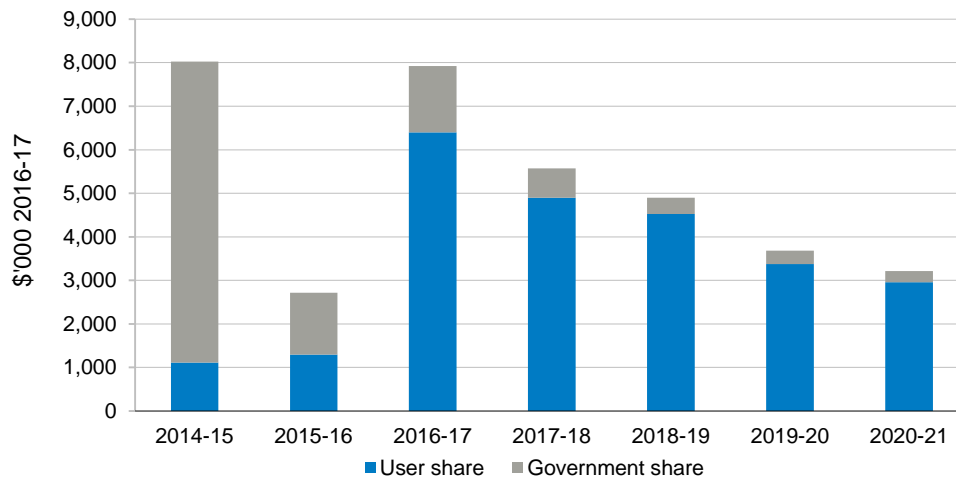
Source: IPART analysis.

Table G.11 Indicative bill impact of bulk water charges for Lachlan valley 2017 Determination (\$ nominal – ie, with inflation)

		Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
High security - small		\$3,760	\$3,514	\$3,784	
High security - medium	↑	\$18,800	\$17,570	\$18,920	0.6%
High security - large		\$37,600	\$35,140	\$37,840	
General security - small		\$1,595	\$1,445	\$1,556	
General security - medium	↓	\$7,976	\$7,227	\$7,779	-2.5%
General security - large		\$15,952	\$14,454	\$15,558	

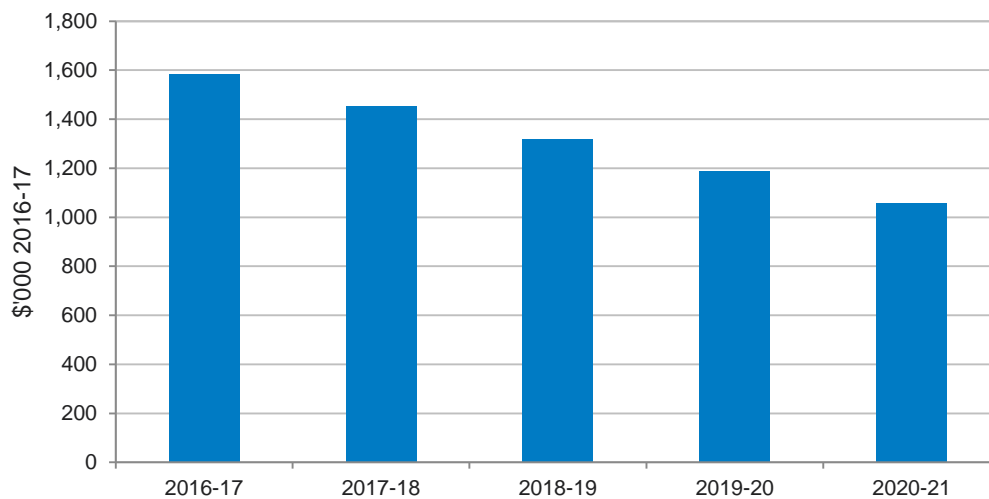
Source: IPART analysis.

Figure G.23 Capital expenditure net of externally-funded contributions for Lachlan valley (\$'000, \$2016-17)



Data source: IPART analysis.

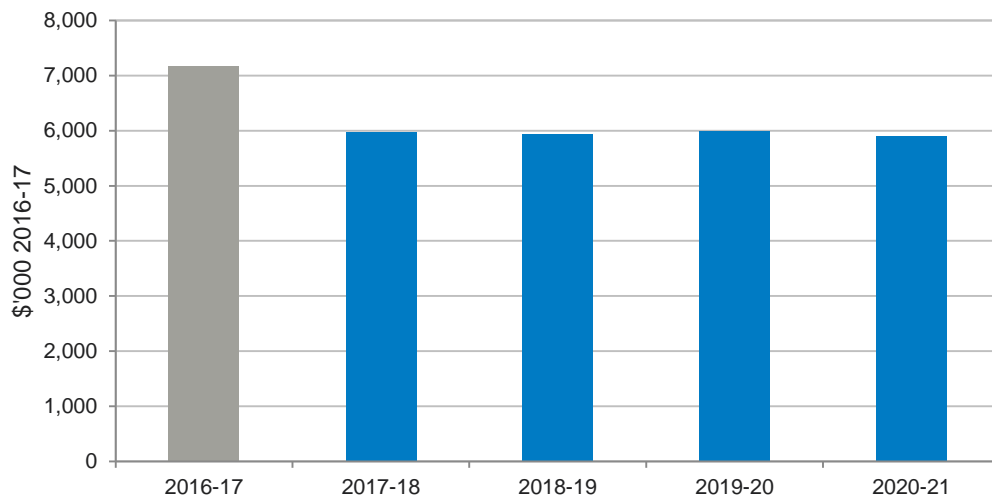
Figure G.24 UOM closing balance for Lachlan valley (\$'000, \$2016-17)



Data source: IPART analysis.

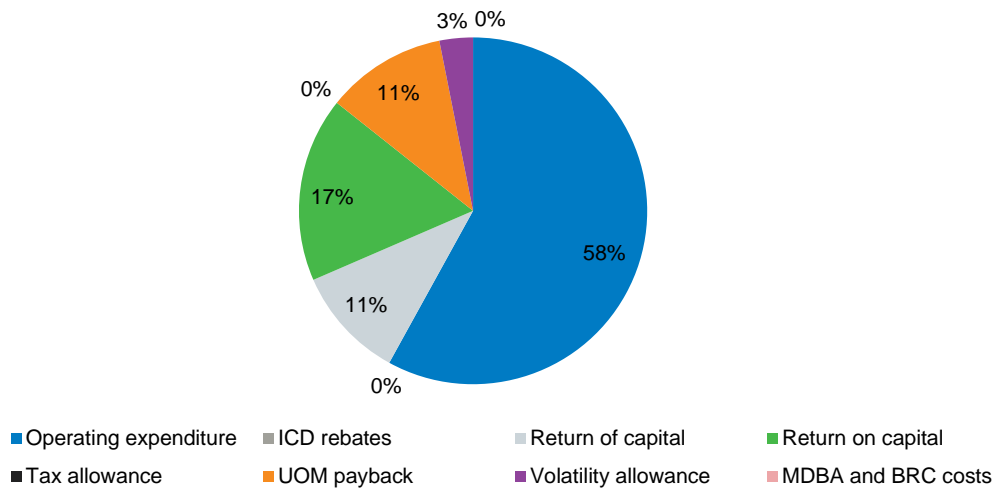
G.6 Macquarie Valley

Figure G.25 Customer revenue requirement for Macquarie valley (\$'000, \$2016-17)



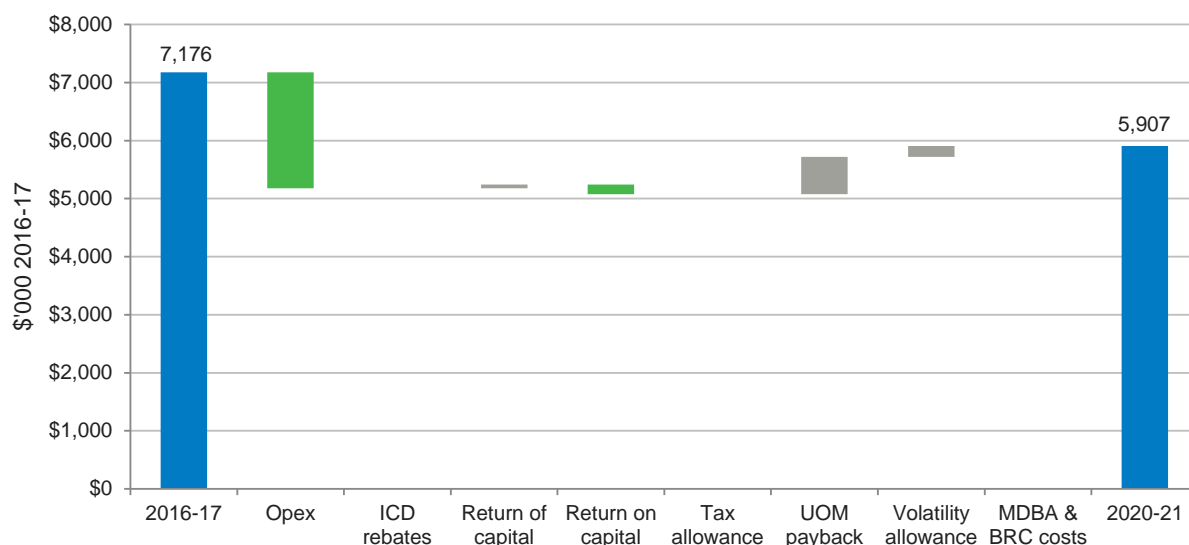
Data source: IPART analysis.

Figure G.26 Components of total customer revenue requirement for Macquarie valley over the 2017 Determination period



Data source: IPART analysis.

