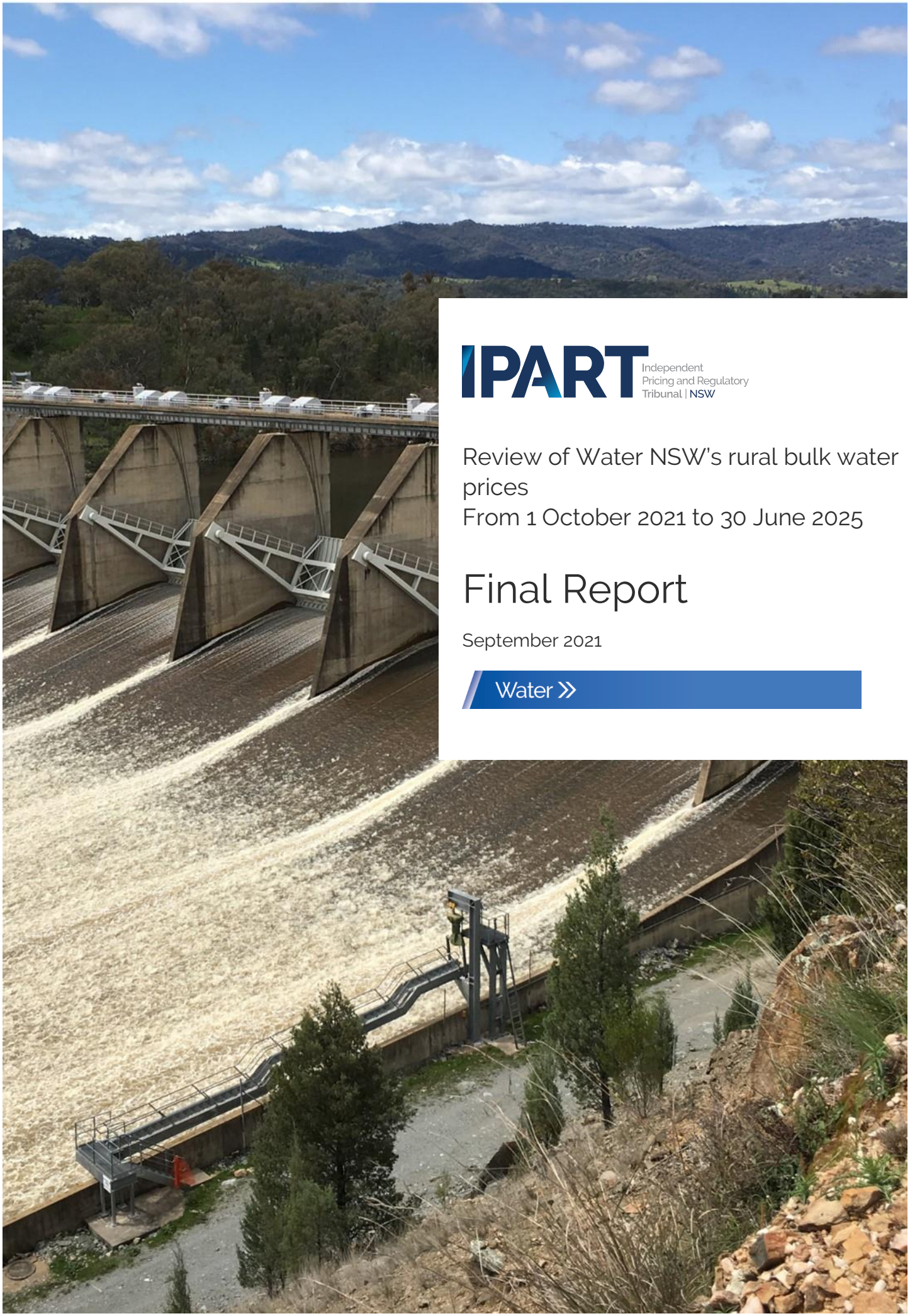

IPART Independent Pricing and Regulatory Tribunal | NSW

Review of Water NSW's rural bulk water prices
From 1 October 2021 to 30 June 2025

Final Report

September 2021

Water »

Tribunal Members

The Tribunal members for this review are:

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The Independent Pricing and Regulatory Tribunal (IPART)

We make the people of NSW better off through independent decisions and advice. IPART's independence is underpinned by an Act of Parliament. Further information on IPART can be obtained from IPART's website.

Acknowledgment of Country

IPART acknowledges the Traditional Custodians of the lands where we work and live. We pay respect to Elders, past, present and emerging.

We recognise the unique cultural and spiritual relationship and celebrate the contributions of First Nations peoples.

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Chapter 1

Executive summary

01

The Independent Pricing and Regulatory Tribunal of NSW (IPART) has reviewed the prices Water NSW can charge its customers for rural bulk water services. These customers include agricultural producers, environmental water holders, as well as urban water suppliers in valleys on the state's regulated river systems.

Water NSW owns and operates the dams and other assets that collect, store and deliver bulk water in NSW and provide services to bulk water customers. Sustainable, reliable and efficient provision of these services is critical to the agricultural sector and the wellbeing of communities in rural and regional areas. It is also important to the state's ability to manage the environmental impacts of drought and climate change.

The prices we set aim to recover a share of the efficient costs of providing rural bulk water services and support sustainable ongoing service delivery. The remaining share of these costs is funded by the NSW Government on behalf of the broader community. The prices include:

- **Bulk water charges**, which are annual prices to recover customers' share of the efficient costs of delivering Water NSW's rural bulk water services. They are levied as a 2-part price, comprising:
  - a fixed entitlement charge – $ per megalitre (ML) of licensed entitlement
  - a variable usage charge[a] – $ per ML of water used (extracted from the river).
- **Murray–Darling Basin Authority (MDBA) and Dumaresq–Barwon Border Rivers Commission (BRC) charges**, which are levied on licence holders in the Murray and Murrumbidgee and Border valleys to recover some of the funds NSW contributes to these cross-jurisdictional bodies. These charges are also levied as a 2-part price, comprising fixed entitlement and variable usage charges.
- **Metering reform charges**, which are annual charges to recover some of the costs of implementing the NSW Government's non-urban metering reform requirements. These reforms strengthen metering and compliance and as a result, protect licence holder rights.
- **Miscellaneous charges**, which are fee-for-service charges for a range of other services.

In making our 2021 Determination, we are guided by different legislation in different valleys. For the 9 valleys in the Murray–Darling Basin (MDB) and rural customers in the Fish River Water Supply Scheme (FRWS),[b] we must comply with the Commonwealth Government's Water Charge Rules 2010 (Cth) (WCR).[c] The WCR require us to set prices that fully recover Water NSW's efficient costs that are not met from other sources.

For the 3 valleys in coastal regions of NSW (Coastal valleys) and urban customers in the FRWS,[d] we must meet the requirements in the *Independent Pricing and Regulatory Tribunal Act 1992* (the IPART Act). The IPART Act provides us with more flexibility in transitioning prices to efficient costs than the WCR.

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a In our 2021 Determination, the variable usage charge is also referred to as the "water take charge".
b Energy Australia and minor customers.
c Previously the Water Charge Rules 2010 (Cth) (WCR) were referred to as the Commonwealth Government's Water Charge (Infrastructure) Rules 2010.
d Oberon and Lithgow city councils, and Water NSW (Greater Sydney).

We have completed our review of these prices and made decisions on the prices to apply from 1 October 2021 to 30 June 2025 (the 2021 determination period). This report outlines these decisions and explains how and why we reached them.

1.1 Price rises are necessary for sustainable ongoing service delivery

Our review found that for Water NSW to deliver effective services into the future, its expenditure needs to be higher than we allowed for when we last set its prices in 2017. Otherwise, customers may be worse-off in the long-term, as Water NSW may not be able to deliver effective services and maintain service quality into the future. In particular, Water NSW needs higher levels of operating expenditure to maintain its assets to an acceptable quality.

Well-maintained assets are important for customers, to provide the levels of service they seek, and to the community in general. The customer share of Water NSW's efficient costs is around 19% higher than when we last set prices.

We consider it is appropriate for customers to contribute to the additional expenditure required through higher prices. However, our pricing decisions ensure that they only pay for efficient expenditure.

1.2 Prices and customer bills are generally higher

Under our pricing decisions, over the 2021 determination period:

- Bulk water charges[e] increase (on average) by about 29% for entitlement charges and 31% for usage charges (plus inflation) in most valleys. This returns prices and bills to levels similar to those under the 2014 Australian Consumer and Competition Commission (ACCC) Decision. However, in the North Coast and South Coast valleys, the charges remain constant and increase by inflation only.
- MDBA charges generally increase (by up to about 15%, plus inflation, for some charges), while BRC charges decrease or increase slightly.
- Charges for FRWS customers increase (by up to 36%, plus inflation, for some charges), except for Oberon Council, where charges will be held constant and increase by inflation only.
- Most miscellaneous charges are held constant and increase by inflation only. However, we have not set an Environmental Gauging Station charge. In the past, Water NSW did not provide this service or incur any costs relating to this charge. Further, we do not expect them to be provided/incurred during the 2021 determination period.

[e] Excluding MDBA and BRC charges.

1.2.1 Bulk water charges increase by 30% on average

Under our decision, bulk water charges increase (before inflation) in all valleys except the North Coast and the South Coast valleys (Table 1.1 and Table 1.2). These charges increase by an average of 29% for entitlement charges and 31% for usage charges.

The key driver of this general price increase is our decision on the customer share of Water NSW's efficient costs. These costs, to be recovered from customers, are around $56.4 million or 19% higher than those we used to set current prices in 2017. However, they are lower than the customer share under Water NSW's proposal for most valleys. As a result, our bulk water charges are also lower than Water NSW proposed in most valleys. In some valleys, they are significantly lower.[f]

The price increases vary widely across the valleys and the different types of charges. The highest increase is 104.8% for the general security entitlement charge in the Lowbidgee valley. The lowest is 1.0% for the high security entitlement charge in the North Coast valley. This variation reflects differences in Water NSW's efficient costs across valleys. It also reflects differences in the size of customer bases, the types of charge levied, and the ratio of fixed-to-variable price components across valleys.

In setting prices, we generally maintained the pricing approaches and the price structures we adopted for the 2017 Determination.

[f] In its June 2020 pricing proposal, Water NSW proposed setting prices for 2021-22 that would not recover its proposed costs. However, the WCR, which we used to set prices for the MDB valleys, do not allow for prices that do not recover efficient costs. To make meaningful comparisons, we modelled what constant prices (across a 4-year determination period) for each valley would be if Water NSW fully recovered its proposed costs over a 4-year determination period. It is these modelled prices that we present in this report as 'Water NSW's proposed' prices.

Table 1.1 Decision on bulk water entitlement prices for the 2021 determination period ($/ML, $2021–22)

Valley	Current 2020–21 ($2020–21)	Decision for 2021 Determination	Change current to decision
High security entitlement charge			
Border	$5.74	$6.58	14.6%
Gwydir	$11.93	$17.40	45.9%
Namoi	$18.40	$28.93	57.2%
Peel	$44.77	$61.36	37.1%
Lachlan	$16.56	$25.10	51.6%
Macquarie	$14.55	$20.18	38.7%
Murray	$1.66	$2.26	36.1%
Murrumbidgee	$3.18	$4.17	31.1%
Lowbidgee[a]	N/A	N/A	N/A
North Coast	$12.69	$12.82	1.0%
Hunter	$14.15	$19.94	40.9%
South Coast	$33.19	$33.56	1.1%
General security entitlement charge			
Border	$2.13	$2.41	13.1%
Gwydir	$3.75	$4.04	7.7%
Namoi	$8.58	$10.10	17.7%
Peel	$4.33	$5.82	34.4%
Lachlan	$2.94	$3.71	26.2%
Macquarie	$3.07	$3.94	28.3%
Murray	$0.81	$0.99	22.2%
Murrumbidgee	$1.19	$1.43	20.2%
Lowbidgee[a]	$0.84	$1.72	104.8%
North Coast	$9.83	$9.94	1.1%
Hunter	$10.98	$15.49	41.1%
South Coast	$17.41	$17.60	1.1%

a. Lowbidgee has only supplementary licences.

Note: Excludes MDBA/BRC costs.
Source: IPART analysis.

Table 1.2 Decision on bulk water usage prices for the 2021 determination period ($/ML, $2021–22)

Valley	Current 2020–21 ($2020–21)	Decision for 2021 Determination	Change current to decision
Border	$5.86	$7.03	20.0%
Gwydir	$12.79	$17.19	34.4%
Namoi	$21.52	$30.88	43.5%
Peel	$19.78	$24.51	23.9%
Lachlan	$20.51	$31.17	52.0%
Macquarie	$14.84	$21.64	45.8%
Murray	$2.06	$2.93	42.2%
Murrumbidgee	$3.57	$4.97	39.2%
Lowbidgee[a]	N/A	N/A	N/A
North Coast	$18.77	$18.98	1.1%
Hunter	$13.60	$19.13	40.7%
South Coast	$18.60	$18.80	1.1%

a. Lowbidgee has only supplementary licences.

Note: Excludes MDBA/BRC costs.
Source: IPART analysis.

The average price increase is around 30%, but most customers' bills will not increase by this much. This is because most water usage, and customers, are in the southern valleys where price rises are lower and offset by much smaller increases in MDBA and BRC charges.

1.2.2 MDBA charges increase by up to 15%

Under our pricing decisions, MDBA high security entitlement charges and usage charges are between 7.5% and 14.9% higher than current prices (before inflation). The MBDA general security entitlement charges are slightly lower (before inflation). BRC charges are lower for both entitlement types, with the BRC usage slightly higher (Table 1.3).

However, these prices are substantially lower than those Water NSW proposed because we:

- changed how we set prices to recover the costs of new infrastructure funded by the MDBA and BRC
- set lower efficient costs for the MDBA, in line with our finding that proposed expenditure on salt interception schemes are water management costs rather than bulk water costs[g]
- set lower efficient costs for the BRC.

[g] We have therefore included the costs of the salt interception schemes (SIS) in our prices for the Water Administration Ministerial Corporation (WAMC) which we are also reviewing. Our Final Report on WAMC's water management prices is available on our website.

Table 1.3 Decision on MDBA and BRC charges for the 2021 determination period ($/ML, $2021–22)

Valley	Current 2020–21 ($2020–21)	Decision for 2021 Determination	Change current to decision
High security entitlement charge			
Border	$4.97	$4.84	–2.6%
Murray	$7.83	$8.64	10.3%
Murrumbidgee	$1.73	$1.86	7.5%
General security entitlement charge			
Border	$1.85	$1.77	–4.3%
Murray	$3.83	$3.80	–0.8%
Murrumbidgee	$0.65	$0.64	–1.5%
Usage charge			
Border	$0.84	$0.86	2.4%
Murray	$1.61	$1.85	14.9%
Murrumbidgee	$0.33	$0.37	12.1%

Source: IPART analysis.

1.2.3 Most FWRS charges increase by between 5% and 36%

Most charges for FRWS customers increase (before inflation) (Table 1.4). The highest increase is 36% for the usage charge for filtered water major customers.

Prices for Oberon Council will be held constant at 2020–21 levels. Because we are not required to set prices at full cost recovery levels for Oberon Council, we decided Water NSW should bear the cost of holding prices constant.

We also changed how we set prices for filtered water customers. To ensure these prices reflect the chemical and energy costs of providing filtered water services, usage relates to the cost of producing an additional unit of filtered water. This is called 'short-run marginal cost' pricing.

This change means filtered customers pay higher usage charges and lower fixed charges. The shift in price structure means greater cost reductions from saving water or when water is not available. We have not changed how we set prices for unfiltered water customers.

Table 1.4 Decision on FRWS bulk water prices for the 2021 determination period ($/kL, $2021–22)

	Current 2020–21 ($2020–21)	Decision for 2021 Determination	Change current to decision
Bulk raw water			
Minimum Annual Quantity (MAQ) ($/kL)			
Major customers (other than Oberon Council)	$0.42	$0.49	16.7%
Oberon Council	$0.42	$0.42	0.0%
Minor customers (annual bill)	$84.00	$98.00	16.7%
Usage up to MAQ ($/kL)			
Major customers (other than Oberon Council)	$0.26	$0.33	26.9%
Oberon Council	$0.26	$0.26	0.0%
Minor customers	$0.26	$0.33	26.9%
Usage in excess of MAQ ($/kL)			
Major customers (other than Oberon Council)	$0.68	$0.82	20.6%
Oberon Council	$0.68	$0.68	0.0%
Minor customers	$0.68	$0.82	20.6%
Bulk filtered water			
MAQ ($/kL)			
Major customers	$0.68	$0.86	26.5%
Minor customers (annual bill)	$164.00	$172.00	4.9%
Usage up to MAQ ($/kL)			
Major customers	$0.39	$0.53	35.9%
Minor customers	$0.50	$0.53	6.0%
Usage in excess of MAQ ($/kL)			
Major customers	$1.07	$1.39	29.9%
Minor customers	$1.32	$1.39	5.3%

Source: Water NSW *pricing proposal to IPART*, June 2020 and IPART analysis.

1.2.4 Most miscellaneous charges remain constant

We decided to hold most miscellaneous charges constant over the 2021 Determination and increase them by inflation only. For our 2017 Determination, we extensively reviewed Water NSW's miscellaneous charges. We generally maintained our 2017 pricing approaches for the 2021 determination period.

However, we did not set an Environmental Gauging Station (EGS) charge. While this charge has been included in previous determinations, it has never been applied because Water NSW has not provided the services or incurred the costs that relate to this charge. Our decision to not set this charge going forward reflects our view that we do not expect Water NSW to provide these services and incur these costs during the 2021 determination period.

1.3 Increases to typical annual bills vary widely

The impact of our bulk water charges (including BRC and MDBA charges) on customers' annual bills depends on their valley, and whether they hold high security or general security entitlements (Table 1.5 and Figure 1.1).

For a high security customer with 500 ML of entitlements and 100% usage, our prices would increase their annual bulk water bill for 2021–22 by between:

- 11% and 52% in MDB valleys (compared with 37% and 59% under Water NSW's proposal)
- 1% and 41% in Coastal valleys (compared with 1% and 43% under Water NSW's proposal).

For a typical general security customer with 500 ML of entitlements and 60% usage, our prices would increase their annual bulk water bill for 2021–22 by between:

- 11% and 105% in MDB valleys (compared with 30% and 102% under Water NSW's proposal)
- 1% and 41% in Coastal valleys (compared with 1% and 43% under Water NSW's proposal).

These increases generally reflect an increase in Water NSW's efficient costs.

Stakeholders' submissions to our Issues Paper expressed concerns about the affordability of Water NSW's proposed bill increases. In particular, low water allocations in recent years and the COVID-19 pandemic have affected rural and regional businesses' profitability. In addition, Water NSW's rural bulk water customers also face increases in Water Administration Ministerial Corporation (WAMC) water management charges.

For the MDB valleys, we must set prices according to the WCR. That is, we must set prices that are likely to recover the efficient costs of delivering services; we have no flexibility to set lower prices for affordability reasons.

However, our analysis of the affordability of our prices indicates that they are reasonable. This includes our analysis of:

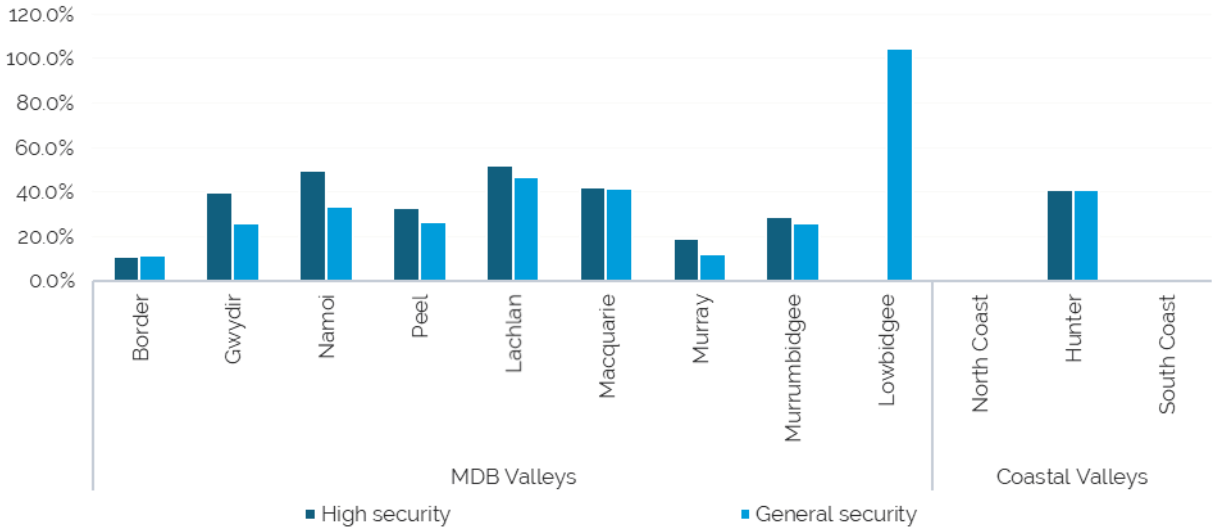
- bills for comparable services in other jurisdictions
- prices compared with the value of farming businesses' irrigated agricultural production
- the market value of allocations and entitlements traded on the water market over the 2019–20 period.

Table 1.5 Typical annual bills by valley, including MDBA and BRC costs ($2021–22)

	Current 2020–21 ($2020–21)	Final Report ($2021-22)	Change from current to Final Report
High security			
Border	$8,705	$9,655	10.9%
Gwydir	$12,360	$17,295	39.9%
Namoi	$19,960	$29,905	49.8%
Peel	$32,275	$42,935	33.0%
Lachlan	$18,535	$28,135	51.8%
Macquarie	$14,695	$20,910	42.3%
Murray	$6,580	$7,840	19.1%
Murrumbidgee	$4,405	$5,685	29.1%
Lowbidgee	N/A	N/A	N/A
North Coast	$15,730	$15,900	1.1%
Hunter	$13,875	$19,535	40.8%
South Coast	$25,895	$26,180	1.1%
General security			
Border	$4,000	$4,457	11.4%
Gwydir	$5,712	$7,177	25.6%
Namoi	$10,746	$14,314	33.2%
Peel	$8,099	$10,263	26.7%
Lachlan	$7,623	$11,206	47.0%
Macquarie	$5,987	$8,462	41.3%
Murray	$3,421	$3,829	11.9%
Murrumbidgee	$2,090	$2,637	26.2%
Lowbidgee	$420	$860	104.8%
North Coast	$10,546	$10,664	1.1%
Hunter	$9,570	$13,484	40.9%
South Coast	$14,285	$14,440	1.1%

Notes: Includes BRC costs in the Border valley and MDBA costs in the Murray and Murrumbidgee valleys. The Lowbidgee valley has supplementary licences that are charged fixed entitlement charges only.
Source: IPART analysis.

Figure 1.1 Typical annual bill impacts for customers (% change from 2020–21 to 2021–22)



Notes: Includes MDBA and BRC charges. Bill increases are based on a medium user with a 500 ML general security entitlement, and 60% usage.
Data source: IPART analysis.

1.4 Water NSW's efficient costs are higher, but less than it proposed

Water NSW's average annual cost allowance over the 2021 determination period is $14.1 million (or 12.9%) higher than the allowance we used in 2017 to set its current prices. This allowance provides for a step change in its expenditure to help sustain key performance service areas – including maintenance, drought resilience, dam safety and fishway construction.

Although significant, the increase in the efficient cost allowance is less than what Water NSW proposed. We removed proposed expenditure from this allowance where Water NSW did not sufficiently demonstrate it is warranted and efficient. For example, we:

- reduced its proposed operating costs by $14.9 million to reflect that we consider it can be more efficient with its day-to-day expenditure
- reduced its proposed capital expenditure by $59.1 million, to reflect potential efficiency savings in infrastructure investment and to defer or reduce the cost of other capital projects.

We also changed how we calculate efficient MDBA and BRC costs. Passing through MDBA and BRC capital expenditure more slowly shares the capital costs with all future users of the assets. At least in the short term, this approach means MDBA and BRC charges are significantly lower than proposed.

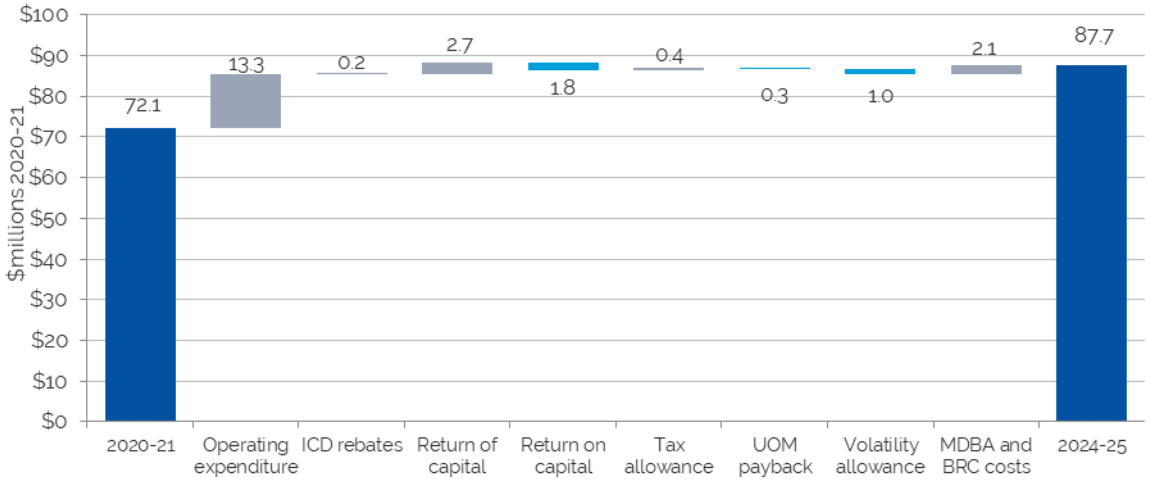
Table 1.6 compares our decision on Water NSW's efficient costs with those proposed by Water NSW. Figure 1.2 illustrates our decisions on building block costs and the impact on the customer share of notional revenue requirement (NRR). Overall cost increases mainly reflect increased efficient operating expenditure.

Table 1.6 Decision on Water NSW's total efficient costs for the 2021 determination period ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Water NSW proposed	121.9	130.3	132.7	132.7	517.6
IPART decision	118.8	126.4	124.3	124.0	493.6
Difference	–3.1	–3.9	–8.4	–8.7	–24.0
Difference (%)	–2.5%	–3.0%	–6.3%	–6.6%	–4.6%

Note: Includes both the user and government share of costs as well as MDBA and BRC costs.
Source: IPART analysis.

Figure 1.2 Customer share of Water NSW's NRR and building block costs ($ millions, $2020–21)



Note: ICD – irrigation corporation and district; UOM – unders and overs mechanism.
Data source: IPART analysis.

1.5 The Government contribution is less than Water NSW proposed

As noted above, the costs of providing Water NSW's bulk water services and funding activities of the MDBA and BRC are shared between bulk water customers and the NSW Government (on behalf of the community). Under our decisions, the NSW Government's share of these costs is $136.8 million, or 27.7% of the total efficient costs.

1.6 Water NSW can improve its customer engagement

We found Water NSW needs to improve the quality of its customer engagement and consultation. In the 2021 determination period, it should improve engagement with customers, particularly on:

- the costs that it recovers through its MDBA and BRC charges and the services customers get in return
- price structures (at the individual valley level), including the ratio of fixed and variable components of its prices, alternative price structure options and customer impacts.

The International Association for Public Participation (IAP2) developed a spectrum of engagement, ranging from 'inform' to 'empower' (Figure 1.3). We consider Water NSW currently aligns with the 'inform' category, with opportunity to develop towards the 'involve' and 'consult' categories. There is potential for Water NSW to build a customer-focused culture that better:

- engages with customers to help shape the services it delivers
- allows customers to be more involved in informing its decision-making processes
- embeds customer preferences in its decisions and pricing proposals
- fosters genuine, ongoing improvement in its customer engagement.

IPART is also currently reviewing how we regulate water businesses. Measures are likely to come out of this review that encourage improvement in customer engagement for all utilities, including Water NSW.

Figure 1.3 Spectrum of engagement

INCREASING IMPACT ON THE DECISION

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISE TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Source: IAP2 Spectrum of Public Participation, https://iap2.org.au/wp-content/uploads/2020/01/2018_IAP2_Spectrum.pdf, accessed 3 April 2021.

1.7 Metering reforms mean new metering charges are needed

In response to the Matthews review[1] on improving water resource management, Water NSW is implementing a range of non-urban metering reforms. Improving the standard and coverage of water meters in regional and rural NSW is important. It will protect water users' entitlements and build confidence that our increasingly scarce water resources are managed in a fair and equitable way.

We decided to introduce five new charges for Water NSW to recover the efficient costs of implementing the NSW Government's non-urban metering reforms:

- A 'scheme management charge' would apply as an annual fee to all licensed customers ($/licence).
- A 'telemetry charge' would apply as an annual fee per metering installation for customers that use telemetry ($/meter).
- A 'non-telemetry charge' would apply as an annual fee per metering installation for customers that do not use telemetry capacity ($/meter).
- Two additional charges would apply to customers with government owned meters – 'meter service charge – operating costs' and 'meter service charge – capital costs'. These charges would be applied as an annual fee per metering installation ($/meter).[h]

We allocate the efficient costs of Water NSW's rural bulk water services and WAMC's water management costs between water customers and the NSW Government based on whichever party created the need for an activity (and its associated costs) to be incurred. We considered the underlying driver for metering reform is to protect the rights of water customers and therefore we set the metering charges to recover 100% of the efficient costs from customers.

Our decisions on the levels of non-urban metering charges, how they compare to Water NSW's proposal, and which charges are paid by customers with privately owned and government owned meters are set out in Table 1.7.

[h] Customers with privately owned meters will not pay these charges because they will need to purchase and maintain a new or replacement meter themselves at their own expense.

Table 1.7 Final decisions on non-urban metering charges compared to Water NSW's proposals ($/year, $2021-22)

	Charge ($/year) Water NSW 2021 revised proposal	Charge ($/year) IPART final decision	Privately owned meter	Government owned meter
Scheme management charge[a]	79	73	✓	✓
Telemetry charge[a]	257	226	✓	✓
Non-telemetry charge[a]	257	226	✓	✓
Meter service charge – operating costs[b, c]	934	899	✗	✓
Meter service charge – capital costs	608	0	✗	✓

a. The scheme management charge, telemetry charge and non-telemetry charge will vary if more customers use telemetry. See Table 1.8 for further information.
b. Cost for telemetry/non-telemetry is not included in the 'meter service charge – operating costs' for government owned meters.
c. Customers with privately owned meters will not pay these charges because they will need to purchase and maintain a new or replacement meter themselves at their own expense.

Our decisions take account of the NSW and Australian Governments' suite of programs to support the uptake of metering and telemetry equipment. The NSW Government and Australian Government will each provide $9 million in funding to deliver a telemetry rebate program across NSW. The rebate will automatically be applied as a one-off $975 credit on a water bill when an eligible water user with a meter connects to the NSW Government's telemetry system. This will provide a financial incentive for metered non-urban water users to use telemetry to remotely transmit their water take information.

As part of our review, we found that the efficient costs to be recovered from the scheme management charge and telemetry charge decrease as more customers use telemetry. However, at this stage, it is unclear how many customers will use telemetry under the new program. We considered it important to set a charge structure that takes account of this uncertainty as well as providing an incentive for users to opt in to telemetry.

We therefore decided that the level of these charges should vary as the proportion of users that voluntarily opt in to telemetry increases, as set out Table 1.8. For example, the scheme management charge would be $73 a year if there is 0% voluntary opt-in. However, this charge would reduce to $51 a year if there is 75% or more voluntary opt-in.

Table 1.8 Final decisions on scheme management, telemetry and non-telemetry charges for different telemetry opt-in proportions ($2021-22)

Telemetry opt-in	Up to 24%	25-49%	50-74%	75% or more
Scheme management charge	73	66	59	51
Telemetry charge	226	209	191	182
Non-telemetry charge	226	219	219	219

Source: IPART using information provided by Water NSW and Cardno
Note: Telemetry gets progressively less expensive at even higher levels of telemetry opt-in, as fixed costs – such as IT systems – are spread over a greater number of water users. Non-telemetry costs do not vary as telemetry uptake increases.

Our decisions ensure that customers' metering charges reflect only those activities that are necessary, and customers pay only for the efficient costs of implementing the non-urban metering reforms. However, we acknowledge that these new charges will increase customer's bills, particularly for customers with government owned meters and relatively smaller entitlement and usage volumes.

The NSW Government has recognised these impacts and is providing funding of $14.6 million to Water NSW to cover the capital costs of upgrading government owned meters. The aim of the funding is to ensure that the costs of bringing these meters into compliance with the non-urban metering rules is not borne by users. We therefore decided to set a 'meter service charge – capital costs' of $0 a year for the 2021 determination period.

In addition, the one-off telemetry rebate will apply to customers that upgrade their meters to use telemetry. This scheme will also mitigate the impact of the non-urban metering reforms on water users and accelerate the uptake of telemetry in NSW, increasing transparency of water take, supporting on-farm management, and positioning NSW to better deliver efficiencies in water management.

1.8 We consulted extensively with stakeholders

This review commenced on 1 July 2020 when Water NSW submitted its pricing proposals to IPART. We conducted extensive consultation with Water NSW and other stakeholders, including releasing an Issues Paper, a Draft Report and a Supplementary Report on metering to which we invited written submissions and online feedback (Figure 1.4). In November 2020 and March 2021, we also held public hearings online. We took all stakeholder views into account in making our final decisions. Water NSW's pricing proposals, our Issues Paper, Draft Report, Supplementary Report, stakeholder submissions and the public hearing transcripts are available on our website.

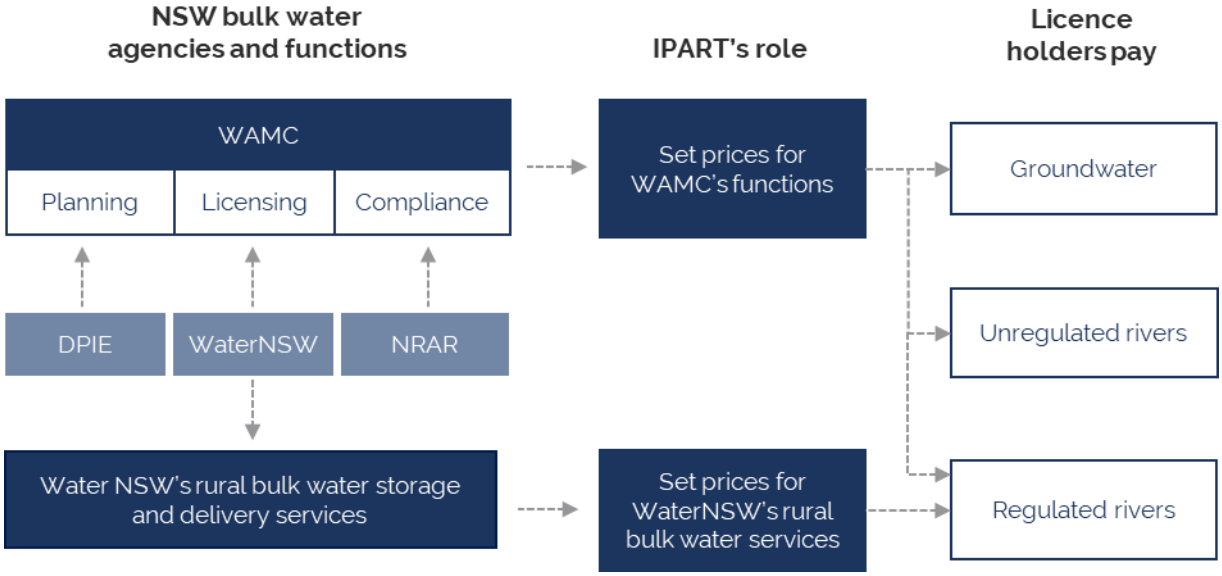
Figure 1.4 Review timeline

1.9 We have also released our Final Report on WAMC prices

Concurrent with this review of Water NSW's prices, we reviewed the prices WAMC can charge holders of water access licences in NSW regulated river, unregulated river and groundwater systems. Water NSW's rural bulk water customers also pay WAMC water management charges. Our Final Report on WAMC's prices is available on our webpage.

Figure 1.5 illustrates how the NSW water agencies (i.e. the Department of Planning, Industry & Environment DPIE), Water NSW and the Natural Resources Access Regulator (NRAR) contribute towards WAMC functions and Water NSW's services. It also shows how IPART sets prices for WAMC's functions and Water NSW's services, and how WAMC prices apply to all water users (i.e. groundwater, unregulated rivers and regulated rivers) while Water NSW's rural prices apply only to water users on regulated rivers.

Figure 1.5 Overview of WAMC and Water NSW relationships and our role in setting prices



1.10 Structure of this report

The rest of this report provides more information on this review, our approach and our decisions:

Chapter	
02	discusses our decisions on the regulatory settings for the 2021 determination period, including the length of this period and our approach for price setting
03	explains our decisions on Water NSW's operating expenditure allowance
04	explains our decisions on Water NSW's capital expenditure allowance
05	focuses on our decisions on MDBA and BRC costs
06	explains our decisions on other costs including the volatility allowance, unders and overs mechanism (UOM) and Irrigation Corporation and Districts (ICD) discounts.
07	discusses the other building block cost allowances, and sets out Water NSW's total notional revenue requirement.
08	sets out customers' share of costs and discusses our decisions on how Water NSW's costs are allocated between customers and the NSW Government.
09	explains our decisions on the forecast customer numbers and water sales we used to set prices.
10	sets out the bulk water and MDBA/BRC charges that result from our decisions.
11	sets out our decisions on other and miscellaneous charges.
12	discusses how these decisions impact stakeholders, including customers, WAMC and the NSW Government.
13	explains our decision on Water NSW's proposed meter servicing charge.
14	discusses our decisions on new metering charges arising from the NSW Government's non-urban metering reforms.

1.11 List of decisions

1.	To adopt a 4-year determination period.	30
2.	To delay the commencement of new prices until 1 October 2021.	30
3.	To set maximum prices for Water NSW's services in each year of the 2021 determination period (a price cap).	31
4.	To set Water NSW's total operating expenditure allowance for the 2021 determination period at $203.5 million, as shown in Table 3.1.	38
5.	To set the efficient level of Water NSW's past capital expenditure to be included in the regulatory asset base for the 2017 determination period as shown in Table 4.1.	51
6.	To set the efficient level of Water NSW's capital expenditure for the 2021 determination period as shown in Table 4.2.	51
7.	The efficient level of Water NSW's Murray–Darling Basin Authority costs for the 2021 determination period is $65.0 million as shown in Table 5.1.	59
8.	The efficient level of Water NSW's Dumaresq–Barwon Border Rivers Commission costs for the 2021 determination period is $2.5 million as shown in Table 5.2.	59
9.	To use a building block approach to set the efficient Murray–Darling Basin Authority and Dumaresq–Barwon Border Rivers Commission costs.	67
10.	To set Water NSW's operating and capital expenditure for Murray–Darling Basin Authority costs as shown in Table 5.5.	69
11.	To set Water NSW's operating and capital expenditure for Dumaresq–Barwon Border Rivers Commission costs as shown in Table 5.6.	70
12.	To set Water NSW's opening regulatory asset bases for Murray–Darling Basin Authority and Dumaresq–Barwon Border Rivers Commission costs to zero at 1 July 2021.	71
13.	To include a revenue volatility allowance in the valleys listed in Table 6.1 to enable Water NSW to manage the risk that water sales are lower than forecasts.	75
14.	To set the value of rebates provided to 8 Irrigation Corporations and Districts as shown in Table 6.2.	80
15.	To include in prices an unders and overs mechanism payback allowance as shown in Table 6.4.	82
16.	To set the notional revenue requirement at $493.6 million over the 2021 determination period as shown in Table 7.1.	87
17.	To calculate the return on assets using: – an opening regulatory asset base of $1.2 billion for 2021–22, and the regulatory asset base for each year as shown in Table 7.2 – Water NSW's reported historical asset disposals for the 2017 determination period as shown in Table 7.4 – Water NSW's forecast asset disposals for the 2021 determination period as shown in Table 7.5	88

- a real post-tax weighted average cost of capital of 1.8% to calculate the return on Water NSW's assets for Murray–Darling Basin valleys
- a real post-tax weighted average cost of capital of 3.0% to calculate the return on Water NSW's assets for Coastal valleys
- a sampling date of 31 March 2021 for market observations as outlined in Appendix C
- a true-up for differences between the forecast and actual cost of debt over the 2021 determination period in the next Determination.

18. To set an allowance for return on assets of $99.6 million over the 2021 determination period as shown in Table 7.6. 88

19. For the purpose of calculating Water NSW's allowance for return of assets, to: 93
    - calculate regulatory depreciation using a straight-line method
    - for existing assets, use the rolled forward asset lives from the 2017 determination period as listed in Table 7.8
    - for new assets, set the asset lives listed in Table 7.9.

20. To set Water NSW's allowance for return of assets at $95.0 million over the 2021 determination period as shown in Table 7.7. 93

21. To calculate the tax allowance using: 96
    - a tax rate of 30%
    - IPART's standard methodology.

22. To adopt the regulatory tax allowance as shown in Table 7.11. 96

23. To set the working capital allowance for the 2021 determination period as shown in Table 7.12. 97

24. To set the customer share of Water NSW's notional revenue requirement ($350.0 million) and target revenue from water prices ($335.6 million) as shown in Table 8.1. 101

25. To maintain the cost shares set out in our 2019 cost shares review. These are based on the impactor pays principle and align with Water NSW's proposal. 102

26. To accept Water NSW's proposed water entitlements and usage forecasts for regulated rivers as shown in Table 9.1 and Table 9.2. 111

27. To set the Minimum Annual Quantities and usage forecasts for the Fish River Water Supply Scheme as shown in Table 9.3 and Table 9.4. 118

28. To maintain the valley-based approach of setting Water NSW's rural bulk water service charges for each of the 12 valleys and for the Fish River Water Supply Scheme. 124

29. To maintain the current 2-part price structure and fixed-to-variable ratios for Water NSW's rural bulk water service charges for each of the Murray–Darling Basin and Coastal valleys (i.e. excluding Fish River Supply Scheme) as shown in Table 10.1. 124

30. To: 124
    - maintain the existing approach to calculating the high security premium
    - maintain the current security factors but update the reliability ratios in the high security premium
    - use the high security premiums as shown in Table 10.1 to calculate entitlement charges.

31.	To maintain the current fixed-to-variable ratios and level of prices for setting prices for the North Coast and South Coast valleys, adjusted by inflation.	124
32.	To set Water NSW's rural bulk water prices for Murray–Darling Basin and Coastal valleys for the 2021 determination period as shown in Table 10.2 for entitlement charges and Table 10.3 for usage charges.	124
33.	To set Water NSW's rural bulk water prices for the Fish River Water Supply Scheme for the 2021 determination period as shown in Table 10.4.	136
34.	To maintain prices for Oberon Council at 2020–21 levels in real terms.	136
35.	To maintain the current valley-based 2-part price structure and fixed-to-variable ratio of 80:20 for Murray–Darling Basin Authority and Dumaresq–Barwon Border Rivers Commission charges in the Murray, Murrumbidgee and Border valleys.	144
36.	To apply the same high security premiums to these charges as for Water NSW's bulk water charges as shown in Table 10.5.	144
37.	To set Water NSW's Murray–Darling Basin Authority and Dumaresq–Barwon Border Rivers Commission charges for the 2021 determination period as shown in Table 10.6 for entitlement charges and Table 10.7 for usage charges.	144
38.	To exempt floodplain harvesting licences from Water NSW rural infrastructure charges.	146
39.	To exempt Aboriginal Cultural Licences from all Water NSW rural water charges for the 2021 Determination while the NSW Government considers a policy position on charges associated with these licences.	147
40.	To continue to set charges for Aboriginal Community Development and Aboriginal Commercial licences, as we have in previous determinations.	147
41.	To set a maximum per year Yanco Creek levy of $0.90 per ML of entitlement for users in the Yanco Creek system, held constant in nominal terms.	151
42.	To set charges for meter accuracy testing as shown in Table 11.2.	153
43.	To remove the environmental gauging station charge.	154
44.	To set the trade processing charge as a single, fixed charge as shown in Table 11.3.	155
45.	To set prices for the: – Fish River Water Supply connection charge based on the complexity of the connection service as shown in Table 11.4 – Fish River Water Supply disconnection charge as shown in Table 11.5.	156
46.	To continue not to regulate Water NSW's credit card payment fees.	157
47.	To accept Water NSW's proposal and set Water NSW's annual meter service charges for the 2021 determination period as shown in Table 13.1	187
48.	That the efficient cost of implementing the NSW Government's non-urban metering reforms under Water NSW's proposed base case is $47.8 million over the 2021 determination period (see Table 14.1).	191

49.	That the efficient cost of implementing the NSW Government's non-urban metering reforms varies from $39.4 million to $47.8 million based on the proportion of customers that voluntarily opt in to telemetry (see Table 14.2).	192
50.	To adopt a 100% customer share of efficient costs incurred by Water NSW implementing the NSW Government's non-urban metering reforms.	199
51.	To recover the wider costs of introducing the reform, such as recording and reporting, customer self-reporting, general enquiries and education, through a 'scheme management charge' to be applied annually to all licence holders.	200
52.	To recover the costs of compliance activities, water take assessments, meter reading and meter data services through: – a telemetry charge to be applied annually to customers who use telemetry – a non-telemetry charge to be applied annually to customers who do not use telemetry.	200
53.	To recover the costs of bringing government owned meters up to the required standard under the non-urban metering reforms through a 'meter service charge – capital costs' and maintaining these meters to ensure regulatory compliance through a 'meter service charge – operating costs'. These charges are applied annually to customers with a compliant government owned meter.	200
54.	To set charges for Water NSW's non-urban metering reforms as set out in Table 14.6 and Table 14.7.	205
55.	To apply the following transitional arrangements in moving from existing to new metering charges: – Scheme management charge to apply annually from the start of the determination period, 1 October 2021. – Telemetry or non-telemetry charge for customers with privately owned meters to be prorated using the number of days remaining in the financial year from the relevant compliance date set out in the *Water Management (General) Regulation 2018*. – Telemetry or non-telemetry charge and government owned 'meter service charge – operating costs' for customers with government owned meters to be prorated using the number of days remaining in the financial year from the later of the relevant compliance date set out in the Water Management (General) Regulation 2018 or the date the meter is made compliant.	207
56.	Not to provide an unders and overs mechanism to Water NSW for the rollout of the non-urban metering reforms.	210
57.	That the Tribunal intends to consider the impact of any further deferral of the floodplain harvesting policy and potentially make an adjustment to future charges if needed at the next determination.	210
58.	To set an exit charge for the 2021 determination period of $0.	210

Chapter 2

Regulatory setting

02

Summary of our decisions for regulatory settings

We set prices for a 4-year determination period

Water NSW originally proposed a 1-year determination period.

We consulted with stakeholders including Water NSW and decided to set a 4-year determination period.

We continued to set maximum prices (i.e. price caps)

Water NSW proposed maintaining this form of price control, and we consider it remains appropriate.

We used the building block approach to calculate WAMC's notional revenue requirement

This approach involves breaking down Water NSW's costs into operating allowance, capital allowance, tax and working capital allowance, and making separate calculations for these allowances.

The sum of the building blocks represents the total efficient costs Water NSW should incur in delivering its services.

We used a 3-step process to review and assess expenditure

Our 3-step process found most of Water NSW's operating and capital expenditure is efficient.

We made decisions on catch-up and ongoing efficiency improvements for Water NSW.

Before setting prices, we need to make several preliminary decisions, including for how long to set prices and decisions related to the 'form of regulation' or 'form of price control', which is the framework we use to regulate prices.

This chapter sets out these preliminary decisions and discusses the regulatory settings under which we set Water NSW's prices.

2.1 We set prices for a 4-year determination period

Our decisions are:

1. To adopt a 4-year determination period.

2. To delay the commencement of new prices until 1 October 2021.

For each water pricing review, we decide how long to set prices for (the length of the determination period).[a] In general, this length can be between 1 and 5 years. In deciding on the appropriate length, we considered a range of factors (Box 2.1).

Box 2.1 Factors we consider in deciding the length of a determination

In general, we consider the following factors when deciding the length of a determination period:

- our confidence in the utility's forecasts
- the risk of structural changes in the industry
- the need for price flexibility and incentives to increase efficiency
- the need for regulatory certainty and financial stability
- the timing of other relevant reviews
- the views of stakeholders.

[a] Under the Water Charge Rules 2010 (Cth) (WCR), the length of determination is set at 4 years. However, because Water NSW is also the supplier of urban water services, the WCR provides scope for Water NSW to apply for a different regulatory period for its rural water services.

Water NSW proposed a 1-year determination, from 1 July 2021 to 30 June 2022, to align it with our next price determination for the Broken Hill pipeline (BHP), which is scheduled to start on 1 July 2022.

We consulted with stakeholders by publishing an Information Paper on our website and invited comments. We also sought views through our Issues Paper and the public hearings.

Stakeholder responses were mixed, but most favoured a 4-year determination period. The main reasons are the certainty, predictability and transparency of adhering to a 4-year process.

We decided to set a 4-year determination period because it provides certainty for customers, and the 1-year determination proposed by Water NSW may under-recover costs which may result in long-term risk.

The new prices under the 2021 Determination will commence on 1 October 2021 (a delay of 3 months). Current prices will apply from 1 July 2021 until 30 September 2021. The Water Charge Rules 2010 (Cth) (WCR) require us to set prices to recover the same amount of revenue as would be required under the 2021 Determination if prices were to commence on 1 July 2021.

Under the WCR, we must undertake annual reviews of prices for Murray–Darling Basin (MDB) valleys.[b] For these reviews, we must vary regulated charges to the extent that such variation is reasonably necessary given changes in demand or consumption forecasts, price stability, and the consistency of the infrastructure charges with the requirements in the WCR. In line with our WCR obligations, we will undertake annual price reviews of Water NSW's MDB valleys following applications by Water NSW.

2.2 We continued to use price caps

Our decision is:

3. To set maximum prices for Water NSW's services in each year of the 2021 determination period (a price cap).

Our decision is to retain a maximum price cap for Water NSW. We consider price caps provide transparency and pricing certainty to customers and ensure, as much as practical, prices reflect efficient costs, and where appropriate, signal the long-run cost of providing the service.

Water NSW supported our approach for the 2021 determination period. No other stakeholders proposed alternative forms of regulation.

For future regulatory periods, we may consider alternative forms of regulation such as revenue caps. We are currently reviewing these issues as part of our broader review of how we regulate water utilities, which we expect to complete in late 2021.

[b] Water Charge Rules 2010 (Cth) Part 1(3) and Part 6, Division 3.

2.3 We used the building block approach

We continued to use the 'building block' approach to calculate Water NSW's notional revenue requirement (NRR). Under this approach, we break down Water NSW's costs into the following components (or building blocks):

- **operating allowance**, to cover costs such as salaries and administration costs
- **capital allowance**, comprised of:
  - return on assets that Water NSW uses to provide its services
  - regulatory depreciation (or a return of the assets that Water NSW uses to provide its services), which involves deciding on the appropriate asset lives and depreciation method
- **tax allowance**, which approximates the tax liability for a comparable commercial business
- **working capital allowance**, which represents the holding cost of net current assets.

The annual sum of these building blocks is the NRR and represents our assessment of the total efficient costs Water NSW should incur in delivering its services. Once we have calculated Water NSW's NRR, we account for any revenue that Water NSW will receive from other sources.

We then set a target revenue for each year – that is, the actual revenue we expect Water NSW to generate from prices and charges for that year. In determining target revenue, we consider several factors, including implications on price levels, the rate they would change, and any impacts on Water NSW and water users.

Figure 2.1 illustrates our approach to calculating the NRR and how we set prices.

Figure 2.1 The building block model

2.4 We assessed expenditure using a 3-step process

The 3-step process used to establish Water NSW's efficient expenditure is consistent with the approach adopted by our consultant Atkins, and our other recent water pricing reviews (Figure 2.2). It involves:

Step 1 – Reviewing changes in activities and costs:

- If the utility's proposed changes in activities (and associated costs) are not efficient, a **scope adjustment** is made.
- This step identifies any inefficiencies where the utility has proposed changes to its specific activities. It does not apply to the utility's base expenditure (to avoid double counting with step 2).
- These adjustments are clearly distinct from the types of efficiencies identified in step 2, because they correct for an inefficient proposed change to a utility's activities (and associated costs) rather than the business processes employed by the utility to deliver the utility's services.

