IPART
Independent Pricing and Regulatory Tribunal
New South Wales

REVIEW OF WATER NSW'S

RURAL BULK WATER PRICES

FROM 1 JULY 2021 TO 30 JUNE 2025

Draft Report

March 2021

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Invitation for submissions

IPART invites written comment on this document and encourages all interested parties to provide submissions addressing the matters discussed.

Submissions are due by 16 April 2021

We would prefer to receive them electronically via our online submission form.

You can also send comments by mail to:

Review of Water NSW rural bulk water services
Independent Pricing and Regulatory Tribunal
PO Box K35
Haymarket Post Shop, Sydney NSW 1240

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1 Executive summary

The Independent Pricing and Regulatory Tribunal (IPART) is reviewing the prices Water NSW can charge its customers for rural bulk water services. These customers include agricultural producers, 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 and store 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 will determine aim to recover a share of the efficient costs of providing rural bulk water services. The remaining share of these costs are funded by the NSW Government on behalf of the broader community. The prices we set 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 two-part tariff, comprising:
  - a fixed entitlement charge - $ per megalitre (ML) of licensed entitlement
  - a variable usage charge - $ per ML of water used (extracted from the river).
- **Murray-Darling Basin Authority (MDBA) and Barwon-Dumaresq 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 two-part tariff, comprising fixed entitlement and variable usage charges.
- **Miscellaneous charges** – which are fee-for-services charges for a range of metering and other services.

In making our 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),[1] we must comply with the Commonwealth Government's *Water Charge Rules 2010* (WCR).[2] The WCR require us to set prices that fully recover Water NSW's efficient costs.

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

1 Energy Australia and minor customers.
2 We note that previously the *Water Charge Rules 2010* (WCR) were referred to as the Commonwealth Government's *Water Charge (Infrastructure) Rules 2010*.
3 Oberon and Lithgow City councils, and Water NSW (Greater Sydney).

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

The report also sets out our preliminary position on new prices proposed to recover the customers' share of the costs of implementing the NSW Government's non-urban metering reform program. Water NSW submitted its proposal on these prices in November 2020. We have completed our initial review and are now seeking stakeholder feedback on the proposal and our preliminary position.

1.1 Price rises are necessary to support sustainable ongoing service delivery

Our review has 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. In particular, higher levels of operating expenditure are required to ensure Water NSW has sufficient resources to maintain its assets to an acceptable quality.

Well-maintained assets are important for customers, to provide the levels of service they are seeking, and to the community in general. The customer share of Water NSW's efficient costs is around 12% 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 draft pricing decisions ensure that they only pay for efficient expenditure.

1.2 Draft prices and customer bills are generally higher, but lower than Water NSW proposed

Under our draft pricing decisions, over the 4-year determination period:

- Bulk water charges increase (on average) by about 23% for entitlement charges and 21% for usage charges (plus inflation) in most valleys. 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 12% (plus inflation), while BRC charges decrease slightly.
- Most charges for Fish River customers increase by up to 31% (plus inflation), except for some charges for minor customers.
- Most miscellaneous charges are held constant and increase by inflation only.

1.2.1 Bulk water charges increase by an average of 23% for entitlement charges and 21% for usage charges in most valleys

Under our draft decision, bulk water charges increase (before inflation) in all valleys except the North Coast and the South Coast valleys (See Table 1.1 and Table 1.2.)

The key driver of this general price increase is our draft decision on the customer share of Water NSW's efficient cost allowance. This share is around $35.2 million or 12% higher than we used to set current prices in 2017. However, it is lower than the customer share under Water NSW's proposal. As a result, our draft bulk water charges are also lower than Water NSW proposed in all valleys. In some valleys, they are significantly lower.[4]

The price increases vary widely across the valleys and the different types of charges. The highest increase is 76.2% (for the general security entitlement charge in the Lowbidgee valley). The lowest is 0.8% (for the general security entitlement charge in the Gwydir valley). This variation is due to differences in Water NSW's efficient costs across valleys. It is also due to differences in the size of its customer base, the types of charge levied, and the ratio of fixed to variable price components across valleys.

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

4 We note that 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 Murray Darling Basin (MDB) valleys, do not allow for prices that do not recover efficient costs. To make meaningful comparisons, we modelled what constant prices (across a four-year determination period) for each valley would be if Water NSW fully recovered its proposed costs over a four-year determination period. We note, it is these modelled prices that we present in this report as "Water NSW's proposed" prices.

Table 1.1 Draft decision on bulk water entitlement prices for 2021 determination period ($/ML, $2021-22)

Valley	Current 2020-21 ($2020-21)	Proposed 2021-22	Draft decision 2021-22	Change current to proposed	Change current to draft decision
High security entitlement charge					
Border	$5.74	$7.47	$6.42	30.1%	11.8%
Gwydir	$11.93	$19.70	$16.28	65.1%	36.5%
Namoi	$18.40	$30.18	$26.58	64.0%	44.5%
Peel	$44.77	$64.39	$62.08	43.8%	38.7%
Lachlan	$16.56	$27.31	$23.88	64.9%	44.2%
Macquarie	$14.55	$21.96	$19.23	50.9%	32.2%
Murray	$1.66	$2.28	$2.12	37.3%	27.7%
Murrumbidgee	$3.18	$4.21	$3.88	32.4%	22.0%
Lowbidgee[a]	N/A	N/A	N/A	N/A	N/A
North Coast	$12.69	$13.01	$12.99	2.5%	2.4%
Hunter	$14.15	$20.41	$19.02	44.2%	34.4%
South Coast	$33.19	$34.02	$34.03	2.5%	2.5%
General security entitlement charge					
Border	$2.13	$2.74	$2.35	28.6%	10.3%
Gwydir	$3.75	$4.57	$3.78	21.9%	0.8%
Namoi	$8.58	$10.53	$9.28	22.7%	8.2%
Peel	$4.33	$6.10	$5.88	40.9%	35.8%
Lachlan	$2.94	$4.04	$3.53	37.4%	20.1%
Macquarie	$3.07	$4.29	$3.76	39.7%	22.5%
Murray	$0.81	$1.00	$0.93	23.5%	14.8%
Murrumbidgee	$1.19	$1.45	$1.33	21.8%	11.8%
Lowbidgee[a]	$0.84	$1.72	$1.48	104.8%	76.2%
North Coast	$9.83	$10.08	$10.08	2.5%	2.5%
Hunter	$10.98	$15.85	$14.78	44.4%	34.6%
South Coast	$17.41	$17.85	$17.85	2.5%	2.5%

a Lowbidgee has only supplementary licences.

Note: Excludes MDBA/BRC costs.

Source: Water NSW's June 2020 pricing proposal and IPART analysis.

Table 1.2 Draft decision on bulk water usage prices for 2021 determination period ($/ML, $2021-22)

Valley	Current 2020-21 ($2020-21)	Proposed 2021-22	Draft decision 2021-22	Change current to proposed	Change current to draft decision
Usage charge					
Border	$5.86	$7.56	$6.48	29.0%	10.6%
Gwydir	$12.79	$17.86	$14.82	39.6%	15.9%
Namoi	$21.52	$29.63	$26.17	37.7%	21.6%
Peel	$19.78	$25.59	$24.68	29.4%	24.8%
Lachlan	$20.51	$32.26	$28.26	57.3%	37.8%
Macquarie	$14.84	$21.95	$19.27	47.9%	29.9%
Murray	$2.06	$2.85	$2.65	38.3%	28.6%
Murrumbidgee	$3.57	$4.84	$4.44	35.6%	24.4%
Lowbidgee [a]	N/A	N/A	N/A	N/A	N/A
North Coast	$18.77	$19.24	$19.24	2.5%	2.5%
Hunter	$13.60	$19.94	$18.58	46.6%	36.6%
South Coast	$18.60	$19.07	$19.07	2.5%	2.5%

a Lowbidgee only has supplementary licences.

Note: Excludes MDBA/BRC costs.

Source: Water NSW's June 2020 pricing proposal and IPART analysis.

1.2.2 MDBA charges increase by up to about 12%, while BRC charges decrease slightly

Under our draft pricing decisions, MDBA high security entitlement and usage charges are between 8.1% and 12.4% higher than current prices (before inflation). The MBDA general security entitlement charge and all BRC charges are constant or slightly lower (before inflation). (See Table 1.3.)

However, these draft prices are substantially lower than Water NSW proposed. This is due to our draft decisions to:

- change how the prices are set to recover the costs of new infrastructure funded by the MDBA and BRC
- set lower efficient costs for the MDBA, in line with our draft finding that proposed expenditure on salt interception schemes are water management costs rather than bulk water costs[5]
- set lower efficient costs for the BRC.

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

Table 1.3 Draft decision on MDBA and BRC charges ($/ML, $2021-22)

Valley	Current 2020-21 ($2020-21)	Proposed 2021-22	Draft decision 2021-22	Change current to proposed	Change current to draft decision
High security entitlement charge					
Border	$4.97	$8.60	$4.90	73.0%	−1.4%
Murray	$7.83	$12.82	$8.70	63.7%	11.1%
Murrumbidgee	$1.73	$2.78	$1.87	60.7%	8.1%
General security entitlement charge					
Border	$1.85	$3.15	$1.79	70.3%	−3.2%
Murray	$3.83	$5.65	$3.83	47.5%	0.0%
Murrumbidgee	$0.65	$0.95	$0.64	46.2%	−1.5%
Usage charge					
Border	$0.84	$1.45	$0.82	72.6%	−2.4%
Murray	$1.61	$2.67	$1.81	65.8%	12.4%
Murrumbidgee	$0.33	$0.52	$0.36	57.6%	9.1%

Source: IPART analysis.

1.2.3 Most fish river charges increase by between 2% and 31%

Most charges for FRWS customers increase (before inflation). The highest increase is 31% for the usage charge for filtered water major customers. However, some charges for minor customers decrease (See Table 1.4).

We made a draft decision to change how we set prices for filtered water customers. We want to ensure these prices reflect the costs of the chemicals and energy used in providing filtered water services. We set the usage with reference 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 Draft decision on Fish River Scheme bulk water prices ($/kL, $2021-22)

	Current 2020-21	Proposed 2021-22	Draft decision 2021-22	Change current to proposed	Change current to draft decision
Bulk raw water					
Minimum Annual Quantity (MAQ) ($/kL)					
▼ Major Customers	$0.42	$0.50	$0.46	19.0%	9.5%
▼ Minor Customers (annual bill)	$84.00	$100.00	$92.00	19.0%	9.5%
Usage up to MAQ ($/kL)					
▼ Major Customers	$0.26	$0.19	$0.31	−26.9%	19.2%
▼ Minor Customers	$0.26	$0.19	$0.31	−26.9%	19.2%
Usage in excess of MAQ ($/kL)					
▼ Major Customers	$0.68	$0.69	$0.77	1.5%	13.2%
▼ Minor Customers	$0.68	$0.69	$0.77	1.5%	13.2%
Bulk filtered water					
Minimum Annual Quantity (MAQ) ($/kL)					
▼ Major Customers	$0.68	$0.81	$0.76	19.1%	11.8%
▼ Minor Customers (annual bill)	$164.00	$194.00	$152.00	18.3%	−7.3%
Usage up to MAQ ($/kL)					
▼ Major Customers	$0.39	$0.30	$0.51	−23.1%	30.8%
▼ Minor Customers	$0.50	$0.38	$0.51	−24.0%	2.0%
Usage in excess of MAQ ($/kL)					
▼ Major Customers	$1.07	$1.11	$1.27	3.7%	18.7%
▼ Minor Customers	$1.32	$1.35	$1.27	2.3%	−3.8%

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

1.2.4 Most miscellaneous charges remain constant (before inflation)

We have 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 have generally maintained our 2017 pricing approaches in making our draft decisions for these charges.

1.3 Annual bill impacts expected to range between 2% and 76% on average

The impact of our draft 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.

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

- 7% and 41% in MDB valleys (compared to 39% and 61% under Water NSW's proposal)
- 2% and 36% in coastal valleys (compared to 3% and 45% under Water NSW's proposal).

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

- 7% and 76% in MDB valleys (compared to 32% and 105% under Water NSW's proposal)
- 3% and 36% in coastal valleys (compared to 3% and 45% under Water NSW's proposal).

The increases in bills generally reflect an increase in Water NSW's efficient costs. Overall, bill increases under our draft prices will be lower in all valleys, compared with bill increases based on Water NSW's pricing proposal.

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

We note that for the MDB valleys, we are required to set prices according to the WCR. This means we must set prices that are likely to recover the efficient costs of delivering services, and have no flexibility to set lower prices for affordability reasons.

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

- bills for comparable services in other jurisdictions
- the impact on 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 and Figure 1.1 summarise the impact of our draft bulk water charges on customers' bills in each valley.

Table 1.5 Annual bills by valley including MDBA and BRC costs ($2021-22)

	Current 2020-21	Proposed four-year FCR[a]	Draft decision 2021-22	Change current to proposed	Change current to draft decision
High security user					
Border	$8,705	$12,540	$9,310	44.1%	7.0%
Gwydir	$12,360	$18,780	$15,550	51.9%	25.8%
Namoi	$19,960	$29,905	$26,375	49.8%	32.1%
Peel	$32,275	$44,990	$43,380	39.4%	34.4%
Lachlan	$18,535	$29,785	$26,075	60.7%	40.7%
Macquarie	$14,695	$21,955	$19,260	49.4%	31.1%
Murray	$6,580	$10,310	$7,640	56.7%	16.1%
Murrumbidgee	$4,405	$6,175	$5,275	40.2%	19.8%
Lowbidgee	-	-	-	-	-
North Coast	$15,730	$16,125	$16,115	2.5%	2.4%
Hunter	$13,875	$20,175	$18,800	45.4%	35.5%
South Coast	$25,895	$26,545	$26,550	2.5%	2.5%
General security user					
Border	$4,000	$5,648	$4,260	41.2%	6.5%
Gwydir	$5,712	$7,643	$6,336	33.8%	10.9%
Namoi	$10,746	$14,154	$12,491	31.7%	16.2%
Peel	$8,099	$10,727	$10,344	32.4%	27.7%
Lachlan	$7,623	$11,698	$10,246	53.5%	34.4%
Macquarie	$5,987	$8,730	$7,664	45.8%	28.0%
Murray	$3,421	$4,981	$3,718	45.6%	8.7%
Murrumbidgee	$2,090	$2,808	$2,425	34.4%	16.0%
Lowbidgee	$420	$860	$740	104.8%	76.2%
North Coast	$10,546	$10,812	$10,812	2.5%	2.5%
Hunter	$9,570	$13,907	$12,964	45.3%	35.5%
South Coast	$14,285	$14,646	$14,646	2.5%	2.5%

a Based on prices that would recover Water NSW's proposed costs (in its June 2020 pricing proposal) on a four-year full cost recovery (FCR) basis.

Note 1: Includes MDBA costs in the Murray and Murrumbidgee valleys, and BRC costs in the Border valley.

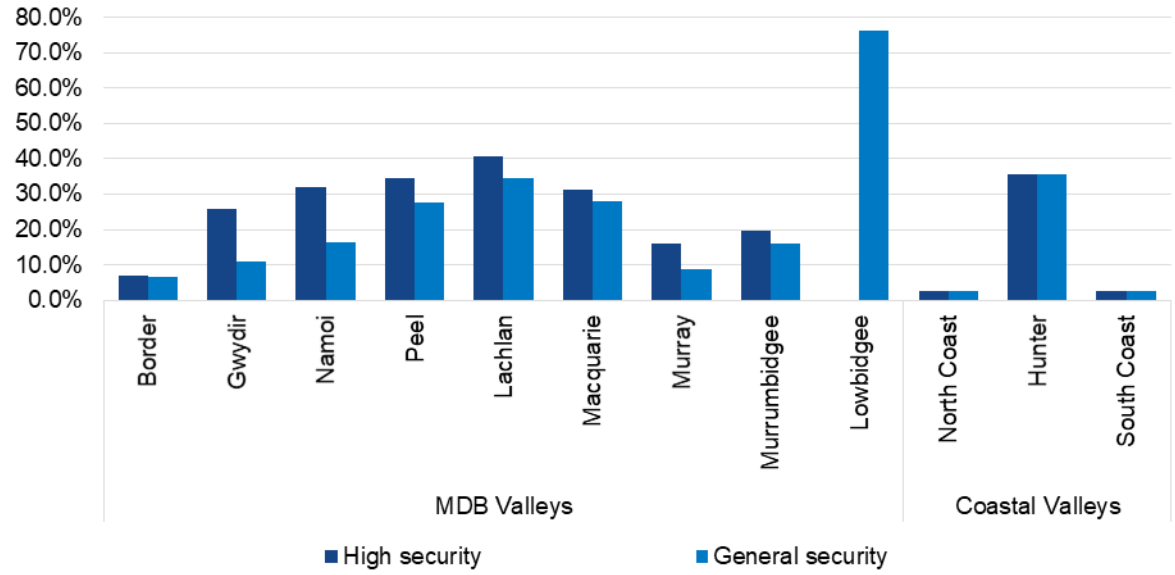
Note 2: The Lowbidgee valley only has supplementary licences that are charged fixed entitlement charges only.

Note 3: We have applied an inflation rate of 2.5% to express current bills in $2021-22.

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

Figure 1.1 shows the percentage change in bills from 2020-21 to 2021-22.

Figure 1.1 Annual bill impacts for customers (% change from 2020-21 to 2021-22)



Note 1: Includes MDBA and BRC costs.

Note 2: We note that there has been a comparatively large percentage increase in bills for the Lowbidgee valley. This is because increases in expenditure and the regulatory asset base (RAB) have had a proportionally high impact for Lowbidgee, as this valley had a low cost base. There is also a comparatively small number of customers in this valley to share the increased costs.

Data source: IPART analysis.

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

Under our draft decisions, Water NSW's average annual cost allowance over the 2021 determination period is $14.3 million (or 12.8%) higher than the allowance we used to set its current prices. This allowance provides for a step change in its expenditure to help sustain its key performance service areas – including maintenance, drought resilience, dam safety and fishway construction.

Although significant, the increase in the efficient cost allowance is considerably less than what Water NSW proposed. We have removed proposed expenditure from this allowance where we found that Water NSW did not provide sufficient evidence to show that it is warranted and efficient. For example, we:

- reduced its proposed operating costs by $23.7 million to reflect our view that it can be more efficient with its day to day expenditure
- reduced its proposed capital expenditure by $72.1 million, to reflect potential efficiency savings in infrastructure investment and to defer or reduce the cost of other capital projects
- used a lower rate of return on assets than proposed by Water NSW to reflect current market conditions.

Table 1.6 compares our draft decision on Water NSW's efficient costs with those proposed by Water NSW.

Table 1.6 Draft decision on Water NSW's total efficient costs[a] (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
Draft decision	110.9	117.8	116.7	115.2	460.6
Difference	−11.0	−12.5	−16.0	−17.5	−57.0
Difference (%)	−9.0%	−9.6%	−12.1%	−13.2%	−11.0%

a Total value of the notional revenue requirement (NRR).

Note: Includes both the user and government share of costs.

Source: IPART analysis.

We found that Water NSW needs to improve the quality of its customer engagement and consultation. In the 2021 determination period, it should engage customers on its valley-based price structure, including the split between the fixed and variable components of its prices. It should also provide more information to stakeholders about the costs that it recovers through its MDBA and BRC charges and the services customers get in return.

1.5 Government contribution is less than under Water NSW's proposal

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 draft decisions, the NSW Government's share of these costs is $126.8 million, or 27.5% of the total efficient costs.

1.6 Water NSW's proposed costs for metering reform are still at a preliminary stage of development

In November 2020, Water NSW submitted a supplementary proposal to include additional metering costs and introduce a new suite of metering charges to implement the NSW Government's metering reform policy. Water NSW's proposal applies to both the WAMC and Water NSW rural bulk water reviews.

We support the NSW Government's comprehensive reforms on metering, but Water NSW's proposed implementation program is still at a preliminary stage of development. Based on the information provided, our preliminary position is that, at this stage, we do not yet have sufficient information to set prices to include the proposed metering costs in regulated prices over the upcoming determination period. We have concerns about whether Water NSW's proposed costs are efficient and we consider more work is needed to ensure Water NSW's implementation of these reforms is both effective and efficient.

While we are not yet in a position to determine efficient costs for the new metering policy, this does not mean we consider Water NSW's efficient costs of implementing the reforms to be zero. Further, not setting draft prices does not mean Water NSW should not implement the NSW Government's non-urban metering reform policy. We consider Water NSW should bear the risks and costs associated with the implementation of this policy until it has demonstrated that its proposed costs are efficient so they can be included in regulated prices.

At this stage, we are still seeking further information on the efficient costs, as well as feedback from customers, water users and other stakeholders. We will ensure that the requirements under the Water Charge (Infrastructure) Rules 2010 are met when setting prices in our final determination in June 2021, including any charges we set to recover the efficient metering costs.

We are seeking stakeholder feedback on Water NSW's proposed costs and prices, the key issues identified in our chapter on metering reform (Chapter 14) as well as any other issues related to metering reform that stakeholders wish to raise.

1.7 Our process for this review

Our review process to date has involved the collection of information as well as detailed analysis and public consultation:

- In June 2020, we received Water NSW's pricing proposals.
- In September 2020, we released an Issues Paper which outlined this proposal, explained our approach for the review, and sought submissions from stakeholders. We received 22 submissions.
- In November 2020, we held an online public hearing. The public hearing provided an opportunity for the public and stakeholders to have their say or ask questions on these water price reviews.
- We comprehensively reviewed the efficiency of Water NSW's proposed costs. This included engaging Atkins to separately review:
  - Water NSW's proposed expenditure and Water NSW's proposal on non-urban metering reform
  - the efficiency of the proposed MDBA and BRC costs across both WAMC and Water NSW reviews
  - the level and allocation of Water NSW's corporate costs across the WAMC and Water NSW reviews.
- We have now published our Draft Report and are seeking stakeholder views on whether we have struck the right balance between facilitating the necessary reforms in water resource management and limiting price shocks on water users.

Table 1.7 sets out our timetable for the remaining key milestones in this review.

Table 1.7 Review timetable

Key milestone	Updated timing
Release Draft Report and Determination	16 March 2021
Hold second online public hearing	30 March 2021
Submissions to Draft Report due	16 April 2021
Release Final Report and Determination	June 2021

1.8 How you can have your say

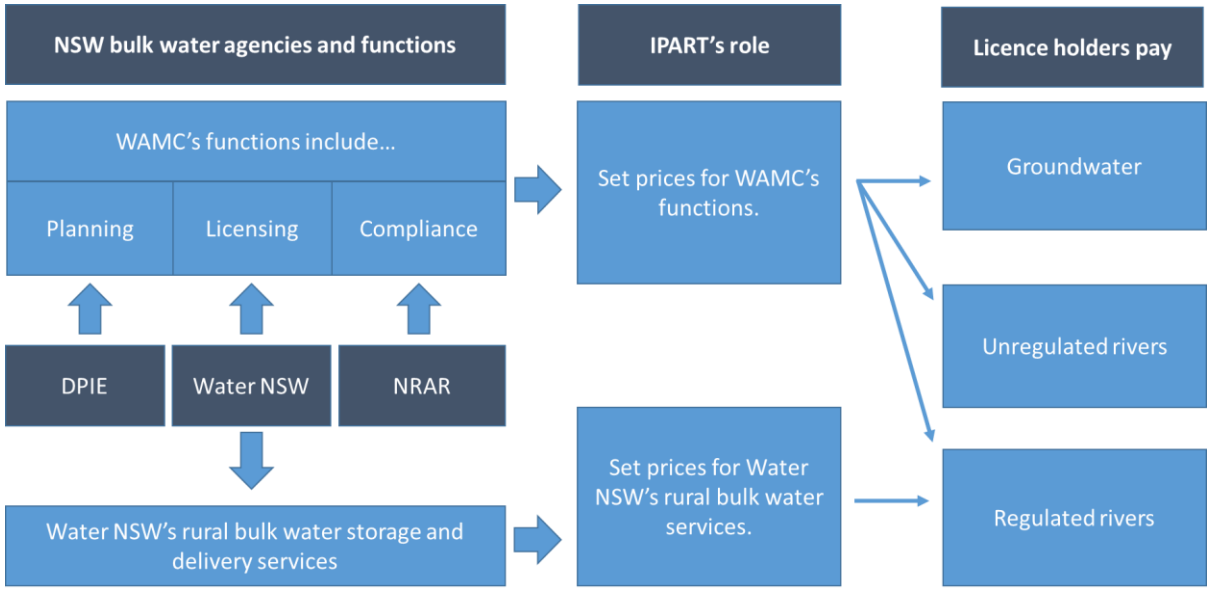
We are seeking written submissions on this Draft Report and encourage all interested parties to comment on the draft findings and decisions it discusses, or any other issue relevant to the review. As well as our draft decisions on Water NSW's efficient costs and prices, we are particularly interested in stakeholder views on Water NSW's proposed meter reform costs and charges (Chapter 14). Page iii of this report provides more information on how to make a submission. Submissions are due by Friday 16 April 2021.

1.9 We are also seeking views on our Draft Report on WAMC prices

Concurrent with this review of Water NSW's prices, we are reviewing prices WAMC can charge holders of water access licences in NSW regulated river, unregulated river and ground water systems. We have aligned the consultation processes for these reviews so that we are releasing draft reports and holding consultation periods and public hearings for these reviews at the same time.

Figure 1.2 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, how IPART sets prices for WAMC's functions and Water NSW's services, and how WAMC prices apply to all water users (i.e. ground water, unregulated rivers and regulated rivers) while Water NSW's rural prices apply only to water users on regulated rivers.

Figure 1.2 Overview of WAMC and Water NSW relationships and our role in setting prices



1.10 Structure of this report

The rest of this Draft Report provides more information on this review, our approach and our draft decisions:

- Chapter 2 discusses our draft decisions on the regulatory settings for the 2021 determination period, including the length of this period and our approach for price setting.
- Chapters 3 and 4 explain our draft decisions on Water NSWs operating and capital expenditure allowances.
- Chapter 5 focuses on our draft decisions on MDBA and BRC costs.
- Chapter 6 explains our draft decisions on other costs including the volatility allowance, unders and overs mechanism (UOM) and Irrigation Corporation and Districts (ICD) discounts.
- Chapter 7 discusses the other building block cost allowances, and sets out Water NSW's total notional revenue requirement.
- Chapters 8 sets out customers' share of costs and discusses our draft decisions on how Water NSW's costs are allocated between customers and the NSW Government.
- Chapter 9 explains our draft decisions on the forecast customer numbers and water sales we used to set prices.
- Chapter 10 sets out the draft bulk water and MDBA/BRC charges that result from our draft decisions.
- Chapter 11 sets out our decisions on other and miscellaneous charges.
- Chapter 12 discusses how these decisions impact stakeholders, including customers, WAMC and the NSW Government.

- Chapter 13 explains our draft decision on Water NSW's proposed meter servicing charge.
- Chapter 14 summarises Water NSW's proposal on prices to recover the costs of the NSW Government's non-urban metering reform program and sets out our preliminary position.

1.11 List of draft decisions for stakeholder feedback

We are seeking feedback from stakeholders on our draft findings and decisions. Our draft decisions include:

Form of regulation

1 To adopt a four-year determination period, from 1 July 2021 to 30 June 2025. 22

2 To set maximum prices for Water NSW's services in each year of the determination period (a price cap). 22

Efficient operating expenditure

3 To set Water NSW's total operating expenditure allowance for the 2021 determination period at $194.7 million, as shown in Table 3.1. 28

Efficient capital expenditure

4 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. 39

5 To set the efficient level of Water NSW's capital expenditure for the 2021 determination period as shown in Table 4.2. 39

Efficient MDBA and BRC costs

6 The efficient level of Water NSW's MDBA costs for the 2021 determination period is $64.8 million (Table 5.1). 46

7 The efficient level of Water NSW's BRC costs for the 2021 determination period is $2.5 million (Table 5.2). 47

8 To use a building block approach to set the efficient MDBA and BRC costs. 52

9 To set Water NSW's operating and capital expenditure for MDBA costs as shown in Table 5.5. 54

10 To set Water NSW's operating and capital expenditure for BRC costs as shown in Table 5.6. 54

11 To set Water NSW's opening RABs for MDBA and BRC costs to zero at 1 July, 2021. 55

Other costs

Other building block costs and notional revenue requirement

Cost shares and cost drivers

Water entitlement and usage forecasts

Bulk water charges

46 To continue not to regulate Water NSW's credit card payment fees. 133

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. 156

1.12 List of questions for stakeholder feedback

As noted above, we are seeking feedback from stakeholders on our draft findings and decisions. In particular, we are also seeking feedback on:

Price structure for MDBA and BRC charges

1 Whether stakeholders in the Murray, Murrumbidgee and Border valleys would prefer MDBA charges in these valleys to have: 121

- an 80:20 fixed to variable ratio, or 121
- a 40:60 with a volatility allowance/RTP to compensate Water NSW for its increased revenue volatility risk, noting that the trade-off associated with having a lower proportion of fixed charges and higher proportion of variable charges is the cost of a revenue volatility allowance. 121

Yanco Creek Levy

2 Whether stakeholders support YACTAC's proposed increase to the Yanco Creek Levy over the 2021 determination period. 127

Non-urban Metering Reform

3 Do you consider the indicative scheme proposed costs are affordable and what are the impact of proposed bill increases on licence holders? 170

4 Will Water NSW's proposal for metering result in a consolidation of entitlements and fewer licence holders? 170

5 Will the metering policy result in some water users downsizing their works to avoid the 100mm meter threshold for the new policy? 170

6 What are the impacts, if any, on customers and Water NSW if customers with government owned meters choose the opt-out option? 171

7 If there are other providers who can provide the service, would there be an economic case to not set a regulated price for the MSC? 171

8 If you have decided or are deciding to opt out of the government owned scheme and own your own meter, please tell us the reasons why you switched or are considering switching. 171

2 Regulatory settings

Summary of our draft decisions for regulatory settings

We are setting prices for a four-year determination period

- Water NSW originally proposed a one-year determination period.
- We consulted with stakeholders including Water NSW and decided to set a four-year determination period.

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

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

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

- This approach involves breaking down Water NSW's costs into operating, capital allowance, tax and working capital allowance, and making separate calculation for these allowances.
- The sum of the building blocks represents the total efficient costs Water NSW should incur in delivering its services.

We use a three-step process to review and assess expenditure

- Our three-step process found most of Water NSW's operating and capital expenditure is efficient.
- We made draft recommendations on catch-up and ongoing efficiency improvements for Water NSW.

We continue to use our cost shares framework to allocate costs between users and the NSW Government (on behalf of the broader community)

Our cost sharing framework involves applying the impactor pays principle to determine who should pay for the efficient costs of the service.

Before setting prices, we need to make several preliminary decisions, including how long to set prices for 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 are setting prices for a four-year determination period

We made a draft decision:

1 To adopt a four-year determination period, from 1 July 2021 to 30 June 2025.

For each water pricing review, we decide how long to set prices for (the length of the determination period).[6] In general, this length can be between one and five years. In deciding on the appropriate length, we considered a range of factors that are outlined in 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:

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

Water NSW proposed a one-year determination, from 1 July 2021 to 30 June 2022, to align it with our next scheduled price determination for the Broken Hill pipeline (BHP), and urban water services. Water NSW proposed we set prices again from 1 July 2022 in line with our determination period for the BHP.

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 Hearing.

Stakeholder responses were mixed, but most favoured a four-year determination because of the certainty, predictability and transparency of adhering to a four-year process.

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

2.2 We continue to use price caps for most of Water NSW's monopoly services

We made a draft decision:

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

6 Under the WCR, the length of determination is set at four 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. Under the IPART Act, we can set any length of determination.

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

Our approach is supported by Water NSW for this determination period. No other stakeholders raised alternative forms of regulation. However, we may consider alternative forms of regulation, such as revenue caps, as part of our current broader review of our approach to regulating water utilities.