Figure G.27 Change in customer revenue requirement for Macquarie valley from 2016-17 to 2020-21 (\$'000, \$2016-17)



Data source: IPART analysis.

Table G.12 Bulk water charges for Macquarie valley 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

	Current charge (2016-17)	IPART Decision (2017-18 to 2020-21)	% Change (2016-17 to 2020-21)
High security charge	16.17	13.51	-16.5%
General security charge	3.62	2.85	-21.3%
Usage charge	16.97	13.78	-18.8%

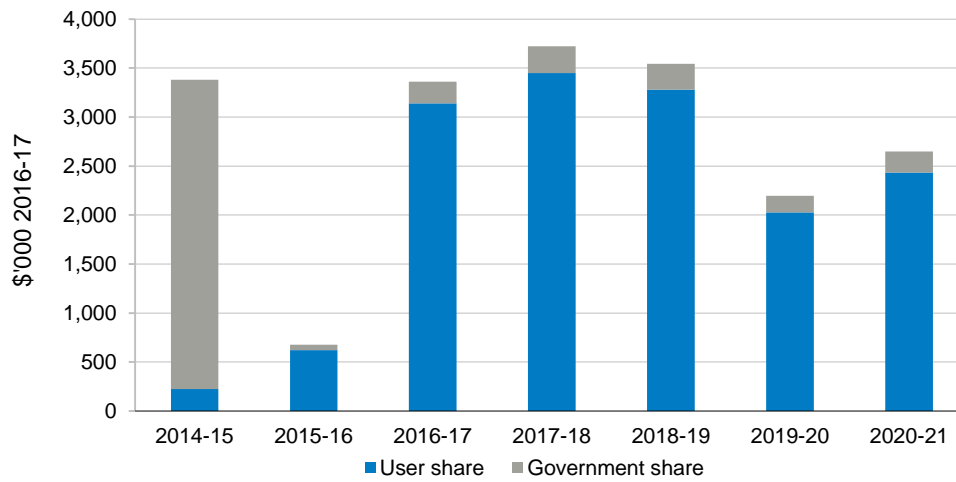
Source: IPART analysis.

Table G.13 Indicative bill impact of bulk water charges for Macquarie valley 2017 Determination (\$ nominal – ie, with inflation)

	Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
High security - small	\$3,314	\$2,787	\$3,002	
High security - medium	\$16,570	\$13,935	\$15,010	-9.4%
High security - large	\$33,140	\$27,870	\$30,020	
General security - small	\$1,380	\$1,135	\$1,223	
General security - medium	\$6,901	\$5,676	\$6,113	-11.4%
General security - large	\$13,802	\$11,352	\$12,226	

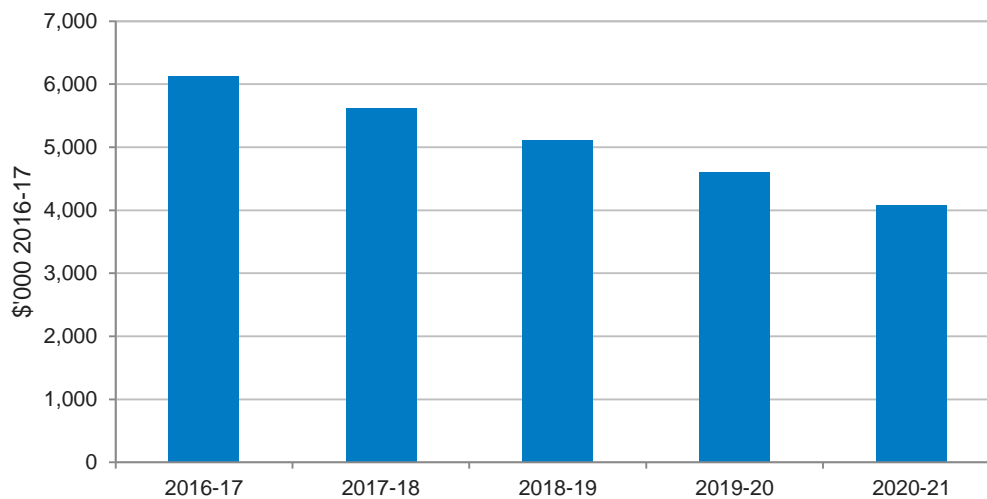
Source: IPART analysis.

Figure G.28 Capital expenditure net of externally-funded contributions for Macquarie valley (\$'000, \$2016-17)



Data source: IPART analysis.

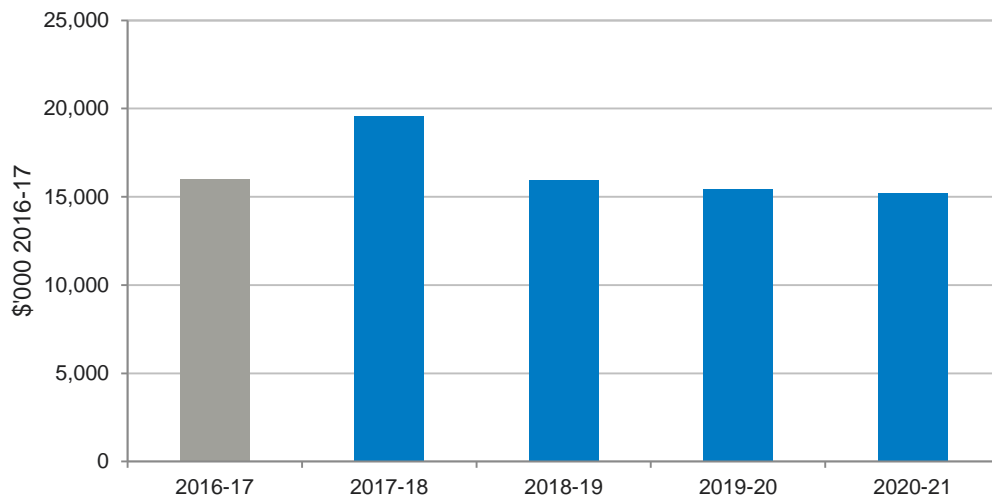
Figure G.29 UOM closing balance for Macquarie valley (\$'000, \$2016-17)



Data source: IPART analysis.

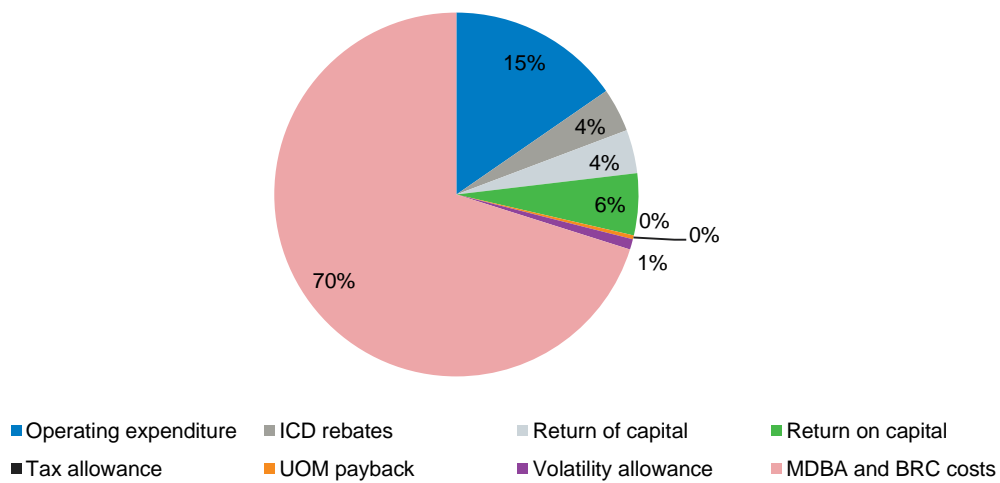
G.7 Murray Valley

Figure G.30 Customer revenue requirement for Murray valley (\$'000, \$2016-17)



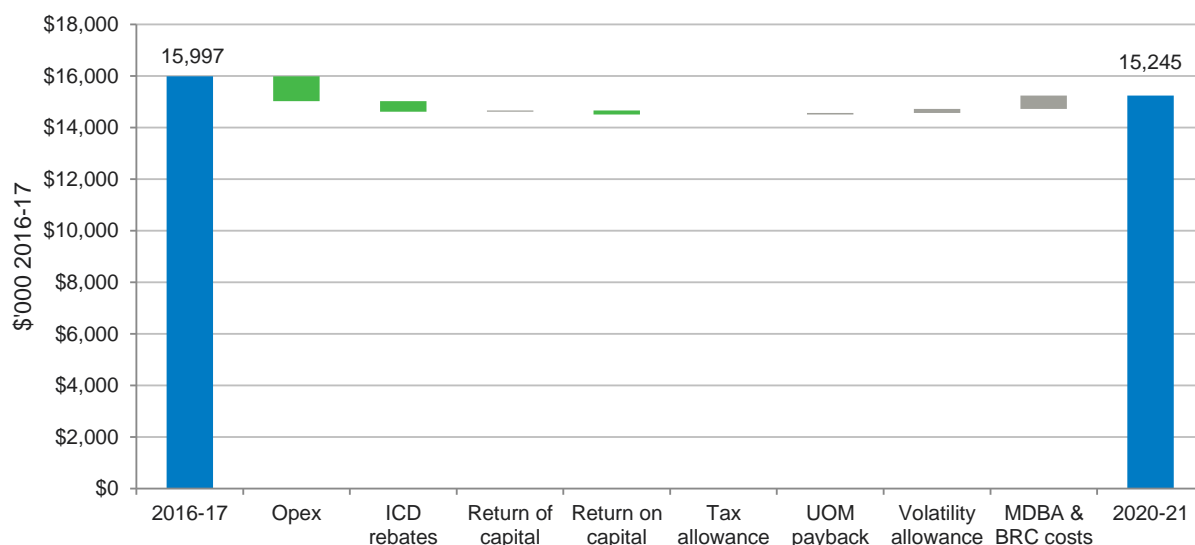
Data source: IPART analysis.