Step 2 – Reviewing business processes relative to the frontier:

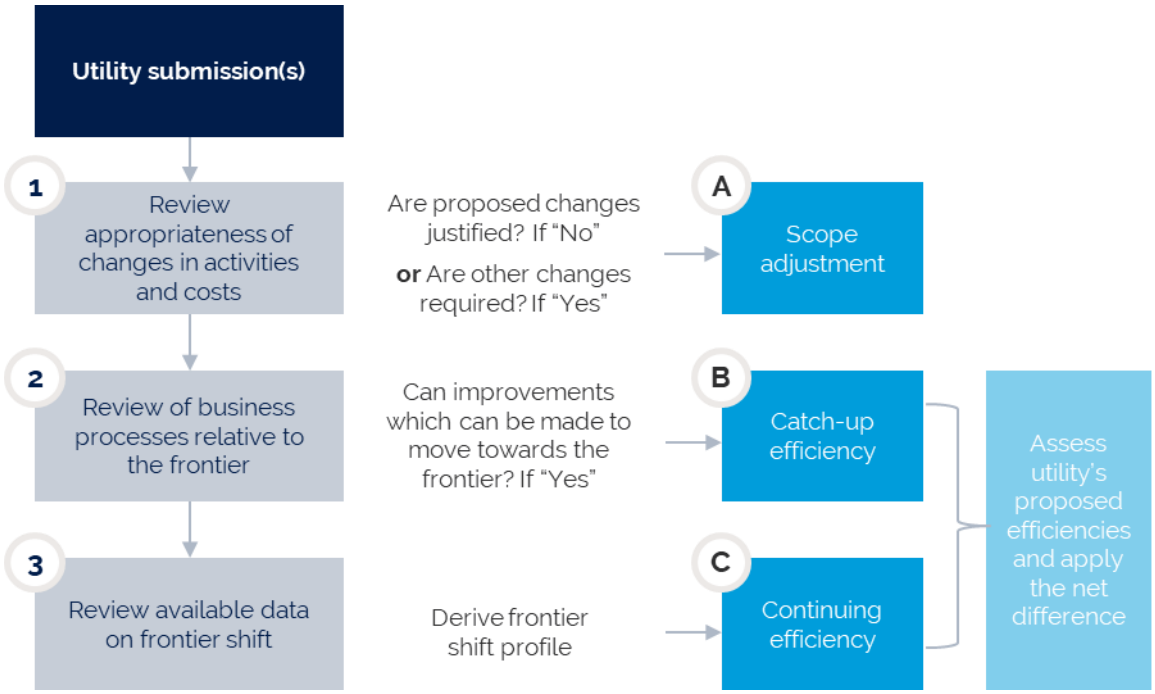
- Where we identify improvements to the utility's business processes, we apply a **catch-up efficiency adjustment.** It takes into account the efficiencies we consider the utility will be able to achieve in the 2021 determination period. This encourages the utility to move to the efficiency frontier.
- This step identifies the effectiveness of the utility's business processes (e.g. decision making and procurement processes) relative to a 'frontier' company.

Step 3 – Reviewing available data on frontier shift:

- We apply a **continuing efficiency adjustment** to take account of the ongoing improvements that even efficient utilities should be able to make over time, as more productive ways of working emerge. We refer to long-term multi-factor productivity trends to set this adjustment.
- We consider a number of data points such as the efficiency gains of well-performing utilities and broader productivity trends (e.g. multi-factor productivity).
- This step recognises that in competitive markets (which we are trying to replicate through our regulatory framework) firms must innovate to achieve continuing efficiency gains over time.

We compare the total efficiency challenge derived from steps 2 and 3 with the efficiencies applied by the utility in its own submission. We then apply the net difference as an adjustment to the utility's submission.

Figure 2.2 Our approach to assessing efficiency



Chapter 3

Operating expenditure

03

Summary of decisions on operating expenditure

Water NSW's efficient operating expenditure is significantly higher than when we last set prices

We set Water NSW's efficient operating expenditure at $203.5 million for the for the 4-year determination period. This is $54.6 million more (or 36.7% higher) than we used to set prices in 2017.

This allowance provides for a step change in Water NSW's operating expenditure, to help sustain its performance in key areas including maintenance and dam safety.

We set operating expenditure 6.8% lower than what Water NSW proposed

Our efficient operating expenditure allowance is $14.9 million or 6.8% less than Water NSW's proposed amount. Specifically, we reduced its proposed operating expenditure by:

- $5.5 million in scope adjustments
- $5.8 million in catch-up efficiency adjustments
- $3.6 million in continuing efficiency adjustments.

Operating expenditure includes Water NSW's day-to-day costs including labour, energy, materials and external consultants and contractors. It does not include investment in infrastructure such as dams, equipment and business systems. Any expenditure on infrastructure that lasts more than a year is classed as capital expenditure.

We treat operating and capital expenditure differently when we set prices. We typically aim to set prices that recover efficient operating expenditure in the year it occurs. Efficient capital expenditure is recovered through prices over a longer period, usually over the life of the asset. Chapter 4 discusses Water NSW's capital expenditure.

This chapter sets out our decisions on Water NSW's efficient operating expenditure.[a] It explains why we set the operating expenditure allowance over the 2021 determination period at the level we have. It also details how efficient expenditure changed over time and what drove those changes.

Operating expenditure is the largest building block cost for Water NSW and makes up around 50% of the user share of the notional revenue requirement (NRR) over the 2021 determination period.[b] For this reason, our decisions on efficient operating expenditure are likely to immediately affect customer bills.

---

[a] We typically set prices that recover only expenditure we consider to be efficient. Efficient expenditure represents what Water NSW *should* spend, rather than what it *does* spend. This approach protects customers from paying for any inefficient costs.

[b] The user share of the NRR is the portion that customers pay for directly through prices. The total NRR is the user share plus government share. Operating expenditure makes up around 43% of the total NRR. Our draft decisions on cost shares between users and government are set out in detail in Chapter 8.

To inform our decisions on operating expenditure, we engaged Atkins to review Water NSW's expenditure and performance over the current determination period, and recommend the efficient amount of operating expenditure for the 2021 determination period. We considered the advice of Atkins, as well as relevant stakeholder submissions, in reaching our decisions.

3.1 Water NSW's efficient operating expenditure is $203.5 million

Our decision is:

4. To set Water NSW's total operating expenditure allowance for the 2021 determination period at $203.5 million, as shown in Table 3.1.

Water NSW proposed $218.4 million[c] in operating expenditure over the 2021 determination period.[2] This amount is $69.5 million higher than the operating expenditure allowance we set over the 2017 determination period.

Our draft decision was to set Water NSW's efficient level of operating expenditure for the 4-year determination period at $194.7 million. This reduced Water NSW's proposed operating expenditure by $23.7 million (10.8%). We have considered stakeholder submissions to our Draft Report, and a Supplementary Report from Atkins in making our decisions.

Our decision is to set Water NSW's efficient level of operating expenditure for the 4-year determination period at $203.5 million. This amount is $14.9 million (or 6.8%) lower than what Water NSW proposed and comprises:

- $5.5 million in scope adjustments
- $5.8 million in catch-up efficiency adjustments, based on a catch-up efficiency factor of 1.1% per year
- $3.6 million in continuing efficiency adjustments, based on a continuing efficiency factor of 0.7% per year.

Table 3.1 summarises our decisions on Water NSW's operating expenditure for the 2021 Determination.

[c] This amount does not include Water NSW's additional proposed $9.3 million for its risk transfer product (RTP) to manage revenue volatility. Chapter 6 discusses the RTP in more detail.

Table 3.1 Decision on efficient operating expenditure for the 2021 determination period ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Water NSW proposed	51.1	56.1	56.6	54.6	218.4
IPART decision	50.9	53.7	50.1	48.7	203.5
Difference	–0.1	–2.3	–6.5	–5.9	–14.9
Difference (%)	–0.3	–4.1	–11.5	–10.8	–6.8

Note: All figures exclude Water NSW's costs of managing its volatility risk.
Source: IPART analysis.

3.2 Actual operating expenditure over the 2017 period was higher

Over the 2017 determination period, Water NSW's total actual operating expenditure was $208.2 million. This amount is $59.4 million (or 39.9%) higher than the allowance we used to set prices. In its submission to our Issues Paper, Water NSW argued its overspend primarily reflected "under forecasts" on:

- scheduled overtime
- land tax
- flood operations
- direct labour and on-costs.[3]

It also states it has incurred additional unforeseen costs associated with:

- consolidation of multiple enterprise agreements following the state water merger that led to higher wage costs
- additional corporate labour costs associated with responding to various investigations and reviews (such as the Matthews review[4]) as well as its expanded role in licensing and regulatory functions from the Department of Planning, Industry and Environment (DPIE) as part of its licence review
- replacement of end-of-life IT systems following the merger.[5]

Water NSW stated:

> Although WaterNSW has taken measures to realise new efficiencies, the combination of circumstances that would have allowed WaterNSW to operate within its forecast operating expenditure did not eventuate, as the business incorporated new functions and responded to new challenges, including multiple industry reviews. Concurrently, WaterNSW's operating environment has continued to change, increasing the range of regulatory and administrative obligations that it is required to undertake.
>
> This significant change within our business and the broader industry has meant that the anticipated cost reductions from efficiency initiatives have not been fully realised.[6]

In its assessment of Water NSW's historical operating expenditure over the 2017 determination period, Atkins suggested Water NSW has significant scope to become more efficient:

- When costs increased for the reasons suggested by Water NSW, it was not clear it sought to offset these increases with efficiencies.
- Ownership of determination performance is limited, particularly at the individual valley level.
- Water NSW lacks business/operational plans that demonstrate the current levels of activity, expenditure or ways of working are the most efficient or effective.[7]

Stakeholders including the Public Interest Advocacy Centre (PIAC) and Commonwealth Environmental Water Office (CEWO) considered the extent of Water NSW's overspend over the 2017 determination period reflected inefficiency.[8] Our decisions that address Water NSW's overall efficiency are discussed at the end of this chapter.

3.3 Water NSW proposed operating expenditure of $218.4 million

Water NSW proposed $218.4 million in operating expenditure over the 2021 determination period.[d] This amount is:

- $69.5 million (or 46.7%) higher than we used to set prices in 2017
- $10.2 million (or 4.9%) higher than its actual operating expenditure over the 2017 determination period.

3.4 We reduced proposed operating expenditure by $14.9 million

Over the 4-year 2021 determination period, our decision is to reduce Water NSW's operating expenditure by $14.9 million to $203.5 million. This amount is:

- $54.6 million (36.7%) higher than we used to set prices in 2017
- $14.9 million (6.8%) lower than proposed by Water NSW
- $1.2 million (0.6%) higher than recommended by Atkins in its Supplementary Report.

Table 3.2 summarises our adjustments to Water NSW's proposed operating expenditure for the 2021 Determination.

[d] Excluding the proposed Risk Transfer Product which we discuss in Chapter 6.

Table 3.2 Decision on efficient operating expenditure for the 2021 determination period ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Water NSW proposed	**51.1**	**56.1**	**56.6**	**54.6**	**218.4**
Scope adjustments					
Removal of land tax increases	0.0	–0.6	–0.6	–0.6	–1.8
Long-term transformational strategy	0.0	–0.2	–0.2	–0.2	–0.5
Reallocate additional regulatory team resources	0.4	–0.4	–0.4	–0.4	–0.7
Cold water pollution expenditure	1.3	0.6	0.0	0.0	1.9
Reallocation of corporate overheads	–0.8	0.2	–2.6	–1.1	–4.4
Efficiency adjustments					
Catch-up efficiency	–0.6	–1.2	–1.7	–2.3	–5.8
Continuing efficiency	–0.4	–0.8	–1.1	–1.4	–3.6
Total efficient operating expenditure					
Total	50.9	53.7	50.1	48.7	203.5
Difference	–0.1	–2.3	–6.5	–5.9	–14.9
Difference (%)	–0.3	–4.1	–11.5	–10.8	–6.8

Note: Water NSW's proposal excludes costs associated with managing Water NSW revenue volatility risk.
Source: Atkins, *Water NSW Expenditure Review, Final Report for IPART*, 19 February 2021, pp 86-87, Atkins, *Expenditure Review of Water NSW Rural Bulk Water Service and Corporate Cost Allocation, Supplementary Report for IPART*, 25 May 2021, pp 21-22 and IPART analysis.

The sections below set out our decisions on Water NSW's efficient operating expenditure, and the adjustments we made to operating expenditure proposed by Water NSW. They also explain changes to our draft decisions since our Draft Report.

3.4.1 We reduced corporate overheads allocated to customers by $4.4 million

Atkins recommended an efficient level of Water NSW's total corporate overhead costs, allocated across its 5 business units:

- rural bulk water
- Greater Sydney
- Broken Hill pipeline
- the Water Administration Ministerial Corporation (WAMC)
- non-core activities.[e]

[e] 'Non-core' includes other activities not related to the regulated business units and includes general government commissioned works and activities undertaken for the MDBA.

Water NSW allocates its indirect corporate overheads using relative total expenditure (TOTEX) values in each of its business units.[f] However, Atkins found this is not the best method to allocate indirect overhead costs to the business units that cause those costs to be incurred as:

- The total expenditure (TOTEX) method has shortcomings because the value of maintenance capital expenditure depends on the operational activities and costs in each of the regulated businesses. TOTEX is used in other regulatory domains, but not usually for cost allocation because of the independent variables.
- For a diverse business such as Water NSW, the level of capital maintenance does not drive operational and corporate costs. Rather, the drivers for operational business units relate to the number of customers, the volume of water delivered or orders fulfilled, and measures of effective catchment protection and water quality management. Using the TOTEX method is likely to result in inappropriate cost allocation and charges to customers.[9]

Atkins argued corporate expenditure is driven by staff full-time equivalent (FTE) numbers and therefore employment costs. Without FTE numbers, Atkins recommended using total operating costs as a proxy for employment costs for our draft decision. This approach uses each business' direct operating costs, rather than TOTEX as proposed by Water NSW.

Our draft decision was consistent with Atkins' recommendation to use direct operating costs to allocate corporate overheads. We applied this allocation method from 2021–22, rather than from 2023–24 as recommended by Atkins, because it would lead to total costs that better reflect efficiently allocated overheads.[9] Our draft decision reduced Water NSW's operating costs from overheads by $4.9 million over 4 years and changed the notional allocation of overheads for Water NSW's other business units.[10]

In response to our draft decision, Water NSW maintained its TOTEX approach meets accounting standards, is consistent with IPART's cost allocation guidelines, and has been used by utilities in other jurisdictions. Water NSW also questioned whether allocating additional overheads to non-core activities is consistent with the Commonwealth Government's Water Charge Rules 2010 (WCR) and leads to unintended consequences, including allocating additional overheads to the Broken Hill pipeline.[11]

Atkins assessed Water NSW's submission, including additional information on FTEs. Atkins concluded there was insufficient information to change its recommended approach to cost allocation. However, it reflected the need to adjust the allocation to the Broken Hill pipeline in its final recommendations.[12]

[f] TOTEX or total expenditure includes expenditure on operations and capital.

[g] The timing of our price reviews for Water NSW's 4 regulated businesses means a reduction in overhead costs using this approach for Water NSW cannot be matched by similar changes to costs and prices in Broken Hill pipeline and Water NSW – Greater Sydney, whose next price determinations are due to commence in 2022 and 2024 respectively.

While we maintain that FTEs will likely better allocate corporate costs, we agree with Atkins' assessment of corporate overheads. As such, we allocated overhead costs to business units using direct operating costs. In line with our draft decision, we apply this allocation method from 2021–22. We are satisfied this decision is consistent with the WCR and the adjustment to the Broken Hill pipeline allocation is reasonable. We also agree with Atkins that Water NSW can reduce uncertainty around corporate overhead allocation by applying more activity-based costing to all staff.

Table 3.3 shows the impact on the allocation of corporate costs to Water NSW's businesses using total operating expenditure, rather than TOTEX (which also includes capital expenditure). The adjustment for the Broken Hill pipeline changed our draft decision.

Table 3.3 Total impact of change to corporate allocation costs for Water NSW business units over 4 years from 2021–22 ($ millions, $2020–21)

	Net change in corporate costs
Water NSW rural	–4.2
WAMC	2.3
Water NSW-Greater Sydney	–2.2
Broken Hill pipeline	0.0
Non-core[a]	4.1

a. 'Non-core' includes other activities not related to the regulated business units such as general government commissioned works and activities undertaken for the MDBA.

Source: Atkins, *Expenditure Review of Water NSW Rural Bulk Water Service and Corporate Cost Allocation, Supplementary Report for IPART*, 25 May 2021, p 42.

An ex-post adjustment to the NRR may be required at the next Water NSW Greater Sydney price review. This adjustment may help ensure that Water NSW will be no better or worse off overall from adjusting the corporate allocation approach. Appendix B includes an output measure relating to the cost allocation manual.

3.4.2 We increased direct labour costs by $3.9 million

Our draft decision was to maintain direct labour costs at 2019–20 levels, reducing these costs by $3.9 million over the 2021 determination period relative to Water NSW's proposal. This decision was consistent with Atkins' recommendations.

In response to our draft report, Water NSW submitted that:

> Compared to the 2017 Determination period, WaterNSW has implemented significant improvements to our cost coding framework and timesheet reporting practices. Reductions in overhead costs have been offset by increases in direct costs due to improvements in direct cost coding and increases in staff utilisation.[13]

Since our draft decision, Water NSW provided further information supporting the increase in direct labour costs being offset by overhead salary cost reductions. Given this, we reinstated $3.9 million relating to direct labour costs. This is consistent with Atkins' recommendation in its Supplementary Report.

3.4.3 We removed $1.8 million in proposed land tax increases

Our draft decision removed $1.8 million relating to Water NSW's proposed increase in land tax liabilities. This decision was consistent with advice from Atkins that Water NSW did not sufficiently justify recovering an additional $1.8 million from rural water customers.[14] Given no further information was provided on this issue, our decision is to remove $1.8 million in proposed land tax increases, in line with our draft decision.

3.4.4 We removed $0.5 million for the long-term transformational strategy

In its submission to our Issues Paper, Water NSW proposed an additional $1.5 million in consultancy fees to undertake a "long-term transformational strategy". This strategy will be aimed at identifying and implementing efficiencies over time.[15]

Our draft decision was to remove this item, in line with the recommendation from Atkins. Long-term strategic planning and transitional strategies are critical to improving the services delivered and how they are funded. However, we did not accept that the strategy is an incremental efficient cost that should be paid for by customers.

In response to our draft report, Water NSW submitted:

> The expenditure is required to develop business plans and transformation strategies aimed at improving organisational efficiency and lowering our operating expenditure over the 2022–25 determination period. The expenditure is a material requirement focused on delivering efficiencies for the benefit of customers and meet customer expectation targets which will only grow over time.
>
> In order to drive improved business performance, it is not uncommon for organisations to specifically allocate funds to acquire dedicated experienced expertise to support business transformation. IPART's proposed cost reductions and lower revenues arising from a lower WACC allowance, it is likely that WaterNSW will not have sufficient funding to invest in a dedicated cost transformation program.[16]

While Atkins did not change its recommendation based on Water NSW's submission, our decision is to allow $1.0 million for the long-term transformational strategy. This is to be funded from the government's share of efficient costs. Based on information provided by Water NSW, we consider $1.0 million represents a reasonably efficient cost.

Given the opportunities for efficiency identified during this review, we consider this funding would assist Water NSW plan and achieve business improvements initiatives over the 2021 Determination. It would also help Water NSW meet our continuing efficiency targets discussed below. However, we do not consider that the strategy should be funded by customers and therefore we are allocating 100% of this expenditure to the government share. We have established an output measure for this expenditure to ensure Water NSW is accountable over the 2021 determination period (Appendix B).

3.4.5 We reduced additional regulatory team resources by $0.7 million

Water NSW proposed 3 additional FTEs be added to its regulatory team to improve performance in an environment of growing demands. This added around $2.1 million over the determination period – starting in July 2022. Our draft decision was that the additional resources were reasonable, however the new resources should:

- apply from July 2021
- be shared between other Water NSW regulated businesses including WAMC and Greater Sydney.[17]

Based on advice from Atkins, we allocated 50% of the 4-year $2.8 million increase to Water NSW's other business units including Greater Sydney and WAMC.[18]

In response to our draft report, Water NSW requested we reconsider the proposed allocation of this expenditure between rural bulk water, WAMC and Greater Sydney of 50:25:25. Instead, Water NSW proposed allocating the additional resources in equal shares between the rural bulk water and WAMC determinations. This is because of the extensive work involved in these reviews compared with Greater Sydney.

Atkins reviewed and agreed with Water NSW's proposed change.[19] We also agree the reallocation is reasonable, and our decision is to accept a 50:50 allocation between rural bulk water and WAMC. This decision leaves the Rural Valleys' efficient expenditure unchanged (because rural bulk water still receives a 50% allocation of costs). However, it increases the share of regulatory costs allocated to WAMC, and hence included in WAMC bills that Water NSW's rural bulk water customers also pay.

3.4.6 We reinstated environmental planning and protection costs of $1.9 million

Our draft decision excluded $1.9 million for Water NSW's proposed increase in environmental planning and protection (EPP) expenditure. Atkins found this amount was the result of miscoding by Water NSW, which incorrectly attributed Purchasing and Procurement Management costs to EPP. Atkins could not justify this amount, regardless of the underlying expenditure category.[20]

Since our draft decision, Atkins clarified with Water NSW that the expenditure relates to procurement and should be allocated across all of the activity areas. Water NSW provided a breakdown of the procurement expenditure which better reflects the allocation between activities. Based on this updated information, Atkins recommended reinstating the increase.[21] We agree that Water NSW's explanation is reasonable and included the $1.9 million increase.

3.4.7 We included cold water pollution costs of $1.9 million

Water NSW submitted our draft decision did not address proposed additional costs of $3.75 million for cold water pollution requirements.[22] It requested that IPART consider these additional costs in making the final determination and submitted a detailed business case for investment in cold water pollution-mitigation measures. The Department of Primary Industries (DPI) Fisheries also argued for including cold water pollution costs, so Water NSW can meet requirements of water supply works approvals.[23]

Upon review, Atkins considered it prudent and efficient to improve monitoring around relevant dams to better understand cold water pollution and provide a benchmark for potential future measures. In particular, it recommended allowing options assessment for high priority dams only, resulting in additional expenditure of $1.9 million. Atkins considered that the case was not made to carry out options assessments for low and moderate priority dams, for which no mitigation measures were proposed. Atkins also recommended $1.0 million in capital expenditure as proposed by Water NSW.[24]

We agree with Atkins that expenditure related to cold water pollution for high priority dams is prudent and efficient. Our decision is to include $1.9 million in EPP costs and $1.0 million in capital expenditure as recommended by Atkins.

3.5 We made operating efficiency adjustments of $9.4 million

We applied catch-up and continuing efficiency adjustments to Water NSW's forecast operating expenditure. In total, we made $9.4 million in savings from catch-up and continuing efficiencies.

In making our decisions, we compared the total efficiency savings applied to Water NSW against efficiencies achieved by other water utilities when they were at a similar stage of efficiency maturity, to get a sense of the scale of efficiency that should be achievable for the 2021 Determination.[h]

3.5.1 Water NSW could make catch-up efficiency savings of $5.8 million

Catch-up efficiency reflects the efficiency needed to be achieved over time to catch up with a frontier company. Our draft decision was to accept Atkins' recommended catch-up efficiency adjustments of 1.1% per year.

Atkins found that Water NSW needs to improve to reach the level of a best-practice or frontier company. It found there was scope for improvement, with Water NSW only providing limited evidence of efficiency and performance drive in the business.

Atkins notes that:

> …there is limited ownership of the cost performance of the individual regulated businesses, and limited monitoring or focus on performance against the Determinations or annual variances.[25]

And:

> Water NSW does not appear to routinely prepare, challenge and refresh business cases or plans for major opex areas or embed expected savings from initiatives in budgets, as well-run utilities do.[26]

[h] See Table 3.2 of our Draft Report for further information, IPART, *Review of Water NSW's rural bulk water prices - From 1 July 2021 to 30 June 2025 – Draft Report*, March 2021.

Water NSW did not agree with our draft decision and considers that there is no justification (or theoretical basis) given the absence of an 'efficiency frontier' on which to base these reductions. It also submitted the draft decision:

- was based on flawed benchmarking analysis applied inconsistently compared with other IPART decisions
- should not apply to water monitoring activities as recognised by Cardno in the WAMC review
- has potential for double counting given that uncontrollable costs should be excluded, as should programs that have already been specifically 'adjusted' once to ensure (scope) efficiency.[27]

Atkins reviewed and responded to Water NSW's comments in its supplementary report and noted it already addressed some of Water NSW's issues in its final report.[28] We are satisfied with Atkins' responses on the methodology and application of catch up efficiency. As noted above, in making our decisions we had regard to catch-up efficiency applied to other water utilities at a similar stage of efficiency maturity.

In line with Atkins' recommendations, we consider Water NSW can take a number of initiatives to improve its efficiency, including:

- greater management focus on cost performance, including aligning incentives and embedding genuine challenge into budgeting processes
- clearer internal accountability for performance of each regulated business
- profit and loss-style accountability for corporate expenditure
- continued progress in improving procurement, including tracking benefits.[29]

Our decision is to apply catch-up efficiency adjustments of 1.1% per year, totalling $5.8 million in catch-up efficiency savings over the 2021 determination period. This approach is consistent with Atkins' recommendations and unchanged since our draft decision. Table 3.4 summarises our decisions on catch-up efficiency adjustments applied to Water NSW's operating expenditure.

Table 3.4 Decision on catch-up efficiency for operating expenditure for the 2021 determination period ($ millions, $2020–21)

Level of catch-up efficiency	2021–22	2022–23	2023–24	2024–25
Catch-up efficiency (cumulative (%))	–1.10%	–2.19%	–3.26%	–4.33%
Total catch-up efficiency ($ million)	–0.6	–1.2	–1.7	–2.3

Source: Atkins, *Expenditure review of Water NSW Rural Bulk Water Services and Corporate Cost Allocation, Supplementary Report for IPART*, 25 May 2021, p 22 and IPART analysis.

3.5.2 Water NSW could make ongoing continuing efficiency savings

The continuing efficiency adjustment is important because it ensures our maximum prices capture the impact of innovation and new technologies that enable firms to do more with less input. Our continuing efficiency target establishes an expectation of continuous productivity improvement that efficient businesses should reasonably be able to achieve over the 2021 determination period.

Our decision is to apply continuing efficiency adjustments of 0.7% per year, totalling $3.6 million in efficiency savings over the 2021 determination period (Table 3.5).[i] This is unchanged (in percentage terms) from our draft decision.

Table 3.5 Decision on continuing efficiency for operating expenditure for the 2021 determination period ($2020–21)

Level of efficiency	2021–22	2022–23	2023–24	2024–25	Total
Continuing efficiency (cumulative %)	–0.70%	–1.4%	–2.09%	–2.77%	N/A
Continuing efficiency ($ million)	–0.4	–0.8	–1.1	–1.4	–3.6

Source: Atkins, *Expenditure review of Water NSW Rural bulk water services and corporate cost allocation – Supplementary Report for IPART*, 25 May 2021, p 22; and IPART analysis.

In response to our draft decision, Water NSW submitted that including a continuing efficiency factor is not unreasonable. However, it disagreed with 0.7% and suggested a range of 0% to 0.35%. It considered that most weight should be given to the measured productivity of the utility industry (rather than the market sector) since the utility industry most closely reflects the input and output characteristics of water businesses. It also argued for giving most weight to multi-factor productivity (MFP) estimates over the most recent historical years (rather than 40 years), to produce more realistic estimates of the scope for productivity gains over the forthcoming regulatory period.[30]

We consider that our current approach, which uses all available data, is preferable to a shorter time period. A longer time series provides more data points and helps to reduce the impacts on final estimates of unusual MFP growth over a single business cycle. Further, this approach does not require judgement about what part of the business cycle we will experience over the forthcoming regulatory period.

We also consider it is appropriate to base the continuing efficiency factor on the market sector data rather than data specific to the utilities sector or a subset of industries. This approach represents the efficiencies that could be available to utilities, through internal initiatives or incorporated through supply chains.

[i] The value of the continuing efficiency adjustment is derived from the compound long-run average of the Australian Bureau Statistics (ABS) multi-factor productivity (MFP) series for the Australian economy.

Chapter 4

Capital expenditure

04

Summary of our decisions on capital expenditure

Water NSW's efficient level of past capital expenditure was higher than we forecast

We found Water NSW's actual capital expenditure of $228.9 million over the 2017 determination period was efficient. This expenditure is 42% higher than we used to set prices over the determination period. (It excludes an additional $235 million of government-funded expenditure on drought projects.)

Our decision on the efficient level of forecast capital expenditure is lower than Water NSW proposed

We found the efficient forecast capital expenditure for the 2021 determination period including drought projects is $303.8 million. This amount is $59.1 million or 16.3% lower than what Water NSW proposed.

We made $41.7 million in scope adjustments, mostly for fish passageway offsets

We included capital expenditure for fish passageway construction of $30.8 million over the 2021 determination period. This amount is $40.9 million lower than Water NSW's original proposal, and $12.1 million lower than its revised proposal. Our decision reflects what we consider Water NSW can realistically achieve over the 2021 determination period, including leveraging lessons learnt from one project to the next.

We made $17.5 million in efficiency adjustments

These adjustments include:

- $13.1 million in catch-up efficiency adjustments
- $4.4 million in continuing efficiency adjustments.

We recognise Water NSW has taken steps to improve its efficiency in delivering capital works, most notably on renewals. But we consider it can achieve larger efficiency savings over the 2021 determination period.

This chapter sets out our decisions on Water NSW's efficient level of capital expenditure. Under the building block method, there is no explicit allowance for capital expenditure in the notional revenue requirement. Instead, the efficient capital expenditure is added to the regulatory asset base (RAB) for each valley and recovered through allowances for a return on assets and regulatory depreciation (discussed in Chapter 2 and Chapter 8).

We reviewed the efficiency of Water NSW's actual capital expenditure during the 2017 determination period and its proposed operating expenditure for the 2021 determination period. As with operating expenditure, we engaged Atkins to review Water NSW's actual and proposed capital expenditure and recommend the efficient amount to include in the RAB. We considered the advice of Atkins, as well as relevant stakeholder submissions, in reaching our decisions.

4.1 Water NSW's efficient level of capital expenditure is $303.8 million

Our decisions are:

5. To set the efficient level of Water NSW's past capital expenditure to be included in the regulatory asset base for the 2017 determination period as shown in Table 4.1.

6. To set the efficient level of Water NSW's capital expenditure for the 2021 determination period as shown in Table 4.2.

Table 4.1 and Table 4.2.set out our decisions on Water NSW's past and proposed capital expenditure, respectively.

Table 4.1 Decision on efficient capital expenditure for the 2017 determination period ($ millions, $ nominal)

	2017–18	2018–19	2019–20	2020–21	Total
Water NSW actual	37.1	43.2	114.0	263.4[a]	457.7
IPART decision	37.1	43.2	114.0	263.0	457.3
Difference	0.0	0.0	0.0	–0.4	–0.4
Difference (%)	0%	0%	0%	0%	0%

a. 2020–21 is a forecast.

Note: Includes Government funded drought projects. None of the costs of these projects have been included in customer prices for the 2021 determination period.
Source: Atkins, *Expenditure review of Water NSW Rural Bulk Water Services and Corporate Cost Allocation, Supplementary Report for IPART*, 25 May 2021, p 32 and IPART analysis.

Table 4.2 Decision on efficient capital expenditure for the 2021 determination period ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Water NSW proposed	142.7	67.0	82.9	70.3	363.0
IPART decision	144.0	69.3	53.5	37.1	303.8
Difference	1.3	2.2	–29.4	–33.2	–59.1
Difference (%)	0.9%	3.3%	–35.5%	–47.2%	–16.3%

Note: Includes Government funded drought projects. None of the costs of these projects have been included in customer prices for the 2021 determination period.
Source: Atkins, *Expenditure review of Water NSW Rural Bulk Water Services and Corporate Cost Allocation, Supplementary Report for IPART*, 25 May 2021, p 33 and IPART analysis.

4.2 Actual capital expenditure over the 2017 period was higher

Capital expenditure reported in the 2017 determination period includes actuals for 2018, 2019, and 2020, and forecast expenditure for 2021. Excluding drought response expenditure, Water NSW projects to overspend its 2017 Determination on capital expenditure by $67.6 million (or 42%).

Water NSW attributed the overspend to the 2017 Determination allowance being too low and for projects that were not foreseen at the time, particularly dam safety works.[31]

As part of its review of Water NSW's capital expenditure, Atkins reviewed and made recommendations on the efficiency of capital expenditure over the 2017 determination period.

We set prices in the MDB valleys under the Commonwealth Government's Water Charge Rules 2010 (WCR). The WCR provide little scope to make efficiency adjustments to historical capital expenditure. All actual capital expenditure must be included in the RAB, regardless of its efficiency. However, we set prices in coastal valleys under the IPART Act, and have more discretion in assessing the efficiency of historical capital expenditure.

Regardless, Atkins found that capital expenditure on infrastructure assets since 2016-17 was efficient.[32] We included all historical capital expenditure in the RAB, which includes a revision of $0.4 million relating to Water NSW's actual expenditure for fish passage offsets in 2020–21.

4.3 Water NSW proposed capital expenditure of $363 million

Including major drought projects, Water NSW originally proposed $363.0 million in capital expenditure over the 2021 determination period (Table 4.2). Excluding major drought projects, Water NSW proposed capital expenditure was $260.4 million. This amount is:

- $99.1 million (or 61%) higher than we used to set prices in 2017, excluding drought projects
- $31.5 million (or 14%) higher than its actual capital expenditure over the 2017 determination period, excluding drought projects.

4.4 We reduced proposed capital expenditure by $59 million

Over the 4 years of the 2021 determination period, our decision is to reduce Water NSW's capital expenditure to $303.8 million (Table 4.3). This amount is:

- $142.5 million (88.3%) higher than we used to set prices in 2017
- $59.1 million (16.3%) lower than proposed by Water NSW.

Our reductions in capital expenditure comprise:

- $41.7 million in scope adjustments, almost all of which is for fish passageway offsets
- $13.1 million in catch-up efficiency adjustments, based on a cumulative catch-up efficiency factor of 7.4% by 2024–25
- $4.4 million in continuing efficiency adjustments, based on a continuing efficiency factor of 0.7% per year.

Table 4.3 Decision on efficient capital expenditure by valley for the 2021 determination period ($ millions, $2020–21)

Valley	Capital expenditure
Border	26.7
Gwydir	21.5
Namoi	22.8
Peel	26.4
Lachlan	93.2
Macquarie	28.2
Murray	19.0
Murrumbidgee	30.6
Lowbidgee	5.4
North Coast	1.7
Hunter	11.4
South Coast	1.2
Fish River	15.8
Total capital expenditure	**303.8**

4.4.1 We reduced capital expenditure for proposed fishway offsets

Water NSW originally proposed $71.6 million of capital expenditure on fishway offsets over the 2021 determination period, for 11 projects in the Gwydir, Namoi, Lachlan and Macquarie valleys.[33]

Under s 218 of the *NSW Fisheries Management Act 1994*, Water NSW must construct fish passageways when it undertakes significant capital works on existing dams. Water NSW has been working with NSW DPI Fisheries on a suitable fishway offset strategy to meet its requirements under the Act.

There was significant interest in this issue at our public hearing in November 2020, with stakeholders both in favour and against constructing fishways.[34]

Our draft decision reduced Water NSW's proposed expenditure on fishway offsets by $56.4 million. This amount allowed Water NSW to complete 2 pilot schemes and progress the business cases and detailed design for the other 9 schemes. Given the timing and progress of these projects, Atkins recommended it was unlikely the 9 remaining projects would occur in the 2021 determination period.[35]

In submissions on our draft decision, stakeholders again were both in favour and against this expenditure.[36] In response, Water NSW proposed revised expenditure of $43.0 million over the 2021 determination period, in consultation with DPI Fisheries. The revised program provides for 3 pilot scheme fishways, leading to 4 more to be constructed in the 2021 period. The remaining 4 will be completed in the 2025 determination period.

Atkins recommended a capital expenditure program of $30.8 million over the 2021 determination period.[37] Atkins found the revised expenditure was more appropriate than the original proposal, but argued Water NSW could further leverage lessons from one project into the next by taking a slightly more staggered approach to the program.

Our decision is to accept Atkins' recommendation in its Supplementary Report. We consider this amount appropriately balances recognition that compliance with fishways requirements is overdue, and the need to ensure customer prices do not reflect projects that are unlikely or not prudent to commence in the 2021 determination period. Our decision does not prevent Water NSW from commencing more projects than we anticipate. If deemed efficient at the next price review, the capital expenditure for any additional projects will be added to the RAB and future capital costs recovered.

4.4.2 We reduced Lake Cargelligo capital expenditure by $1.3 million

Lake Cargelligo is an off-river storage in the Lachlan Valley. After floods in 2016, a risk assessment revealed an upgrade was needed to reduce the risks of failure due to internal erosion.

Our draft decision was to reduce proposed capital expenditure for this project by $1.3 million, based on advice from Atkins. The initial cost estimate was preliminary, and a revised estimate reduced costs by around 9%.[38]

In response to our draft decision, Water NSW supported this adjustment, which aligns with the project's updated valuation.[39] Our decision is to maintain the $1.3 million reduction.

4.4.3 We reduced Yanco Weir renewal capital expenditure by $4.4 million

Our draft decision included capital expenditure for a legacy fishway at the Murrumbidgee Yanco Weir. In response, Water NSW proposed removing $3.9 million, based on customer feedback that a future Yanco Sustainable Diversion Limit Adjustment Mechanism project may render the works obsolete.[40]

Atkins's review of this proposal recommended a reduction (before any efficiency assumptions) of $4.4 million.[41] We agree with Atkins' assessment, and removed $4.4 million for the Yanco Weir project.

4.4.4 We approved additional capital expenditure for Chaffey Dam

In response to our Draft Report, Water NSW proposed an additional $1.5 million in capital expenditure over the 2021 determination period to meet the environmental approvals related to the Chaffey Dam Upgrade and Augmentation project. It proposed adding this expenditure to the Government RAB under the pre-1997 dam safety activity in 2021–22.[42]

Atkins recommended including this expenditure in the pre-1997 dam safety activity because it appears to be directly attributable to Chaffey Dam.[43] We agree with Atkins' assessment, and included $1.5 million of capital expenditure, noting it will not affect customer bills.

4.4.5 We did not change WAVE program capital expenditure

In response to our Draft Report, Water NSW noted WAVE program[a] capital expenditure ($39.9 million) was understated by approximately $3 million in the Water NSW and WAMC pricing proposals. The program estimate excluded capitalised overheads. It requested including these overheads in the two final determinations.[44]

Atkins recommended no change to our draft decision, because the proposed expenditure includes an uplift for capitalised corporate overheads.[45] We agree with Atkins' assessment and did not change the capital expenditure for the WAVE program.

4.4.6 We included capital expenditure for cold water pollution

As noted in section 3.4.7 we included an additional $1.0 million in capital expenditure for cold water pollution costs. This amount reclassified operating expenditure.

4.5 We made capital efficiency adjustments of $17.5 million

4.5.1 Our decision includes catch-up efficiencies

Catch-up efficiency reflects the efficiency needed over time to catch up with a frontier company. Water NSW's rural bulk water services capital expenditure program for the forward period is generally based on bottom-up discrete and other unique projects.

Our draft decision adopted advice from Atkins for catch-up efficiencies across 4 areas:

- improvements to capital program development, optimisation and prioritisation
- improvements to value engineering
- improvements in cost estimating and the management of contingencies

[a] The WAVE program is a significant ICT platform that Water NSW argued represents a step change in customer service, water delivery and water data management.

- the impact of new procurement processes and likely savings from more efficient program management.

Under our draft decision, catch-up efficiency adjustments totalled $12.4 million, based on a cumulative catch-up efficiency factor of 7.4% by 2024–25.[46] In response, Water NSW argued there was no evidence to support catch-up efficiency adjustments, and that various improvements to the areas noted above were not considered.[47]

Atkins did not support changing catch-up efficiency adjustments, citing insufficient evidence. Water NSW does not appear to demonstrably challenge its capital program internally and the benefits are not demonstrably linked to its expenditure proposals. Given this, Atkins considered catch-up efficiency adjustments are warranted.[48] Table 4.4 set outs Atkins' total combined capital efficiency challenge for Water NSW.

Water NSW has taken, and can continue to take, steps to further improve its efficiency. As identified by Atkins, these steps include:

- developing a single version of its capital program for each determination that is managed centrally, and from which reports can be run
- further embedding its approach to value engineering, which it has applied to some projects where costs exceeded initial expectations
- realising and refining the benefits of its investment in improving its procurement approach.[49]

We agree with Atkins' assessment, and adopted the catch-up efficiencies outlined in Table 4.4.

4.5.2 Our decision includes a continuing efficiency adjustment

The continuing efficiency adjustment ensures our maximum prices capture the impact of innovation and new technologies that enable firms to do more with less input. By introducing a quantitative target, we establish an expectation of continuous improvement through our price determinations.

For any capital-intensive business, some of the most important opportunities for productivity gain are in procuring and delivering capital works. If an ongoing productivity adjustment is justified, then it should be applied to capital as well as operating expenditure.

Our draft decision applied a continuing efficiency factor of 0.7% pa. As outlined in section 3.5.2, Water NSW did not agree with our draft decision. However, for the reasons outlined in section 3.5.2, we accepted Atkins's proposed continuing efficiency targets outlined in Table 4.4.

Table 4.4 Total combined capital efficiencies

Level of catch-up efficiency	2021–22	2022–23	2023–24	2024–25
Continuing efficiency at the frontier	0.70%	1.40%	2.09%	2.77%
Catch-up: capital program development, optimisation and prioritisation	0.11%	0.22%	0.33%	0.44%
Catch-up: value engineering	0.50%	1.00%	1.50%	2.00%
Catch-up: cost-estimating	0.50%	1.00%	2.00%	2.00%
Procurement	1.00%	2.00%	3.00%	3.00%
Total catch-up efficiency	**2.11%**	**4.22%**	**6.83%**	**7.44%**
Total efficiency	**2.81%**	**5.61%**	**8.91%**	**10.21%**

Source: Atkins, *Expenditure review of Water NSW rural bulk water services and corporate cost allocation – Supplementary Report for IPART*, 25 May 2021, p 31.

Table 4.5 summarises the impacts of our decision on efficiency targets.

Table 4.5 Continuing and catch-up efficiency for capital expenditure ($ millions, $2020–21)

Level of efficiency	2021–22	2022–23	2023–24	2024–25	Total
Continuing					
Continuing efficiency (cumulative %)	–0.70%	–1.4%	–2.09%	–2.77%	
Continuing efficiency ($ millions)	–1.0	–1.0	–1.2	–1.1	–4.4
Catch-up					
Catch-up efficiency (cumulative %)	2.11%	–4.22%	–6.83%	–7.44%	
Catch-up efficiency ($ millions)	–3.1	–3.1	–3.9	–3.0	–13.1

Source: Atkins, *Expenditure review of Water NSW Rural Bulk Water Services and Corporate Cost Allocation – Supplementary Report for IPART*, 25 May 2021, p 33; and IPART analysis.

Chapter 5

Murray–Darling Basin Authority and Dumaresq–Barwon Border Rivers Commission costs

05

Summary of our decisions for MDBA and BRC costs

Efficient costs for MDBA and BRC are less than what Water NSW proposed

Using our building block approach, Water NSW's efficient costs for the Murray–Darling Basin Authority (MDBA) and the Dumaresq–Barwon Border Rivers Commission (BRC) are $65.0 million and $2.5 million respectively.

Our decision on MDBA and BRC building block costs is $40.6 million or 37.5% lower than those proposed by Water NSW over the 2021 determination period. Most of this reduction is in the Murray valley, where MDBA costs make up most of the costs of service.

Most of the reduction is due to:

- using the impactor pays principle to shift $13.1 million of Salt Interception Scheme costs from Water NSW rural bulk water to WAMC's water management charges
- moving to a building block approach to calculate efficient MDBA and BRC costs through a notional revenue requirement.

We applied the building block approach to Water NSW's MDBA and BRC costs

Using the building block approach recovers capital expenditure on infrastructure more slowly over time, rather than in the year it occurs. This approach reduces efficient costs over the 2021 determination period.

Water NSW contributes on behalf of the NSW Government to 2 inter-jurisdictional water management organisations – the MDBA and BRC.

We reviewed the method for allocating MDBA and BRC costs between the Water NSW and WAMC price determinations, as well as the efficiency of these costs. We engaged Atkins to assist with this review. We have taken Atkins' recommendations into account, as well as stakeholder submissions, in making our decisions.

5.1 Water NSW's efficient costs for MDBA and BRC are $67.5 million

Our decisions are:

7. The efficient level of Water NSW's Murray–Darling Basin Authority costs for the 2021 determination period is $65.0 million as shown in Table 5.1.

8. The efficient level of Water NSW's Dumaresq–Barwon Border Rivers Commission costs for the 2021 determination period is $2.5 million as shown in Table 5.2.

DPIE proposed MDBA costs of $104.0 million for the 2021 determination period (Table 5.1). Our decision to allow costs of $65.0 million is $38.9 million, or 37.5% lower than DPIE's proposal because we:

- reallocated Salt Interception Scheme (SIS) costs of $13.1 million from the Water NSW rural bulk water determination to the WAMC determination (section 5.4)
- used a building block approach to calculate efficient costs (section 5.5).

Table 5.1 Decision on efficient building block MDBA costs for the 2021 determination period ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Water NSW proposed	24.4	26.5	26.5	26.5	104.0
IPART decision	15.3	16.7	16.6	16.5	65.0
Difference	–9.1	–9.8	–9.9	–10.0	–38.9
Difference (%)	–37.4%	–37.1%	–37.5%	–37.8%	–37.5%

Source: Atkins, *MDBA/BRC Expenditure Review – Final Report for IPART*, March 2021, p 11; and IPART analysis.

DPIE also proposed BRC costs of $4.2 million for the 2021 determination period (Table 5.2). Our decision to allow efficient BRC costs of $2.5 million is lower than DPIE's proposal because we:

- rebalanced the BRC's corporate costs between the WAMC and Water NSW rural bulk water determinations
- used a building block approach to calculate efficient costs (section 5.5).

Table 5.2 Decision on efficient BRC costs for the 2021 determination period ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Water NSW proposed	1.0	1.0	1.0	1.0	4.2
IPART decision	0.6	0.6	0.6	0.6	2.5
Difference	–0.4	–0.4	–0.4	–0.4	–1.7
Difference (%)	–39.1%	–39.7%	–40.1%	–40.4%	– 39.8%

Sources: Atkins, *MDBA/BRC Expenditure Review - Final Report for IPART*, March 2021, pp 14–15; and IPART analysis.

Our decisions are unchanged from our draft decisions in March 2021.

5.2 DPIE proposed increases in total MDBA and BRC costs

DPIE proposed increases in total MDBA and BRC contributions across the WAMC and Water NSW rural bulk water reviews.[a]

5.2.1 MDBA costs would increase by 8.1% overall under DPIE's proposal

DPIE proposed total MDBA contributions of $126.8 million,[50] compared with $117.3 million for the previous price reviews (an increase of 8.1%):

- It proposed recovering 18.0% of these costs from the WAMC determination and 82.0% from the Water NSW rural bulk water determination. This cost allocation results from DPIE assigning MDBA's non-river management costs to WAMC and river management costs to Water NSW rural bulk water.[51]
- In the previous price reviews, the MDBA contributions were split 33.2% to WAMC and 66.8% to Water NSW rural bulk water.

5.2.2 BRC costs would increase by 24.9% overall under DPIE's proposal

For BRC contributions, DPIE proposed contributions of $7.2 million,[52] compared with $5.8 million for the previous price review (a 24.9% increase):

- Currently, 28.1% of BRC contributions are recovered from the WAMC determination and 71.9% from the Water NSW rural bulk water determination. The split is based on historical natural resource management and river operations costs.[53]
- For the 2021 determination period, DPIE proposed revising this split (42.2% to WAMC and 57.8% to Water NSW rural bulk water), reflecting the BRC's forward work plan.

5.2.3 Stakeholders were concerned about the proposed cost increases

Several stakeholders were concerned about the magnitude and efficiency of the proposed MDBA and BRC contributions.[54] They strongly supported improving DPIE's incentive to actively engage in negotiating these contributions, so that only efficient costs are passed onto water customers.[55] Water NSW considered this engagement was already occurring.[56]

In particular, some stakeholders advocated for greater transparency and efficiency requirements on MDBA contributions. They questioned the justification of MDBA charges and the efficiency of the MDBA's operations, and urged IPART to scrutinise these costs.[57]

[a] The MDBA stated its program costs were not proposed to increase. Rather, the NSW Government was proposing to assign a greater proportion of its contribution to the MDBA program to water users compared with past reviews (MDBA, *Submission to IPART's Draft Report for the Water NSW rural review*, April 2021, p 1).

As outlined below, we examined the efficiency of these costs and reviewed the method for allocating these costs between the WAMC and Water NSW rural bulk water reviews. We were assisted in these tasks by our consultant, Atkins.

5.3 We made efficiency adjustments to MDBA and BRC costs

Our decisions allowed for:

- Total MDBA costs of $117.6 million for the 2021 determination period. This is $9.2 million (7.3%) lower than DPIE proposed for the WAMC and Water NSW price reviews.
- Total BRC costs of $7.0 million for the 2021 determination period. This is $0.2 million (2.5%) lower than DPIE proposed for the WAMC and Water NSW price reviews.

5.3.1 We reduced total proposed MDBA costs by 7.3%

In our previous WAMC price review, we expressed concerns about the transparency and efficiency of the MDBA's operations. For example, we noted the MDBA's activities may not have been subject to a sufficient level of independent review to ensure its costs were efficient.[58]

In its proposal, DPIE highlighted that the MDBA had implemented several independent review and transparency measures.[59] For example, new projects are subject to cost–benefit analysis. Further, the Commonwealth Government has committed to triennial independent reviews of the MDBA's River Murray Operations costs to provide greater transparency and assure water users that expenditure is reasonable.

We recognise improvements have been made in this area. However, we consider there is still scope to deliver efficiency savings. As such, we accepted Atkins' recommended adjustments, including:

- **Scope adjustments** of $3.7 million, to remove MDBA corporate overheads from Water NSW MDBA costs. DPIE confirmed that corporate MDBA costs should be recovered through the government share, and not through either WAMC or Water NSW prices to customers.[60]
- **Catch-up efficiency adjustments** of 1.1% per year cumulative, totalling $3.4 million in efficiency savings over the 2021 determination period.[61]
- **Continuing efficiency adjustments** of 0.7% per year cumulative, totalling $2.2 million in efficiency savings over the 2021 determination period.[62]

The catch-up and continuing efficiency adjustments are consistent with those we have applied to WAMC expenditure.

The Public Interest Advocacy Centre (PIAC) supported our adjustments to MDBA costs in its submission to our Draft Report, noting they would facilitate greater efficiency in recovering costs for water services.[63] Coleambally Irrigation Co-operative Limited also supported applying catch-up and continuing efficiency adjustments to MDBA costs.[64] However, Murray Irrigation Limited considered IPART had applied only modest 'efficiency dividends' to the MDBA's operations.[65]

In its submission to our Draft Report, the MDBA raised the following main objections to the efficiency adjustments:

- It was unclear how Atkins accounted for the findings of a previous independent review into efficiency improvements for River Murray Operations when recommending additional generic efficiency requirements.
- It was concerned that further untargeted reductions in expenditure would limit service delivery and increase the risk of a service failure.
- It questioned the utility of a 'continuing efficiency' at the frontier without information on a comparable frontier company.[66]

In its review of the MDBA's submission, Atkins noted the previous independent review related to actual costs rather than forward looking expenditure (which was the focus of Atkins' recommendations). Further, it considered its recommended efficiency adjustments were modest and proportionate to the control the MDBA had over its costs. Finally, while it acknowledged the lack of comparator organisations for the MDBA, the concept of frontier efficiency encouraged new innovations, ways of working and a drive towards efficient outcomes.[67] It therefore maintained its recommended efficiency adjustments, which we accepted.