2.3 We use the building block approach to calculate Water NSW's notional revenue requirement

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

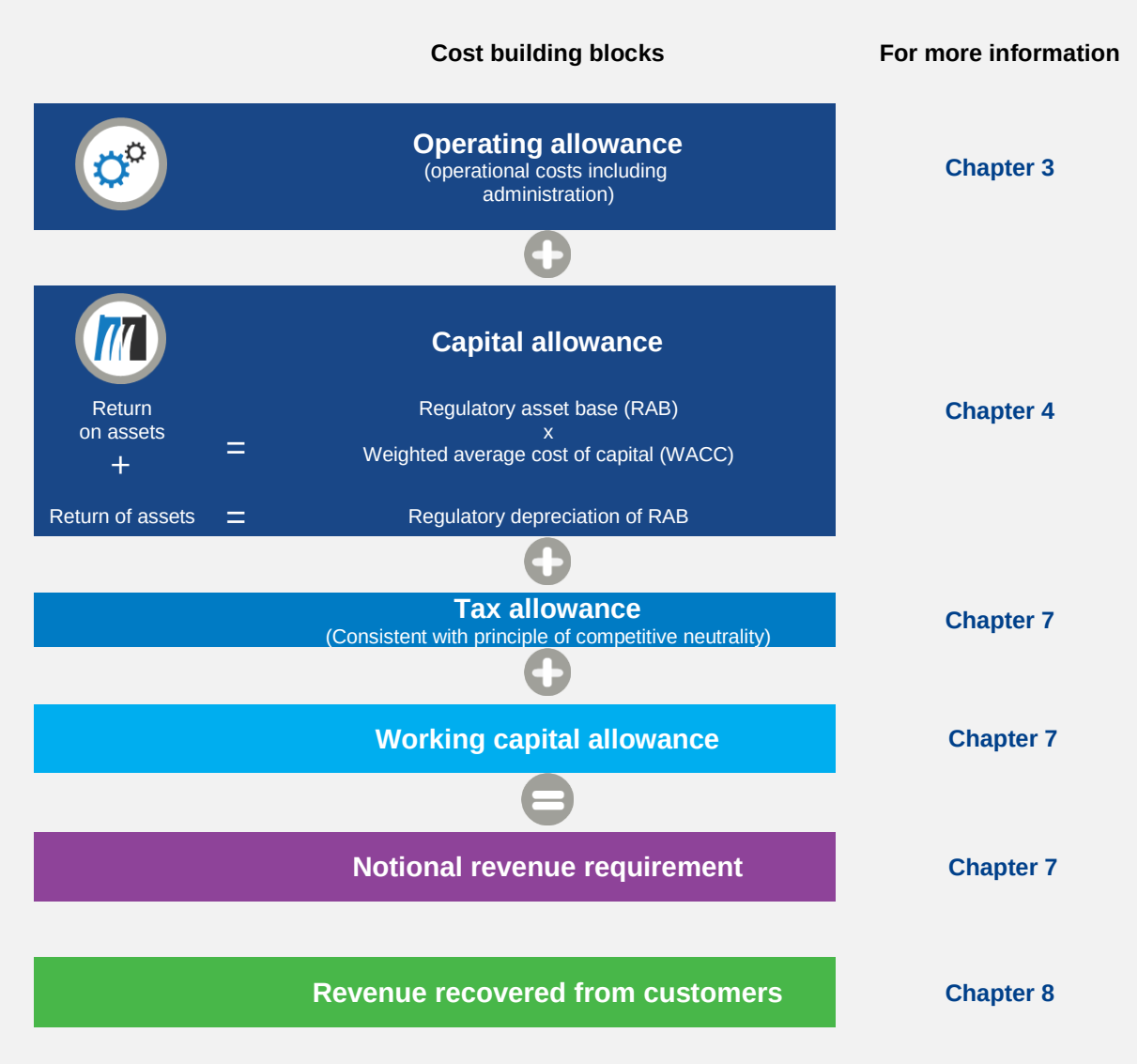
- **Operating allowance**, to cover costs such as salaries and administration costs
- **Capital allowance**, comprised of:
  - Return on assets that Water NSW uses to provide its services
  - Regulatory depreciation (or a return of the assets that Water NSW uses to provide its services), which involves 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 notional revenue requirement, and represents our assessment of the total efficient costs Water NSW should incur in delivering its services. Once we have calculated Water NSW's notional revenue requirement, we take account of any adjustments to accommodate revenue that Water NSW will receive from other sources.

We then decide on the approach we use to convert this amount into prices. This involves setting the target revenue for each year – that is, the actual revenue we expect Water NSW to generate from prices and charges for that year. In making this decision on target revenue, we consider a range of 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 notional revenue requirement and how we set prices.

Figure 2.1 The building block model



2.4 We use a three-step process to make expenditure adjustments

We have used a three-step process to establish Water NSW's efficient expenditure. This is consistent with the approach adopted by our consultant Atkins, and our other recent water pricing reviews. It involves:

1. **Reviewing changes in activities and costs** – This step involves identifying inefficiencies within proposed changes to a utility's specific programs. It does not apply to base expenditure to avoid double counting with step-two. These adjustments are clearly distinct from the types of efficiencies identified in step-two in that they correct for an imprudent or inefficient proposed change in utility's activities (and associated costs) rather than the business processes employed by the utility to deliver the utility's services.

   If the utility's proposed changes in activities (and associated costs) are not efficient, a **scope adjustment** is made.

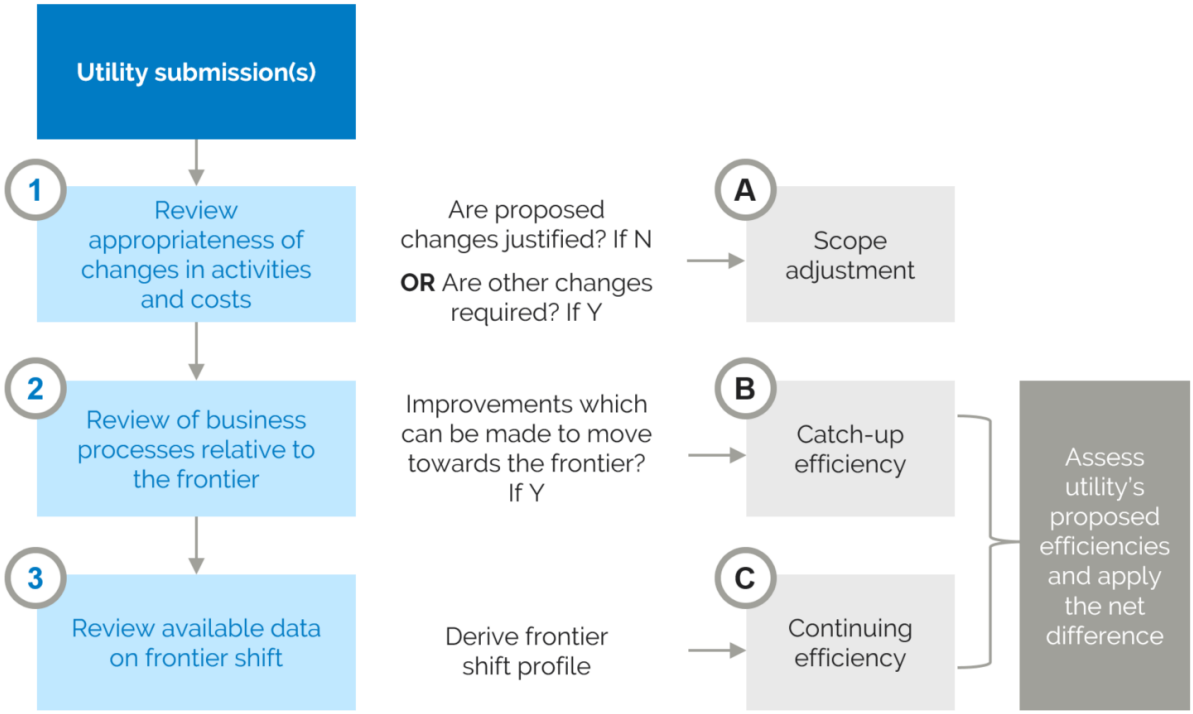
2. **Reviewing business processes relative to the frontier** – This step identifies the effectiveness of the utility's business processes (e.g. decision making and procurement processes) relative to a 'frontier' company.

   Where we identify improvements to these 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.

3. **Reviewing available data on frontier shift** – 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 apply a **continuing efficiency adjustment** to take account of the ongoing improvements that even efficient utilities should be able to make over time, as better more productive ways of working emerge. We set it with reference to long-term multifactor productivity trends.

Figure 2.2 Approach to assessing efficiency



2.5 We will continue to allocate costs between the NSW Government and customers using our cost shares framework

Our cost sharing framework takes the efficient and prudent capital and operating costs, excludes 'legacy costs', and then applies our funding hierarchy to determine who should pay for the costs.

Under this approach, costs are allocated between water customers and the NSW Government (on behalf of other users such as recreational users and the broader community) on the basis of whichever party created the need for an activity (and its associated costs) to be incurred.

We discuss our approach to sharing costs between the NSW Government and customers in Chapter 8.

3 Operating expenditure

Summary of draft decisions on operating expenditure

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

Our draft decision is to set Water NSW's efficient operating expenditure at $194.7 million for the for the 4-year determination period. This is $43.3 million, or 28.6% higher than we used to set prices in 2017.

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

This expenditure is around 11% lower than Water NSW proposed

Our efficient operating expenditure allowance is $23.7 million or 10.8% less than Water NSW proposed.

We reduced its proposed operating expenditure by:

- $14.7 million in scope adjustments
- $5.5 million in catch-up efficiency adjustments
- $3.4 million in continuing efficiency adjustments

Operating expenditure includes Water NSW's day-to-day costs. It includes items such as 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. On the other hand, efficient capital expenditure is recovered through prices over a longer period, usually over the life of the asset it creates. We discuss Water NSW's capital expenditure in Chapter 4.

This chapter sets out our draft decisions on Water NSW's efficient operating expenditure.[7] It explains why we have set the operating expenditure allowance over the 2021 determination period at the level we have. It also details how that efficient expenditure has changed over time and what is driving those changes.

7 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.

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.[8] This means that our draft decisions on efficient operating expenditure are likely to have immediate impacts on customer bills.

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 draft decisions.

3.1 Efficient operating expenditure is increasing by 28.6%

We made a draft decision:

3 To set Water NSW's total operating expenditure allowance for the 2021 determination period at $194.7 million, as shown in Table 3.1.

Water NSW proposed $218.4 million in operating expenditure over the 2021 determination period.[i] This is $67.0 million higher than the operating expenditure allowance we set over the 2017 determination period.

Atkins recommended reducing Water NSW's proposed expenditure by $24.4 million.[ii] Our draft decision is to accept most of Atkins' recommendations and set Water NSW's efficient level of operating expenditure for the four-year determination period at $194.7 million.

We have made draft decisions to reduce Water NSW's proposed operating expenditure by $23.7 million (10.8%). However, our draft decision means that efficient operating expenditure is $43.3 million (28.6%) higher than we used to set prices over the 2017 determination period.

Our draft decision means that the level of operating expenditure we used to set prices in 2017 is not enough to maintain assets and services over the 2021 determination period. Based on Atkins recommendations from applying a three-step approach to assessing efficiency as set out in Chapter 2, our recommended reductions in operating expenditure are comprised of:

- $14.7 million in scope adjustments
- $5.5 million in catch-up efficiency adjustments, based on a catch-up efficiency factor of 1.1% per annum
- $3.4 million in continuing efficiency adjustments, based on a continuing efficiency factor of 0.7% per annum.

Our draft recommended adjustments to Water NSW's proposed operating expenditure for the 2021 Determination are summarised in Table 3.1.

8 The user share of the NRR is that portion of the NRR 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.

Table 3.1 IPART's draft decision on efficient operating expenditure over 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
Draft decision	48.3	51.0	48.8	46.5	194.7
Difference	−2.8	−5.0	−7.8	−8.1	−23.7
Difference (%)	−5.4%	−9.0%	−13.7%	−14.8%	−10.8%

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

3.2 Operating expenditure over the 2017 period was 38% higher than we used to set prices

Over the 2017 determination period, Water NSW's total actual operating expenditure was $209.4 million.[iii] This is $58.0 million (or 38.3%) higher than the allowance we used to set prices.

In its submission to our Issues Paper, Water NSW argued that its significant (38%) overspend for the 2017 determination period was primarily due to "under forecasts" on:

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

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

- consolidation of multiple enterprise agreements following the state water merger leading to some higher wage costs
- additional corporate labour costs associated with responding to various investigations and reviews (such as the Matthews review) as well as the expanded role of Water NSW in licencing and regulatory functions from DPIE as part of its licence review
- replacement of end-of-life IT systems following the merger.

Water NSW states that:

> 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.[iv]

In its assessment of Water NSW's historical operating expenditure over the 2017 determination period, Atkins suggested there is significant scope for Water NSW to become more efficient. Atkins argued that:

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

3.3 Forecast operating expenditure over the 2021 period

Water NSW has proposed $218.4 million in operating expenditure over the 2021 determination period.[9] This is:

- $67.0 million (or 44.2%) higher than we used to set prices in 2017
- $9.0 million (or 43%) higher than its actual operating expenditure over the 2017 determination period.

3.3.1 Our draft decision is to reduce proposed operating expenditure by $23.7 million or 10.8% over four years

Over the four years of the 2021 determination period, our draft decision is to reduce Water NSW's operating expenditure by $23.7 million to $194.7 million. This is:

- $41.2 million (26.9%) higher than we used to set prices in 2017
- $23.7 million (10.8%) lower than proposed by Water NSW
- $0.3 million (0.2%) higher than recommended by Atkins in its Final Report.

Our adjustments to Water NSW's proposed operating expenditure for the 2021 Determination are summarised in Table 3.2.

9 Excluding the proposed Risk Transfer Product which we discuss in Chapter 6.

Table 3.2 Draft decision on efficient operating expenditure for the 2021 Determination (millions, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Water NSW's proposal	**51.1**	**56.1**	**56.6**	**54.6**	**218.4**
Scope adjustments					
▼ Labour costs	−0.9	−1.3	−0.3	−1.4	−3.9
▼ Removal of land tax increases	0.0	−0.6	−0.6	−0.6	−1.8
▼ Long term transformational strategy	0.0	−0.5	−0.5	−0.5	−1.5
▼ Reallocate additional regulatory team resources	0.4	−0.4	−0.4	−0.4	−0.7
▼ Environmental planning and assessment opex	−0.5	−0.4	−0.6	−0.5	−1.9
▼ Reallocation of corporate overheads	−0.9	0.0	−2.7	−1.3	−4.9
Efficiency adjustments					
Catch-up efficiency	−0.5	−1.2	−1.7	−2.2	−5.5
Continuing efficiency	−0.3	−0.7	−1.0	−1.3	−3.4
Total efficient operating expenditure					
Total	48.3	51.0	48.8	46.5	194.7
Difference	*−2.8*	*−5.0*	*−7.8*	*−8.1*	*−23.7*
Difference (%)	*−5.4%*	*−9.0%*	*−13.7%*	*−14.8%*	*−10.8%*

Note: 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 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.

3.3.2 We have reduced corporate overheads allocated to Water NSW rural bulk water customers by $4.9 million

As part of its review of Water NSW's operating expenditure Atkins made a recommendation on the efficient level of Water NSW's total corporate overhead costs, and how those costs are allocated between its business units.

Water NSW has five business units, including:

- Rural bulk water
- Greater Sydney
- Broken Hill pipeline
- WAMC
- Non-core activities.[10]

Water NSW allocates its indirect corporate overheads between these five business units. To allocate these costs, it uses relative TOTEX values in each of its business units.[11]

10 "Non-core" includes other activities not related to the regulated business units and includes general government commissioned works and activities undertaken for the MDBA.

11 TOTEX or total expenditure includes expenditure on operations and capital.

Atkins found that TOTEX is not the best allocator to use to align indirect overhead costs with the business units that cause those costs to be incurred.

> The TOTEX methodology has shortcomings in that the value of maintenance capital expenditure is dependent 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 WaterNSW, the driver for operational and corporate costs is not the level of capital maintenance carried out. We show…that the drivers for operational business units relate to measures such as 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 methodology is likely to result in inappropriate cost allocation and charges to customers.[vi]

Atkins argues that corporate expenditure is driven by staff full-time equivalent (FTE) numbers and therefore employment costs. In the absence of available FTE numbers, it suggests that using total operating costs as a proxy for employment costs. This approach uses each businesses' direct operating costs, rather than TOTEX as proposed by Water NSW.

This approach reduces Water NSW's operating costs from overheads by $4.9 million over four years, and is the single largest reduction to proposed operating expenditure.

Table 3.3 shows the impact on the costs allocated to Water NSW's businesses of using total operating expenditure, rather than TOTEX, to allocate corporate costs.

We note that this adjustment results in changes to the notional allocation of overheads for Water NSW's other business units.

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

	Net change in corporate costs
Water NSW rural	−4.87
WAMC	2.07
Water NSW-Greater Sydney	−3.24
Broken Hill pipeline	2.09
Non-core [a]	3.95

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, Water NSW *Expenditure Review*, *Final Report for IPART*, 19 February 2021, p 201.

In its response to Atkins's Draft Report, Water NSW argued that total operating expenditure was not a more reflective allocator of indirect corporate costs than TOTEX.

> We do not believe the direct opex allocator…is better aligned to the IPART cost allocation principles as opposed to the direct salaries allocator…or the totex allocator.[vii]

On balance, we agree with Atkins assessment of corporate overheads and our draft decision is to allocate overhead costs to business units using this method. However, we consider that FTEs is likely to be a superior allocator of corporate costs.

In its recommendations, Atkins proposed applying this revised methodology from 2023-24. It argued that this significantly reduces any under-recovery of costs across its consolidated business.[12]

However, we consider applying this allocation method from 2021-22 will lead to total costs that better reflect efficiently allocated overheads.

As such, we note that an ex-post adjustment to the NRR may be required at the next Broken Hill pipeline and Water NSW Greater Sydney price reviews. This may help ensure that Water NSW will be no better or worse off overall from adjusting the corporate allocation approach.

3.3.3 We have reduced direct labour costs by $3.9 million

Direct labour costs make up around 50% of total proposed operating expenditure over the 2021 determination period. Atkins recommends reducing proposed direct labour costs by $3.9 million over the determination period. It argues that real increases in labour costs should be offset by productivity gains.

- Atkins recommends direct labour costs be kept at 2020 levels, with real increases removed over the 2021 determination period.
- This excludes customer support and billing activities which are facing additional obligations.[viii]

Our draft decision is to accept Atkins' recommendation on adjustments to labour costs.

3.3.4 We have removed $1.8 million in proposed land tax increases

In its submission to our Issues Paper, Water NSW proposed a revised land tax liability that was $1.8 million higher than its June 2020 pricing proposal. These revised costs were based on updated land valuations from the NSW Valuer General.

Atkins considers that the justification for the increase is too vague and not sufficient to accept the proposed increase.

In its response to Atkins' Draft Report, Water NSW provided a detailed report on expected land tax liabilities from 2020 of around $5.8 million across its consolidated business. However, Atkins considers that this response did not provide any new information that makes a case that the increase should be applied, or why an additional $1.8 million should be recovered from rural water customers.[ix]

12 The timing of our price reviews for Water NSW's four regulated businesses means that 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.

3.3.5 We have removed $1.5 million in costs for the long-term transitional 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.[x]

Atkins found that:

- Water NSW has not made a strong case that it is a justified, new and material requirement that customers should be asked to pay for
- the immediate focus should be on improving its focus on efficiency for customers.

Water NSW's response to Atkins' Draft Report argued that:

> …[this] 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.[xi]

However, Atkins consider that no new information was supplied that made a convincing case to include this item and has maintained its draft recommendation to exclude the associated costs.[xii]

We consider that long-term strategic planning and transitional strategies is critical in improving the services delivered and how they are funded. However, we do not accept that developing and implementing this strategy is an incremental efficient cost, paid for by customers. It should be undertaken as a part of a best-practice organisation's strategic planning, and deliver its own efficiencies.

As such, we accept Atkins' recommendation to remove the proposed costs of this item.

3.3.6 We have reduced additional regulatory team resources by $0.7 million

Water NSW has proposed that three additional FTEs be added to the regulatory team to improve its performance in an environment of growing demands. This adds around $2.1 million over the determination period – starting in July 2022.

Atkins found that while there was a reasonable basis for additional resources, these resources should be shared between its business units, including Greater Sydney and WAMC. As such, it has allocated $0.7 million of the proposed $2.1 million to Water NSW's other functions.[xiii]

This means that funding for an additional two FTEs in the regulatory team is included in each year, starting July 2021.

Water NSW has four regulated businesses. The additional FTEs funded through this increase are justified in managing the workload associated with regulatory requirements and functions of these businesses. As such, while our draft decision is to approve the proposed additional FTEs, some of those costs should be allocated to Water NSW's other three regulated businesses.

3.3.7 We have reduced environmental planning and protection costs by $1.9 million

Atkins found that this proposed increase in environmental planning and protection (EPP) expenditure was:

- the result of miscoding by Water NSW, which incorrectly attributed Purchasing and Procurement Management costs to EPP
- unable to be justified, regardless of the underlying expenditure category.[xiv]

In the absence of a justification for the increased expenditure, or evidence of offsetting savings elsewhere in Water NSW's proposed costs, our draft decision is to accept Atkins' recommendation.

3.4 Water NSW could make efficiency savings of $9.0 million

Consistent with our approach for capital expenditure, we have applied catch-up and continuing efficiency adjustments to Water NSW's forecast operating expenditure. Atkins recommended $9.0 million (1%) in savings from catch-up and continuing efficiencies.

We have 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 which should be achievable for the 2021 Determination. This is presented in Table 3.4.

Table 3.4 Comparison of operating expenditure efficiencies

Determination	Start year	Catch-up efficiency (%)				Continuing efficiency (% p.a)	Total efficiency challenge (%p.a)	Conclusion at ex post review
		Year 1	Year 2	Year 3	Year 4			
Hunter Water	2009	1.0%	1.0%	1.0%	1.0%	0.8%	1.80%	Achieved
Sydney Water	2012	1.5%	2.0%	2.0%	2.0%	0.25%	2.13%	Overachieved
Water NSW (draft)[a]	**2021**	1.1%	1.1%	1.1%	1.1%	0.7%		

Source: Atkins, Water NSW *Expenditure Review - Final Report for IPART*, 19 February 2021, p. 89.

3.4.1 Water NSW could make catch-up efficiency savings of $5.5 million

Catch-up reflects the efficiency needed to be achieved over time to catch up with a frontier company. Our draft decision is to accept Atkins' recommended catch-up efficiency adjustments of 1.1% per year, totalling $5.5 million in efficiency savings over the 2021 determination period.

Table 3.5 sets out the recommended levels of catch-up efficiency adjustments applied to Water NSW's operating expenditure.

Table 3.5 Catch-up efficiency for operating expenditure (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)	−0.5	−1.2	−1.7	−2.2

Source: Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p. 89 and IPART analysis.

Atkins recommended catch-up efficiency adjustments of 1.1% per year for the 2021 determination period. We consider this is a realisable efficiency in comparison to efficiencies achieved by other water utilities.

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

Atkins found 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.[xv]

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.[xvi]

We have accepted Atkins' recommendations on catch-up efficiencies. We consider that an efficient firm delivering rural bulk water services would take steps to improve its efficiency to move towards the frontier of performance.

3.4.2 Water NSW could make ongoing continuing efficiency savings of $3.4 million

Our draft decision is to apply continuing efficiency adjustments of 0.7% per year, totalling $3.4 million in efficiency savings over the 2021 determination period (Table 3.6).[13]

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. We favour a forward looking adjustment because it:

- incentivises the regulated firms to pursue productivity enhancing activities over the determination period
- recognises market based firms continuous push to innovate and become more productive over time
- is consistent with the incentive based framework under which we set prices for public water utilities.

By putting a quantitative target in place, we establish an expectation of continuous productivity improvement that efficient businesses should reasonably be able to achieve over the next determination period.

Table 3.6 Continuing efficiency for operating expenditure ($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)	−0.3	−0.7	−1.0	−1.3	−3.4

Source: Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p. 91 and IPART analysis.

13 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.

4 Capital expenditure

Summary of draft 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 over the 2017 determination period of $65.8 million was efficient. This expenditure is 40% higher than we used to set prices over the determination period. (It excludes an additional $236 million of government-funded expenditure on drought projects.)

Our draft 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 is $290.9 million. This is $72.1 million or 19.9% lower than Water NSW proposed.

In reaching this decision, we reduced Water NSW's proposed expenditure to reflect potential efficiency savings in infrastructure investment and to defer or reduce the cost of other capital projects.

We made $55.3 million in scope adjustments, almost all of which is for fish passageway offsets

We have reduced proposed expenditure on fish passageway construction by $56.4 million, which is almost 80% of the proposed program over the 2021 period. On balance, we do not consider the scope, scale and timing of the 11 projects proposed by Water NSW is realistic.

The fishway program is a regulatory requirement, and Water NSW is required to complete the program to meet its environmental obligations. We have not adjusted the allowance for fishways because we consider they should not be built, but because Water NSW could not justify the scale, timing and deliverability of the program. The fishways should be built, and as soon as they responsibly can be.

We made $16.6 million in efficiency adjustments

This includes:

- $12.4 million in catch-up efficiency adjustments, and
- $4.2 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 our draft decisions on Water NSW's efficient level of capital expenditure. To inform our decisions on capital expenditure, we engaged Atkins to review Water NSW's expenditure and performance over the current determination period, and recommend the efficient amount of capital expenditure for the 2021 determination period. We considered the advice of Atkins, as well as relevant stakeholder submissions, in reaching our draft decisions.

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 RAB for each valley and recovered through allowances for a return on assets and regulatory depreciation (discussed in Chapter 2 and Chapter 8).

We have reviewed the efficiency of its 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 have taken into account Atkins' recommendations in making our decisions on the efficient capital expenditure of Water NSW.

4.1 Summary of our draft decisions on forecast capital expenditure

We made draft decisions:

4 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.

5 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 draft decisions on Water NSW's past and proposed capital expenditure, respectively.

Table 4.1 IPART's draft decision on efficient capital expenditure over the 2017 determination period (millions, $nominal)

	2016-17	2017-18	2018-19	2019-20	2020-21
Water NSW Actual[a]	23.3	37.1	43.2	114.0	263.1
Draft decision	23.3	37.1	43.2	114.0	263.1
Difference	0	0	0	0	0
Difference (%)	*0.0%*	*0.0%*	*0.0%*	*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, *Water NSW Expenditure Review, Final Report for IPART*, 19 February 2021, p 138 and IPART analysis.

Table 4.2 IPART's draft decision on efficient capital expenditure over 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
Draft decision	141.0	64.1	47.9	38.0	290.9
Difference	−1.7	−3.0	−35.0	−32.4	−72.1
Difference (%)	*−1.2%*	*−4.5%*	*−42.2%*	*−46.0%*	*−19.9%*

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, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 139 and IPART analysis.

4.2 Capital expenditure over the 2017 determination period

Capital expenditure reported in the 2017 determination period includes actuals for 2018, 2019, and 2020, and forecast expenditure for 2021. Water NSW is forecasting a total overspend against its 2017 Determination of $307 million, including drought response expenditure. Excluding drought response expenditure, Water NSW projects to overspend its determination on capex by $72.1 million.

4.2.1 Water NSW expenditure was significantly higher than we used to set prices

Water NSW attributes the overspend to the allowance at the last determination being too low and for projects that were not foreseen at the time of the last submission.

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

We set prices in the MDB valleys under the Commonwealth Government's 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. We have included all historical capital expenditure in the RAB.

4.3 Forecast capital expenditure over the 2021 period

Including major drought projects, Water NSW has proposed $363 million in capital expenditure over the 2021 determination period.

Excluding major drought projects, Water NSW has proposed $260.4 million of capital expenditure over the 2021 determination period. This is:

- $96 million (or 59%) higher than we used to set prices in 2017
- $31 million (or 13%) higher than its actual capital expenditure over the 2017 determination period, excluding drought projects.

Water NSW has proposed to increase its annual average capital expenditure by 13% to $65 million per year over the 2021-2025 determination period. In addition, there is $105 million of capital expenditure proposed for drought response schemes (as directed by the NSW Government).

Table 4.3 sets out our draft decision on efficient capital expenditure by valley over the 2021 determination period.

Table 4.3 Draft decision on efficient capital expenditure by valley for the four-year 2021 determination period (millions, $2020-21)

Valley	Capital expenditure
Border	26.7
Gwydir	19.3
Namoi	21.9
Peel	24.7
Lachlan	87.3
Macquarie	21.3
Murray	19.2
Murrumbidgee	34.6
Lowbidgee	5.4
North Coast	1.7
Hunter	11.6
South Coast	1.3
Fish River	15.8
Total capex	**290.9**

4.3.1 Our draft recommendation is to reduce proposed capital expenditure by $72 million or 19.9% over four years

Over the four years of the 2021 determination period, our draft decision is to reduce Water NSW's capital expenditure to $290.9 million (Table 4.4). This is:

- $126.8 million (77.3%) higher than we used to set prices in 2017
- $72.1 million (19.9%) lower than proposed by Water NSW.

Table 4.4 Draft recommendation – capital expenditure for the 2021 determination period (millions, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Draft Decision	141.0	64.1	47.9	38.0	290.9
Water NSW proposed[a]	142.7	67.1	82.9	70.4	363.0
Difference	−1.7	−3.0	−35.0	−32.4	−72.1
Difference (%)	*−1.2%*	*−4.5%*	*−42.2%*	*−46.0%*	*−19.9%*

a Including drought projects.

Source: Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 139 and IPART analysis.

Our reductions in capital expenditure are comprised of:

- $55.3 million in scope adjustments, almost all of which is for fish passageway offsets
- $16.6 million in catch-up efficiency adjustments, based on a cumulative catch-up efficiency factor of 7.4% by 2024-25
- $4.2 million in continuing efficiency adjustments, based on a continuing efficiency factor of 0.7% per annum.

4.3.2 We have reduced capital expenditure for proposed fishways because construction is unlikely to commence in the 2021 period

Water NSW has proposed $71.6 million of capital expenditure on fishway offsets over the 2021 determination period. This comprises 11 projects in the Gwydir, Namoi, Lachlan and Macquarie valleys.

As a requirement under s218 of the *NSW Fisheries Management Act 1994*, Water NSW is required to 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 the construction of fishways.[xvii]

Atkins found that two of these projects (Gunidgera Weir and Tyreel Weir) were pilot projects, and were yet to be constructed. Once these two projects are completed and assessed for performance, the remaining nine projects should be commenced.[xviii]

Atkins recommend that given the timing and progress of these projects, it is unlikely that the nine remaining projects will be undertaken in the 2021 period.[xix]

In its response to Atkins Draft Report, Water NSW argues that these projects are a regulatory requirement and requests that funding be reinstated.[xx] After considering Water NSW comments, Atkins increased its recommended allowance for fishways by around $6 million. It states that it has considered Water NSW response:

> For the avoidance of doubt, we are supportive of the fish pass offset schemes and are not proposing to delay the construction of the schemes. We are aware of the overarching regulatory drivers. However, we have not been provided with sufficient evidence that Water NSW has followed its capital project planning processes or governance i.e. a business case has not been progressed for any of the schemes including the pilot schemes.
>
> …to be able to support all of the proposed expenditure we would want to see evidence that the cost estimates have been challenged, that they are complete, that a procurement strategy has been developed, that wider environmental impacts have been assessed and that timelines for the program and associated expenditure have been considered etc.[xxi]

On balance, we agree with Atkins recommendations. Should Water NSW be in a position to commence more projects than we anticipate, it should do so. If deemed efficient at the next price review, the capital expenditure will be added to the RAB and future capital costs recovered. We acknowledge that compliance with its fishways requirements is overdue. However, we do not consider we should include projects in customer prices that our consultants advise us are not likely to commence.

4.3.3 Lake Cargelligo embankment

Water NSW has identified further savings on this project.