Figure G.31 Components of total customer revenue requirement for Murray valley over the 2017 Determination period



Data source: IPART analysis.

Figure G.32 Change in customer revenue requirement for Murray valley from 2016-17 to 2020-21 (\$'000, \$2016-17)



Data source: IPART analysis.

Table G.14 Bulk water charges for Murray valley 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18 to 2020-21)	% Change (2016-17 to 2020-21)
High security charge	↓	1.79	1.54	-14.0%
General security charge	↓	0.97	0.75	-22.7%
Usage charge	↓	2.31	1.91	-17.3%

Source: IPART analysis.

Table G.15 MDBA charges for Murray valley for 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18 to 2020-21)	% Change (2016-17 to 2020-21)
High security charge	↑	3.22	7.27	125.8%
General security charge	↑	1.74	3.56	104.1%
Usage charge	↓	4.17	1.50	-64.0%

Source: IPART analysis.

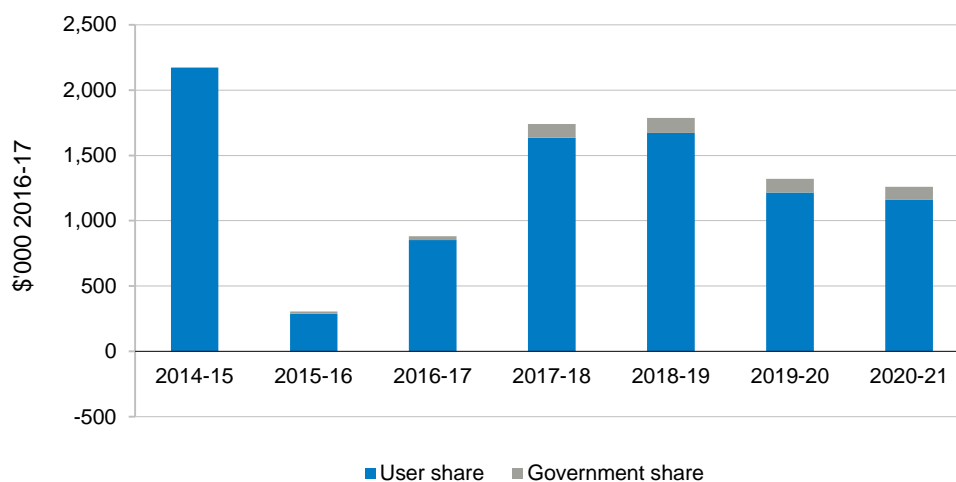
Table G.16 Indicative bill impact of bulk water charges (plus MDBA) for Murray valley 2017 Determination (\$ nominal – ie, with inflation)

		Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
High security - small		\$1,149	\$1,247	\$1,343	
High security - medium	↑	\$5,745	\$6,235	\$6,715	16.9%
High security - large		\$11,490	\$12,470	\$13,430	
General security - small		\$660	\$650	\$700	
General security - medium	↑	\$3,299	\$3,249	\$3,500	6.1%
General security - large		\$6,598	\$6,498	\$7,000	

Note: Includes MDBA charges.

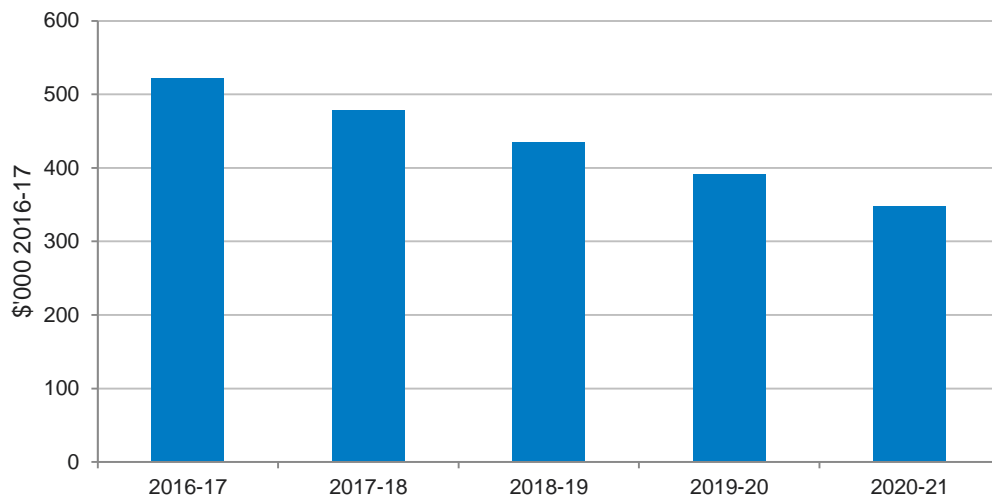
Source: IPART analysis.

Figure G.33 Capital expenditure net of externally-funded contributions for Murray valley (\$'000, \$2016-17)



Data source: IPART analysis.

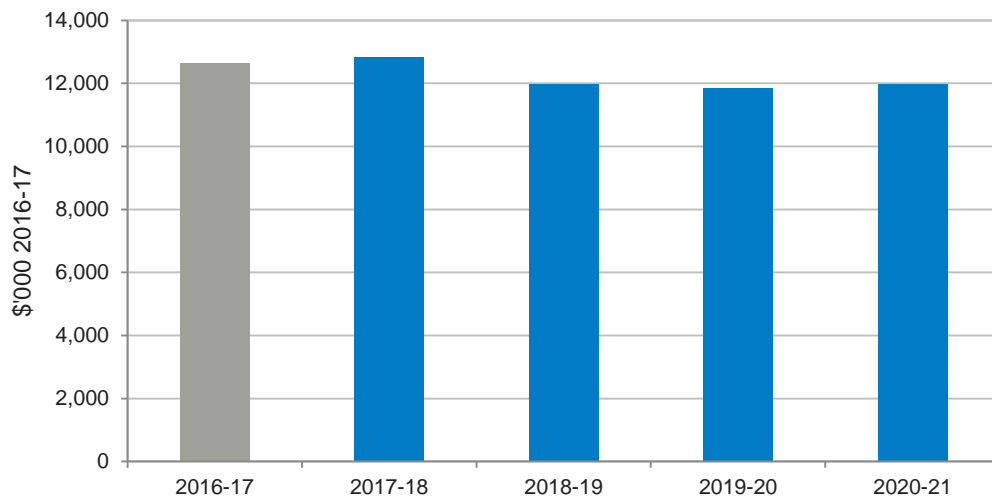
Figure G.34 UOM closing balance for Murray valley (\$'000, \$2016-17)



Data source: IPART analysis.

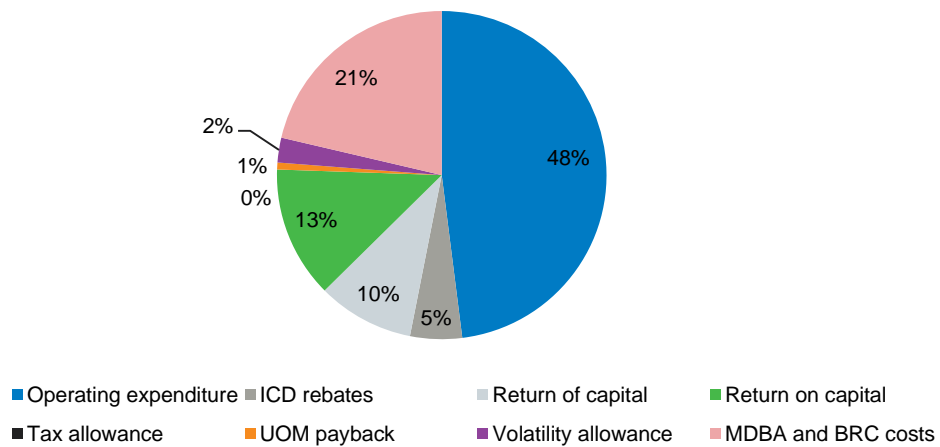
G.8 Murrumbidgee Valley

Figure G.35 Customer revenue requirement for Murrumbidgee valley (\$'000, \$2016-17)



Data source: IPART analysis.

Figure G.36 Components of total customer revenue requirement for Murrumbidgee valley over the 2017 Determination period



Data source: IPART analysis.

Figure G.37 Change in customer revenue requirement for Murrumbidgee valley from 2016-17 to 2020-21 (\$'000, \$2016-17)



Data source: IPART analysis.

Table G.17 Bulk water charges for Murrumbidgee valley 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18 to 2020-21)	% Change (2016-17 to 2020-21)
High security charge	↓	3.08	2.95	-4.2%
General security charge	↓	1.26	1.11	-11.9%
Usage charge	↓	3.53	3.31	-6.2%

Source: IPART analysis.

Table G.18 MDBA charges for Murrumbidgee valley for 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18 to 2020-21)	% Change (2016-17 to 2020-21)
High security charge	↑	0.72	1.61	124.8%
General security charge	↑	0.29	0.61	106.8%
Usage charge	↓	0.82	0.30	-63.5%

Source: IPART analysis.