5.3.2 We reduced total proposed BRC costs by 2.5%

Atkins recommended several adjustments, which we accepted. These involve:

- **Scope adjustments** comprising:
  - A water infrastructure adjustment (–$1.2 million). The BRC does not have a formalised agreement for the operation and maintenance works carried out by Sunwater. This adjustment aligns expenditure with the BRC's historical operation and maintenance costs (i.e. before Sunwater applied a significant risk premium to these costs).
  - A resource management adjustment (+$0.2 million). BRC's costs appeared to be going down. However, this was due to problems with its accruals accounting and late invoicing by Water NSW. This adjustment means budgets are based on actual costs including accruals.
  - An Annuity Fund Contribution adjustment (–$0.3 million). We netted off this contribution from operating expenditure because it is linked to capital expenditure. We made a separate capital expenditure allowance for the BRC.[68]
- **Catch-up efficiency adjustments** of 1.1% per year cumulative, with efficiency savings totalling $0.2 million for operating expenditure and $0.1 million for capital expenditure over the 2021 determination period.[69]
- **Continuing efficiency adjustments** of 0.7% per year cumulative, with efficiency savings totalling $0.1 million for operating expenditure and $0.1 million for capital expenditure over the 2021 determination period.[70]

PIAC supported our efficiency adjustments in its submission to our Draft Report.[71] However, the BRC considered the catch-up and continuing efficiency adjustments may be challenging to achieve during the 2021 determination period, given the governance improvement program it undertook recently.[72]

The BRC also partly agreed with our views on the efficiency of charges under Sunwater's service contract. However, it considered a material component of the increase was justified, due to changes in approach to risk and insurances. Therefore, it disagreed with our decision to align Sunwater's costs with historical expenditure.[73]

After considering the BRC's submission, we have decided to maintain our draft decision on its efficiency adjustments. The BRC did not provide any new information relating to how much of the additional costs related to Sunwater contract negotiations and how much the BRC considered to be unjustified. Atkins also reviewed the BRC submission and maintained its recommended efficiency adjustments.[74]

5.3.3 MDBA and BRC operations could be more efficient

Atkins identified several ways the MDBA and BRC could improve their processes, which would bring them closer to how an efficient agency operates (Box 5.1).

Box 5.1 MDBA and BRC catch-up efficiencies

Decision making: Hardwire justification and timing challenge into requests to State Contracting Authorities and Murray–Darling Basin Authority (MDBA) / Dumaresq–Barwon Border Rivers Commission (BRC) decision making.

Reporting activities and expenditure: Enhance reporting of activities and expenditure from State Contracting Authorities.

Outputs and outcomes: Put in place a benefits realisation process from definition to tracking.

Incentives: Ensure efficiency is a key metric for MDBA management. Ensure BRC's management drive permeates governance processes. Consider measures such as delegated management contracts with State Contracting Authorities to formalise requirements and introduce performance incentives.

Multi-year planning: Create more detailed budget projections and formalise multi-year budget agreements, with firmer commitments for some elements where this will aid efficiency and effectiveness.

Source: Atkins, *MDBA/BRC Expenditure Review – Final Report for IPART*, March 2021, pp 9–10, 13–14.

Atkins found:

- Efficiency was not a key focus of the MDBA. The BRC was in a similar situation before the recent change in its management, but this is now changing.
- The MDBA or BRC had few incentives to pursue efficiencies, with no entity clearly accountable for efficiency.
- While MDBA has strengthened prioritising investments, the justification framework remained weak.[75]

Adopting catch-up efficiencies like those outlined above would assist the MDBA and BRC address these concerns.

5.4 We changed the allocation of MDBA and BRC costs

Our main change to DPIE's proposed allocation of costs between the Water NSW and WAMC determinations involves the MDBA's SIS.[b]

5.4.1 We shifted MDBA SIS costs from Water NSW to WAMC

In the previous determination period, SIS costs were borne by users through the WAMC determination. In its pricing proposal, DPIE had instead allocated these costs ($13.1 million)[76] to Water NSW's Murray and Murrumbidgee valleys (Table 5.3). We consider these costs should remain within WAMC.

- SIS activity relates to water resource management, which is a WAMC monopoly service, rather than a part of Water NSW's bulk water storage and delivery services.
- The prices for Water NSW's rural bulk water services apply only to regulated river users. However, Atkins found that salinity issues were not just caused by regulated river licence holders. Rather, salinity was the result of basin-wide land use, drainage and water abstraction effects.[77]
- Both regulated and unregulated river users across the entire Murray–Darling Basin (MDB) contribute to high salinity. Therefore, under the impactor pays principle, it is not appropriate for the regulated river licence holders alone to bear SIS costs. Rather, the SIS's efficient costs should be added to WAMC and applied to all regulated and unregulated river management costs in the MDB (Box 5.2).

PIAC supported our allocation of costs across Water NSW and WAMC. [78] The Commonwealth Environmental Water Holder (CEWO) and Coleambally Irrigation Cooperative Limited (CICL) supported the decision to move SIS costs to WAMC.[79]

In contrast, Murray Valley Private Diverters (Inc) disagreed that irrigation itself is by far the dominant driver of salinity in the MDB. It argued salinity investments, land management and new modelling significantly changed predicted salinity risks.[80] What drives salinity costs was also discussed at the Public Hearing, where it was outlined that these costs are allocated 80% to users and 20% to government.[81] At this stage, we have not received evidence to change this cost share.

[b] The SIS is a MDBA program that aims to intercept high-salinity groundwater before it reaches river systems. Bores constructed in the Murray valley capture the groundwater, which is pumped to evaporation beds.

Box 5.2 Allocating the costs of managing salinity

In allocating the MDBA costs of the Salt Interception Scheme (SIS), we considered what factors were driving the need for the scheme.

Broadly, salinity in waterways is caused by the mobilisation of salts that are (in the undisturbed natural environment) bound to soils. Salt mobilisation is driven by 2 factors:

1. **Land clearing generally, including for agriculture**: Land clearing removes natural root systems that access groundwater, helping to keep it in a relatively steady state. This causes the groundwater table to rise and dissolve salts in the soil. Salinity costs caused by land clearing should *not* be allocated to water licence holders, because it is not the use or holding of a water licence that is causing the costs to be incurred.
2. **Irrigation specifically:** Irrigation removes water from rivers and applies it on productive land. This water percolates through soils and mobilises salts, and can increase groundwater flow rates and salt loads into rivers. Salinity costs caused by irrigation should be allocated primarily to licence holders, because water use is the primary driver of salinity and hence costs.

DPIE confirmed irrigation itself is by far the dominant driver of salinity in the Murray Darling Basin. However, it also confirmed that groundwater licence holders are unlikely to contribute to the problem, so we have ring-fenced them from these SIS costs.

Table 5.3 Allocation of MDBA contributions

	DPIE's proposed allocation	IPART's allocation
WAMC determination	18.0%	29.2%
Water NSW rural bulk water determination	82.0%	70.8%

Source: Atkins, *MDBA/BRC Expenditure Review – Final Report for IPART*, March 2021, p 64; and IPART analysis.

5.4.2 Our scope adjustments to BRC's expenditure allocated costs differently

In allocating its proposed BRC costs between Water NSW and WAMC, DPIE used the following method:

- water infrastructure operational costs allocated 100% to Water NSW
- water resource management operational costs allocated 100% to WAMC
- BRC corporate costs then apportioned based on the relative costs from steps 1 and 2 above.[82]

As explained in section 5.3, we adjusted proposed expenditure on water infrastructure services (reducing it by $1.2 million). We also increased water management costs by $0.2 million. These 2 adjustments shifted the allocation of costs between Water NSW and WAMC as shown in Table 5.4.

We used these proportions to allocate both efficient operating costs and efficient capital costs.

Table 5.4 Allocation of efficient BRC costs

	DPIE's proposed allocation	IPART's allocation
WAMC determination	42.2%	56.4%
Water NSW rural bulk water determination	57.8%	43.6%

Source: Atkins, *MDBA/BRC Expenditure Review – Final Report for IPART*, March 2021, p 82.

5.5 We applied a building block approach to MDBA and BRC costs

Our decision is:

9. To use a building block approach to set the efficient Murray–Darling Basin Authority and Dumaresq–Barwon Border Rivers Commission costs.

Sections 5.3 and 5.4 outline how we adjusted the total MDBA and BRC expenditure proposed by DPIE:

- firstly, we reduced this expenditure to an efficient level
- secondly, we allocated it between the WAMC and Water NSW rural bulk water determinations based on the impactor pays principle.

This section explains how we applied the building block approach to Water NSW's share of these efficient MDBA and BRC costs. We consider there are efficiency and equity benefits in adopting the building block approach. Further, it means our approach to setting MDBA and BRC charges is consistent with our treatment of Water NSW's core costs.[c]

[c] We also applied the building block approach to WAMC's water management MDBA and BRC costs in its concurrent review.

In previous Water NSW and WAMC determinations, we included all efficient MDBA and BRC expenditure in prices in the year that expenditure occurs.[d] The amounts were typically based on forecasts of NSW's annual contributions to the MDBA and BRC respectively.[83] We usually applied efficiency adjustments to these forecasts to ensure water users only pay for MDBA and BRC expenditure that is efficient and directly related to the rural bulk water or water management services delivered.

Because payments were passed through in the year they occurred, 100% of all efficient MDBA and BRC costs have been effectively treated as operating expenditure. However, expenditure by both the MDBA and BRC includes both operating expenditure and capital expenditure.

PIAC and CICL supported applying the building block approach for MDBA and BRC costs. PIAC considered that this approach should help facilitate greater transparency, consistency and efficiency in recovering costs for water services.[84]

Water NSW submitted that the building block approach will create cash-flow issues for the NSW Government.[85] We consider that while the cash-flow implications for the NSW Government are different under the building block approach, the arrangement is no different to the NSW Government funding the capital itself. In particular, where the NSW Government holds its capital investment relating to MDBA and BRC activities, it is compensated through the allowance for return on assets (i.e. weighted average cost of capital (WACC) x RAB).

5.5.1 Capital expenditure should be recovered over its useful life

Our previous approach to including MDBA and BRC costs in prices did not recognise how and when capital expenditure is most efficiently recovered from water users. Including capital expenditure in prices in the year that expenditure occurs is potentially inefficient and inequitable.

We consider that capital expenditure should be recovered over the useful life of the assets it creates. This approach ensures water users who receive a service from an asset over time contribute to its cost. Under our standard building block approach set out in Chapter 2, efficient:

- operating expenditure is passed through in the year it occurs
- capital expenditure is added to the RAB, and we include allowances for depreciation and return on assets for the value of that RAB.

This approach ensures that water users pay only for their share of an asset that may deliver services over a long period, and the utility is compensated for:

- its initial investment (through a depreciation allowance for assets in the RAB)
- the economic cost of holding those assets over time (through the allowance for a return on assets, calculated as WACC x RAB).[e]

[d] In 2014, the Australian Consumer and Competition Commission (ACCC) included MDBA and BRC costs as per a government direction to the then State Water Corporation.

[e] Our decisions on the WACC are set out in Chapter 7; and our methodology is explained in more detail in Appendix D.

5.5.2 Efficient capital and operating expenditure for MDBA costs is $83.2 million

Our decision is:

10. To set Water NSW's operating and capital expenditure for Murray–Darling Basin Authority costs as shown in Table 5.5.

Table 5.5 shows Water NSW's efficient MDBA operating and capital expenditure over the 2021 determination period arising from our decisions. These are unchanged from our draft decisions.

Table 5.5 Decision on Water NSW's efficient MDBA expenditure for the 2021 determination period ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Operating expenditure	15.1	16.3	16.0	15.7	**63.1**
Capital expenditure	4.8	5.2	5.1	5.0	**20.1**
Total MDBA	**19.9**	**21.5**	**21.1**	**20.7**	**83.2**

Note: Includes both the user share and government share of efficient costs. Only the user share of costs is included when setting prices. Our draft decisions on the user and government share of costs are discussed in Chapter 8.
Source: Atkins, *MDBA/BRC Expenditure Review - Final Report for IPART*, March 2021, p 64.

In its review of Water NSW and WAMC's proposed MDBA and BRC costs, Atkins recommended allocating 24% of total expenditure to capital and 76% to operating expenditure, stating:

> For the Water NSW bulk water determination, we have prorated capital expenditure and operational expenditure based on the average split over the period for the forward-looking budget and plan between FY20 to FY24. This provides a split of 24% capital expenditure to 76% operating expenditure.[86]

We consider this split represents a reasonable allocation of expenditure between capital and operating expenditure for the purpose of setting Water NSW and WAMC prices. The MDBA's activities and projects are inter-jurisdictional, and its projects service water users in NSW, Victoria, Queensland, South Australia and the Australian Capital Territory (ACT). Each of these state and territory governments, as well as the Commonwealth Government, contribute to funding these projects.

It is difficult to specifically link NSW funding to individual projects, and therefore to the precise annual operating and capital costs associated with them. As such, we consider that prorating the NSW contribution on the overall MDBA operating to capital budget is representative of the contributions provided by NSW and funded through prices by Water NSW bulk water customers.

5.5.3 Efficient capital and operating expenditure for BRC costs is $3.1 million

Our decision is:

11. To set Water NSW's operating and capital expenditure for Dumaresq–Barwon Border Rivers Commission costs as shown in Table 5.6.

Table 5.6 shows Water NSW's efficient BRC operating and capital expenditure over the 2021 determination period arising from our decisions.

Table 5.6 Decision on Water NSW's efficient BRC expenditure for the 2021 determination period ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Operating expenditure	0.6	0.6	0.6	0.6	2.4
Capital expenditure	0.1	0.1	0.3	0.1	0.6
Total BRC	**0.8**	**0.7**	**0.9**	**0.7**	**3.1**

Note: Totals may not add due to rounding. Includes both the user share and government share of efficient costs. Only the user share of costs is included when setting prices. Our draft decisions on the user and government share of costs are discussed in Chapter 8.
Source: Atkins, *MDBA/BRC Expenditure Review – Final Report for IPART*, March 2021, pp 85, 87.

To estimate the capital expenditure component of BRC's total efficient expenditure, Atkins reviewed BRC's renewal and enhancement budget over the determination period.

The BRC budgeted for around $3.0 million of renewal and enhancement expenditure from 2021–22 to 2024–25, to be funded equally by NSW and Queensland.

After applying the catch-up and scope efficiency adjustments recommended by Atkins (section 5.3) to the NSW portion, this equates to $1.4 million in capital expenditure to be shared between Water NSW and WAMC.[87]

Our decision is consistent with the recommendations made by Atkins. Further, as outlined in section 5.4, we allocated these total efficient capital costs as follows:

- 43.6% to Water NSW, or $0.6 million
- 56.4% to WAMC, or $0.8 million.

In the short run, the building block approach puts downward pressure on bills in the Murray, Murrumbidgee and Border valleys for regulated river customers. As capital expenditure is recovered more slowly over time, prices needed to recover those costs are also spread over future years.

However, these relative savings in customer bills will reduce in the long-term as the RAB increases when assets are created and added. The capital cost building blocks (allowances for depreciation and return on assets) will increase as a result.

5.5.4 We set the opening MDBA and BRC RABs to zero

Our decision is:

12. To set Water NSW's opening regulatory asset bases for Murray–Darling Basin Authority and Dumaresq–Barwon Border Rivers Commission costs to zero at 1 July 2021.

The RAB represents the economic value of assets held by a utility. Each year, capital expenditure is added to the RAB, and depreciation and capital contributions are deducted.[f]

Historically, all of NSW's share of MDBA and BRC expenditure has been funded directly through annual payments. Some of this expenditure has been capital expenditure used to build assets and infrastructure. These payments have been passed directly through to customers, or paid for by the NSW Government through its share of those costs. As such, we consider that the existing MDBA and BRC assets used to deliver services to Water NSW and WAMC customers have already been fully paid for.

In the past, we have set opening RABs to zero for the purpose of setting prices. In our 2011 WAMC Determination, we set the opening RAB to zero for its core costs.[88]

Because we are treating MDBA and BRC capital expenditure differently from operating expenditure for the first time, this will change from 2021–22. This means that all efficient MDBA and BRC capital expenditure will enter the RAB from 2021–22 onwards.[g]

With an opening RAB of zero and our decision on forecast efficient MDBA and BRC capital expenditure set out in Table 5.5 and Table 5.6, the annual MDBA and BRC RAB values over the 2021 Determination are shown in Table 5.7.

Table 5.7 Water NSW's MDBA and BRC RAB values at July 1 for the 2021 determination period ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25
MDBA RAB	0	4.8	9.8	14.6
BRC RAB	0	0.1	0.2	0.5

Note: The RAB balance is equal to the previous year's RAB balance plus capital expenditure, less depreciation, disposals and capital contributions.

[f] Capital contributions include grants and other contributions that directly fund new assets. If an asset is funded, or partially funded, by direct cash contributions, it does not need to be recovered through prices because the utility does not incur further costs.

[g] We are setting Water NSW's bulk water prices in MDB valleys for this determination under the WCR. The WCR limit our scope to make ex-post efficiency adjustments to capital expenditure that enters the RAB.

5.5.5 Total building block costs for MDBA and BRC expenditure are $67.5 million

As set out in Chapter 2, the notional revenue requirement (NRR) derived from the building block costs represents the total efficient economic costs of delivering services. They include allowances for:

- operating expenditure
- regulatory depreciation (RAB/average life of assets in the RAB)
- return on capital (WACC x RAB)
- tax
- working capital.

Table 5.8 shows the NRR for Water NSW's efficient MDBA and BRC activities over the 2021 determination period arising from our decisions. These amounts have changed only marginally since our draft decision due to our updated WACC.

Table 5.8 Decision on Water NSW's notional revenue requirement for MDBA and BRC costs for the 2021 determination period ($ millions, $2020–21)

Building block	2021–22	2022–23	2023–24	2024–25	Total
Operating expenditure	15.8	16.9	16.6	16.3	65.6
Depreciation	0.1	0.2	0.3	0.4	0.9
Return on assets[a]	0.1	0.2	0.3	0.4	1.0
Tax	0.0	0.0	0.0	0.0	0.1
Total	**15.9**	**17.3**	**17.2**	**17.1**	**67.5**

a. Including return on working capital.

Note: The rate of return on assets (WACC) is set out in Chapter 7.
Source: IPART analysis.

5.5.6 Better clarity and quality of data will enhance transparency

A number of stakeholders were concerned about the efficiency and transparency of MDBA and BRC costs.[89]

We consider that our decisions deliver efficiency benefits to Water NSW and its customers. Creating a RAB and recovering capital costs over the useful life of assets means that, over time, MDBA and BRC-related prices will better reflect the efficient costs and timing of expenditure. Customers benefit from the equitable sharing of asset costs through time, and greater clarity on the types of expenditure undertaken by the MDBA and BRC.

Further, including a RAB and sharing capital costs over time may provide a more flexible regulatory mechanism for including large capital projects undertaken by the MDBA and BRC. When capital costs need to be recovered in the year they occur, the prohibitive costs (and impact on customers) of efficient, long-term but expensive assets may make them unfeasible. However, when costs are recovered over time, and the utility or agency investing in large projects is compensated for the holding cost of those investments, such projects (if any) may be more likely to be undertaken.

Nonetheless, we consider that more specific data on projects and programs that deliver services to water users by the MDBA and BRC would be beneficial. This will allow a greater level of precision in assessing both the efficient levels of expenditure and the services delivered to users. It would also improve the transparency to customers of the programs, projects and assets funded through Water NSW's MDBA and BRC-related charges.

Chapter 6

Other costs

06

Summary of our decisions for other costs

Our water sales volatility allowance is less than that proposed by Water NSW

We provided Water NSW with $1.23 million over 4 years to manage the risk that actual water sales are lower than forecast. This amount is $7.6 million less than Water NSW proposed.

We provided rebates for Irrigation Corporations and Districts

We provided Irrigation Corporations and Districts with $6.6 million in discounts over 4 years to account for Water NSW's avoided costs for metering, billing and other services.

We also provided unders and overs mechanism repayments

We provided Water NSW with an allowance of $6.3 million over 4 years so by 2024–25 customers will have paid back to Water NSW two-thirds of the outstanding unders and overs balance from when we decided to discontinue the mechanism in the 2017 price review.

This chapter outlines our decisions on other cost items, which are in addition to those included in our building block approach. These include the unders and overs mechanism (UOM) balance, the revenue volatility allowance and our decision on rebates for Irrigation Corporations and Districts (ICDs).

6.1 We set a revenue volatility allowance of $1.23 million over 4 years

Our decision is:

13. To include a revenue volatility allowance in the valleys listed in Table 6.1 to enable Water NSW to manage the risk that water sales are lower than forecasts.

We have included in Water NSW's prices a revenue volatility allowance of $0.31 million per year ($1.23 million over 4 years). This allowance provides funding for Water NSW to manage the cash-flow risk created when its water sales are lower than forecast. It is roughly $8 million (87%) less than Water NSW proposed in its July 2020 proposal.[90]

In principle, we consider price structures should be generally cost-reflective, so Water NSW's fixed charges reflect the proportion of its costs that are fixed, and usage charges reflect the proportion of its costs that vary with water demand. For rural bulk water, we consider that an 80:20 split of fixed-to-variable charges equitably shares the risk between Water NSW and its rural bulk water customers.

Most of Water NSW's costs are fixed, with the amount of water it sells having minimal impact on its costs. However, in many of Water NSW's rural valleys, we set high variable charges and low fixed charges, in line with customer preferences.[a] This approach is not cost-reflective.

By setting non-cost-reflective prices, Water NSW risks not recovering its full efficient costs when water sales are lower than forecast. Therefore, we consider customers should pay the efficient costs for Water NSW to manage this additional risk.

Table 6.1 sets out our final revenue volatility allowance by valley. We included an allowance only in valleys where Water NSW's price structure recovers less than 80% of its revenue from fixed charges. The volatility allowance is apportioned relative to each valley's contribution to Water NSW's overall revenue risk (i.e. valleys with higher water sales volatility pay a larger share of the volatility allowance).

Table 6.1 Decision on revenue volatility allowance by valley for the 2021 determination period ($'000s, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Border	5.0	5.0	5.0	5.0	19.9
Gwydir	41.4	41.4	41.4	41.4	165.6
Namoi	46.1	46.1	46.1	46.1	184.5
Lachlan	77.3	77.3	77.3	77.3	309.2
Macquarie	60.0	60.0	60.0	60.0	240.0
Murray	30.1	30.1	30.1	30.1	120.5
Murrumbidgee	46.1	46.1	46.1	46.1	184.5
Hunter	1.1	1.1	1.1	1.1	4.3
Total	**307.1**	**307.1**	**307.1**	**307.1**	**1,228.5**

Note: Rows may not sum due to rounding. Totals are different to values presented in Frontier Economics report as annualised costs include a return on capital.
Source: Frontier Economics, *Estimation of efficient self-insurance costs Addendum Report*, 18 May 2021, pp 51–52; and IPART analysis.

6.1.1 We considered several approaches to managing revenue volatility

We considered 3 approaches to estimate the efficient cost of managing Water NSW's water sales risk:

A revenue swap product

In June 2021, Water NSW informed us it had completed a tender process for a revenue swap policy and had received a preferred quote. Water NSW asked IPART to consider setting the revenue volatility allowance at the level of this quote: roughly $2.5 million per year (approximately $10 million over 4 years).

[a] See discussion of price structures in section 10.1 of this report.

Under this policy, Water NSW would give most of its revenue from water sales to a third-party insurer (regardless if it is higher or lower than forecast), and in return receive a fixed annual payment. The net result is that despite roughly 60% of Water NSW's forecast revenue from customers being at risk due to uncertain water sales, following the swap, 80% of its revenue would ultimately be fixed and only 20% at risk.

Our 2017 Determination set the efficient cost of managing volatility at around $1.3 million per year for a similar product.[91]

Self-insurance through borrowing and lending

We engaged consultants, Frontier Economics, to estimate Water NSW's cost of managing its revenue volatility risk by taking out a line of credit with a lender. We asked Frontier Economics to assume Water NSW would borrow or lend so that 80% of its revenue would be fixed.

In our Draft Report, we set a draft revenue volatility allowance of $2.12 million over 4 years ($0.53 million per year) on this basis. Following the release of our Draft Report, Frontier Economics revised its estimate down to $1.17 million[b] over 4 years, or 44% lower.[c] [92] Frontier Economics' full report is available on our website.

An unders and overs mechanism (UOM)

In its submission to our Draft Report, Water NSW proposed IPART consider reinstating an unders and overs mechanism (UOM) in place of setting a revenue volatility allowance.[93] In June 2021, Water NSW stated this was now its preferred approach for the 2021 determination period.

The ACCC included a UOM when it set prices for Water NSW between 2014 and 2017. The ACCC UOM mechanism created a running account of surpluses and deficits relative to the forecast revenue. Each year the balance was in deficit, prices could be increased by the value of the balance multiplied by the WACC, and vice versa when the balance was in surplus.[94]

6.1.2 We set the revenue volatility allowance based on self-insurance costs

After considering the options for managing revenue volatility risk, we decided to maintain our draft decision to set a revenue volatility allowance based on the efficient costs of managing water sales risk through self-insurance (option 2 in section 6.1.1).

As explained in our Draft Report, we did not support Water NSW's original proposal to purchase an asymmetric insurance policy because it would shift too much risk onto customers. Specifically, customers would pay the full cost of managing Water NSW's downside risk (i.e. by paying for its insurance premiums), while Water NSW would keep any additional revenue when sales were higher than forecast.

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[b] We marginally increased this amount to $1.23 million to include our final decision on the WACC.
[c] NSW Treasury Corporation (TCorp) provided IPART and Frontier Economics with revised data on key parameters.

Water NSW's revised proposed costs for the symmetric revenue swap would significantly increase costs for some customers.[95] We consider impacted customers should have an opportunity to comment on proposed costs that will flow through to prices.

Importantly, Frontier Economics' self-insurance estimates ($1.23 million) are significantly lower than the market quote for the swap product proposed by Water NSW ($10.0 million). We acknowledge Water NSW has engaged with the market to find a swap policy that would manage this risk symmetrically with its customers. However, given the current low interest rate environment, we are not convinced externally insuring this risk is efficient.

We are also uncertain Water NSW's proposed swap approach appropriately identifies the risk it faces. We assume Water NSW's water sales risk is symmetric (i.e. above forecast and below forecast water sales are equally likely) so over the long-term Water NSW should be made whole for any under-recoveries. Therefore, the risk Water NSW faces relates to cash-flow during low sales periods, rather than a large unrecoverable loss which a business would typically insure.[d] Under these conditions, it is not unreasonable for a business to finance short-term revenue shortfalls through borrowing or drawing down on reserves.

We will monitor Water NSW's revenue volatility closely over the 2021 determination period. We will also reconsider Water NSW's efficient costs and method of managing this risk at our next price review, due in 2024–25.

There are similarities between the self-insurance mechanism Frontier Economics designed and the UOM mechanism introduced by the ACCC in 2014 and discontinued by IPART in 2017. On balance we prefer the self-insurance mechanism over a UOM for a number of reasons:

- An ex ante allowance provides price stability across the 4-year period without needing annual adjustments.
- The self-insurance approach reflects the different costs of borrowing and lending for Water NSW.
- The self-insurance approach explicitly accounts for the costs of debt financing such as commitment fees, rather than assuming the shortfall will be recovered through a benchmark mix of equity and debt.
- A UOM could lead to unsustainable balances, which require contributions from customers much larger than the cost of managing cash-flow over one determination period.

[d] For example we provide Water NSW an allowance to purchase insurance for much of its plant and equipment against loss or damage.

Water NSW opposed our self-insurance cost estimates

In its submission to our Draft Report, Water NSW strongly opposed IPART's draft decision to base the revenue volatility allowance on Frontier Economics estimated self-insurance costs.[96] It raised concerns both with Frontier's analysis and with our decision to use a self-insurance benchmark.

Frontier Economics responded to the concerns with its modelling approach in its May 2021 Addendum Report.[97] IPART found Frontier Economics' arguments persuasive and we continue to consider its method reasonable and robust.

Water NSW also raised several conceptual concerns with using self-insurance to set the revenue volatility allowance:

- Self-insurance is neither practical nor achievable for Water NSW with regards to water usage revenue. Revenue from water usage is too significant relative to total revenue, and there is high correlation of water usage revenue between valleys.[98]
- The efficient cost of managing revenue volatility is best assessed through a "market tested price" rather than through a theoretical modelling exercise.[99]
- IPART's proposed self-insurance approach is effectively an "ex ante unders and overs (UOM) mechanism." Such an approach exposes Water NSW to the financial risk of having to leverage its balance sheet to fund the under-recovery of revenue for an undefined period.[100]
- The self-insurance approach is inconsistent with the Water Charge Rules 2010 (Cth)(WCR) because it does not permit Water NSW to recover its full efficient costs.[101]

We acknowledge Water NSW's concerns but do not agree that using a self-insurance approach is an inappropriate way to set the revenue volatility allowance.

Our view is that revenue variability above and below the forecast should net off over the long-term so there should not be a need to hedge against systematic risk, only the risk of cash-flow fluctuations within a period. Under these conditions, it is not unreasonable for an undiversified business to finance short-term revenue shortfalls through borrowing or drawing down on reserves.

We also acknowledge the self-insurance methods contains some residual risk. If long-term average water sales fundamentally shift permanently either significantly higher or lower than our current forecasts, there may be a risk that Water NSW could build up a permanent asset or liability under a self-insurance mechanism.[e] However, we consider:

- this would be a long-term issue, and not likely to present an unmanageable risk for Water NSW over the 2021 determination period
- our regulatory framework has the flexibility to periodically reassess this risk at the next and subsequent price reviews.

[e] A legacy asset (liability) could arise in the long-term if water sales are much more likely to be higher (lower) than our forecasts.

We do not agree with Water NSW's argument that, under our approach, it may not recover its efficient costs "in the regulatory period" and that this is inconsistent with clause 29 of the WCR. Clause 29 does not require us to be satisfied that Water NSW will **certainly** recover its efficient costs during the regulatory period, only that this is "reasonably likely". We set the self-insurance allowance such that, on average, Water NSW will recover the efficient costs of self-insurance. For that reason, we are satisfied it is reasonably likely Water NSW can recover its costs via the regulated charges we have set.

6.1.3 Water NSW should consider the issues underlying revenue volatility

In preparing future pricing proposals, Water NSW may benefit from considering the underlying drivers of revenue volatility.

First, revenue volatility could be minimised by setting a more accurate demand forecast. As we discuss in Chapter 9, there may be a systemic bias in setting the water sales forecast based on the 20-year historical average. But, based on the available data, we are not currently convinced there is an evident bias. We encourage Water NSW to continue exploring alternatives to the 20-year average.

Second, more cost-reflective price structures would reduce revenue volatility for Water NSW. Currently the fixed share of revenue in most valleys is 40%. Increasing this share would reduce revenue risk and potentially reduce volatility allowance costs for customers. We note, however, customers typically prefer higher variable charges for cash-flow reasons.

6.2 Irrigation Corporation and Districts (ICD) rebates are $6.6 million

Our decision is:

14. To set the value of rebates provided to 8 Irrigation Corporations and Districts as shown in Table 6.2.

Table 6.2 Decision on ICD rebates for the 2021 determination period ($'000s, $2021–22)

	2021–22	2022–23	2023–24	2024–25	Total
Jemalong	55	56	52	49	**212**
Murray Irrigation	723	692	673	645	**2,733**
Western Murray	18	17	17	16	**69**
West Corurgan	36	35	34	32	**137**
Moira	19	18	18	17	**72**
Eagle Creek	7	7	6	6	**26**
Murrumbidgee Irrigation	618	588	578	563	**2,347**
Coleambally Irrigation	265	252	248	241	**1,006**
Total discounts	**1,742**	**1,664**	**1,625**	**1,570**	**6,601**

Source: IPART analysis.

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 Water NSW services fewer large customers rather than many smaller customers.

Past determinations included discounts via rebates to ICDs to reflect Water NSW's 'avoided costs' of not directly servicing a larger number of smaller customers. The avoided costs are calculated based on the services Water NSW does not provide due to ICD activities (as a per ML of entitlement cost multiplied by the number of entitlements held by the ICD). These activities include billing, metering and compliance, telemetry installation and data transfer (Table 6.3).

Table 6.3 Estimated avoided costs by valley in 2021–22 ($2020–21)

	Lachlan	Murray	Murrumbidgee
No. of entitlements in valley	690,418	2,347,178	2,704,141
Metering and compliance	$262,736	$654,985	$500,403
Billing	$46,232	$103,033	$186,652
Cost per entitlement	**$0.45**	**$0.32**	**$0.25**
No. of entitlements in ICDs	73,049	1,569,024	1,603,734
Telemetry installation	$10,772	$140,318	$225,231
Data transfer costs	$11,997	$156,274	$250,843
Cost per entitlement	**$0.31**	**$0.19**	**$0.30**
Total cost per entitlement	**$0.76**	**$0.51**	**$0.55**

Source: Water NSW pricing model to IPART, June 2020; Water NSW email to IPART, 4 February 2021; and IPART analysis.

The discounts are 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 Water NSW's total revenue requirement, it affects the value of bulk water charges paid by all customers.

6.2.1 We consider the current method for calculating the rebates is appropriate

Water NSW proposed continuing to pay ICD rebates and maintaining the current approach for calculating the rebates.[102]

For our 2017 price review, we reviewed Water NSW's calculation of the discounts and found the overall method to be reasonable and generally reflective of avoided costs.[103] However, we adjusted the customer numbers to reflect the actual numbers reported by the ICDs. We consider this approach remains appropriate and updated the customer and entitlement numbers for the 2021 determination period.

This results in rebates that generally increase slightly over the period (Table 6.2). It also results in $6.6 million of avoided costs over the determination period.[f]

[f] Since releasing our Draft Report, we updated the information used to calculate ICD rebates. We also refined our approach to calculating avoided costs for telemetry and data transfer costs. These changes increased ICD rebates since our Draft Report.

Over the 2021 determination period, Water NSW will implement the staged non-urban metering reforms (see Chapter 14). The activities undertaken by Water NSW and the costs and meter charges associated with the reforms may significantly alter the costs avoided by ICDs, and hence the rebates. At our next review of Water NSW's rural bulk water prices in 2024–25, we will re-examine the ICD rebates and how meter reforms have affected Water NSW's avoided costs.

6.3 The unders and overs mechanism (UOM) payback is $6.3 million

Our decision is:

15. To include in prices an unders and overs mechanism payback allowance as shown in Table 6.4.

In its 2014 Decision, the ACCC introduced a UOM for most of the Murray–Darling Basin valleys, to address Water NSW's revenue volatility risk.[104]

Our 2017 Determination discontinued the UOM, because we considered that a volatility allowance would better address Water NSW's revenue volatility risk. We also decided that Water NSW should recover the negative UOM balance (i.e. the net amount customers owed) at 30 June 2017 from customers through prices over 12 years, in real terms.[g][105] Therefore by 30 June 2021 customers should have repaid one-third of this balance to Water NSW.

Water NSW proposed continuing this method for recovering UOM costs.[106] We consider this approach remains appropriate and included an allowance in prices (Table 6.4). Two-thirds of the UOM balance owed to Water NSW at 30 June 2017 should be paid off in real terms by 30 June 2025.

Importantly, our allowance is around 5% higher than what Water NSW proposed because we applied inflation to the original 2016–17 balance, while Water NSW applied inflation only to the allowance from the 2017 determination period.

In its submission to our Draft Report, Water NSW proposed the UOM payback should be recovered entirely through the fixed charge rather than fixed and variable charges like the majority of Water NSW's revenue. It considered the purpose of the UOM payback is to reduce risk as a result of sales volatility and it is inappropriate that this revenue may itself not be recovered because of revenue volatility.[107]

While Water NSW's argument has merit, the amount of revenue at risk is relatively small (~1% of Water NSW's revenue). On balance we did not make this change given it will have minimal impact on prices and Water NSW cash-flow, and add considerable complexity.

[g] With the exception of the Fish River Water Supply (FRWS) because most of the UOM balance has been written off.

Table 6.4 Decision on the unders and overs mechanism payback allowance for the 2021 determination period ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Water NSW proposed	1.5	1.5	1.5	1.5	6.0
IPART decision	1.6	1.6	1.6	1.5	6.3
Difference	0.1	0.1	0.1	0.1	0.3
Difference %	5.2%	5.1%	5.1%	5.0%	5.1%

Source: IPART analysis.

Chapter 7

Other building block costs and notional revenue requirement

07

Summary of our decisions for other building block costs and notional revenue requirement

Water NSW's notional revenue requirement is $493.6 million

This amount is $24 million (5%) less than what Water NSW proposed.

The difference largely reflects our reduction in Water NSW's operating expenditure to an efficient level (see Chapter 3).

Water NSW's return on assets is $99.6 million

The opening RAB is $1.2 billion for 2021–22.

We used a real post-tax weighted average cost of capital (WACC) estimate of 1.8% for MDB valleys and 3.0% for Coastal valleys as the efficient rate of return.

Water NSW's return of assets (regulatory depreciation) is $95.0 million

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

We calculated regulatory depreciation using a straight-line method.

Water NSW's tax allowance is $8.0 million

We calculated the tax allowance using a tax rate of 30% and our standard methodology.

Water NSW's working capital allowance is $2.1 million

We set the allowance by calculating the net amount of working capital Water NSW requires and multiplying it by the nominal post-tax WACC.

To set prices, we first determine the efficient costs that Water NSW should incur to efficiently deliver its services. The notional revenue requirement (NRR) represents our view of the total efficient costs of providing Water NSW's regulated services in each year of the determination period. In general, we set prices to recover this amount of revenue.

This chapter sets out our calculation of the notional revenue required to fund Water NSW's regulated services over the determination period.

7.1 We used building blocks to calculate the NRR

We used a 'building block' method to calculate Water NSW's NRR as outlined in Chapter 2. This method involves determining an allowance for each year of the determination period, including:

- operating expenditure (Chapter 3)
- a return on the regulatory value of its assets (Chapter 4, section 7.4 and Appendix C)
- a return of those assets (regulatory depreciation) (section 7.5)
- an allowance for meeting tax obligations (section 7.6)
- an allowance for working capital (section 7.7).

For this review, several additional building blocks make up the NRR, including:

- MDBA and BRC payments (Chapter 5)
- a revenue volatility allowance (Chapter 6)
- costs related to recovering the unders and overs mechanism (UOM) balance (Chapter 6)
- Irrigation Corporations and Districts (ICDs) rebates (Chapter 6).

We used a building block approach for each valley with a customer and a government component. This means there is a customer regulatory asset base (RAB) and NRR, and a government RAB and NRR for each valley. The sections below summarise our decision on Water NSW's total NRR and discuss other building blocks that are not covered in previous chapters. Our decisions on the customer share of this NRR and the target revenue to be recovered from prices over the 2021 determination period are outlined in Chapter 8. A breakdown of building blocks by valley is available via the interactive map on our website.

7.2 We included drought capital expenditure in Water NSW's RAB

We maintained our draft approach to include drought capital expenditure in Water NSW's RAB. We consider that all of Water NSW's efficient capital expenditure should be included in its RAB, so it can recover the opportunity cost of undertaking these projects, including its efficient borrowing costs.

During the 2017 determination period, the NSW Government directed Water NSW to undertake a number of drought management and water security capital projects and to fund them through borrowing. Some of these projects will continue into the 2021 determination period. We discuss drought projects further in Chapter 4.

Water NSW did not include these projects in its proposed RAB for the 2021 determination period because it expected to receive direct government funding for them. We understand this funding is yet to be received. If the NSW Government chooses to provide funding in the future, we will record this as a cash capital contribution and deduct it from Water NSW's RAB.

7.2.1 Including this expenditure will not impact customer prices

We assigned a 100% government cost share for drought projects, as discussed in Chapter 8. Therefore, we assigned all of Water NSW's drought capital costs to the government share in the RAB. Water NSW will be able to recover its costs from the NSW Government over time, including an appropriate return on assets.

Our decision to include these costs will not impact prices for customers, because additional costs are recovered through the government share. However, as the building block revenue reported in this chapter is for consolidated user and government shares, our decisions for return on assets and tax allowance are higher than what Water NSW proposed.

7.3 Water NSW's total NRR is $493.6 million

Our decision is:

16. To set the notional revenue requirement at $493.6 million over the 2021 determination period as shown in Table 7.1.

Our decision to set Water NSW's total NRR over the 2021 determination period is $493.6 million, which is $24.0 million (4.6%) lower than Water NSW's proposed revenue requirement of $517.6 million. Table 7.1 compares our decisions on NRR with Water NSW's proposal.

Table 7.1 Decision on Water NSW's total notional revenue requirement for the 2021 determination period($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Water NSW proposed					
NRR	121.9	130.3	132.7	132.7	517.6
IPART decision					
Operating expenditure	51.8	54.7	51.0	49.7	207.2
ICD rebates	1.7	1.7	1.6	1.6	6.6
Return of assets	22.2	23.5	24.4	25.0	95.0
Return on assets	23.4	25.4	26.2	26.7	101.7
Tax allowance	1.8	2.0	2.0	2.1	8.0
UOM payback	1.6	1.6	1.6	1.5	6.3
Volatility allowance	0.3	0.3	0.3	0.3	1.2
MDBA and BRC payments	15.9	17.3	17.2	17.1	67.5
NRR	118.8	126.4	124.3	124.0	493.6
Difference Water NSW proposed and decision	−3.1	−3.9	−8.4	−8.7	−24.0
Difference Water NSW proposed and decision (%)	−2.5%	−3.0%	−6.3%	−6.6%	−4.6%

Note: In this table, operating expenditure includes debt raising costs, return on assets includes return on working capital, and return of assets is a mid-year figure.
Source: IPART analysis.

7.4 Water NSW's return on assets is $99.6 million

Our decisions are:

17. To calculate the return on assets using:
    - an opening regulatory asset base of $1.2 billion for 2021–22, and the regulatory asset base for each year as shown in Table 7.2
    - Water NSW's reported historical asset disposals for the 2017 determination period as shown in Table 7.4
    - Water NSW's forecast asset disposals for the 2021 determination period as shown in Table 7.5
    - a real post-tax weighted average cost of capital of 1.8% to calculate the return on Water NSW's assets for Murray–Darling Basin valleys
    - a real post-tax weighted average cost of capital of 3.0% to calculate the return on Water NSW's assets for Coastal valleys
    - a sampling date of 31 March 2021 for market observations as outlined in Appendix C
    - a true-up for differences between the forecast and actual cost of debt over the 2021 determination period in the next Determination.

18. To set an allowance for return on assets of $99.6 million over the 2021 determination period as shown in Table 7.6.

We included an allowance for a return on assets in the revenue requirement, to account for the opportunity cost of capital invested to provide regulated services. Our approach ensures the business can continue to make efficient capital investments in the future. We calculated the return on assets by multiplying the value of the RAB over the determination period by an efficient rate of return. As in previous reviews, we determined the rate of return using an estimate of the WACC.[a]

[a] Our approach to calculating the WACC is discussed further in Appendix C. In our Draft Report, the real post-tax WACC was 1.3% to calculate the return on Water NSW's assets for MDB valleys, and 2.8% to calculate the return on Water NSW's assets for Coastal valleys.

7.4.1 Water NSW's opening RAB for the 2021 determination period is $1.2 billion

The RAB represents the value of Water NSW's assets on which it should earn a return on capital and an allowance for regulatory depreciation. Our RAB roll-forward calculations for the 2021 determination period are shown in Table 7.2.

We calculated the RAB in each year of the 2021 determination period by rolling forward the RAB to 2024–25 by:

- adding $303.8 million of prudent and efficient forecast capital expenditure to the opening RAB over the period (Chapter 4)
- deducting:
  - $0.8 million for the regulatory value of forecast asset disposals (section 7.4.2)
  - $95.0 million for regulatory depreciation (section 7.5).

Table 7.2 Decision on RAB roll-forward for Water NSW for the 2021 determination period ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25
Opening RAB	1,198.7	1,320.1	1,365.4	1,394.1
Plus: Efficient capital expenditure	144.0	69.3	53.5	37.1
Less: Regulatory depreciation	22.4	23.7	24.6	25.2
Less: Asset disposals	0.2	0.2	0.2	0.2
Closing RAB	1,320.1	1,365.4	1,394.1	1,405.8

Note: In this table, regulatory depreciation is an end-of-year figure.
Source: IPART analysis.

We used our forecast RAB to generate the return on assets and allowance for depreciation over the 2021 determination period.

We calculated the opening RAB for 2021–22 by rolling the RAB forward over the 2017 determination period. We then made the following adjustments for the relevant periods to 30 June 2021, including:

- adding prudent and efficient capital expenditure (Chapter 4)
- deducting regulatory depreciation (section 7.4.1)
- deducting the regulatory value of asset disposals (section 7.4.1)
- adding the annual indexation of the RAB.

Our calculation of the opening RAB for the 2021 determination period for Water NSW is set out in Table 7.3.

Table 7.3 RAB calculation for Water NSW for the 2017 determination period ($ millions, $ nominal)

	2017–18	2018–19	2019–20	2020–21
Opening RAB	750.9	788.0	827.2	920.8
Plus: Efficient capital expenditure	37.1	43.2	114.0	263.0
Less: Regulatory depreciation	15.8	16.9	17.5	18.5
Less: Asset disposals	0.3	0.1	0.2	0.2
Plus: Indexation	16.2	13.0	-2.7	33.7
Closing RAB	788.0	827.2	920.8	1,198.7

Note: Capital expenditure is net of external funding.
Source: IPART analysis.

7.4.2 We deducted $0.8 million in asset disposals

Asset disposals can include asset sales, write-offs and write-downs.

We maintained our draft decisions to accept Water NSW's proposed asset disposals and, consistent with IPART's asset disposal policy, deduct the receipt value of these disposals from the RAB.

We deducted asset disposals when rolling forward Water NSW's RAB. Most Water NSW asset disposals were for IT and other short-lived assets.

Under this approach, 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 an appropriate approach because the benefit customers receive comes from consuming the service, not from owning the asset. We consider that the impact of any profit or loss should lie entirely with the business (or shareholder).

Table 7.4 Decision on actual asset disposals for the 2017 determination period ($ '000s, $ nominal)

	2016–17	2017–18	2018–19	2019–20	2020–21
Water NSW proposed	85	283	117	200	202
IPART decision	85	283	117	200	202

Source: IPART analysis.

Table 7.5 Decision on forecast asset disposals for the 2021 determination period ($ '000s, $2020–21)

	2021–22	2022–23	2023–24	2024–25
Water NSW proposed	202	202	202	202
IPART decision	202	202	202	202

Source: IPART analysis.

7.4.3 We set the WACC at 1.8% for MDB valleys and 3.0% for Coastal valleys

We used 2 separate methods to calculate and apply a WACC:

- For customers in MDB valleys, we set prices using a WACC calculated using the ACCC's pricing principles as required under the WCR.
- For customers in Coastal valleys, we set prices using our standard approach to calculating the WACC.[b]

Table 7.6 shows the resulting return on assets (i.e. WACC% x RAB), based on the RAB values set out in section 7.4.1, and our decisions to apply a real post-tax WACC of 1.8% for MDB valleys and 3.0% for Coastal valleys. We increased the WACC estimates since our Draft Report to reflect changes in market parameters. Appendix C shows the parameters we used to calculate the WACC and outlines the differences between the 2 WACC methods.

Table 7.6 Decision on return on assets for the 2021 determination period ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Water NSW proposed	17.7	18.3	19.2	20.1	75.3
IPART decision	23.3	24.8	25.5	25.9	99.6
Difference	5.6	6.5	6.4	5.9	24.3
Difference %	32%	36%	33%	29%	32%

Source: IPART analysis.

7.4.4 Our approach to forecasting inflation expectations remains unchanged

Our WACC methodology involves first calculating a nominal WACC based on current and long-term market parameters measured in nominal terms. We then subtract our best estimate of inflation expectations from this nominal WACC to generate a real WACC, which we use to set prices over the determination period. All else equal, a lower estimate of inflation expectations results in a higher real WACC.

Our standard approach to estimating inflation expectations is to take the geometric mean of the Reserve Bank of Australia's (RBA) 1-year ahead inflation forecast, and the midpoint of the RBA's target range (2.5%) for each other year of the determination.

[b] We set prices in Coastal valleys under the *Independent Pricing and Regulatory Tribunal Act 1992*.

In its submission to our Draft Report, Water NSW disagreed with our approach. It suggested using a glide path approach to estimating inflation expectations.[108] This was because:

- Current inflation expectations over the 2021 determination period are significantly lower than the forecasts produced using IPART's approach.
- Other Australian regulators changed their approach to estimating inflation expectations to recognise the current low inflation environment. For example, the Essential Services Commission of South Australia, Australian Energy Regulator and Independent Competition and Regulatory Commission are using a glide path approach to the mid-point of the RBA's inflation target over a period.

We decided to maintain our current approach to estimating inflation expectations. We would need strong and compelling evidence to change how we estimate a single WACC parameter in isolation, because the financial market data underlying many elements of the WACC are interrelated. We consider it is more appropriate to consider the WACC methodology in a holistic and internally consistent way as part of our periodic WACC reviews. We intend to review our WACC method before we review these prices again in 2026.

7.4.5 An end-of-period true-up will account for annual changes in the WACC

The WACC reflects parameters that change every year. As new tranches of debt are introduced to the trailing averages, the oldest tranches drop out.

We applied a true-up of annual WACC adjustments in the 2021 Determination. In our 2018 review of the WACC methodology, we decided at each price review we would consider whether to:

- update prices annually to reflect the updates in the WACC annually, or
- use a regulatory true-up at the next period, which we would pass through to prices at the beginning of the next period.[109]

These options are equivalent in present value terms to customers and Water NSW.

In its submission to our Draft Report, Water NSW proposed to adjust the cost of debt annually because this would: [110]

- mitigate risk of large price movements between regulatory periods
- benefit customers by passing on a lower cost of debt straight away.

We decided to undertake the regulatory true-up at the next price review instead of annual adjustments. This approach provides greater certainty to water users about their prices over the determination period – that is, changes in prices would be impacted by inflation only, rather than also being impacted by annual changes in the cost of debt. Further, provided the true-up is smoothed over the next determination period, we do not expect price shocks to be any more likely in the next determination period compared with an annual update.

7.5 Water NSW's regulatory depreciation is $95.0 million

Our decisions are:

19. For the purpose of calculating Water NSW's allowance for return of assets, to:
    - calculate regulatory depreciation using a straight-line method
    - for existing assets, use the rolled forward asset lives from the 2017 determination period as listed in Table 7.8
    - for new assets, set the asset lives listed in Table 7.9.

20. To set Water NSW's allowance for return of assets at $95.0 million over the 2021 determination period as shown in Table 7.7.

We included an allowance for regulatory depreciation in the revenue requirement, to ensure the capital invested in regulatory assets is returned over the useful life of each asset. We calculated this allowance by determining the appropriate asset lives for the assets in Water NSW's RAB and the appropriate depreciation method to use.

Our return of assets allowance is higher than Water NSW's proposal because Water NSW excluded drought costs from its proposed RAB (section 7.2). Including these costs will not impact customer prices.

Table 7.7 Decision on Water NSW's allowance for return of assets for the 2021 determination period ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Water NSW proposed	21.2	22.0	23.1	24.1	90.3
IPART decision	22.2	23.5	24.4	25.0	95.0
Difference	1.0	1.5	1.3	0.9	4.7
Difference %	5%	7%	6%	4%	5%

Note: The allowance for return of assets is a mid-year figure (i.e. the RAB roll forward depreciation figure is discounted by half a year of WACC).
Source: IPART analysis.

7.5.1 We used straight-line depreciation to calculate regulatory depreciation

As set out in the ACCC's WCR pricing principles and as done for previous determinations and decisions, we used 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. We consider this method is superior to alternatives in terms of simplicity, consistency and transparency.

7.5.2 We maintained our approach for rolling forward asset lives for existing assets

We typically calculate the remaining lives of existing assets by rolling forward our previous determination to incorporate new efficient assets and accounting for asset disposals. We maintained this approach for the 2021 determination period. Table 7.8 lists the starting asset lives for the customer and government RABs.

Table 7.8 Decision on asset lives for existing assets by valley for the 2021 determination period (years)

	Customer RAB	Government RAB
Border	50	98
Gwydir	42	53
Namoi	45	56
Peel	52	83
Lachlan	47	72
Macquarie	52	58
Murray	49	52
Murrumbidgee	50	35
Lowbidgee	63	N/A
North Coast	71	110
Hunter	76	124
South Coast	48	117
Fish River	42	N/A

Source: IPART analysis.

7.5.3 We assigned asset lives for new assets based on activity

For new assets we decided to assign different asset lives based on the activity that an asset is used for. This is consistent with our approach in previous determinations.

Our decision on new asset lives remains unchanged from our draft decision. Table 7.9 lists the new asset lives by activity.

Table 7.9 Decision on new asset lives by activity for the 2021 determination period (years)

Activity	Water NSW proposed	IPART decision
Water delivery and other operations	6	6
Corrective maintenance	80	80
Routine maintenance	80	80
Asset management planning	80	80
Dam safety compliance	100	100
Environmental planning and protection	80	80
Corporate systems	6	7
Renewals and replacement	80	80

Source: Atkins, *Water NSW Expenditure Review – Final Report for IPART*, February 2021, p 102.

We weighted these asset lives by activity in accordance with our decisions on the efficient level of Water NSW'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.

We calculated Water NSW's allowance for return of assets using its proposed depreciation methodology. Water NSW's methodology calculates the average expected life of new assets for each valley as a weighted average, where the weights are the efficient capital expenditure amounts in each asset category. Water NSW (and we) used this methodology in previous determination periods.

Table 7.10 shows our decision on asset lives calculated using this method.