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

Atkins found that the initial cost estimate to undertake the works was preliminary. The preliminary business case that followed included estimates that were informed by a recent dam safety risk assessment. This resulted in a refinement of the options for the best and most cost-effective solution. The revised estimate for the project was subsequently reduced by around 9% as a result.[xxii]

Atkins recommends that this revised estimate be adopted for the Lake Cargelligo embankment project. This reduces proposed capital expenditure.

Our draft decision is to accept Atkins' recommendation. The revised estimate is based on more detailed and up-to-date information and is therefore a more robust estimate of the efficient costs to meet the required standards.

4.4 Continuing and catch-up efficiencies

4.4.1 Catch-up efficiencies

Catch-up reflects the efficiency needed to be achieved 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 discreet and other unique projects.

Atkins recommended catch-up efficiencies across four specific areas:

- improvements to capital program development, optimisation and prioritisation
- improvements to value engineering
- improvements in cost estimating and the management of contingencies
- the impact of new procurement processes and the likely savings from more efficient program management.

Atkins recommends $12.4 million in catch-up efficiency adjustments, based on a cumulative catch-up efficiency factor of 7.4% by 2024-25.[xxiii]

Atkins' total combined capital efficiency challenge for water NSW is set out in Table 4.5.

Table 4.5 Total combined capital efficiencies based on Atkins advice

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, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 137.

Table 4.6 summarises the impacts of Atkins' efficiency targets.

Table 4.6 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 ($ million)	−1.02	−0.95	−1.09	−1.17	−4.2
Catch-up					
Catch-up efficiency (cumulative %)	2.11%	−4.22%	−6.83%	−7.44%	
Catch-up efficiency ($ million)	−3.04	−2.82	−3.51	−3.05	−12.4

Source: Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 139 and IPART analysis.

4.4.2 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 putting a quantitative target in place, we establish an expectation of continuous improvement through our pricing determinations.

We have accepted Atkins' proposed continuing efficiency targets in Table 4.5.

We favour a forward looking adjustment because it:

- incentivises the regulated firms to pursue productivity enhancing activities over the determination period
- recognises market based firms continuous push to innovate and become more productive over time
- is consistent with the incentive based framework under which we set prices for public water utilities.

We do not consider alternative approaches, such as adjusting prices for the next regulatory period to capture past productivity improvements, creates appropriate incentives for regulated firms to pursue productivity maximising activities.

For any capital intensive business, some of the most important opportunities for productivity gain are in the procurement and delivery of capital works. We consider that if an ongoing productivity adjustment is justified, then it should be applied to capital as well as operating expenditure.

5 MDBA and BRC costs

Summary of our draft decisions for MDBA and BRC costs

Water NSW's efficient level of MDBA building block costs is $64.8 million and BRC costs is $2.5 million

Our MDBA and BRC building block costs are $39.2 million or 37.7% 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 NRR.

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

We have moved to using the building block approach to calculate Water NSW's efficient MDBA and BRC costs.

- This means capital expenditure on infrastructure is recovered more slowly over time, rather than in the year it occurs.
- This reduces efficient costs over the 2021 determination period.

Water NSW contributes on behalf of the NSW Government to two inter-jurisdictional water management organisations – the Murray-Darling Basin Authority (MDBA) and the Dumaresq-Barwon Border Rivers Commission (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 draft decisions.

5.1 Water NSW's efficient level of building block MDBA costs is $64.8 million and BRC costs is $2.5 million

We made draft decisions:

6 The efficient level of Water NSW's MDBA costs for the 2021 determination period is $64.8 million (Table 5.1).

7 The efficient level of Water NSW's BRC costs for the 2021 determination period is $2.5 million (Table 5.2).

DPIE proposed MDBA costs of $104.0 million for the 2021 determination period. Our draft decision is to allow MDBA costs of $64.8 million. This is $39.2 million, or 37.7% lower than DPIE's proposal, and $11.0 million, or 14.1% lower than the 2017 allowance we used to set prices.

It is mainly driven by our:

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

Table 5.1 Draft 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's proposal	24.4	26.5	26.5	26.5	104.0
Draft decision	15.3	16.6	16.5	16.4	64.8
Difference	−9.2	−9.9	−10.0	−10.1	−39.2
Difference (%)	*−37.5%*	*−37.3%*	*−37.8%*	*−38.2%*	*−37.7%*

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. Our draft decision is to allow efficient BRC costs of $2.5 million. Our allowance is lower than DPIE's proposal since we have:

- rebalanced the BRC's corporate costs between the WAMC and Water NSW rural bulk water determinations
- decided to use a building block approach to calculate efficient costs, discussed in section 5.5.

Table 5.2 Draft decision on efficient BRC costs for the 2021 determination period ($millions, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Water NSW's proposal	1.0	1.0	1.0	1.0	4.2
Draft decision	0.6	0.6	0.6	0.6	2.5
Difference	−0.4	−0.4	−0.4	−0.4	−1.7
Difference (%)	*−39.2%*	*−39.8%*	*−40.3%*	*−40.7%*	*−40.0%*

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

5.2 DPIE proposed increasing total MDBA and BRC costs

DPIE proposed increasing the allocation of MDBA and BRC costs to customers for both WAMC and Water NSW rural bulk water.

5.2.1 MDBA costs would increase by 8.1% overall

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

- 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.[xxv]
- In 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

In relation to the BRC contributions, DPIE proposed contributions of $7.2 million (compared with $5.8 million for the previous price reviews, a 24.9% increase).[xxvi]

- Between 2016-17 and 2019-20, around 28.1% of BRC contributions were 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.[xxvii]
- 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 efficiency of proposed cost increases

Several stakeholders were concerned about the magnitude of the proposed MDBA and BRC contributions.[xxviii] They strongly supported improving DPIE's incentive to actively engage in negotiating these contributions, so that only efficient costs are passed onto water customers.[xxix]

In particular, some stakeholders considered that there should be greater transparency and efficiency requirements on MDBA contributions. They questioned the justification of MDBA charges and urged IPART to scrutinise these costs.[xxx]

As outlined below, we have examined the efficiency of these costs. We have also 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 have made efficiency adjustments to total MDBA and BRC expenditure

We have made draft decisions to allow:

- total MDBA expenditure of $117.6 million for the 2021 determination period. This is $9.3 million (7.3%) lower than proposed by DPIE for the WAMC and Water NSW price reviews.

- total BRC expenditure of $7.0 million for the 2021 determination period. This is $0.2 million (2.5%) lower than proposed by DPIE for the WAMC and Water NSW price reviews.

5.3.1 Total MDBA expenditure would decrease by 7.3%

In our previous Water NSW 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.[xxxi]

In its pricing proposal, DPIE highlighted that the MDBA had subsequently implemented several independent review and transparency measures.[xxxii] For example, new projects are subject to cost-benefit analysis. Further, the Commonwealth Government has committed to undertaking 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 have accepted Atkins' recommended adjustments. These involve:

- **scope adjustments** of $3.7 million, to remove MDBA corporate overhead costs from Water NSW's MDBA costs. DPIE confirmed that corporate MDBA costs should be recovered through the government share, and not through either WAMC or Water NSW's prices to customers
- **catch-up efficiency adjustments** of 1.1% per year cumulative, totalling $3.4 million in efficiency savings over the 2021 determination period
- **continuing efficiency adjustments** of 0.7% per year cumulative, totalling $2.2 million in efficiency savings over the 2021 determination period. [xxxiii]

The catch-up and continuing efficiency adjustments are consistent with those we have proposed for Water NSW and WAMC's expenditure in this review.

5.3.2 Total BRC expenditure would decrease by 2.5%

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

- **scope adjustments** comprising:
  - a water infrastructure adjustment (−$1.2 million): The BRC does not have a formalised agreement in place 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). It appeared that BRC's costs were going down. However, this was due to problems with its accruals accounting and late invoicing by Water NSW. This adjustment means actual costs including accruals are being used as the basis for budgeting

- an Annuity Fund Contribution adjustment (−$0.3 million). We have netted off this contribution from operating expenditure as it is linked to capital expenditure. We have made a separate capital expenditure allowance for the BRC. [xxxiv]

- **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.[xxxv]
- **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.[xxxvi]

5.3.3 Improving the efficiency of the MDBA and BRC's operations

Atkins identified several improvements the MDBA and BRC could make to their processes, which would bring them closer to how an efficient agency operates (see 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 MDBA/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. In relation to the BRC, ensure its management drive permeates governance processes. Consider measures such as delegated management contracts with State Contracting Authorities to formalise requirements and put in place 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.
- There was limited incentive for the MDBA or BRC to pursue efficiencies, with no entity clearly responsible for efficiency.
- While MDBA has strengthened prioritisation of investments, the justification framework, remained weak.[xxxvii]

Adopting catch-up efficiencies of the type outlined in Box 5.1 would assist the MDBA and BRC to address these concerns.

5.4 We have 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.[14]

5.4.1 Shifting the MDBA's SIS costs from Water NSW to WAMC better aligns with the impactor pays principle

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

- The 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.[xxxix]
- Both regulated and unregulated river users across the entire Murray Darling Basin contribute to high salinity. Therefore, under the impactor pays principle, it is not appropriate for the regulated river licence holders alone to bear the cost of the SIS. Rather, the SIS's efficient costs should be added to WAMC and applied to all regulated and unregulated river management costs in the Murray Darling Basin (see Box 5.2).

Box 5.2 Allocating the costs of managing salinity

In allocating the MDBA costs of the SIS, we recommend applying the impactor pays principle.

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

1. Land clearing generally, including for agriculture. De-vegetation removes natural root systems which access the ground water, 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 this activity should *not* be allocated to water licence holders, as 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 the salts, and can increase groundwater flow rates and salt loads into rivers. In this case, salinity costs caused by irrigation should be allocated primarily to licence holders, as the use of water is the primary driver of salinity and hence costs.

After consulting with DPIE it confirmed that irrigation itself is by far the dominant driver of salinity in the Murray Darling Basin. However, it confirmed that groundwater licence holders are unlikely to contribute to the problem and as such we have ring fenced them from these costs.

14 The SIS is a MDBA program that aims to intercept high-salinity groundwater prior to it reaching river systems. Bores are constructed that capture the groundwater, which is pumped to evaporation beds. The bores are located in the Murray valley.

Table 5.3 sets out our allocation of MDBA contributions between the Water NSW and WAMC determinations as a result of shifting the SIS costs.

Table 5.3 Allocation of MDBA contributions

	DPIE's proposed allocation	IPART's draft 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 led to a different allocation of costs

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

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

As set out in section 5.3, we have made an adjustment to reduce the proposed expenditure on water infrastructure services by $1.2 million. We have also increased water management costs by $0.2 million. These two adjustments have shifted the allocation of costs between Water NSW and WAMC as shown in Table 5.4.

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

We made a draft decision:

8 To use a building block approach to set the efficient MDBA and BRC 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 have 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 that the approach we use in setting MDBA and BRC charges is brought into line with our treatment of Water NSW's core costs.[15]

In previous Water NSW and WAMC determinations, we have included all efficient MDBA and BRC expenditure in prices in the year that expenditure occurs.[16]

The amounts have typically been based on forecasts of NSW's annual contributions to the MDBA and BRC respectively.[xli] We have usually applied efficiency adjustments to these forecasts to ensure that 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.

As payments have been 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.

5.5.1 Capital expenditure should be recovered over its useful life

Under our previous approach to including MDBA and BRC costs in prices, there was no recognition of 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 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 regulatory asset base (RAB), and we include allowances for depreciation and return on assets for the value of that RAB.

This approach ensures that water users only pay 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).[17]

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

16 In 2014, the ACCC included MDBA and BRC costs as per a government direction to the then State Water Corporation.

17 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

We made a draft decision:

9 To set Water NSW's operating and capital expenditure for MDBA 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 draft decisions.

Table 5.5 Water NSW's efficient MDBA expenditure over the 2021 determination period (millions, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Capital expenditure	4.8	5.2	5.1	5.0	**20.1**
Operating expenditure	15.1	16.3	16.0	15.7	**63.1**
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 that 24% of total expenditure be allocated to capital and 76% to operating expenditure. Atkins states in relation to this recommended split:

> 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% capex to 76% opex.[xlii]

We consider this represents a reasonable allocation of expenditure between capital and operating expenditure for the purpose of setting our draft prices. The MDBA's activities and projects are interjurisdictional, and the projects that it undertakes service water users in New South Wales, Victoria, Queensland, South Australia and the ACT. Each of these state and territory governments as well as the Commonwealth Government, contribute to the funding of 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

We made a draft decision:

10 To set Water NSW's operating and capital expenditure for BRC 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 draft decisions.

Table 5.6 Water NSW's efficient BRC expenditure over the 2021 determination period (millions, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Capital expenditure	0.1	0.1	0.3	0.1	0.6
Operating expenditure	0.6	0.6	0.6	0.6	2.4
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. This would be funded equally by NSW and QLD.
- After applying the catch-up and scope efficiency adjustments recommended by Atkins and outlined in section 5.3 to the NSW portion, this equates to $1.4 million in capital expenditure to be shared between Water NSW and WAMC.[xliii]

Our draft decision is to accept the recommendations made by Atkins. Further, as outlined in section 5.4, we have 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, using a 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, it means prices needed to recover those costs are also spread over future years.

However, we note that these relative savings in customer bills will reduce in the long-term as the RAB increases through the creation and addition of more assets. The capital cost building blocks (allowances for depreciation and return on assets) will increase as a result.

5.5.4 We have set the opening MDBA and BRC RABs to zero

We made a draft decision:

11 To set Water NSW's opening RABs for MDBA and BRC 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.[18]

18 Capital contributions include grants and other contributions which 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 as there is no further costs incurred on a utility.

Historically, all 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.

We have in the past 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.[xliv]

As we are, for the first time, moving to treating MDBA and BRC capital expenditure differently from operating expenditure, this will change from 2021-22. This means that all efficient MDBA and BRC capital expenditure will enter the RAB from 2021-22 onwards.[19]

With an opening RAB of zero and our draft decision on forecast efficient MDBA and BRC capital expenditure set out above 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 over 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.

5.5.5 The total building block costs for MDBA and BRC expenditure

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 draft decisions.

19 We note that 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.

Table 5.8 Water NSW's NRR for MDBA and BRC costs over the 2021 determination period – draft decisions (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	0.2	0.3	**0.7**
Tax	0.0	0.0	0.0	0.0	**0.0**
Total	**15.9**	**17.2**	**17.1**	**17.0**	**67.3**

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

We consider that our draft decisions deliver efficiency benefits to Water NSW and its customers. The creation of a RAB and the recovery of 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 being undertaken by the MDBA and BRC.

We also consider 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. Where 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 their undertaking unfeasible. However, where 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 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. This would also improve the transparency to customers of the programs, projects and assets funded through Water NSW's MDBA and BRC-related charges.

6 Other costs

Summary of our draft decisions for other building block costs

Water Sales Volatility Allowance

We have provided Water NSW with $2.04 million over four years to manage the risk that actual water sales are lower than forecast. This is around $7.6 million less than Water NSW proposed.

Unders and overs mechanism repayments

We have provided Water NSW with an allowance of $6.0 million over four 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.

Rebates for Irrigation Corporations and Districts

We have provided Irrigation Corporations and Districts with $4.8 million in discounts over four years to account for Water NSW's avoided costs for metering, billing and other services.

This chapter outlines our draft decisions on a number of 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 Water sales volatility allowance

We made a draft decision:

12 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 different to forecasts.

In its pricing proposal, Water NSW included an allowance of approximately $2.3 million per year over four years to compensate for the mismatch between its cost structure and forecast revenue.[xlv]

We have made a draft decision to include a water sales volatility allowance of $0.53 million a year in draft prices. This allows Water NSW to manage the risk created by the mismatch between its cost structure, which is mostly fixed (i.e. unrelated to the volume of water it sells), and its revenue which is largely based on usage charges. We have only included a revenue volatility allowance in valleys where Water NSW receives less than 80% of its revenue from fixed charges.

Table 6.1 sets out our proposed revenue volatility allowance by valley.

Table 6.1 Revenue volatility allowance by valley ($000s, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Border	8.5	8.5	8.5	8.5	34.0
Gwydir	75.2	75.2	75.2	75.2	300.9
Namoi	73.8	73.8	73.8	73.8	295.4
Lachlan	135.4	135.4	135.4	135.4	541.5
Macquarie	101.2	101.2	101.2	101.2	404.9
Murray	56.8	56.8	56.8	56.8	227.0
Murrumbidgee	78.0	78.0	78.0	78.0	311.9
Hunter	1.6	1.6	1.6	1.6	6.4
Total	530.5	530.5	530.5	530.5	2,121.9

Note: Rows may not sum due to rounding. Totals are different to values presented in Table 6.2 as annualised costs include a return on capital.

Source: Frontier Economics, *Estimation of efficient self-insurance* costs *Final Report*, 5 February 2021, p 46 and IPART analysis.

6.1.1 The volatility allowance is needed because price structures are not cost-reflective in most valleys

In principle, we consider price structures should be cost-reflective, so the proportion of fixed and variable revenue Water NSW receives reflects its actual costs. This is more efficient as it minimises the risk that Water NSW will not be able to cover its costs, without shifting additional risk onto customers.

Water NSW's main cost drivers, such as labour and materials, are the same regardless of the amount of water it sells in any given year. It is difficult to determine precisely what proportion of Water NSW's costs are fixed, but we estimate as a benchmark that 80% of costs are fixed and 20% are variable (i.e. increase proportionally with the amount of water sold).

However, in many of Water NSW's rural valleys, we have chosen not to set cost reflective price structures (typically 40% fixed and 60% variable).[20] This is because customers have historically preferred to pay charges based on the amount of water they use. This allows irrigators to match the charges they pay to periods where their incomes are higher, but creates a risk that Water NSW will not recover its full costs when water sales are lower than forecast.

20 See discussion of price structures in section 10.1 of this report.

6.1.2 Customers should pay the efficient cost of managing revenue volatility because their preferences are factored into our decisions on price structures

We set water usage prices based on a forecast of future water sales. However, Water NSW's rural water sales are highly variable year to year, because of weather and other factors.

Water NSW proposed we continue setting forecasts based on a 20-year rolling average of water sales. Although this forecasting approach has limitations, we consider this remains a reasonable method, as discussed in Chapter 10.

A key drawback to the historical average forecast is low accuracy over short timescales. The probability of water sales being within ±10% of the 20-year average is just 20% in any given year (compared to 77% for Sydney Water).[xlvi] Extrapolating this over four years, the probability of correctly predicting water sales in each year to within ±10% is less than 1%.

To compensate Water NSW for managing this volatility, we decided to provide it with a revenue volatility allowance in prices for the 2021 determination period. We have calculated this allowance based on modelled costs for self-insuring this risk. This modelling was prepared for IPART by consultants Frontier Economics.

6.1.3 The volatility allowance is not designed to protect Water NSW from short-term revenue shortfalls

We consider our water sales forecast should correctly estimate average demand over the long-term, i.e. 20-years. Therefore, customers should not need to "make-whole" Water NSW for shortfalls in any given year, because over the long-term, extra revenue from high sales years should offset under-recovery of revenue from low sales years.

We consider the volatility allowance should only need to cover Water NSW's efficient costs to access funds to:

- cover its short-term costs in low sales years
- ensure revenue short falls would not impact its credit rating and in turn increase its future efficient borrowing costs.

6.1.4 Self-insurance is the best available model to estimate the volatility allowance

We consider self-insurance is the best available model for benchmarking the efficient costs of Water NSW managing its water sales revenue risk because it assumes that revenue will equal costs over the long-term. This means Water NSW is indifferent to the amount of water it sells, while customers only pay for the risk their preferences create.

Under a theoretical self-insurance approach, Water NSW would maintain a line of credit with a lender specifically for the purpose of managing water sales risk within a determination period. During low sales years, Water NSW could borrow against this line of credit to cover short-term costs, with the expectation that it would pay excess revenue into this account during periods of higher than forecast water sales.

We engaged Frontier Economics to model the efficient cost of a self-insurance mechanism for Water NSW's revenue risk. This mechanism would allow Water NSW to achieve a benchmark 80% fixed/20% variable revenue split while maintaining the 40% fixed/60% variable price structure in most MDB valleys.

Frontier modelled self-insurance costs through a two-step process:

1. Estimating the distribution of future water sales in each valley using a Monte-Carlo simulation. This quantifies the potential variance from the 20-year average forecast into the future.
2. Using the estimated variance in water sales to calculate interest and fees for accessing a line of credit Water NSW can borrow against, so its revenue would effectively be 80% fixed regardless of its price structures.

Frontier Economics attributed estimated self-insurance costs to each valley based on the relative proportion each contributes to Water NSW's revenue risk. We have used these allocations in setting a volatility allowance for each valley.

Some smaller valleys received relatively large allocations, especially the Lachlan and Macquarie valleys, because they have had high historical volatility in water sales. We note the self-insurance estimates are relatively small compared to Water NSW's other costs. The volatility allowance adds between less than 0.1% and 1.5% on top of Water NSW's other costs in each valley.

Table 6.2 Frontier Economics estimated self-insurance costs by valley

Valley	Allocation of self-insurance costs (%)	Self-insurance costs over 4 years ($m NPV)	Self-insurance cost as percentage of 4 year target revenue (%)
Border	1.6%	0.033	0.5%
Gwydir	14.2%	0.290	1.3%
Namoi	13.9%	0.285	1.2%
Lachlan	25.5%	0.522	1.5%
Macquarie	19.1%	0.390	1.3%
Murray	10.7%	0.219	0.9%
Murrumbidgee	14.7%	0.300	0.7%
Hunter	0.3%	0.006	0.0%
Total	**100%**	**2.044**	1.0%

Source: Frontier Economics, *Estimation of efficient self-insurance costs Final Report*, January 2021, p 46 and IPART analysis.

6.1.5 We seek stakeholder comments on Frontier Economics self-insurance estimates

The volatility allowance we have included in our draft prices is only about one-quarter of the cost Water NSW proposed ($530,000 a year compared to $2.3 million in Water NSW's proposal). Some of this difference can be explained by the approach Water NSW proposed to managing revenue volatility, which places more risk on the insurer, see section 6.1.7.

Frontier Economics methodology and cost estimates are explained in its Final Report, which is available on IPART's website. We are interested in stakeholder's views on Frontier's methodology and findings. Frontier Economics will respond to issues raised in response to our Draft Report in April 2021.

Frontier Economics noted the modelling in its Final Report is based on limited historical data and some broad assumptions regarding Water NSW's borrowing costs and interest rates. We outline some key assumptions in Table 6.3 and welcome stakeholder's views on the reasonableness of these assumptions.

Table 6.3 Key assumptions in Frontier Economics modelling

Issue	Frontier final report approach	Next steps
Recalibration of residuals	Frontier noticed that in modelling the distribution of future water sales based on 20 years of historical data, that the mean simulated scenario was forecasting slight under-recoveries over the coming regulatory period. Frontier considered this was inconsistent with the basis of IPART's water sales forecast, which assumes the rolling 20-year historical average water sales should accurately predict average future sales over the long-term. To account for this Frontier calibrated the forecasts so the mean of the distribution of simulated outcomes equalled the 20-year historical average at the start of the regulatory period. The result of this calibration was to greatly reduce the predicted future interest payments the benchmark business would need to pay over the coming regulatory period.	IPART welcomes stakeholder feedback on this calibration.
Historical usage data for predicting future variability in water sales	Frontier used the longest historical series of actual water sales data available, comprising 24 years of historical water sales for most valleys from 1997 to 2020 (inclusive). This is a relatively short time series for the purposes of forecasting future volumes. Actual water consumption can follow long cycles due to extended periods of drought or high rainfall. This may mean that the 24 years or actual historical data used in the Frontier analysis is unrepresentative of possible future long-term outcomes. It could also be that a longer historical series demonstrates greater variability in water volumes than the series of actual data available.	IPART has requested additional historical data from Water NSW on water sales. Water NSW initially indicated that it is able to provide 100 years of back-casted water sales for major valleys, generated by applying current usage patterns on historical climate measurements. However, this data has not been provided to date. Use of this data may result in a different forecast distribution of future water sales.

Issue	Frontier final report approach	Next steps
Commitment fees	The largest part of Frontier's cost estimates was for commitment fees: the margin a lender would charge for making credit available. There is no publicly-available information that could be used to derive a reliable estimate of a reasonable commitment fee for the type of lending facility required to support the self-insurance mechanism. The efficient commitment fee will be dependent on the assumed maximum borrowing requirement of the benchmark business. As a placeholder assumption only, Frontier has adopted an estimated commitment fee of 1% p.a. Estimates of the overall efficient self-insurance costs are sensitive to this assumption.	We understand Frontier will seek views from TCorp on a reasonable estimate for an efficient commitment fee, given the estimated borrowing requirements of the benchmark business. Given TCorp has considerable experience in lending to SOCs it should be well placed to improve the placeholder estimate used by Frontier.
Interest rates	In the absence of alternative information, Frontier has used the RBA's corporate BBB rate as the basis for estimating the rate of interest the benchmark business would need to pay on any funds drawn down from the debt facility that would support the self-insurance mechanism. This is the same approach as is in IPART's WACC method. It is not clear if this debt would be rated more or less risky than a BBB firm, and Frontier's attempts to benchmark these rates were limited by a lack of comparable products.	We understand Frontier will seek views from TCorp on a reasonable estimate of the rate of interest on any funds drawn down from the debt facility, given forecast distribution of revenue under/over-recovery. It is likely that TCorp would be able to apply its normal risk rating approach to Frontier's water sales modelling to determine an appropriate risk rating and interest rate to this debt.
Upfront set-up and administration fees	It is possible that the debt facility that would be needed to support the self-insurance mechanism would attract some upfront set-up and administration fees. Given the bespoke nature of the debt facility required, and the lack of publicly available information on comparable products (if any such products exist), Frontier has adopted, as a placeholder assumption, zero upfront set-up and administration fees.	We understand Frontier will seek views from TCorp on a reasonable estimate of upfront set-up and administration fees. Given TCorp's experience in arranging debt finance for SOCs, TCorp is likely to have the expertise to provide an estimate of these costs.

Source: Frontier Economics, *Estimation of efficient self-insurance costs Final Report*, 5 February 2021 and IPART Analysis.

6.1.6 Water NSW managed this risk differently in the past

When the ACCC set prices for Water NSW in 2014 it introduced a UOM to address revenue volatility. This mechanism allowed the then State Water Corporation to adjust its charges annually to recover a portion of the revenue not recovered because water usage is lower than forecast, or to return a portion of revenue to customers if water usage is higher than forecast.[xlvii]

In our 2017 Determination, IPART decided not to continue the UOM. This was in part because we considered it shifted too much risk from Water NSW onto customers and because the outstanding debt on the account had become large enough to materially impact customers.[xlviii] We are continuing to recover the outstanding balance of the UOM, as discussed in section 6.3.

During our 2017 price review, Water NSW proposed implementing a Risk Transfer Product (RTP) to replace the UOM. It initially suggested the RTP would function like a financial swap derivative where Water NSW would share revenue risk with a third party insurer:

- in years when water sales are lower than forecast, the third party insurer would pay out the difference between its actual and forecast usage charge revenue
- in return, in years with higher than forecast water sales, Water NSW would give its excess revenue to the third-party insurer.

In addition, Water NSW expected the insurer to charge a premium for offering this product. We considered it was reasonable for customers to pay the efficient cost of this premium.

In our 2017 Determination we provided $1.3 million a year to cover the cost of managing revenue risk. This was based on initial cost estimates for the swap mechanism from Water NSW's insurer, icare. It also aligned with IPART's internal modelling of the cost of Water NSW self-insuring for this risk.

However, Water NSW was ultimately unable to purchase the swap mechanism from icare, due to policy limitations on the types of products the government insurer could offer. Instead icare agreed to underwrite a more typical insurance product for Water NSW.

The RTP Water NSW purchased from icare insured Water NSW from loses when water sales were lower than forecast, but allowed Water NSW to keep excess revenue. Because it increased the risk for icare substantially, premiums for this policy were much higher than our 2017 allowance which was based on the swap mechanism.[xlix]

6.1.7 Water NSW's proposed Risk Transfer Product (RTP) isn't an appropriate benchmark for setting a volatility allowance

In our Issues Paper we discussed Water NSW's proposal to manage revenue risk through a Risk Transfer Product (RTP).[l] The RTP would continue the approach Water NSW took to managing revenue risk in the 2017 determination period. It requested a volatility allowance of around $2.3 million a year over four years to purchase a RTP.

We consider Water NSW's proposed RTP isn't an appropriate benchmark for setting the revenue volatility allowance because it transfers too much risk to customers. Specifically, it does not take into account that water sales will be both higher and lower than average over the long-term and therefore Water NSW will be made whole for any short term losses eventually (assuming average water sales remain reasonably constant over the long-term). We consider that excluding this long-term stabilisation means the cost of the RTP "premiums" will be higher than the efficient level.

We note that Water NSW can still manage revenue risk through an RTP. However, it will have to fund premium costs above its volatility allowance from its other revenue.

6.1.8 Stakeholders suggested other approaches to managing revenue volatility risk, but our preference is for a volatility allowance

In response to our Issues Paper many stakeholders supported our view that Water NSW's proposed RTP shifted too much risk onto customers.

Murray Irrigation Limited considered the RTP proposed by Water NSW was not equitable to irrigators. It did not object to contributing to insurance to ensure Water NSW is viable, provided the loss and gain of each year is distributed the same.[li]

Peel Valley Water Users Association considered the revenue sharing approach in the original RTP was a reasonable approach, but that the direct insurance approach was inappropriate, because it allowed Water NSW to unfairly protect itself from risk.[lii]

Stakeholders proposed several alternative approaches to managing revenue volatility. We investigated these alternatives, but we consider a volatility allowance is the best method. We discuss these alternatives in Box 6.1.

Box 6.1 Alternative approaches to managing revenue risk

Increasing the ratio of fixed charges

Water NSW and Public Interest Advocacy Centre (PIAC) raised the possibility for increasing the share of revenue from fixed charges as a way of reducing the amount of revenue at risk from uncertain water sales.

Conceptually we are open to this idea as it would make prices more cost reflective and would result in lower costs overall. However, we note customer groups strongly oppose increasing fixed charges as it limits the ability for irrigators to match their costs and revenue.

Given stakeholders such as the NSW Irrigators' Council appear willing to accept higher prices in return for favoured cost structures, we do not see a compelling reason to change price structures in most valleys.

Reinstating a UOM mechanism

Water NSW suggested reinstating the ACCC's unders and overs mechanism (UOM) which we removed in our 2017 review. We oppose this because:

- The ACCC mechanism required annual price adjustments for unders and overs, which IPART generally opposes unless there are compelling reasons to do so.
- The UOM approach is prescriptive. We prefer to allow Water NSW to manage this risk as it sees appropriate within the provided funding envelope, given it has a better understanding of its business and risk appetite.

Changing Water NSW's capital structure

In its submission to IPART's issues paper the NSW Irrigators' Council commented:

> The type of revenue volatility risk that Water NSW faces is usually addressed by using a different capital structure to the one that IPART sets as the benchmark for utilities. For example, Graincorp - which operates large storage and logistics assets which are prone to patterns of being under and over utilised because of seasonal variation (at times extreme due to drought) - maintains a low-debt to total assets ratio of circa 25%, compared to IPART's benchmark of 60%. A capital structure with low-debt to total assets allows for bridging revenue shortfalls across years by access to short to medium term finance.

We consider it is a reasonable argument that higher risk businesses should, all other things being equal, have lower debt levels and more equity investment. However, in this case we are not convinced that this would be the most cost-effective way of managing this risk.

We consider our benchmark 60:40 debt to equity ratio is appropriate for the actual risk faced by businesses in the water sector and we understand Water NSW's shareholder, the NSW Government, has been adapting its financing to reflect this benchmark.

Reducing our 60% debt capital benchmark will increase our WACC, which would in turn increase prices for all customers. This would not signal to customers in different valleys their relative contribution to Water NSW's risk profile.

Source: Water NSW submission to IPART Issues Paper, 16 October 2020, p 21; PIAC submission to IPART Issues Paper, 16 October 2020, pp 3-4 NSW Irrigators' Council submission to IPART Issues Paper, October 2020, p 10.