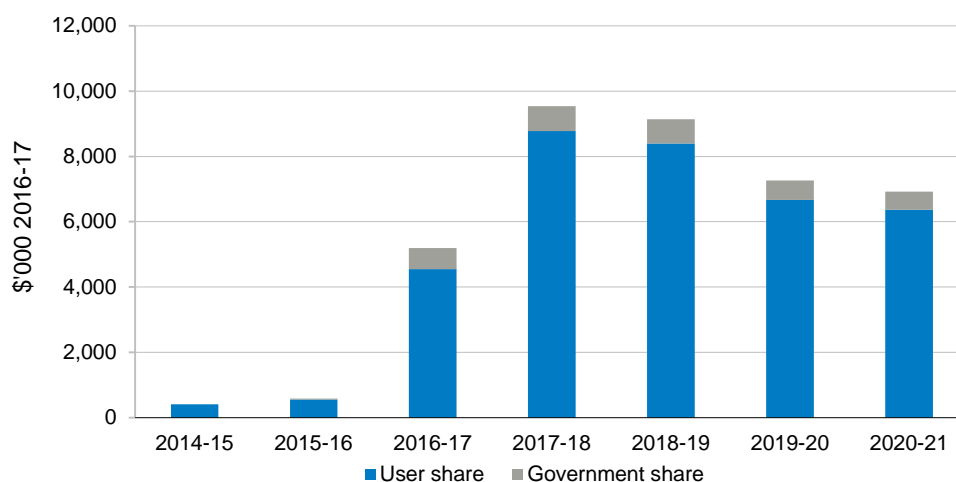
Table G.19 Indicative bill impact of bulk water charges (plus MDBA) for Murrumbidgee valley 2017 Determination (\$ nominal – ie, with inflation)

		Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
High security - small		\$815	\$836	\$899	
High security - medium	↑	\$4,075	\$4,180	\$4,495	10.3%
High security - large		\$8,150	\$8,360	\$8,990	
General security - small		\$416	\$397	\$428	
General security - medium	↑	\$2,080	\$1,987	\$2,141	2.9%
General security - large		\$4,160	\$3,974	\$4,282	

Note: Includes MDBA charges.

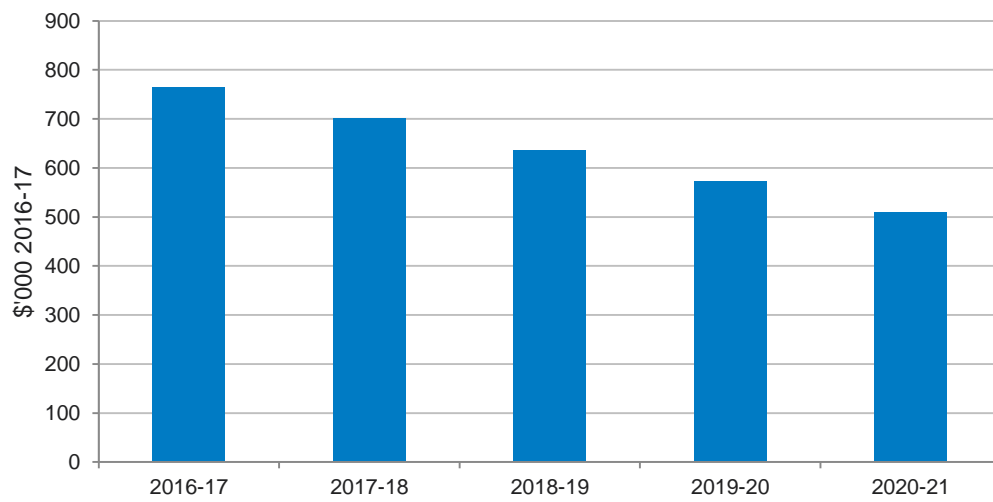
Source: IPART analysis.

Figure G.38 Capital expenditure net of externally-funded contributions for Murrumbidgee valley (\$'000, \$2016-17)



Data source: IPART analysis.

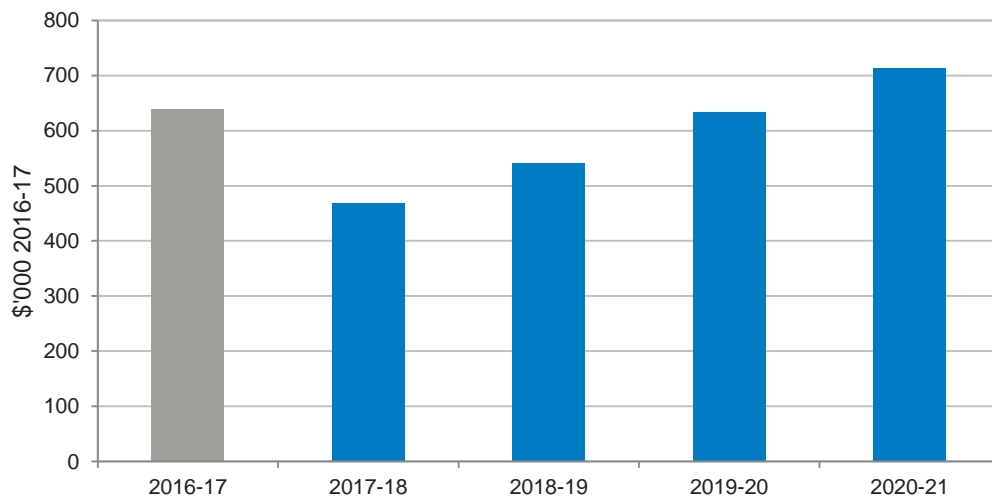
Figure G.39 UOM closing balance for Murrumbidgee valley (\$'000, \$2016-17)



Data source: IPART analysis.

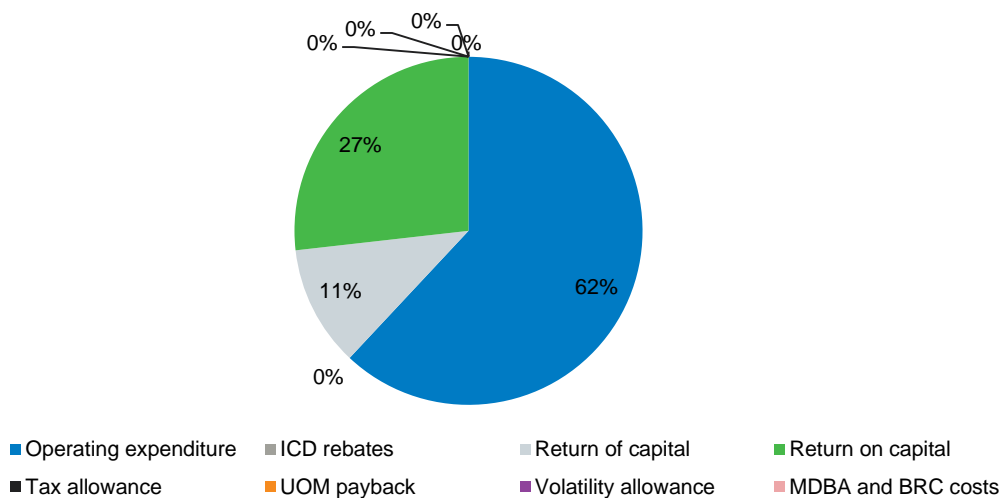
G.9 Lowbidgee Valley

Figure G.40 Customer revenue requirement for Lowbidgee valley (\$'000, \$2016-17)



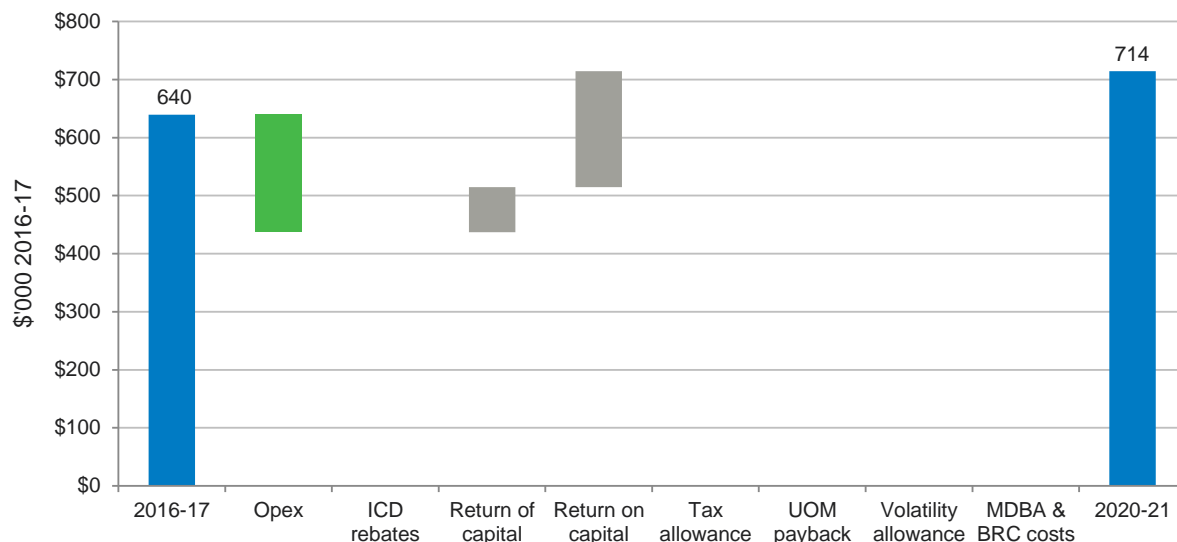
Data source: IPART analysis.

Figure G.41 Components of total customer revenue requirement for Lowbidgee valley over the 2017 Determination period



Data source: IPART analysis.