Table 7.10 Decision on asset lives for new assets by valley for the 2021 determination period (years)

	Customer RAB	Government RAB
Border	64	100
Gwydir	69	89
Namoi	68	68
Peel	56	99
Lachlan	75	98
Macquarie	70	68
Murray	75	73
Murrumbidgee	70	57
Lowbidgee	76	N/A
North Coast	53	39
Hunter	65	50
South Coast	57	43
Fish River	58	N/A

Source: IPART analysis.

7.5.4 We will review our approach to calculating depreciation in the future

As noted above, we calculated the depreciation allowance in the NRR using Water NSW's proposed depreciation methodology, which does not disaggregate its RAB for historical assets.

Water NSW's proposed methodology (weighted average asset life) leads to higher depreciation for long-lived assets (e.g. dams), lower depreciation for short-lived assets (e.g. corporate systems) and lower total depreciation.

In our Draft Report, we suggested Water NSW consider disaggregating the RAB for each valley into 2 or 3 categories based on their asset lives to better estimate depreciation for the next determination period.

Water NSW agreed and considers disaggregating the RAB into a short-lived and a long-lived RAB would more accurately align costs and revenues. It suggested retaining the existing RAB and separating new assets into short-lived and long-lived RABs. This approach would increase NRR by $10.9 million (from $393.4 million to $404.2 million) over the determination period.[111]

We maintained our draft decision to calculate regulatory depreciation for new assets using the weighted average life of assets by valleys, without disaggregation into short- or long-lived RABs. We prefer to maintain our approach until we review our WACC method, which would allow suitable stakeholder consultation on this matter. We generally support the approach to disaggregate the RAB and are aware it would put upward pressure on prices.

7.6 Water NSW's tax allowance is $8.0 million

Our decisions are:

21. To calculate the tax allowance using:
    - a tax rate of 30%
    - IPART's standard methodology.

22. To adopt the regulatory tax allowance as shown in Table 7.11.

We included 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 (Table 7.11). This tax allowance reflects the regulated business's forecast tax liabilities.

The tax allowance is one of the last building block items we calculate, because it depends on the NRR (excluding tax).

Table 7.11 Decision on Water NSW's tax allowance for the 2021 determination period ($ '000s, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Water NSW proposed	502	454	389	425	1,770
IPART decision	1,841	2,048	1,984	2,108	7,981
Difference	1,339	1,594	1,595	1,683	6,211
Difference %	267%	351%	410%	396%	351%

Source: IPART analysis.

We calculated 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.[c] We applied our standard methodology to set the tax allowance.

Our tax allowance is not intended to recover Water NSW's actual tax liability over the determination period. Rather, it reflects the liability that a comparable commercial business would be subject to. Including this allowance is consistent with our aim to set prices that reflect the fully efficient costs a utility would incur if it were operating in a competitive market. It is also consistent with the principle of competitive neutrality – that is, that a government business should compete with private business on an equal footing and not have a competitive advantage due to its public ownership.

7.6.1 IPART's tax allowance is higher than proposed

IPART's tax allowance is significantly higher than Water NSW's proposal due to 2 factors:

- Water NSW's decision to exclude costs related to drought projects from its RAB lowers its return on and return of assets. This reduces its net earnings and therefore reduces its tax liability.
- Debt costs are a 'tax-shield' which offsets Water NSW's tax liability. Because the WACC that we set is lower than assumed in Water NSW's proposal, its cost of debt is also lower. This reduces the amount of revenue that is offset by debt costs.

7.7 Water NSW's working capital allowance is $2.1 million

Our decision is:

23. To set the working capital allowance for the 2021 determination period as shown in Table 7.12.

[c] Under a post-tax framework, the value of franking credits (gamma) enters the regulatory decision only through the estimate of the tax liability. The value of gamma is given as a WACC parameter in section **Error! Reference source not found.**.

The working capital allowance component of the NRR represents the return the business could earn on the net amount of working capital it requires each year to meet its service obligations. It ensures the business recovers the costs it incurs due to the time delay between providing a service and receiving the money for it (i.e. when bills are paid).

In 2018, we developed a standard approach to calculate the working capital allowance, which can be found on our website.[112] We applied the standard approach to this review.

The $2.1 million we allowed for the 2021 determination period represents the holding cost of net current assets (Table 7.12). The allowance is higher than that proposed by Water NSW because Water NSW did not apply our 2018 working capital allowance approach.[d]

Table 7.12 Decision for Water NSW's working capital allowance for the 2021 determination period ($'000s, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Water NSW proposed	24	76	29	47	176
IPART decision	132	535	667	725	2,059
Difference	108	459	638	678	1,883
Difference %	451%	604%	2,200%	1,443%	1,070%

Source: IPART analysis.

[d] One of the key factors why Water NSW's proposed working capital allowance is lower than ours is because Water NSW used a lower WACC (1.7%) than us (4%) when calculating the working capital allowance.

Chapter 8

Cost shares and cost drivers

Summary of our decisions for cost shares and cost drivers

Water NSW's customer share of NRR is $350 million

We set prices to recover the customer share of NRR.

We maintained the cost shares set in our 2019 cost shares review and proposed by Water NSW

We allocate costs to whichever party creates the need for them to be incurred.

Water NSW's proposed cost drivers are consistent with our 2019 cost shares review.

We assigned cost shares for MDBA and BRC costs under our cost shares framework

Previously, MDBA and BRC costs were passed through to users, effectively bypassing our cost shares framework.

We assigned user shares to MDBA and BRC costs, effectively bringing these costs under our cost shares framework.

We use cost shares to allocate Water NSW's efficient costs between water users and the NSW Government (on behalf of other users and the broader community).[a]

We then use cost drivers to allocate the user share of Water NSW's efficient costs to water sources, defined as the combination of water type (i.e. regulated rivers, unregulated rivers and groundwater) and geographic location (i.e. valleys and areas).

This chapter sets out our decisions on Water NSW's customer share of costs, cost shares and cost drivers.

[a] That is, water entitlement holders that are subject to Water NSW's regulated prices (as determined by IPART).

8.1 We set the customer share of the NRR at $350 million

Our decision is:

24. To set the customer share of Water NSW's notional revenue requirement ($350.0 million) and target revenue from water prices ($335.6 million) as shown in Table 8.1.

Table 8.1 presents our decisions on the customer share of Water NSW's notional revenue requirement (NRR) and target revenue.

Table 8.1 Decision on customer share of Water NSW's notional revenue requirement and target revenue for the 2021 determination period ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Total
Operating expenditure	47.6	49.9	46.6	45.4	189.6
ICD rebates	1.7	1.7	1.6	1.6	6.6
Return of capital	9.0	9.7	10.4	11.0	40.1
Return on capital	8.6	9.4	10.3	10.8	39.1
Tax allowance	0.7	0.8	0.8	0.9	3.1
Volatility allowance	1.6	1.6	1.6	1.5	6.3
UOM payback	0.3	0.3	0.3	0.3	1.2
MDBA and BRC payments	15.1	16.4	16.3	16.2	63.9
Notional revenue requirement (NRR)	84.7	89.8	87.9	87.7	350.0
Target revenue	80.4	85.0	85.1	85.1	335.6
Difference NRR and target revenue	–4.3	–4.7	–2.8	–2.6	–14.4
Difference NRR and target revenue (%)	–5.0%	–5.3%	–3.2%	–3.0%	–4.1%

Note: This table represents the customer share of costs only. The remaining share of Water NSW's efficient costs is allocated to the government.
Source: IPART analysis.

Once we determined the customer share of NRR, we set prices to recover this share. However, for the 2021 determination period, the target revenue expected to be recovered from water prices is slightly lower than the customer share of the NRR. This reflects our decision to set prices below the full cost recovery level for the North Coast and South Coast valleys (Chapter 11).

We set a target revenue that smooths customers' bills and prices over the 2021 determination period. That is, target revenue is smoothed over the four years of the determination to provide a stable price path.

8.2 We maintained the cost shares from our 2019 cost shares review

Our decision is:

> 25. To maintain the cost shares set out in our 2019 cost shares review. These are based on the impactor pays principle and align with Water NSW's proposal.

When we reviewed Water NSW's rural bulk water services in 2017, we committed to comprehensively reviewing our cost shares framework before the next determination.

Our 2019 Final Report into rural water cost shares outlined decisions to:

- continue allocating the efficient costs of rural bulk water services between water customers and the NSW Government on the basis of the impactor pays principle. That is, those that create the need to incur the costs should pay the costs
- continue to allocate forward-looking legacy costs to the NSW Government
- maintain an activity-based cost sharing framework – in part because the benefits of moving to a service-based framework were unlikely to exceed the costs
- update several cost share ratios under the activity-based framework.[113]

Water NSW's proposed cost shares are consistent with our 2019 Final Report, and are shown in Table 8.2.

Table 8.2 Water NSW's customer shares for operating and capital expenditure

Activity	Category of expenditure	2016–17 price review (%)	2018–19 cost share review (%)
Customer support	Operating	100	100
Customer billing	Operating	100	100
Metering and compliance	Operating and capital	100	100
Water delivery and other operations	Operating and capital	100	95
Flood operations	Operating and capital	50	80
Hydrometric monitoring	Operating and capital	90	90
Water quality monitoring	Operating and capital	50	80
Direct insurances	Operating and capital	100	100
Corrective maintenance	Operating and capital	100	95
Routine maintenance	Operating and capital	100	95
Asset management planning	Operating and capital	100	95
Dam safety compliance	Operating and capital	50	80
Dam safety compliance pre-1997	Capital	0	0
Environmental planning and protection	Operating and capital	50	80
Corporate systems	Operating and capital	100	80
ICD rebates	Operating and capital	100	100
Renewals and replacement	Operating and capital	90	95
Risk transfer product	Operating	100	100

Source: Aither, *Rural water cost sharing review Final Report*, January 2019, pp 85-98; IPART, *Rural water cost share Final Report*, February 2019, p 51.

Responses to our Draft Report raised concerns with some cost share ratios that changed as part of our 2019 review, including:

- water quality and monitoring (increase from 50% to 80% user share)
- environmental planning and protection (increase from 50% to 80% user share)
- dam safety and compliance (increase from 50% to 80% user share)
- flood operations (increase from 50% to 80% user share).

Stakeholder submissions considered that certain cost share ratios should change and that:

- certain users or beneficiaries should pay a greater share of the costs associated with certain activities[114]
- valley specific issues, such as the reasons why specific dams were built, should be arguments to amend the broader cost shares framework[115]
- the timing of certain expenditure should be different, such as for fishways, which were meant to be constructed in previous determination periods when the user share of the costs would have been lower.[116]

We considered all arguments, but maintained our draft decision to keep the cost share ratios from our 2019 review in all instances.

The 2019 review was comprehensive and considered most of the issues raised by stakeholders in considerable detail. At an aggregate level, our 2019 cost shares review saw the customer share of Water NSW's efficient costs rise from 83% to 84%, with some variation between cost allocation categories.[117]

We also considered stakeholder submissions regarding the timing of expenditure as it relates to changes in cost share ratios. We consider the cost shares in our 2019 review are appropriate, regardless of when the expenditure occurs. We considered the arguments put forward for valley specific cost shares, but we prefer to maintain the same cost shares for all Water NSW customers.

8.2.1 We allocated costs to whichever party creates the need to incur the cost

We typically allocate costs using the 'impactor pays principle'. That is, we allocate costs to the party who created the need for Water NSW to incur an activity (and its associated costs) (Box 8.1).

Box 8.1 Who pays is based on who creates the need to incur the cost

We use the following funding hierarchy to determine who should pay Water NSW's efficient costs:

1. Preferably, the party that creates the need to incur the cost should pay in the first instance.
2. If that is not possible, the party that benefits should pay.
3. When it is not feasible to charge the above parties (e.g. because of social welfare policy, public goods, externalities, or an administrative or legislative impracticality of charging), the NSW Government (taxpayers) should pay.

Source: IPART, *Rural Water Cost Shares – Final Report*, February 2019, p 23.

Responses to our Draft Report raised concerns with our approach and suggested alternative approaches, such as a beneficiary or user pays approach to allocating costs.[118]

We acknowledge these stakeholders' concerns. However, we decided to continue allocating Water NSW's efficient costs to those parties who create the need for it to incur the costs. It is a practical and transparent method for allocating Water NSW's efficient costs between water users and the NSW Government (on behalf of other users and the broader community). It is also an efficient approach, because water users face the costs of Water NSW managing water resources and delivery in response to their high consumptive use.

The NSW Irrigators' Council stated that, while water extracted by water users represented only a small proportion of total water usage, our method allocated most of Water NSW's costs to them. It suggested we develop new cost shares to account for the relative proportion of total water extracted by water users compared with other users.[119]

This proposed approach focuses on allocating costs to the parties who benefit from the water management system, for example those that have higher priority for water allocations. We consider it is more cost reflective (and therefore more equitable) to allocate costs to those who create the need to incur them, as occurs under our existing method.

Most of Water NSW's activities are required because water consumption by users is high.[120] Therefore, the majority of costs should be allocated to water users, as reflected in our cost shares framework.

8.2.2 We considered the appropriate cost shares for MDBA and BRC costs

In our 2017 review of Water NSW rural bulk water services, we accepted Water NSW's proposed pass-through of MDBA and BRC charges to customers in the Murray and Murrumbidgee valleys, and Border valley, respectively. In effect, this meant these charges were set and considered outside our cost shares framework.

We asked our cost consultants, Atkins, to consider and recommend an approach to apportioning MDBA and BRC costs within our cost shares framework.[121] Its approach assigns cost allocations to activity codes, then for MDBA charges, splits costs between valleys based on the historical average.

We considered Atkins' approach robust, and passed through MDBA and BRC costs based on this revised methodology. We allocated MDBA costs to 3 user share activity codes:

- water delivery and operations (95% user share)
- hydrometric monitoring (90% user share)
- routine maintenance (95% user share).

Based on the efficient costs recommended in the Atkins report, Murray and Murrumbidgee customers face a weighted average user share for MDBA charges of 94.6%.

We allocated BRC costs to 4 user share activity codes:

- water delivery and operations (95% user share)
- routine maintenance (95% user share)
- asset management planning (95% user share)
- corrective maintenance (95% user share).

8.2.3 Some stakeholders suggested accounting for climate change

The NSW Irrigators' Council suggested reconsidering our cost shares framework to better accommodate the impacts of climate change:

> NSWIC considers that the largest 'impactor' on waterways is climate change, and many of the services and new infrastructure is a result of preparing towns and river systems to be resilient to a drying climate. Compared to previous determinations, the impacts of climate change on waterways is more clearly evidenced, experienced and thus broadly accepted. It would be almost impossible, however, to develop a funding model based around this 'impactor' (unless from general revenue), and thus a reconsideration of the impactor-pays principle is required.[122]

We consider there is adequate flexibility within our current cost shares framework to consider and account for the impacts of climate change (Box 8.2).

Box 8.2 Climate change under our cost shares framework

Our counterfactual starting point, which anchors our cost shares framework, is a world without high consumptive use of water resources. That is, a world without the need for WAMC to manage NSW water resources and Water NSW to provide rural bulk water services.

We can apply our framework to this question as follows:

- If costs associated with climate change would still need to be incurred in the absence of high consumptive use, then water users would not be the impactor of these costs.
- Alternatively, if costs need to be incurred to secure water use and entitlements for water users beyond our counterfactual starting point, then water users can be considered the impactors.

There is merit in applying a principles-based approach to considering who should pay, based on our cost shares framework. We consider that costs associated with climate change would not be incurred in the absence of high consumptive use. Therefore, water users are the impactors.

In response to our Draft Report, several stakeholders stated that in drought, water users did not receive any extractive water. However, WAMC still incurs water management costs and Water NSW still incurs costs of providing rural bulk water services over time. Stakeholders considered that water users were not the impactors, and that climate change (e.g. extreme weather/drought) was instead driving these costs.[123]

Even in the absence of extractive water due to drought, there is still a need for:

- WAMC to plan and manage the water resource to ensure its long-term sustainability and protect individual water entitlements
- Water NSW to maintain its assets that collect, store and deliver bulk water in to rural water customers in NSW and ensure its services remain sustainable, reliable and efficient into the future.

Therefore, WAMC's and Water NSW's costs are largely fixed, independent of water delivered (at least in the short- to medium-term) and predominantly driven by water users.

Source: IPART, *Rural Water Cost* Shares – Final Report, February 2019, pp 24, 45.

We asked Cardno, our consultant on the Water Administration Ministerial Corporation (WAMC) review, to consider whether there were sufficient grounds to adjust user shares for climate change costs. It found the impact of climate change on Water NSW's costs could be seen in only a handful of areas and these costs were very small compared with the overall costs for Water NSW's services. Further, if climate change was an impactor, its impact was substantially smaller than the impacts of high consumptive water use.[124]

We decided to maintain our approach and current cost share ratios:

- Costs related to climate change are unlikely to occur in the absence of high consumptive use of water resources. Therefore, we consider water users are primarily driving these costs.
- Our approach is consistent with our cost shares for changing environmental standards. That is, although these costs are related to external events, they are fundamentally driven by (and would not be incurred in the absence of) high consumptive use of water resources.
- Water users should face efficient price signals, which include costs associated with climate change, to encourage efficient decisions going forward.[b]

We remain open to considering this issue going forward. If there is evidence that costs (including costs associated with climate change) would be incurred in the absence of high consumptive water use, we would factor this into our cost shares framework when setting user and government cost share ratios in future determination periods.

8.2.4 Stakeholders raised concerns with the cost shares applied to fishways

In response to our Issues Paper and Draft Report, some stakeholders questioned the user share applied to the regulatory requirement for Water NSW to construct and operate fish ladders at some dam sites.

Their key concern was our recommendation to increase the user share for environmental planning and protection activities from 50% to 80%, which applies to expenditure for fish ladders.

For previous Water NSW determinations, we deferred expenditure for fish ladder construction because it was not supported by robust business cases and construction was unlikely to occur during the determination period. Our subsequent change to the user share for expenditure on fish ladders has ultimately increased the costs borne by users.

We acknowledge stakeholder views about changing this cost share and our decision to defer expenditure. However, we consider an 80% share is appropriate and should apply to the expenditure for fish ladders regardless of when the projects were committed to under legislation.

[b] The Productivity Commission noted irrigators would likely need to contend with more frequent and severe droughts due to climate change, and so would need to adapt to a world with less water (Productivity Commission, *National Water Reform*, Draft Report, February 2021, p 159).

Chapter 9

Water entitlement and usage forecasts

Summary of our decisions for water entitlement and usage forecasts

We accepted water entitlement and usage forecasts proposed by Water NSW

For regulated rivers, we accepted:

- Water NSW's proposal to maintain water entitlement numbers constant at 2019–20 levels
- Water NSW's proposed water sales forecasts in all valleys.

For the Fish River Water Supply Scheme (FRWS), we accepted:

- Water NSW's proposal to keep Minimum Annual Quantities (MAQs) constant at 2019–20 levels
- Water NSW's proposed water usage forecasts in the FRWS.

This chapter sets out the water entitlement and usage forecasts we used to calculate maximum prices.

After we establish the customer share of efficient costs in each water source, and decide what proportions of these costs to recover through fixed and variable charges, we use entitlement and usage forecasts to calculate maximum prices.

It is important that forecasts are as accurate as possible so that prices can best reflect efficient costs and that regulated utilities can recover their efficient costs.

9.1 We accepted Water NSW's proposal for regulated rivers

Our decision is:

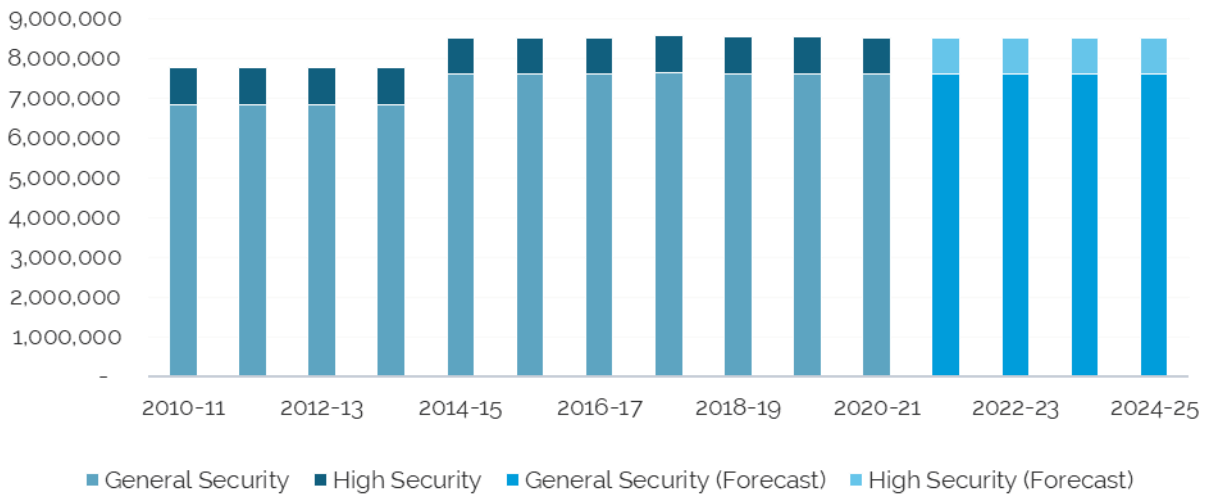
26. To accept Water NSW's proposed water entitlements and usage forecasts for regulated rivers as shown in Table 9.1 and Table 9.2.

9.1.1 Water entitlement forecasts remain fairly constant over time

We set entitlement charges by dividing the revenue requirement from fixed charges in each valley by the number of general and high security entitlements in that valley.[a]

Water entitlements represent the maximum share of the available water a licence holder can access from a water source. The number of water entitlements in each water source is capped by legislation and entitlements can be created or rescinded only in limited circumstances. Therefore, entitlement numbers tend to remain broadly constant over time (Figure 9.1).

Figure 9.1 Historical and forecast water entitlement numbers (all valleys)



Note: Excludes Lowbidgee supplementary entitlements which are treated as general security for pricing purposes.
Data source: Water NSW *pricing proposal to IPART*, July 2020, Table 52, p 119; and IPART final pricing models for 2010 and 2017 Determinations.

We maintained our draft decision to accept Water NSW's proposed entitlement numbers, which forecast entitlement numbers to remain constant at 2019–20 levels for the next 4 years (Table 9.1).

We did not receive any submissions in response to our Draft Report about our approach to forecasting water entitlement numbers.[125]

[a] There are some complexities in this calculation, for example the premium paid by high security users as discussed in Chapter 10.

Table 9.1 Decision on entitlement forecasts for the 2021 determination period (ML)

Water source	High security	General security
Border	3,141	263,218[a]
Gwydir	26,920	509,665
Namoi	8,866	256,529
Peel	17,367	29,635
Lachlan	57,252	633,166
Macquarie	42,691	632,466
Murray	263,575	2,083,603
Murrumbidgee	436,178	2,267,963
Lowbidgee	0	747,000[b]
North Coast	137	9,531
Hunter	70,702	138,109
South Coast	1,175	13,946
Total	**928,004**	**7,584,831**

a. Includes general security A and general security B entitlements in the Border valley.
b. Supplementary entitlements in the Lowbidgee valley are treated as general security for pricing purposes.

Source: Water NSW *pricing proposal to IPART*, July 2020, Table 52, p 119.

9.1.2 Water usage forecasts (excluding FRWS) incorporate new data

Water NSW proposed water usage forecasts based on a 20-year rolling average of historical water sales for most water valleys (2000–01 to 2019–20). It used a shorter 15-year period for North Coast and South Coast water sources due to limited data. This approach is consistent with the 2017 price review.[126]

Water NSW's forecasts are listed in Table 9.2. We maintained our draft decision to accept Water NSW's proposed forecasts for water sales. However, we updated these forecasts because water sales data for 2019–20 is now available.[127] That is, we used the average from 2000–01 to 2019–20, rather than the average from 1999-2000 to 2018–19 presented in our Draft Report.

Table 9.2 Decision on Water NSW's water sales forecasts for the 2021 determination period (ML)

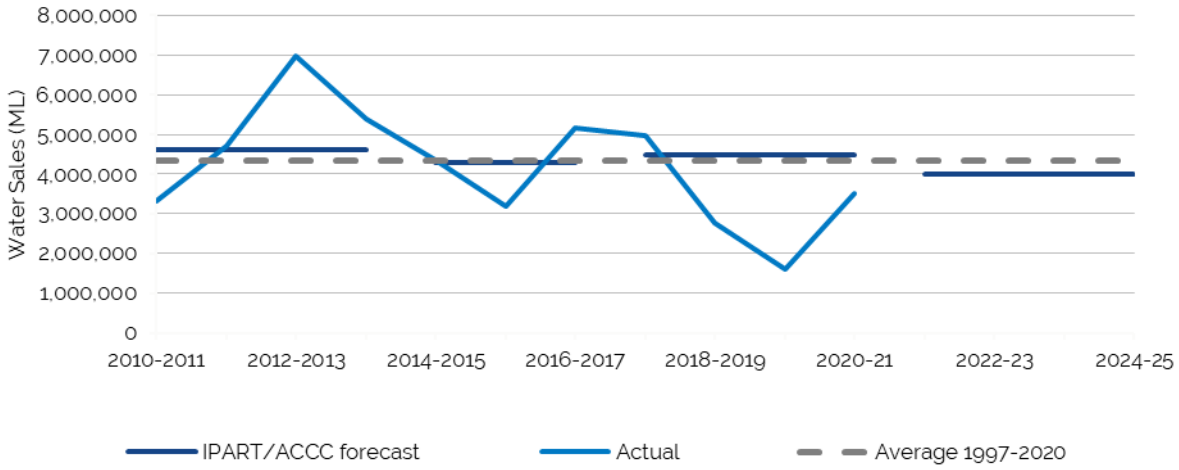
	2021–22	2022–23	2023–24	2024–25
Border	139,453	139,453	139,453	139,453
Gwydir	220,489	220,489	220,489	220,489
Namoi	138,241	138,241	138,241	138,241
Peel	12,625	12,625	12,625	12,625
Lachlan	182,100	182,100	182,100	182,100
Macquarie	232,545	232,545	232,545	232,545
Murray	1,379,454	1,379,454	1,379,454	1,379,454
Murrumbidgee	1,531,632	1,531,632	1,531,632	1,531,632
Lowbidgee	31,964	31,964	31,964	31,964
North Coast	676	676	676	676
Hunter	123,631	123,631	123,631	123,631
South Coast	4,165	4,165	4,165	4,165
Total	3,996,975	3,996,975	3,996,975	3,996,975

Note: Forecasts include supplementary water sales.
Source: Water NSW *submission to IPART draft report on rural water prices*, April 2021, Table 21, p 82.

The high degree of variability in Water NSW's water sales makes it difficult to produce accurate forecasts (Figure 9.2). Unpredictable factors such as rainfall and broadacre crop prices drive water availability and demand. Despite this uncertainty,

We consider that the 20-year rolling average will reasonably approximate actual average water sales over the long-term. Further, the moving average will balance, over the long-term, any revenue over- or under-recovery resulting from short-term variations away from our forecast. Box 9.1 discusses our reasons for using a moving average forecast. In its submission to our Draft Report, Water NSW supported using the 20-year rolling average approach to demand forecasting.

Figure 9.2 20-year rolling average forecasts and actual water sales (excluding FRWS)



Note: 2020–21 water sales are year-to-date values for 1 July 2020 to 17 May 2021 accessed from DPIE's Water usage dashboard website, sales are included for indicative purposes only and were not used in preparing our water sales forecasts.
Data source: IPART, *Review of bulk water charges for State Water Corporation from 1 July 2010 to 30 June 2014 – Final Report*, June 2010, p 119; ACCC, *ACCC Tariff Model for State Water Final Decision 2014–15 to 2016–17*, July 2014; IPART, *Water NSW – Review of prices for rural bulk water services from 1 July 2017 to 30 June 2021 – Final Report*, June 2017, p 101; and IPART analysis.

Box 9.1 Why we used a moving average to forecast water sales

We want water sales forecasts to be as accurate as possible, so the revenue Water NSW receives from prices reflects the utility's efficient costs as closely as possible.

When IPART sets prices for urban utilities like Sydney Water, we use forecasts of water sales based on predictable underlying trends like population growth and water use patterns. Forecasts for Sydney Water try to predict actual sales in each year of the determination period. This explicit forecasting approach is possible because Sydney Water's sales tend to be fairly consistent regardless of rainfall and there is a clear upwards trend in water usage over time.

However, for Water NSW rural and WAMC it is not realistic to make a forecast that matches demand explicitly. This is because water sales are largely determined by rainfall which is too difficult to predict over a 4-year period. Instead we set a forecast which tries to match average demand **over the long-term**.

In the absence of better information, we assume average water sales in the past are a good predictor of water sales in the future and simply set the demand forecast as the average of water sales over the previous 20 years. The forecast is adjusted at the start of each determination by moving the 20-year average forward 4 years to incorporate new data.

The benefit of this approach is that any 'forecast error' (i.e. difference between forecast and actual) will be factored into future forecasts as the averaging period rolls forward to include the new actual usage data. Over time, over-forecasts will be offset by under-forecasts and prices will be cost reflective on average. If Water NSW has one or more determination periods of below forecast water sales, the new water sales data will pull the 20-year moving average below the long-term average when we re-forecast, and vice versa. This means that when sales trend back to the long-term average, the utility will balance over- and under-forecasts more quickly.

Water NSW considered the 20-year moving average has a systemic bias

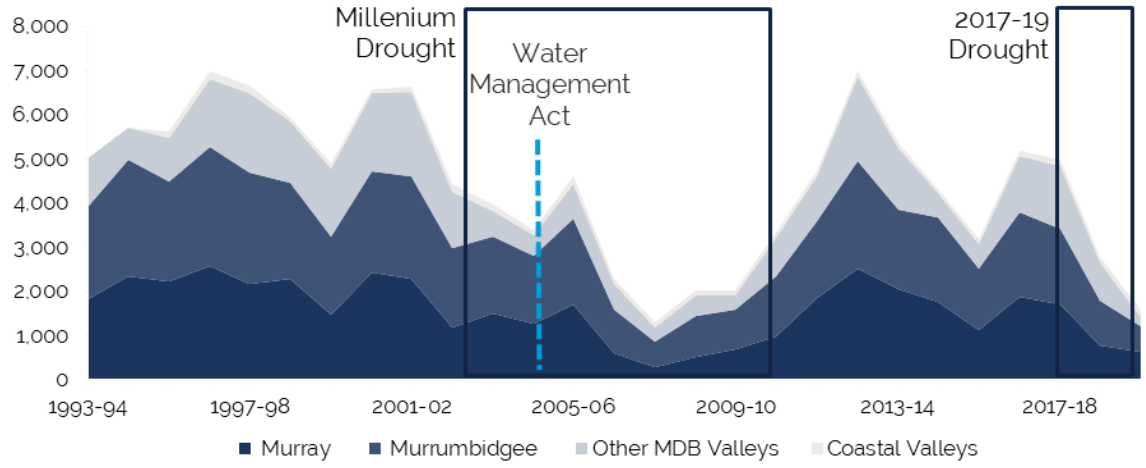
The moving average forecast approach assumes the long-term average of water sales remains constant over time. If there is a systemic downward trend in water sales, then the 20-year moving average will over-estimate water sales because of the impact of older data points.

In the context of setting the revenue volatility allowance, Water NSW argued the 20-year rolling average has a systematic bias. In particular, as it includes years before reforms associated with the *Water Management Act 2000* were implemented, such as the development of new water sharing plans and the recovery of water for the environment.[128] Water NSW argued that all else being equal, these regulatory changes have led to lower water sales now than would have happened during the 1990s and early 2000s, given the same rainfall and water storage levels.

Water NSW presented a similar argument during our 2018–19 annual review of its charges. It suggested that we recalculate the 20-year rolling average on an annual basis in order to reduce the impact of years prior to the introduction of the *Water Management Act 2000*.[129] At the time, we did not consider there was sufficient evidence that the water reforms led to structural change in water usage.[130]

We maintain that there is not currently evidence of a step change in water sales associated with implementing the water reforms. We currently have to draw conclusions on limited water sales data from 1993 to 2020 (Figure 9.3). This time series includes 2 severe drought events, the first of which coincided with the introduction water reforms during the early 2000s. Regardless of the water governance arrangements in place, these droughts would have significantly reduced water sales and we could not see a reliable way to separate the impact of water reform and drought over this period.

Figure 9.3 Impacts of drought on water sales between 1993 and 2020



Data Source: Water NSW; and IPART analysis.

By not adjusting our demand forecast, we are not making a judgement on whether water reform has affected long-term water sales, or whether other factors such as climate change are causing trends in water sales over the long-term. Rather, we consider Water NSW has not presented a demand forecasting approach that can accurately account for these factors over the next 4 years.

9.1.3 We encourage Water NSW to continue improving its forecast

We acknowledge the 20-year moving average forecast may have deficiencies, including its underlying assumption that long-term average sales is an unbiased estimate of future water sales. We encourage Water NSW to continue reviewing its forecasting approach in future pricing submissions to address these potential shortcomings.

In preparing our Draft Report we examined the key drivers of historical water usage and alternative forecasting methods.[131] We considered available information that could influence water demand and supply, as well as constraints on demand and supply. This included data on entitlements, allocation, licence categories, geographic location and environment (including dam levels, rainfall and temperature).

While this analysis improved our understanding of key drivers, our results were inconclusive. This is likely due to data limitations and potential complexities in the relationships between variables that we may have omitted.

We consider that Water NSW has expertise and access to data to further investigate the key drivers of water usage (including impacts from climate change) to inform future pricing proposals.

9.1.4 Water sales forecasts include supplementary licence volumes

Supplementary water licences allow holders to access water from a river during ministerially declared supplementary take events. These events are typically when the amount of water available in the river exceeds all environmental and consumptive needs (e.g. when dams are overtopping and additional inflows cannot be stored). Supplementary licences are issued in most valleys.

We maintained our approach that supplementary licence holders should not be required to pay entitlement charges (except in the Lowbidgee valley). As a result, we did not include these licences, expect for the Lowbidgee valley, in our entitlement numbers.

However, supplementary licence holders must account for the amount of water they take under a supplementary licence like other licence types, because they often use the same works as other users. For this reason, we included these volumes when calculating water sales forecasts.

9.2 We set MAQs and usage forecasts for FRWS

The FRWS delivers raw water to 3 major customers and 83 individual customers. Major customers are:

- EnergyAustralia
  - Wallerawang Power Station (now closed)
  - Mt Piper Power Station
- Water NSW for its bulk water supply services in Greater Sydney
- Oberon Council.

The FRWS also delivers treated (filtered) water to Lithgow City Council and 216 individual customers.

Our decision is:

27. To set the Minimum Annual Quantities and usage forecasts for the Fish River Water Supply Scheme as shown in Table 9.3 and Table 9.4.

9.2.1 We amended FRWS MAQs for Lithgow City Council

Access to water in the FRWS is regulated through a 'Minimum Annual Quantity' (MAQ) for each major customer, and (collectively) for minor customers, as users in the scheme do not hold statutory water access entitlements (see Box 9.2).[b]

Access (fixed) charges are set with reference to each major customer's MAQ. For each minor customer, these charges are set with reference to a deemed MAQ of 200 kL.

We made one minor change in the MAQ forecasts from our Draft Report. We reduced Lithgow City Council's (LCC) MAQ for filtered water by 100 ML and increased its raw water MAQ to 100 ML. Table 9.3 sets out the MAQ for each customer.

In its submission to our Draft Report, LCC stated it planned to on-sell raw water to an industrial customer at the former Wallerawang Power Station site and requested that we reallocate some of its MAQ to raw water.[132] LCC currently receives only filtered water from the FRWS, so we did not explicitly set a raw water MAQ for LCC in our 2017 Determination.

Because its raw water MAQ is effectively zero, any raw water that Water NSW supplies to LCC would be considered 'usage above the MAQ' and levied a higher usage charge, as discussed below. To address this issue LCC proposed IPART set it an explicit raw water MAQ and offset this increase by reducing its filtered water MAQ.

We consider this proposal is reasonable because it reflects the actual service that LCC requires. It will slightly decrease fixed charges for raw water customers and slightly increase fixed charges for filtered customers. However, because LCC is the main filtered customer in the FRWS, these bill impacts will be partially offset.

[b] Importantly, unlike entitlement holders in other valleys, customers in the FRWS can use water in excess of their MAQ, but must pay a higher usage charge for water consumption in excess of their MAQ.

Table 9.3 Decision on Water NSW's MAQs for the FRWS for the 2021 determination period (ML)

	2021–22	2022–23	2023–24	2024–25
Raw water				
EnergyAustralia	8,184	8,184	8,184	8,184
Water NSW (Greater Sydney)	3,650	3,650	3,650	3,650
Oberon Council	1,064	1,064	1,064	1,064
Lithgow Council	100	100	100	100
Individual minor customers	0.2	0.2	0.2	0.2
Filtered water				
Lithgow Council	1,678	1,678	1,678	1,678
Individual minor customers	0.2	0.2	0.2	0.2

Note: Each individual minor customer has a MAQ of 200 kL. The combined MAQs of all unfiltered minor customers is 17 ML and 46 ML for filtered minor customers.
Source: Water NSW *pricing proposal to IPART*, July 2020, Table 53, p 119.

Box 9.2 Licensing framework for the Fish River Water Supply Scheme

Water NSW manages the FRWS under an unusual licensing framework, which we reflect in our price structures.

Water NSW holds a special Water Management Licence,[a] which entitles it to extract water from the Fish River to supply to end use customers. The minimum amounts Water NSW must be able to provide to each customer (or customer group in the case of minor customers) are listed in Schedule 3 of this licence.[b] End use customers do not hold water licences themselves.

We refer to the volumes listed in Schedule 3 as Minimum Annual Quantities (MAQs) as they reflect the minimum amount of water that Water NSW needs to make available to each customer.

Customers can access additional water if it is available. However, when a customer's usage exceeds its MAQ, we set a higher usage charge equal to the usage charge plus the fixed MAQ charge. This charge reflects the additional capacity Water NSW needs to make available in the system to meet demand above their MAQ.

We consider the MAQs reflect the relative contribution of each customer to the capacity requirements of the scheme. As system capacity is the driver of Water NSW fixed costs, we consider the MAQs are an efficient way of allocating fixed costs between customers.

a. This Water Management Licence is issued under the *Water Act 1912*. This is unusual because most Water Access Licences, including those used by Water NSW for supplying to urban utilities, are issued under the *Water Management Act 2000* (WMA). The benefit of this arrangement is Water NSW can supply more water than a customer is 'entitled' to, which it is not permitted to under the WMA.
b. Water NSW's licence includes provisions to reduce the minimum volumes it needs to make available during drought periods.

9.2.2 We made minor adjustments to FRWS usage forecasts

Like for other rural valleys, our water sales forecasts for the FRWS are based on a historical average (Table 9.4).

We made some minor changes in our water usage forecasts for the FRWS since the Draft Report:

- We updated our 20-year average forecasts for most customers to incorporate water sales data for 2019–20 which was not available for our Draft Report.
- We added a raw water forecast of 100 ML to account for LCC's new raw water MAQ as discussed in section 9.2.1. We did not adjust LCC's forecast filtered water usage to account for its reduced MAQ, as it has historically used significantly less than its MAQ.

Table 9.4 Decision on Water NSW's usage forecasts for the FRWS for the 2021 determination period (ML)

	2021–22	2022–23	2023–24	2024–25
Raw water				
EnergyAustralia	1,850	1,850	1,850	1,850
Water NSW (Greater Sydney)	2,142	2,142	2,142	2,142
Oberon Council	681	681	681	681
Lithgow Council	100	100	100	100
Minor customers	51	51	51	51
Total raw water	**4,824**	**4,824**	**4,824**	**4,824**
Filtered water				
Lithgow Council	826	826	826	826
Minor customers	103	103	103	103
Total filtered water	**929**	**929**	**929**	**929**

Note: We forecast water usage for minor customers collectively.
Source: Water NSW *submission to IPART Draft Report on rural water prices*, April 2021, Table 212, p 82; and IPART analysis.

Chapter 10

Bulk water, Fish River Water Supply Scheme, MDBA and BRC charges

10

Summary of our decisions for Water NSW's bulk water, FRWS, MDBA and BRC charges

Bulk water charges increase by an average of about 30%

We maintained valley-based, 2-part price structures and current fixed-to-variable ratios for MDB valleys and Coastal valleys.

Prices in the North Coast and South Coast valleys increase by inflation only.

Price increases are mainly driven by higher efficient costs to support sustainable ongoing service delivery and regulatory functions.

Most FRWS charges increase by up to 36%

Generally, we maintained our current approach to setting prices for FRWS.

We decided to hold prices constant in real terms for Oberon Council.

Impacts on MDBA and BRC charges are mixed

We maintained separate MDBA and BRC charges and 2-part price structures, with an 80:20 fixed-to-variable ratio.

High security entitlement charges tend to increase while general security entitlement charges are decreasing as a result of the high security premium.

We exempted Aboriginal Cultural Licences

We exempted Aboriginal Cultural Licences from Water NSW rural water charges for the 2021 determination period, while the NSW Government considers how to manage these licences in the future as part of the upcoming Aboriginal Water Strategy.

These licences make up a very small proportion of total licences and exempting them has an immaterial impact on prices and revenue.

This chapter sets out our decisions and reasoning for Water NSW's bulk water, FRWS, MDBA and BRC charges for the 2021 Determination. Additional valley-specific information on our pricing decisions and drivers of price changes is available on our website.

To make our decisions, we first considered the appropriate price structure for each charge. We then used our decisions on the NRR, customer numbers and water sales, MDBA and BRC costs, and the volatility allowance (discussed in previous chapters) to set prices to fully recover the customers' share of the NRR (except for the North Coast and South Coast valleys). In doing so, we considered our pricing principles,[133] Water NSW's pricing proposal and stakeholder feedback in response to our Issues Paper and Draft Report.

10.1 Water NSW's bulk water charges increase by 30% on average

Water NSW currently levies a valley-based, 2-part price for most valleys[a], comprised of:

- fixed (entitlement) charges per megalitre (ML) of entitlement, with different charges for:
  - high security (HS) entitlements
  - general security (GS) entitlements[b]
- a variable (usage) charge per ML of usage.

Our decisions are:

28. To maintain the valley-based approach of setting Water NSW's rural bulk water service charges for each of the 12 valleys and for the Fish River Water Supply Scheme.

29. To maintain the current 2-part price structure and fixed-to-variable ratios for Water NSW's rural bulk water service charges for each of the Murray–Darling Basin and Coastal valleys (i.e. excluding Fish River Supply Scheme) as shown in Table 10.1.

30. To:
    - maintain the existing approach to calculating the high security premium
    - maintain the current security factors but update the reliability ratios in the high security premium
    - use the high security premiums as shown in Table 10.1 to calculate entitlement charges.

31. To maintain the current fixed-to-variable ratios and level of prices for setting prices for the North Coast and South Coast valleys, adjusted by inflation.

32. To set Water NSW's rural bulk water prices for Murray–Darling Basin and Coastal valleys for the 2021 determination period as shown in Table 10.2 for entitlement charges and Table 10.3 for usage charges.

[a] The Lowbidgee valley has only supplementary licences that are charged fixed entitlement charges only.
[b] The relationship between HS and GS entitlement charges is driven by the HS premium.

10.1.1 We set prices in MDB valleys based on full cost recovery

We consider that Water NSW's prices should recover sufficient revenue to cover the efficient costs of delivering its monopoly services. This transparently signals to customers the cost of providing the service, which promotes efficient resource allocation. It also allows the utility to fully recover its costs.

In addition, we set prices for MDB valleys under the WCR, which requires us to set prices that are likely to raise revenue that meets Water NSW's efficient costs (net of grants and subsidies) in the determination period.[134] We must therefore set prices that fully recover Water NSW's costs for MDB valleys.

In response to our Issues Paper and Draft Report, most stakeholders did not oppose full cost recovery, but questioned the proposed increase in costs and prices, and raised concerns about bill impacts associated with full cost recovery.[135] The Public Interest Advocacy Centre (PIAC) supported full cost recovery and argued systemic under-recovery of efficient costs undermines sustainable water business management, and compromises economic, social and environmental outcomes.[136]

By contrast, we set prices for Coastal valleys under the IPART Act, which provides more discretion when setting prices. We maintained our 2017 approach to set prices in both the North Coast and South Coast well below what is required to recover Water NSW's costs. This is because there are too few customers in these valleys to recover Water NSW's costs, without far exceeding their ability to pay (section 10.1.2).

10.1.2 We accepted the proposed price structures for bulk water charges

Water NSW proposed to broadly maintain existing price structures, including to maintain:

- valley-based prices
- the 2-part price structure – (i.e. a fixed charge and a variable charge) with prices being set to achieve a fixed-to-variable revenue split of 40:60 for most valleys
- allocation of NRR to HS and GS customers using the HS premium
- the current approach for setting prices in the North Coast and South Coast valleys.[137]

We consider that valley-based pricing remains appropriate

As outlined in our Draft Report, valley-based pricing sets prices in each valley to match the share of efficient costs required to serve customers, and to fully recover Water NSW's costs in each valley.[c,138]

[c] Except the North Coast and South Coast valleys.

Some submissions proposed postage stamp pricing[d] instead of valley-based pricing (Tamworth Regional Council's (TRC) submission to our Issues Paper and P. Gill's submission to our Draft Report).[139] K. Anderson MP and P. Gill also argued that downstream customers should contribute to recovering the costs of rural bulk water in the Peel valley.[140,141]

We set maximum prices for each valley to reflect customers' share of the efficient costs of providing bulk water services in that valley. This approach ensures customers face the efficient costs of the services they receive, which promotes efficient water consumption decisions, and the efficient use and allocation of resources.[142]

Despite potentially being less complex to administer, we do not consider postage stamp pricing for rural bulk water services to be appropriate. This is because the relevant assets and costs for these valleys are generally location-specific, but postage stamp pricing would not signal to customers the cost of servicing their locations. It would result in cross-subsidisation between valleys, with some valleys paying prices that would be higher or lower than the efficient costs of providing services to them. Postage stamp pricing is also not consistent with the National Water Initiative (NWI) Pricing Principles.[143]

We note that WAMC's groundwater charges are not valley-based. This is because currently available information on costs incurred by WAMC for groundwater management services does not support allocation of costs by asset or valley. However, Water NSW's costs are valley and asset specific and available cost information allows us to allocate costs and set prices by valley.

We consider that valley-based pricing remains appropriate because it:

- achieves a reasonable level of valley-based pricing, despite some inherent uncertainty about the cost allocation process
- reflects that those who create the need for Water NSW to incur costs in the relevant valley should pay for them
- is cost-reflective, as the costs recovered reflect the cost of Water NSW delivering the service in the relevant valley (i.e. they are attributed to the relevant valley), resulting in stronger price signals to customers
- enhances transparency and accountability
- is easy to understand and administer.

We retained the 40:60 fixed-to-variable ratio for most valleys

We maintained the current 2-part price structure and fixed-to-variable ratios for Water NSW's rural bulk water service charges (as proposed by Water NSW[144]) for each of the MDB and Coastal valleys as set out in Table 10.1 (excluding Fish River, see section 10.2).

[d] Postage stamp pricing refers to setting prices so that all valleys pay the same prices.

Table 10.1 Decision on fixed-to-variable ratios and high security (HS) premiums for the 2021 determination period

	Fixed-to-variable ratio		HS premium[b]	
Valley	2017 Determination	Decision for 2021 Determination	2017 Determination	Decision for 2021 Determination
MDB valleys				
Border	40:60 (with VA)	40:60 (with VA)	2.69	2.73
Gwydir	40:60 (with VA)	40:60 (with VA)	3.18	4.31
Namoi	40:60 (with VA)	40:60 (with VA)	2.15	2.87
Peel	80:20	80:20	10.35	10.55
Lachlan	40:60 (with VA)	40:60 (with VA)	5.63	6.76
Macquarie	40:60 (with VA)	40:60 (with VA)	4.75	5.11
Murray	40:60 (with VA)	40:60 (with VA)	2.04	2.27
Murrumbidgee	40:60 (with VA)	40:60 (with VA)	2.65	2.91
Lowbidgee[a]	100:0	100:0	N/A	N/A
Coastal valleys				
North Coast	90:10	90:10	1.29	1.29
Hunter	60:40 (with VA)	60:40 (with VA)	1.29	1.29
South Coast	80:20	80:20	1.91	1.91

a. Lowbidgee has only supplementary licences.
b. HS entitlement charges are calculated by multiplying the GS entitlement charge by the HS premium.

Note: 'with VA' indicates a volatility allowance is included in prices for that valley.
Source: Water NSW *pricing proposal to IPART*, June 2020, pp 118, 126–130; and IPART analysis.

In submissions to our Issues Paper and Draft Report, most stakeholders supported the current price structures and fixed-to-variable ratios. Stakeholders generally preferred a fixed-to-variable ratio with a lower proportion of fixed charges and higher proportion of variable charges. This is because it gives customers greater control in responding to water conditions and requirements, particularly in times of reduced or zero allocations.[145]

Some stakeholders raised specific issues relating to the Peel valley, Hunter valley and investigation of alternative price structures, as discussed in the following sections.

Some stakeholders were concerned about the 80:20 ratio in the Peel valley

TRC preferred a 40:60 fixed-to-variable ratio for the Peel valley. It considered the 80:20 ratio led to the Council, as the largest entitlement holder in the Peel valley, directly subsidising the GS entitlement holders.[146] P. Gill also commented that moving to an 80:20 ratio (in 2017 from a 40:60 ratio) imposes higher costs on council ratepayers, while favouring GS customers.[147]

The Peel Valley Water Users Association (PVWUA) noted Peel valley stakeholders "went through years of excruciating negotiations" to achieve an appropriate mix of fixed-to-variable charges in previous reviews.[148] It is concerned that some of TRC's costs may be transferred to GS entitlement holders in the Peel valley.[149]

We recognise TRC's preference for a 40:60 fixed-to-variable ratio, but do not support adjusting the ratio because it would shift the cost of TRC's HS entitlements on to GS entitlement holders in the Peel valley. TRC uses only a very small portion of its full entitlements (which are all HS entitlements).

If a customer maintains HS entitlements for future use and/or water security purposes, that customer should bear the cost. This approach is more cost-reflective and ensures those who create the need for Water NSW to incur costs pay for them, rather than them being subsidised by other customers.

In our 2017 price review, PVWUA argued to change from a 40:60 to an 80:20 fixed-to-variable ratio in the Peel valley to reduce the usage charge (that was shifting the costs of TRC holding excess unused HS entitlements on to active GS customers in the Peel valley) and bring the level of the usage charge in line with other MDB valleys.[150]

We consider the more cost-reflective 80:20 price structure, adopted for the 2017 Determination, remains appropriate. Our 2017 decision lowered the Peel valley usage charge from $58.26 per ML in 2016–17 (the highest among all valleys) to $18.36 from 1 July 2018 onwards (in $2016–17). It better allocates the costs of TRC holding entitlements to those who create the need for Water NSW's costs to be incurred, and lowers the usage charge for Peel valley water customers.[151]

Some stakeholders were also concerned that Peel valley water users appeared to have higher prices and percentage increases than other valleys.[152] Under the current 80:20 price structure, Peel valley GS prices are mid-range compared with other valleys (see Figure 12.7). As an MDB valley, we are also required under the WCR to set prices for the Peel valley that fully recover Water NSW's efficient costs (as opposed to the Coastal valleys where we have more flexibility to transition towards cost recovery gradually). Compared with the North Coast and South Coast valleys, Peel valley also has a comparatively high number of entitlements and usage volumes over which its costs are spread.[e]

One stakeholder was concerned about high fixed charges in the Hunter valley

Coolmore was concerned that if bulk water fixed prices in the Hunter valley are too high, entitlement holders may relinquish their entitlements, raising prices for remaining customers.[153]

However, our analysis indicates that under an 80:20 price structure (compared with the current 60:40 price structure) a 'typical' customer in the Hunter valley would see their bill:

- increase by only 2% for GS customers
- decrease by 7% for HS customers.

[e] The Peel valley has at least twice the number of entitlements and usage volumes over which to spread its costs compared with the North Coast and South Coast valleys, while incurring less than a third more in costs.

Under the Hunter valley's current 60:40 price structure, prices are mid-range compared with other valleys (see Figure 12.7). They are also generally lower than other Coastal valleys and represent the full recovery of costs specific to the valley, unlike the other Coastal valleys where prices are well below the level of full cost recovery. Cost-reflective prices also help ensure that entitlement holders opt for the efficient level of entitlements. As such, we consider that the current price structure for the Hunter valley remains appropriate.