6.2 Irrigation Corporation and Districts (ICD) rebates

We made a draft decision:

13 To set the value of rebates provided to eight irrigation corporations and districts (ICDs) as shown in Table 6.4.

Table 6.4 sets out our draft decisions on ICD rebates.

Table 6.4 IPART decision on ICD discounts ($millions, $2021-22)

	2021-22	2022-23	2023-24	2024-25	Total
Jemalong	45	45	40	37	166
Murray Irrigation	577	548	529	503	2,157
Western Murray	15	14	13	13	54
West Corurgan	29	27	26	25	108
Moira	15	14	14	13	57
Eagle Creek	5	5	5	5	20
Murrumbidgee Irrigation	430	400	391	377	1,598
Coleambally Irrigation	184	172	168	162	685
Total discounts	**1,300**	**1,225**	**1,186**	**1,134**	**4,845**

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 one large customer rather than many smaller customers.

Past determinations have included discounts via rebates to ICDs to reflect Water NSW's 'avoided costs' of not having to directly service a larger number of smaller customers. The avoided costs are calculated based on the services Water NSW does not need to provide due to the activities of ICDs (as a per ML of entitlement cost multiplied by the number of entitlements held by the ICD). These include billing, metering and compliance, telemetry installation and data transfer as shown in Table 6.5.

Table 6.5 IPART estimated avoided costs by valley in 2020-21 ($2020-21)

2021-22	Lachlan	Murray	Murrumbidgee
No. of Entitlements	680,791	2,481,056	2,872,162
Metering and Compliance	$261,441	$653,923	$500,398
Billing	$46,004	$102,866	$186,650
Telemetry installation	$7,727	$100,654	$161,564
Data transfer costs	$11,997	$156,274	$250,843
Total Costs	$327,169	$1,013,717	$1,099,454
Average per entitlement	$0.48	$0.41	$0.38

Source: Water NSW pricing model to IPART, June 2020 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 has proposed to continue to pay ICD rebates and that the current approach for calculating the rebates be maintained.[liii]

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

This results in rebates that generally increase slightly over the period. It also results in $4.8 million of avoided costs over the determination period, as shown in Table 6.4.

6.3 Unders and overs mechanism (UOM) payback

We made a draft decision:

14 To include in prices a UOM payback allowance listed in Table 6.6.

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

During our 2017 price review we made a decision to discontinue the UOM. This was because we considered that a volatility allowance, rather than an UOM, will better address the revenue volatility risk faced by Water NSW. We also decided that the negative UOM balance (i.e. the net amount owed to Water NSW by customers) at 30 June 2017 should be recovered from customers through prices over 12 years, in real terms. [21,lvi] Therefore by 30 June 2021 one-third of this balance should be repaid to Water NSW.

Water NSW proposed continuing this method for recovering UOM costs.[lvii] We consider this approach remains appropriate and have included an allowance in prices so that two-thirds of the UOM balance owed to Water NSW as at 30 June 2017, should be paid off in real terms by 30 June 2025.

Importantly, our allowance is around 4% higher than Water NSW proposed because we applied inflation to the original 2016-17 balance, while Water NSW only applied inflation to the allowance from the 2017 determination period.

Table 6.6 UOM payback allowance for the 2021 determination period ($000s, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Water NSW proposal	1,539	1,516	1,492	1,469	6,016
IPART draft decision	1,593	1,574	1,555	1,537	6,259
Difference	54	59	63	67	243
Difference %	*3.5%*	*3.8%*	*4.2%*	*4.7%*	*4.0%*

Source: IPART analysis.

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

7 Other building block costs and notional revenue requirement

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

Water NSW's notional revenue requirement is $461 million

- This is $57 million (11%) less than Water NSW proposed.
- The difference is mainly due to us reducing Water NSW's proposed operating expenditure to an efficient level (see Chapter 3).
- We use a 'building block' approach to calculate Water NSW's notional revenue requirement

Water NSW's return on assets is $73.8 million

We calculate the return on assets by multiplying the value of the regulatory asset base over the determination period by an efficient rate of return.

- The opening RAB is $1.2 billion for 2021-22.
- We have used a real post-tax WACC estimate of 1.3% for MDB valleys and 2.8% for coastal valleys as the efficient rate of return.

Water NSW's return of assets (regulatory depreciation) is $98.9 million

- We have 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 have calculated regulatory depreciation using a straight-line method.

Water NSW's tax allowance is $7.2 million

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

Water NSW's working capital allowance is $1.8 million

We have 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 use building blocks to calculate the NRR

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

- **Operating expenditure** – This represents our estimate of the efficient level of Water NSW's forecast operating, maintenance and administration costs (see Chapter 3).
- **A return on the assets** Water NSW uses to provide its services. This amount represents our assessment of the opportunity cost of the capital invested in Water NSW, and ensures that it can continue to make efficient capital investments in the future. To calculate this amount, we need to decide on the efficient and prudent levels of Water NSW's past and forecast capital expenditure, the value of Water NSW's regulatory asset base (RAB), and the appropriate weighted average cost of capital, the WACC (see Chapter 4, section 7.4 and Appendix C).
- **A return of those assets (regulatory depreciation)** – This allowance recognises that through the provision of services to customers, a utility's capital infrastructure will wear out over time, and therefore revenue is required to recover the cost of maintaining the RAB. To calculate this allowance, we need to decide on the appropriate asset lives and depreciation method (see Chapter 7.5).
- **An allowance for meeting tax obligations** – We also use the real post-tax WACC and tax depreciation to calculate an allowance for tax as a separate cost block. We consider this method accurately estimates the tax liability for a comparable commercial business (see section 7.6).
- **An allowance for working capital** – This represents the holding cost of net current assets (see section 7.7).

The sum of these allowances is the NRR (see Figure 2.1).

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

- MDBA and BRC payments (Chapter 5)
- a revenue volatility allowance (Chapter 6)
- costs related to the recovery of the unders and overs mechanism (UOM) balance (Chapter 6)
- Irrigation corporations and districts (ICD) rebates (Chapter 6).

The sections below summarise our decision on Water NSW's NRR. 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 our interactive map on our website.

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

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 chose not to 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. This decision reduced a number of elements of Water NSW's proposed NRR, including its return on assets, depreciation and tax allowance.

We do not support this approach because it does not allow Water NSW to recover the opportunity cost of undertaking these projects, including its efficient borrowing costs.

We consider that all of Water NSW's efficient capital expenditure should be included in its RAB. 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 have decided to assign a 100% government cost share for drought projects, as discussed in Chapter 8. Therefore, we have assigned all of Water NSW's drought capital costs to the Government share in the RAB. Water NSW will then 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, as 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 Water NSW proposed.

7.3 Water NSW's total notional revenue requirement is $461 million over 4 years

We made a draft decision:

15 To set the notional revenue requirement at $460.6 million over the 2021 determination period as shown in Table 7.1.

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

Our decision is that Water NSW's total NRR over the 2021 determination period is $460.6 million, which is $57.0 million (11%) 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 Draft decision on Water NSW's total notional revenue requirement ($millions, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Water NSW proposed					
Notional revenue requirement (NRR)	121.9	130.3	132.7	132.7	517.6
Draft decision					
Operating expenditure	49.1	52.0	49.8	47.5	198.4
ICD rebates	1.3	1.2	1.2	1.1	4.8
Return of capital	23.2	24.5	25.3	25.9	98.9
Return on capital	17.5	18.9	19.4	19.7	75.6
Tax allowance	1.7	1.9	1.8	1.9	7.2
UOM payback	1.6	1.6	1.6	1.5	6.3
Volatility allowance	0.5	0.5	0.5	0.5	2.1
MDBA and BRC payments	15.9	17.2	17.1	17.0	67.3
Notional revenue requirement (NRR)	110.9	117.8	116.7	115.2	460.6
Difference Water NSW proposed and draft decision	−11.0	−12.5	−16.0	−17.5	−57.0
Difference Water NSW proposed and draft decision (%)	−9.0%	−9.6%	−12.1%	−13.2%	−11.0%

Note: In this table, operating expenditure includes debt raising costs, return on capital 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 $73.8 million

We have included an allowance for a return on assets in the revenue requirement. This represents our assessment of the opportunity cost of capital invested to provide the regulated services. Our approach ensures that the business can continue to make efficient capital investments in the future. We calculate 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 have determined the rate of return using an estimate of the WACC.[22]

We made draft decisions:

16 To calculate the return on assets using:

22 Our approach to calculating the WACC is discussed further in Appendix D.

- An opening RAB of $1.2 billion for 2021-22, and the RAB for each year as shown in Table 7.2.
- Water NSW's reported historical asset disposals for the 2017 determination period as outlined in Table 7.4.
- Water NSW's forecast asset disposals for the 2021 determination period in Table 7.5.
- To apply a real post-tax WACC of 1.3% to calculate the return on Water NSW's assets for MDB valleys.
- To apply a real post-tax WACC of 2.8% to calculate the return on Water NSW's assets for Coastal valleys.
- To apply a true-up for differences between the forecast and actual cost of debt over the 2021 determination period in the next determination period.

17 To set an allowance for return on assets of $73.8 million over the 2021 determination period, as shown in Table 7.6.

7.4.1 The opening RAB for the 2021 determination period is $1.2 billion

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

Table 7.2 Draft 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	1,212.4	1,329.8	1,369.0	1,391.2
Plus: Efficient capital expenditure	141.0	64.1	47.9	38.0
Less: Regulatory depreciation	23.4	24.7	25.5	26.1
Less: Asset disposals	0.2	0.2	0.2	0.2
Closing RAB	1,329.8	1,369.0	1,391.2	1,402.9

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

Source: IPART analysis.

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

- adding $290.9 million of prudent and efficient forecast capital expenditure to the opening RAB over the period (discussed in Chapter 4)
- deducting:
  - $0.8 million for the regulatory value of forecast asset disposals (see section 7.4.2)
  - $99.6 million for regulatory depreciation (see section 7.4).

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

We have 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 2017, 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 2017 determination period for MDB and Coastal valleys is set out in Table 7.3.

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

	2017-18	2018-19	2019-20	2020-21
Opening RAB	750.9	788.0	827.2	941.6
Plus: efficient capital expenditure	37.1	43.2	114.0	263.1
Less: Regulatory depreciation	15.8	16.9	17.9	18.9
Less: Asset disposals	0.3	0.1	0.2	0.2
Plus: Indexation	16.2	13.0	18.6	26.8
Closing RAB	788.0	827.2	941.6	1,212.4

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

7.4.2 We have deducted $0.8 million in asset disposals

Asset disposals can include asset sales, write-offs and write-downs. This may include the sale of land that is no longer needed to deliver services, the reduction in value of plant and equipment or the write-off of an asset that is now obsolete.

We deduct asset disposals when rolling forward Water NSW's RAB. This approach means the business bears the risk of any profits or losses arising from the sale of an asset, and customers are not affected. For instance, if Water NSW sold a parcel of land for $5 million that it had purchased 10 years ago for $2 million, we would deduct its current RAB value ($2 million plus inflation) from the RAB. Water NSW would retain the additional profit, and pay any capital gains tax directly.

We consider this appropriate because the benefit customers received came from consuming the service, not from ownership of the asset. We consider that the impact of any profit or loss should lie entirely with the business (or shareholder). We understand the majority of Water NSW asset disposals are for IT and other short-lived assets.

We regard disposals as significant if they attract capital gains tax or account for more than 0.5% of the RAB. All of Water NSW's actual asset disposals for the 2017 determination period and proposed disposals for the 2021 determination period are non-significant. We have accepted Water NSW's proposed asset disposals and, consistent with IPART's asset disposal policy, we have deducted the receipt value of these disposals from the RAB.

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

	2016-17	2017-18	2018-19	2019-20	2020-21
Water NSW proposal	85	283	117	200	202
IPART draft decision	85	283	117	200	202

Source: IPART analysis.

Table 7.5 Forecast asset disposals for the 2021 determination period ($'000s, $2020-21)

	2021-22	2022-23	2023-24	2024-25
Water NSW proposal	202	202	202	202
IPART draft decision	202	202	202	202

Source: IPART analysis.

7.4.3 We have set a WACC of 1.3% for MDB valleys and 2.8% for coastal valleys

For our review of Water NSW's rural bulk water services we use two separate methods to calculate and apply a WACC as outlined below.

- 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.[23]

Based on the RAB values set out in section 7.3 and our decisions to apply a real post-tax WACC of 1.3% for MDB valleys and 2.8% for Coastal valleys, the resulting return on assets (WACC% x RAB) is shown in Table 7.6.

Table 7.6 Draft decision on return on capital compared to Water NSW proposal ($millions, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Water NSW proposal	17.7	18.3	19.2	20.1	75.3
IPART draft decision	17.4	18.4	18.9	19.1	73.8
Difference	−0.3	0.1	−0.3	−0.9	−1.4
Difference %	*−2%*	*1%*	*−2%*	*−5%*	*−2%*

Source: Water NSW pricing proposal to IPART, October 2020, p 32 and IPART analysis.

Appendix D of this Draft Report shows the parameters we use to calculate the WACC and outlines the differences between the two WACC methods.

7.4.4 We decided to use an end of period true-up to account for annual changes in the WACC

The WACC reflects parameters which change every year. As new tranches of debt are introduced to the trailing averages, the oldest tranches drop out. We considered two options to adjust prices to account for annual changes to the WACC, including:

23 We set prices in coastal valleys under the IPART Act.

1. to store the present value of the revenue adjustments caused by the changing WACC and apply a true-up at the next regulatory period
2. to apply annual real price changes to reflect the changing WACC.

Our decision is to use an end of period true-up approach. This is consistent with our decision for the 2020 review of prices for Sydney Water and helps provide price certainty to customers.[lviii]

7.5 Water NSW's return of assets (regulatory depreciation) is $98.9 million

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

Our allowance for return of assets is higher than Water NSW's proposal because Water NSW decided to exclude drought costs from its proposed RAB, as discussed in section 7.2. Including these costs will not impact prices for customers.

We made draft decisions:

18 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.

19 To set Water NSW's allowance for return of assets at $98.9 million over the 2021 determination period, as shown in Table 7.7.

Table 7.7 Draft decision on Water NSW's allowance for return of assets ($millions, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Water NSW proposal	21.2	22.0	23.1	24.1	90.3
IPART draft decision	23.2	24.5	25.3	25.9	98.9
Difference	2.1	2.5	2.2	1.8	8.6
Difference %	10%	11%	10%	7%	9%

Note: The allowance in this table 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 use 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 recommend using the straight-line depreciation method. Under this method, the assets in the RAB are depreciated by an equal value in each year of their economic life. That is, their real written down value follows a straight line over time, from the initial value of the asset to zero at the end of the asset's life. We consider this method is superior to alternatives in terms of simplicity, consistency and transparency.

7.5.2 We maintain 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 have maintained this approach for the 2021 determination period. We list our starting asset lives for the customer and government RABs in Table 7.8.

Table 7.8 Draft decision on asset lives for existing assets by valley (years)

	Customer RAB	Government RAB
Border	41	98
Gwydir	39	50
Namoi	46	56
Peel	45	72
Lachlan	42	70
Macquarie	48	62
Murray	48	52
Murrumbidgee	48	35
Lowbidgee	64	N/A
North Coast	99	132
Hunter	89	128
South Coast	63	108
Fish River	41	N/A

Source: IPART analysis.

7.5.3 We have assigned asset lives for new assets based on activity

For new assets we have 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.

We asked our expenditure consultants, Atkins-Cardno, to review Water NSW's proposed asset lives. They supported Water NSW's proposal except for corporate systems, for which they recommended 7 years instead of 6 years. We have accepted our consultants' recommended asset lives.

Table 7.9 Draft decision on new asset lives by activity (years)

Activity	Water NSW proposed	Draft 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, Expenditure review of Water NSW rural bulk water services, Final Report, February 2021, p 102.

We then 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 have 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 capex amounts in each asset category. They (and we) have used this methodology in previous determination periods.

Our draft decision on the asset lives calculated using this method is presented in Table 7.8.

Table 7.10 Draft decision on asset lives for new assets by valley (years)

	Customer RAB	Government RAB
Border	64	100
Gwydir	69	90
Namoi	71	71
Peel	63	100
Lachlan	74	98
Macquarie	66	63
Murray	75	72
Murrumbidgee	71	57
Lowbidgee	76	NA
North Coast	50	33
Hunter	62	46
South Coast	56	41
Fish River	58	NA

Source: IPART analysis.

7.5.4 Water NSW should review its depreciation method in future

We have calculated the draft depreciation allowance in the NRR using Water NSW's proposed depreciation methodology. For new assets Water NSW's methodology calculates the average expected life for each valley as a weighted average, where the weights are the forecast capex amounts (for the period) in each asset category. Water NSW does not disaggregate its RAB for historical assets.

This methodology has been used in previous determination periods and recovers the full amount of depreciation over the average life of the assets. It works well when the asset categories have similar expected lives. However, it leads to an under-recovery of depreciation in the short term if some of the capex has a substantially shorter expected asset life than other capex. This under-recovery will arise over the upcoming regulatory period as Water NSW expects to spend around 15% of its total capex on short-lived assets (Water Delivery & Other operations and Corporate assets). Under its proposed methodology, it will not recover the 'actual' depreciation on that capex over the regulatory period.

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) and lower total depreciation.

For the 2025-26 determination period, we suggest that Water NSW considers disaggregating the RAB for each valley into two or three categories based on their asset lives to better estimate depreciation. We estimate that calculating depreciation using the actual asset life for each category (as opposed to using Water NSW's proposed methodology) would increase bills by between 1% (Border and Murray) and 7% (Lachlan).

7.6 Water NSW's tax allowance is $7.2 million

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

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

We made draft decisions:

20 To calculate the tax allowance using:

- A tax rate of 30%.
- IPART's standard methodology.

21 To adopt the regulatory tax allowance as set out in Table 7.11.

Table 7.11 Draft decision on Water NSW's tax allowance compared to Water NSW's proposal for the 2021 determination period ($millions, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Water NSW proposal	0.5	0.5	0.4	0.4	1.8
IPART draft decision	1.7	1.9	1.8	1.9	7.2
Difference	1.2	1.4	1.4	1.4	5.4
Difference %	236%	308%	354%	340%	305%

Source: IPART analysis.

We calculate the tax allowance for each year by applying a 30% statutory corporate tax rate adjusted for franking credits to the business's (nominal) taxable income.[24]

We applied our standard methodology to set the tax allowance. We calculate the tax allowance for each year by applying the relevant tax rate, adjusted for the value of imputation credits (the 'gamma'), to the business's (nominal) taxable income.

For this purpose, taxable income is the notional revenue requirement (excluding tax allowance) less operating cost allowances, tax depreciation and interest expenses. As part of calculating the appropriate tax allowance, the business is required to provide forecast tax depreciation for the determination period. Other items such as interest expenses are based on the parameters used for the WACC and the value of the RAB.[25]

24 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.**.

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

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 (including if it were privately owned). 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 because of different treatment of drought costs and a lower cost of debt

Water NSW's proposed tax allowance is significantly lower than our draft decision due to two factors:

- Water NSW's decision to exclude costs related to drought projects from its RAB means that its return on and return of assets are lower. 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 which is offset by debt costs.

7.7 Water NSW's working capital allowance is $1.8 million

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.[lix] To calculate the allowance, we:

1. calculate the net amount of working capital the utility requires, using the formula: working capital = receivables – payables + inventory + prepayments
2. calculate the return on this amount by multiplying it by the nominal post-tax WACC.

We made a draft decision:

22 To set the working capital allowance for the 2021 determination period as set out in Table 7.12.

We also made a draft decision on an allowance for a return on working capital, which represents the holding cost of net current assets. The allowance is $1.8 million over the four years of the 2021 determination period. The allowance is higher than that proposed by Water NSW because Water NSW did not apply our 2018 working capital allowance approach.

Table 7.12 Draft decision for Water NSW's working capital allowance for the 2021 determination period ($millions, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Water NSW proposal	0.0	0.1	0.0	0.0	0.2
IPART draft decision	0.1	0.5	0.6	0.6	1.8
Difference	0.1	0.4	0.5	0.5	1.6
Difference %	505%	531%	1813%	1157%	906%

Source: IPART analysis.

8 Cost shares and cost drivers

Summary of our draft decisions for cost shares and cost drivers

Water NSW's customer share of NRR is $334 million

We set prices to recover the customer share of NRR.

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

- Cost shares are based on the impactor pays principle. We consider this to be the best way to split costs between water users and the NSW Government.
- Water NSW's proposed cost drivers are consistent with our 2019 cost shares review.

We have 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 have assigned user shares to MDBA and BRC costs, effectively bringing these costs under our cost-share 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) based on the impactor pays principle.[26]

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 draft decisions on Water NSW's customer share of costs, cost shares and cost drivers.

8.1 The customer share of the notional revenue requirement is $334 million

We made a draft decision:

23 To set the customer share of Water NSW's notional revenue requirement ($333.8 million) and target revenue from water prices ($326.4 million) over the 2021 determination as set out in Table 8.1.

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

Table 8.1 Customer share of Water NSW's notional revenue requirement and target revenue ($millions, $2020-21)

	2021-22	2022-23	2023-24	2024-25	Total
Operating expenditure	45.4	47.9	45.7	43.7	182.7
ICD rebates	1.3	1.2	1.2	1.1	4.8
Return of capital	9.5	10.1	10.8	11.3	41.7
Return on capital	6.6	7.2	7.7	8.1	29.6
Tax allowance	0.6	0.7	0.7	0.8	2.9
Volatility allowance	0.5	0.5	0.5	0.5	2.1
UOM payback	1.6	1.6	1.6	1.5	6.3
MDBA and BRC payments	15.1	16.3	16.2	16.1	63.7
Notional revenue requirement (NRR)	80.6	85.5	84.5	83.2	333.8
Target revenue	81.6	81.6	81.6	81.6	326.4
Difference NRR and target revenue	1.0	−3.9	−2.9	−1.7	−7.5
Difference NRR and target revenue (%)	1.3%	−4.6%	−3.4%	−2.0%	−2.2%

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.

Our draft decision on the customer share of Water NSW's notional revenue requirement (NRR) and target revenue is presented in Table 8.1.

Once we determine the customer share of NRR, we then 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 is because of our decision to set prices below the full cost recovery level for the North Coast and South Coast valleys, which is discussed in Chapter 11.

We have decided to 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 are maintaining the cost shares from our 2019 cost shares review

We made a draft decision:

24 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.

In 2019 we published a Final Report into rural water cost shares, where we made 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 costs of moving to a service-based framework were unlikely to exceed the benefits
- update several cost share ratios under the activity-based framework.[lx]

Water NSW's proposed cost shares are consistent with our 2019 Final Report, and set out 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
Irrigation Corporation District (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.

8.2.1 We will continue to share costs based on the impactor pays principle

Our 2019 review of cost shares re-iterated our position to allocate the efficient costs of Water NSW's rural bulk water services on the basis of the impactor pays principle. Under this approach, costs are allocated between water customers and the NSW Government (on behalf of other users such as recreational users and the broader community) on the basis of whichever party created the need for an activity (and its associated costs) to be incurred.

We consider the impactor pays approach is more efficient than alternatives (such as a beneficiary pays approach) because it results in customers facing the full costs of the services they receive. In addition, it is a more practical and transparent method for allocating costs and is consistent with the funding hierarchy that we have previously used for other services.

Box 8.1 What is the impactor pays principle?

Our cost sharing framework takes the efficient and prudent capital and operating costs, excludes 'legacy costs', and then applies our funding hierarchy to determine who should pay for the costs.

Our funding hierarchy, which is applied to monopoly water services and other regulated industries, is as follows:

1. Preferably, the party that creates the need to incur the cost (the impactor) should pay in the first instance
2. If that is not possible, the party that benefits (the beneficiary) should pay. Further, it is preferable for direct beneficiaries to pay, but if that is not possible then indirect beneficiaries should pay. In some instances, the impactor and the beneficiary are the same
3. In cases where it is not feasible to charge either impactors or beneficiaries (for example, because of social welfare policy, public goods, externalities, or an administrative or legislative impracticality of charging), the government (taxpayers) should pay.

Under this approach, we determine the share of efficient costs that should be paid for by water customers and the share that should be paid for by the NSW Government on behalf of other users and the broader community.

We consider the impactor pays approach is more efficient than alternatives (such as a beneficiary pays approach) because it results in customers facing the full costs of the services they receive. In addition, it is a more practical and transparent method for allocating costs and is consistent with the funding hierarchy that we have previously used for other services.

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

In response to our Issues Paper, stakeholders raised issues with our approach to sharing costs between users and the NSW Government (on behalf of the broader community), including the impactor pays principle.[lxi]

We acknowledge that the magnitude of cost increases proposed by Water NSW may be contributing to some stakeholder proposals to reduce the customer share of efficient costs. As part of this review, we have comprehensively examined Water NSW's expenditure to ensure the proposed cost increases are efficient.

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 Murray Darling Basin Authority (MDBA) and Dumaresq-Barwon Boarder Rivers Commission (BRC) charges to customers in the Murray and Murrumbidgee valleys, and Boarder 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 the apportionment of MDBA and BRC costs within our cost share framework.[lxii] Their approach sees cost allocations assigned to activity codes, then for MDBA charges, costs are split between valleys based on the historic average.

We consider Atkins' approach is robust and recommend pass-through MDBA and BRC costs are assigned based on their revised methodology.

MDBA costs are allocated to three user share activity codes, including:

- Water Delivery & Operations (95% user share)
- Hydrometric Monitoring (90% user share)
- Routine Maintenance (95% user share).

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

BRC costs are allocated to four user share activity codes, including:

- Water Delivery and Operations (95% user share)
- Routing Maintenance (95% user share)
- Asset Management Planning (95% user share)
- Corrective Maintenance (95% user share).

8.2.3 Some stakeholders suggested that climate change should be considered an impactor

The NSW Irrigators' Council submission to our Issues Paper suggested that our impactor pays framework needed to be reconsidered because it could not adequately accommodate the impacts of climate change.[lxiii] Their submission notes:

> NSWIC believe that now 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.

We consider there is adequate flexibility within our current framework to consider and account for the impacts of climate change, as set out in Box 8.2.

Box 8.2 Climate change under our impactor pays framework

Our counterfactual starting point, which we use to anchor our application of the impactor pays principle, is a world without high consumptive use of water resources. We can apply our framework to this question in the following way:

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

Regardless of the materiality, we consider there is merit in applying a principles based approach to considering who should pay, based on our impactor pays framework. We consider costs associated with climate change would not be incurred in the absence of high extractive use. Therefore, licence holders are the impactor.

We asked Cardno, our consultants on the Water Administration Ministerial Corporation (WAMC) review, to look at this issue. Cardno did not consider effects of climate change constituted sufficient grounds to adjust user shares or our framework for two reasons:

- firstly, the impact on WAMC's costs of climate change could only be seen in a handful of areas and these costs were very small compared to the overall costs for WAMC services
- secondly, if climate change was an impactor, its impact was substantially smaller than the impacts of high consumptive water use.[lxiv]

We intend to maintain our approach and current cost share ratios for the following reasons:

- costs related to climate change are unlikely to occur in the absence of high extractive use – therefore we consider license holders are the primary impactor for these costs
- this is consistent with our application of impactor pays for costs related to changing environmental standards and changing community expectations. 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
- water users should face efficient price signals, which include costs associated with climate change, to encourage efficient decisions going forward.[27]

We note that our current cost shares for environmental expenditure (80% user share) already acknowledge a role for broader society to pay some costs for environmental planning and protection.

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 application of the impactor pays principle and setting user and government cost share ratios in future determination periods.

8.2.4 Stakeholders raised concerns with the cost shares applied to expenditure for Fishways

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

The key issue identified by stakeholders concerns the change we recommended to the user share for *environmental planning and protection activities*, from 50% to 80%, which applies to expenditure for fish ladders.

27 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 2020*, Draft Report, February 2021, p 159).

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

While we acknowledge stakeholder views regarding the change to the cost share and our decision to defer expenditure, we consider the 80% user share remains appropriate. We consider the revised user share is correct and should apply to the expenditure for fish ladders regardless of when the projects where committed to under legislation.

9 Water entitlement and usage forecasts

Summary of our draft decisions for water entitlement and usage forecasts

We accepted the water entitlement and usage forecasts proposed by Water NSW.

Regulated rivers

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

Fish River Water Supply Scheme (FRWS)

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

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

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

If the forecasts we use are accurate (i.e. if actuals turn out to equal forecasts), then the prices we set will recover the customer share of efficient costs. It is important that forecasts are as accurate as possible so that prices reflect efficient costs and that regulated utilities are able to recover their efficient costs.

9.1 Regulated rivers

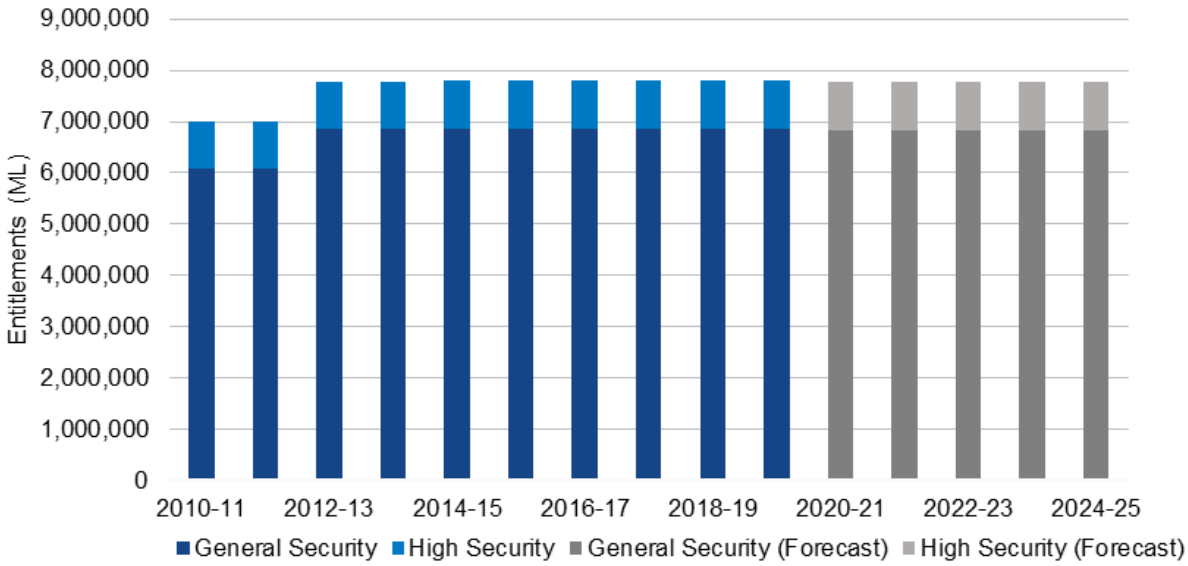
We made a draft decision:

25 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

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 only be created or rescinded in limited circumstances. Therefore, entitlement numbers tend to remain broadly constant over time, as shown in 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. Department of Planning, Industry and Environment Website.

We have decided to accept Water NSW's proposed entitlement numbers, which forecast entitlement numbers to remain constant at 2019-20 levels for the next four years. We list these forecasts in Table 9.1.

For pricing purposes we categorise water entitlements as either "High Security" or "General Security". High Security entitlements are those held in:

- high security irrigation licences
- stock and domestic licences
- local water utility licences
- major water utility licences

General Security entitlements are those held in:

- general security irrigation licences
- conveyance water licences (including those held by irrigation corporations)
- supplementary water licences in the Lowbidgee valley

Table 9.1 Entitlement forecasts for 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	438,328	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	**930,154**	**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 submission to IPART, July 2020.

9.1.2 Water usage forecasts (excluding Fish River)

Water NSW proposed a water usage based on a 20-year rolling average of historical water sales for most water valleys (1999-2000 to 2018-19), with the exception of North Coast and South Coast water sources which would use a shorter period (i.e. 15-years) due to limited data. This approach is consistent with the approach undertaken in the 2017 price review.[28]

Water NSW's forecasts are listed in Table 9.2. We have decided to accept Water NSW's proposed forecasts for water sales.