Figure G.42 Change in customer revenue requirement for Lowbidgee valley from 2016-17 to 2020-21 (\$'000, \$2016-17)



Data source: IPART analysis.

Table G.20 Bulk water charges for Lowbidgee valley 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
General security charge	↓	0.84	0.78	0.78	-7.1%

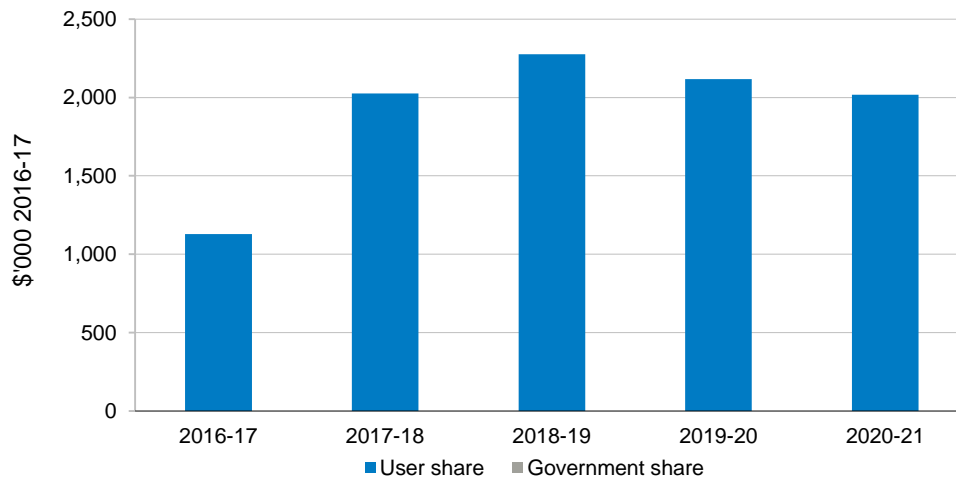
Source: IPART analysis.

Table G.21 Indicative bill impact of bulk water charges for Lowbidgee valley 2017 Determination (\$ nominal – ie, with inflation)

		Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
All customers	↑	\$627,480	\$597,600	\$642,420	2.4%

Source: IPART analysis.

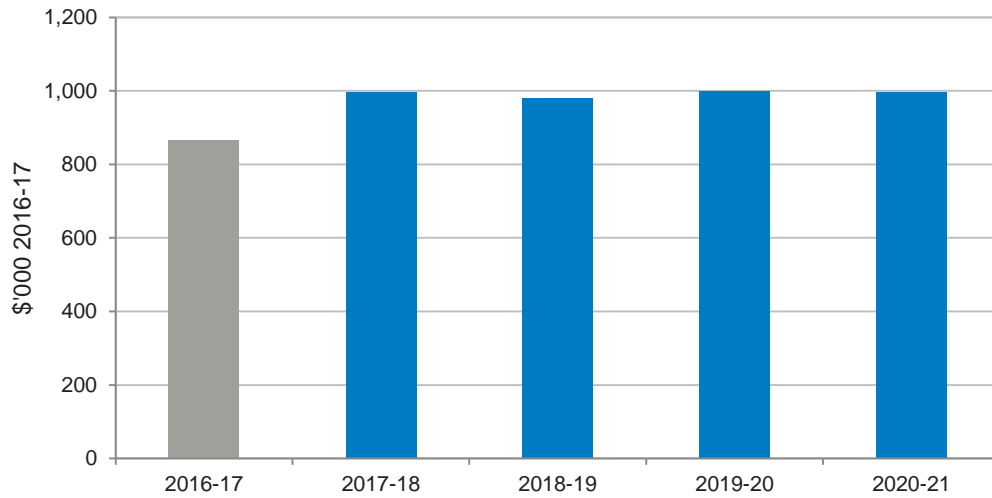
Figure G.43 Capital expenditure net of externally-funded contributions for Lowbidgee valley (\$'000, \$2016-17)



Data source: IPART analysis.

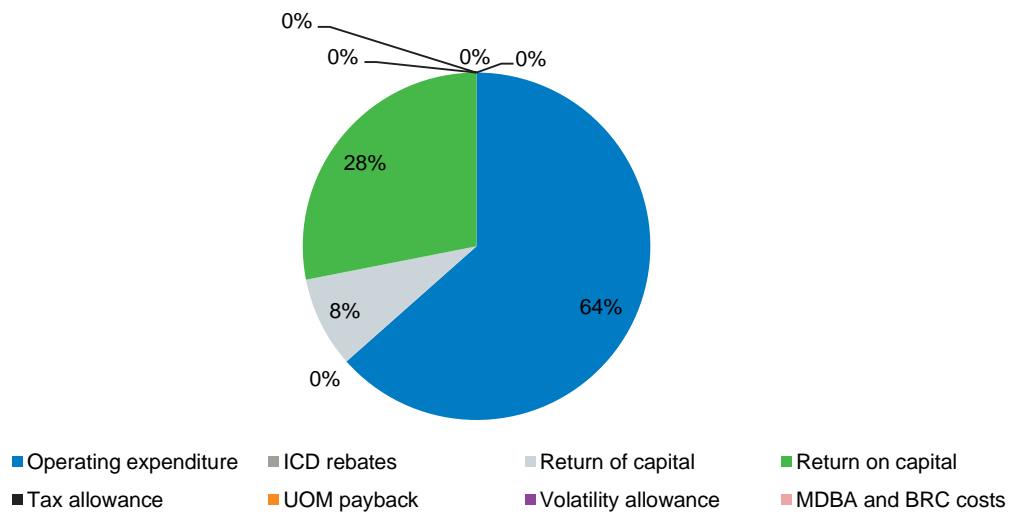
G.10 North Coast Valley

Figure G.44 Customer revenue requirement for North Coast valley (\$'000, \$2016-17)



Data source: IPART analysis.

Figure G.45 Components of total customer revenue requirement for North Coast valley over the 2017 Determination period



Data source: IPART analysis.

Figure G.46 Change in customer revenue requirement for North Coast valley from 2016-17 to 2020-21 (\$'000, \$2016-17)



Data source: IPART analysis.

Table G.22 Bulk water charges for North Coast valley 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18 to 2020-21)	% Change (2016-17 to 2020-21)
High security charge	↑	9.54	11.78	23.5%
General security charge	↑	7.25	9.13	25.9%
Usage charge	↓	45.04	17.42	-61.3%

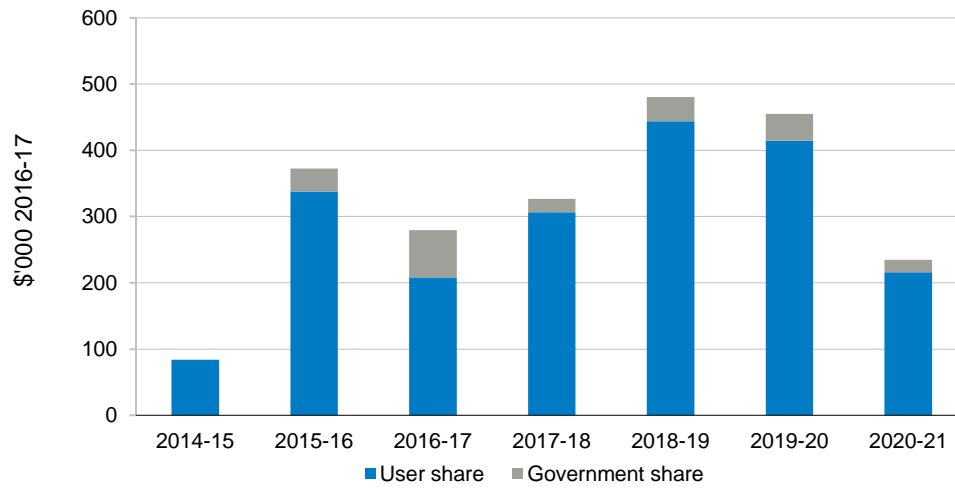
Source: IPART analysis.

Table G.23 Indicative bill impact of bulk water charges for North Coast valley 2017 Determination (\$ nominal – ie, with inflation)

		Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
High security - small		\$5,458	\$2,980	\$3,210	
High security - medium	↓	\$27,290	\$14,900	\$16,050	-41.2%
High security - large		\$54,580	\$29,800	\$32,100	
General security - small		\$3,427	\$1,999	\$2,153	
General security - medium	↓	\$17,137	\$9,994	\$10,765	-37.2%
General security - large		\$34,274	\$19,988	\$21,530	

Source: IPART analysis.

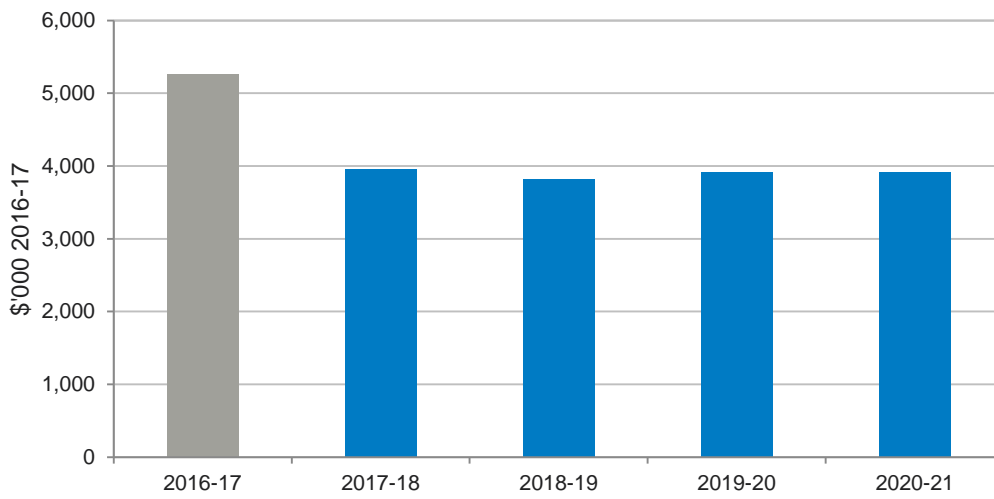
Figure G.47 Capital expenditure net of externally-funded contributions for North Coast valley (\$'000, \$2016-17)



Data source: IPART analysis.