Some stakeholders supported further investigating alternative price structures

Some stakeholders, including the NSWIC and PIAC, suggested exploring different price structures (e.g. to better manage revenue volatility risk). Stakeholders considered that Water NSW has not provided sufficient information for constructive comment on price structures. They suggested:

- Water NSW more actively engage with customers on the appropriate mix of fixed and variable charges, at an individual valley level
- Water NSW establish a consultation process to provide data that allows informed decision-making on this issue
- Water NSW include alternative price structures and analysis of customer impacts of adjusting the fixed-to-variable ratio by valley in material provided to Customer Advisory Groups to improve understanding and encourage constructive discussion
- Water NSW consider whether a mixed price structure approach is possible, e.g. where HS customers have a 40:60 price structure and GS customers have an 80:20, in future reviews:
  - PIAC considers this would better reflect the nature of these entitlements, and is a better means of recovering costs according to how they are incurred
- IPART provide guidance on the level of customer support needed to move to a different price structure.[154]

Lachlan Valley Water noted it is actively investigating the benefits and risks of moving from a 40:60 fixed-to-variable price structure to an 80:20 or 60:40 price structure. However, it found that during this review, consultation was challenging and it does not have a clear position in support of 80:20:

- due to uncertainty around what prices will be
- because stakeholder responses are influenced by whether they are a HS customer or GS customer (or both), as well as their usage pattern, including what proportion of their HS allocation is used.[155]

PIAC also considered that pricing structures must seek not only to reflect and recover costs, but work in support of the needs of customers and communities. PIAC also recommended IPART ensures consistent price structures across Water NSW, WAMC and MDBA/BRC prices, and that charges are as simple, transparent and understandable to customers as possible.[156]

We agree with stakeholders that Water NSW should improve its customer engagement on price structures. We consider that:

- further consultation between Water NSW and its customers is required on price structures at an individual valley level
- Water NSW could provide customers with better information on alternative price structures and customer impacts.

For future reviews, in assessing the level of customer support for moving to a different price structure, we would likely consider:

- evidence that stakeholders have been adequately informed about potential price structure options and customer impacts
- stakeholder responses and preferences, noting that we consider a representative range of stakeholder views should be captured
- any other relevant information available at the time.

While we consider further investigating a mixed price structure approach (e.g. where HS customers have a 40:60 price structure and GS customers have an 80:20) may be warranted, we are concerned about potential customer impacts. A mixed price structure approach may shift costs from one type of customer to another given the NRR must be recovered through prices.

As Lachlan Valley Water has indicated, customer preferences for different prices structures are influenced by whether the customer is a HS customer or GS customer (or both) and their usage pattern. We consider that incorporating customer preference on a principle-basis (e.g. that customers prefer a higher proportion of either fixed or usage charges) is likely to result in more cost-reflective prices that represent overall customer preferences, rather than setting price structures to minimise bills for particular customers.[f] Price structures that are in the long-term interests of all customers, recognising the need to invest and conserve water efficiently, will better deliver long-term pricing objectives.

A volatility allowance balances revenue risk of the cost and price structure mismatch

We consider that ideally, the ratio of fixed-to-variable charges should reflect that most of Water NSW's costs (at least 80%) are fixed, and do not vary with water sales. However, we must also consider customer preferences (generally for a lower proportion of fixed charges), affordability and the allocation of risk, and ensure that price structures are transparent.

As outlined in our Draft Report, we introduced a volatility allowance in 2017 to compensate Water NSW for risk arising from the mismatch between water sales and its cost structure.[157] The costs associated with the volatility allowance applied only to valleys where the fixed charge recovered less than 80% of NRR.

[f] Which may increase bills for other customers in a way that is not cost-reflective.

We maintained the position we reached in our 2017 price review, that:

- an 80:20 fixed-to-variable ratio remains appropriate for most valleys
- in valleys where the fixed charge recovers less than 80% of NRR, including a volatility allowance to mimic an 80:20 ratio is reasonable.[158]

We maintained the current 2-part prices and fixed-to-variable ratios (as proposed by Water NSW[159]) as we consider that they provide Water NSW with a reasonable degree of revenue certainty, while providing entitlement holders with some scope to reduce their bills through lower levels of extraction.[g]

The approach to calculating the HS premium remains appropriate

In 2017, we comprehensively reviewed the HS premium, including its calculation and the inputs to both the security factor and the reliability ratio.[160]

We consider it appropriate to maintain the existing approach to calculating the HS premium on the basis that the combination of the 2 factors aims to address both the security and reliability of water supply from holding HS over GS entitlements. Specifically:

- the security factor is a proxy for the security in HS entitlements that stems from the differential allocation priority
- the reliability ratio accounts for the reliability in HS entitlements, especially in periods of low rainfall.

We accepted Water NSW's proposal to maintain the security factors and update the reliability ratios (based on the latest 20 years of allocations data),[161] resulting in the HS premiums presented in Table 10.1.

Prices in the North Coast and South Coast valleys increase by inflation only

We set prices for Coastal valleys under the IPART Act, so we have more discretion in setting prices that over- or under-recover Water NSW's costs.

Full cost recovery prices in the North Coast and South Coast valleys are substantially higher than other valleys.[162] In 2017, we set prices in the North Coast and South Coast valleys below full cost recovery.[h,163] Prior to 2017, customer numbers and average water sales in these valleys were declining, suggesting prices may have been approaching customers' capacity to pay.

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g The volatility allowance allows customers to trade-off between relatively higher usage-based charges and the higher costs associated with Water NSW's management of revenue volatility risk (i.e. it recognises that Water NSW's costs are largely fixed, while allowing for the price structure to be largely variable in many valleys).

h We set prices to recover 10% of costs for the North Coast, and 38% of costs for the South Coast.

As outlined in our Draft Report, we set prices for these valleys with reference to an estimated 'efficient pricing band', and rebalanced the ratio of fixed-to-variable charges to have a larger proportion of fixed charges.[i,164] We developed this approach in consultation with Water NSW and stakeholders in the North Coast and South Coast valleys.

We did not receive any submissions on our Draft Report relating to price structures for these valleys. Of stakeholders who responded to our Issues Paper about this matter, most supported the current pricing approach, as well as Water NSW's proposal and our draft decision to maintain the current level of charges in these valleys (increasing each year by inflation only) over the 2021 determination period.[165,166]

In its submission to our Issues Paper, PIAC commented that intentional under-recovery of costs is not sustainable, and suggested writing down the value of storage and delivery assets in these valleys.[167] Our approach to pricing in these valleys more or less has the same outcome as writing down assets. We also recognise that under the current approach, these valleys continue to move further away from full cost recovery.

The approach for the North Coast and South Coast valleys remains appropriate

We consider that pricing within an estimated efficient pricing band remains appropriate as at prices above a customer's capacity to pay (i.e., the upper limit of the band), the customer would no longer purchase water.

Our approach for the 2017 price review recognised that full cost recovery in the North and South Coast valleys is unlikely going forward, and any attempt to increase prices towards full cost recovery may actually be counter-productive. Increasing prices to recover full costs may exceed some customers' capacity to pay, which would reduce demand for rural bulk water services, revenue and cost recovery. Both valleys have too few customers, relative to the size of the asset base, to recover costs without exceeding customers' capacity to pay.

Further, the current fixed-to-variable ratios better align with Water NSW's largely fixed cost structure. They are also supported by stakeholders, and may help stimulate demand and improve asset utilisation in these valleys.

Maintaining the current approach, fixed-to-variable ratios, and level of prices in real terms will under-recover costs in these valleys by about $2.0 million per year. This is about 28% higher than the 2017 determination period, with recovery of costs moving from 10% to 8% for the North Coast, and 38% to 31% for the South Coast.[168] This is because costs, in particular operating costs, in these valleys are increasing by 44% and 30% respectively. Given the low level of cost recovery in these valleys, we consider that Water NSW should prioritise reducing costs in these valleys.

As outlined in our Draft Report, there is some indication that our 2017 decision to reduce usage prices may have had a positive impact on usage in the North Coast and South Coast valleys.[169] However, a number of other factors may have also contributed to this increase in usage, such as rainfall levels. We will undertake further data collection and analysis over time to better understand the effects of our 2017 pricing decisions on usage in these valleys.

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[i] From 40:60 to 90:10 for the North Coast valley, and from 40:60 to 80:20 for the South Coast valley.

10.1.3 Bulk water entitlement charges increase on average by 29%

Table 10.2 sets out our decision on prices for bulk water entitlement charges for the 2021 determination period:

- HS entitlement charges increase substantially in most valleys, particularly in the Namoi (57.2%), Lachlan (51.6%) and Gwydir (45.9%) valleys.
- GS entitlement charges increase substantially in most valleys, particularly in the Lowbidgee (104.8%), Hunter (41.1%) and Peel (34.4%) valleys.
- The increases in most valleys are mainly due to a higher level of efficient costs compared with the 2017 price review, particularly increased operating expenditure.
- Prices generally increased since our Draft Report as a result of:
  - increases in the WACC
  - a higher level of allowed efficient expenditure
  - a small increase in the volatility allowance.

Table 10.2 Decision on bulk water entitlement prices for the 2021 determination period ($/ML, $2021–22)

Valley	Current 2020–21 ($2020–21)	Decision for 2021 Determination	Change current to decision
High security entitlement charge			
Border	$5.74	$6.58	14.6%
Gwydir	$11.93	$17.40	45.9%
Namoi	$18.40	$28.93	57.2%
Peel	$44.77	$61.36	37.1%
Lachlan	$16.56	$25.10	51.6%
Macquarie	$14.55	$20.18	38.7%
Murray	$1.66	$2.26	36.1%
Murrumbidgee	$3.18	$4.17	31.1%
Lowbidgee[a]	N/A		
North Coast	$12.69	$12.82	1.0%
Hunter	$14.15	$19.94	40.9%
South Coast	$33.19	$33.56	1.1%
General security entitlement charge			
Border	$2.13	$2.41	13.1%
Gwydir	$3.75	$4.04	7.7%
Namoi	$8.58	$10.10	17.7%
Peel	$4.33	$5.82	34.4%
Lachlan	$2.94	$3.71	26.2%
Macquarie	$3.07	$3.94	28.3%
Murray	$0.81	$0.99	22.2%
Murrumbidgee	$1.19	$1.43	20.2%
Lowbidgee[a]	$0.84	$1.72	104.8%
North Coast	$9.83	$9.94	1.1%
Hunter	$10.98	$15.49	41.1%
South Coast	$17.41	$17.60	1.1%

a. Lowbidgee has only supplementary licences.

Note: Excludes MDBA/BRC costs.
Source: IPART analysis.

10.1.4 Bulk water usage charges increase by up to 52%

Table 10.3 sets out our decision on prices for bulk water usage charges for the 2021 determination period:

- Usage charges increase substantially in most valleys, particularly in the Lachlan (52.0%), Macquarie (45.8%) and Namoi (43.5%) valleys.
- The increases in most valleys are mainly due to a higher level of efficient costs compared with the 2017 price review, particularly increased operating expenditure.
- Prices generally increased since our Draft Report as a result of:
  - increases in the WACC
  - a higher level of allowed efficient expenditure
  - a small increase in the volatility allowance
  - a slight reduction in usage volumes forecast for MDB valleys.

Table 10.3 Decision on bulk water usage prices for the 2021 determination period ($/ML, $2021–22)

Valley	Current 2020–21 ($2020–21)	Decision for 2021 Determination	Change current to decision
Usage charge			
Border	$5.86	$7.03	20.0%
Gwydir	$12.79	$17.19	34.4%
Namoi	$21.52	$30.88	43.5%
Peel	$19.78	$24.51	23.9%
Lachlan	$20.51	$31.17	52.0%
Macquarie	$14.84	$21.64	45.8%
Murray	$2.06	$2.93	42.2%
Murrumbidgee	$3.57	$4.97	39.2%
Lowbidgee[a]	N/A		
North Coast	$18.77	$18.98	1.1%
Hunter	$13.60	$19.13	40.7%
South Coast	$18.60	$18.80	1.1%

a. Lowbidgee has only supplementary licences.

Note: Excludes MDBA/BRC costs.
Source: IPART analysis.

10.2 FRWS charges increase by up to 36% for major customers

The Fish River Water Supply Scheme (FRWS) provides water to customers in the Central Tablelands region.

Our decisions are:

33. To set Water NSW's rural bulk water prices for the Fish River Water Supply Scheme for the 2021 determination period as shown in Table 10.4.

34. To maintain prices for Oberon Council at 2020–21 levels in real terms.

We set different prices for filtered and unfiltered water customers in the scheme, consistent with the 2017 Determination.[170]

We also maintained a 2-tier usage price, with a lower price for usage up to each customer's Minimal Annual Quantity (MAQ) and a higher usage charge for volumes above their MAQ. The higher charge is equal to the sum of each customer's fixed charge and their first-tier usage charge.

We set filtered water usage prices in the FRWS with reference to the short-run marginal cost (SRMC) of supply. We maintained the approach we established in the 2017 price review for unfiltered customers, to set prices to recover 80% of revenue from fixed charges and 20% from variable charges.[171]

Submissions to our Draft Report questioned the adequacy of funding in the FRWS, as discussed in section 10.2.2. Stakeholders considered that many of the assets are in poor condition and providing a degrading level of service.[172] We are unsure if earlier governance approaches, prior to the Water NSW take-over, may have led to inadequate investment in maintenance and renewals.[173]

We consider that a bottom-up review of costs in the FRWS that considers current and historical utilisation and costs of assets, separate to this price review, would be beneficial.

We appreciate the significant service issues raised by customers in the FRWS, however we broadly consider these to be licensing issues which IPART is pursuing separately. Except for Oberon Council, we could not see a compelling case for setting prices below full cost recovery levels.

For this review we decided to:

- maintain our draft raw water price structure for all customers except Oberon Council
- hold prices constant for Oberon Council at 2020–21 levels in real terms over the 2021 determination period.

10.2.1 The FRWS is managed differently to other rural valleys

The FRWS was originally constructed in the 1940s, to provide more secure water supplies to Oberon, Lithgow and the NSW Central Tablelands. The scheme was extended in the 1950s to cater for demand at the newly built Wallerawang Power Station, and again in the 1960s to divert water to Katoomba.

Most FRWS customers receive raw (unfiltered) water. Lithgow City Council (LCC) and a small number of minor customers receive filtered water suitable for drinking. Water NSW owns and operates a water treatment plant near the Duckmaloi Dam to treat water for these customers.

Unlike other rural valleys where customers draw water directly from the river, the FRWS diverts water through a series of pipelines long distances. Because of the large cost of maintaining the pipeline and water treatment assets in the scheme, FRWS prices are orders of magnitude higher than in other valleys.

Currently, 4 customers receive most of the water supplied from the FRWS:

- EnergyAustralia, for the Mt Piper Power Station
- Water NSW Greater Sydney for urban supplies in the Blue Mountains
- LCC for urban supplies in Lithgow and several outlying villages
- Oberon Council for urban supplies in Oberon and surrounding towns.

The FRWS also supplies around 300 minor customers who draw directly from pipelines that make up the scheme. Minor customers make up around 3% of water usage in the FRWS.

10.2.2 FRWS customers are broadly dissatisfied with the scheme

Our Draft Report proposed maintaining the current price structure for raw water customers in the FRWS (80% fixed and 20% variable) and setting prices for filtered customers with reference to short-run marginal cost.[174]

Stakeholders raised a broad range of issues about costs and prices in the FRWS:

- Oberon Council[175] and LCC[176] both considered they received poor service from Water NSW. They noted poor reliability of water delivery as well as unsatisfactory water quality, which increases their own water treatment costs. Oberon Council proposed IPART set prices that respond to the quality of water supplied.
- LCC commented the proposed price increases would discourage it from accessing water from the scheme and encourage it to access water from its own supplies. It noted its lower demand impacts the quality of water received by other filtered water customers and will require it to backflow more of its own water into the system to supply Water NSW customers. It requested this be reflected in prices.[177]
- Oberon Council noted that it contributes to the cost of maintaining the scheme's assets despite only utilising one dam and an associated outflow due to its geographic location.[178]
- Oberon Council also noted higher charges would have significant flow-on impacts for ratepayers, estimated to be about equivalent to a 2% special rate variation.[179]
- LCC considered that, prior to the scheme coming under the control of Water NSW, the NSW Government (which directly controlled the scheme) may not have adequately reinvested scheme revenue into renewals and had directed charges to other purposes.[180]
- EnergyAustralia noted it is now a small user in the FRWS but still pays a high proportion of costs. It considers this may result in inefficient by-passing of water from the scheme in order to avoid costs. It suggested IPART consider large customer discounts (as occurs in energy pipeline determinations) to avoid hollowing out of the scheme's customer base.[181]
- EnergyAustralia also questioned why IPART did not account for customer preference in the design of FRWS price structures. It questioned why we used marginal cost pricing for only filtered water and not raw water customers.[182] It also questioned why we used short-run rather than long-run marginal cost.[183]
- EnergyAustralia raised concerns about a lack of transparency about how we calculated FRWS building block costs, especially the allocation of operating expenditure and the contribution of old and new assets to the RAB.[184]
- Water NSW proposed that IPART increase the fixed share of revenue in the FRWS from 80% to 90% to better reflect that most of its building block costs are fixed.[185]

10.2.3 We would like to better understand what drives Water NSW's FRWS costs

Broadly customers consider service standards in the FRWS are deteriorating despite investment in maintenance and capital upgrades since Water NSW (then State Water) took over the scheme in 2004–05. We consider that some issues may require further investigation, including:

- the relative impact of different customers on the need for different assets such as pipelines and water treatment assets
- the possibility of double counting of costs on legacy assets
- the condition of assets and what drives ongoing maintenance costs
- the impact of declining demand on asset utilisation
- how price structures might be impacting demand and investment decisions
- future capital needs in the scheme.

We consider that a more focused review of the FRWS may be required to address these issues and consider the need for changes in future pricing determinations.

We must set prices that we consider will recover Water NSW's efficient costs over the 2021 determination period. We did not have sufficient information to develop an alternative method for allocating costs within the FRWS prior to finalising prices, including undertaking adequate consultation with affected stakeholders. Therefore, in the absence of better information, we largely maintained our draft pricing decisions, except deciding to hold prices constant for Oberon Council.

10.2.4 We maintained the price structures for filtered and unfiltered customers

We consider that it is not efficient to set prices for filtered and unfiltered customers in the same way, given the considerable differences between the two products.

In the 2017 Determination, we set an 80:20 fixed-to-variable price structure for both filtered and unfiltered water customers in the FRWS.[186] While we consider this approach remains appropriate for unfiltered prices, we decided that SRMC is a more appropriate basis to set filtered water prices, for reasons outlined in our Draft Report.[187]

In our Draft Report we estimated SRMC for filtered water by adding the incremental cost of water treatment to the raw water usage charge. We have maintained this approach and our estimate of incremental treatment costs of $0.20/kL.[188]

EnergyAustralia questioned why we did not use long-run marginal cost (LRMC) pricing to set usage charges. The LRMC takes into account how current demand decisions impact the need for future supply augmentation. It noted this approach is foundational in price regulation of other sectors, such as energy.[189] IPART also uses LRMC in setting prices for urban water utilities like Sydney Water.

We agree that LRMC is a generally preferable approach to setting prices as it considers the full marginal impact of demand decisions. We used SRMC in this case because we have limited information on what capital requirements are needed in the scheme beyond the next determination period, which makes it difficult to estimate a long-run marginal price. Further, given demand in the scheme is falling it seems unlikely that marginal demand will lead to capacity constraints in the future. Under these conditions, the short-run and long-run marginal price should be similar.

10.2.5 We maintained the current 2-tier usage charge in the FRWS

Water NSW proposed maintaining the current usage price structure in the FRWS, where customers pay one price for usage up to their annual MAQ and a higher price for usage above that level.[190] We consider this is reasonable as the base fixed and usage charges are designed to recover each customer's relative contribution to Water NSW's need to incur costs, as determined by their MAQ.

Usage above a customer's MAQ should incur additional fixed charges to reflect the customer's additional utilisation of the capacity of the system, or the average unit cost of providing additional volumes. Box 9.1 explains MAQs and their relation to Water NSW's fixed costs.

We maintained the current approach of setting the excess usage charge as the sum of a customer's fixed and usage charges, as it reflects the full average cost of supplying a unit of water to the customer.

We did not receive any submissions from stakeholders about the 2-tier price structure.

10.2.6 We held prices constant for Oberon Council in real terms

Oberon Council accesses raw water from the FRWS, which it then treats and supplies to the town of Oberon and surrounding areas. Oberon Dam is the main storage in the FRWS and is located around 2 km upstream from the town. Because of its proximity, Oberon Council can access water without using pipelines unlike other raw water customers.

Normally, when we set rural water prices, we set the same price for all customers in a valley that receive the same service (e.g. we set the same price for all GS customers in the Murrumbidgee valley). This is because we generally consider that all customers contribute a similar amount to Water NSW's costs, regardless of where they are located in the valley. We do not consider this is the case with Oberon Council.

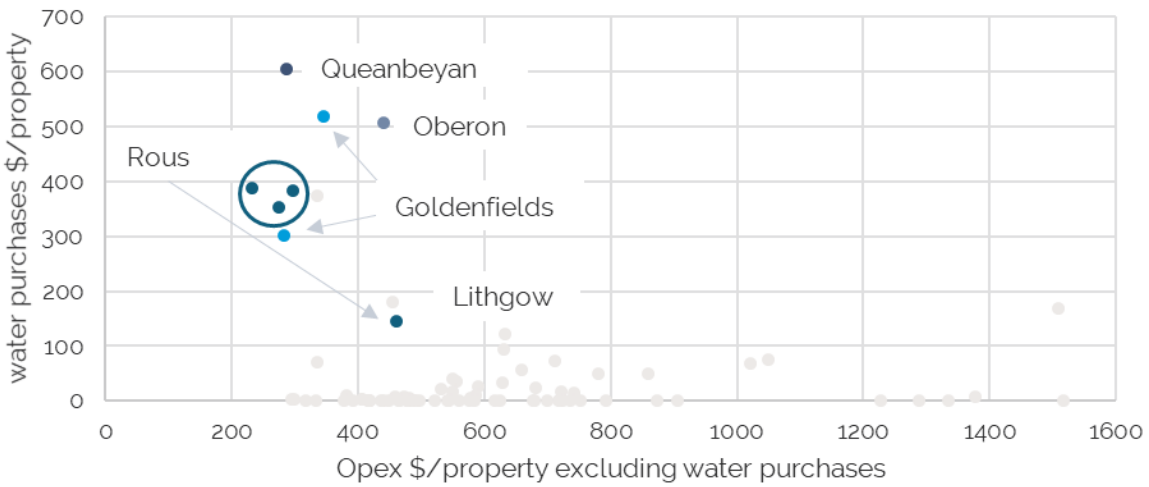
Because Oberon Council could receive water without pipeline assets in the FRWS, it does not contribute to Water NSW's need to incur costs of maintaining those assets. All else being equal, we consider that Oberon Council should pay a lower price than other raw water customers because of this.

Practically, however, we cannot be sure at this stage which costs in the FRWS can be attributed to pipelines and which are for dams and other assets. We intend to investigate this issue further as part of a broader review of assets and cost drivers in the FRWS following our Final Report.

As Figure 10.1 shows, Oberon Council currently pays more per property for bulk water than almost any other local water utility. However, unlike other councils that receive treated water from their bulk supplier, Oberon Council receives raw water and must incur additional operational costs to treat it.

We consider Water NSW's proposed charges would create considerable affordability pressure for urban water users in Oberon. In its submission to our Draft Report, Oberon Council calculated our proposed cost increases would equate to a 2% increase in rates for Oberon residents[191] and it would not be able to insulate end use customers from such a large increase in costs.

Figure 10.1 Comparing Oberon bulk water costs to other NSW local water utilities 2018–19



Note: Each data point represents one local water utility. 'Rous' refers to Rous County Council which supplies water to 4 councils in the Northern Rivers region. 'Goldenfields' refers to Goldenfields Water County Council which supplies bulk water to Hilltops and Cootamundra-Gundagai councils.
Data source: DPIE, LWU performance monitoring data and reports website, data for 2018–19.

At this stage it is not possible to quantify what impact Oberon Council has on costs in the FRWS compared with other customers. Therefore, we consider it is reasonable to hold its prices constant at current levels until we have better information.

This approach means prices for Oberon Council will be below full cost recovery levels, however we are able to do this because we set its prices under the IPART Act rather than the WCR as we do for other rural customers.

10.2.7 FRWS charges increase over the 2021 determination period

Raw water charges generally increase

Table 10.4 presents our decision on prices for raw water charges:

- EnergyAustralia and Water NSW Greater Sydney will pay the same unit prices as minor individual customers.
- Prices will be held constant (in real terms) for Oberon Council at 2019–20 levels. As we are not required to set prices at cost recovery levels for Oberon Council, we propose Water NSW bears the cost of holding prices constant.
- We set explicit raw water prices for LCC at the same level as other raw water customers (except Oberon Council).
- Customers' prices increase by 16.7% for fixed MAQ charges and by 26.9% for usage over the determination period. These increases are driven by increased operating costs over the 2021 determination period.

Filtered water charges generally increase

Table 10.4 presents our decision on prices for filtered water charges:

- Major customers' (e.g. LCC) prices increase by 26.5% for MAQ and by up to 35.9% for usage over the 2021 determination period. These increases reflect higher costs and our price-setting approach for filtered water.
- Filtered water usage prices will be set with reference to the SRMC of supply. We proposed maintaining our approach to estimating the SRMC for filtered water from the Draft Report. This price structure means LCC's usage prices will increase by more than fixed charges.
- Minor customers' prices increase by 4.9% for MAQ and increase by up to 6.0% for usage up to the MAQ over the determination period. This is because we have aligned the unit MAQ and usage charges for filtered water customers.
  - In previous determinations, unit prices for both fixed MAQ and variable usage charges were lower for LCC than for minor customers.

Table 10.4 Decision on FRWS charges for the 2021 determination period ($/kL, $2021–22)

	Current 2020–21 ($2020–21)	Decision for 2021 Determination	Change current to decision
Bulk raw water			
Minimum Annual Quantity (MAQ) ($/kL)			
Major customers (other than Oberon Council)	$0.42	$0.49	16.7%
Oberon Council	$0.42	$0.42	0.0%
Minor customers (annual bill)	$84.00	$98.00	16.7%
Usage up to MAQ ($/kL)			
Major customers (other than Oberon Council)	$0.26	$0.33	26.9%
Oberon Council	$0.26	$0.26	0.0%
Minor customers	$0.26	$0.33	26.9%
Usage in excess of MAQ ($/kL)			
Major customers (other than Oberon Council)	$0.68	$0.82	20.6%
Oberon Council	$0.68	$0.68	0.0%
Minor customers	$0.68	$0.82	20.6%
Bulk filtered water			
Minimum Annual Quantity (MAQ) ($/kL)			
Major customers	$0.68	$0.86	26.5%
Minor customers (annual bill)	$164.00	$172.00	4.9%
Usage up to MAQ ($/kL)			
Major customers	$0.39	$0.53	35.9%
Minor customers	$0.50	$0.53	6.0%
Usage in excess of MAQ ($/kL)			
Major customers	$1.07	$1.39	29.9%
Minor customers	$1.32	$1.39	5.3%

Source: Water NSW *pricing proposal to IPART*, June 2020, p 133; and IPART analysis.

10.3 Impacts on MDBA and BRC charges are mixed

For the Murray, Murrumbidgee and Border valleys, we set MDBA and BRC charges as a 2-part price (similar to Water NSW's bulk water charges) consisting of:

- fixed charges per ML of entitlement, with different charges for:
  - HS entitlements
  - GS entitlements
- a usage charge per ML of usage.

In 2017, we set the ratio of fixed-to-variable charges in the Murray and Murrumbidgee valleys for MDBA charges and in the Border valley for BRC charges at 80:20. Prior to this, charges were passed through to customers in the Murray, Murrumbidgee and Border valleys with a 40:60 fixed-to-variable ratio (with an unders and overs mechanism to mimic a 100% fixed price structure).[192]

Our decisions are:

35. To maintain the current valley-based 2-part price structure and fixed-to-variable ratio of 80:20 for Murray–Darling Basin Authority and Dumaresq–Barwon Border Rivers Commission charges in the Murray, Murrumbidgee and Border valleys.

36. To apply the same high security premiums to these charges as for Water NSW's bulk water charges as shown in Table 10.5.

37. To set Water NSW's Murray–Darling Basin Authority and Dumaresq–Barwon Border Rivers Commission charges for the 2021 determination period as shown in Table 10.6 for entitlement charges and Table 10.7 for usage charges.

10.3.1 We accepted the proposed price structure for MDBA and BRC charges

Water NSW proposed to maintain the existing price structure for MDBA and BRC charges as it considers it shares volatility risk equitably between Water NSW and its customers.[193]

In its submission to our Issues Paper, Murray Irrigation proposed a price structure for MDBA charges with a lower proportion of fixed charges. It considered that an 80:20 fixed-to-variable ratio does not share volatility risk equitably between Water NSW and its customers.[194]

In our Draft Report, we consulted on stakeholders' willingness to make the trade-off involved in moving to a 40:60 ratio. We sought feedback on whether stakeholders in the Murray, Murrumbidgee and Border valleys would prefer MDBA and BRC charges in these valleys to have:

- an 80:20 ratio, or
- a 40:60 ratio with a volatility allowance to compensate Water NSW for its increased revenue volatility risk.[195]

We received a mixed response from stakeholders in submissions to our Draft Report. Stakeholders from the Murray valley generally did not support the current 80:20 price structure, while Coleambally Irrigation Cooperative Limited (CICL) and the Commonwealth Environmental Water Office (CEWO) supported it. Murray Valley Private Diverters (MVPD) supported our alternative 40:60 plus volatility allowance option.[196]

We consider that an 80:20 fixed-to-variable price structure remains appropriate as it reflects that MDBA/BRC costs are largely fixed (Table 10.5).[197] Further, the risk sharing between customers and Water NSW associated with an 80:20 ratio provides Water NSW with a reasonable degree of revenue certainty to cover the MDBA and BRC costs. At the same time, it provides customers with some scope to reduce their bills through lower levels of water usage.

As outlined in section 10.1.2, we also consider it appropriate to maintain the existing approach to calculating the HS premium. As for the 2017 Determination, we applied the same HS premium to MDBA and BRC charges as for bulk water charges.[198] As for bulk water charges, we applied the updated reliability ratios used in calculating the HS premium.

In response to our Draft Report, some stakeholders suggested socialising MDBA/BRC charges across all water users.[199] As outlined in section 10.1.2, we consider that valley-based MDBA/BRC prices that reflect efficient costs by valley remain appropriate rather than postage stamp pricing. Valley-based pricing ensures that those who create the need for the costs pay for them.

Some stakeholders also suggested that Water NSW should continue to consult with its customers on MDBA/BRC charges. We agree that Water NSW should continue to consult with customers in the Murray, Murrumbidgee and Border valleys on their preferences for pricing structures for these charges.[200]

Table 10.5 Decision on fixed-to-variable ratio and HS premium for MDBA/BRC charges for the 2021 determination period

	Fixed-to-variable ratio		HS premium	
Valley	**2017 Determination**	**Decision for 2021 Determination**	**2017 Determination**	**Decision for 2021 Determination**
Border	80:20	80:20	2.69	2.73
Murray	80:20	80:20	2.04	2.27
Murrumbidgee	80:20	80:20	2.65	2.91

Source: IPART, *WaterNSW – Review of prices for rural bulk water services from 1 July 2017 to 30 June 2021 – Final Report*, June 2017, pp 130–132; and IPART analysis.

10.3.2 MDBA HS entitlement charges rise, but other entitlement charges fall

Table 10.6 presents our decision on MDBA and BRC charges for the 2021 Determination:

- HS entitlement charges will increase for MDBA charges in the Murray (10.3%) and Murrumbidgee (7.5%) valleys. These rises are mainly due to:
  - increases to the HS premium
  - a greater proportion of MDBA costs being assigned to water customers, and apportioned between entitlement types differently, than in past determinations.
- BRC HS entitlement charges will decrease by 2.6%.
- GS entitlement charges will decrease for MDBA charges for the Murray and Murrumbidgee valleys (by up to 1.5%) and BRC charges by 4.3%. This is mainly due to the increases in the HS premium which shifts costs from GS entitlement holder to HS entitlement holders.

Table 10.6 Decision on MDBA/BRC entitlement prices for the 2021 determination period ($/ML, $2021–22)

Valley	Current 2020–21 ($2020–21)	Decision for 2021 Determination	Change current to decision
High security entitlement charge			
Border	$4.97	$4.84	-2.6%
Murray	$7.83	$8.64	10.3%
Murrumbidgee	$1.73	$1.86	7.5%
General security entitlement charge			
Border	$1.85	$1.77	-4.3%
Murray	$3.83	$3.80	-0.8%
Murrumbidgee	$0.65	$0.64	-1.5%

Source: IPART analysis.

10.3.3 MDBA and BRC usage charges will increase by up to 15%

Under the 2021 Determination prices, MDBA and BRC usage charges increase for all valleys (Table 10.7). These increases are mainly because a greater proportion of MDBA and BRC costs has been assigned to water customers than in past determinations.

Table 10.7 Decision on MDBA/BRC usage prices for the 2021 determination period ($/ML, $2021–22)

Valley	Current 2020–21 ($2020–21)	Decision for 2021 Determination	Change current to decision
Usage charge			
Border	$0.84	$0.86	2.4%
Murray	$1.61	$1.85	14.9%
Murrumbidgee	$0.33	$0.37	12.1%

Source: IPART analysis.

10.4 We exempted floodplain harvesting licences from charges

Our decision is:

38. To exempt floodplain harvesting licences from Water NSW rural infrastructure charges.

Floodplain harvesting involves retaining water that enters a floodplain on a landowner's property. The *Water Management Act 2000* creates a framework for issuing Water Access Licences for floodplain harvesting, although no licences are currently issued.

The NSW Government indicated it plans to have a Floodplain Harvesting Access Licences in place from 1 July 2021 in the Northern Murray Darling Basin. We discuss this issue further in our parallel review of prices for the Water Administration Ministerial Corporation (WAMC).

Because floodplain harvesting occurs on private land and does not require Water NSW to store or deliver water to a licence holder, we consider they are not an impactor to Water NSW's infrastructure costs. As such, we consider Water NSW should not levy charges on holders of Floodplain Harvesting Access Licences.[j]

10.5 We exempted Aboriginal Cultural licences from charges

Under the *Water Management Act 2000* the Minister has the power to issue 3 types of 'specific purpose access licences' to meet the water needs of Indigenous communities. The legislation refers to these licences as:

- Aboriginal Cultural licences
- Aboriginal Community Development licences
- Aboriginal Commercial licences.

These Indigenous licences are considered subcategories of other licence types, such as HS or GS regulated river licences. Under our 2017 Determination these licences are treated like the equivalent licence type of which they are a subcategory.[k] For example, a HS (Aboriginal Cultural) subcategory licence would be liable for the same charges as a regular HS licence.

Our decisions are:

39. To exempt Aboriginal Cultural Licences from all Water NSW rural water charges for the 2021 Determination while the NSW Government considers a policy position on charges associated with these licences.[l]

40. To continue to set charges for Aboriginal Community Development and Aboriginal Commercial licences, as we have in previous determinations.

Indigenous stakeholders, including the NSW Aboriginal Land Council (NSW ALC)[201], Murray and Lower Darling River Indigenous Nations (MLDRIN)[202] and DPIE[203], strongly opposed charging infrastructure fees for indigenous subcategory licences. DPIE noted the additional limitations for how water can be used under a subcategory licence compared with a normal HS licence, and how water taken under subcategory licences for cultural purposes often remains in the river and supports environmental outcomes.

j We still consider floodplain users contribute to water management costs including licensing, planning and compliance, so we included them in our WAMC charges.

k Under Schedule 5 cl 1 of the 2017 Determination, we set charges based on whether a customer's licence belonged to certain categories of licence defined in section 57 of the *Water Management Act 2000*. As Regulated River (High Security) [Aboriginal Cultural] licences were a defined subcategory of Regulated River (High Security) licences in the schedule of the Water Management (General) Regulation 2018, we treated Aboriginal Cultural licences the same as other High Security licences.

l We also exempted Aboriginal Cultural Licence holders from water management charges in our review of WAMC charges.

The NSW Government's draft State Water Strategy identifies:

> …while there are some provisions for accessing water for cultural purposes in NSW, these do not currently meet the needs and obligations of Aboriginal people to care for Country or achieve the cultural water flows and water management aspirations…[204]

An action identified in the draft strategy is to develop a state-wide Aboriginal water strategy. This would involve reviewing and identifying required amendments to the water management legislative framework to enable Aboriginal rights, interests and ownership of water.

After engagement with stakeholders, we consider there is a strong case for exempting Aboriginal Cultural licences for the 2021 Determination while the NSW Government develops a revised approach to these licences in the future.

On Aboriginal Community Development licences and Aboriginal Commercial licences we note:

- no licences of either of these subtypes appear to have been issued, and
- there does not appear to be clear policy guidance on what conditions or use limitations might be placed on these licences if they were issued in future.

Given this limited information, we decided to continue setting charges for these two subcategories. If the NSW Government decides to issue these licences during the 2021 determination period and considers it is appropriate to exempt them from fees, it can provide Water NSW with a subsidy to do so.

Chapter 11

Other and miscellaneous charges

11

Summary of our decisions for Water NSW's other and miscellaneous charges

The Yanco Creek levy will remain at $0.90/ML

We decided to maintain the current levy of $0.90 per ML of entitlement, held constant in nominal terms.

The environmental gauging station (EGS) charge is not required

We decided not to set an EGS charge.

Other miscellaneous charges will increase by inflation

These include:

- metering accuracy testing charges
- a trade processing charge
- FRWS connection and disconnection fees.

We maintained our past approaches for setting these charges.

This chapter sets out our decisions, and our reasons for them, on the Yanco Creek levy and a range of miscellaneous charges.

11.1 We maintained the Yanco Creek levy at $0.90/ML

The Yanco Creek natural resources management levy (Yanco Creek levy) is a unique charge that applies to water licence holders in the Yanco Columbo system. It is intended to fund system rehabilitation, to improve flows and provide water efficiencies for the system and Murrumbidgee valley. IPART first approved the Yanco Creek levy in the 2005 Determination, and it has been maintained in each subsequent review.[a]

The 84 customers in the Yanco Creek system currently contribute $0.90 per ML of their entitlement per year. Water NSW distributes the collected revenue to the Yanco Creek and Tributaries Advisory Council (YACTAC), which administers the Yanco Creek natural resources management plan.

[a] Including the ACCC's 2014 Decision, on the basis that it was endorsed by Yanco Creek customers and the level of the charge did not change (in nominal terms).

Our decision is:

41. To set a maximum per year Yanco Creek levy of $0.90 per ML of entitlement for users in the Yanco Creek system, held constant in nominal terms.

In its submission to our Draft Report, YACTAC noted it has conducted a range of on-ground projects since our 2005 Determination, including physical works (e.g. willow eradication, and aquatic and riparian weed removal and maintenance), environmental studies, species studies, program reviews, and monitoring and management of projects.[205]

YACTAC also proposed price increases as set out in Table 11.1. These proposed increases were broadly support by entitlement holders and endorsed at YACTAC's annual general meeting.[206]

Table 11.1 Decision on the Yanco Creek levy for the 2021 determination period ($2021–22)

	2021–22	2022–23	2023–24	2024–25
Proposed by YACTAC	$0.90 per ML + 10%	2021–22 value + 10% + CPI	2022–23 value + 10% + CPI	2023–24 value + CPI
Proposed Yanco Creek levy	0.99	1.12	1.26	1.29
IPART decision	0.90	0.90	0.90	0.90
Difference	–0.09	–0.22	–0.36	–0.39
Difference %	–9%	–20%	–29%	–30%

Note: Our calculation of the proposed Yanco Creek levy over the 2021 Determination assumed CPI would be 2.5% per year.
Source: YACTAC submission to the draft report; and IPART analysis.

In response to our Draft Report, we received 15 submissions on the Yanco Creek levy, 14 of which supported the proposed increases. Water NSW also assisted in our consultation process by issuing a survey to customers on the proposed increases.[b] We received 4 responses to the survey, 3 of which supported the proposed increases.

We maintained the Yanco Creek levy at the current level

The feedback we received represents about only 23% of customers impacted by the Yanco Creek levy, with some customers indicating they do not support the proposed increases. We do not consider that we have received sufficient evidence to determine whether the proposed price increases are warranted and/or supported, and so maintained our draft decision to not increase the Yanko Creek levy.[207]

Higher levels of customer engagements will enable better informed decision-making, as having diverse customer representation will allow us to gauge the willingness to pay of customers in the Yanco Colombo System. Further, limited information meant we could not measure the cost-efficiency of YACTAC's proposed projects.

[b] Water NSW supported IPART in engaging 75% of the customer base though an online feedback form via emails.

In considering whether to maintain and/or increase the Yanco Creek levy, we would expect evidence of support from a larger proportion of customers, and proposed expenditure for planned projects.

We maintained the Yanco Creek levy at $0.90 per ML of entitlement (held constant in nominal terms) for the 2021 Determination, on the basis that:

- the ACCC's 2014 Decision under the Water Charge (Infrastructure) Rules 2010 and our 2017 Determination approved holding the levy constant[c]
- there is limited information on proposed expenditure provided for each project and YACTAC's strategic focus areas for the 2020–30 Strategic Plan
- from the submissions received, it is difficult to determine customers' willingness to pay for the proposed increases.

11.2 Miscellaneous charges increase by inflation only

Miscellaneous charges are fees levied by Water NSW for non-routine services. These charges are not recovered through bulk water charges and are determined separately.

Water NSW proposed a number of miscellaneous charges for which we determined prices where appropriate. These miscellaneous charges include:

- meter accuracy testing charges
- a trade processing charge
- an environmental gauging station (EGS) charge
- FRWS connection and disconnection fees
- credit card payment fees.

The ESG charge is an annual charge, whereas the other charges are fee for service. Our decisions on the miscellaneous charges are outlined below.

11.2.1 Meter accuracy testing charges increase by inflation

Customers with a Water NSW-owned meter may request a meter accuracy test if the meter is suspected to be faulty. When a customer requests accuracy testing, Water NSW levies a refundable deposit. The deposit is returned if the meter is found to be inaccurate and forfeited by the customer if the meter is within accuracy standards. Water NSW currently levies meter accuracy testing charges via a 2-part price:

- a deposit, which is returned if the meter is found to be inaccurate
- a cost-reflective charge if the meter is found to be accurate.

[c] The ACCC approved the Yanco Creek levy in 2014 on the basis that there will be no change (in nominal terms) to the level of the charge.

Our decision is:

42. To set charges for meter accuracy testing as shown in Table 11.2.

Table 11.2 Decision on meter accuracy testing charges for the 2021 determination period

Meter accuracy charges	Current ($2020–21)	Decision for 2021 Determination ($2021–22)
Refundable meter accuracy deposit per request ($nominal)[a]	$1,750.00	$1,750.00
Total additional charge where meter is found to be within accuracy standards:[b]		
Verification and testing on site	$4,626.39	$4,677.28
Laboratory verification and testing	$6,922.88	$6,999.03

a. The meter accuracy deposit does not increase with inflation over the determination period.
b. The total charge includes the additional charge, plus the $1,750 deposit which is not refunded when the meter is found to be within accuracy standards. The additional charge is indexed by CPI for each year of the determination.

Source: IPART analysis.

The current pricing approach for meter accuracy charges remains appropriate

The refundable deposit is not intended to reflect costs. Rather, it aims to balance customer incentives to question the accuracy of their meter. We consider that the current deposit remains appropriate.

We also consider that it is appropriate for Water NSW to recover its full testing costs when the meter is found to be within accuracy standards.

Water NSW proposed to continue the meter accuracy deposit and verification and testing charges in real terms over the 2021 determination period. In 2017, we accepted the total testing costs put forward by Water NSW as:[208]

- the costs reflect market rates, as Water NSW contracts the testing out to private vendors
- our consultant (Aither) examined the breakdown of services provided and costs, and was satisfied with the associated process and costs
- Aither and Water NSW confirmed the costs are likely to only vary substantially by the type of test being performed (on site or laboratory).

We accepted Water NSW's proposal and set the prices as set out in Table 11.2.

11.2.2 We removed the environmental gauging station charge

Water NSW uses in-stream flow meters to measure water flows associated with bulk water ordered by environmental water holders. These meters are also used for general operational and river management purposes. The ACCC introduced the EGS charge in 2014 to apply to environmental water holders.[d]

Our 2017 Determination set the EGS charge to recover the incremental costs of upgrading the meters. The charge was designed to recover the efficient costs of upgrading existing meters, in order to meet measurement standards required for billing. However, the EGS charge has never been levied, as the triggers for levying the charge were not met. We decided to not set an EGS charge. This is because no service has been provided and Water NSW incurred no costs relating to the charge, nor are costs expected to be incurred during the 2021 determination period.

Our decision is:

43. To remove the environmental gauging station charge.

Metering reforms do not apply to in-stream environmental flows

In its submission to our Draft Report, the Department of Planning, Industry and Environment – Environment, Energy and Science (DPIE EES) suggested removing the EGS charge. It argued that the metering standards and requirements of the non-urban metering reforms do not apply to in-stream flows, so the EGS charge would never be levied. As part of our consultation, we met with both DPIE EES and Water NSW to ensure we considered all relevant information from key stakeholders in making our decision.

Currently, flows (and hence bills) for environmental licence holders are determined using Water NSW's existing hydrometric monitoring network stations. DPIE EES considers that the accuracy of these meters is adequate for measuring the flows of its environmental releases. It is not seeking any new meters or improvements in the performance or accuracy of the meters used by Water NSW.

Previously we set the triggers for the EGS charge based on the incremental costs incurred by Water NSW in meeting the interim upgraded metering requirements.[209] This approach ensured that Water NSW would recover the efficient costs of meeting its metering obligations, and the environmental licence holders would meet those costs associated with metering its releases. While the non-urban metering reform requirements for extractive water use are clear, there are no specific metering standards or requirements that apply to in-stream monitoring of environmental flows.[210]

[d] Water access licences in NSW are linked to nominated works. For environmental water holders who do not pump water, these licences have gauging stations as their nominated works.

Therefore, we removed the EGS charge for the 2021 Determination. Should a need for upgrade arise, we will consider Water NSW's efficient expenditure in future determinations, and consider setting prices that recover the full efficient costs of these upgrades. These costs may include the explicit capital and operating costs, and any holding cost of expenditure that is necessary in the interim.

11.2.3 Other miscellaneous charges increase by inflation only

Miscellaneous charges are service fees Water NSW levies for non-routine product offerings, the costs of which are not recovered through bulk water charges. They are levied on individual customers who request Water NSW carry out the work.

These charges recover the direct costs Water NSW incurs in carrying out the work together with associated overhead costs. These costs are determined separately from the building block revenue to set bulk water services charges. This approach is consistent with the principle that the cost of these services should be borne only by those customers who use these services.

For the 2021 Determination, miscellaneous charges will remain at current levels in real dollars, as shown in the tables below.

The trade processing charge increases by inflation

Water NSW currently levies an allocation trade processing charge, which applies to all trade applications for allocation assignments (including intravalley, intervalley and interstate allocation assignments).

Our decision is:

44. To set the trade processing charge as a single, fixed charge as shown in Table 11.3.

In 2017 we set the charge as a single fixed charge per application, rather than a 2-part price as proposed by Water NSW. We considered that a fixed charge would better reflect the costs incurred by Water NSW, which correlated with the number of applications received (as opposed to the volume of water traded).

We accepted Water NSW's proposal to continue levying this charge at the current level over the 2021 determination period, in real terms, on the basis that it will recover administrative costs of processing individual trade applications (Table 11.3).

Table 11.3 Decision on trade processing charge for the 2021 determination period

Trade processing charge	Current ($2020–21)	Decision for 2021 Determination ($2021–22)
Trade processing charge per application	49.37	49.92

Note: The charge will be indexed by CPI for each year of the determination period.
Source: IPART analysis.

FRWS connection and disconnection fees increase by inflation

Water NSW levies new connection and disconnection fees for the FRWS. New connections and disconnection are made at the request of the customer.

Each new connection in the FRWS entails different requirements (location of tapping point and time taken to travel to location), which results in a variable cost of connection. In 2017, we determined connection charges based on the complexity of the connection.

Our decision is:

45. To set prices for the:
    - Fish River Water Supply connection charge based on the complexity of the connection service as shown in Table 11.4
    - Fish River Water Supply disconnection charge as shown in Table 11.5.

Water NSW proposed retaining these charges in real terms for the 2021 Determination. It also proposed retaining the disconnection fee at the current rate. We consider that the current approach remains appropriate, and set charges as outlined in Table 11.4 and Table 11.5.

Table 11.4 Decision on FRWS connection charge for the 2021 determination period

Service type	Current ($2020–21)	Decision for 2021 Determination ($2021–22)
Low complexity – no tapping band or pressure reducing valve required	916.30	926.38
Medium complexity – tapping band required	3,474.18	3,512.39
High complexity – pressure reducing valve required	7,103.19	7,181.32

Note: These charges will be indexed by CPI for each year of the determination period.
Source: IPART analysis.

Table 11.5 Decision on FRWS disconnection charge for the 2021 determination period

Charge	Current ($2020–21)	Decision for 2021 Determination ($2021–22)
Fish River disconnection charge	257.96	260.80

Note: These charges will be indexed by CPI for each year of the determination period.
Source: IPART analysis.

IPART does not regulate Water NSW's credit card payment fees

Our decision is:

46. To continue not to regulate Water NSW's credit card payment fees.

In 2017 Water NSW introduced credit cards as a payment option. By offering this payment option to customers, Water NSW can incur higher costs than debit transactions. Water NSW passes on to customers an amount relating to these fees which is set by NSW Treasury based on the normal cost of merchant interchange fees.[211] This amount is currently 0.44% for Visa/Mastercard and 1.54% for American Express cards.[212] In 2017, Water NSW proposed to vary the charges as NSW Treasury varies the charges[213].

Merchant interchange fees are incurred by State Owned Corporations and NSW Government agencies when they accept credit card payments from the public or customers. The NSW Government requires recouping these fees through surcharging for payments accepted using debit or credit cards issued by card schemes such as Visa, MasterCard, American Express and Diners. This charge does not apply to payments accepted using ATM cards issued by banks and other deposit taking institutions. A credit card payment fee also falls outside the definition of a 'regulated charge' under the WCR.[e]

[e] IPART cannot regulate the fee under section 11 of the IPART Act and would require a section 12A referral from the Minister for Customer Service to specify a maximum fee.

Chapter 12

Impacts of our decisions on Water NSW's prices

12

Summary of impacts on Water NSW's customers and Water NSW

Our price decisions generally increase bills for Water NSW's customers

Bills will increase in 2021–22 for customers in the MDB valleys and the Hunter valley due to increases in efficient costs, with bill increases of up to 52% for high security customers and 105% for general security customers. Bills will remain constant in real terms for customers in the North Coast and South Coast valleys.

Bills will increase in 2021–22 for customers in the FRWS scheme, except for Oberon Council and individual minor filtered water customers.

Customers will pay a lower bill in 2021–22, compared with 2022–23 to 2024–25 as a result of our decision to delay all bulk water charges from taking effect until 1 October 2021.

Bill impacts are reasonable

We calculated price changes in customers' bills over the most recent 10-year period, and found that on average, bills are increasing by less than 2.5% per year (before inflation).

Bills paid by Water NSW's customers are in line with bills paid by irrigators in Victoria and Queensland for comparable services.

We also compared bills with farming businesses' gross value of irrigated agricultural production, and usage charges for 2021–22 with prices paid for allocations in the water trading market.

We did not identify a financeability concern for Water NSW

Water NSW is expected to meet 2 of the 3 ratios for the benchmark test in all years of the determination period.

We must also consider other matters under the IPART Act

Our decisions on operating and capital expenditure will allow Water NSW to recover all efficient costs it incurs in meeting its environmental obligations.

Our pricing decisions will negatively impact the Consolidated Fund by up to $48.0 million per year. This is $10.6 million (or 28% higher) per year compared with the 2017 determination period, mainly due to under-recovery in the short term in BRC and MDBA contributions.

This chapter sets out the impacts of our pricing decisions on Water NSW's customers.

We also discuss the impact on Water NSW's financeability, as well as other matters we must consider under section 15 of the IPART Act, including the environment and the NSW Government's Consolidated Fund.

12.1 Bill increases reflect additional expenditure requirements

In reaching our decisions, we considered the impact of indicative bills on Water NSW's customers.

12.1.1 Bills increase for a majority of valleys

Table 12.1 and Figure 12.1 show our analysis of bill impacts. This analysis is based on:

- a typical high security customer with 500 ML of entitlements and 100% usage of entitlements
- a typical general security customer with 500 ML of entitlements and 60% usage of entitlements.

We present bill impacts based on the same assumptions for all valleys to allow for comparison between valleys. We acknowledge that these assumptions may not reflect the profile of the average customer in each valley.

Valley-specific bills with high security and general security customers further separated into 3 categories (small, medium and large) based on entitlements and usages representative of each valley are available on our review website.

Bills presented below are based on prices for the 2021 determination period. They reflect what customers will pay in 2022–23, 2023–24 and 2024–25 (in $2021–22). Customers will pay a lower bill in 2021–22 because the new bulk water charges will not take effect until 1 October 2021, which means that 2020–21 prices remain in place until 30 September 2021.