28 Water NSW pricing proposal to IPART, July 2020, p 116-119.

Table 9.2 Water NSW's water sales forecasts (ML)

	2021-22	2022-23	2023-24	2024-25
Border	147,948	147,948	147,948	147,948
Gwydir	239,365	239,365	239,365	239,365
Namoi	149,925	149,925	149,925	149,925
Peel	12,686	12,686	12,686	12,686
Lachlan	191,214	191,214	191,214	191,214
Macquarie	249,042	249,042	249,042	249,042
Murray	1,419,325	1,419,325	1,419,325	1,419,325
Murrumbidgee	1,593,152	1,593,152	1,593,152	1,593,152
Lowbidgee	36,530	36,530	36,530	36,530
North Coast	574	574	574	574
Hunter	121,447	121,447	121,447	121,447
South Coast	3,946	3,946	3,946	3,946
Total	4,165,155	4,165,155	4,165,155	4,165,155

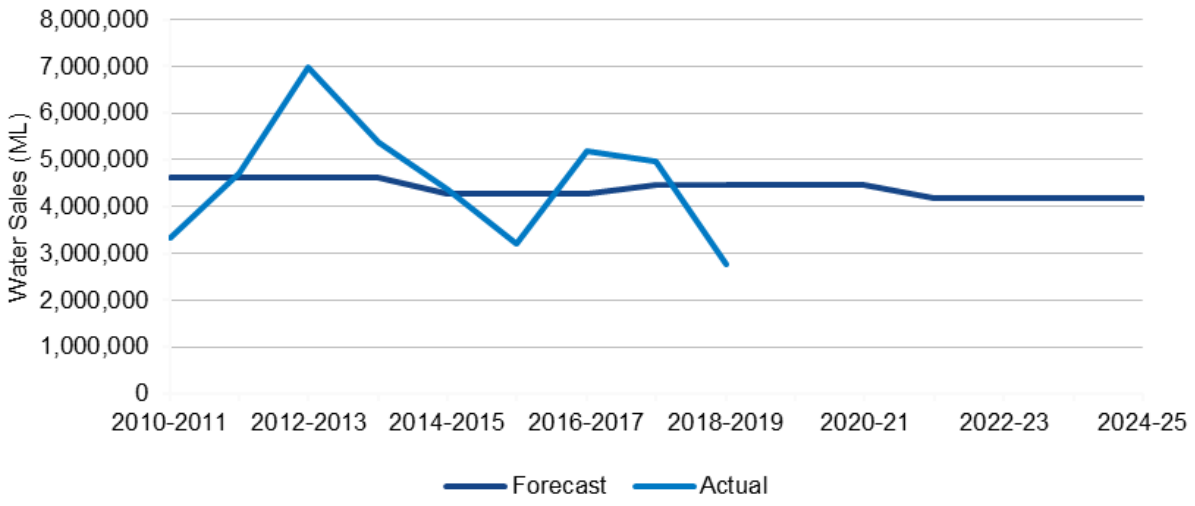
Note: Forecasts include supplementary water sales.

Source: Water NSW pricing submission to IPART, July 2020.

We note there is a high degree of variability in Water NSW's water sales, as shown in Figure 9.2. This creates considerable difficulty in creating an accurate forecast due to unpredictable factors such as rainfall and customer demand patterns. However, we consider that over the long-term, the 20-year rolling average will accurately predict average water sales.

To manage the risk that short-term fluctuations in water sales away from the forecast has on Water NSW's revenue, we have decided to provide Water NSW with a revenue volatility allowance.

Figure 9.2 Historical forecast and actual water sales (excluding Fish River)



Data source: IPART, *Review of bulk water charges for State Water Corporation from 1 July 2010*-Final Report, p 119; ACCC, *Tariff Model for State Water Final Decision*, 2014-15 to 2016-17; IPART, *WaterNSW Review of prices for rural bulk water services from 1 July 2017 to 30 June 2021 - Final Report*, June 2017, p 101.

9.1.3 We have attempted to better understand the key drivers of water usage

Water NSW has proposed that we continue to base our water usage forecast for regulated water sources on historical averages.

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. This means that over time, over-forecasts will be offset by under-forecasts and prices will be cost reflective on average.

The downside of this approach is that the forecast does not contain contemporaneous information about factors that drive water usage. For example, if we could identify and understand the key drivers of water usage and could forecast what these key drivers were likely to be over the next four years, then we could use this information to generate a water usage forecast that is likely to be more accurate (i.e. closer to actual) than a forecast based on a historical average of actual usage.

In considering Water NSW's proposal, we have examined whether alternative forecasting methods might be available by attempting to better understand the key drivers of historical water usage. We considered available information that could influence the demand and supply of water, 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 has helped improve our understanding of the key drivers of water usage, our results are inconclusive. This is likely due to data limitations and potential complexities in the relationships between variables that may have been omitted from our methodology. We consider WAMC and Water NSW are well placed, in terms of expertise and access to data, to further investigate the key drivers of water usage (including impacts from climate change) to inform future pricing proposals.

We also considered the merit of moving away from the 20-year averaging period. That is, we assessed the results for 5-year, 10-year or 15-year averaging periods instead. In summary, based on the current data we have, we observed the results to be quite sensitive to the averaging period. In the absence of better data, we consider the 20-year averaging period is still reasonable to use because it takes into account at least two major drought cycles. Further, we consider the current averaging period strikes a good balance between ensuring sustainable revenue streams are provided to the utilities over the long-term, while maintaining price stability for water users/customers.

9.1.4 Supplementary licences

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 (for example, when dams are overtopping and additional inflows cannot be stored). There are supplementary licences in most regulated rivers.

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

Supplementary licence holders are required to account for the amount of water they take under a supplementary licence like other licence types, as they are often using the same works as other users. For this reason we have included these volumes when calculating water sales forecasts.

9.2 Fish River Water Supply Scheme (FRWS)

The FRWS delivers raw water to three 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.

We made a decision to:

26 Set the minimum annual quantities (MAQ) and usage forecasts for the Fish River Water Supply Scheme (FRWS) as shown in Table 9.3 and Table 9.4.

9.2.1 Minimum Annual Quantities

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.[29] We explain this distinction in Box 9.1.

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

29 Importantly, unlike entitlement holders in other valleys, customers in the FRWS can use water in excess of their MAQ, but are required to pay a higher usage charge for water consumption in excess of their MAQ.

Box 9.1 Licencing framework for the FRWS

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 (issued under the *Water Act 1912*[a]), which entitles it to extract a certain amount of 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]

We refer to the volumes listed in Schedule 3 as Minimum Annual Quantities (MAQ) as they reflect the minimum amount of water that Water NSW needs to make available to each customer.

Customers are able to access additional water if it is available. However, where a customer's usage exceeds its MAQ, we set a higher usage charge equal to the usage charge plus the fixed MAQ charge to reflect 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 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*.

b Water NSW's licence includes provisions to reduce the minimum volumes it needs to make available during drought periods.

Water NSW has proposed to maintain the MAQs at current levels, as shown in Table 9.3. These MAQs are the same as the "Water Allocation" each customer receives under Water NSW's Water Management Licence for the FRWS.[30]

Table 9.3 Water NSW's proposed Minimum Annual Quantities for the FRWS (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
Individual minor customers	0.2	0.2	0.2	0.2
Filtered water				
Lithgow Council	1,778	1,778	1,778	1,778
Individual minor customers	0.2	0.2	0.2	0.2

Note: Each individual minor customer has an 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 submission to IPART, July 2020.

30 FRWS customers' right to access water are defined in Schedule 3 of Water NSW's Water Management Licence for the Fish River. Licence number 10WM000004.

9.2.2 Usage forecasts

Water NSW forecasts water sales to each customer in the FRWS out to 2024-25 as shown in Table 9.4.

Table 9.4 Water NSW's proposed usage forecasts for the FRWS (ML)

	2021-22	2022-23	2023-24	2024-25
Raw water				
EnergyAustralia	1,884	1,884	1,884	1,884
Water NSW (Greater Sydney)	2,234	2,234	2,234	2,234
Oberon Council	686	686	686	686
Minor customers	51	51	51	51
Total raw water	**4,855**	**4,855**	**4,855**	**4,855**
Filtered water				
Lithgow Council	832	832	832	832
Minor customers	105	105	105	105
Total filtered water	**937**	**937**	**937**	**937**

Note: We forecast water usage for minor customers collectively.

Source: Water NSW updated Supplementary Information Return to IPART, November 2020.

We have decided to accept Water NSW's forecast water sales volumes as we consider its forecasting approach is reasonable given the uncertainty in future customer demand in the FRWS.

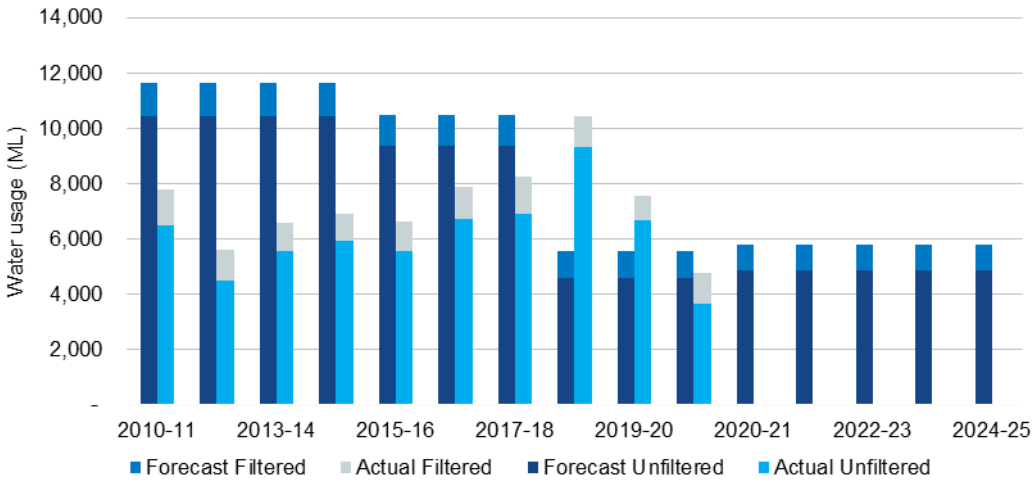
As shown in Figure 9.3, water sales in the FRWS are driven by unfiltered water customers. Overall sales in the FRWS are more consistent year to year than in other rural valleys because of the large concentration of urban and industrial customers.

However, the largest customer in the scheme, EnergyAustralia, has had somewhat inconsistent usage historically. This is in part because it can access sources of water outside of the FRWS, but also because of its closure of the Wallerawang Power Station in 2014.

In 2017, we set unfiltered water sales forecasts at a lower level as we anticipated that EnergyAustralia's water sales would remain low due to the plant closure. Subsequently, there was an unexpected and material increase in EnergyAustralia's usage over the 2017 determination period. In our 2019-20 annual review, we found there was a spike in actual annual water sales for 2017-18, up by 236.2% compared to 2016-17. On investigation, the customer indicated that the increase in water sales was not permanent.[lxv]

In 2018-19, the actual sales volumes declined by 24.9% compared to 2017-18, but actual volumes are still significantly higher than the 16-year historical rolling average used in the 2017 determination.[lxvi] This trend continued into 2019-20 as restrictions were brought in to manage low storage levels, making it somewhat harder to see the impact of the closure of Wallerawang Power Station on water sales. However, we consider it likely that there will be a sustained downwards shift in water usage as a result of closing Wallerawang Power Station.

Figure 9.3 Forecast and actual water sales in the FRWS (ML)



Data source: IPART analysis.

10 Bulk water charges

Summary of our draft decisions for Water NSW's bulk water charges

Bulk water charges would increase by an average of about 23% for entitlements charges, and 21% for usage charges

- We decided to maintain valley-based, two-part price structures and current fixed to variable ratios for MDB valleys and coastal valleys.
- Charges would increase the most in the Namoi (44.5%), Lachlan (44.2%) and Peel (38.7%) valleys.
- Prices in the North Coast and South Coast valleys would increase by inflation only.
- Price increases are mainly driven by increased operating costs, which have risen to support sustainable ongoing service delivery and regulatory functions.

Most Fish River charges would increase, by up to 31%

- We decided to generally maintain our current approach to setting prices for Fish River.

Most MDBA charges would increase (by up to 12%) whilst BRC charges would decrease slightly

- We decided to maintain separate MDBA and BRC charges and two-part price structures, with an 80:20 fixed to variable ratio.
- High security entitlement charges tend to increase whilst general security entitlement charges are decreasing due to changes in the high security premium.
- We seek feedback on whether stakeholders prefer a 40:60 ratio and volatility allowance.

This chapter sets out our draft decisions, and our reasons for them, on Water NSW's bulk water charges.

To make our draft decisions, we first considered the appropriate price structure for each charge. We then used our draft 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 users' share of the NRR (with the exception of the North Coast and South Coast valleys). In doing so, we considered our pricing principles (see Box 10.1), Water NSW's pricing proposal and stakeholder feedback in response to our Issues Paper.

We seek stakeholder feedback from relevant stakeholders on the price structure for MDBA and BRC charges and in general, encourage Water NSW to undertake further consultation with stakeholders on price structures.

Box 10.1 Our key pricing principles

We consider that prices should ideally be set to:

- recover sufficient revenue to cover the efficient costs of delivering the monopoly service (i.e. be based on full efficient cost recovery)
- reflect an impactor pays approach (i.e. those who create the need for the utility to incur the costs should pay for those costs)
- be cost-reflective so that they send appropriate price signals to customers – price structures should match cost structures, whereby:
  - Usage charges reference an appropriate estimate of marginal cost (i.e. the additional cost of supplying an additional unit of service) or the variable costs of providing the service)
  - fixed service charges recover the remaining costs (or the fixed costs of providing the service)
- be clear and transparent
- be easy to understand and administer
- consider customer preferences, impacts and affordability
- seek to ensure price stability and avoid bills shocks.

We note that in its June 2020 pricing proposal, Water NSW proposed setting prices for 2021-22 that would not recover its proposed costs, i.e. under-recovering proposed costs in 2021-22 by around $15 million (or 16%).[lxvii] However, the WCR, which we used to set prices for the Murray Darling Basin (MDB) valleys, do not allow for prices that do not recover efficient costs.

To make meaningful comparisons, we modelled what constant prices (across a four-year determination period) for each valley would be if Water NSW fully recovered its proposed costs over a four-year determination period. It is these modelled prices that we present in this report as "Water NSW's proposed" prices.

10.1 Water NSW's bulk water charges would increase by less than proposed

Water NSW currently levies a valley-based, two-part tariff for most valleys[31], comprised of:

- fixed charges per ML of entitlement, with different charges for:
  - high security (HS) entitlements
  - general security (GS) entitlements.[32]
- a variable usage charge per ML of usage.

We made draft decisions:

27 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.

28 To maintain the current two-part tariff structure and fixed to variable ratios for Water NSW's rural bulk water service charges for each of the MDB and coastal valleys (i.e. excluding Fish River) as set out in Table 10.1.

29 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.

30 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.

31 To set Water NSW's rural bulk water prices for MDB and coastal valleys for the 2021 determination period as specified in Table 10.2 for entitlement charges and Table 10.3 for usage charges.

10.1.1 We have set prices in MDB valleys based on full cost recovery

In its pricing proposal, Water NSW proposed setting prices for 2021-22 that would not fully recover its costs.[lxviii] However, the WCR does not allow us to set prices that do not recover efficient costs. In its submission to our Issues Paper, Water NSW revised its proposal to include prices for 2022-23, 2023-24 and 2024-25 based on a 'glide path', where prices are smoothed and gradually increase to fully recover Water NSW's costs by the end of the determination period.[lxix]

In its submission to our Issues Paper, PIAC supported full cost recovery. It considers that systemic under-recovery of efficient costs undermines sustainable water business management and in turn compromises good economic, social and environmental outcomes.[lxx]

31 The Lowbidgee valley has only supplementary licences that are charged fixed entitlement charges only.
32 The relationship between high security and general security entitlement charges is driven by the high security premium.

Most other stakeholders, including the NSWIC, Gwydir Valley Irrigators Association (GVIA) and Lachlan Valley Water did not oppose full cost recovery, but questioned the proposed increase in costs and prices.[lxxi] Tamworth Regional Council also considered that prices should take into account the capacity of licence holders to pay.[lxxii]

The WCR require us to set MDB valley prices 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 Murray-Darling Basin (MDB) valleys under the WCR, which require 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.[lxxiii] We must therefore set prices that fully recover Water NSW's costs for MDB valleys.

By contrast, we set prices for coastal valleys under the IPART Act, which provides more discretion when setting prices. In 2017, we set prices in both the North Coast and South Coast valleys that took into account customers' willingness and capacity to pay for services. We set prices in the North Coast and South Coast valleys well below what was required to recover Water NSW's costs. This was because there are too few customers in these valleys to recover Water NSW's costs, without far exceeding their ability to pay. As outlined below, we have decided to maintain this approach for the North Coast and South Coast valleys (see section 10.1.2).

10.1.2 We accept Water NSW's proposed price structures for bulk water charges

Water NSW proposed to broadly maintain existing price structures, including to maintain:

- valley-based prices
- the two-part tariff structure – (i.e. a fixed and usage 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.[lxxiv]

We consider that valley-based pricing remains appropriate

In submissions to our Issues Paper, stakeholders generally supported (or did not oppose) a valley-based pricing approach,[lxxv] with the exception of Tamworth Regional Council. It proposed postage stamp pricing, or alternatively merging the Peel and Namoi valleys for pricing purposes.[33, lxxvi] Namoi Water did not support this proposal.[lxxvii]

We consider that maintaining the current approach of setting valley-based prices is consistent with our pricing principles. That is, it is more cost-reflective, sends stronger price signals to customers and is more transparent than an aggregated approach, such as postage stamp pricing.

Water NSW's capital costs (which are generally location-specific) are attributed directly to the relevant valley, whilst its operating costs appear to be allocated to the different valleys based on various assumptions. Under valley-based pricing, we:

- calculate the full efficient costs, or notional revenue requirement (NRR) for each valley
- set the prices in each valley to match the share of efficient costs required to serve users, and to fully recover Water NSW's costs in each valley.

To set cost-reflective prices, we use forecasts of entitlement and water sales (or take) volumes to calculate prices that recover water customers' share of the NRR for each valley.

We consider that the current approach remains appropriate because it achieves a reasonable level of valley-based pricing, given there is some inherent uncertainty surrounding the cost allocation process. We consider that valley-based pricing:

- reflects an impactor pays approach, as those who create the need for Water NSW to incur costs in the relevant valley 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)
- enhances transparency and accountability
- is easy to understand and administer.

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 for these valleys are location-specific, and so postage stamp pricing would result in cross-subsidisation between valleys. Postage stamp pricing is also not consistent with the National Water Initiative (NWI) Pricing Principles.[lxxviii] We consider that valley-based pricing remains appropriate as it is more cost-reflective, sends stronger price signals to customers and is more transparent than postage-stamp pricing.

33 Under postage stamp pricing, costs are spread across all customers, who would pay the same price, irrespective of the valley.

We consider that a 40:60 fixed to variable ratio remains appropriate for most valleys

Water NSW proposed that, in line with previous feedback received from customers, the current approach (adopted in previous pricing determinations) to fixed and variable allocations be maintained. It proposed maintaining its current

- 60:40 fixed to variable split of charges for the Hunter valley
- 80:20 split for the Peel valley and South Coast valley
- 90:10 split for the North Coast valley
- 100:0 split for the Lowbidgee valley
- 80:20 split for Fish River
- 40:60 split for all other valleys.[lxxix]

We have made a draft decision to maintain the current two-part tariff structure and fixed to variable ratios for Water NSW's rural bulk water service charges for each of the MDB and coastal valleys (i.e. excluding Fish River) as set out in Table 10.1.

Table 10.1 Draft decision on fixed to variable ratios and HS premiums

Valley	Fixed to variable ratio		HS premium[b]	
	2017 Determination	Draft decision	2017 Determination	Draft decision
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 High security entitlement charges are calculated by multiplying the general security entitlement charge by the HS premium.

Source: Water NSW pricing proposal to IPART, June 2020, pp 126-130 and IPART analysis.

In submissions to our Issues Paper, most stakeholders supported the current price structures and fixed to variable ratios. Stakeholders generally indicated that they prefer the lower proportion of fixed charges and higher proportion of variable charges as this gives them greater control in responding to water conditions and requirements. Some stakeholders were concerned that higher fixed charges would have potential cost implications for water users, particularly in times of reduced or zero allocations.[lxxx]

Tamworth Regional Council indicated a preference for a 40:60 fixed to variable split for the Peel valley and does not support the current 80:20 split. It considers that the 80:20 split has led to the Council, as the largest entitlement holder in the Peel valley, directly subsidising the general security licence holders.[lxxxi]

PVWUA noted that in Peel valley stakeholders "went through years of excruciating negotiations" to achieve an appropriate mix of fixed to variable charges in previous reviews. It is unaware of any proposal to change the current ratio in the Peel valley, which was set to 80:20 under the 2017 Determination.[lxxxii]

Some stakeholders also suggested Water NSW should more actively engage with its customers on the appropriate mix of fixed and variable charges. They consider this would allow consideration, at an individual valley level, of whether the fixed to variable charge ratio should change.[lxxxiii]

Water NSW could undertake scenario modelling to demonstrate the impact of adjusting the fixed to variable ratio by valley (including consideration of the impacts on the volatility allowance and its impact on prices). We consider that this could facilitate discussion between Water NSW and its customers of the potential trade-off between a higher proportion of revenue tied to usage charges and the cost of a revenue volatility allowance.

The volatility allowance balances revenue risk due to Water NSW's 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, affordability and the allocation of risk, and ensure that price structures are transparent.

In 2017, we introduced a volatility allowance in the form of a risk transfer product (RTP) to compensate Water NSW for risk arising from the mismatch between water sales and its cost structure. The costs associated with the volatility allowance only applied to valleys where the fixed to variable ratio was less than 80:20.

We maintain the position we reached in our 2017 price review, that:

- an 80:20 ratio remains appropriate for most valleys
- in valleys where the ratio is lower than 80:20 that a volatility allowance/RTP, that mimics an 80:20 split, is reasonable.[lxxxiv]

We have decided to maintain the current two-part tariffs and fixed to variable ratios (as proposed by Water NSW[lxxxv]) 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. This is an on-balance decision based on the following factors:

- customers generally prefer a lower proportion of fixed charges and higher proportion of variable charges
- a two-part tariff:
  - gives some conservation signal to water users
  - provides some recognition that, at certain thresholds, bulk water costs may be positively related to usage
- the volatility allowance/RTP 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).

We consider that an 80:20 fixed to variable ratio remains appropriate for the Peel valley

We recognise Tamworth Regional Council's preference for a 40:60 fixed to variable ratio, but do not support adjusting the ratio as this would shift the cost of Tamworth Regional Council's high security entitlements on to general security entitlement holders in the Peel valley. Tamworth Regional Council only uses a very small portion of its full entitlements (which are all high security entitlements).

We consider that if a customer maintains high security entitlements for future use and/or water security purposes, the cost of this should be borne by that customer. We consider that this is more cost-reflective and in line with the impactor pays principle than these costs 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 Tamworth Regional Council holding excess unused high security entitlements on to active general security customers in the Peel valley) and bring the level of prices in line with the charge in other MDB valleys.[lxxxvi]

We consider that adopting a more cost-reflective 80:20 price structure under the 2017 Determination, which resulted in the usage price in the Peel valley decreasing from $58.26 per ML in 2017-18 (the highest amongst all valleys) to $18.36 from 1 July 2018 onwards (in $2016-17), remains appropriate.[lxxxvii] We consider that it better allocates the costs of Tamworth Regional Council holding excess entitlements to those who create the need for Water NSW's costs to be incurred, and achieves a lower usage charge for Peel valley water users.

We consider the current 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.

We consider it appropriate to maintain the existing approach to calculating the HS premium on the basis that the combination of the two factors is aimed at addressing both the security and reliability of water supply from holding HS over GS entitlements. Specifically:

- the 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.

Water NSW proposed maintaining the security factors, but proposed updating the reliability ratios based on the latest 20-years of allocations data.[lxxxviii]

We accept Water NSW's proposal to maintain the security factors and update the reliability ratios, resulting in the HS premiums presented in Table 10.1.

Prices in the North Coast and South Coast valleys would increase by inflation only

We set prices for coastal valleys under the IPART Act, so we have more discretion in setting prices that are over or under cost-recovery.

Full cost recovery prices in the North Coast and South Coast valleys are substantially higher than other valleys. This is due to a number of factors including that these two valleys have:

- the fewest customers of all of Water NSW's valleys
- the lowest volume of entitlements and average annual water usage
- a low level of extractions relative to the volume of entitlements, suggesting significant under-utilisation of entitlements by licence holders (in the North Coast valley in particular)
- relatively small dams, with a higher cost per unit of storage capacity.

In 2017, we set prices in the North Coast and South Coast valleys below full cost recovery.[34] Prior to 2017, customer numbers and average water sales in the North Coast and South Coast valleys were in decline. This suggested that prices may have been approaching customers' capacity to pay in these valleys.

For these valleys, we set prices 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.[35] We developed this approach in consultation with Water NSW and stakeholders in the North Coast and South Coast valleys.

34 We set prices to recover about 10% of costs for the North Coast, and about 38% of costs for the South Coast.

35 We rebalanced the ratios from 40:60 to 90:10 for the North Coast, and from 40:60 to 80:20 for the South Coast.

Water NSW has proposed to hold charges constant (increasing them each year by inflation only) in the North Coast and South Coast valleys over the 2021 determination period.[lxxxix]

Most stakeholders that commented on prices in these valleys support the current pricing approach and Water NSW's proposal to maintain the current level of charges.[xc]

However, in its submission to our Issues Paper, PIAC suggested that prices in the North Coast and South Coast valleys should be reconsidered. It commented that intentional under-recovery of costs is not sustainable, and suggested writing down the value of storage and delivery assets in these valleys. It also suggested that the real value of water storage infrastructure in these valleys should be assessed according to demand.[xci] We note that our approach to pricing in the North Coast and South Coast valleys more or less has the same outcome as writing down assets. We also recognise that under the current approach, these valleys are continuing to move further away from full cost recovery.

Some stakeholders also suggested there has been increased usage and activation of dormant licences as a result of our 2017 pricing decisions and increased price stability.[xcii]

The current 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 reaching 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. This is because if prices were increased to reflect costs, some customers' capacity to pay may be exceeded which would result in reduced demand for rural bulk water services. This would result in reduced revenue and cost recovery. In both valleys, there are too few customers, relative to the size of the asset base to recover costs, without exceeding customers' capacity to pay.

We also consider that current fixed to variable ratios remain appropriate given that they 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, would result in an under-recovery of costs in these valleys by about $1.8 million per year. This is about 19% higher than the 2017 determination period, with recovery of costs moving from 10% to 9% for the North Coast, and 38% to 33% for the South Coast.[xciii] This is because costs, in particular operating costs, in these valleys are increasing by 39% and 23% respectively. Given the low level of cost recovery in these valleys, we consider that Water NSW should prioritise reducing costs in the North Coast and South Coast valleys.

We also note that water usage in the North Coast and South Coast valleys has increased over recent years. Between the two periods 2009-17 and 2017-19, usage has increased by 148% for the North Coast and 117% for the South Coast. There is some indication that our decision to reduce usage prices may have had a positive impact on usage in these valleys. However, there are a number of other factors that may have also contributed to this increase in usage, such as rainfall levels. We will undertake further data collection and analysis over time in order to better understand the effects of our 2017 pricing decisions on usage in these valleys.

10.1.3 Bulk water entitlement charges would increase by up to 76%

We have made our draft decision on prices for bulk water entitlement charges as set out in Table 10.2. Under our draft decisions on Water NSW's prices:

- HS entitlement charges increase substantially over the determination period in most valleys, in particular in the Namoi (44.5%), Lachlan (44.2%) and Peel (38.7%) valleys. However, prices increase by less than those proposed by Water NSW.
- GS entitlement charges increase substantially over the determination period in most valleys, in particular in the Lowbidgee (76.2%), Peel (35.8%) and Hunter (34.6%) valleys. However, prices increase by less than those proposed by Water NSW. The increases in most valleys are mainly due to increased operating expenditure.

Table 10.2 Draft decision on bulk water entitlement prices ($/ML, $2021-22)

Valley	Current 2020-21 ($2020-21)	Proposed 2021 Determination	Draft decision 2021 Determination	Change current to proposed	Change current to draft decision
High security entitlement charge					
Border	$5.74	$7.47	$6.42	30.1%	11.8%
Gwydir	$11.93	$19.70	$16.28	65.1%	36.5%
Namoi	$18.40	$30.18	$26.58	64.0%	44.5%
Peel	$44.77	$64.39	$62.08	43.8%	38.7%
Lachlan	$16.56	$27.31	$23.88	64.9%	44.2%
Macquarie	$14.55	$21.96	$19.23	50.9%	32.2%
Murray	$1.66	$2.28	$2.12	37.3%	27.7%
Murrumbidgee	$3.18	$4.21	$3.88	32.4%	22.0%
Lowbidgee[a]	N/A	N/A	N/A	N/A	N/A
North Coast	$12.69	$13.01	$12.99	2.5%	2.4%
Hunter	$14.15	$20.41	$19.02	44.2%	34.4%
South Coast	$33.19	$34.02	$34.03	2.5%	2.5%
General security entitlement charge					
Border	$2.13	$2.74	$2.35	28.6%	10.3%
Gwydir	$3.75	$4.57	$3.78	21.9%	0.8%
Namoi	$8.58	$10.53	$9.28	22.7%	8.2%
Peel	$4.33	$6.10	$5.88	40.9%	35.8%
Lachlan	$2.94	$4.04	$3.53	37.4%	20.1%
Macquarie	$3.07	$4.29	$3.76	39.7%	22.5%
Murray	$0.81	$1.00	$0.93	23.5%	14.8%
Murrumbidgee	$1.19	$1.45	$1.33	21.8%	11.8%
Lowbidgee[a]	$0.84	$1.72	$1.48	104.8%	76.2%
North Coast	$9.83	$10.08	$10.08	2.5%	2.5%
Hunter	$10.98	$15.85	$14.78	44.4%	34.6%
South Coast	$17.41	$17.85	$17.85	2.5%	2.5%

a Lowbidgee has only supplementary licences.

Note: Excludes MDBA/BRC costs.

Source: Water NSW pricing proposal to IPART, June 2020, pp 131-133, and IPART analysis.

10.1.4 Bulk water usage charges would increase by up to 38%

We have made our draft decision on prices for bulk water entitlement charges as set out in Table 10.3.

Under our draft prices, usage charges increase substantially over the determination period in most valleys, in particular in the Lachlan (37.8%), Hunter (36.6%) and Macquarie (29.9%) valleys. However, prices increase by less than those proposed by Water NSW. The increases are mainly due to increased costs (principally operating expenditure) and lower forecast usage volumes.

Table 10.3 Draft decision on bulk water usage prices ($/ML, $2021-22)

Valley	Current 2020-21 ($2020-21)	Proposed 2021 Determination	Draft decision 2021 Determination	Change current to proposed	Change current to draft decision
Usage charge					
Border	$5.86	$7.56	$6.48	29.0%	10.6%
Gwydir	$12.79	$17.86	$14.82	39.6%	15.9%
Namoi	$21.52	$29.63	$26.17	37.7%	21.6%
Peel	$19.78	$25.59	$24.68	29.4%	24.8%
Lachlan	$20.51	$32.26	$28.26	57.3%	37.8%
Macquarie	$14.84	$21.95	$19.27	47.9%	29.9%
Murray	$2.06	$2.85	$2.65	38.3%	28.6%
Murrumbidgee	$3.57	$4.84	$4.44	35.6%	24.4%
Lowbidgee[a]	N/A	N/A	N/A	N/A	N/A
North Coast	$18.77	$19.24	$19.24	2.5%	2.5%
Hunter	$13.60	$19.94	$18.58	46.6%	36.6%
South Coast	$18.60	$19.07	$19.07	2.5%	2.5%

a Lowbidgee has only supplementary licences.