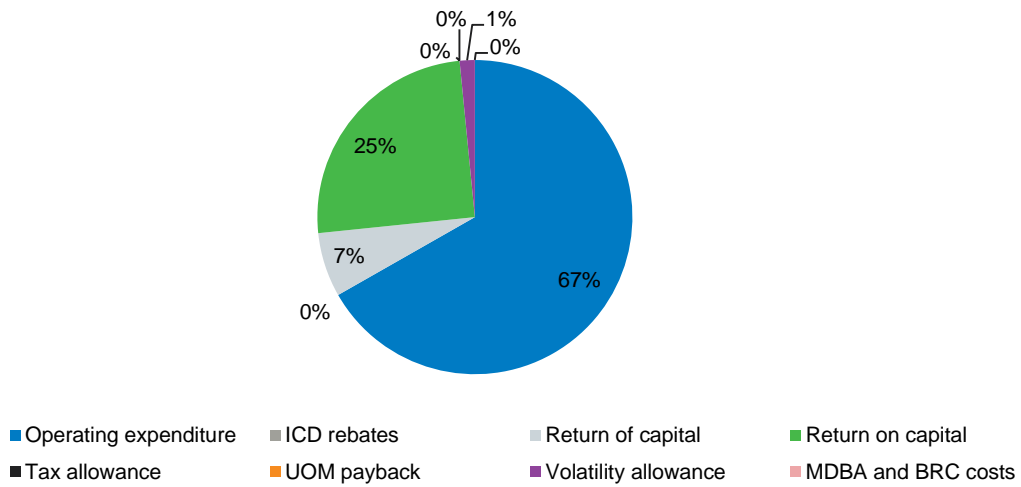
G.11 Hunter Valley

Figure G.48 Customer revenue requirement for Hunter valley (\$'000, \$2016-17)



Data source: IPART analysis.

Figure G.49 Components of total customer revenue requirement for Hunter valley over the 2017 Determination period



Data source: IPART analysis.

Figure G.50 Change in customer revenue requirement for Hunter valley from 2016-17 to 2020-21 (\$'000, \$2016-17)



Data source: IPART analysis.

Table G.24 Bulk water charges for Hunter valley 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18 to 2020-21)	% Change (2016-17 to 2020-21)
High security charge	↓	26.03	13.13	-49.6%
General security charge	↑	8.86	10.20	15.1%
Usage charge	↓	14.77	12.62	-14.6%

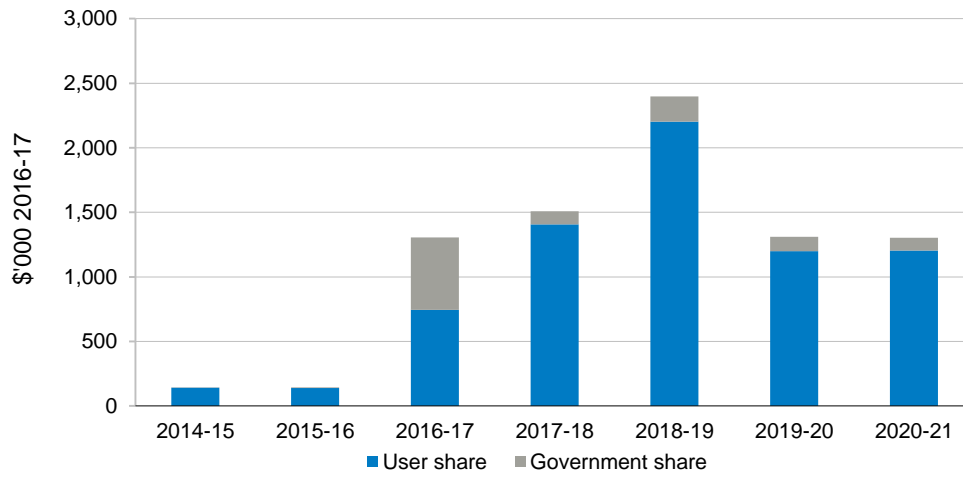
Source: IPART analysis.

Table G.25 Indicative bill impact of bulk water charges for Hunter valley 2017 Determination (\$ nominal – ie, with inflation)

		Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
High security - small	↓	\$4,080	\$2,629	\$2,831	-30.6%
High security - medium		\$20,400	\$13,145	\$14,155	
High security - large		\$40,800	\$26,290	\$28,310	
General security - small	↑	\$1,772	\$1,814	\$1,955	10.3%
General security - medium		\$8,861	\$9,072	\$9,774	
General security - large		\$17,722	\$18,144	\$19,548	

Source: IPART analysis.

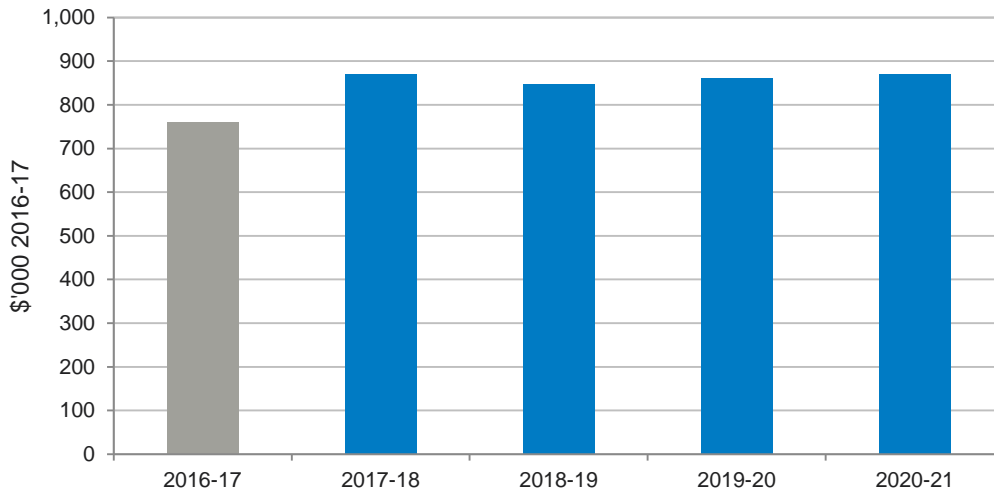
Figure G.51 Capital expenditure net of externally-funded contributions for Hunter valley (\$'000, \$2016-17)



Data source: IPART analysis.

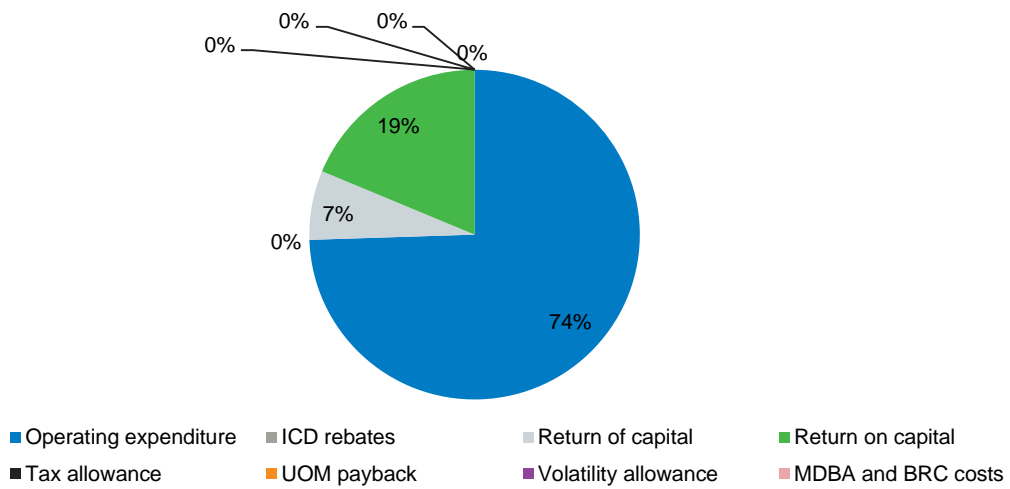
G.12 South Coast Valley

Figure G.52 Customer revenue requirement for South Coast valley (\$'000, \$2016-17)



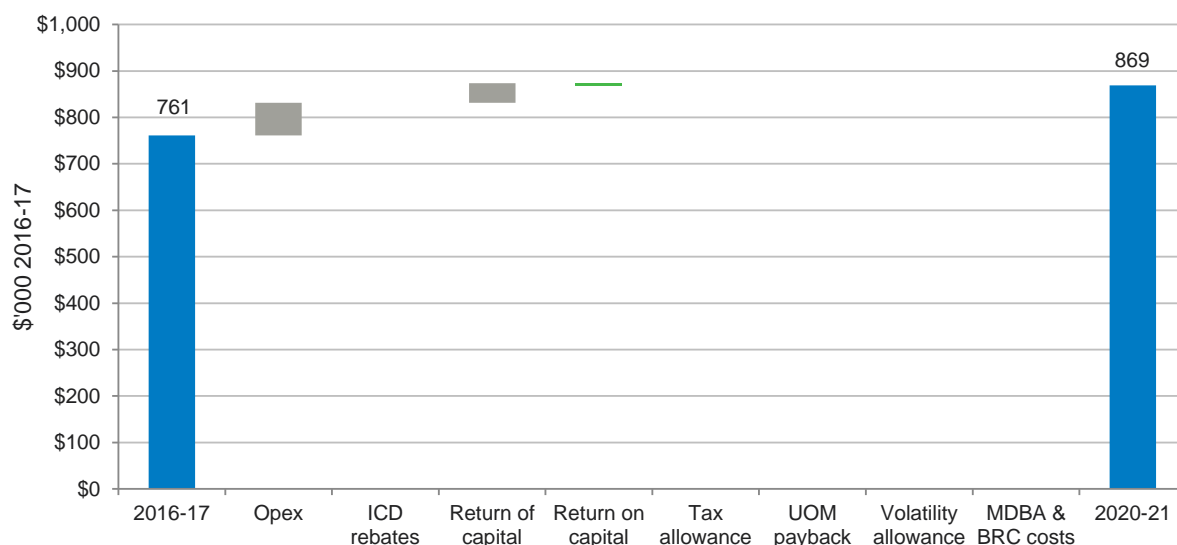
Data source: IPART analysis.