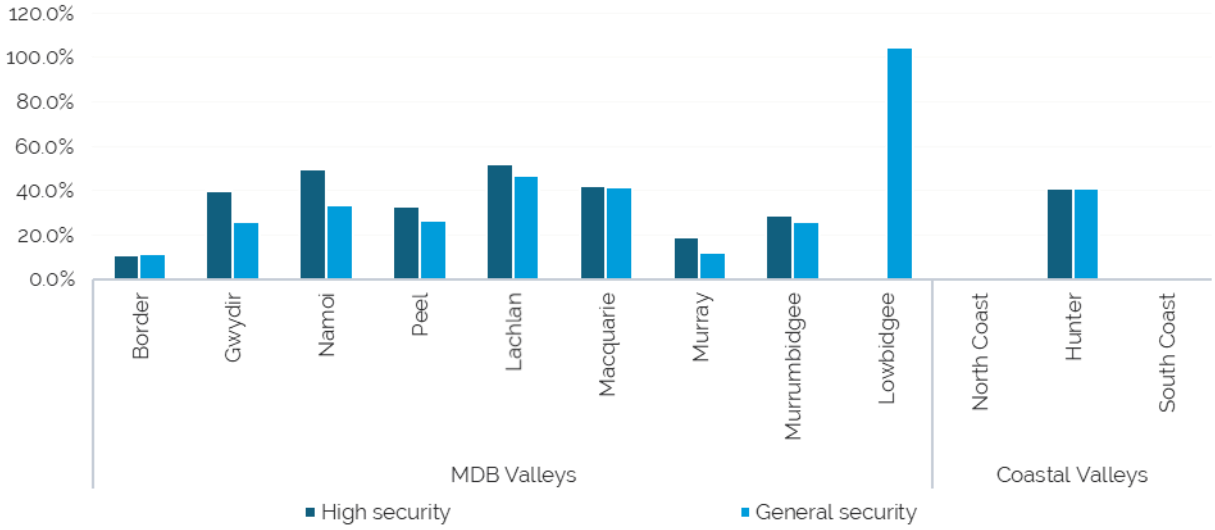
We note that under the WCR, Water NSW must apply for annual reviews of its prices during the determination period. Bill impacts presented in this section do not account for potential updates in prices following these annual reviews.

Table 12.1 Bills by valley including MDBA and BRC costs

	Current ($2020–21)	Final Report ($2021–22)	% change from current to Final Report
High security			
Border	$8,705	$9,655	10.9%
Gwydir	$12,360	$17,295	39.9%
Namoi	$19,960	$29,905	49.8%
Peel	$32,275	$42,935	33.0%
Lachlan	$18,535	$28,135	51.8%
Macquarie	$14,695	$20,910	42.3%
Murray	$6,580	$7,840	19.1%
Murrumbidgee	$4,405	$5,685	29.1%
Lowbidgee	-	-	-
North Coast	$15,730	$15,900	1.1%
Hunter	$13,875	$19,535	40.8%
South Coast	$25,895	$26,180	1.1%
General security			
Border	$4,000	$4,457	11.4%
Gwydir	$5,712	$7,177	25.6%
Namoi	$10,746	$14,314	33.2%
Peel	$8,099	$10,263	26.7%
Lachlan	$7,623	$11,206	47.0%
Macquarie	$5,987	$8,462	41.3%
Murray	$3,421	$3,829	11.9%
Murrumbidgee	$2,090	$2,637	26.2%
Lowbidgee	$420	$860	104.8%
North Coast	$10,546	$10,664	1.1%
Hunter	$9,570	$13,484	40.9%
South Coast	$14,285	$14,440	1.1%

Notes: Bills include BRC costs in the Border valley and MDBA costs in the Murray and Murrumbidgee valleys. The Lowbidgee valley has supplementary licences that are charged fixed entitlement charges only.
Source: IPART analysis.

Figure 12.1 Bill impacts for customers (% change from 2020–21 to 2021–22)



Note: Bills include MDBA and BRC costs.
Data source: IPART analysis.

Bills will increase from 2020–21 to 2021–22 for all valleys, except for the North Coast and South Coast valleys. The bill increases are mainly due to increases in efficient costs over the 2021 determination period compared with the 2017 determination period. Bills in our Final Report are higher than our Draft Report for several reasons. First, we increased the notional revenue requirement (NRR) between the Draft Report and Final Report stages. Second, the decision to delay all bulk water charges from taking effect until 1 October 2021 means the NRR for the 2021 determination period needs to be recovered from customers over 3.75 years rather than 4 years.

Customer bills for most valleys will increase by between 11% and 52%, except for the Lowbidgee, North Coast and South Coast valleys.

Bills for customers in the Lowbidgee valley increase by around 105%, which is the highest percentage increase for all valleys. This is mainly due to a significant increase in operating expenditure, which Water NSW needs to ensure Lowbidgee assets are properly maintained. In the North Coast and South Coast valleys, bills will remain constant in real terms. This reflects our decision to maintain charges in real terms over the 2021 determination period.

High security entitlement holders will experience greater percentage increases than general security entitlement holders, reflecting increases in the high security premium that shift costs from general security to high security entitlements.

12.1.2 Bill impacts from BRC and MDBA pass-through charges are mixed

The NSW Government recovers a portion of its contributions to the BRC and MDBA through charges on water licence holders.

Under our prices, the BRC component of bills in the Border valley will fall slightly from 2020–21 to 2021–22 (Table 12.2). This is due to our decisions on Water NSW's efficient BRC expenditure, reallocation of costs between Water NSW and WAMC, and moving to a building block approach to calculate efficient BRC costs (see section 5.5).

Table 12.2 Bill impacts – BRC and MDBA pass-through charges only

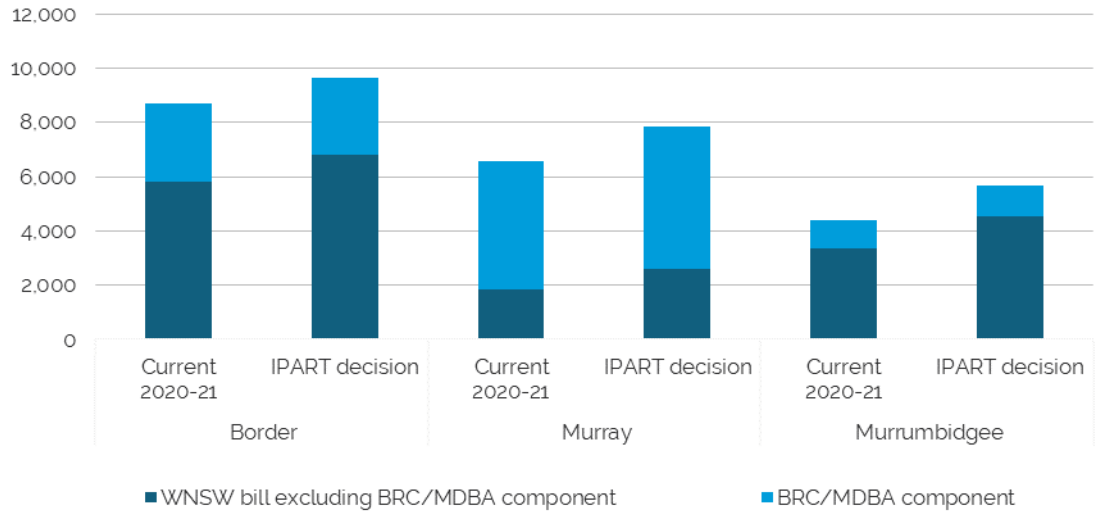
	Current ($2020–21)	Final Report ($2021–22)	% change from current to Final Report
High security			
Border	$2,905	$2,850	–1.9%
Murray	$4,720	$5,245	11.1%
Murrumbidgee	$1,030	$1,115	8.3%
General security			
Border	$1,177	$1,143	–2.9%
Murray	$2,398	$2,455	2.4%
Murrumbidgee	$424	$431	1.7%

Note: Assumes 500 ML of entitlements and 100% usage for high security users, and 500 ML of entitlements and 60% usage for general security users.
Source: IPART analysis.

The MDBA component of bills in the Murray and Murrumbidgee valleys will increase under our prices. This is due to significantly higher efficient expenditure by the MDBA. However, moving to a building block approach to calculate MDBA costs has offset most of this increased expenditure.

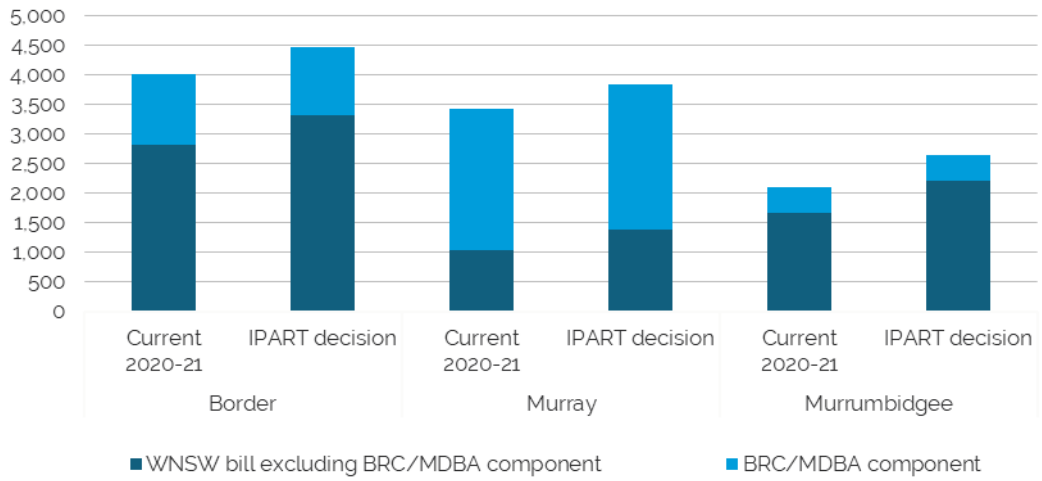
Figure 12.2 and Figure 12.3 present bills for the typical high security and general security entitlement holders in the Border, Murray and Murrumbidgee valleys, broken down into rural bulk water charges and BRC/MBDA pass-through charges.

Figure 12.2 High security bills – current ($2020-21) and IPART decision ($2021-22)



Data source: IPART analysis.

Figure 12.3 General security bills – current ($2020-21) and IPART decision ($2021-22)



Data source: IPART analysis.

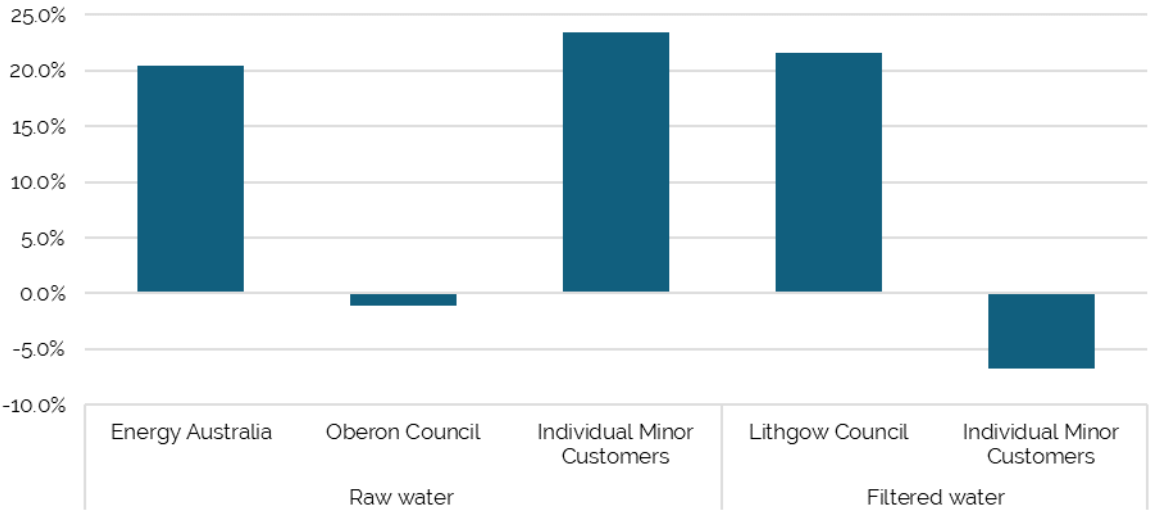
12.1.3 Bills will increase for most customers in the FRWS

Our analysis is based on:

- minimum annual qualities (MAQs) in the water sharing plan for major customers, and a deemed MAQ of 200 kL for minor individual customers (both raw and filtered)
- the 20-year average (i.e. forecast) water usage for each customer type excluding EnergyAustralia
- 1,850 ML of water usage for EnergyAustralia.

Table 12.3 and Figure 12.4 present the impact of our prices on bulk raw water and bulk filtered water customers in the FRWS scheme.

Figure 12.4 Bill impacts for FRWS customers (% change from 2020–21 to 2021–22)



Data source: IPART analysis.

Table 12.3 Bill impacts for customers in the FRWS

	Current ($2020–21)	Final Report ($2021–22)	% change from current to Final Report
Raw water			
EnergyAustralia	$3,837,940	$4,620,598	20.4%
Oberon Council	$631,220	$624,000	-1.1%
Lithgow Council	$0	$82,000	
Individual minor customers	$405	$499	23.4%
Filtered water			
Lithgow Council	$1,546,780	$1,880,857	21.6%
Individual minor customers	$663	$618	-6.7%

Source: IPART analysis.

As shown in Figure 12.4, bills will generally increase for customers in the FRWS, except for Oberon Council and individual minor filtered water customers. The increases are mainly due to increases in operating expenditure.

We maintained prices in real terms for Oberon Council (discussed in Chapter 10). The council will now experience a small bill decrease of 1.1% from 2020–21 to 2021–22, due to a decrease in demand between the Draft Report and Final Report stages of the price review. Bills for individual minor filtered water customers will also decrease in the 2021 determination period. This is because we aligned the unit MAQ and usage charges for individual filtered water customers with charges for Lithgow City Council.

12.2 We consider bills based on our pricing decisions are reasonable

Stakeholders' submissions to our Draft Report stated that bill increases under our draft prices are unaffordable for customers, particularly in periods of uncertain allocation reliability.[214]

We recognise stakeholders' concerns about the affordability of bill increases. In this section, we present the combined bill for water users in regulated water sources based on our final pricing decisions for the Water NSW and WAMC price reviews. We then assess the reasonableness of these bills by considering price movements for typical high security and general security water users over the past 10 years and comparing these bills with bills for comparable services in other jurisdictions.

We also compare Water NSW and WAMC bills for Water NSW's customers with farming businesses' gross value of irrigated agricultural production (GVIAP), and usage prices for the 2021 determination period with prices paid for allocations traded on the water market.

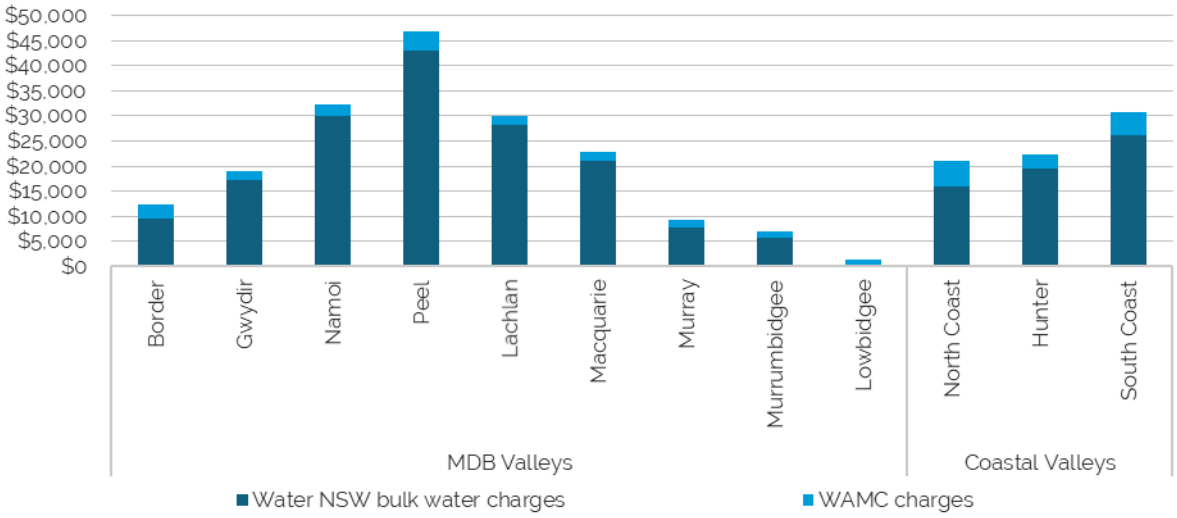
For the 9 valleys in the MDB and rural customers in the FRWS, we must comply with the WCR. That is, we must set prices that fully recover Water NSW's efficient costs, rather than set prices based on affordability or transition gradually to prices that fully recover costs.

12.2.1 Total bills for users in regulated water sources increase by 23% on average

We recognise that all Water NSW rural bulk water customers also pay for water management charges determined by IPART's review of WAMC's prices. These charges are set out in our Final Report on the Review of Water Management prices from 2021, which is available from IPART's website.

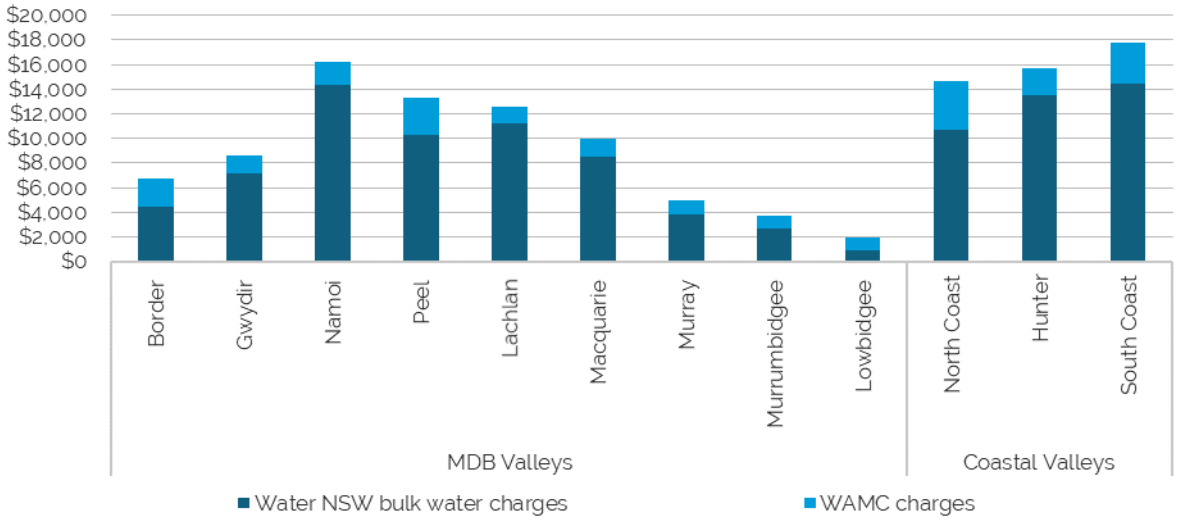
Figure 12.5 and Figure 12.6 present the combined Water NSW and WAMC bill for each valley for the typical high security and general security water user.

Figure 12.5 Typical high security bill – Water NSW and WAMC charges ($2021–22)



Note: Our analysis is based on the typical high security customer with 500 ML of entitlements and 100% usage of entitlements.
Data source: IPART analysis.

Figure 12.6 Typical general security bill – Water NSW and WAMC charges ($2021–22)



Note: Our analysis is based on the typical general security customer with 500 ML of entitlements and 60% usage of entitlements.
Data source: IPART analysis.

Total bills will increase by between 1% to 48% for the typical high security water user (Figure 12.5), and between 2% to 41% for the typical general security water user (Figure 12.6). Water users in the Lachlan valley will experience the highest bill increases, driven by increases in the Water NSW component.

Our analysis also shows that the Water NSW component contributes more to the total bill compared with the WAMC component, representing around 75% to 94% of the total bill for high security water users and 45% to 89% of the total bill for general security water users.

12.2.2 High security water users in MDB valleys record the highest average annual increases

To assess the combined impact of our pricing decisions (Water NSW and WAMC) on water users in regulated water sources, we considered price changes from 2011–12 to 2021–22 (Table 12.4).

Table 12.4 presents the annual bills for the typical water user in regulated water sources (in $2021–22), the cumulative percentage change in bills from 2011–12 to 2021–22, and the average annual percentage change over this 10-year period.

On average, total bills for high security water users increased by 2.1% per year, and total bills for general security water users increase by 1.3% per year.

Table 12.4 Annual bills for water users in regulated water sources ($2021–22)

	2011–12	2021–22	% change 2011–12 to 2021–22	Average annual % change
High security				
Border	12,283	12,371	0.7%	0.1%
Gwydir	16,115	19,020	18.0%	1.7%
Namoi	21,589	32,227	49.3%	4.1%
Peel	32,356	46,916	45.0%	3.8%
Lachlan	17,221	29,871	73.5%	5.7%
Macquarie	14,039	22,757	62.1%	4.9%
Murray	5,955	9,231	55.0%	4.5%
Murrumbidgee	4,847	6,947	43.3%	3.7%
Lowbidgee	1,052	1,262	19.9%	1.8%
North Coast	30,048	21,079	-29.8%	-3.5%
Hunter	25,628	22,237	-13.2%	-1.4%
South Coast	32,278	30,630	-5.1%	-0.5%
General security				
Border	6,947	6,741	-3.0%	-0.3%
Gwydir	7,921	8,580	8.3%	0.8%
Namoi	13,916	16,255	16.8%	1.6%
Peel	14,892	13,271	-10.9%	-1.1%
Lachlan	9,520	12,535	31.7%	2.8%
Macquarie	8,077	9,924	22.9%	2.1%
Murray	4,266	5,003	17.3%	1.6%
Murrumbidgee	3,159	3,705	17.3%	1.6%
Lowbidgee[a]	888	1,928	117.0%	8.1%
North Coast	19,702	14,660	-25.6%	-2.9%
Hunter	11,946	15,747	31.8%	2.8%
South Coast	19,504	17,816	-8.7%	-0.9%

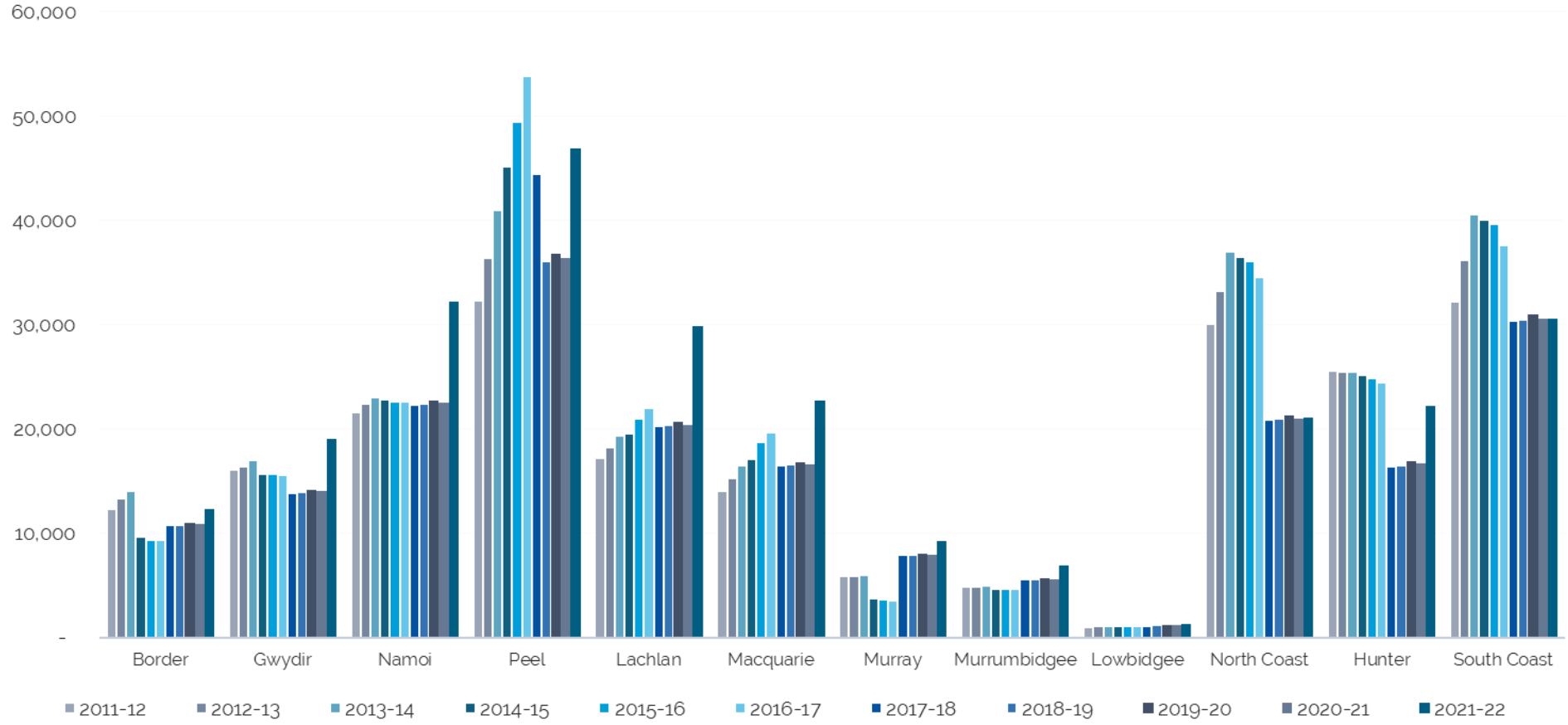
Note: Includes Water NSW and WAMC charges.
Source: IPART analysis.

The typical high security customer in an MDB valley experienced a bill increase in real terms from 2011–12 to 2021–22, with the average annual bill increase ranging from 0.1% per year in the Border valley to 5.7% per year in the Lachlan valley. In contrast, the typical high security customer in a Coastal valley experienced a bill decrease in real terms over the same period, with the average annual bill decrease ranging from 0.5% per year in the South Coast valley to 3.5% per year in the North Coast valley.

The typical general security customer experienced a bill increase in real terms from 2011–12 to 2021–22 in 8 out of 12 valleys, with the average annual bill increase ranging from 0.8% per year in the Gwydir valley to 8.1% per year in the Lowbidgee valley (driven by an increase of 105% from 2020–21 to 2021–22, see section 12.1.1). The typical general security customer experienced a bill decrease in real terms in the 4 remaining valleys, with the average annual bill decrease ranging from 0.3% in the Border valley to 2.9% in the North Coast valley.

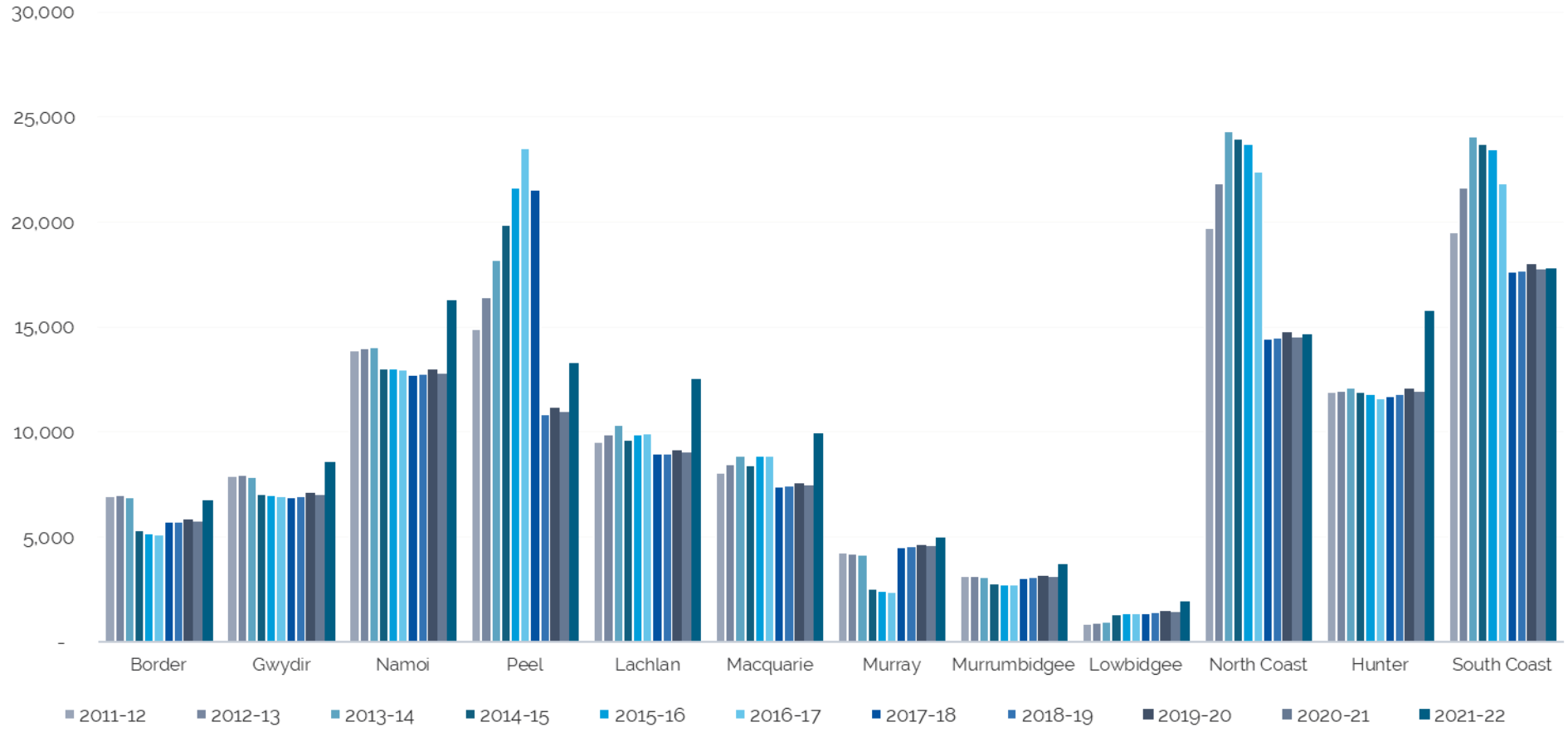
Figure 12.7 and Figure 12.8 show the annual bills in each year from 2011–12 to 2021–22 for high security water users and general security water users respectively.

Figure 12.7 Annual bill for the typical high security water user, 2011–12 to 2021–22 ($2021–22)



Notes: Our analysis is based on the typical high security customer with 500 ML of entitlements and 100% usage of entitlements. Bills include BRC costs in the Border valley and MDBA costs in the Murray and Murrumbidgee valleys.
Data source: IPART analysis.

Figure 12.8 Annual bill for the typical general security water user, 2011–12 to 2021–22 ($2021–22)



Notes: Our analysis is based on the typical general security customer with 500 ML of entitlements and 60% usage of entitlements. Bills include BRC costs in the Border valley and MDBA costs in the Murray and Murrumbidgee valleys.
Data source: IPART analysis.

12.2.3 Bills in NSW are generally in line with bills in other jurisdictions

This section presents information on bills for comparable services in Victoria and Queensland. While prices vary within each state depending on geographical location and other factors, bills based on our final pricing decisions are generally in line with bills paid by irrigators in other jurisdictions.

We compared Water NSW bills with GMW bills in Victoria

Goulburn-Murray Water (GMW) is the largest rural water provider in Victoria. Figure 12.9 presents bills paid by GMW's gravity irrigation and pumped irrigation customers, for high reliability and low reliability water entitlements. We found that:

- There is greater variability in the prices paid by Water NSW customers in different valleys. For GMW, prices are generally consistent across irrigation districts, but vary depending on whether water is delivered via gravity, or through pumped piped supply systems. Prices in pumped irrigation districts are higher than prices in gravity irrigation districts.
- Total bills for the typical general security customer in NSW are lower than bills for a low reliability GMW customer with 500 ML of entitlements and 60% usage, except in the South Coast valley.
- The average bill for a typical high security customer in NSW is similar to the bill for a high reliability, gravity irrigation GMW customer with 500 ML of entitlements and 100% usage, and lower than the bill for a high reliability, pumped irrigation GMW customer with 500 ML of entitlements and 100% usage. However, the total bill in the Peel valley is higher than bills for all high reliability GMW customers.

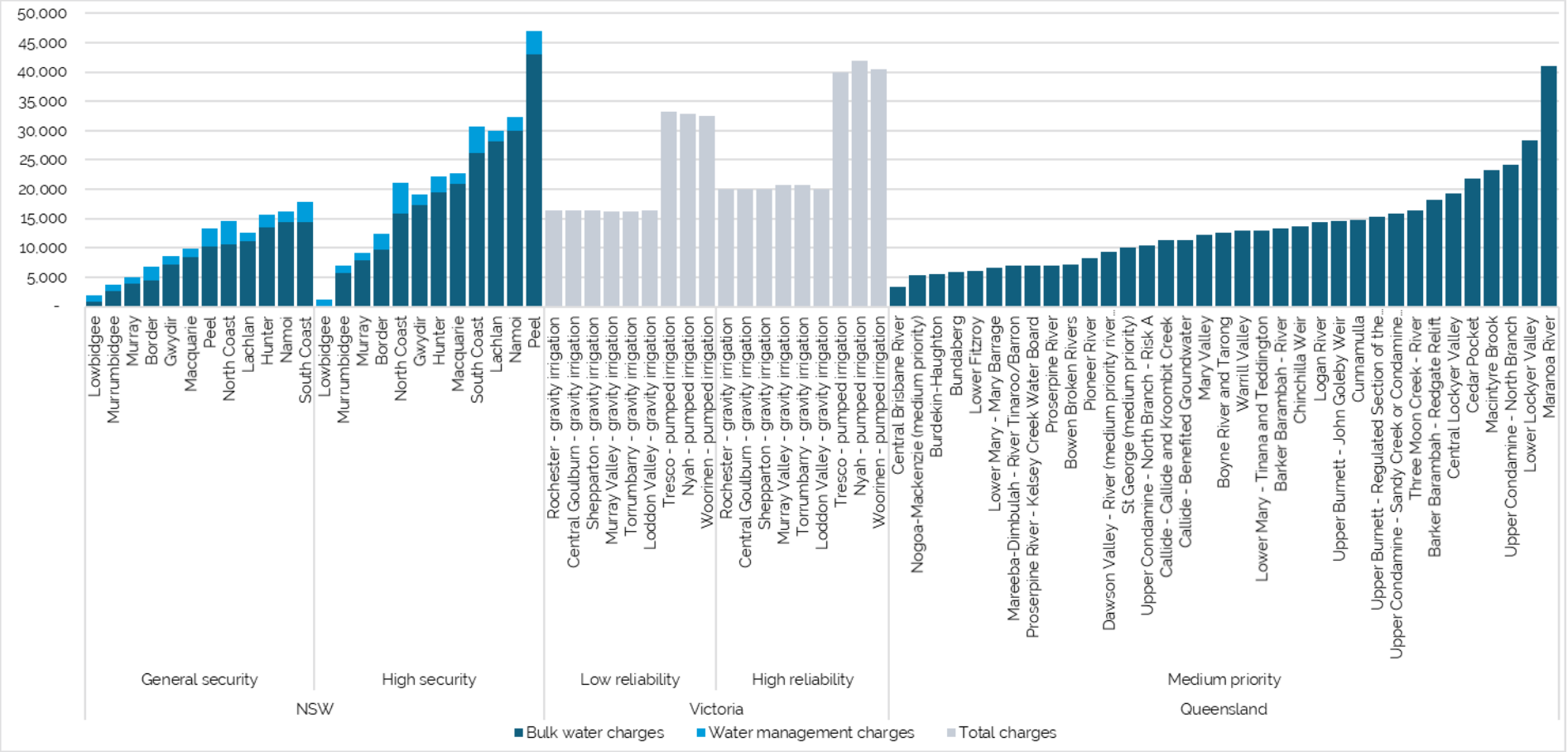
A key difference between NSW and Victoria is that distribution services are owned by users in NSW, but government-owned in Victoria.[ccxv] In NSW, some irrigators are served directly by ICDs in the Lachlan, Murray and Murrumbidgee valleys, and we do not regulate the prices or charges levied by these ICDs on end users (see Chapter 11). For GMW, the costs of providing distribution services are reflected in its prices.

We compared Water NSW bills with Sunwater and Seqwater bills in Queensland

For Queensland, we considered prices paid by irrigation customers for the 22 water supply schemes operated by Sunwater, and 7 water supply schemes operated by Seqwater. We presented only rural bulk water charges because in Queensland, the Department of Regional Development, Manufacturing and Water (DRDMW) is responsible for water planning and management activities. While some of the costs of these activities are recovered from water users through fees and charges, this represents only a small portion of the total water planning and management costs incurred by DRDMW. These fees and charges are separate from Sunwater and Seqwater's prices.

Our analysis shows that prices vary across water supply schemes, with bills ranging from around $3,300 (in the Central Brisbane River) to around $41,100 (in the Maranoa River), with an average bill of around $13,300. This is higher than the Water NSW bill for the typical general security customer in most valleys, except the Hunter, Namoi and South Coast valleys.

Figure 12.9 Rural bulk water and water management charges ($2021–22)



Note: We discounted the Queensland Competition Authority's recommended 2020–21 prices for Sunwater and Seqwater schemes by 15% to reflect the Queensland Government's decision to reduce the cost of water for all irrigators. Horticultural growers will receive an additional 35% rebate, which will be assessed by the Queensland Rural and Industry Development Authority. We have not accounted for the additional 35% discount in our analysis because it applies only to horticultural growers.
Data source: Goulburn-Murray Water, Pricing Simulators, accessed 20 June 2021; Queensland Government, Irrigation pricing discounts 2021-24, accessed 18 June 2021; and IPART analysis.

The analysis is based on several assumptions. For GMW, our analysis of prices paid by gravity and pumped irrigation customers assume one property, with 500 ML of entitlements with 100% usage of entitlements for high reliability, and 60% usage of entitlements for low reliability. We also assumed a delivery share of 5 ML/day, based on GMW's guide to divide water shares by 100. Bills were generated based on these inputs using GMW's pricing simulators.[216]

Our analysis of prices paid by irrigators in Queensland is based on 500 ML of entitlements with 60% usage of entitlements. This allows for comparison with prices paid by the typical general security customer in NSW. We presented only bills for medium priority entitlements, as in general, irrigators in Queensland hold medium priority entitlements.[217]

12.2.4 Bills account for up to 12% of farming businesses' revenue

In the Draft Report, we used information published by the Australian Bureau of Statistics (ABS) to estimate bills as a percentage of GVIAP for farming businesses. We determined that bills based on our draft prices would account for up to 11% of farming businesses' GVIAP and concluded that bill increases will not have a significant adverse impact on farming businesses' profitability.

Stakeholders' submissions to the Draft Report disagreed with the results of our analysis. Murrumbidgee Private Irrigators Inc and Murrumbidgee Groundwater Inc's joint submission argued that the correct interpretation of the GVIAP analysis would be that water charges are far too high. In their view, a cost that grows by around 20% over one determination period, and represents around 11% of revenue, has a significant impact on farming businesses.[218]

We note that the 11% figure presented in the Draft Report was the maximum percentage observed across the valleys – specifically, for general security water users in the Hunter valley. Bills as a percentage of GVIAP vary between types of farming businesses due to differences in commodity prices and water application rates, as well as between valleys due to differences in price levels.

We updated our analysis to reflect our final pricing decisions for the Water NSW and WAMC price reviews. We found that the total bill in 2021–22 would account for:

- 5% of GVIAP on average, and up to 10% in the Hunter valley, for the typical high security water user
- 4% of GVIAP on average, and up to 12% in the Hunter valley, for the typical general security water user.[a]

We also calculated total bills as a percentage of GVIAP for regulated water sources over 2013–14 to 2017–18 (Table 12.5).

[a] Includes Water NSW and WAMC charges.

Table 12.5 Water NSW and WAMC bill as a percentage of GVIAP

	2013–14	2014–15	2015–16	2016–17	2017–18
High security					
Average	8%	7%	7%	6%	4%
Maximum	18%	16%	14%	15%	8%
General security					
Average	7%	6%	6%	5%	4%
Maximum	14%	13%	16%	11%	9%

Note: GVIAP data only available up to the 2017–18 financial year at the time of drafting.
Source: ABS, Gross Value of Irrigated Agricultural Production, accessed 4 June 2021; ABS, Water Use on Australian Farms, accessed 4 June 2021; and IPART analysis.

Based on our analysis, bills as a percentage of GVIAP are higher in 2021–22 than in 2017–18, but lower than the 4 years prior to 2017–18.

Overall, we consider that the bill impacts on farming businesses are reasonable. However, we recognise that circumstances differ between valleys and types of farming businesses, and that bills representing up to 12% of revenue may be unaffordable for irrigators in some valleys. We note that under the WCR, we must set prices that fully recover Water NSW's efficient costs for the 9 MDB valleys and rural customers in the FRWS, rather than set prices based on affordability. Irrigators having difficulties paying their water bills can contact Water NSW, which offers several options to help customers requiring affordability assistance.[219]

12.2.5 Usage prices are substantially lower than prices paid on the water market

Our Draft Report compared our draft prices with prices paid for allocations and entitlements on the water market. We found that draft usage prices are relatively low compared with the historical average for allocations traded on the water market, which is between $100 and $200 per ML.[220] Further, the present values of draft entitlement prices are also lower than prices for entitlements traded on the water market.

Stakeholders' submissions to the Draft Report stated that prices in the water market are irrelevant, because trading would involve ceasing irrigation.[221] We acknowledge that water trading is not a preferable alternative for all irrigators, and recognise that accessibility to the water market is not consistent across all water sources.

Market prices for allocations are higher than Water NSW usage prices

Our analysis shows that prices paid in the water market are substantially higher than IPART determined usage prices for all valleys (Table 12.6). However, the level of trading activity is not consistent across all valleys and is substantially lower in the Peel and Coastal valleys.

The table below presents the usage price, the weighted average price on the water market, and the volume of trades in allocations as a percentage of total allocations by valley.

Table 12.6 Comparison of IPART determined usage prices and weighted average prices for allocations on the water market

	Final usage price ($2021–22/ML)[a]	Weighted average price 2010–11 to 2019–20 ($2021–22/ML)	Volume of trades as a percentage of total allocations (%)
Border	$10	$210	10.2%
Gwydir	$19	$319	22.4%
Namoi	$33	$223	27.8%
Peel	$29	$192	5.3%
Lachlan	$33	$143	73.9%
Macquarie	$24	$244	23.3%
Murray	$6	$178	36.9%
Murrumbidgee	$6	$169	16.7%
Lowbidgee	$1	–	–
North Coast	$25	–	–
Hunter	$21	$138	1.6%
South Coast	$24	$1,012	1.5%

a. This is the sum of Water NSW and WAMC usage charges for 2021–22.

Source: NSW Department of Planning, Industry and Environment (DPIE), Allocations dashboard, accessed 16 June 2021; DPIE, Share component dashboard, accessed 16 June 2021; DPIE, Trade dashboard, accessed 16 June 2021; and IPART analysis.

The present values of entitlement charges are lower than market prices

This section compares the present value of all future entitlement charges with prices paid for entitlements on the water market for the Murray and Murrumbidgee valleys, the 2 water systems with the highest number of trades by volume in NSW.[222]

We found that from 2010–11 to 2019–20:

- In the Murray valley, the weighted average price per ML on the water market was $1,383 for general security entitlements, and $4,090 for high security entitlements (in $2021–22). For comparison, the present value per ML is $273 for a general security entitlement, and $527 for a high security entitlement.[b] Therefore, the present value of entitlement charges is small (i.e. 20% for general security and 13% for high security) compared with the market price of the entitlements themselves.
- In the Murrumbidgee valley, the weighted average price per ML on the water market was $1,506 for general security entitlements, and $4,054 for high security entitlements (in $2021–22). We also determined that the present value per ML is $153 for a general security entitlement, and $318 for a high security entitlement. Again, the present value of entitlement charges is small (i.e. 10% for general security and 8% for high security) compared with market prices.

b We calculated the present value using Water NSW and WAMC entitlement charges (based on our final pricing decisions) and the pre-tax real WACC of 2.4% for MDB valleys as the discount rate.

The trade volumes for entitlements are significantly lower than trade volumes for allocations. Our analysis shows that the volume of trades in entitlements on the water market represent around 1% (on average) of total entitlements. Based on this analysis, we acknowledge that comparisons between the present value of IPART-determined entitlement charges and the weighted average prices on the water market may not be relevant for all water users.

12.2.6 Stakeholders were concerned about decreases in allocation reliability

Another issue raised by stakeholders at our Online Public Hearing (in March 2021) and in submissions to our Draft Report is that over time, water charges have increased, and allocation reliability has decreased. The NSW Irrigators' Council requested that we analyse the trends of water charges against actual usage to determine how charges per ML of actual water take have changed over time.[223]

We analysed changes in allocation reliability over time. We found that from 2010-11 to 2019–20:

- high security allocations averaged above 90% for all valleys
- general security allocations averaged below 60% for all MDB valleys, with the lowest being the Gwydir valley at 30%.

We then calculated the price per ML, adjusted for allocation reliability, for each year from 2010–11 to 2019–20. As expected, the price per ML of water take increases as allocation reliability decreases, because the fixed component per ML of water take increases.

We recognise that in periods of low allocation reliability, irrigators will pay more for each ML of water take. However, the relative reliabilities of high security entitlements and general security entitlements are already captured in the maximum prices we set through the high security premium. The impact of decreasing allocation reliability in a particular valley on the price per ML of water take may be reduced by changing the price structure and increasing the ratio of variable charges. However, we note that this change would have flow-on effects for the valley's revenue volatility allowance, and prices (see section 6.1).

12.3 We consider Water NSW will remain financially sustainable

When setting prices, we consider the financial sustainability of the business resulting from our pricing decisions. To do this, we undertake a financeability test to assess how our pricing decisions are likely to affect the business's financial sustainability, and ability to raise funds to manage its activities, over the upcoming regulatory period. The financeability test is based on the approach outlined in IPART's 2018 *Review of our financeability test* (2018 Financeability Review).[224]

The 2018 Financeability Review requires us to, as a default, conduct the financeability test on the portion of the business for which we set prices. Table 12.7 shows the financeability test results for Water NSW's rural water business only. Further, the results are only for the benchmark test. This is because we do not have enough information on Water NSW's actual cost of capital to apply the actual test in a meaningful way.

Table 12.7 Financeability test results based on our pricing decisions

	Target ratios	2021–22	2022–23	2023–24	2024–25
Real interest cover					
Benchmark test	>2.2x	8.4x	8.5x	8.9x	9.0x
Does it meet the target?		✓	✓	✓	✓
Real FFO over debt[a]					
Benchmark test	**>7.0%**	**4.9%**	**5.0%**	**5.3%**	**5.4%**
Does it meet the target?		×	×	×	×
Real gearing					
Benchmark test	<70%	60%	60%	60%	60%
Does it meet the target?		✓	✓	✓	✓

a. Funds from operations

Note: We calculated the indicators based on our NRR and pricing decisions, using a WACC of 1.8%.
Source: IPART analysis.

Overall, we did not identify a financeability concern for Water NSW. Under our final pricing decisions, Water NSW will meet 2 of the 3 ratios for the benchmark test (interest cover and gearing) in all years of the determination period. It is our view that Water NSW can remain financially sustainable and continue to provide sustainable services over the 2021 determination period.

12.3.1 Water NSW's FFO over debt ratio is below the target level

Funds from operations (FFO) over debt measures how much free cash a business generates (i.e. after covering its operating costs, interest expense and tax) relative to the size of its total borrowings. For the benchmark test, the target for the real FFO over debt ratio is 7% (i.e. less than 7% is considered below target).

In its submission to the Draft Report, Water NSW argued that the business is failing in each year on the FFO over debt ratio. It argued that while the business has sufficient cash-flow to make interest payments, it is insufficient to service the business's full debt obligation. From Water NSW's perspective, this outcome is a fail, not a pass, of the financeability test. Water NSW identified 2 reasons for a failure on the FFO over debt ratio:

- the business has an insufficient depreciation allowance, and/or
- the real return on equity is too low because:
  - the nominal return on equity is too low, and/or
  - the inflation forecast is too high.[225]

We do not consider that the FFO over debt ratio represents a financeability concern for the 2021 determination period. Water NSW's relatively low FFO over debt ratio can be explained by the combined effects of the current low interest rate environment and the fact that Water NSW has an asset base of relatively long lived assets, which means the initial investment in assets is recovered over a relatively long period of time through the depreciation allowance. Further, Water NSW's interest coverage ratios are well above the target level. This indicates that Water NSW can comfortably meet its interest payments, even if interest rates increase significantly over the 2021 determination period.

In its submission to the Draft Report, Water NSW proposed disaggregating its RAB into short-lived and long-lived assets.[226] This approach would likely lead to a higher depreciation allowance, and improve the FFO over debt ratio. However, we decided not to disaggregate Water NSW's RAB for the 2021 determination period. We consider that stakeholders have not had an opportunity to comment on this change, and the resulting price increases, in this late stage of the price review. Further, we intend to review our weighted average cost of capital (WACC) methodology before our next review of these prices, including our approach to estimating expected inflation.

12.4 We considered implications on other matters under the IPART Act

This section discusses the impact of our pricing decisions on the environment and the NSW Government's Consolidated Fund.

We are required to consider these matters under the IPART Act in respect of the Coastal valleys and FRWS urban customers.

12.4.1 Our prices allow Water NSW to meet its environmental obligations

Under section 15 of the IPART Act, we must have regard to the need to maintain ecologically sustainable development by taking account of all feasible options to protect the environment.

Water NSW's environmental obligations are regulated by relevant Commonwealth, NSW and local environment legislation, regulation and regulatory bodies. These include:

- environmental management reports (EMRs) required under its Operating Licence
- water quality regulated under its Operating Licence and Raw Water Supply Agreement
- Portfolio Risk Assessment required as part of its dam safety requirements
- catchment management activities required under the Water NSW Act.

We consider that our decisions on operating and capital expenditure (discussed in Chapter 3 and Chapter 4) will allow Water NSW to recover all efficient costs incurred in meeting its environmental obligations through prices and government contributions.

12.4.2 Our prices would negatively impact the Consolidated Fund

Under section 16 of the IPART Act, we must report on the likely impact on 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.

We determined that our pricing decisions will have a negative impact on the Consolidated Fund of up to $48.0 million per year. This comprises:

- The Government share of Water NSW's NRR of $35.9 million per year. This amount is $0.04 million (or 0.1%) higher per year compared with the 2017 determination period.
- Under-recovery in the short term in BRC and MDBA contributions as a result of our decision to adopt the building block approach. If the NSW Government bears this under-recovery, it would impact the Consolidated Fund by $10.2 million per year.
- Under-recovery in the North Coast and South Coast valleys. If the NSW Government bears this under-recovery, it would impact the Consolidated Fund by $2.0 million per year. This amount is around $0.4 million (or 29%) higher per year compared with the 2017 determination period.

This amount is $10.6 million (or 28%) higher per year compared with the 2017 determination period, mainly due to under-recovery in the short term in BRC and MDBA contributions.

The following sections present more details on our findings.

12.4.3 Government share of Water NSW's NRR is $35.9 million per year

Under our final pricing decisions, the government share of Water NSW's NRR would impact the Consolidated Fund by an average of $35.9 million per year (Table 12.8). This includes $0.9 million per year in BRC and MDBA pass-through charges. This is $0.04 million per year (or 0.1%) higher than the allowance in the 2017 determination period.

Table 12.8 Government share of Water NSW's NRR ($ millions, $2020–21)

	2020–21	2021–22	2022–23	2023–24	2024–25	Average 2022-25	Change allowed to 2022-25[a]
Operating expenditure	3.9	4.2	4.7	4.5	4.3	4.4	5.3%
ICD rebates	0.0	0.0	0.0	0.0	0.0	0.0	
Return of capital	10.0	13.2	13.8	13.9	14.0	13.7	38.9%
Return on capital	16.6	14.8	16.0	16.0	15.8	15.6	–6.7%
Tax allowance	0.7	1.2	1.3	1.2	1.2	1.2	117.8%
UOM payback	0.0	0.0	0.0	0.0	0.0	0.0	
Volatility allowance	0.0	0.0	0.0	0.0	0.0	0.0	
BRC and MDBA costs	4.6	0.8	0.9	0.9	0.9	0.9	–79.7%
Total costs	**35.8**	**34.2**	**36.7**	**36.4**	**36.3**	**35.9**	**0.1%**

a. This is the percentage change from the 2017 determination period to the 2021 determination period.

Source: Water NSW *pricing proposal to IPART*, June 2020; and IPART analysis.