Note: Excludes MDBA/BRC costs.

Source: Water NSW pricing proposal to IPART, June 2020, pp 131-133, and IPART analysis.

10.2 Fish River charges would increase by up to 31% for major customers

The Fish River Water Supply Scheme (FRWS) provides water to customers in the Central Tablelands region.

We made draft decisions:

32 To maintain the current approach to setting prices for the Fish River Water Supply Scheme.

33 To set Water NSW's rural bulk water prices for the Fish River Water Supply Scheme for the 2021 Determination period as specified in Table 10.4.

We have set different prices for filtered and unfiltered water customers in the scheme, consistent with previous determinations.

We have also maintained a two-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 customers fixed charge and their first-tier usage charge.

Importantly, we have decided to set filtered water usage prices in the FRWS with regard to the short-run marginal cost (SRMC) of supply. We have 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.

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.

Water NSW manages the FRWS under an unusual licensing framework. Instead of end use customers holding Water Access Licences like in other valleys, Water NSW holds a special Water Manage Licence which defines the minimum amount of water each customer is entitled to access. We use these volumes for determining MAQs and allocating fixed charges.

Currently, four customers receive the majority of water supplied from the FRWS:

- EnergyAustralia, for the Mt Piper Power Station
- Water NSW Greater Sydney for urban supplies in the Blue Mountains
- Lithgow City Council (LCC) for urban supplies in Lithgow and a number of 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 which make up the scheme. Minor customers make up around 3% of water usage in the FRWS.

Most water supplied through the FRWS is unfiltered. 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.

10.2.2 We have set different prices 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.[xciv] While we consider this remains appropriate for unfiltered prices, we have decided that SRMC is a more appropriate basis to set filtered water prices.

SRMC pricing reflects the additional cost of water treatment

Water NSW's costs for providing unfiltered water do not change significantly as it increases the volume of water it sells. This is because the majority of its costs, such as infrastructure, labour and maintenance are required regardless of the amount of water it sells. However, for treated water, the cost of supplying water increases with usage because Water NSW needs to pay for chemicals and electricity to treat each additional unit of water.

SRMC pricing sets the water usage price with reference to the estimated cost of Water NSW supplying an extra unit of treated water above what it currently produces; this is called the marginal cost. By paying the marginal cost, Water NSW's treated water customers receive a signal of the additional costs created by their usage.

SRMC pricing reduces perverse pricing incentives

We consider the current filtered water usage charge is likely to be below Water NSW's SRMC of delivering the water to LCC, and therefore under recovering on every unit of water it delivers to LCC. This provides perverse incentives for:

- LCC to purchase as much water as possible from Water NSW
- Water NSW to minimise the amount of water provided.

By setting the filtered water usage price in the FRWS with reference to SRMC it should theoretically make Water NSW indifferent to the amount of water it provides to LCC. This is because it will be able to recover only its fixed costs through fixed charges, where it currently recovers more than its fixed costs.

In addition, as a result of high fixed charges, LCC undertook a policy during the 2017 determination period of maximising its water take from the FRWS to maximise the benefit it receives from its fixed charges. This "use it or lose it" approach led to it accessing water from the FRWS even when it would be cheaper to access alternative water sources. SRMC pricing will reduce the incentive to maximise water take.

A high ratio of fixed charges remain appropriate for unfiltered water customers

Power station operator, EnergyAustralia holds about 55% of the MAQ "entitlements" in the FRWS. Therefore it pays around half of the total fixed charges in the scheme.

In 2017 we increased the share of revenue coming from fixed charges across all customers in the FRWS from approximately 56% to 80%.[xcv] This was a direct response to EnergyAustralia's decision to close the Wallerawang Power Station in 2015.

Closing Wallerawang Power Station permanently reduced the amount of water Energy Australia purchased from the FRWS by around a half.

At the time we considered that if we maintained an even mix of fixed and variable charges, a large portion of the fixed costs for making water available to EnergyAustralia, which it had previously paid for through usage charges, would be shifted onto other customers' usage charges over the long-term. We did not consider this was fair to other FRWS customers.

For this review we consider maintaining a higher fixed charges in this review means EnergyAustralia continues to pay a more reflective proportion of the costs it causes Water NSW to incur, consistent with the impactor pays principle.

10.2.3 Our process for determining prices for FRWS involves four steps

We set prices for the FRWS through a four-step process:

1. Allocate Water NSW's target revenue from the FRWS between filtered and unfiltered water customers at the same proportions as in the 2017 review.
2. Calculate the fixed and usage prices to recover unfiltered customers share of FRWS costs based on the current 80% fixed 20% variable ratio.
3. Calculate the usage price for filtered water customers based on our estimate of SRMC.
4. Calculate the fixed charge for filtered water customers to recover the remainder of the filtered water customers' share of target revenue.

We decided to maintain the current revenue shares for filtered and unfiltered customers

Because prices for filtered water in the FRWS are higher than for unfiltered water, filtered customers pay a proportionally larger share of Water NSW's total costs in the FRWS. We consider that this is reasonable as filtered water customers create the need for Water NSW to incur water treatment costs which do not impact other customers.

We have decided to maintain the relative proportions of revenue from filtered and unfiltered customers over the 2017 determination period. Therefore we will set prices so 20.1% of Water NSW's target revenue will be recovered from filtered water customers and 79.9% from unfiltered customers.

Table 10.4 Water NSW target revenue for Fish River ($2020-21)

	Target revenue over the 2017 determination period ($ millions)	Proportion of target revenue over 2017 determination period %	Proportion of total MAQ %	Proportion of 2021-22 to 2024-25 water sales forecast %
Filtered	6.3	20.1%	12.4%	10.3%
Unfiltered	24.8	79.9%	87.6%	89.7%

Source: IPART analysis.

We note, however, that it is not transparent how these costs were allocated between filtered and unfiltered customers in the past. We consider that in the future Water NSW should better understand its short-run and long-run cost drivers in the FRWS and the relative impacts of filtered and untreated customers on these costs. We understand Water NSW does not currently have the required information to quantify these drivers.

We estimated the SRMC for filtered customers as the unfiltered price plus incremental chemical costs

In order to estimate the SRMC we engaged with Water NSW to better understand its incremental costs for water treatment and transport in the FRWS. We considered a number of factors which contribute to marginal cost estimates in other catchments. However we considered only chemicals contributed meaningfully to SRMC, as discussed in Table 10.5.

We also included an estimate of Water NSW's incremental raw water management costs. We estimated this using the water usage price for unfiltered customers in the FRWS. We calculated the SRMC for treated water using the formula:

$$SRMC = Usage\ Charge\ for\ untreated\ water + Incremental\ chemical\ costs$$

Table 10.5 SRMC estimate for treated water in the FRWS ($2020-21)

Factor	Estimated incremental cost $/kL	Comment
Baseline incremental costs	$0.31	We consider that as a starting benchmark that 20% of Water NSW's bulk water management costs are variable. For FRWS we have estimated these costs using the usage charge for unfiltered water. This reflects that treated and untreated assets require similar variable cost inputs such as energy.
Chemicals	$0.20	Filtered water in the FRWS requires considerable chlorine dosing, both because of variable raw water quality at the Duckmaloi plant and the large chlorine residuals required to maintain water quality along the 42 km pipeline to Lithgow. Water NSW also has some small additional costs for fluoridation. To estimate these costs we assumed that the marginal cost of the chemicals to treat an additional unit of water was equal to Water NSW's average chemical costs in 2018-19 divided by the amount of water supplied.
Pumping electricity	Nil	FRWS is gravity feed along its length and does not require significant pumping.
Treatment plant electricity	Nil	Duckmaloi water treatment plant uses gravity pressurised filtration trains so plant electricity is not impacted by throughput.
Other treatment plant consumables	Nil	The replacement timeline of filtration membranes and other consumables is not impacted by plant throughput.
Future capital constraints	Nil	Although capacity constraints exist in the FRWS due to poor pipeline condition, Water NSW does not plan to undertake considerable capital works in the scheme to address these constraints.
Total	**$0.51**	

Source: Water NSW, response to IPART request for information, December 2020. Personal communication with Water NSW and Lithgow City Council, December 2020.

10.2.4 We propose to maintain the current two-tier usage charge in the FRWS

Water NSW has 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. We consider this is reasonable as the base fixed and usage charges are designed to recover each customer's relative contribution to the need for Water NSW to incur costs, as determined by their MAQ.

We consider that 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. We give a description of the basis of MAQs and its relation to Water NSW's fixed costs in Box 9.1.

We have maintained the current approach of setting the excess usage charge as the sum of a customer's fixed and usage charges, as this reflects the full average cost of supplying a unit of water to the customer.

10.2.5 Fish River charges increase for most customers over the 2021 determination period

We have made our draft decision on prices for bulk water entitlement charges as set out in Table 10.6.

Raw water charges would increase by up to 19%

Under our draft prices:

- Major customers (EnergyAustralia, Sydney Catchment Authority, and Oberon Council) and minor individual customers would continue to pay the same unit prices.
- Customers' prices would increase by 9.5% for fixed MAQ charges, by 19.2% for usage up to the MAQ and by 13.2% for usage above the MAQ, compared to current prices. This is driven by increased operating costs over the 2021 period.

Filtered water charges would generally increase by up to 31%

Under our draft prices:

- Major customers' (Lithgow City Council) prices would increase by 11.8% for fixed MAQ charges, by up to 30.8% for usage up to the MAQ and by 18.7% for usage above the MAQ, compared to current prices. This is because of higher costs, and our price-setting approach for filtered water.
  - We set the bulk raw water charge, and add the marginal cost of treatment for filtered water.
- Minor customers' prices would decrease by 7.3% for fixed MAQ charges, increase by up to 2% for usage up to the MAQ and decrease by 3.8% for usage above the MAQ, compared to current prices. 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 major customers than for minor customers.

Table 10.6 Draft decision on prices for FRWS ($/kL, $2021-22)

	Current 2020-21 ($2020-21)	Proposed 2021 Determination	Draft decision 2021 Determination	Change current to proposed	Change current to draft decision
Bulk raw water					
Minimum Annual Quantity (MAQ) ($/kL)					
▼ Major Customers	$0.42	$0.50	$0.46	19.0%	9.5%
▼ Minor Customers (annual bill)	$84.00	$100.00	$92.00	19.0%	9.5%
Usage up to MAQ ($/kL)					
▼ Major Customers	$0.26	$0.19	$0.31	-26.9%	19.2%
▼ Minor Customers	$0.26	$0.19	$0.31	-26.9%	19.2%
Usage in excess of MAQ ($/kL)					
▼ Major Customers	$0.68	$0.69	$0.77	1.5%	13.2%
▼ Minor Customers	$0.68	$0.69	$0.77	1.5%	13.2%
Bulk filtered water					
Minimum Annual Quantity (MAQ) ($/kL)					
▼ Major Customers	$0.68	$0.81	$0.76	19.1%	11.8%
▼ Minor Customers (annual bill)	$164.00	$194.00	$152.00	18.3%	-7.3%
Usage up to MAQ ($/kL)					
▼ Major Customers	$0.39	$0.30	$0.51	-23.1%	30.8%
▼ Minor Customers	$0.50	$0.38	$0.51	-24.0%	2.0%
Usage in excess of MAQ ($/kL)					
▼ Major Customers	$1.07	$1.11	$1.27	3.7%	18.7%
▼ Minor Customers	$1.32	$1.35	$1.27	2.3%	-3.8%

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

10.3 MDBA charges would generally increase, whilst BRC charges decrease

For the Murray, Murrumbidgee and Border valleys, we set MDBA and BRC charges as a two-part tariff consisting of:

- fixed charges per ML of entitlement, with different charges for:
  - high security entitlements
  - general security entitlements
- a variable 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, the charges were passed through to customers in the Murray, Murrumbidgee and Border valleys with a 40:60 fixed to variable ratio (with a UOM to mimic a 100% fixed price structure).[xcvi]

We made draft decisions:

34 To maintain the current valley-based two-part tariff structure and fixed to variable ratio of 80:20 for MDBA and BRC charges in the Murray, Murrumbidgee and Border valleys.

35 To apply the same High Security Premiums to these charges as for Water NSW's bulk water charges (as shown in Table 10.7).

36 To set Water NSW's MDBA and BRC charges for the 2021 determination period as specified in Table 10.8 for entitlement charges and Table 10.9 for usage charges.

37 To seek feedback via this Draft Report on whether stakeholders in the Murray, Murrumbidgee and Border valleys would prefer MDBA and BRC charges to have:

- the current 80:20 fixed to variable ratio, or
- a 40:60 fixed to variable ratio and the cost of a risk transfer product to compensate Water NSW for its increased revenue volatility risk (consistent with our approach when setting Water NSW's rural bulk water price structures to fixed levels below 80%).

10.3.1 We accept Water NSW's proposed price structure for MDBA and BRC charges

Water NSW has 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.[xcvii]

In its submission to our Issues Paper, Murray Irrigation proposed a price structure for MDBA charges with a lower proportion of fixed charges. It suggested a 40:60 fixed to variable ratio. It considered that an 80:20 fixed to variable ratio is "punishing for a drought vulnerable, variable use customer" and does not share volatility risk equitably between Water NSW and its customers.[xcviii]

We consider that the current 80:20 fixed to variable split for MDBA and BRC remains appropriate, but we seek wider feedback on whether stakeholders would prefer a 40:60 split (with a RTP) for MDBA and BRC charges. This is an on-balance decision based on the following factors:

- In the 2017 Determination for Water NSW's rural bulk water services, MDBA noted that its cost structure is essentially fixed.[xcix] We consider that an 80:20 price structure is relatively reflective of the underlying cost structure.
- The risk sharing between customers and Water NSW associated with an 80:20 fixed to variable 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. In comparison, a 100% fixed price structure for MDBA/BRC charges would result in all revenue risk being transferred from Water NSW to customers.
- We recognise feedback from Murray Irrigation Limited indicating a preference amongst some Murray valley stakeholders for a 40:60 fixed to variable ratio for MDBA charges in this valley. This would result in the fixed to variable ratio for MDBA charges matching the ratio for bulk water charges in this valley. However, the price structure for MDBA charges would no longer reflect the cost structure (which is mostly fixed). Unlike bulk water charges, there is currently no volatility allowance/RTP associated with MDBA or BRC charges to compensate Water NSW for increased revenue volatility risk associated with the lower proportion of fixed charges.
- Consistent with how we treat Water NSW's rural bulk water charges, to accommodate stakeholder preferences, a volatility allowance/RTP could be applied to MDBA/BRC charges to balance the revenue volatility risk associated with a 40:60 fixed to variable ratio. This would allow the ratio to be adjusted (matching it to the price structure and ratio for bulk water charges for these valleys) whilst providing Water NSW with some revenue stability.
- This approach is also consistent with how we have set MDBA and BRC charges in the WAMC price review, and our approach to setting prices structures for Water NSW's rural bulk water charges.

We would like to better understand stakeholders' willingness to make the trade-off involved in moving to a 40:60 fixed to variable ratio. Table 10.8 and Table 10.9 present MDBA and BRC charges under:

- our draft decision with an 80:20 fixed to variable ratio
- an alternative scenario with a 40:60 fixed to variable ratio and a volatility allowance.

We seek feedback on:

1 Whether stakeholders in the Murray, Murrumbidgee and Border valleys would prefer MDBA charges in these valleys to have:

   – an 80:20 fixed to variable ratio, or

   – a 40:60 with a volatility allowance/RTP to compensate Water NSW for its increased revenue volatility risk, noting that the trade-off associated with having a lower proportion of fixed charges and higher proportion of variable charges is the cost of a revenue volatility allowance.

We applied the same HS premium to bulk water charges and MDBA/BRC charges

As outlined in section 10.1.2, we consider it appropriate to maintain the existing approach to calculating the HS premium. As in 2017 determination period, we have applied the same HS premium to MDBA and BRC charges as for bulk water charges.[c] As for bulk water charges, we have used the updated reliability ratios used in calculating the HS premium.

Table 10.7 Draft 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	Draft decision	2017 Determination	Draft decision
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 Most MDBA charges would increase by less than proposed, whilst BRC charges decrease

Our draft MDBA and BRC charges are presented in comparison to Water NSW's proposed prices in Table 10.8 and Table 10.9.

Under our draft prices:

- HS entitlement charges would increase for MDBA charges in the Murray (11.1%) and Murrumbidgee (8.1%) valleys. However, these prices increase by less than those proposed by Water NSW. This is mainly due to increases to the high security premium. BRC HS entitlement charges would decrease by 1.4%.
- GS entitlement charges would decrease for MDBA charges for Murrumbidgee (by 1.5%) and BRC charges by 3.2%, and would not change for the Murray valley. This is mainly due to the increases in the high security premium which shifts costs from GS entitlement holder to HS entitlement holders.

Table 10.8 Draft decision on MDBA/BRC entitlement prices ($/ML, $2021-22)

Valley	Current 2020-21 ($2020-21)	Proposed 2021 Determination	Draft decision 2021 Determination	Change current to proposed	Change current to draft decision
80:20 fixed to variable ratio – draft decision					
High security entitlement charge					
Border	$4.97	$8.60	$4.90	73.0%	-1.4%
Murray	$7.83	$12.82	$8.70	63.7%	11.1%
Murrumbidgee	$1.73	$2.78	$1.87	60.7%	8.1%
General security entitlement charge					
Border	$1.85	$3.15	$1.79	70.3%	-3.2%
Murray	$3.83	$5.65	$3.83	47.5%	0.0%
Murrumbidgee	$0.65	$0.95	$0.64	46.2%	-1.5%
40:60 fixed to variable ratio with volatility allowance – alternative for consultation only					
High security entitlement charge					
Border	N/A	N/A	$2.53	N/A	-49.1%
Murray	N/A	N/A	$4.58	N/A	-41.5%
Murrumbidgee	N/A	N/A	$0.98	N/A	-43.4%
General security entitlement charge					
Border	N/A	N/A	$0.93	N/A	-49.7%
Murray	N/A	N/A	$2.02	N/A	-47.3%
Murrumbidgee	N/A	N/A	$0.34	N/A	-47.7%

Source: IPART analysis.

10.3.3 BRC usage charges would decrease, whilst MDBA charges would increase

Under our draft prices, usage charges:

- decrease slightly compared to current prices for the Border valley (by 2.4%)
- increase for the Murray (by 12.4%) and Murrumbidgee (by 9.1%) valleys, but by substantially less than those proposed by Water NSW.

Table 10.9 Draft decision on MDBA/BRC usage prices ($/ML, $2021-22)

Valley	Current 2020-21 ($2020-21)	Proposed 2021 Determination	Draft decision 2021 Determination	Change current to proposed	Change current to draft decision
80:20 fixed to variable ratio – draft decision					
Border	$0.84	$1.45	$0.82	72.6%	-2.4%
Murray	$1.61	$2.67	$1.81	65.8%	12.4%
Murrumbidgee	$0.33	$0.52	$0.36	57.6%	9.1%
40:60 fixed to variable ratio with volatility allowance – alternative for consultation only					
Border	N/A	N/A	$2.55	N/A	203.6%
Murray	N/A	N/A	$5.72	N/A	255.3%
Murrumbidgee	N/A	N/A	$1.12	N/A	239.4%

Source: IPART analysis.

Under a 40:60 fixed to variable scenario, usage prices would be much higher

In Table 10.8 and Table 10.9, we have also presented what prices would be if we were to set the fixed to variable ratio for MDBA/BRC to 40:60 with a volatility allowance/RTP compared with maintaining the current 80:20 ratio.

Under the 40:60 fixed to variable ratio with RTP alternative scenario:

- entitlement charges would be substantially lower (by up to 50% for Border) as a lower proportion of costs would be recovered by entitlement charges
- usage charges would be substantially higher (by up to 255% for Murray) because a higher proportion of costs would be recovered by usage charges.

10.4 We have decided to exempt floodplain harvesting licences from charges

We have made a decision:

38 To exempt floodplain harvesting licences from Water NSW rural infrastructure charges.

Floodplain harvesting involves retaining water which enters a floodplain on a land-owners property. The *Water Management Act 2000* creates a framework for issuing Water Access Licences for floodplain harvesting, however no licences have currently been issued.

The NSW Government has 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).

IPART considers that because floodplain harvesting occurs on private land and does not require Water NSW to store or deliver water to a licence holder, they are not an impactor to Water NSW's infrastructure costs. We therefore consider Water NSW should not levy charges on holders of Floodplain Harvesting Access Licences.[36]

36 We still consider flood plain users contribute to water management costs including licencing, planning and compliance. We have therefore included them in our prices for WAMC customers.

11 Other and miscellaneous charges

Summary of our draft decisions for Water NSW's other and miscellaneous charges

The Yanco Creek levy would increase by inflation only

We decided to maintain the current levy of $0.90 per ML of entitlement, subject to stakeholder consultation.

Miscellaneous charges would increase by inflation

- These include:
  - metering accuracy testing charges
  - a trade processing charge
  - the environmental gauging station charge
  - FRWS connection and disconnection fees.
- We decided to maintain our current approaches for setting these charges.

This chapter sets out our draft decisions, and our reasons for them, on the Yanco Creek levy and a range of miscellaneous charges.

11.1 We have maintained the Yanco Creek Levy at $0.90/ML of entitlement

We made a draft decision:

39 To set a maximum per annum Yanco Creek levy of $0.90 per ML of entitlement for users in the Yanco Creek system, held constant in real terms.

The Yanco Creek natural resources management levy (Yanco Creek levy) was first approved by IPART in our 2005 Determination and has been maintained in each subsequent review.[37] We maintained the change at $0.90 per ML of entitlement in our 2017 Determination.[ci]

The levy applies to customers in the Yanco Creek system and is intended to fund the rehabilitation of the Yanco Columbo system, to improve flows and provide water efficiencies for the system and Murrumbidgee valley.

Water NSW's pricing proposal included the Yanco Creek levy, maintained at its historical level of $0.90 per ML, for entitlement holders in the Yanco Creek system. During our review we met with The Yanco Creek and Tributaries Advisory Council (YACTAC), who administer the scheme on behalf of Water NSW.

37 Including the ACCC's 2014 Decision, on the basis that it was endorsed by Yanco Creek customers and there was no change (in nominal terms) to the level of the charge.

In response to meetings with YACTAC, they submitted financial information and other documents to support a proposed increasing to the levy over the 2021 Determination as outlined in Table 11.1.

Table 11.1 YACTAC's proposed increase to the Yanco Creek levy

	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

Note: Our calculation of the proposed Yanco Creek Levy over the Determination assumes CPI will be 2.5% per annum.
Source: YACTAC, email correspondence, January 2021, and IPART analysis.

The proposed increase appears to have broad support from entitlement holders and was endorsed at YACTAC's annual general meeting.[cii] However, we do not have sufficient information to independently test entitlement holders' willingness to pay for the proposed increase.

Therefore, our draft decision is to maintain the Yanco Creek levy at $0.90 per ML of entitlement over the determination period. Our decision to maintain the levy is largely because we are not aware of stakeholder concerns with the current arrangement which may indicate there is a willingness amongst stakeholders to pay for the levy.

We encourage entitlement holders who support or have concerns with the current levy, or the increase proposed by YACTAC, to respond to our Draft Report. We may support the proposed increase in our Final Report.

We seek feedback on:

2 Whether stakeholders support YACTAC's proposed increase to the Yanco Creek Levy over the 2021 determination period.

11.2 Miscellaneous charges would increase by inflation only

Water NSW has proposed a number of miscellaneous charges for which we have calculated draft prices. 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 environmental gauging station 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 would increase by inflation

We made a draft decision:

40 To set charges for meter accuracy testing as listed in Table 11.2.

Where a customer requests accuracy testing on a Water NSW-owned meter, Water NSW currently 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 two-part tariff including:

- 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.

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.

In 2017, we considered it is appropriate for Water NSW to recover its full testing costs where the meter is found to be within accuracy standards. We accepted the total testing costs put forward by Water NSW as:

- 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).

In 2017, we also separated the charge into two testing methods: on site and laboratory tests (see Table 11.2).

Water NSW has proposed to continue the meter accuracy deposit and verification and testing charges in real terms over the 2021 determination period. We accept Water NSW's proposal and have set the draft prices as set out in Table 11.2.

Table 11.2 Draft decision on meter accuracy testing charges for 2021 determination period ($2021-22)

Meter accuracy charges	Current ($2020-21)	Proposed	Draft Decision
Refundable meter accuracy deposit per request	$1,750.00	$1,750.00	$1,750.00
Total charge where meter is found to be within accuracy standards:[a]			
▼ Verification and testing on site	$6,376.39	$6,492.05[b]	$6,492.05[b]
▼ Laboratory verification and testing	$8,672.88	$8,845.95[b]	$8,845.95[b]

[a] The total charge includes the deposit plus cost-reflective charge for testing.

[b] This charge would be indexed by CPI for each year of the determination period.

Note: As the deposit does not reflect meter testing costs, we considered there is no need to index it by CPI over the determination period.

Source: IPART analysis.

11.2.2 The EGS charge would increase by inflation

The EGS charge applies to environmental water holders.[38] Water NSW uses its hydrometric network to bill these customers. It uses in-stream flow meters to measure flows associated with bulk water ordered by environmental water holders. These meters are also used for general operational and river management purposes, and the billing of environmental water holders 'piggy-backs' on these existing meters. These meters may not in the future meet national measurement standards.

The EGS charge is set to recover the incremental costs of upgrading meters used to bill state and commonwealth environmental water holders. It is designed to recover the costs required to upgrade existing meters purely for the purpose of meeting measurement standards required for billing. The EGS has never been charged, as the triggers for levying the charge have not been met. These triggers are that:

- the existing gauging station has reached the end of its life
- the gauging station requires upgraded metering equipment to meet the standards required under the National Framework for Non-urban Metering
- the upgrade of the gauging station has commenced.

We made draft decisions:

41 To set the environmental gauging station (EGS) charge at $12,456.83 per year (indexed by CPI over the course of the determination period) as presented in Table 11.3.

42 The EGS be levied on holders of water access entitlements that have a gauging station as their nominated works.

43 The EGS only be charged from the time that:

- The relevant gauging station has been identified by Water NSW as having reached the end of its life, and

38 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.

- Requiring upgraded metering equipment to allow a higher grade of metering required to meet the National Framework for Non-urban Metering, and
- The upgrade of the gauging station has commenced.

Table 11.3 Draft decision on environmental gauging station charge ($2021-22)

	Current ($2020-21)	Proposed	Draft Decision
Environmental gauging station (Per site as end of life is reached)	$12,640.42	$12,956.43	$12,456.83

Note: The charge would increase by inflation for each year of the determination period.
Source: Water NSW pricing proposal to IPART, June 2020, p 143 and IPART analysis.

Water NSW proposed maintaining the current EGS, held constant in real terms. The charge was reviewed by our expenditure consultant, Aither, for our 2017 Determination and is based on the:

- recovery of capital (through an annuity), installation and operating costs
- incremental costs required to meet the national standards only

Water NSW has not proposed any change to EGS costs arising from the recently announced non-urban metering reform.

In its submission to our Issues Paper, the Department of Planning, Industry and Environment – Environment, Energy and Science (DPIE EES) argued that the charge should be discontinued. It argues that it is not the impactor of these incremental costs and does not support Water NSW's proposed continuation of the charge. It considers the charge should be removed, noting that the charge has never been levied.

We have decided to maintain the EGS charge of $12,456.83 at its current level in real terms.

Currently, flows (and hence bills) are determined using Water NSW's existing hydrometric monitoring network stations. Water NSW uses these meters for a range of purposes, including general operational and river management.

We do not consider environmental water holders to be the impactor of costs associated with general operational and river management. However, if meters need to be upgraded to meet national standards specifically for the purpose of billing or measurement compliance related to environmental flows, this cost should be borne by those licensees (i.e. environmental water holders).

Further, while costs (including metering costs) of rules-based or planned environmental water releases are driven by other consumptive users, this is not necessarily the case for environmental licence holders. These licence holders make water orders for specific purposes, and the metering costs required to issue bills for releases are directly linked to those licences.

We consider that in this case, environmental water holders are the primary impactor and should be liable for the efficient costs of metering those releases.

However, we consider that the charge should only reflect the incremental costs that Water NSW would incur in upgrading a meter for the purpose of billing environmental licence holders. That is, environmental licence holders should only pay any cost above and beyond what Water NSW would incur in undertaking its general services. Aither reviewed the basis of Water NSW's proposed costs during our 2017 price review. Its recommended, and our approved, EGS charge in the 2017 Determination includes those incremental costs only.

Our draft charge of $12,456.83 is lower than the $12,956.43 proposed by Water NSW. We have adjusted the capital charge annuity component of the calculation in line with our post-tax nominal WACC of 3.4%, compared to the 4.34% used to derive the EGS charge in 2017.

We also consider that DPIE EES and Water NSW should continue to work together to minimise the need for upgrading in-stream meters for these billing purposes. For example, where existing gauging stations can be used for monitoring and billing purposes, Water NSW and environmental licence holders should work towards maintaining that arrangement as far as possible. This will defer or eliminate the need to upgrade stations, and hence the costs and charges involved.

11.2.3 We accept Water NSW's proposal to adjust other miscellaneous charges by inflation

Miscellaneous charges are service fees levied by Water NSW for non-routine product offerings, the costs of which are not recovered through bulk water charges.

The miscellaneous charges are levied on individual customers who request that the work be carried out by Water NSW. These charges recover the direct costs incurred by Water NSW in carrying out the work together with associated overhead. The costs of these services are determined separately from the building block revenue to set bulk water services charges. This approach is consistent with the principle of user pays. That is, the cost of the service should be borne only by those customers who benefit from the service.

Miscellaneous charges will be maintained at current charging levels in real dollars as shown in the tables below.

The trade processing charge would increase 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).

We made a draft decision:

44 To set the trade processing charge as listed in Table 11.4, as a single, fixed charge.

Water NSW proposed to continue levying this charge at the current level (in real terms) over the 2017 determination period.

In 2017 we decided to set the charge as a single fixed charge per application, rather than a two-part tariff as proposed by Water NSW. We considered that a fixed charge would better reflect the costs incurred by Water NSW, as its costs are correlated with the number of applications received (as opposed to the volume of water traded).

We have decided to retain the current trade processing charge per trade application in real terms in the 2021 Determination on the basis that it will recover administrative costs of processing individual trade applications.

Table 11.4 Draft decision on trade processing charge ($2021-22)

Trade processing charge	Current ($2020-21)	Proposed	Draft Decision
Trade processing charge per application	49.37	50.61	50.61

Note: The charge would increase by inflation for each year of the determination period.
Source: IPART analysis.

Fish River connection and disconnection fees would increase by inflation

Water NSW currently levies new connection and disconnection fees for the FRWS. Requests for new connections and disconnection are 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.

We made a draft decision:

45 To set prices for the:

- Fish River Water Supply connection charge based on the complexity of the connection service, as listed in Table 11.5.
- Fish River Water Supply disconnection charge as listed in Table 11.6.

Water NSW proposed to retain 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 have set the charges as set out in Table 11.5 and Table 11.6.

Table 11.5 Draft decision on Fish River Water Supply connection charge ($2021-22)

Service type	Current ($2020-21)	Proposed	Draft Decision
Low complexity – no tapping band or pressure reducing valve required	916.30	939.21	939.21
Medium complexity – tapping band required	3,474.18	3,561.03	3,561.03
High complexity – pressure reducing valve required	7,103.19	7,280.77	7,280.77

Note: These charges would be indexed by CPI for each year of the determination period.
Source: IPART analysis.

Table 11.6 Draft decision on Fish River Water Supply disconnection charge ($2021-22)

Charge	Current ($2020-21)	Proposed	Draft Decision
Fish River disconnection charge	257.96	264.41	264.41

Note: These charges would 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

We made a draft decision:

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 incurs credit card payment fees. Water NSW passes on to customers an amount in respect of these fees which is set by NSW Treasury based on the normal cost of merchant interchange fees. This is currently 0.44% for Visa/Mastercard and 1.54% for American Express cards.[ciii] Water NSW proposed to vary the charges as NSW Treasury varies the charges.