Figure G.53 Components of total customer revenue requirement for South Coast valley over the 2017 Determination period



Data source: IPART analysis.

Figure G.54 Change in customer revenue requirement for South Coast valley from 2016-17 to 2020-21 (\$'000, \$2016-17)



Data source: IPART analysis.

Table G.26 Bulk water charges for South Coast valley 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18 to 2020-21)	% Change (2016-17 to 2020-21)
High security charge	↑	21.12	30.81	45.9%
General security charge	↑	10.09	16.16	60.2%
Usage charge	↓	40.38	17.27	-57.2%

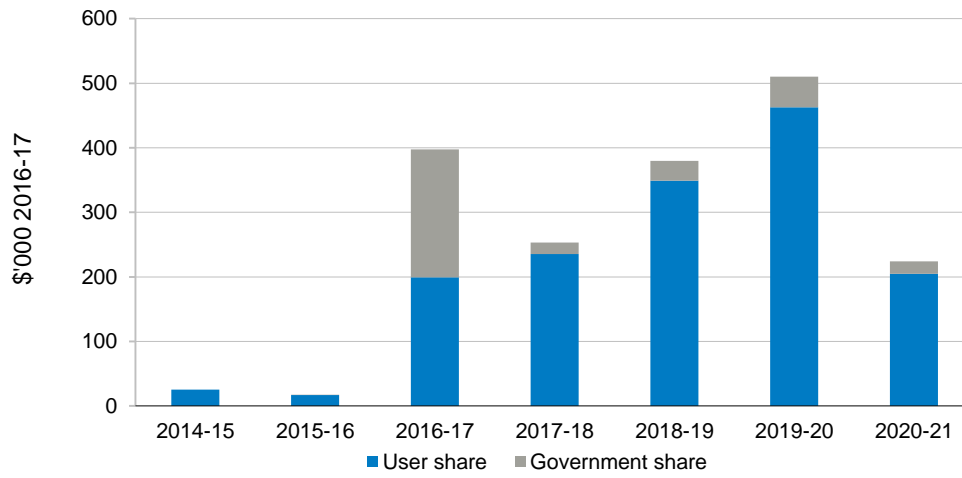
Source: IPART analysis.

Table G.27 Indicative bill impact of bulk water charges for South Coast valley 2017 Determination (\$ nominal – ie, with inflation)

		Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
High security - small		\$6,150	\$4,908	\$5,285	
High security - medium	↓	\$30,750	\$24,540	\$26,425	-14.1%
High security - large		\$61,500	\$49,080	\$52,850	
General security - small		\$3,432	\$2,708	\$2,915	
General security - medium	↓	\$17,159	\$13,539	\$14,574	-15.1%
General security - large		\$34,318	\$27,078	\$29,148	

Source: IPART analysis.

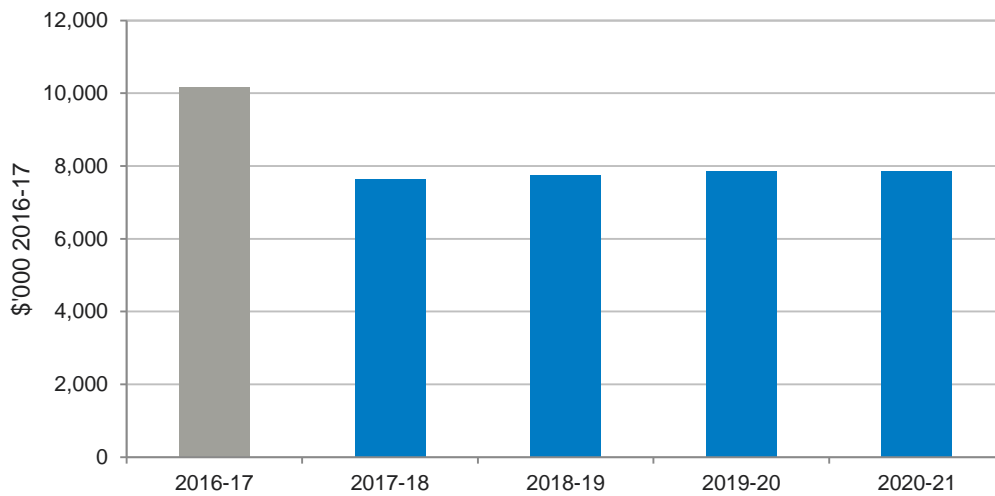
Figure G.55 Capital expenditure net of externally-funded contributions for South Coast valley (\$'000, \$2016-17)



Data source: IPART analysis.

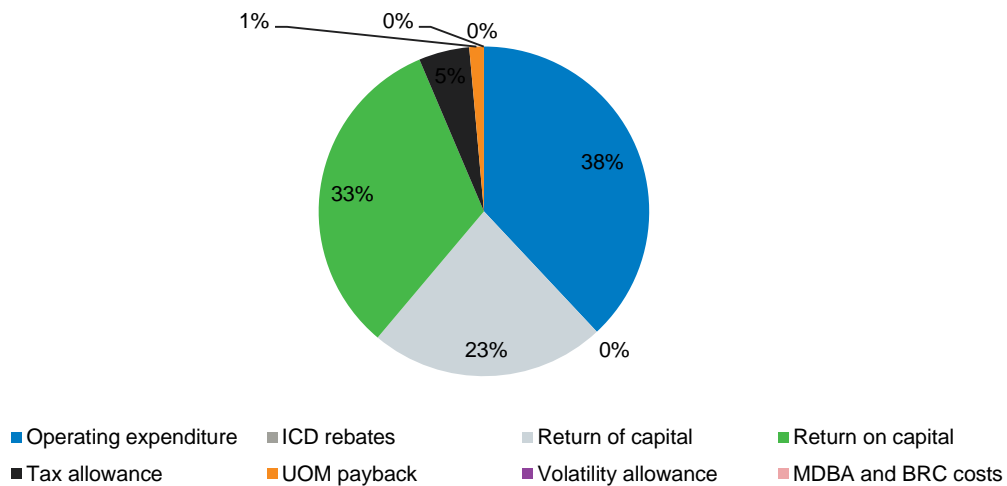
G.13 Fish River Water Supply (FRWS)

Figure G.56 Customer revenue requirement for FRWS (\$'000, \$2016-17)



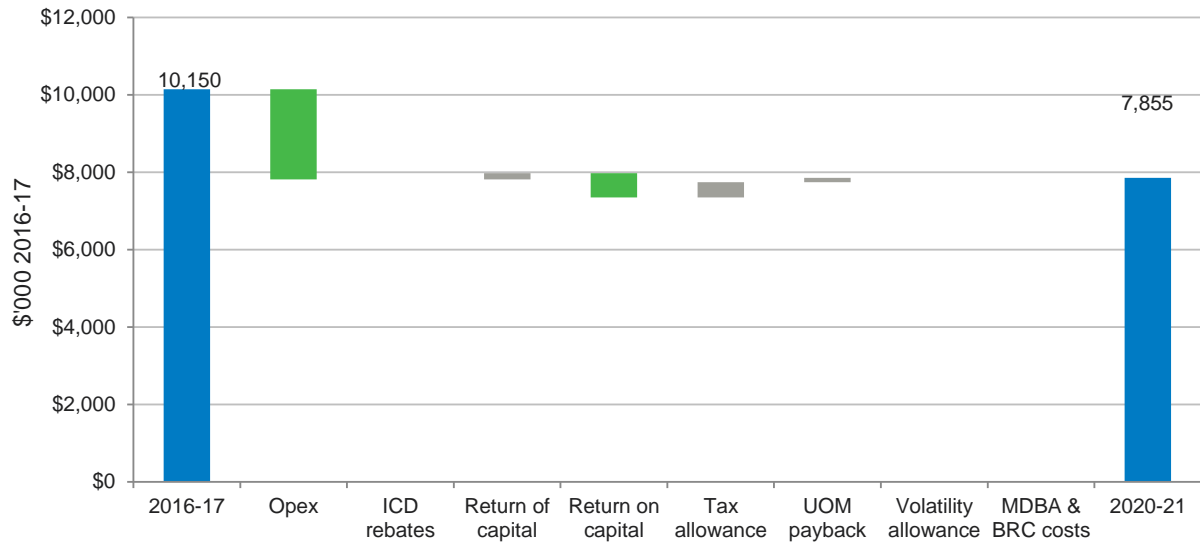
Data source: IPART analysis.