12.4.4 Under-recovery of BRC and MDBA impacts the Consolidated Fund

Water NSW will no longer be able to recover all BRC and MDBA costs in prices in the year they occur as a result of our decision to move to a building block approach. This revenue shortfall would need to be borne by Water NSW or recovered from the NSW Government as its shareholder.

If the NSW Government bears the under-recovery, it would impact the Consolidated Fund by about $10.2 million per year on average (Table 12.9 and Table 12.10).[c]

[c] This is based on $1.7 million of under-recovery of in the BRC component and $39.0 million of under-recovery in the MDBA component over the 2021 determination period.

Table 12.9 Comparison of BRC pass-through costs and revenue from charges ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Sum 2022-25
BRC pass-through amount					
Customer share	1.0	1.0	1.0	1.0	4.0
Government share	0.1	0.1	0.1	0.1	0.2
Customer share as percentage of total	95.0%	95.0%	95.0%	95.0%	
Revenue from charges under our decisions					
Customer share	0.6	0.6	0.6	0.6	2.4
Government share	0.0	0.0	0.0	0.0	0.1
Customer share as a percentage of total	95.0%	95.0%	95.0%	95.0%	
Difference					
Customer share	0.4	0.4	0.4	0.4	1.6
Government share	0.0	0.0	0.0	0.0	0.1
Difference as percentage of pass-through amount	39.5%	39.9%	39.9%	40.0%	

Source: Water NSW *pricing proposal to IPART*, Attachment 3 – Letter from NSW Government on MDBA and BRC costs, June 2020; and IPART analysis.

Table 12.10 Comparison of MDBA pass-through costs and revenue from charges ($ millions, $2020–21)

	2021–22	2022–23	2023–24	2024–25	Sum 2022-25
MDBA pass-through amount					
Customer share	22.6	24.6	24.6	24.6	96.5
Government share	1.8	1.9	1.9	1.9	7.5
Customer share as percentage of total	92.7%	92.8%	92.8%	92.8%	
Revenue from charges under our decisions					
Customer share	15.3	15.4	15.4	15.4	61.5
Government share	0.8	0.9	0.9	0.9	3.5
Customer share as a percentage of total	94.9%	94.5%	94.5%	94.6%	
Difference					
Customer share	7.4	9.2	9.2	9.2	35.0
Government share	1.0	1.0	1.0	1.0	4.0
Difference as percentage of pass-through amount	34.1%	38.5%	38.5%	38.5%	

Source: Water NSW *pricing proposal to IPART*, Attachment 3 – Letter from NSW Government on MDBA and BRC costs, June 2020; and IPART analysis.

12.4.5 Impact from under-recovery in the North Coast and South Coast valleys

Prices in the North Coast and South Coast valleys do not fully recover the customers' share of NRR.

Maintaining the current approach, fixed-to-variable ratios and level of prices in real terms results in an under-recovery of costs in these valleys. This under-recovery and resulting revenue shortfall would need to be borne by Water NSW or recovered from the NSW Government as its shareholder.

If the NSW Government bears the under-recovery, it would impact the Consolidated Fund by about $2.0 million per year. This amount is around 29% higher in real terms compared with the 2017 determination period, with recovery of costs decreasing from 10% to 8% for the North Coast valley, and 38% to 31% for the South Coast valley.[227] This is due to increases in total costs, and the user share of costs.

If the NSW Government bears the under-recovery in the North Coast valley, it would impact the Consolidated Fund by $1.2 million per year (Table 12.11).

Table 12.11 Target revenue for the North Coast valley ($'000s, $2020–21)

	2020–21	2021–22	2022–23	2023–24	2024–25	Average 2022-25	Average compared with 2020–21
Total costs	1,332	1,458	1,509	1,472	1,475	1,479	11.0%
Government share	273	181	191	192	193	189	–30.6%
User share	1,060	1,277	1,318	1,280	1,282	1,289	21.7%
Revenue from charges	106	108	108	108	108	108	-
Under-recovery of costs	–953	–1,170	–1,210	–1,171	–1,174	–1,181	-
Cost recovery (%)	10.0%	8.4%	8.2%	8.4%	8.4%	8.4%	

Source: IPART analysis.

If the NSW Government bears the under-recovery in the South Coast valley, it would impact the Consolidated Fund by $0.8 million per year (Table 12.12).

Table 12.12 Target revenue for the South Coast valley ($'000s, $2020–21)

	2020–21	2021–22	2022–23	2023–24	2024–25	Average 2022-25	Average compared with 2020–21
Total costs	1,130	1,226	1,328	1,240	1,227	1,255	11.1%
Government share	205	100	120	112	110	111	–45.9%
User share	925	1,126	1,208	1,127	1,117	1,145	23.8%
Revenue from charges	355	358	359	359	359	359	-
Under-recovery of costs	–570	–768	–849	–768	–758	–786	-
Cost recovery (%)	38.4%	31.8%	29.7%	31.9%	32.2%	31.4%	

Source: IPART analysis.

Chapter 13 »

Existing meter service charges

13

Summary of our decisions for existing meter service charges

Water NSW's existing meter service charges remain constant in real terms

We decided to continue setting cost-reflective charges based on Water NSW's June 2020 pricing proposal for its existing metering services. Our decision is to maintain Water NSW's existing meter service charges in real terms. This means that prices will only increase by inflation.

These charges are a separate fee-for-service charge for water users with government owned meters on regulated rivers. These charges do not include Water NSW's proposed additional costs to implement the NSW Government's metering reform.

Water users who are required to pay the existing meter service charge will continue to pay these charges until they are replaced by the new metering charges set out in Chapter 14.

In its June pricing proposal, Water NSW proposed recovering its ongoing metering costs via separate fee-for-service charges. As such, the costs of metering are not included in the general operating expenditure base and are not recovered from all users via the bulk water charges.

In our 2017 review, we engaged a consultant, Aither, to review the efficient costs of metering. We accepted Aither's recommendations and set the meters service charges to reflect those efficient costs.

This chapter sets out our assessment of Water NSW's metering charges from Water NSW's June pricing proposal.

13.1 Water NSW's meter service charge remains constant in real terms

Our decision is:

47. To accept Water NSW's proposal and set Water NSW's annual meter service charges for the 2021 determination period as shown in Table 13.1

Table 13.1 Decision on meter service charges for the 2021 determination period ($/year, $2021-22)

Size of government-owned meter	Current 2020-21	2021-22 to 2024-25
50mm	481.16	481.16
80mm	483.40	483.40
100mm	483.39	483.39
150mm	489.07	489.07
200mm	491.87	491.87
250mm	494.48	494.48
300mm	501.19	501.19
350mm	531.39	531.39
400mm	549.37	549.37
450mm	552.84	552.84
500mm	567.57	567.57
600mm	586.43	586.43
700mm	608.85	608.85
750mm	640.25	640.25
800mm	661.47	661.47
900mm	668.19	668.19
1,000mm	680.61	680.61
Channel	6,306.04	6,306.04

Source: Water NSW (Water NSW) pricing proposal to IPART, June 2020 and IPART analysis.

Meter service charges apply to government-owned water meters, and recover the efficient cost of holding, operating and maintaining the meter. These charges are levied annually.

Water NSW proposed maintaining the 2020-21 meter service charges in real terms for the 2021 determination period. We consider that Water NSW's proposal to maintain the current meter service in real terms over the 2021 determination period is reasonable. We have decided to accept Water NSW's proposed meter service charges. This decision is unchanged from the draft report.

We note that where a government-owned meter is updated or installed to comply with the new metering framework, Water NSW proposes that the meter service charge be replaced with the new metering charges discussed in Chapter 14.

Chapter 14

Non-urban metering reform charges

14

Summary of decisions on non-urban metering reform charges

We decided to introduce 5 new non-urban metering charges

These new charges apportion the efficient costs of the reforms across licence holders and water users with compliant meters.

- A 'scheme management charge' to apply as an annual fee to all licensed customers ($/licence).
- A 'telemetry charge' to apply as an annual fee per metering installation for customers that use telemetry ($/meter).
- A 'non-telemetry charge' to apply as an annual fee per metering installation for customers that do not use telemetry capacity ($/meter).
- 2 additional charges to apply to customers with government owned meters - 'meter service charge – operating costs' and 'meter service charge – capital costs'. These charges are to be applied as an annual fee per metering installation ($/meter).

We set charges to recover the efficient costs of implementing the reforms

We found that the efficient cost of implementing the metering reforms is $39.4 million to $47.8 million. The efficient costs vary depending on the number of customers that opt in to telemetry. The efficient costs are highest under Water NSW's base case when 0% of customers voluntarily opt in to telemetry ($47.8 million) and lowest when 100% of customers voluntarily opt in to telemetry ($39.4 million).

Our decision includes efficiency savings that Water NSW can realistically achieve when implementing the reforms and will ensure that customers are not paying for inefficient costs.

Our decisions take account of government funding to support metering uptake

The NSW Government will contribute funding to Water NSW to cover the capital costs of upgrading government owned meters. The aim of the funding is to ensure that the costs of bringing these meters into compliance with the non-urban metering rules is not borne by users. We therefore made a decision to set a 'meter service charge – capital costs' of $0 per year for the 2021 determination period.

In addition, the NSW Government and Australian Government will each provide $9 million in funding to deliver a telemetry rebate program across NSW. The rebate will automatically be applied as a one-off $975 credit on a water bill and provide a financial incentive for metered non-urban water users to use telemetry to remotely transmit their water take information. At this stage, it is unclear how many customers will voluntarily opt in to telemetry because of the rebate. We therefore decided to set charges that vary based on the proportion of customers that voluntarily opt in to telemetry.

In response to the Matthews Report on improving water resource management, Water NSW is implementing a range of non-urban metering reforms. In March 2021, we released draft reports for our Water NSW and WAMC reviews. In these reports, we did not make draft decisions on Water NSW's additional charges for implementing the non-urban metering reforms. Our preliminary view was that we did not have sufficient information to include Water NSW's proposed metering costs in regulated prices over the 2021 determination period. Instead, we sought feedback on Water NSW's proposal including the efficiency of its costs, the impacts on customers, the proposed price structure and who should pay for the policy.

In response to our draft reports, Water NSW submitted a revised proposal on non-urban metering responding to the issues we raised. We decided to delay the commencement of the 2021 determination period for Water NSW and WAMC to 1 October 2021 and release a Supplementary Draft Report on Water NSW's non-urban metering reform charges. This allowed us to assess Water NSW's revised proposal and seek feedback from stakeholders on draft decisions.

After considering feedback from stakeholders, we have made final decisions on the efficient costs and charges for implementing the non-urban metering reforms. This chapter sets out our decisions. The sections below set out further information on:

- the efficient costs of implementing the NSW Government's non-urban metering reforms
- the appropriate customer share of the efficient costs
- the appropriate charge structure including which costs should be recovered from different charges, whether the charges should apply to all licences or water users with compliant meters and how charges should vary based on the proportion of users that opt in to telemetry
- the level of charges and how we adjusted for several of Water NSW's modelling parameters
- how to transition from existing metering charges to the new charges to provide incentives for compliance as the reforms are rolled out between now and December 2023
- how to deal with uncertainty including whether to introduce an unders and overs mechanism (UOM), provide for exit fees and adjust charges at the next determination, and
- the impacts of metering reforms on customer charges and bills.

14.1 The efficient cost of metering reform is up to $47.8 million

Our decisions are:

48. That the efficient cost of implementing the NSW Government's non-urban metering reforms under Water NSW's proposed base case is $47.8 million over the 2021 determination period (see Table 14.1).

49. That the efficient cost of implementing the NSW Government's non-urban metering reforms varies from $39.4 million to $47.8 million based on the proportion of customers that voluntarily opt in to telemetry (see Table 14.2).

Our final decision is to set Water NSW's efficient costs under its base case at $47.8 million. This amount is $8.3 million (or 14.7%) lower than Water NSW's revised proposal and comprises:

- $4.0 million in scope adjustments
- $3.4 million in catch-up efficiency adjustments, based on a catch-up efficiency of 3.2% per annum for operating expenditure and 1.3% per annum for capital expenditure
- $0.8 million in continuing efficiency adjustments, based on a continuing efficiency of 0.7% per annum.

Table 14.1 summarises our decisions on Water NSW's operating and capital expenditure to implement the non-urban metering reforms under Water NSW's proposed base case.

Table 14.1 Decision on efficient costs of implementing non-urban metering reforms under Water NSW's proposed base case for the 2021 determination period ($ millions, $2020-21)

	2021-22[a]	2022-23	2023-24	2024-25	Total
Water NSW proposed[b]	16.9	14.5	13.3	11.4	56.1
IPART decision	9.3	15.6	13.7	9.3	47.8
Difference	-7.6	1.1	0.3	-2.2	-8.3
% Difference	-45.0%	7.8%	2.6%	-18.9%	-14.7%

a Including 2020-21 capital expenditure on government owned meters, which is included in the capital charge.
b The costs are slightly lower than in the Supplementary Draft Report because the Water NSW proposal and the Supplementary Draft Report costs double counted telemetry costs for government-owned meters.
Note: Water NSW proposal is based on information provided in Water NSW's April 2021 submission to IPART. Totals may not sum due to rounding.
Source: IPART analysis using data from Cardno, *Review of Water NSW's Metering Reform Costs – Final Supplementary Report*, September 2021.

We also found that the efficient costs vary with the number of customers that voluntarily opt in to telemetry.[a] Under the new metering rules, water users will need telemetry for all approved surface water works, except for those with surface pumps less than 200 mm or those directed to install telemetry by an order of the Minister. However, even if users are not required to have telemetry, they may voluntarily install telemetry equipment.

We consider that our decision should reflect the potential range of telemetry opt-in based on five scenarios modelled by Water NSW: 0%, 25%, 50%, 75% and 100% telemetry opt-in. The efficient costs are highest under Water NSW's base case when 0% of customers voluntarily opt in to telemetry ($47.8 million) and lowest when 100% of customers voluntarily opt in to telemetry ($39.4 million). This approach is unchanged from our draft decision.

[a] There are two types of meters under the new framework: telemetry meters and non-telemetry meters. Telemetry meters record data and remotely transmit it to Water NSW's centralised data systems. Non-telemetry meters record and store data on site and require periodic manual meter reading (known as data logger download).

Table 14.2 Decision on efficient costs of implementing non-urban metering reforms for different telemetry opt-in scenarios for the 2021 determination period ($ million, $2020-21)

Telemetry opt-in	2021-22[a]	2022-23	2023-24	2024-25	Total
0%	9.3	15.6	13.7	9.3	47.8
25%	8.7	15.1	13.1	8.8	45.7
50%	8.1	14.6	12.5	8.4	43.6
75%	7.5	14.1	11.9	7.9	41.5
100%	7.0	13.6	11.3	7.5	39.4

a Including 2020-21 capital expenditure on government owned meters, which is included in the capital charge.
Note: Totals may not sum due to rounding.
Source: IPART analysis using data from Cardno, *Review of Water NSW's Metering Reform Costs – Final Supplementary Report*, September 2021.

14.1.1 Water NSW provided sufficient information to set efficient costs

Several stakeholders considered that there was insufficient information to establish Water NSW's efficient costs. They also questioned the impact on efficient costs of delays in implementing the reform and inaccuracies in the number of sites used to set efficient costs and charges.[228]

Our detailed review of Water NSW's expenditure found that there was sufficient information to set efficient costs including dealing with delays, uncertainty in implementing the reforms and providing incentives to Water NSW to become more efficient as they implement the reforms. Our consultant – Cardno – tested the robustness of Water NSW's assumptions and made adjustments where appropriate to arrive at the efficient costs. We consider that there is sufficient information to set efficient costs. The catch-up efficiencies also provide an incentive to Water NSW to reduce uncertainty as they implement expenditure plans over time.[229]

We also made decisions on how to address uncertainty associated with other areas raised by stakeholders including floodplain harvesting meters, delays in users with privately owned meters complying with the policy and delays in the rollout of government owned meters. The sections below set out our analysis of each of these areas.

Delays in users with privately owned meters complying with the policy

For **privately owned meters**, we decided to set efficient costs based on users meeting the required compliance dates, rather than reflecting possible non-compliance. We consider that this is an appropriate approach for two reasons:

- Water NSW considered that its discussions with various stakeholders (including duly qualified persons (DQPs), NRAR and DPIE) have not indicated any supply issues that would prevent users with privately owned meters from meeting compliance dates (such as lack of supply of meters, local intelligence devices (LIDs) or DQPs).[230]

- Although in practice some users may not meet the required compliance dates, it is our role to set charges based on the efficient costs of Water NSW implementing the reform. This should include the activities it needs to undertake to support the required compliance dates for privately owned meters. Using lower efficient costs based on delays in users becoming compliant and then to setting lower charges would not provide an appropriate incentive for users to comply with the policy.

Delays in government owned meter rollout

For **government owned meters**, we also decided to set efficient costs based on Water NSW meeting the required compliance dates. Water NSW's proposal included operating and capital expenditure forecasts based on accelerating compliance for government owned meters. Water NSW advised that it has now revised this profile to align with the compliance dates required by the Regulation.[231]

We decided to set efficient costs based on Water NSW's revised profile as this reflects our best estimate of the expenditure profile based on current information and is consistent with meeting the required compliance dates. We also decided that customers should not start paying charges associated with these costs until the later of the compliance date and when Water NSW makes the meter compliant (see section 14.5 for further information).

Floodplain harvesting meters

Water NSW's April proposal included the costs of 1,066 floodplain harvesting meters being compliant and telemetered in 2020-21 and 2021-22.[232] However, amendments to the *Water Management (General) Regulation 2018* (the Regulation) that would require floodplain harvesting meters to comply were recently disallowed. Water NSW advised that this reduction of available meters being connected to telemetry from its original calculations will have material implications on the quantum that can be recovered from regulated charges as fixed telemetry costs will be spread across fewer meters.[233]

We asked Cardno to recommend efficient costs under two scenarios:

- Scenario 1 where the requirement for compliance for floodplain harvesting meters does not take effect until the next regulatory period.
- Scenario 2 where the requirement for compliance for floodplain harvesting meters takes effect from 2022-23.

Since the amendments to the Regulation were not approved, the compliance dates included in costs and charges in our Supplementary Draft Report will not be met. We decided to use Cardno's Scenario 2 as the basis for efficient costs and charges, where the compliance for floodplain harvesting meters take effect from 2022-23, as this our best estimate of the likely compliance dates based on currently available information. In addition, we consider that uncertainty around the timing of the requirements should be addressed by potentially adjusting charges at the next review (see section 14.6 for further information).

14.1.2 Water NSW's efficient expenditure is $8.3 million less than Water NSW's base case proposal

Water NSW proposed $56.1 million in operating and capital expenditure over the 2021 determination period to implement the NSW Government's non-urban metering reforms.[b] This amount is made up of:

- $32.4 million in scheme management costs (which Water NSW proposed are to be recovered from all customers via scheme management and telemetry/non-telemetry charges), and
- $23.6 million in government owned meter costs (which Water NSW proposed are to be recovered only from customers with government owned meters).

Water NSW's base case proposal assumes no customers voluntarily opt in to telemetry.[234] However, it also provided modelling of four additional scenarios with 25%, 50%, 75% and 100% of customers opt-in to telemetry.

Water NSW's efficient cost is $47.8 million which is $8.3 million less than what Water NSW proposed. Our reductions in Water NSW's proposed expenditure are comprised of:

- $4.0 million in scope adjustments
- $3.4 million in catch-up efficiency adjustments, based on a catch-up efficiency factor of 3.2% per annum for operating expenditure and 1.3% per annum for capital expenditure
- $0.8 million in continuing efficiency adjustments, based on a continuing efficiency factor of 0.7% per annum.

Further analysis on our reductions to Water NSW's scheme management costs and government owned meter costs are set out in the following sections.

Scheme management costs

Scheme management costs include the wider costs of introducing the reform, such as recording and reporting, customer self-reporting, general enquiries and education. They also include metering scheme management costs such as compliance activities, water take assessments, meter reading and meter data services.

Our decisions on adjustments to Water NSW's proposed scheme management operating costs are summarised in Table 14.3.

[b] These costs are slightly lower than in the Supplementary Draft Report because the Water NSW proposal and the Supplementary Draft Report costs double counted telemetry costs for government-owned meters.

Table 14.3 Decision on efficient scheme management operating and capital expenditure for the 2021 determination period ($ millions, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Water NSW proposed	7.1	7.8	9.2	8.4	32.4
Scope adjustments[a]	-0.9	-0.5	-0.4	-0.4	-2.3
Catch-up efficiency	-0.2	-0.4	-0.8	-1.0	-2.4
Continuing efficiency	0.0	-0.1	-0.2	-0.2	-0.5
Total efficient operating and capital expenditure	**5.9**	**6.7**	**7.8**	**6.8**	**27.3**
Difference	-1.1	-1.0	-1.4	-1.6	-5.2
Difference (%)	-16.1%	-13.4%	-15.0%	-19.0%	-15.9%

a Including adjustment due to delayed rollout of floodplain harvesting meters.
Note: Totals may not sum due to rounding.
Source: IPART analysis using Cardno, *Review of Water NSW's Metering Reform Costs – Final Supplementary Report*, September 2021.

We consider that Water NSW can make **scope adjustment** efficiency savings of $2.3 million, consistent with Cardno's recommendations. These adjustments include:

- An annual adjustment based on the revision of the working weeks included in Water NSW's cost model from 40.66 to 41.41. This recognises that non-field staff are not subject to the same training, down-time and leave requirements of field staff and as such have slightly higher average working weeks per year. Cardno considered that Water NSW had not provided sufficient evidence of a resourcing plan to support its proposal and on balance applied an adjustment based on 41.41 weeks to forecast efficient costs.[235]
- An annual adjustment based on an observation in Water NSW's cost model that the 'Other' salary costs for Team Leaders had not been revised to from $25,000 to $15,000 as set out in the changes that Water NSW had made to its expenditure forecasts in its April 2021 submission.[236]
- An annual adjustment to remove the double counting of 1 FTE salary costs for Customer Systems activities. These costs have been correctly included in the operating and maintaining the Data Acquisition Service (DAS) and DQP portal costs but were double counted in the overall Customer Serve and Systems total.[237]
- An annual adjustment to remove the GST component for several items included in the cost build-up.[238]
- Removal of the $0.3 million that Water NSW has included in 2021-22 as a capital allowance to automate upload time for initial site inspection. Cardno considered that this expenditure duplicates the WAVE program expenditure and should not be included as an uplift allowed above WAVE program.

  It is our view that Water NSW has not fully demonstrated that it could not flexibly and cost effectively adapt the program with its service provider to deliver this functionality within its existing contract. WAVE is a collection of many initiatives in work streams that will be met through different systems and functionality with scope that allows Water NSW to be flexible in prioritising the overall program to meet its business needs.[239] We consider that an efficient business should work with its service provider to cost effectively adapt the program to the best available information within the contract.

- An adjustment for the compliance for floodplain harvesting meters taking effect from 2022-23 as outlined above.

We consider that Water NSW can make **catch-up efficiency** savings of $2.4 million over the 2021 determination period. This is based on accepting Cardno's recommended catch-up efficiency adjustments of 3.2% per year for operating expenditure and 1.25% in 2021-21 increasing to 4.5% in 2024-25 for capital expenditure.[240]

Some areas where Water NSW can achieve these catch-up efficiencies include:

- Automating the upload of local intelligence device (LID) data into the Data Acquisition System (DAS) earlier than allowed for in Water NSW's assumptions. Water NSW's cost model currently includes a declining profile of time taken to upload data (0.4 hours in year 1, 0.2 hours in year 2 and 0 hours thereafter), reflecting its expected timeframe for implementing an automated solution.
- Optimising travelling routes, as currently Water NSW has assumed a flat 1 hour per site. More work will need to be completed by Water NSW to develop meter site rounds so that the most efficient routes can be planned for the field officers for each area.
- Achieving synergies with other field-based activities for downloading of the LID for meters not connected to telemetry to remove the need for a second visit to download the LID. The metering activities have considerable similarities with the surface water and groundwater monitoring activities in that they involve field staff undertaking activities across the State to collect information and then manage this information, which creates the potential for synergies.[241]

We consider that Water NSW can make **continuing efficiency** savings of $0.5 million. This is based on continuing efficiency adjustments of 0.7% per year over the 2021 determination period.[242] The continuing efficiency applied is consistent with that applied to Water NSW's expenditure for WAMC and Rural Valley activities.

Government owned meter costs

Government owned meter costs include the costs that Water NSW will incur in upgrading and maintaining existing government owned meters to ensure they are compliant with the new regulatory framework. It does not include the replacement or installation of new government owned meters.

Our decisions on adjustments to Water NSW's proposed government owned meter costs are summarised in Table 14.4.

Table 14.4 Decision on efficient government owned meter expenditure for the 2021 determination period ($ millions, $2020-21)

	2021-22[a]	2022-23	2023-24	2024-25	Total
Water NSW's proposal	9.8	6.7	4.2	3.0	23.6
Scope adjustments[b]	-6.4	2.6	2.2	-0.2	-1.7
Catch-up efficiency	0.0	-0.3	-0.4	-0.3	-1.0
Continuing efficiency	0.0	-0.1	-0.1	-0.1	-0.3
Total efficient operating and capital expenditure	**3.3**	**8.9**	**5.9**	**2.4**	**20.5**
Difference	-6.4	2.2	1.7	-0.6	-3.1
Difference (%)	-65.9%	32.3%	41.4%	-18.7%	-13.2%

a Including 2020-21 capital expenditure on government owned meters, which is included in the metering capital charge.
b Including adjustment due to updated rollout for government-owned meters.
Source: IPART analysis using Cardno, *Review of Water NSW's Metering Reform Costs – Final Supplementary Report*, September 2021.
Note: Totals may not sum due to rounding.

We consider that Water NSW can make **scope adjustment** efficiency savings of $1.7 million consistent with Cardno's recommendations. These adjustments include:

- Reducing the consumables for each site visit from $75 per visit to $65 per visit based on Cardno's assessment of the cost build-up for this item.[243]
- Incorporating new information on Water NSW's profile of operating and capital expenditure for government owned meters as discussed above.

We consider that Water NSW can make **catch-up efficiency** savings of $1.0 million over the 2021 determination period. This is based on accepting Cardno's recommended catch-up efficiency adjustments of 3.2% per year for operating expenditure and 1.25% in 2021-21 increasing to 4.5% in 2024-25 for capital expenditure. [244]

We consider that Water NSW can achieve these catch-up efficiencies for example by optimising the level of testing of government-owned meters to confirm accuracy of the fleet. Water NSW has assumed that it will need to test 5% of the meter fleet to confirm overall accuracy. We consider that this may be conservative as Water NSW may be able to test fewer meters when it better understands the underlying variance in the population of meters.

We consider that Water NSW can make **continuing efficiency** savings of $0.3 million. As noted above, this is based on a continuing efficiency adjustment of 0.7% consistent with the approach we applied for the rest of this review [245]

14.1.3 Efficient costs decrease as more customers voluntarily opt in to telemetry

We found that the efficient costs of implementing the non-urban metering reforms are sensitive to changes in the number of customers that voluntarily opt in to telemetry. At the time of submitting its April revised proposal, Water NSW considered that there was no evidence to suggest that there will be any voluntary uptake of telemetry. However, the NSW Government has now decided to provide a one-off rebate for customers who use telemetry.

We consider that our decision should reflect the potential range of telemetry opt-in based on 5 scenarios modelled by Water NSW: 0%, 25%, 50%, 75% and 100% telemetry opt-in. The efficient costs are highest when 0% of customers voluntarily opt in to telemetry ($47.8 million) and lowest when 100% of customers voluntarily opt in to telemetry ($39.4 million).

Water NSW raised concerns about us using its telemetry modelling scenarios to set efficient costs and charges that vary with telemetry opt-in. It submitted that this analysis was based on the hypothetical long run costs of administering the reforms and would take approximately 2 years to fully implement the proposed cost reductions as more user opt in to telemetry.[246]

We considered the long-term nature of the costs that underpin Water NSW's scenarios when setting charges for each of the telemetry ranges. We applied a conservative approach to setting the charges for each band, using the lower end of each band to set the charge (e.g. the 0% voluntary uptake costs apply throughout the 0-24% range of voluntary uptake). It is our view that an efficient business should be able to plan appropriately and recovers its costs through the charges we set.

14.2 A customer share of 100% is appropriate

Our decision is:

50. To adopt a 100% customer share of efficient costs incurred by Water NSW implementing the NSW Government's non-urban metering reforms.

We allocate the efficient costs of Water NSW's rural bulk water services and WAMC's water management costs based on whichever party created the need for an activity (and its associated costs) to be incurred.

Irrigators generally disagreed with the draft decision for a 100% customer share. For example, NSWIC considered that the NSW Government created the need for the expenditure, in order to rebuild public confidence following Government failures in enforcing compliance. Similarly, Murray Valley Private Diverters Inc considered that southern basin participants should not incur 100% of expenditure for regulatory and compliance failures of the NSW Government or Water NSW. Coleambally Irrigation Co-operative Limited (CICL) recommended a customer share of 50% given there is some uncertainty around Water NSW's efficient costs.[247]

Our view is that it is water customers who create the need for expenditure on metering reform and therefore customers should contribute 100% of the efficient costs. This is unchanged from our draft decision.

We consider that the underlying driver for metering reform is protecting the rights of water customers and that a 100% customer share is consistent with our 2019 rural water cost shares report. We also note that the relevant policies including the National Water Initiative and the national framework for non-urban metering pre-date compliance shortcomings identified in NSW.

14.3 Water NSW's proposed metering charge structure is appropriate

Our decisions are:

51. To recover the wider costs of introducing the reform, such as recording and reporting, customer self-reporting, general enquiries and education, through a 'scheme management charge' to be applied annually to all licence holders.

52. To recover the costs of compliance activities, water take assessments, meter reading and meter data services through:
    - a telemetry charge to be applied annually to customers who use telemetry
    - a non-telemetry charge to be applied annually to customers who do not use telemetry.

53. To recover the costs of bringing government owned meters up to the required standard under the non-urban metering reforms through a 'meter service charge – capital costs' and maintaining these meters to ensure regulatory compliance through a 'meter service charge – operating costs'. These charges are applied annually to customers with a compliant government owned meter.

These are unchanged from our draft decisions.

14.3.1 The scheme management charge applies to all licence holders

We have decided to set a common scheme management charge for all licence holders that does not distinguish between water source and meter size. We consider that this provides a simple approach to recover Water NSW's costs of scheme management over the metering lifecycle.

In response to our draft decision, Water NSW agreed that the scheme management charge should be levied on those customers who benefit from the metering scheme, such as all billable licence holders and Zero Share Water Access Licences (WAL).[248] Coleambally Irrigation Co-Operative Limited agreed that it is appropriate that WALs that are not linked to a works approval also make some contribution to the costs incurred by Water NSW to administer the reform as all Water Access Licence holders are beneficiaries of robust metering.[249]

However, Murray Valley Private Diverters did not support a universal scheme management charge. It considered that Southern Basin Government owned meter holders should not bear the cost burden of bringing Northern Basin irrigators into national metering standards and NSW regulatory compliance regime.[250]

We consider that all users are driving the need to improve water resource management and associated compliance management, not just those that need to comply with the new policy.[c] These activities are similar to the compliance and enforcement activities of NRAR where the need is driven by all licence holders rather than just those with meters. We consider it appropriate that the charge is applied to all licence holders.

14.3.2 A telemetry or non-telemetry charge applies based on meter technology

There are two types of compliant meters under the metering reforms:

- telemetry meters – meters with data recording and remote transmitting of meter data reads to Water NSW's centralised data systems
- non-telemetry meters – meters without remote transmitting systems that store meter data on-site and require periodic manual data logger download.[251]

Water users are required to have telemetry installed on their meters if they relate to surface water works, except for pumps below 200mm in diameter or those directed to install telemetry by an order of the Minister.[252]

We set separate telemetry and non-telemetry charges that vary by level of telemetry opt-in

Water NSW proposed separate telemetry and non-telemetry charges for the 2021 determination period, based on the meter technology applied to the metering installation. The charges would be applied as an annual $/per metering installation.[253]

Although the charges would be separate, Water NSW proposed these charges should be set at the same level over the 2021 determination period. This is because the initial telemetry costs are higher than the costs of non-telemetry. It would not provide a price signal to incentivise telemetry uptake.[254]

We consider that a separate telemetry and non-telemetry charge structure takes account of uncertainty over how many users will voluntarily opt in to telemetry, provides an incentive for users to opt in to telemetry and better reflects the efficient costs of providing services.

Using information from Water NSW and Cardno, we have modelled the telemetry and non-telemetry charges required to recover the efficient costs of providing services using 4 bands of telemetry opt-in (see Table 14.5). We considered the long-term nature of the costs that underpin Water NSW's scenarios and applied a conservative approach to setting the charges for each band, using the lower end of each band to model the charge (e.g. the 0% voluntary uptake costs apply throughout the 0-24% range of voluntary uptake).

[c] Only users with meters >100 mm are required to comply.

Table 14.5 Charges and bills for different telemetry opt-in proportions ($2021-22)

Telemetry opt-in	Up to 24%	25-49%	50-74%	75% or more
Charges				
Scheme management charge	73	66	59	51
Telemetry charge	251	209	191	182
Non-telemetry charge	219	219	219	219
Blended telemetry/non-telemetry charge	226	214	202	189
Bills (one meter plus one licence)				
Scheme management charge *plus* telemetry charge	324	275	250	234
Scheme management charge *plus* non-telemetry charge	292	285	277	270
Scheme management charge *plus* blended telemetry/non-telemetry charge	300	280	260	240

Note: The non-telemetry charge does not vary as telemetry uptake increases since the underlying costs are all variable (i.e. staff time for site inspections and downloading LIDs).
Source: IPART analysis using information provided by Water NSW and Cardno.

Stakeholders had mixed views on a telemetry and non-telemetry price structure that varies with the number of users that opt in to telemetry. For example:

- Murray Valley Private Diverters did not support the introduction of a new telemetry charge to apply as a new annual fee to existing meters for government owned meters (Southern Basin).[255]
- NSWIC raised concerns about assumptions of voluntary uptake of telemetry given government rebates. It is highly concerned that this pricing structure is designed to shift people to 'voluntarily' opt-in to telemetry when they are not required under regulation to do so. It considered that there will be relatively low rates of voluntary opt-in to telemetry because the rebate is relatively small in the scheme of total costs for purchasing, installing and maintaining telemetry equipment.[256]
- PIAC considered that greater incentives to opt in to telemetry should be created using the price structure. It submitted that there should be a differential between telemetry and non-telemetry charges and that the telemetry charge should be set at a level according with more than 75% of meters opting-in from the outset.[257]

We consider that our decision to set charges that vary with the number of customers that opt in to telemetry appropriately balances incentives to opt in to telemetry, the costs of providing telemetry and non-telemetry and takes account of government rebates to accelerate uptake of telemetry (see Box 14.1). This recommendation is unchanged from the draft decision.

Our analysis indicates that telemetry is more expensive than non-telemetry when voluntary uptake is less than 25%. Further, it gets progressively less expensive at even higher levels of voluntary uptake, as fixed costs – such as IT systems – are spread over a greater number of water users. Non-telemetry costs do not vary as telemetry uptake increases. However, a blended telemetry/non-telemetry charge would decrease as telemetry uptake increases given the contribution of telemetry charges to the blended charge. The scheme management charge (levied on all water licence holders) would also be lower if more customers opt in to telemetry.

When the proportion of customers that opt in is low (up to 24%), the telemetry costs per meter are higher than the non-telemetry costs per meter. However, to ensure that these charges do not provide a disincentive for customers to opt in to telemetry, we decided to set the same charge of $226 for up to 24% telemetry opt-in. Once telemetry opt-in is 25% or more, the telemetry and non-telemetry charges will reflect the efficient costs of providing these services.

Box 14.1 Government rebate for customers that use telemetry

In June 2021, the NSW Government and Australian Government decided that they will each provide $9 million in funding to deliver an $18 million telemetry rebate program across NSW over the rollout of the non-urban metering rules. The rebate will automatically be applied as a one-off $975 credit on a water bill when an eligible water user with a meter connects to the NSW Government's telemetry system. This will provide a financial incentive for metered non-urban water users to use telemetry to remotely transmit their water take information.

The rebate program aims to accelerate uptake of telemetry in NSW, increasing transparency of water take, supporting on-farm management, and positioning NSW to better deliver efficiencies in water management.

At this stage, it is unclear how many customers will voluntarily opt in to telemetry because of the rebate. However, we expect that the proportion would be greater than the 0% adopted in Water NSW's proposed base case which was developed prior to government's decision on the rebate.

14.3.3 Government owned meter charges recover operating and capital costs

There are around 2,800 water users with government owned meters (i.e. the meters are owned and maintained by Water NSW). Government owned meters are located in the Southern Basin, Hawkesbury-Nepean and Bega Bemboka regions.[258]

We decided to adopt Water NSW's proposed price structure and set separate meter service changes for capital costs and operating costs for all water users. However, we decided not to embed the telemetry or non-telemetry charge within the meter service charges to create a more transparent price structure. This is unchanged from our draft decision.

In relation to the meter service charges, Water NSW proposed to:

- have separate charges for capital costs and operating costs
- not vary these charges by meter size, telemetry use or water source.

The 'meter service charge – operating costs' recovers Water NSW's ongoing operating costs for the maintenance and repair of government owned meters to ensure they are in a condition that complies with the new metering requirements. It includes activities such as onsite accuracy testing, calibration and resealing of meters. Some key cost drivers for these activities include contract administration costs to manage staff conducting field visits and travel time because of the distance between meters.

The 'meter service charge – capital costs' recovers the capital expenditure Water NSW will incur to bring the government owned meters up to a standard that complies with the new metering requirements.

Coleambally Irrigation Council Limited supported water users with government owned meters being charged a meter service charge to recover the costs of the ongoing maintenance of these meters. It considered that it is important going forward that cross subsidisation or socialisation does not occur (in either direction) between water users who own their meter and water users with government owned meters.[259]

However, Murray Valley Private Diverters did not support the two proposed additional charges to customers with government owned meters. It considered that there is insufficient explanation of why these additional charges are needed when Water NSW already recovers its operational costs under existing meter service charges. It was also concerned that there is likely to be a capital cost in the future if the government funding for the next determination period is removed.[260]

We consider that separate charges for government owned meters are a transparent way of recovering the different capital and operating costs for this service. The charges recover the additional costs of implementing the new policy, which are incremental to those recovered from existing meter service charges. We also support moving to a simpler charge structure that does not vary between different water users because:

- This is consistent with the approach we have used to set the scheme management, telemetry and non-telemetry charges. For example, none of these charges vary by meter size.
- The existing meter service charges are relatively complex and may imply an overly precise level of cost-reflectiveness. They vary not only by meter size, but also by telemetry use and whether the water source is regulated, unregulated or groundwater. This price structure was proposed by Water NSW for the 2017 and 2021 Determinations, which we then accepted. We consider the new meter service charges proposed by Water NSW presents an opportunity to reduce this complexity.

14.3.4 Meter service charge for channel meters

Water NSW has proposed an updated meter service charge for 19 government owned channel meters. These meters are all open channel construction with sensors in the channels, each site with more than one sensor in-situ. Water NSW proposed a new charge of $9,500 compared to existing charges of $6,237 ($2020-21).[261] This does not include telemetry and non-telemetry costs.

Under the new policy, there is a requirement for annual validation of the accuracy of channel meters. However, Water NSW's build-up for the channel meter costs is based on three visits each year to each site.

Cardno considered Water NSW's proposed costs and charges for channel meters. It was unable to conclude that the proposed costs are efficient as no evidence could be provided to substantiate further site visits. Cardno recommended maintaining the current channel meter charge. We agree with Cardno's conclusion and decided to maintain the charge in real terms giving a charge $6,306 ($2021-22) from 1 October 2021.

14.4 We set metering charges to reflect our decisions on efficient costs and charge structure

Our decision is:

54. To set charges for Water NSW's non-urban metering reforms as set out in Table 14.6 and Table 14.7.

Table 14.6 compares our final decision on non-urban metering charges to Water NSW's revised proposal.

Table 14.6 Decision on non-urban metering charges compared to Water NSW's revised proposal ($/year, $2021-22)

	Charge ($/year) Water NSW 2021 revised proposal	Charge ($/year) IPART final decision	Privately owned meter	Government owned meter
Scheme management charge	79	73	✓	✓
Telemetry charge	257	226	✓	✓
Non-telemetry charge	257	226	✓	✓
Meter service charge – operating costs	934	899	✗	✓
Meter service charge – capital costs	608	0	✗	✓

Note: Totals may not sum due to rounding. Water NSW's April 2021 proposed charges are shown in $2021-22. The scheme management charges, telemetry charge and non-telemetry charge will vary if more customers use telemetry. See Table 14.7 for further information.
Source: Water NSW, Response to the IPART Draft Determination on Rural Bulk Water and WAMC Pricing – Metering Reform, April 2021, p 21, 28, 29. Cost for telemetry/non-telemetry is not included in the 'meter service charge – operating costs' for government owned meters.

We decided that the level of the scheme management charge, telemetry charge and non-telemetry charge should vary as the proportion of customers that voluntarily opt in to telemetry increases, as set out in Table 14.7. This is consistent with our draft decision.

Table 14.7 Decision on scheme management, telemetry and non-telemetry charges for different telemetry opt-in proportions ($2021-22)

Telemetry opt-in	Up to 24%	25-49%	50-74%	75% or more
Scheme management charge	73	66	59	51
Telemetry charge	226	209	191	182
Non-telemetry charge	226	219	219	219

Note: The non-telemetry charge for 25-49%, 50-74% and 75-100% does not vary since the underlying costs are all variable (i.e. staff time for site inspections and downloading LIDs).
Source: IPART analysis using information provided by Water NSW and Cardno.

When the proportion of customers that opt in is low (up to 24%), the telemetry costs per meter are higher than the non-telemetry costs per meter. However, to ensure that these charges do not provide a disincentive for customers to opt in to telemetry, we recommend setting the same charge of $226 for up to 24% telemetry opt-in. Once telemetry opt-in is 25% or more, the telemetry and non-telemetry charges will reflect the efficient costs of providing these services.

PIAC considered that there should be greater incentives to opt in to telemetry. It proposed a differential between telemetry and non-telemetry charges from the outset, with the telemetry charge initially based on more than 75% of meters opting in.[262]

Water NSW submitted that while the sliding telemetry scale is based on Water NSW's sensitivity analysis on the impact of telemetry uptake rates, this analysis was based on the hypothetical long run costs of administering the non-urban metering reforms. Water NSW proposed a one-year lag is introduced between when the telemetry take-up rates move into the next higher band and when the new tariff band takes effect.[263]

We do not consider that the adjustment proposed by PIAC is necessary and that our approach is more cost reflective. As noted above, the NSW and Australian Governments are funding a telemetry rebate program which already provides a financial incentive to opt in to telemetry.

Further, we do not consider that a one-year lag should be introduced between when the telemetry take-up occurs and the relevant telemetry opt-in charge commences. We considered the long-term nature of the costs that underpin Water NSW's modelling when setting charges for each of the telemetry ranges and have applied a conservative approach, using the lower end of each band to set the charge (e.g. the 0% voluntary uptake costs apply throughout the 'Up to 24%' range of voluntary uptake). We consider that an efficient business should be able to plan appropriately and recover its costs through the charges we have set.

Water NSW will notify IPART of the proportion of customers that opt in to telemetry before the beginning of each year. Its estimate will be based on the best available information. If Water NSW does not provide this information, we decided that the price in the next band up from the previous year should be applied. For example, if the proportion of voluntary telemetry uptake in 2022 is 20%, and there is a failure to notify in 2023, then the presumption for that year will be that the proportion is in the range of 25% - 49%. On balance, we consider that this should provide an appropriate incentive for Water NSW to provide an estimate based on the best available information each year.

Charges under our final decisions are:

- 11% or $36 lower than Water NSW's revised proposal for water customers with privately owned meters
- 36% of $679 lower than Water NSW's revised proposal for water customers with government owned meters.

There are 5 main reasons for these differences:

- We adopted Cardno's recommended levels of efficient operating and capital expenditure which are 15% lower than Water NSW's revised proposal. These estimates are based on:
  - forecasting the efficient costs of the activities required to implement the policy for of all users (privately owned and government owned meters) consistent with compliance dates required by the *Water Management (General) Regulation 2018.*
  - incorporating new information on Water NSW's proposed deferral of operating and capital expenditure for government owned meters. Water NSW's April proposal included operating and capital expenditure forecasts based on accelerating compliance for government owned meters. Water NSW has provided a revised profile where expenditure aligns with the compliance dates required by the Regulation.
  - including the costs of compliance for floodplain harvesting meters from 2022-23.
- We applied a WACC of 1.8% real post-tax, calculated with regard to the ACCC's pricing principles as required under the WCR. Water NSW applied a higher WACC, calculated using IPART's standard approach and submitted that the return on corporate system and vehicle assets should be calculated using a weighted average of the approaches to reflect the nature of these costs.[264] To prevent over-recovery of costs for customers in Murray-Darling Basin valleys (if we use the higher WACC), we have applied the lower WACC to all customers.
- We calculated charges to apply from 1 October 2021 rather than from 1 July 2021.
- We adjusted the 'meter service charge – capital costs' to reflect government funding which offsets Water NSW's capital costs for upgrading government owned meters. We have set 'meter service charge – capital costs' of $0 per year for the 2021 determination period (see Table 14.6). In the absence of this funding, water customers with government owned meters would have faced a higher 'meter service charge – capital costs' of $602 per year.

The 'scheme management charge', 'telemetry' and 'non-telemetry charge' are either the same or slightly lower than our draft decisions. The 'meter service charge – operating costs' is $68 (or 8%) higher than our draft decision. Although this charge is higher, under our final decisions, customers will not pay this charge until the later of the compliance date or when Water NSW makes meters compliant.

14.5 We have a framework to transition metering charges

Our decision is:

55. To apply the following transitional arrangements in moving from existing to new metering charges:

- Scheme management charge to apply annually from the start of the determination period, 1 October 2021.
- Telemetry or non-telemetry charge for customers with privately owned meters to be prorated using the number of days remaining in the financial year from the relevant compliance date set out in the *Water Management (General) Regulation 2018*.
- Telemetry or non-telemetry charge and government owned 'meter service charge – operating costs' for customers with government owned meters to be prorated using the number of days remaining in the financial year from the later of the relevant compliance date set out in the Water Management (General) Regulation 2018 or the date the meter is made compliant.

Our decision ensures the transition to new charges is transparent and that there are appropriate incentives in place for water customers with privately owned meters and Water NSW, who is responsible for government owned meters, to achieve compliance with the required roll out dates. This is unchanged from the draft decision.

Stakeholders generally supported these transitional arrangements. NSWIC agreed with the transitory approach for new charges coming into effect, aligned with the various rollout dates (but noting delays in implementation will almost certainly cause issues).[265] Coleambally Irrigation Co-operative Limited supported the scheme management charge applying from the start of the determination period, and new charges applying from the compliance date. It noted that commencement of the new charges in parallel with the compliance date will provide the incentive required for water customers to make decisions about their works.[266]

Water NSW proposed two amendments to the arrangements for new charges:

- Scheme management charges should be charged in full in Year 1 when the charge is applicable.
- For those customers subject to the 1 December 2020 compliance date which is prior to the commencement of the upcoming determination, the full non-telemetry/telemetry charges should be levied from Year 1.[267]

Our proposed approach to pro-rating charges addresses Water NSW's concerns. We have set annual equivalent charges that, when pro-rated from 1 October 2021, recover Water NSW's efficient costs from 1 July 2021. This means that the sum of the prorated charge in 2021-22 plus the full year charges in 2022-23 to 2024-25 is equal to the efficient costs from 1 July 2021 to 30 June 2025 (on a net present value basis).

14.5.1 Bulk water charges can be adjusted for metering costs at the next review

The existing bulk water charges for regulated rivers may include some activities associated with existing metering. If these activities are either no longer undertaken by Water NSW once meters are made compliant or are duplicating new metering activities, we will need to consider how to ensure that there is no over-recovery or double counting of costs between bulk water and non-urban metering charges. We estimate that these activities may make up less than 1% of Water NSW's net revenue requirement.

Water NSW submitted that the proposed metering reforms and associated new meter charges have been developed as new and incremental charges to existing metering costs. The activity that is expected to be undertaken is a new activity and does not replace any of the existing metering work undertaken by Water NSW. Until all water users have made their works compliant to the new regulations and made their choice in relation to telemetry up take, Water NSW is not in a position to consider the scale or extent to which these new metering functions can be integrated into its normal business operations.[268]

In line with our draft decision, we propose seeking further information from Water NSW on its metering activities adjustment as part of the next review of bulk water charges and if necessary, make an adjustment at that time.

14.5.2 Water NSW cannot charge users both existing and new metering charges

Water NSW advised that there may be circumstances where it needs to charge a user both the existing and new metering charges.[269] It considered that if a customer fails to self-report their water usage throughout the year, Water NSW will be required to visit the site to determine water take. Water NSW will incur additional labour costs to provide this service. This is in addition to the new metering services (i.e. site visit to complete a data download of the meter). Water NSW proposed to recover these additional costs by applying the existing metering charge to these customers.

We do not agree with Water NSW's proposal. We consider that if a customer has failed to self-report their water usage, this is considered non-compliance with the new water metering rules. NRAR is responsible for enforcing metering compliance. On NRAR's website it notes that it will first provide directions to water users to ensure compliance before issuing fines and further responses to non-compliance. We consider that NRAR is the appropriate regulator to ensure metering compliance.

In addition, we note that the circumstances identified by Water NSW may not occur and we are unable to quantify the amount of additional costs involved or determine the efficiency of these costs as these costs vary depending on the location of the non-complying customer. There may also be other unforeseen circumstances if we allow Water NSW to recover both the existing and new metering charges from a particular water user. Therefore, we decided not to allow Water NSW to charge both existing and new charges under the final determinations.

14.6 We considered different ways to deal with uncertainty

Our decisions are:

56. Not to provide an unders and overs mechanism to Water NSW for the rollout of the non-urban metering reforms.

57. That the Tribunal intends to consider the impact of any further deferral of the floodplain harvesting policy and potentially make an adjustment to future charges if needed at the next determination.

58. To set an exit charge for the 2021 determination period of $0.

14.6.1 An unders and overs mechanism is not appropriate

Water NSW submitted that an unders and overs (UOM) mechanism provides a reasonable and balanced solution for the potential risks and uncertainty of the roll out of the non-urban metering reform. It considered that there is uncertainty attached to the program roll out and the cost estimates, due to potential changes in the policy landscape and the roll out schedule and volumes, which is ultimately outside of Water NSW's reasonable control.[270]

We do not consider that it is appropriate for Water NSW to have a UOM to mitigate its financial risks arising from cost uncertainty or other factors that are within its control, higher or lower unit costs or a delay in the rollout for government owned meters based on its ability to deliver the program.

However, we consider that we may need to make an adjustment to charges at the next review for uncertainty surrounding floodplain harvesting meters. While it is still government policy for floodplain harvesting meters to use telemetry, there is uncertainty over when the policy will take effect. If the policy takes effect earlier (or later) than what we have assumed when setting costs and charges, Water NSW may materially over (or under) recover its costs. Water NSW has no control over the timing of when the changes may take effect.

14.6.2 Exit fees for the 'meter service charge – capital cost' for government owned meters may be needed in future reviews

We consider that an exit fee may be needed to mitigate the financial risks Water NSW faces associated with customers leaving the government owned meters program after investment has occurred.

Stakeholders generally supported our draft decision that exit fees may be needed in future determinations. For example:

- Coleambally Irrigation Co-operative Limited supported the approach in principle. It understands that currently the exit fee would be zero because government is funding the upgrade of the meter and it is only in the future that an exit fee may apply.[271]
- Water NSW supported the introduction of exit fees at a future determination to recoup any unfunded costs (including capital costs not covered by government funding).[272]

In theory, we consider that an exit fee is needed to mitigate the financial risks Water NSW faces from customers leaving the government owned meters program after investment has occurred. However, our modelling indicates that the NSW Government's funding for government owned meters will cover Water NSW's capital costs for upgrading these meters. As a result, we have set the exit charge for the 2021 determination period at $0.

In future determination periods, if Water NSW incurs prudent and efficient capital expenditure that is greater than the level of government funding, it may be appropriate for Water NSW to charge customers an exit fee. In this case, we consider that customers should be charged an exit fee based on the residual value of the RAB for each meter.