According to Water NSW, its proposal is in response to a direction from NSW Treasury (in May 2012) to NSW Government agencies and State Owned Corporations (SOCs) to recoup their merchant interchange fees. Merchant interchange fees are incurred by SOCs and government agencies when they accept credit card payments from the public or customers.

The NSW Government requires recoupment of these fees through surcharging for payments accepted using debit or credit cards issued by card schemes such as Visa, MasterCard, American Express and Diners. This does not include payments accepted using ATM cards issued by banks and other deposit taking institutions. We cannot regulate the fee under section 11 of the IPART Act and would require a section 12A referral from the Premier to specify a maximum fee. A credit card payment fee also falls outside the definition of a 'regulated charge' under the WCR.

12 Impacts of our draft prices

Summary of our impact analysis

Bills will increase for most customers

- Bills will increase for customers in the MDB valleys, as well as the Hunter valley, as a result of increases in efficient costs.
- For 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.
- Most customers in the FRWS scheme will experience bill increases, with the exception of individual minor filtered water customers.

We consider our draft prices are reasonable

- We found that bills under our draft prices are in line with prices paid by irrigators in Victoria and Queensland for comparable services.
- We determined that bills under our draft prices account for up to 11% of farming businesses' gross value of irrigated agricultural production.
- Our draft prices are relatively low compared with market values determined through the water trading market.

We did not identify a financeability concern for Water NSW

Water NSW is expected to meet two of the three ratios for the benchmark test in all years of the determination period.

Other matters we must consider 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 draft decisions would impact the Consolidated Fund by up to $43.8 million per year.

This chapter sets out the impacts of our draft 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.

12.1 Bills will increase for a majority of valleys

Our analysis of bill impacts is shown in Table 12.1. This analysis is based on:

- a typical high security customer with 500ML of entitlements and 100% usage of entitlements
- a typical general security customer with 500ML of entitlements and 60% usage of entitlements.

We also present valley-specific bills based on entitlements and usages representative of the customers in each valley on our review website.

We note that the bill impacts presented in this section are nominal – that is, bill impacts include forecast inflation. Further, under the WCR, Water NSW must apply for annual reviews of its prices during the determination period. The 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)	Proposed four-year FCR[a] ($2021-22)	Draft decision 2021-22 ($2021-22)	Change current to proposed	Change current to draft decision
High security user					
Border	$8,705	$12,540	$9,310	44.1%	7.0%
Gwydir	$12,360	$18,780	$15,550	51.9%	25.8%
Namoi	$19,960	$29,905	$26,375	49.8%	32.1%
Peel	$32,275	$44,990	$43,380	39.4%	34.4%
Lachlan	$18,535	$29,785	$26,070	60.7%	40.7%
Macquarie	$14,695	$21,955	$19,250	49.4%	31.0%
Murray	$6,580	$10,310	$7,640	56.7%	16.1%
Murrumbidgee	$4,405	$6,175	$5,275	40.2%	19.8%
Lowbidgee	-	-	-	-	-
North Coast	$15,730	$16,125	$16,115	2.5%	2.4%
Hunter	$13,875	$20,175	$18,800	45.4%	35.5%
South Coast	$25,895	$26,545	$26,550	2.5%	2.5%
General security user					
Border	$4,000	$5,648	$4,260	41.2%	6.5%
Gwydir	$5,712	$7,643	$6,336	33.8%	10.9%
Namoi	$10,746	$14,154	$12,491	31.7%	16.2%
Peel	$8,099	$10,727	$10,344	32.4%	27.7%
Lachlan	$7,623	$11,698	$10,243	53.5%	34.4%
Macquarie	$5,987	$8,730	$7,661	45.8%	28.0%
Murray	$3,421	$4,981	$3,718	45.6%	8.7%
Murrumbidgee	$2,090	$2,808	$2,425	34.4%	16.0%
Lowbidgee	$420	$860	$740	104.8%	76.2%
North Coast	$10,546	$10,812	$10,812	2.5%	2.5%
Hunter	$9,570	$13,907	$12,964	45.3%	35.5%
South Coast	$14,285	$14,646	$14,646	2.5%	2.5%

a Based on prices that would recover Water NSW's proposed costs (in its June 2020 pricing proposal) on a four-year full cost recovery (FCR) basis.

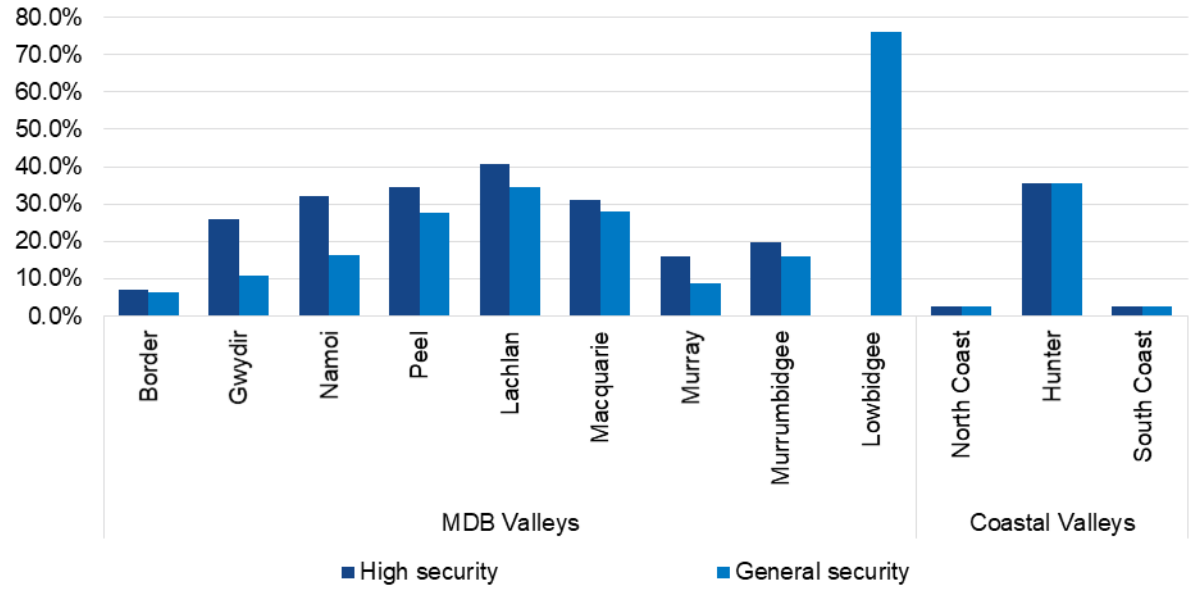
Note 1: Includes BRC costs in the Border valley and MDBA costs in the Murray and Murrumbidgee valleys.

Note 2: The Lowbidgee valley has supplementary licences that are charged fixed entitlement charges only.

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

Figure 12.1 shows the percentage change in bills from 2020-21 to 2021-22.

Figure 12.1 Bill impacts for customers (% change from 2020-21 to 2021-22)



Note: Includes MDBA and BRC costs.

Data source: IPART analysis.

Our analysis shows bills will increase for all valleys, with the exception of the North Coast and South Coast valleys. This reflects increases in efficient costs over the 2021 determination period compared with the 2017 determination period.

Customers in the Lowbidgee valley will experience the highest percentage increases in their bills, mainly due to increases in operating expenditure. We note that the high percentage increase also reflects a lower base amount compared with other valleys. That is, the increase in dollar terms for the Lowbidgee valley is relatively low compared with other valleys including the Hunter, Lachlan and Peel valleys.

Customers in the Lachlan valley will experience the second highest percentage increases. These increases are mainly due to increased costs (principally operating expenditure) and lower forecast usage volumes.

High security entitlement holders will experience greater percentage increases compared with general security entitlement holders as a result of increases in the high security premium, which shifts costs from general security to high security.

In the North Coast and South Coast valleys, bills will remain constant in real terms. This reflects our draft decision to maintain charges in real terms over the 2021 determination period.

The bill increases under our draft prices are lower than bill increases based on Water NSW's pricing proposal.[39] This is mainly due to our draft decisions on expenditure, and a lower WACC.

12.1.1 BRC and MDBA pass-through charges

As discussed in Chapter 5, the NSW Government recovers a portion of its contributions to the BRC and MDBA through charges on water license holders.

Table 12.2 shows the impact of our draft pricing decisions on the BRC/MDBA pass-through component of bills in the Border, Murray and Murrumbidgee valleys.

Table 12.2 Bill impacts – BRC and MDBA pass-through charges only

	Current ($2020-21)	Proposed 4 year FCR ($2021-22)	Draft decision 2021-22 ($2021-22)	Change current to proposed	Change current to draft decision
High security user					
Border	$2,905	$5,025	$2,860	73.0%	−1.5%
Murray	$4,720	$7,745	$5,255	64.1%	11.3%
Murrumbidgee	$1,030	$1,650	$1,115	60.2%	8.3%
General security user					
Border	$1,177	$2,010	$1,141	70.8%	−3.1%
Murray	$2,398	$3,626	$2,458	51.2%	2.5%
Murrumbidgee	$424	$631	$428	48.8%	0.9%

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

Under our draft prices, the BRC component of bills in the Border valley will record a slight decrease from 2020-21 to 2021-22. This is due to our draft decisions on Water NSW's efficient BRC expenditure and moving to a building block approach to calculate efficient BRC costs.

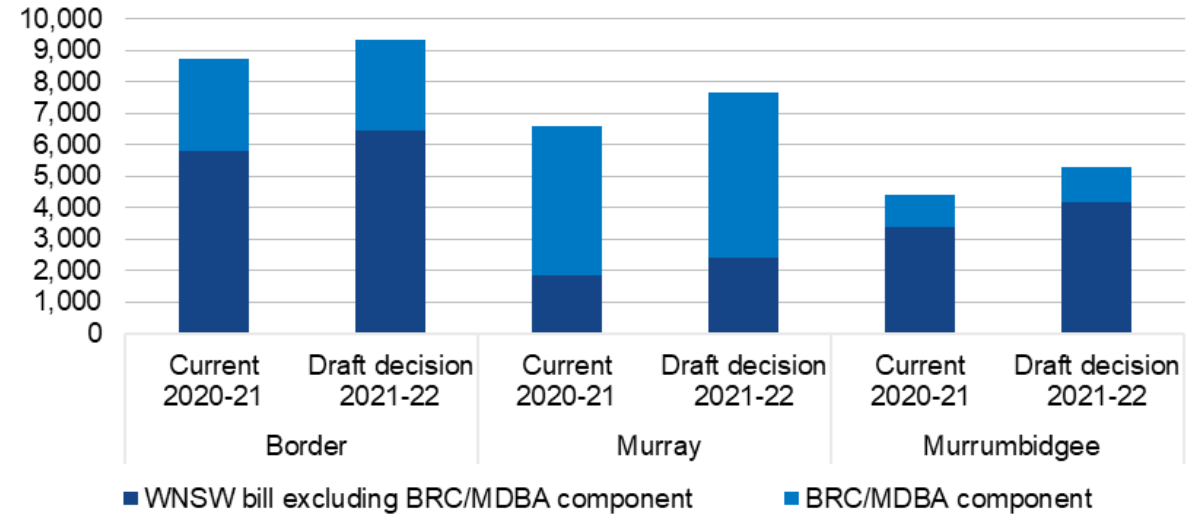
The MDBA component of bills in the Murray and Murrumbidgee valleys will increase under our draft prices. However, the increases will be lower than proposed by Water NSW due to our draft decisions on Water NSW's efficient MDBA expenditure, moving to the building block approach to calculate efficient MDBA costs, and the transfer of salt inception schemes from Water NSW rural bulk water charges to WAMC.

As noted above, high security entitlement holders will experience greater percentage increases compared with general security entitlement holders as a result of increases in the high security premium.

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.

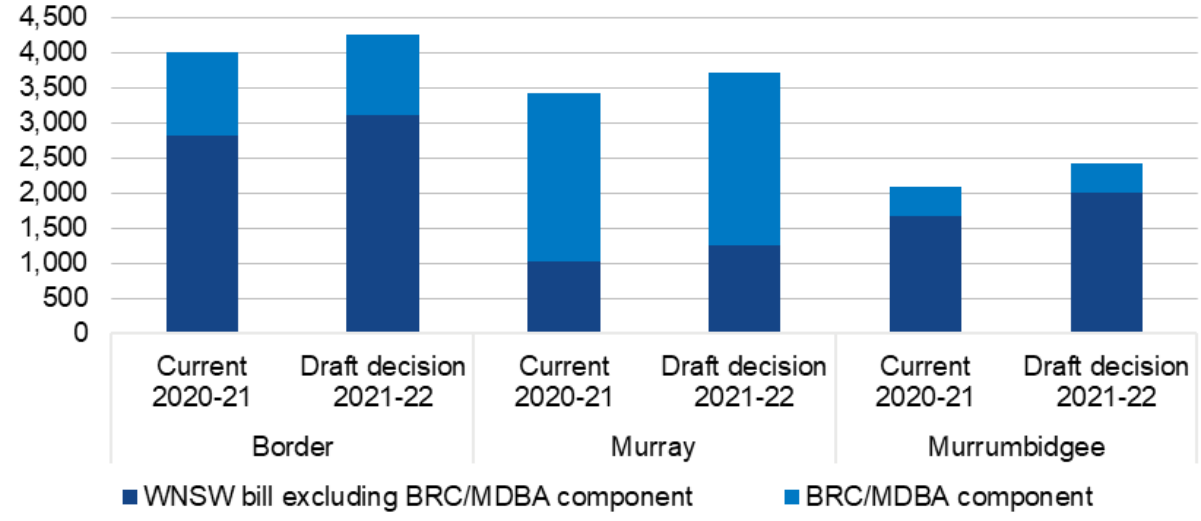
39 Based on prices that would recover Water NSW's proposed costs (in its June 2020 pricing proposal) on a four-year FCR basis.

Figure 12.2 High security bills – current and draft decision ($nominal)



Data source: IPART analysis.

Figure 12.3 General security bills – current and draft decision ($nominal)



Data source: IPART analysis.

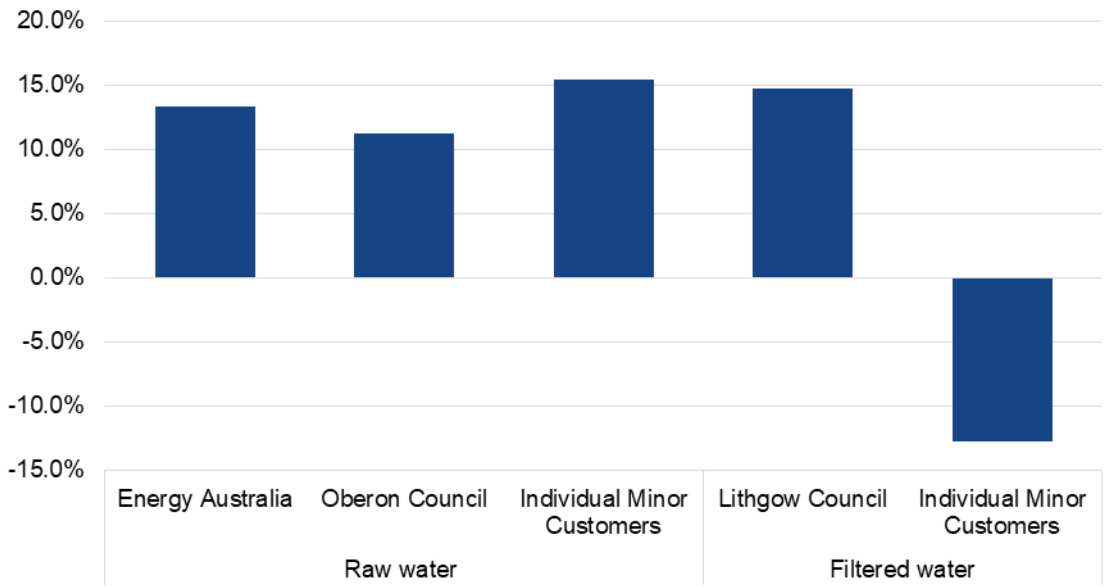
12.1.2 Fish River water supply scheme

For the FRWS scheme, our analysis is based on:

- minimum Annual Qualities (MAQs) in the water sharing plan for major customers, and a deemed MAQ of 200kL for minor individual customers (both raw and filtered)
- the 20-year average (i.e. forecast) water usage for each customer type excluding EnergyAustralia
- 1,884ML of water usage for EnergyAustralia.

Figure 12.4 presents the impact of our draft prices on bulk raw water and bulk filtered water customers in the FRWS scheme. Table 12.3 sets out these bill impacts in more detail.

Figure 12.4 Bill impacts for FRWS scheme customers (% change from 2020-21 to 2021-22)



Data source: IPART analysis.

Table 12.3 Bill impacts for customers in the FRWS scheme

	Current ($2020-21)	Proposed 4 year FCR ($2021-22)	Draft decision 2021-22 ($2021-22)	Change current to proposed	Change current to draft decision
Raw water					
EnergyAustralia	$3,837,940	$4,449,912	$4,348,602	15.9%	13.3%
Oberon Council	$631,220	$662,404	$702,204	4.9%	11.2%
Individual minor customers	$405	$419	$467	3.5%	15.5%
Filtered water					
Lithgow City Council	$1,546,780	$1,689,695	$1,775,456	9.2%	14.8%
Individual minor customers	$663	$615	$578	−7.3%	−12.8%

Source: IPART analysis.

As shown in Figure 12.4, all customers, with the exception of individual minor filtered water customers, will experience bill increases under our draft prices. This is mainly due to increases in operating expenditure.

Contrary to other customers, bills for individual minor filtered water customers will decrease under our draft prices. This is because we have aligned the unit MAQ and usage charges for individual filtered water customers with charges for Lithgow City Council.

Bills under our draft prices are higher than bills based on Water NSW's pricing proposal for Oberon Council, Lithgow City Council, and individual minor raw water customers. This is due to updated forecast usage volumes for EnergyAustralia – from 5.16GL (provided with Water NSW's pricing proposal and used for our Issues Paper), to 1.88GL (provided with Water NSW's response to our Issues Paper and used for our Draft Report).[civ] The decrease in forecast usage volumes for EnergyAustralia has resulted in increases in the usage charges for raw water and filtered water customers.

For EnergyAustralia, the increase in the usage charge is more than offset by the decrease in the MAQ charge compared with Water NSW's pricing proposal (see Table 11.6). This is because EnergyAustralia's MAQ of 8.18GL is significantly higher than its forecast usage of 1.88GL. For Oberon Council and Lithgow City Council, the differences between the MAQs and forecast usage volumes are not as significant, so the increase in the usage charge is only partly offset by the decrease in the MAQ charge.

12.2 We consider our draft prices and bills are reasonable

Stakeholder submissions to our Issues Paper indicated that Water NSW's proposed prices and bills are unaffordable for customers, given an extended period of very low water allocations.[cv] Stakeholders also identified that:

- COVID-19 has impacted economic prosperity[cvi]
- the proposed bill increases are well above CPI[cvii]
- customers are also affected by increases in WAMC water management charges.[cviii]

Murray Irrigation Limited commented in its submission that "prices in coastal valleys are more likely to be based on affordability, which is a novel concept for farmers in the drought torn Murray valley". [cix] Regarding this issue, we note that for MDB valleys, we are limited by the WCR which requires us to set prices to recover efficient costs, rather than set prices based on affordability or transition gradually to FCR prices.

While the bill impacts under our draft prices are lower compared with Water NSW's proposal, we recognise stakeholders' concerns about the affordability of the increases.

To address these concerns, we assessed the reasonableness of our draft prices by considering:

- bills for comparable services in other jurisdictions
- the impact on farming businesses' gross value of irrigated agricultural production (GVIAP)
- the market values for allocations and entitlements traded on the water market over the 2019-20 period.

We found that while prices vary within each state depending on geographical location and other factors, the average bill for a general security customer in NSW (presented in Table 12.1) is lower than the average bill for an irrigator in Queensland, and average combined bills (i.e. including WAMC water management charges) for general security and high security customers are similar to, or lower than, the average bills paid by Goulburn-Murray Water (GMW) customers in Victoria for comparable services.

We then considered the impact of combined Water NSW rural bulk water and WAMC charges on farming businesses. We determined that under our draft prices, bills will account for up to 11% of farming businesses' GVIAP, though this varies between different types of farming businesses due to differences in commodity prices and water application rates. For example, we found that for the average cotton farm with high security entitlements, the total bill will represent up to 4% of the business's GVIAP, and for the average cotton farm with general security entitlements, the total bill will represent up to 3% of the business's GVIAP.

We also determined that based on actuals over the 5-year period from 2015 to 2019, water charges and purchases accounted for around 8% of income for the average cotton farm.[cx] We expect that only a portion of this expenditure was due to IPART determined charges, with the remaining portion being other payments including water market purchases. We note that expenses for water charges and purchases reached 20% of income in 2019 (see Box 12.1). This appears to have been driven by higher prices for allocations on the water market over 2019 as a result of drought conditions.

Finally, we compared our draft prices with prices paid for allocations and entitlements in the water market. We found that our 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, and the present value of our draft entitlement prices are also lower than prices for entitlements traded on the water market.

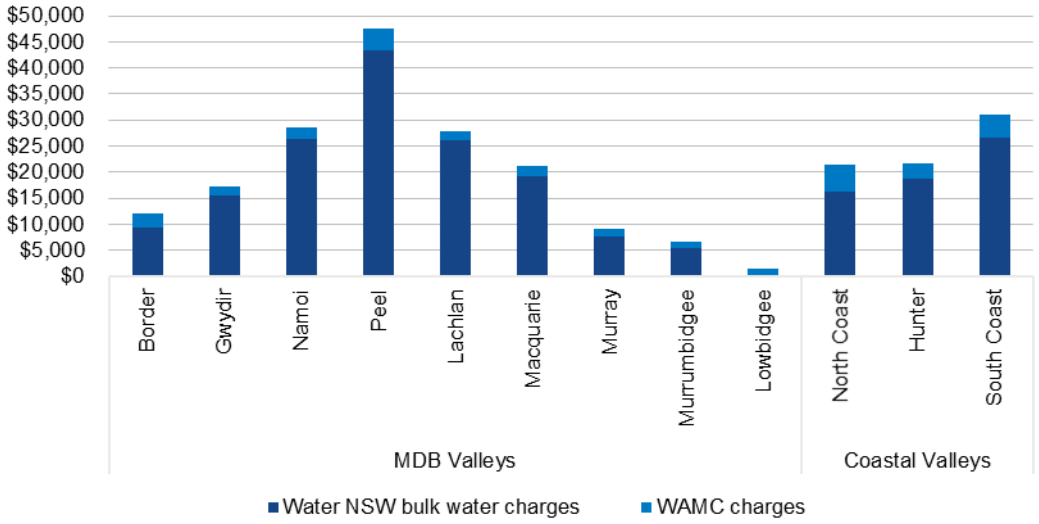
Based on these results, we consider that our draft prices are reasonable. The following sections present more details on our findings.

12.2.1 Impact of Water NSW bulk water charges and WAMC water management charges

We recognise that all Water NSW rural bulk water customers also pay for water management charges determined by IPART's review of WAMC's water management prices. These charges are set out in our Draft Report on the Review of Water Management prices from 2021, which is available from IPART's website.

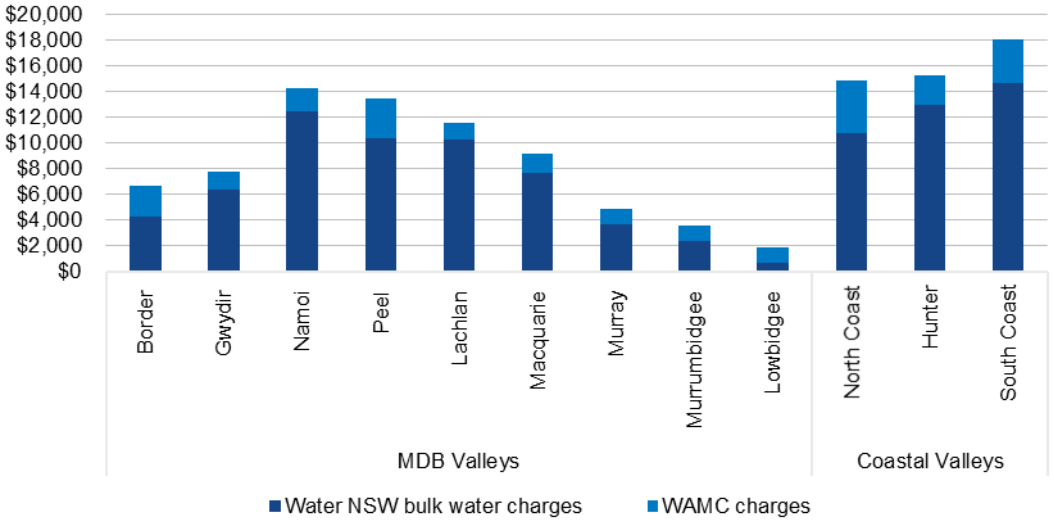
Figure 12.5 and Figure 12.6 present the combined Water NSW rural bulk water and WAMC bill for each valley, for the typical high security and general security entitlement holders.

Figure 12.5 Typical high security bill – Water NSW rural bulk water charges and WAMC charges ($2021-22)



Note: Our analysis is based on the typical high security customer with 500ML of entitlements and 100% usage of entitlements.
Data source: IPART analysis.

Figure 12.6 Typical general security bill – Water NSW rural bulk water charges and WAMC charges ($2021-22)



Note: Our analysis is based on the typical high security customer with 500ML of entitlements and 60% usage of entitlements.
Data source: IPART analysis.

Our analysis shows that Water NSW bulk water charges contribute more to the total bill compared with WAMC water management charges, with the WAMC component representing around 7-25% of the total bill for high security customers and 12-60% of the total bill for general security customers.

12.2.2 Interjurisdictional comparison

In this section we present information on bills for comparable services in Victoria and Queensland.

Goulburn-Murray Water (GMW) is the largest rural water provider in Victoria. In Figure 12.7, we present 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 generally lower than bills for a low reliability GMW customer with 500ML of entitlements and 60% usage.
- 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 500ML of entitlements and 100% usage, and lower than the bill for a high reliability, pumped irrigation GMW customer with the 500ML of entitlements and 100% usage. However, we note that 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.[cxi] 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.

For Queensland, we considered prices paid by irrigation customers for the 22 water supply schemes operated by Sunwater, and seven water supply schemes operated by Seqwater. We have only presented 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 $4,000 (in the Central Brisbane River) to around $47,000 (in the Maranoa River), with an average bill of around $15,000. This is higher than the rural bulk water bill for the typical general security customer in all valleys.[40]

40 The Queensland Government has announced that from 2021-22 to 2023-24, it will reduce the cost of irrigation water in schemes where the government sets prices by 50% for fruit and vegetable growers, and 15% for all other irrigation. We have not accounted for these price cuts in our analysis, as the schedule of fees are charges for 2021-22 is not yet available at the time of drafting. However, we would expect actual bills for Queensland irrigators to be lower in 2021-22, compared with our analysis presented in Figure 12.7.

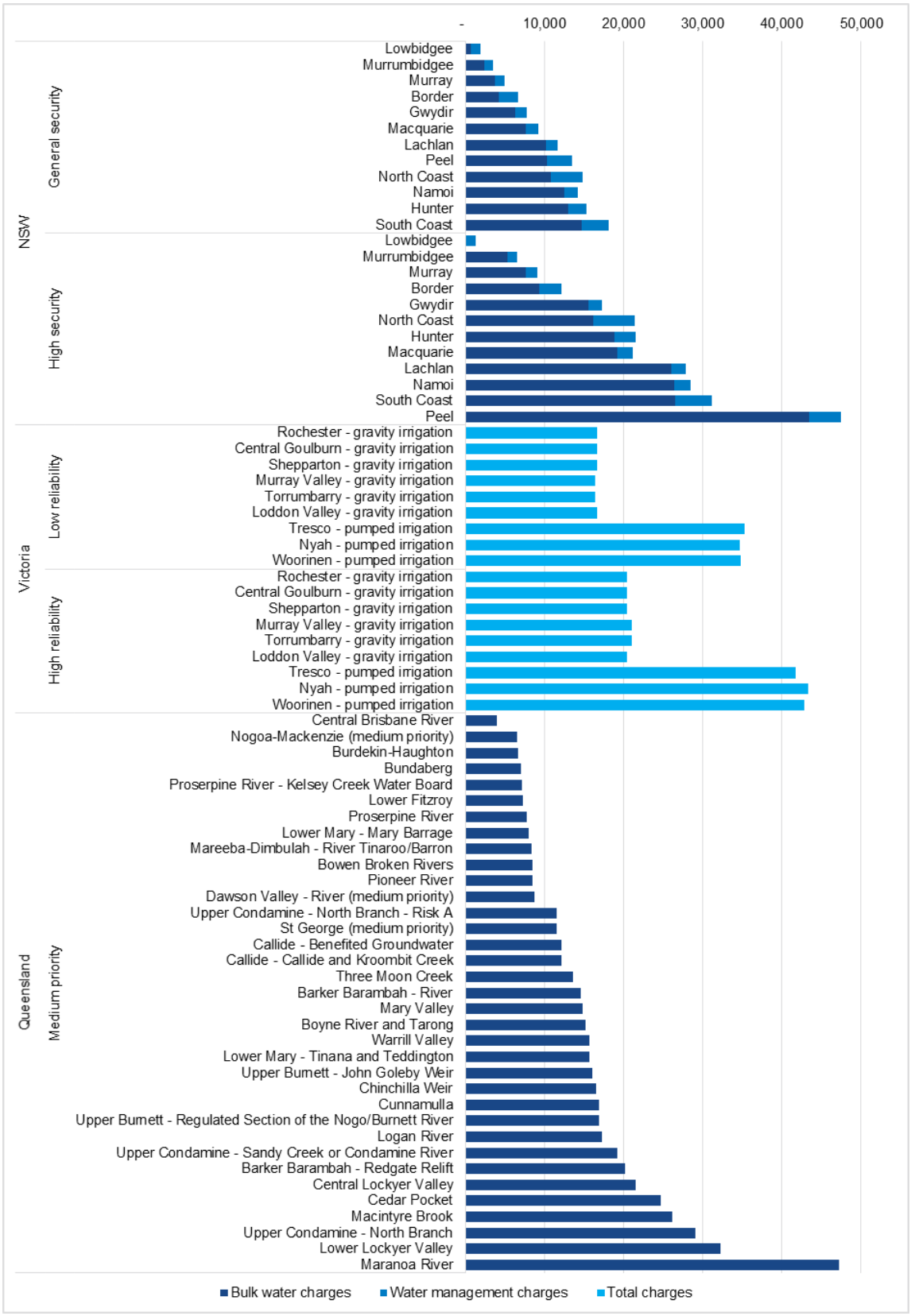
We note that the prices in some water supply schemes have not achieved lower bound outcomes.[41] This means that Queensland irrigators' bills would be higher if lower bound pricing is achieved.

The analysis presented in Figure 12.7 is based on a number of assumptions. For GMW, our analysis of prices paid by gravity and pumped irrigation customers assume one account, with 500ML 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 5ML/day, based on GMW's guide to divide water shares by 100. Bills were generated based on these inputs using GMW's pricing simulators.[cxii]

Our analysis of prices paid by irrigators in Queensland is based on 500ML of entitlements with 60% usage of entitlements. This allows for comparison with prices paid by the typical general security customer in NSW. We have only presented bills for medium priority entitlements, as in general, irrigators in Queensland hold medium priority entitlements.[cxiii]

41 Lower bound prices recover the irrigation share of the scheme's operating, maintenance and capital renewal costs but do not recover a return on, or of, the scheme's initial asset base (as at 1 July 2000).

Figure 12.7 Rural bulk water and water management charges ($2021-22)



Note: We have applied an inflation rate of 2.5% to current prices (i.e. 2020-21) in Victoria and Queensland to convert bills into $2021-22.