Figure G.57 Components of total customer revenue requirement for FRWS over the 2017 Determination period



Data source: IPART analysis.

Figure G.58 Change in customer revenue requirement for FRWS from 2016-17 to 2020-21 (\$'000, \$2016-17)



Data source: IPART analysis.

Table G.28 Bulk water charges for FRWS for 2017 Determination - \$/ML of entitlement and usage (\$2016-17 – ie, without inflation)

		Current charge (2016-17)	IPART Decision (2017-18 to 2020-21)	% Change (2016-17 to 2020-21)
Bulk Raw Water				
Minimum Annual Quantity (MAQ) (\$/kL)				
Major customers	↑	0.38 ^a	0.39	2.6%
Minor customers	↑	0.36	0.39	8.3%
Usage up to MAQ (\$/kL)				
Major customers	↓	0.43 ^a	0.24	-44.2%
Minor customers	↓	0.42	0.24	-42.9%
Usage in excess of MAQ (\$/kL)				
Major customers	↓	0.81	0.63	-22.2%
Minor customers	↓	0.78	0.63	-19.2%
Bulk Filtered Water				
Minimum Annual Quantity (MAQ) (\$/kL)				
Major customers	↑	0.57	0.63	10.5%
Minor customers	↑	0.69	0.76	10.1%
Usage up to MAQ (\$/kL)				
Major customers	↓	0.61	0.36	-41.0%
Minor customers	↓	0.78	0.46	-41.0%
Usage in excess of MAQ (\$/kL)				
Major customers	↓	1.18	0.99	-16.1%
Minor customers	↓	1.47	1.22	-17.0%

^a In 2016-17, Energy Australia had the same price as the minor customers.

Note: WaterNSW currently has three major raw water customers – Energy Australia, WaterNSW (Greater Sydney) and Oberon Council. WaterNSW currently has only one major filtered water customer – Lithgow Council. Minor customers are individual minor customers.

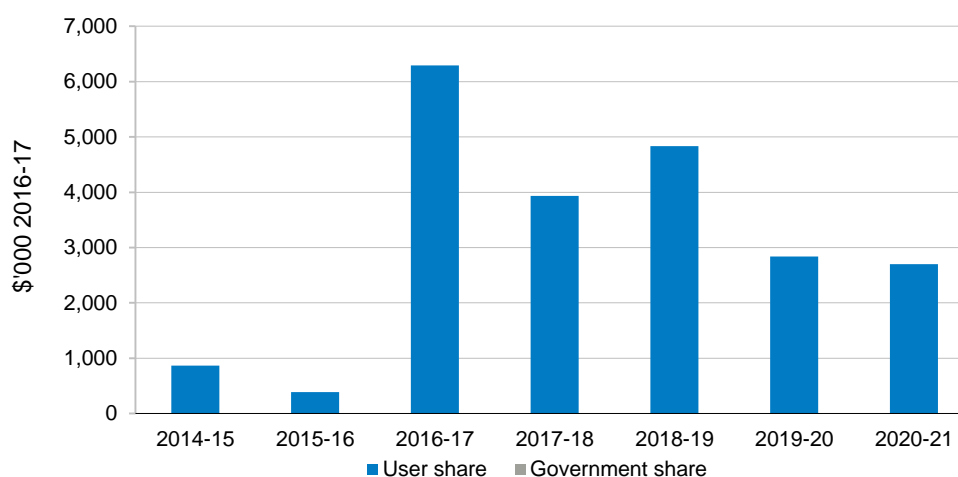
Data source: IPART analysis.

Table G.29 Indicative bill impact of bulk water charges for FRWS 2017 Determination (\$ nominal – ie, with inflation)

		Current charge (2016-17)	IPART Decision (2017-18)	IPART Decision (2020-21)	% Change (2016-17 to 2020-21)
Bulk raw water					
EnergyAustralia	↑	\$3,418,816	\$3,658,850	\$3,935,190	15.1%
Sydney Catchment Authority	↓	\$2,348,127	\$2,034,500	\$2,189,960	-6.7%
Oberon Council	↓	\$709,534	\$602,850	\$648,950	-8.5%
Individual minor customers	↓	\$476	\$392	\$422	-11.4%
Bulk filtered water					
Lithgow Council	↑	\$1,542,666	\$1,449,680	\$1,564,560	1.4%
Individual minor customers	↓	\$794	\$666	\$714	-10.1%

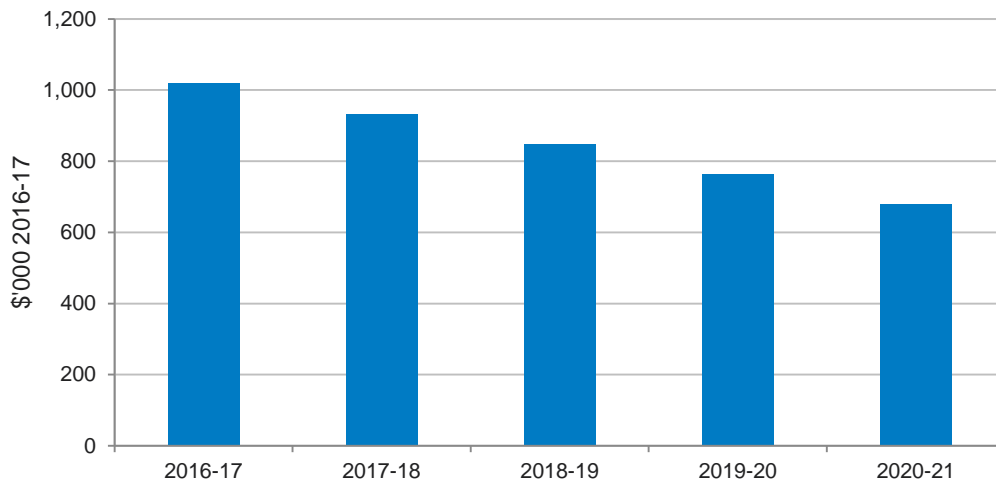
Source: IPART analysis.

Figure G.59 Capital expenditure net of externally-funded contributions for FRWS (\$'000, \$2016-17)



Data source: IPART analysis.

Figure G.60 UOM closing balance for FRWS (\$'000, \$2016-17)



Data source: IPART analysis.

Glossary

2006 Determination	<i>Bulk Water Prices for State Water Corporation and Water Administration Ministerial Corporation, September 2006 (Determination Nos 4 and 5, 2006)</i>
2006 determination period	The period from 1 October 2006 to 30 June 2010, as set in the 2006 Determination
2010 Determination	<i>Review of bulk water charges for state water corporation, June 2010 (Determination No 2, 2010)</i>
2010 determination period	The period from 1 July 2010 to 30 June 2014, as set in the 2010 Determination
2014 ACCC Decision	<i>ACCC Final Decision on State Water Pricing Application: 2014-15 — 2016-17, June 2014</i>
2017 determination period	The period commencing 1 July 2017
ACCC	Australian Consumer and Competition Commission
ACCC's Pricing Principles	<i>Pricing principles for price approvals and determinations under the Water Charge (Infrastructure) Rules 2010, July 2011</i>
AMD	Australian Modern Dairy
Annual revenue requirement	The notional revenue requirement in each year of the determination period
BRC	Border Rivers Commission
CEWO	Commonwealth Environmental Water Office
CPI	Consumer Price Index
CSC	Customer Service Committee
Customer share of costs	We have decided to refer to what has previously been known as the 'user share of costs' as the 'customer share of costs', given that there are users of rural bulk water services (eg, the community at large), that do not contribute to the recovery of WaterNSW's NRR

DPI Water	Department of Primary Industries Water (formerly the NSW Office of Water)
EA	EnergyAustralia
ECM	Efficiency carryover mechanism
FCR	Full cost recovery
FFO	Funds from operations
FMMS	Facilities maintenance and management system
FRWS	Fish River Water Supply Scheme
GS	General security
GL	Gigalitre
Greater Sydney area	Water catchments that service WaterNSW storages including the Blue Mountains, Shoalhaven, Warragamba, Upper Nepean and Woronora catchments
GVIA	Gwydir Valley Irrigators Association
HS	High security
ICDs	Irrigation corporations and districts
IPART	Independent Pricing and Regulatory Tribunal of NSW
IPART Act	<i>Independent Pricing and Regulatory Tribunal Act 1992 (NSW)</i>
IQQM	Integrated water Quantity and Quality simulation Model
kL	Kilolitre
LVW	Lachlan Valley Water
MDB	Murray Darling Basin
MDBA	Murray Darling Basin Authority
MAQ	Minimum Annual Quantity
ML	Megalitre
mm	Millimetre

MSC	Meter service charges
NRR	Notional revenue requirement. Revenue requirement set by IPART that represents the efficient costs of providing WaterNSW's regulated monopoly services
NPV	Net Present Value
NSW	New South Wales
NSWIC	New South Wales Irrigators' Council
OEH	Office of Environment and Heritage
PFA Act	<i>Public Finance and Audit Act 1983 (NSW)</i>
PRV	Pressure reducing valve
RAB	Regulatory asset base
RTP	Risk transfer product
SCADA	Supervisory control and data acquisition
SOC	State-owned corporation
Target revenue	The revenue WaterNSW generates from prices set by IPART for that year
UOM	Unders and overs mechanism
VaR	Value at risk
WACC	Weighted average cost of capital
WAMC	Water Administration Ministerial Corporation
Water Act	<i>Water Act 2007 (Cth)</i>
WCIR	<i>Water Charge (Infrastructure) Rules 2010</i> made under s 92 of the <i>Water Act 2007 (Cth)</i>
YACTAC	Yanco Creek and Tributaries Advisory Council