When a customer opts out after WNSW have incurred costs, then it is reasonable for the customer to pay a fee which is equivalent to the outstanding amount of principal paid for that meter – that is the capital expenditure less cumulative depreciation. Water NSW advised that when users opt out of the government owned meter program, they will have the option of retaining the meter with this to be decided on a case by case basis.[273]

We consider that the exit fee should be calculated based on the residual value of the RAB for each meter on the day a customer opts out. The exit fee would be calculated as:

Exit fee = Average capital expenditure per meter ($) – depreciation since meter made compliant ($)

If Water NSW incurred $1,000 of efficient and prudent expenditure that was not covered by government funding, an exit fee could be calculated as follows. The determination would specify the following formula (see Box 14.2 for further details)

Exit fee ($2020-21) = $1,000 – ($0.27 x Days since meter made compliant)

Murray Valley Private Diverters raised concerns that 'un-burying' the meters is a vital requirement if individual landholders wish to opt out of government meters. This issue also relates to arrangements once government owned meters reach 'end of life' and who would wear the costs of future inspection requirements (meters would need to be on the surface of land not buried).[274]

The policy requires that customers with privately owned meters that are not on the surface need to excavate meters to for testing and compliance. However, Water NSW, as a government agency, is permitted to use a fleet-based approach to compliance, meaning that only a percentage of sites need to be 'un-buried' or excavated for testing. If a water user opts out of the government owned meter program, they would no longer be part of the government owned fleet. Their meter would not be included in the fleet-based approach and hence the meter would need to be excavated for compliance purposes.

Water NSW confirmed that that end of life arrangements for government owned meters have not yet been decided. It does not anticipate any meters reaching end of life during the 2021 determination period.[275]

Box 14.2 Calculating an exit fee for meter service charge – capital costs

This example of how to calculate an exit fee is based on capital expenditure of $1,000 per meter depreciated over a ten-year asset life. This equates to annual depreciation of $100 a year or $0.27 a day. The table below sets out the exit fee that would apply through the determination period.

	RBA value of meter on	Cumulative depreciation at end of day	Exit fee (end of day)
1	Day 1	0.27	1,000
90	Day 90	24.66	975
180	Day 180	49.32	951
270	Day 270	73.97	926
360	Day 360	98.63	901
…	…	…	…
…	…	…	…
1,080	Day 1,080	295.89	704
1,170	Day 1,170	320.55	679
1,260	Day 1,260	345.21	655
1,350	Day 1,350	369.86	630
1,440	Day 1,440	394.52	605
1,461	Day 1,461 (end of determination period)	400.27	600
3,650	Day 3,650 (end of asset life)	1,000.00	-

Note: $2020-21

14.7 New metering charges will increase bills for customers

The change in meter charges and customers' total bills depend on the water source (regulated, unregulated or ground water), whether the meter is privately owned or government owned, entitlement and usage volumes and meter size. In addition, if more customers opt in to telemetry, then metering charges and customer bills will be lower than if fewer customers opt in to telemetry.

We considered these impacts across a range of customers and for different levels of telemetry opt-in. Appendix D sets out the combined impact of our decisions on non-urban metering reform charges and Water NSW and WAMC bulk water and water management charges.

14.7.1 Customers with government owned meters face larger increases

The additional costs faced by customers relative to their existing bills are greatest for customers with government owned meters. For example, if up to 24% of customers opt in to telemetry, general security licence holders on regulated rivers with a 500 ML entitlement and 100mm meter with telemetry:

- that is **government owned** would face additional metering charges of $720 (or an increase of up to 20%) in their bills caused by metering.
- that is **privately owned** would face additional metering charges of $300 (or an increase of up to 10% in their bills caused by metering).

Customers with privately owned meters will also be required to purchase and maintain a new or replacement meter at their own expense. These costs would be borne by customers and have not been included in our impact analysis.

Several stakeholders were very concerned about the affordability of the increases proposed by Water NSW. The NSW Government has acknowledged these concerns and is providing funding of $14.6 million to Water NSW to cover the capital costs of upgrading government owned meters. This funding reduces the 'meter service charge – capital costs' to $0 for the 2021 determination period. In the absence of this funding, users with government owned meters would have faced a higher 'meter service charge – capital costs' of $602 per year.

14.7.2 Impacts will be smaller if more users opt in to telemetry

If more customers opt in to telemetry, then metering charges and customer bills will be lower than if fewer customers opt in to telemetry. For example, if 75-99% of customers opt in to telemetry then general security licence holders on regulated rivers with a 500 ML entitlement and a 100mm meter with telemetry:

- that is **government owned** and uses telemetry would face additional metering charges of $654 (or an increase of up to 18% in their bills caused by metering).
- that is **privately owned** and uses telemetry would face additional metering charges of $234 (or an increase of 8% in their bills caused by metering).

As discussed above, the NSW Government and Australian Government are providing funding to deliver a telemetry rebate program across NSW. This will provide a financial incentive for a user to install a telemetered meter to remotely transmit their water take information by providing funding for the capital costs of telemetry. We expect that this rebate will encourage users to opt in to telemetry and over time will reduce the scheme management and telemetry charges.

14.7.3 Impacts are relatively larger for customers with smaller entitlements

The percentage impacts increase with smaller licence entitlement volumes and usage. This is because the fixed nature of the meter charge means that the lower the water charge bill, the greater the increase caused by the proposed metering charges. For example, if up to 24% of customers opt in to telemetry, general security licence holders on regulated rivers with a 100mm meter with telemetry with a privately owned meter:

- with an entitlement of 500 ML in the Murray would face a 7% increase resulting from the $300 increase caused by metering
- with an entitlement of 250 ML in the Murray would face a 13% increase caused by metering resulting from the $300 increase caused by metering.

Appendices

Appendix A

Matters considered by IPART

This appendix explains how we considered certain matters we are required to consider under the *Independent Pricing and Regulatory Tribunal Act 1992* (the IPART Act) and the *Water Charge Rules 2010* (Cth) (WCR).

On 1 July 2020, the Water Charge Amendment Rules 2019 (Cth) took effect, amending the WCR. However, as Water NSW submitted its pricing application before 30 June 2020, transitional arrangements apply and we can set prices for Murray–Darling Basin (MDB) services for one more determination period under the WCR as in force on 30 June 2020 and IPART's current accreditation with the ACCC.[276]

A.1 Matters under section 15 of the IPART Act

IPART is required under section 15(1) of the IPART Act to have regard to the following matters in making determinations and recommendations:

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 *Environmental 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 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(1) matters by IPART

Section 15(1)		Report reference
a.	Cost of providing the services	Chapter 7 sets out Water NSW's total efficient costs to deliver its regulated services over the determination period. Further detail is provided in Chapters 3, 4, 5 and 6 on efficient historical and forecast expenditure, MDBA and BRC costs and other costs.
b.	Protection of consumers from abuses of monopoly power	We consider our decisions would protect consumers from abuses of monopoly power, as they reflect the efficient costs Water NSW requires to deliver its regulated services. This is addressed throughout the report, particularly in Chapters 3 and 4 (where we establish the efficient historical and forecast expenditure) and Chapters 10, 11 and 12 (where we set out our pricing decisions and impacts).
c.	Appropriate rate of return and dividends	Chapter 7 outlines that we have allowed a market-based rate of return on debt and equity that would enable a benchmark business to return an efficient level of dividends.
d.	Effect on general price inflation	Chapter 12 outlines that we estimate the impact of our prices on general inflation is negligible.
e.	Need for greater efficiency in the supply of services	Chapter 3 and 4 set out our decisions on Water NSW's efficient historical and forecast expenditure. These decisions would promote greater efficiency in the supply of Water NSW's regulated services.
f.	Ecologically sustainable development	Chapters 3 and 4 set out Water NSW's efficient historical and forecast expenditure that allows it to meet all of its regulatory requirements, including its environmental obligations.
g.	Impact on borrowing capital and dividend requirements	Chapters 7 and 12 explain how we have provided Water NSW with an allowance for a return on and of capital; and our assessment of its financeability.
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	Chapters 3 and 4 determine the prudent and efficient cost of construction and operational contracts that Water NSW has entered into and costs associated with these over the next period.
i.	Need to promote competition	In determining efficient costs, we were mindful of relevant principles such as competitive neutrality (e.g. we included a tax allowance for Water NSW as set out in Chapter 7).
j.	Considerations of demand management and least cost planning	Chapters 3 and 4 outline how we assessed Water NSW's efficient historical and forecast expenditure required to deliver its regulated services at least cost. Chapter 10 outlines how we set prices to reflect efficient costs, including the usage price to reflect the approximate estimate of marginal cost of supply – such cost-reflective prices promote the efficient use and distribution of resources (all else being equal).
k.	Social impact	Chapter 12 considers the potential impact of our pricing decisions on Water NSW, its customers and the NSW Government (on behalf of the broader community).
l.	Standards of quality, reliability and safety	Chapters 3 and 4 detail our consideration of Water NSW's efficient historical and forecast expenditure so it can meet the required standards of quality, reliability and safety in delivering its services.

A.2 Matters considered by IPART under the *Water Act (2007)*

Rule 29 of the WCR sets out the matters that we are required to consider in determining charges for MDB valleys.[a] Rules 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.[b]

A.2.1 Schedule 2 – Basin water charging objectives and principles[c]

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
c. to facilitate the efficient functioning of water markets (including interjurisdictional 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.

[a] Water Charge Rules 2010 (Cth).
[b] Under the *Water Act 2007* (Cth), schedule 2.
[c] See *Water Act 2007* (Cth), schedule 2.

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 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

Provision of the *Water Act 2007* (Cth)	Report reference
Part 2 – Water charging objectives	
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	Chapters 3 and 4 set out our decisions on Water NSW's efficient historical and forecast expenditure. These decisions would promote greater efficiency in the supply of Water NSW's regulated services.
To ensure sufficient revenue streams to allow efficient delivery of the required services	Chapter 7 sets out the efficient economic costs of delivering water infrastructure services over the period. Chapter 11 sets out the prices we set to generate the revenue needed to meet the efficient costs.
To facilitate the efficient functioning of water markets (including inter-jurisdictional water markets, and in both rural and urban settings)	Chapter 11 sets out our decisions on entitlement and usage charges for infrastructure services. Chapter 5 sets out the MDBA and BRC costs we included in setting prices.
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	Chapters 3 and 4 set out efficient expenditure required to deliver the services. Chapter 5 sets out our decisions on the efficient recovery of MDBA and BRC costs. Chapter 6 sets out the other costs associated with bulk water services. Chapter 7 shows the total efficient economic costs of the services. Chapter 8 describes how we share the efficient costs between water users and government.
To avoid perverse or unintended pricing outcomes	Chapter 7 describes how we set the revenue requirement to meet efficient costs. Chapter 10 describes how we set prices to meet those costs. Chapter 12 discusses the impacts of our prices on customers, Water NSW and government.
Part 3 – Water charging principles	
Water storage and delivery	
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 10 shows how we set prices that reflect the user share of costs of delivering the infrastructure services.
Water charges are to include a consumption-based component.	Chapter 10 sets out how we set water usage charges.
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 7 sets out our decisions on the efficient costs of delivering the services. Chapter 8 details how we allocated those costs between water users and the government, based on an impactor-pays approach.
Water charges in the rural water sector are to continue to move towards upper bound pricing where practicable.	Chapter 7 sets out the efficient costs of delivering the services, including an allowance for a market return on assets and tax.

Provision of the *Water Act 2007* (Cth)	Report reference
	Chapter 10 sets out how we set prices to recover the user share of those efficient costs.
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).	Chapters 3 and 4 detail our decisions on efficient operating costs. Chapter 8 sets out our decisions on allowances for tax equivalent costs. hapter 7 sets out our decisions on allowances for regulatory depreciation, and the cost of capital (WACC) applied to the regulatory asset base.
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 (b) where practicable, subsidies or Community Service Obligations are to be reduced or eliminated.	Chapter 8 describes how we shared costs between users and Government. Chapter 10 sets out how we set prices to fully recover the user share of those costs.
Pricing policies should ensure consistency across sections and jurisdictions where entitlements are able to be traded.	Chapter 10 sets out that we set fixed entitlement charges and variable usage charges that facilitate effective trade of water entitlements.
Cost recovery for planning and management	Not applicable.
Environmental externalities	
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 10 sets out our decisions on the usage charges that send signals to water extractors.
The cost of environmental externalities is to be included in water charges where found to be feasible.	Chapter 8 sets out our decisions on the user share of costs, including the benefits and costs of environmental services and activities.
Benchmarking and efficiency reviews	
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.	Chapters 3 and 4 set out our decisions on efficient expenditure, including the recommendations arising from expenditure review undertaken by Atkins.
The costs of operating these benchmarking and efficiency review systems are to be met through recovery of regulated water charges.	Chapters 3 and 4 set out our decisions on Water NSW's efficient historical and forecast expenditure.

Appendix 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 a deficiency in the planning and delivery of capital projects exists.

While meeting output measure targets is important, conclusions about Water NSW'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 – 2017 determination period

We set output measures as part of our 2017 Determination. Our output measures were based on advice from Aither, our expenditure review consultants, and refined in consultation with Water NSW. 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
- dam safety issues.[277]

We asked our expenditure review consultants, Atkins to assess Water NSW's performance against these output measures as part of its expenditure review. Table B.1 shows Atkins' comments against the information provided by Water NSW in their pricing proposal outlining their activity against each of the output measures.

Table B.1 Activity against output measures 2018-19 – Rural valleys

Project	Output measure	Expected completion	Activity 2018-19	Review comments
Asset renewals and condition	Report on: a) service orders requiring reactive maintenance, broken down by asset sub-types b) number of assets with a criticality rating of 4 or above, broken down by asset sub-types	Report annually	The Rural Valleys had 2,441 reactive work orders in 2018–19. The Rural Valleys have 1,361 assets with a criticality of 4 or 5.	Water NSW transitioned to a new Enterprise Asset Management System in April 2019. This transition included a revision of standard asset classes. Reactive work orders on the legacy system Jul-18 to Apr-19 – 1914 Reactive work orders on the ERP system Apr-19 to Jun-19 – 527
Water NSW Enterprise Resource Planning (ERP)	Ceased use of legacy information/ERP systems	1 July 2020	Work is continuing on building suitable solutions for components of legacy applications that were not completed at CIMS go live. Also, data archiving and access processes are also in progress.	Some of the original plans were de-scoped and for others it was identified that the existing solution was better than the alternative. Customer Relationship Management (CRM) and Water Licensing System (WLS) were pushed back and are now deliverables under the WAVE program in the future price path. Overall, we concur it is reasonable to conclude that this output measure has been met.
Regulatory health and safety expenditure by valley on 'Renewals – safety'	WHS risks lowered to As Low As Reasonably Practicable, providing a safe working environment for staff, reducing risk to the public, and maintaining operability	30 June 2020	Works were substantively completed to undertake safety improvements on 42 sites in the Murrumbidgee and Lowbidgee Valleys. Planning activities were undertaken on a further program of works across rural valleys the 'Rural MCP Program (All Valleys)'. The program comprises works across 170 sites, approximately 40% of which have health and safety improvement as the primary driver. Additionally, a project has progressed to execution to address 161 inherent hazards with access to survey points at 17 dams across Water NSW.	
Keepit Dam	Completion of works meeting the stated needs & requirements	30 June 2020	Additional strengthening works outside the original scope were carried out on the spillway section of the dam, extending the works until December 2020.	The works are substantially complete in terms of meeting the original scope.

Project	Output measure	Expected completion	Activity 2018-19	Review comments
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	As above, the benefits will be realised on completion of the project.	The works are substantially complete in terms of meeting the original scope.
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 after confirmation of applicable dam safety regulations in NSW	The new regulations commenced on 1 November 2019. The standards and guidance material that stipulate regulatory requirements below the safety threshold are still to be developed. This is expected to be delivered within a 2-year window starting at the inception of the new regulations. The development of the corporate strategy is dependent on the publication of these requirements and guidelines. When the standards and guidance material have been gazetted, we will require at least 12 months to develop the strategy (i.e. apply the methodology, assess compliance and develop risk mitigation solutions).	Since this comment the Water NSW dam engineering team have provided a plan for developing the strategy for meeting the 2-year window. They have been proactive in providing their own interpretations of the new regulations in advance of the further guidance awaited from Dam Safety NSW.

Source: Atkins, *Water NSW Expenditure Review – Final Report for IPART*, 19 February 2021, pp 142–144.

B.2 Output measures – 2021 determination period

Table B.2 lists our output measures for the 2021 Determination. These are based on advice from Atkins, our expenditure review consultations. Since our Draft Report, we updated output measures for the fish pass offset pilot projects and the customer measure.

Table B.2 Output measures for the 2021 Determination

Project	Output measure	Target completion	Activity
Lake Cargelligo Embankment upgrade works	Completion of embankment safety works to bring risk assessment into tolerable zone of SFAIRP ('so far as reasonably practicable')	FY23	Detailed design and construction of embankment raising and filter works.
Fish pass offset pilot projects	Completion of the Gunidgera, Marebone Break Weir and Lake Cargelligo Outlet Regulator fish passage offset schemes to the satisfaction of DPI Fisheries	FY25	Detailed design and construction of the novel fish passage schemes at the 3 weirs and agreed with DPI Fisheries.
Fish pass planning, design, programming	Final business case and detailed designs for the remaining 9 fish passage offset schemes, taking account of the lessons learned from the pilot schemes, to the satisfaction of DPI Fisheries	FY25	On the basis of the construction and evaluation of the 3 pilot fish pass schemes at Gunidgera, Marebone Break Weir and Lake Cargelligo, and following progression of the construction at Tyreel Weir, progress with developing the business cases and detailed design and program for delivery of the remaining 8 fish pass schemes in the 2025 determination period to the satisfaction of DPI Fisheries.
Asset renewals and condition	Report on: a) service orders requiring reactive maintenance, broken down by asset sub-types b) number of assets with a criticality rating of 4 or above, broken down by asset sub-types.	Report annually	
Asset performance and health	Develop asset risk evaluations across all appropriate asset classes	FY25	This will improve understanding of underlying asset risk and ultimately support future expenditure and investment decisions.
Fish river scheme	Develop and implement a customer impact measure (e.g. minutes lost per customer) for water supply interruption events that can be used to measure performance	FY22	This will improve the focus on customer impacts of water supply interruption events rather than only the number of events that take place and drive operational improvements within the scheme. Once baselined this can be used to show performance and impact of events against various asset classes on the scheme.
Implementation of the WAVE Program	Completion of full scope of the programme on budget as per final business case presented to Board 27 May 2020, comprising operational technology, analytics and water market components and providing the benefits identified in the business case(s) used to justify the expenditure	FY24	Program objectives: - service and efficiency improvements by allowing low value tasks to be automated

Project	Output measure	Target completion	Activity
			- centralised management of water information by improving access to up-to-date and reliable water information for personnel and customers. Consolidation of ICT systems with harmonisation and integration of ICT landscape to drive operational efficiencies and enable improved performance of services through better insights from high integrity data. Mitigation of risks through improving integrity and reliability of business processes and data management.
Customer measure	Achieve 68% score for 'Skyline' composite measure and regularly publish regularly the results	FY25	The measure is based on customer perception from the annual research programme survey and built up from 4 sub measures: the suitability of services provided; satisfaction with services provided; value for money; and quality of relationships. Results should be shared via the principal customer communication channels (e.g. WaterNSW website, annual report).
Cost Allocation Manual	Agreement on an updated Cost Allocation Manual with IPART	December 2021	To reflect the recommendations of the corporate cost allocation review in Section 8 of Atkins' Final Report, March 2021.
Long term transformational strategy	Development and implementation of a detailed transformational strategy setting out clear actions, quantified expenditure efficiencies and customer benefits by year with the aim of becoming an efficient, effective and customer-focused organisation. The strategy should also set out the approach to be used for benefits realisation tracking	July 2023 – Development of strategy FY24 and FY25 – Implementation and benefits realisation tracking	Report progress in the AIR or as agreed with IPART.

Source: Atkins, *Water NSW Expenditure Review – Final Report for IPART*, 19 February 2021, pp 144–145.

Appendix C

Weighted average cost of capital

To calculate an allowance for the return on assets in the revenue requirement, we multiply the value of the regulatory asset base (RAB) in each year of the determination period by an appropriate rate of return. To do this, we determine the rate of return using a weighted average cost of capital (WACC).

This appendix shows the parameters we used to calculate the WACC and explains our decision about how to treat annual changes in the WACC over the determination period·

Our decisions on the WACC for Water NSW's assets for Murray-Darling Basin (MDB) valleys and Coastal valleys is set out in Chapter 7.

C.1 We use 2 methods to calculate a WACC

For our review of Water NSW's rural bulk water services we use 2 separate methods to calculate and apply a WACC as outlined below.

- For customers in MDB valleys we set prices using a WACC calculated with regard to the ACCC's pricing principles as required under the WCR.
- For customers in Coastal valleys we set prices using our standard approach to calculating the WACC.[a]

C.1.1 We set a WACC for rural MDB valleys in accordance with the WCR

We use the ACCC's WCR methodology to calculate the WACC for Water NSW's MDB valleys. Under the transitional arrangements as part of the revised WCR, we must apply the same pricing principles as set out under the WCR.[278] This methodology stipulates the use of a market risk premium of 6.0%, an equity beta of 0.7 and a gearing ratio of 60%, and is the same approach we applied in our 2017 price review.[279]

Section C.2 explains our methodology for each parameter in more detail.

Table C.1 sets out the parameters that were used to derive the 1.8% post-tax real WACC for Water NSW's MDB valleys.

[a] We set prices in Coastal valleys under the *Independent Pricing and Regulatory Tribunal Act 1992*.

Table C.1 WACC calculation for MDB valleys using WCR parameters

	Market data
Nominal risk-free rate	1.55%
Inflation	2.20%
Implied debt margin	1.28%
Market risk premium	6.0%
Debt funding	60%
Equity funding	40%
Total funding (debt + equity)	100%
Gamma	0.25
Corporate tax rate	30%
Effective tax rate for equity	30%
Effective tax rate for debt	30%
Equity beta	0.70
Cost of equity (nominal post-tax)	5.7%
Cost of equity (real-post tax)	3.5%
Cost of debt (nominal pre-tax)	2.8%
Cost of debt (real pre-tax)	0.6%
Nominal vanilla (post-tax nominal) WACC	4.0%
Post-tax real WACC	**1.8%**
Pre-tax nominal WACC	4.7%
Pre-tax real WACC point estimate	2.4%

Source: IPART analysis.

C.1.2 We used our standard approach to calculate a WACC for Coastal valleys

We used our standard methodology to calculate the WACC for Water NSW's Coastal valleys. Under our approach 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.

Section C.2 explains our methodology for each parameter in more detail.

Table C.2 sets out the parameters that were used to derive the 3.0% post-tax real WACC for Water NSW's Coastal valleys.

Table C.2 WACC calculation for Coastal valleys using IPART's standard approach

	Step 1 – Market data		Step 2 – Final WACC range		
	Current	Long term	Lower	Mid-point	Upper
Nominal risk-free rate	1.60%	2.70%			
Inflation	2.20%	2.20%			
Implied debt margin	1.40%	2.50%			
Market risk premium	7.9%	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)	7.1%	6.9%			
Cost of equity (real-post tax)	4.8%	4.6%			
Cost of debt (nominal pre-tax)	3.0%	5.2%			
Cost of debt (real pre-tax)	0.8%	2.9%			
Nominal vanilla (post-tax nominal) WACC	4.7%	5.9%	4.7%	5.3%	5.9%
Post-tax real WACC	**2.4%**	**3.6%**	**2.4%**	**3.0%**	**3.6%**
Pre-tax nominal WACC	5.5%	6.7%	5.5%	6.1%	6.7%
Pre-tax real WACC point estimate	3.2%	4.4%	3.2%	3.8%	4.4%

Source: IPART analysis.

C.2 Our methodology to calculate WACC parameters

This section sets out some of the key methodologies we use to derive the component parameters used to calculate the WACC under both our standard approach and the ACCC's WCR.

C.2.1 Gearing and beta

In selecting proxy industries, we consider the type of business the firm is in. If we can't directly identify proxy firms that are in the same business, then we would consider which other industries exhibit returns that are comparably sensitive to market returns.

We adopted the standard values of 60% gearing and an equity beta of 0.7. We undertook preliminary proxy company analysis on several different types of industries with risk profiles that appear similar to water utilities. The results for the electric utilities industry and the multi-line utilities activity support continuing to use an equity beta of 0.7 when 60% gearing is used. While some other industries and activities analysed suggest a higher beta, the sample sizes for those proxy groupings are too small to warrant making what would be a major change from the status quo.

C.2.2 Sampling dates for market observations

We sampled all market observations as of 31 March 2021.[b] We decided not to sample at a later date even though we had a 3-month delay to our decisions. This is because:

- sampling at a different time of year creates unnecessary complexity and may introduce seasonal effects
- failing to use the most up-to-date market data is not a particular problem given we use the trailing average cost of debt, which minimises the impact of any one interest rate sample
- any movements in the cost of debt within the regulatory period will be picked up in our true-up calculation.

For earlier years in the trailing average calculation of the historic cost of debt, we also sampled to the end of March in each year.

Our inflation forecast is produced using IPART's standard approach, with the Reserve Bank of Australia's 1-year ahead forecast sourced from the February 2021 Statement of Monetary Policy.[280] This approach is consistent with the approach we applied in our 2017 price review.

C.2.3 Tax rate

We assumed the Benchmark Equivalent Entity is a large public water utility. The scale economies that are important to firms of this type suggest that the Benchmark Equivalent Entity would be likely to be well above the turnover threshold at which a firm becomes ineligible for a reduced corporate income tax rate. Therefore, we used a tax rate of 30%.

C.2.4 Regulatory period

We applied the WACC estimate for the duration of the determination period.

[b] In our Draft Report, we used a post-tax real WACC of 1.3% for Water NSW's MDB valleys and 2.8% for Water NSW's Coastal valleys, based on market observations as of 31 December 2020.

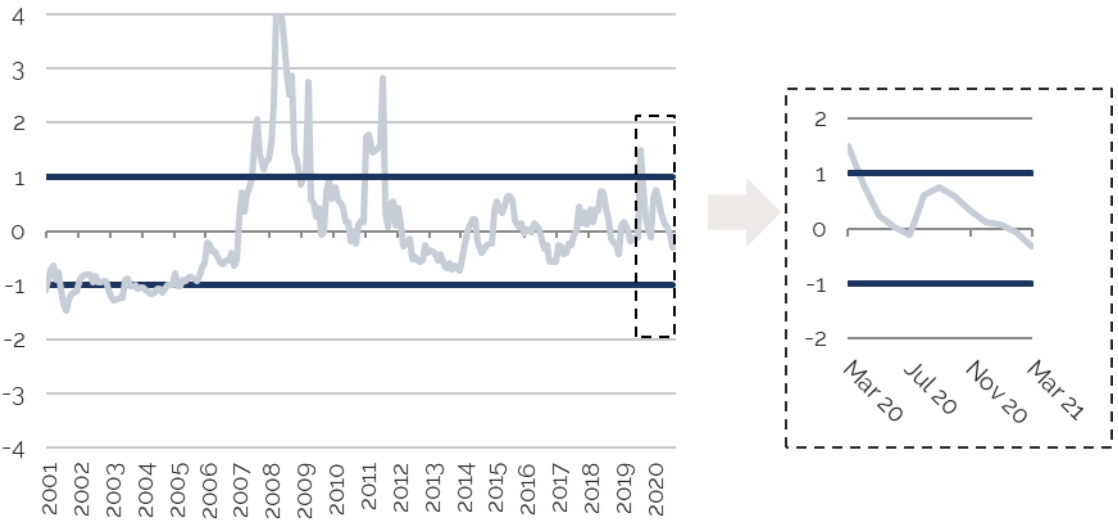
C.2.5 Application of trailing average method

Our 2018 review of the WACC method introduced a decision to estimate both the long-term and current cost of debt using a trailing average approach, which updates the cost of debt annually over the regulatory period. As foreshadowed in our 2018 review of the WACC method, we employed a transition to trailing average in the calculations presented above.

C.2.6 Uncertainty index

We tested the uncertainty index for market observations to the end of March 2021. It was within the bounds of plus and minus one standard deviation of the long-term mean value of zero. The uncertainty index for July 2021 also remains within the normal change. Therefore we maintained the default 50%/50% weighting between current and historic market estimates of the cost of debt and the cost of equity (Figure C.1).

Figure C.1 IPART's uncertainty index



Data source: Refinitiv; Bloomberg; and IPART calculations

Appendix D

Impacts of our decisions on non-urban metering reform charges

D.1 Impacts on customers in regulated rivers

D.1.1 Government owned meters

Table D.1 Indicative impact of our decisions on bills on regulated rivers with government owned meters with telemetry ($/year, $2021-22)

Valley	ML entitlement	Usage (%)	2020-21 bill[a]	2021-22 bill including metering	% change to 2020-21 bill	2024-25 bill including metering	% change to 2020-21 bill	Contribution to change of metering	Contribution to change of bulk water charges
High Security									
Murray	*500*	*100%*	8,377	9,931 - 9,881	19% - 18%	10,519 - 10,452	26% - 25%	9% - 8%	18%
Murrumbidgee	*500*	*100%*	6,059	7,645 - 7,595	26% - 25%	8,244 - 8,177	36% - 35%	12% - 11%	26%
South Coast	*500*	*100%*	30,704	31,577 - 31,528	3% - 3%	32,209 - 32,142	5% - 5%	2% - 2%	3%
General Security									
Murray	*500*	*60%*	4,998	5,923 - 5,874	19% - 18%	6,290 - 6,223	26% - 25%	14% - 13%	13%
Murrumbidgee	*500*	*60%*	3,557	4,586 - 4,537	29% - 28%	4,988 - 4,921	40% - 38%	20% - 18%	23%
South Coast	500	60%	18,030	18,796 - 18,746	4% - 4%	19,309 - 19,242	7% - 7%	4% - 4%	3%

a. Includes Water NSW bulk water charges, WAMC charges, MDBA and BRC charges and meter service charge (MSC). Bills are nominal (i.e. $2020-21).

Note: Assumes a 100mm meter. Bills in 2021-22 reflect that new prices apply from 1 October 2021.

Table D.2 Indicative impact of our decisions on bills on regulated rivers with government owned meters without telemetry ($/year, $2021-22)

Valley	ML entitlement	Usage (%)	2020-21 billa	2021-22 bill including metering	% change to 2020-21 bill	2024-25 bill including metering	% change to 2020-21 bill	Contribution to change of metering	Contribution to change of bulk water charges
High Security									
Murray	500	100%	8,377	9,931 - 9,908	19% - 18%	10,519 - 10,489	26% - 25%	9% - 8%	18%
Murrumbidgee	500	100%	6,059	7,645 - 7,623	26% - 26%	8,244 - 8,214	36% - 36%	12% - 11%	26%
South Coast	500	100%	30,704	31,577 - 31,555	3% - 3%	32,209 - 32,179	5% - 5%	2% - 2%	3%
General Security									
Murray	500	60%	4,998	5,923 - 5,901	19% - 18%	6,290 - 6,260	26% - 25%	14% - 13%	13%
Murrumbidgee	500	60%	3,557	4,586 - 4,564	29% - 28%	4,988 - 4,958	40% - 39%	20% - 18%	23%
South Coast	500	60%	18,030	18,796 - 18,773	4% - 4%	19,309 - 19,279	7% - 7%	4% - 4%	3%

a. Includes Water NSW bulk water charges, WAMC charges, MDBA and BRC charges and meter service charge (MSC). Bills are nominal (i.e. $2020-21).

Note: Assumes a 100mm meter. Bills in 2021-22 reflect that new prices apply from 1 October 2021.

D.1.2 Privately owned meters

Table D.3 Indicative impact of our decisions on bills on regulated rivers with privately owned meters with telemetry ($/year, $2021-22)

Valley	ML entitlement	Usage (%)	2020-21 bill[a]	2021-22 bill including metering	% change to 2020-21 bill	2024-25 bill including metering	% change to 2020-21 bill	Contribution to change of metering	Contribution to change of bulk water charges
High security									
Border	500	100%	10,736	12,359 - 12,309	15% - 15%	13,025 - 12,959	21% - 21%	3% - 2%	19%
Gwydir	500	100%	13,874	18,011 - 17,961	30% - 29%	19,485 - 19,419	40% - 40%	2% - 2%	38%
Namoi	500	100%	22,244	29,966 - 29,916	35% - 34%	32,540 - 32,474	46% - 46%	1% - 1%	45%
Peel	500	100%	35,989	44,476 - 44,426	24% - 23%	47,495 - 47,429	32% - 32%	1% - 1%	31%
Lachlan	500	100%	20,212	27,695 - 27,646	37% - 37%	30,300 - 30,234	50% - 50%	1% - 1%	48%
Macquarie	500	100%	16,473	21,428 - 21,378	30% - 30%	23,195 - 23,129	41% - 40%	2% - 1%	39%
Murray	500	100%	7,899	9,137 - 9,087	16% - 15%	9,620 - 9,554	22% - 21%	4% - 3%	18%
Murrumbidgee	500	100%	5,581	6,851 - 6,802	23% - 22%	7,345 - 7,279	32% - 30%	5% - 4%	26%
North Coast	500	100%	20,773	21,262 - 21,212	2% - 2%	21,825 - 21,759	5% - 5%	1% - 1%	4%
Hunter	500	100%	16,507	21,047 - 20,997	27% - 27%	22,770 - 22,704	38% - 38%	2% - 1%	36%
South Coast	500	100%	30,226	30,784 - 30,734	2% - 2%	31,310 - 31,244	4% - 3%	1% - 1%	3%
General security									
Border	500	60%	5,674	6,851 - 6,802	21% - 20%	7,347 - 7,281	29% - 28%	5% - 4%	24%
Gwydir	500	60%	6,945	8,438 - 8,389	21% - 21%	9,013 - 8,947	30% - 29%	4% - 3%	25%
Namoi	500	60%	12,663	15,588 - 15,538	23% - 23%	16,563 - 16,497	31% - 30%	2% - 2%	28%
Peel	500	60%	10,861	12,955 - 12,905	19% - 19%	13,797 - 13,731	27% - 26%	3% - 2%	24%
Lachlan	500	60%	8,916	11,864 - 11,815	33% - 33%	12,929 - 12,863	45% - 44%	3% - 3%	42%
Macquarie	500	60%	7,395	9,530 - 9,481	29% - 28%	10,333 - 10,267	40% - 39%	4% - 3%	36%
Murray	500	60%	4,520	5,130 - 5,080	13% - 12%	5,391 - 5,325	19% - 18%	7% - 5%	13%
Murrumbidgee	500	60%	3,079	3,793 - 3,743	23% - 22%	4,089 - 4,023	33% - 31%	10% - 8%	23%
North Coast	500	60%	14,365	14,855 - 14,806	3% - 3%	15,329 - 15,263	7% - 6%	2% - 2%	5%
Hunter	500	60%	11,774	14,994 - 14,944	27% - 27%	16,243 - 16,177	38% - 37%	3% - 2%	35%
South Coast	500	60%	17,552	18,002 - 17,952	3% - 2%	18,410 - 18,344	5% - 5%	2% - 1%	3%

a. Includes Water NSW bulk water charges, WAMC charges and MDBA and BRC charges. Bills are nominal (i.e. $2020-21).

Note: Assumes a 100mm meter. Bills in 2021-22 reflect that new prices apply from 1 October 2021.

Table D.4 Indicative impact of our decisions on bills on regulated rivers with privately owned meters without telemetry ($/year, $2021-22)

Valley	ML entitlement	Usage (%)	2020-21 bill[a]	2021-22 bill including metering	% change to 2020-21 bill	2024-25 bill including metering	% change to 2020-21 bill	Contribution to change of metering	Contribution to change of bulk water charges
High security									
Border	500	100%	10,736	12,359 - 12,337	15% - 15%	13,025 - 12,995	21% - 21%	3% - 3%	19%
Gwydir	500	100%	13,874	18,011 - 17,989	30% - 30%	19,485 - 19,455	40% - 40%	2% - 2%	38%
Namoi	500	100%	22,244	29,966 - 29,944	35% - 35%	32,540 - 32,510	46% - 46%	1% - 1%	45%
Peel	500	100%	35,989	44,476 - 44,453	24% - 24%	47,495 - 47,465	32% - 32%	1% - 1%	31%
Lachlan	500	100%	20,212	27,695 - 27,673	37% - 37%	30,300 - 30,270	50% - 50%	1% - 1%	48%
Macquarie	500	100%	16,473	21,428 - 21,406	30% - 30%	23,195 - 23,165	41% - 41%	2% - 2%	39%
Murray	500	100%	7,899	9,137 - 9,115	16% - 15%	9,620 - 9,590	22% - 21%	4% - 3%	18%
Murrumbidgee	500	100%	5,581	6,851 - 6,829	23% - 22%	7,345 - 7,315	32% - 31%	5% - 5%	26%
North Coast	500	100%	20,773	21,262 - 21,240	2% - 2%	21,825 - 21,795	5% - 5%	1% - 1%	4%
Hunter	500	100%	16,507	21,047 - 21,024	27% - 27%	22,770 - 22,740	38% - 38%	2% - 2%	36%
South Coast	500	100%	30,226	30,784 - 30,761	2% - 2%	31,310 - 31,280	4% - 3%	1% - 1%	3%
General security									
Border	500	60%	5,674	6,851 - 6,829	21% - 20%	7,347 - 7,317	29% - 29%	5% - 5%	24%
Gwydir	500	60%	6,945	8,438 - 8,416	21% - 21%	9,013 - 8,983	30% - 29%	4% - 4%	25%
Namoi	500	60%	12,663	15,588 - 15,566	23% - 23%	16,563 - 16,533	31% - 31%	2% - 2%	28%
Peel	500	60%	10,861	12,955 - 12,933	19% - 19%	13,797 - 13,767	27% - 27%	3% - 2%	24%
Lachlan	500	60%	8,916	11,864 - 11,842	33% - 33%	12,929 - 12,899	45% - 45%	3% - 3%	42%
Macquarie	500	60%	7,395	9,530 - 9,508	29% - 29%	10,333 - 10,303	40% - 39%	4% - 4%	36%
Murray	500	60%	4,520	5,130 - 5,107	13% - 13%	5,391 - 5,361	19% - 19%	7% - 6%	13%
Murrumbidgee	500	60%	3,079	3,793 - 3,770	23% - 22%	4,089 - 4,059	33% - 32%	10% - 9%	23%
North Coast	500	60%	14,365	14,855 - 14,833	3% - 3%	15,329 - 15,299	7% - 7%	2% - 2%	5%
Hunter	500	60%	11,774	14,994 - 14,971	27% - 27%	16,243 - 16,213	38% - 38%	3% - 2%	35%
South Coast	500	60%	17,552	18,002 - 17,980	3% - 2%	18,410 - 18,380	5% - 5%	2% - 2%	3%

a. Includes Water NSW bulk water charges, WAMC charges and MDBA and BRC charges. Bills are nominal (i.e. $2020-21).

Note: Assumes a 100mm meter. Bills in 2021-22 reflect that new prices apply from 1 October 2021.

D.2 Impacts on customers in unregulated rivers

D.2.1 Government owned meters

Table D.5 Indicative impact of our decisions on bills on unregulated rivers with government owned meters with telemetry ($/year, $2021-22)

Valley	ML entitlement	Usage (%)	2020-21 bill[a]	2021-22 bill including metering	% change to 2020-21 bill	2024-25 bill including metering	% change to 2020-21 bill	Contribution to change of metering	Contribution to change of bulk water charges
Murray	500	60%	3,096	3,580 - 3,531	16% - 14%	3,922 - 3,855	27% - 25%	22% - 20%	5%
Murrumbidgee	500	60%	3,893	4,446 - 4,396	14% - 13%	4,887 - 4,820	26% - 24%	18% - 16%	9%
South Coast	500	60%	1,836	2,216 - 2,166	21% - 18%	2,343 - 2,276	28% - 24%	37% - 34%	-13%

a. Includes Water NSW bulk water charges, WAMC charges and MDBA and BRC charges. Bills are nominal (i.e. $2020-21).

Note: Assumes a 100mm meter. Bills in 2021-22 reflect that new prices apply from 1 October 2021.

Table D.6 Indicative impact of our decisions on bills on unregulated rivers with government owned meters without telemetry ($/year, $2021-22)

Valley	ML entitlement	Usage (%)	2020-21 bill[a]	2021-22 bill including metering	% change to 2020-21 bill	2024-25 bill including metering	% change to 2020-21 bill	Contribution to change of metering	Contribution to change of bulk water charges
Murray	500	60%	3,096	3,580 - 3,558	16% - 15%	3,922 - 3,892	27% - 26%	22% - 21%	5%
Murrumbidgee	500	60%	3,893	4,446 - 4,423	14% - 14%	4,887 - 4,857	26% - 25%	18% - 17%	9%
South Coast	500	60%	1,836	2,216 - 2,194	21% - 19%	2,343 - 2,313	28% - 26%	37% - 36%	-13%

a. Includes WAMC charges, MDBA and BRC charges and MSCs. Bills are nominal (i.e. $2020-21).

Note: Assumes a 100mm meter. Bills in 2021-22 reflect that new prices apply from 1 October 2021.

D.2.2 Privately owned meters

Table D.7 Indicative impact of our decision on bills on unregulated rivers with privately owned meters with telemetry ($/year, $2021-22)

Valley	ML entitlement	Usage	2020-21 bill[a]	2021-22 bill including metering	% change to 2020-21 bill	2024-25 bill including metering	% change to 2020-21 bill	Contribution to change of metering	Contribution to change of bulk water charges
Border	500	60%	1,896	1,881 - 1,831	-1% - -3%	1,990 - 1,924	5% - 1%	16% - 12%	-11%
Gwydir	500	60%	1,896	1,881 - 1,831	-1% - -3%	1,990 - 1,924	5% - 1%	16% - 12%	-11%
Namoi	500	60%	1,896	1,881 - 1,831	-1% - -3%	1,990 - 1,924	5% - 1%	16% - 12%	-11%
Peel	500	60%	1,896	1,881 - 1,831	-1% - -3%	1,990 - 1,924	5% - 1%	16% - 12%	-11%
Lachlan	500	60%	2,219	2,395 - 2,345	8% - 6%	2,608 - 2,542	18% - 15%	14% - 11%	4%
Macquarie	500	60%	2,219	2,395 - 2,345	8% - 6%	2,608 - 2,542	18% - 15%	14% - 11%	4%
Far West	500	60%	2,822	3,504 - 3,454	24% - 22%	3,731 - 3,665	32% - 30%	11% - 8%	22%
Murray	500	60%	2,582	2,777 - 2,728	8% - 6%	3,023 - 2,957	17% - 15%	12% - 9%	5%
Murrumbidgee	500	60%	3,379	3,643 - 3,593	8% - 6%	3,988 - 3,922	18% - 16%	9% - 7%	9%
North Coast	500	60%	3,773	4,045 - 3,995	7% - 6%	4,432 - 4,366	17% - 16%	8% - 6%	10%
Hunter	500	60%	1,288	1,538 - 1,489	19% - 16%	1,718 - 1,652	33% - 28%	23% - 18%	10%
South Coast	500	60%	1,322	1,413 - 1,364	7% - 3%	1,444 - 1,378	9% - 4%	23% - 18%	-13%

a. Includes WAMC charges, MDBA and BRC charges and MSCs. Bills are nominal (i.e. $2020-21).

Note: Assumes a 100mm meter. Bills in 2021-22 reflect that new prices apply from 1 October 2021.

Table D.8 Indicative impact of our decision on bills on unregulated rivers with privately owned meters without telemetry ($/year, $2021-22)

Valley	ML entitlement	Usage	2020-21 bill[a]	2021-22 bill including metering	% change to 2020-21 bill	2024-25 bill including metering	% change to 2020-21 bill	Contribution to change of metering	Contribution to change of bulk water charges
Border	500	60%	1,896	1,881 - 1,859	-1% - -2%	1,990 - 1,960	5% - 3%	16% - 14%	-11%
Gwydir	500	60%	1,896	1,881 - 1,859	-1% - -2%	1,990 - 1,960	5% - 3%	16% - 14%	-11%
Namoi	500	60%	1,896	1,881 - 1,859	-1% - -2%	1,990 - 1,960	5% - 3%	16% - 14%	-11%
Peel	500	60%	1,896	1,881 - 1,859	-1% - -2%	1,990 - 1,960	5% - 3%	16% - 14%	-11%
Lachlan	500	60%	2,219	2,395 - 2,373	8% - 7%	2,608 - 2,578	18% - 16%	14% - 12%	4%
Macquarie	500	60%	2,219	2,395 - 2,373	8% - 7%	2,608 - 2,578	18% - 16%	14% - 12%	4%
Far West	500	60%	2,822	3,504 - 3,481	24% - 23%	3,731 - 3,701	32% - 31%	11% - 10%	22%
Murray	500	60%	2,582	2,777 - 2,755	8% - 7%	3,023 - 2,993	17% - 16%	12% - 10%	5%
Murrumbidgee	500	60%	3,379	3,643 - 3,621	8% - 7%	3,988 - 3,958	18% - 17%	9% - 8%	9%
North Coast	500	60%	3,773	4,045 - 4,023	7% - 7%	4,432 - 4,402	17% - 17%	8% - 7%	10%
Hunter	500	60%	1,288	1,538 - 1,516	19% - 18%	1,718 - 1,688	33% - 31%	23% - 21%	10%
South Coast	500	60%	1,322	1,413 - 1,391	7% - 5%	1,444 - 1,414	9% - 7%	23% - 20%	-13%

a. Includes WAMC charges, MDBA and BRC charges and MSCs. Bills are nominal (i.e. $2020-21).

Note: Assumes a 100mm meter. Bills in 2021-22 reflect that new prices apply from 1 October 2021.

D.3 Impacts on customers in groundwater

D.3.1 Government owned meters

Table D.9 Indicative impact of our decisions on bills on groundwater with government owned meters with telemetry ($/year, $2021-22)

Valley	ML entitlement	Usage (%)	2020-21 bill[a]	2021-22 bill including metering	% change to 2020-21 bill	2024-25 bill including metering	% change to 2020-21 bill	Contribution to change of metering	Contribution to change of bulk water charges
Inland	500	60%	3,385	3,735 - 3,685	10% - 9%	3,852 - 3,785	14% - 12%	20% - 18%	-8%
Murrumbidgee	500	60%	2,420	3,115 - 3,065	29% - 27%	3,504 - 3,437	45% - 42%	28% - 26%	21%
Coastal	500	60%	2,383	2,944 - 2,894	24% - 21%	3,279 - 3,212	38% - 35%	29% - 26%	11%

a. Includes WAMC charges, MDBA and BRC charges and MSCs. Bills are nominal (i.e. $2020-21).

Note: Assumes a 100mm meter. Bills in 2021-22 reflect that new prices apply from 1 October 2021.

Table D.10 Indicative impact of decisions on bills on groundwater with government owned meters without telemetry ($/year, $2021-22)

Valley	ML entitlement	Usage (%)	2020-21 bill[a]	2021-22 bill including metering	% change to 2020-21 bill	2024-25 bill including metering	% change to 2020-21 bill	Contribution to change of metering	Contribution to change of bulk water charges
Inland	500	60%	3,385	3,735 - 3,713	10% - 10%	3,852 - 3,822	14% - 13%	20% - 19%	-8%
Murrumbidgee	500	60%	2,420	3,115 - 3,093	29% - 28%	3,504 - 3,474	45% - 44%	28% - 27%	21%
Coastal	500	60%	2,383	2,944 - 2,921	24% - 23%	3,279 - 3,249	38% - 36%	29% - 27%	11%

a. Includes WAMC charges, MDBA and BRC charges and MSCs. Bills are nominal (i.e. $2020-21).

Note: Assumes a 100mm meter. Bills in 2021-22 reflect that new prices apply from 1 October 2021.

D.3.2 Privately owned meters

Table D.11 Indicative impact of our decisions on bills on groundwater with privately owned meters with telemetry ($/year, $2021-22)

Valley	ML entitlement	Usage (%)	2020-21 bill[a]	2021-22 bill including metering	% change to 2020-21 bill	2024-25 bill including metering	% change to 2020-21 bill	Contribution to change of metering	Contribution to change of bulk water charges
Inland	500	60%	2,871	2,932 - 2,883	2% - 0%	2,953 - 2,887	3% - 1%	10% - 8%	-8%
Murrumbidgee	500	60%	1,905	2,312 - 2,263	21% - 19%	2,605 - 2,539	37% - 33%	16% - 12%	21%
Coastal	500	60%	1,868	2,141 - 2,091	15% - 12%	2,380 - 2,314	27% - 24%	16% - 13%	11%

a. Includes WAMC charges, MDBA and BRC charges and MSCs. Bills are nominal (i.e. $2020-21).

Note: Assumes a 100mm meter. Bills in 2021-22 reflect that new prices apply from 1 October 2021.

Table D.12 Indicative impact of our decisions on bills on groundwater with privately owned meters without telemetry ($/year, $2021-22)

Valley	ML entitlement	Usage (%)	2020-21 bill[a]	2021-22 bill including metering	% change to 2020-21 bill	2024-25 bill including metering	% change to 2020-21 bill	Contribution to change of metering	Contribution to change of bulk water charges
Inland	500	60%	2,871	2,932 - 2,910	2% - 1%	2,953 - 2,923	3% - 2%	10% - 9%	-8%
Murrumbidgee	500	60%	1,905	2,312 - 2,290	21% - 20%	2,605 - 2,575	37% - 35%	16% - 14%	21%
Coastal	500	60%	1,868	2,141 - 2,119	15% - 13%	2,380 - 2,350	27% - 26%	16% - 14%	11%

a. Includes WAMC charges, MDBA and BRC charges and MSCs. Bills are nominal (i.e. $2020-21).

Note: Assumes a 100mm meter. Bills in 2021-22 reflect that new prices apply from 1 October 2021.

Glossary

2017 Determination	Review of prices for Water NSW (formerly State Water Corporation) from 1 July 2017 – Determination and Final Report, June 2017 (Determination No. 2, 2017)
2017 determination period	The period from 1 July 2017 to 30 June 2021, as set in the 2017 Determination
2021 Determination	Refers to the upcoming price period – i.e. prices from 1 Oct 2021
2021 determination period	The period from 1 October 2021 to 30 June 2025, that will be set in the 2021 Determination, prices have been based on efficient costs to be incurred by Water NSW between 1 July 2021 to 30 June 2025.
ACCC	Australian Competition and Consumer Commission
ACCC's Pricing Principles	Pricing principles for price approvals and determinations under the WCR
BHP	Broken Hill pipeline
BRC	Dumaresq–Barwon Border Rivers Commission
CEWO	Commonwealth Environmental Water Office
CICL	Coleambally Irrigation Co-operative Limited
CPI	Consumer Price Index
Customer share of costs	We 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 (e.g. the community at large), that do not contribute to the recovery of Water NSW's NRR
DPI Fisheries	Department of Primary Industries Fisheries
DPI Water	Department of Primary Industries Water
DPIE	Department of Planning, Industry and Environment
DPIE ESS	Department of Planning, Industry and Environment – Environment, Energy and Science

DRDMW	Department of Regional Development, Manufacturing and Water
EGS	Environmental gauging station
EMR	Environmental management report
EPP	Environmental planning and protection
FCR	Full cost recovery
FFO	Funds from operations
FRWS	Fish River Water Supply Scheme
FTE	Full-time equivalent
GL	Gigalitre
GMW	Goulburn-Murray Water
GS	General security
Greater Sydney area	Water catchments that service Water NSW storages including the Blue Mountains, Shoalhaven, Warragamba, Upper Nepean and Woronora catchments
GVIA	Gwydir Valley Irrigators Association
GVIAP	Gross value of irrigated agricultural production
HS	High security
IAP2	International Association for Public Participation
ICDs	Irrigation corporations and districts
IPART	Independent Pricing and Regulatory Tribunal of NSW
IPART Act	*Independent Pricing and Regulatory Tribunal Act 1992*
kL	Kilolitre

LCC	Lithgow City Council
LRMC	Long-run marginal cost
MDB	Murray–Darling Basin
MDBA	Murray Darling Basin Authority
MAQ	Minimum Annual Quantity
MFP	Multi-factor productivity
ML	Megalitre
MLDRIN	Murray and Lower Darling River Indigenous Nations
mm	Millimetre
MSC	Meter service charges
NRR	Notional revenue requirement. Revenue requirement set by IPART that represents the efficient costs of providing Water NSW's regulated monopoly services
NPV	Net present value
NRAR	Natural Resources Access Regulator
NSW	New South Wales
NSWALC	NSW Aboriginal Land Council
NSWIC	NSW Irrigators' Council
NWI	National Water Initiative
PIAC	Public Interest Advocacy Centre
PVWUA	Peel Valley Water Users Association
RAB	Regulatory asset base
RTP	Risk transfer product

SIS	Salt Inception Scheme
SOC	State-owned corporation
SRMC	Short-run marginal cost
Target revenue	The revenue Water NSW generates from prices set by IPART for that year
TCorp	NSW Treasury Corporation
TOTEX	Total expenditure, includes expenditure on operations and capital
TRC	Tamworth Regional Council
UOM	Unders and overs mechanism
VaR	Value at risk
WACC	Weighted average cost of capital
WAMC	Water Administration Ministerial Corporation
Water Act	*Water Act 2007* (Cth)
WCR	Water Charge Rules 2010 made under s 92 of the *Water Act 2007* (Cth)
YACTAC	Yanco Creek and Tributaries Advisory Council

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