Data source: Goulburn-Murray Water, Pricing Simulators, accessed 18 February 2021; Queensland, Extraordinary Queensland Government Gazette, No. 57, 26 June 2020 and IPART analysis.

12.2.3 Impact on farming businesses

To assess the impact of bills (based on our draft prices) on farming businesses, we used information published by the ABS to estimate indicative bills as a percentage of GVIAP for different types of farming businesses. We found that:

- For the typical high security entitlement holder with 500ML of entitlements and 100% usage of entitlements, their indicative total bill in 2021-22 would account for up to 9% of GVIAP.[42] However, this varies between the types of farming businesses due to differences in commodity prices and water application rates. For example, for the average cotton farm, the total bill will represent up to 4% of the business' GVIAP.
- For the typical general security entitlement holder with 500ML of entitlements and 60% usage of entitlements, their indicative total bill in 2021-22 would account for up to 11% of GVIAP. Specifically, for the average cotton farm, the total bill will represent up to 3% of the business' GVIAP.

These percentages likely overstate the impact on farming businesses' GVIAP, as the analysis assumes all water used for irrigation is obtained from regulated rivers, whereas in reality, water can also be taken from other sources such as on-farm water infrastructure.

We also considered information published in the 2019 Australian Cotton Comparative Analysis report. Box 12.1 presents the results of our analysis of this report.

Box 12.1 Analysis of cotton-growing valleys

The following table shows water charges and purchases expenses as a percentage of income, based on 2019 data, for the average farm in different cotton-growing valleys.

	Gwydir	McIntyre/ Barwon	Macquarie	Namoi	Murrumbidgee	All valleys average figures
Income ($)	7,502	6,774	6,803	5,774	6,042	6,369
Water charges ($)	398	94	1,320	837	1,955	1,275
Water charges as percentage of income (%)	5%	1%	19%	14%	32%	20%

Source: Cotton Research & Development Corporation and Boyce Chartered Accountants, Australian Cotton Comparative Analysis – 2019 Crop, July 2020, p 28.

We note that the results from our analysis of indicative total bills as a percentage of GVIAP are lower than the results presented in Box 12.1. Based on this, we conclude that some farms were willing to pay more to make additional purchases of water through the water market. This is in line with the 2019 Australian Cotton Comparative Analysis report, which states that when water costs start to exceed $100-$150 per ML, cotton growers are taking on production risk with a reduced profit margin.[cxiv] This suggests that when the price of water on the water market is lower than this price range, it is in the cotton growers' interests to make additional purchases of water to increase profits.

42 Includes Water NSW rural bulk water charges and WAMC water management charges.

As a result, we consider our draft prices will not have a significant adverse impact on farming businesses' profitability.

12.2.4 Prices in the water market

As part of our assessment of the reasonableness of our draft prices, we reviewed the prices paid for allocations and entitlements in the water trading market. Water reforms, reductions in transaction costs and increases in water scarcity have all contributed to a steady increase in trade in allocations and entitlements since the 1980s.[cxv]

For our analysis, we considered trades occurring in the Murray and Murrumbidgee valleys, the two water systems with the highest number of trades by volume in NSW.[43, cxvi] For allocation trades over the 2019-20 period, the weighted average price per ML was $638 in the Murray valley, and $551 in the Murrumbidgee valley. These prices are substantially higher than our draft usage charges of $4.46 per ML and $4.80 per ML for the Murray valley and the Murrumbidgee valley respectively.

For entitlement trades over the 2019-20 period, we observed that:

- In the Murray valley, the weighted average price per ML on the water market was $1,747 for general security entitlements, and $7,600 for high security entitlements. For comparison, we have calculated the present value of all future entitlement charges using our annual entitlement charge (based on our draft pricing decisions),[44] and the pre-tax real WACC of 1.9% for MDB valleys as the discount rate. Under this approach, the present value per ML is $345 for a general security entitlement, and $664 for a high security entitlement. Therefore, the present value of entitlement charges is relatively small (i.e. 19% for general security and 8% for high security) compared with the market prices of the entitlements themselves.[45]
- In the Murrumbidgee valley, the weighted average price per ML on the water market was $1,996 for general security entitlements, and $7,530 for high security entitlements. Similarly, we have also calculated the present value of all future entitlement charges using our draft annual entitlement charge, and the pre-tax real WACC of 1.9%. We determined that the present value per ML is $191 for a general security entitlement, and $389 for a high security entitlement. Therefore, the present value of entitlement charges is relatively small (i.e. 9% for general security and 5% for high security) compared with the market price of the entitlements themselves.

43 For our analysis, we used volumes and weighted average prices published on DPIE's Trade dashboard.

44 Includes Water NSW rural bulk water charges and WAMC water management charges. We have assumed that entitlement charges will remain at the same levels going forward.

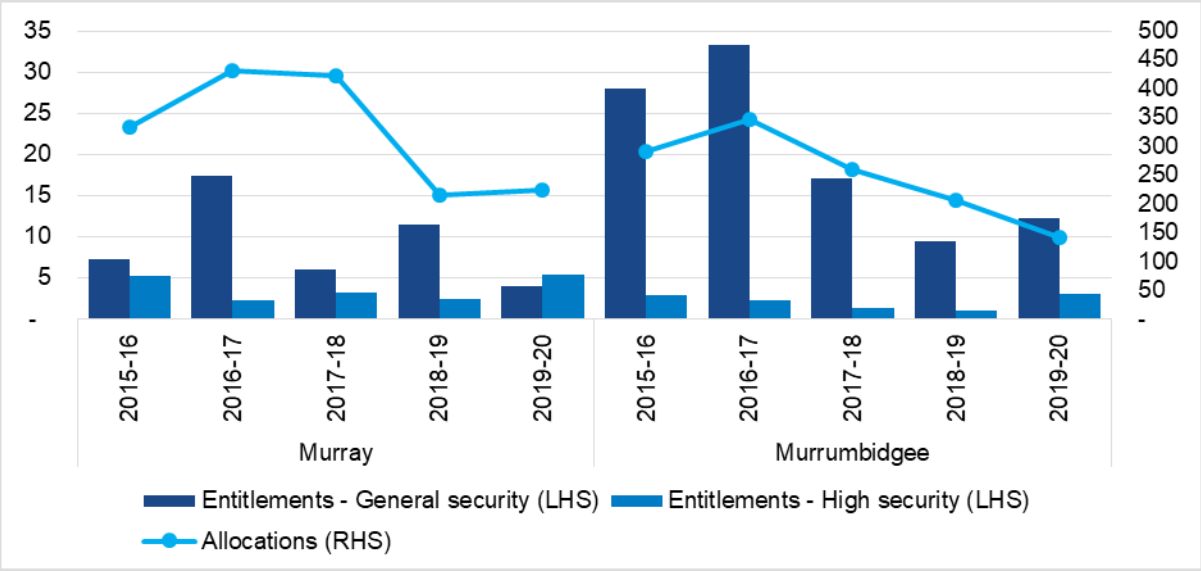
45 For example, in making the decision to purchase general security entitlements in the Murray valley on the water market, a water user would consider the cost of the permanent transfer of the entitlement (i.e. $1,747 per ML), as well as the present value of all future entitlement charges (i.e. $345 per ML). Through this comparison, we demonstrate that the present value of all future entitlement charges is small compared with the prices water users are willing to pay for the permanent transfer of entitlements on the water market.

We note that allocation prices on the water market are highly dependent on weather conditions, storage levels, and expectations of future rainfall. As a result, higher weighted average prices in 2019-20 may partly reflect drought conditions in recent years. Allocation prices decreased over the first half of 2020 following successive rainfall outlooks indicating a return to wetter than average conditions, and a turnaround in storage levels. This is reflected in the weighted average price for allocations traded over the year-to-date – which is $199 per ML for the Murray valley, and $120 per ML for the Murrumbidgee valley.[46]

Nevertheless, we note that the prices water users pay to Water NSW for rural bulk water services are relatively low compared to the historical average market price for allocations of between $100 and $200 per ML.[cxvii]

Figure 12.8 shows the volume of entitlements and allocations traded in the Murray and Murrumbidgee valleys, over the period from 2015-16 to 2019-20.

Figure 12.8 Trade volumes ('000s, ML)



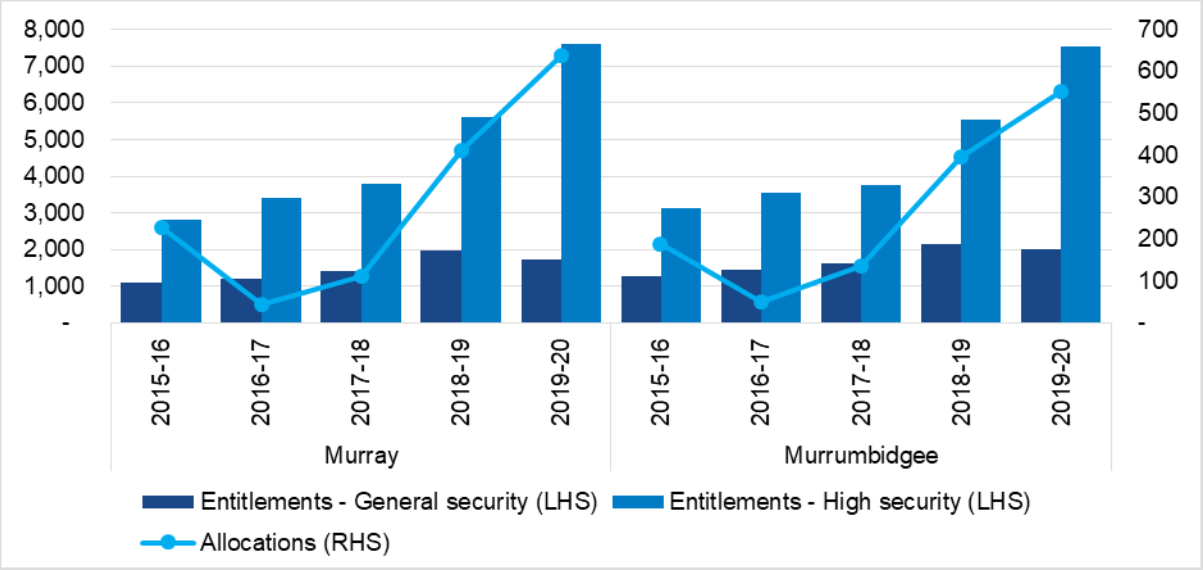
Note: For entitlement trade volumes, refer to the axis on the left-hand side. For allocation trade volumes, refer to the axis on the right-hand side.

Data source: DPI.E. Trade dashboard, accessed 24 February 2021.

Figure 12.9 shows the weighted average prices for entitlements and allocations traded in the Murray and Murrumbidgee valleys, over the period from 2015-16 to 2019-20.

46 Based on data at the time of drafting.

Figure 12.9 Weighted average prices ($ per ML, nominal)



Note: For weighted average prices for entitlements, refer to the axis on the left-hand side. For weighted average prices for allocations, refer to the axis on the right-hand side.

Data source: DPIE. Trade dashboard, accessed 24 February 2021.

12.3 We consider that 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 financeability test* (2018 Financeability Review).[cxviii]

The 2018 Financeability Review requires us to, as a default, conduct the financeability test on the portion of the business for which we are setting prices. As a result, Table 12.4 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 sufficient information on Water NSW's actual cost of capital to undertake the actual test in a meaningful way.

Table 12.4 Financeability test results based on our draft pricing decisions

	Target ratios	2021-22	2022-23	2023-24	2024-25
Real interest cover					
Benchmark test	>2.2x	21.6x	19.8x	20.3x	20.9x
Does it meet the target?		✓	✓	✓	✓
Real FFO over debt [a]					
Benchmark test	>7.0%	5.1%	4.7%	4.9%	5.1%
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 have calculated the indicators based on our draft NRR and pricing decisions, using a WACC of 1.3%.

Source: IPART analysis.

Overall, we did not identify a financeability concern for Water NSW. Under our draft prices, Water NSW will meet two of the three 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.

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).

Water NSW's relatively low FFO over debt ratio is explained by the combined effects of the current low interest rate environment and the fact 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.

We do not consider that Water NSW's FFO over debt ratio represents a financeability concern for the 2021 determination period because its real interest coverage ratios are well above the target level, averaging 20.6x over the 2021 determination period compared with the benchmark target of 2.2x. This indicates that Water NSW can comfortably meet its interest payments, even if interest rates increase significantly over the determination period, under our benchmark assumptions.

12.4 We have considered implications on other matters under the IPART Act

This section discusses the impact of our draft pricing decisions on the environment and the NSW Government.

These are matters we are required to consider under the IPART Act in respect of the coastal valleys and Fish River urban customers.

12.4.1 Implications for the environment

Under section 15 of the IPART Act, we are required to 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 report (EMR) under its Operating Licence
- water quality is regulated under its Operating Licence and RWSA
- portfolio Risk Assessment as part of its dam safety requirements
- catchment management as required under the Water NSW Act.

We consider that our decisions on operating and capital expenditure (discussed in Chapters 3 and 4) will allow Water NSW to recover all efficient costs it incurs in meeting its environmental obligations through prices and government contributions.

12.4.2 Implications for the Consolidated Fund

Under section 16 of the IPART Act, we are required to 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 have determined that our draft pricing decisions will have a negative impact on the Consolidated Fund of up to $43.8 million per year. This comprises:

- The Government share of Water NSW's NRR of $31.7 million per year (see Table 12.5). This is $4.7 million (or 13%) lower per year compared with the 2017 determination period.
- Under-recovery in the short term in BRC and MDBA contributions as a result of our draft decision to adopt the building block approach to calculate efficient BRC and MDBA costs. If this under-recovery is borne by the NSW Government, it would impact the Consolidated Fund by $10.2 million per year.
- Under-recovery in the North Coast and South Coast valleys. If this under-recovery is borne by the NSW Government, it would impact the Consolidated Fund by $1.8 million per year.

The following sections present more details on our findings.

12.4.3 Impact from government share of Water NSW's NRR

Table 12.5 shows that under our draft pricing decisions, the government share of Water NSW's NRR would impact the Consolidated Fund by $31.7 million per year. This includes $0.9 million per year in BRC and MDBA pass-through charges.

Table 12.5 Government share of Water NSW's NRR ($millions, $2020-21)

	2020-21	2021-22	2024-25	Average 2022-25	Average compared to 2020-21
Operating expenditure	3.9	3.8	3.8	3.9	-0.5%
ICD rebates	0.0	0.0	0.0	0.0	-
Return of capital	10.2	13.8	14.5	14.3	40.7%
Return on capital	16.9	10.9	11.7	11.5	-32.0%
Tax allowance	0.7	1.0	1.0	1.1	-
UOM payback	0.0	0.0	0.0	0.0	-
Volatility allowance	0.0	0.0	0.0	0.0	-
BRC and MDBA costs	4.6	0.8	0.9	0.9	-80.5%
Total costs	**36.3**	**30.3**	**32.2**	**31.7**	**-12.7%**

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

12.4.4 Impact from under-recovery of BRC and MDBA contributions

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 draft decision to move to a building block approach (see Chapter 5). This revenue shortfall would need to be borne by Water NSW or recovered from the NSW Government as its shareholder.

If the under-recovery was to be borne by the NSW Government, this would impact the Consolidated Fund by about $10.2 million per year (see Table 12.6 and Table 12.7).

Table 12.6 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 draft 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%	95.1%	
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	40.0%	40.0%	40.0%	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 12.7 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 draft decisions					
Customer share	15.3	15.3	15.3	15.3	61.3
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	7.3	9.3	9.3	9.3	35.2
Government share	1.0	1.0	1.0	1.0	4.0
Difference as percentage of pass-through amount	33.9%	38.9%	38.9%	38.9%	

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 of costs and resulting revenue shortfall would need to be borne by Water NSW or recovered from the NSW Government as its shareholder.

If the under-recovery was to be borne by the NSW Government, this would impact the Consolidated Fund by about $1.8 million per year. This is around 19% higher in real terms compared with the 2017 determination period, with recovery of costs decreasing from 10% to 9% for the North Coast valley, and 38% to 33% for the South Coast valley. This is due to increases in total costs as well as the user share of costs.

Table 12.8 shows that if the under-recovery in the North Coast valley is borne by the NSW Government, this would impact the Consolidated Fund by $1.1 million per year.

Table 12.8 Target revenue for the North Coast valley ($'000, $2020-21)

	2020-21	2021-22	2024-25	Average 2022-25	Average compared to 2020-21
Total costs	1,355	1,393	1,392	1,405	3.7%
Government share	277	170	174	173	−37.6%
User share	1,078	1,223	1,218	1,232	14.3%
▼ Revenue from tariffs	106	106	106	106	-
▼ Under-recovery of costs	−971	−1,117	−1,112	−1,126	-
▼ Cost recovery (%)	9.9%	8.7%	8.7%	8.6%	−1.2 pp

Source: IPART analysis.

Table 12.9 shows that if the under-recovery in the South Coast valley is borne by the NSW Government, this would impact the Consolidated Fund by $0.7 million per year.

Table 12.9 Target revenue for the South Coast valley ($'000, $2020-21)

	2020-21	2021-22	2024-25	Average 2022-25	Average compared to 2020-21
Total costs	1,149	1,157	1,133	1,177	2.4%
Government share	208	95	97	100	−52.1%
User share	941	1,062	1,036	1,077	14.5%
▼ Revenue from tariffs	355	355	355	355	-
▼ Under-recovery of costs	−586	−707	−681	−722	-
▼ Cost recovery (%)	37.8%	33.4%	34.3%	33.0%	−4.8 pp

Source: IPART analysis.

13 Metering service charges

Summary of our draft decisions for metering charges

We made draft decisions on metering charges based on Water NSW's June pricing proposal

Our draft decision is to set cost-reflective metering charges based on Water NSW's June pricing proposal.

These charges are for government owned meters on regulated rivers only.

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 water management 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 (MSCs) 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 is remaining constant in real terms

Our draft 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 Meter service charges ($2021-22)

Size of Government-Owned Meter	Current 2020/21 ($/year)	Proposed 2021-22 to 2024-25 ($/year)
50mm	487.82	487.82
80mm	490.09	490.09
100mm	490.08	490.08
150mm	495.84	495.84
200mm	498.69	498.69
250mm	501.33	501.33
300mm	508.14	508.14
350mm	538.75	538.75
400mm	556.97	556.97
450mm	560.49	560.49
500mm	575.42	575.42
600mm	594.55	594.55
700mm	617.28	617.28
750mm	649.12	649.12
800mm	670.63	670.63
900mm	677.44	677.44
1,000mm	690.03	690.03
Channel	6,393.37	6,393.37

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

Meter service charges (MSCs) 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 MSCs in real terms over the 2021 determination period is reasonable. Our draft decision is to accept Water NSW's proposal and maintain the MSCs that applied in 2020-21 constant in real terms over the 2021-22 determination period.

We note that where a government owned meter is updated or installed to comply with the new metering framework, Water NSW proposes that the MSC's be replaced with other charges discussed in Chapter 14.

14 Non-urban metering reforms

Summary of our preliminary position on Water NSW's non-urban metering reform proposal

Water NSW has proposed new prices to implement the NSW's Government non-urban metering reforms.

In response to the Matthews Report on improving water resource management, the NSW Government has developed new non-urban metering regulations. Water NSW is responsible for implementing components of these reforms.

On 30 November 2020, Water NSW proposed additional costs, prices and bill impacts associated with its plan to implement these reforms. Water NSW is proposing that water users pay the full cost of implementing the metering reforms. Due to the costs involved, this would result in significant bill increases for typical customers in most valleys, particularly those with Government owned meters.

We are seeking stakeholder feedback on Water NSW's proposal, the key issues identified in this chapter as well as any other issues that stakeholders wish to raise.

We support the NSW Government's comprehensive reforms on metering but Water NSW's proposed implementation program is still at a preliminary stage of development.

There are clear benefits of metering to improve compliance, monitoring of water use and water resource management. Based on the information provided, we have concerns about whether the proposed costs are efficient. We have significant concerns about the potential impacts of Water NSW's proposal on the water sector, affected communities and the broader economy.

Our preliminary view is that we do not yet have sufficient information to set prices to include Water NSW's proposed metering costs in regulated prices over the upcoming determination period. While we are not yet in a position to determine efficient costs for the new metering policy at this stage, this does not mean we consider Water NSW's efficient costs of implementing the reforms to be zero or that it should not be efficiently implementing the NSW Government's non-urban metering reform policy.

We consider Water NSW should bear the risks and costs associated with its implementation program until it has demonstrated its proposed costs are efficient so they can be included in regulated prices. Water users should not be paying for meter implementation costs that have not been demonstrated to be efficient.

In November, Water NSW submitted a supplementary proposal to include additional metering costs and introduce a new suite of metering charges to implement the NSW Government's non-urban metering reform policy. These proposed costs are in addition to WAMC's and Water NSW's existing metering costs and charges presented in its June pricing proposals.

Our assessment of Water NSW's metering charges from its June pricing proposal is presented in Chapter 13. We are reviewing Water NSW's November supplementary pricing proposal separately and have engaged Cardno to review the proposed additional costs and charges.

This chapter sets out and seeks stakeholder feedback on Water NSW's supplementary pricing proposal on additional costs of implementing metering reform, the key issues we have identified with Water NSW's proposal and our preliminary position. We are also seeking stakeholder feedback on several issues we have identified in our preliminary analysis of Water NSW's updated pricing proposal, as well as any other issues related to the price review stakeholders wish to raise.

14.1 NSW Government has introduced non-urban metering reforms

In 2017, several independent investigations raised concerns about NSW's water resource management and compliance. The Murray-Darling Basin Water Compliance Review recommended a 'no meter, no pump' policy, with urgent action in high-risk areas to prevent illegal water take.[cxix] Similarly, the Matthews Report recommended universal metering of water extraction, along with several measures to promote transparency and public access to metering information (e.g. reporting of metered extractions).[cxx]

In response to these reviews, the NSW Government developed a Water Reform Action Plan, which included a commitment to implementing a robust metering framework.[cxxi] The framework's objectives are to ensure that:

- the vast majority of licensed water take is accurately metered
- meters are accurate, tamper proof and auditable
- undue costs on smaller water users are minimised
- metering requirements are practical and can be implemented effectively.[cxxii]

The NSW Government's Non-Urban Water Metering Policy specifies several requirements for the metering framework, including:

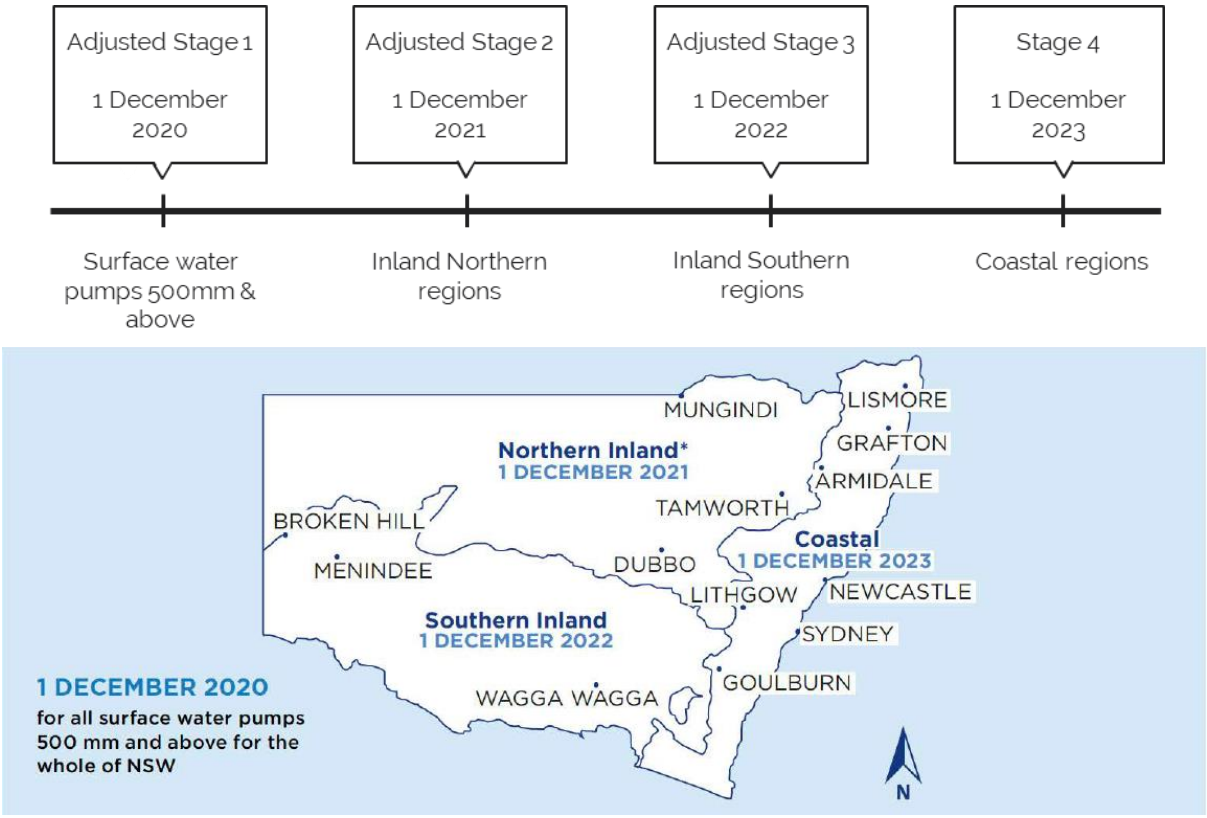
- which works need to have a meter[47]
- the standards metering equipment will need to meet (eg telemetry)
- requirements for record-keeping and reporting.[cxxiii]

47 Works need to have a meter if they are already required to meter or measure; have a pump greater than 100mm (surface water) or bore greater than 200mm (groundwater); have multiple pumps or bores on the same licence, approval or landholding (except pumps or bores below the capacity threshold); or are at risk-ground water sources. See NSW Government, *NSW non-urban water metering policy*, November 2020, p 2.

This framework is underpinned by the metering-related provisions in the *Water Management Act 2000* and the *Water Management (General) Regulation 2018*.

As shown in Figure 14.1, these reforms are being rolled out in a staged manner over 5 years. Different rollout dates apply to water users depending on their pump size or the area of NSW in which they are located.

Figure 14.1 Overview of the non-urban metering rollout



Source: NSW Government, Overview of the non-urban water metering framework (accessed March 2021); NSW Government, *Non-urban metering in NSW – what water users need to know*, August 2020, p 4.

In the sections below we discuss Water NSW's proposed new prices to implement these reforms, as well as our preliminary position on Water NSW's proposal.

14.2 Water NSW has proposed new prices to implement these reforms

Water NSW is responsible for implementing key parts of the non-urban water metering reforms. Its role spans overseeing meter installations and upgrades across NSW, meter reading and data management for both telemetry and non-telemetry sites,[48] as well as customer education and enquiries (see Box 14.1).[cxxiv]

48 Telemetry meters are those with data recording and remote transmitting of meter data reads to Water NSW's centralised data systems. Non-telemetry meters are those without remote transmitting systems that store meter data on site and require periodic manual data logger downloads. Surface water meters greater than 200mm are required to have telemetry. Water NSW, *Supplementary pricing proposal to IPART*, December 2020, p 10.

Box 14.1 Water NSW's proposed metering activities

Water NSW anticipates it will perform several key activities as it administers the metering scheme.

- **Meter installation and upgrade** – The metering reforms will require many water users to purchase and install meters. Water NSW will not install or maintain these meters.[cxxv] However, it will need to upgrade its existing government-owned meters (about 12% of the total).
- **Meter certification and compliance** – Water NSW will manage the initial process where meters are certified, as well as the subsequent inspections by Duly Qualified Persons (DQPs)[49] to test meters every 5 years. It will set up a DQP Portal for DQPs to submit the certificates of compliance.[cxxvi]
- **Recording and reporting** – Water NSW will establish a cloud-based Data Acquisition System (DAS) to collect and store data received from telemetry devices on meters.[cxxvii] Where meters do not use telemetry, water users will need to self-report their water extractions to Water NSW. In addition, Water NSW will need to download data from the Local Intelligence Devices (LID) for these meters onsite once per year.[cxxviii]
- **Education and support** – Water NSW plans to develop communication materials to help explain to water users their obligations under the metering reforms. It will also provide support to water users (e.g. dealing with enquiries, site visits).[cxxix]

Water NSW has proposed two different charging regimes to cover the costs of undertaking these activities, depending on whether water users have a privately owned or government owned meter:

- **Privately owned meter** – water users own their meter, and will be responsible for the costs of its purchase, installation and upkeep.
- **Government owned meter** – Water NSW owns and maintains the meter, and recovers the costs from water users/customers. Government owned meters are located in the Southern Basin, Hawkesbury-Nepean and Bega regions.[cxxx] [50]

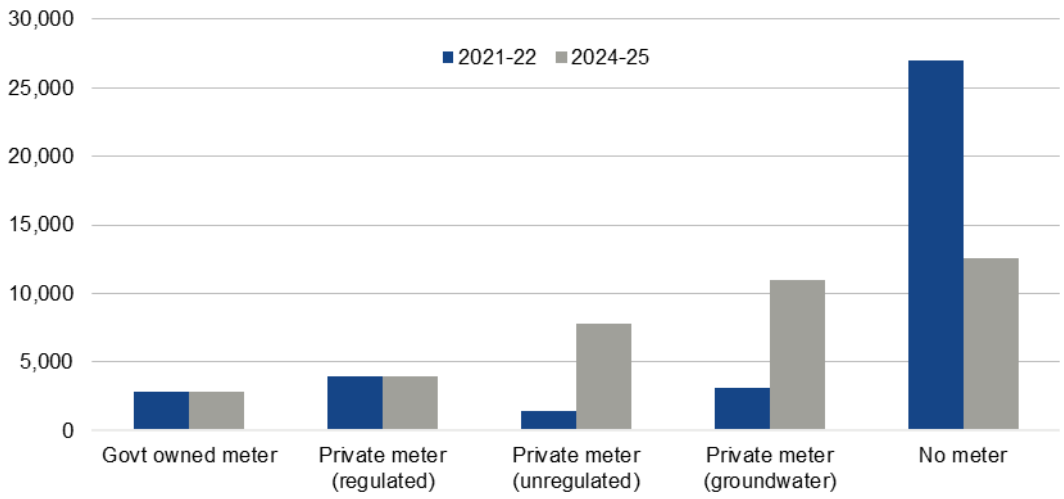
Under both scenarios, all meters subject to the new requirements will still need to meet the same technology, performance and accuracy standards. However, for government owned meters, Water NSW proposes additional charges to recover the capital and operating costs it incurs. Water NSW has stated that Government-owned meters will be limited to those already in place, and will not be extended to any other customers who wish to have a government owned meter.

Figure 14.2 presents the expected number of meters that will be rolled out or made compliant by Water NSW to implement the non-urban metering reform policy.

49 The DQP is a newly created role as part of the metering scheme management program, being a person with the qualifications, skills and experience to carry out work on metering equipment. Water NSW *Supplementary pricing proposal to IPART*, December 2020, p 11.

50 Water NSW states that only water users who have a government owned meter will be eligible to have one under the new framework.

Figure 14.2 Expected number of meters rolled out to implement metering reforms



Source: IPART analysis, Water NSW, *Supplementary pricing proposal to IPART*, December 2020, pp 10-28 and Cardno, *Review of Water NSW's Metering Reform Costs - Draft Report for IPART*, March 2021, pp 6-9, 13-14.

In relation to the privately owned meters, Water NSW expects around:

- 8,000 existing meters will be maintained. These are mainly located on regulated water sources, largely in the Southern Region.
- 14,700 meters will need to be installed or replaced. These are located on unregulated and groundwater sources, predominantly in the Northern and Coastal Regions.[cxxxi]

Further, Water NSW considers it will need to undertake work on the 2,800 existing government owned meters to make them compliant with the metering reforms.[cxxxii] These meters are on a mix of regulated, unregulated and groundwater sources.

Table 14.1 provides an overview of Water NSW's proposed charges, and which charges are paid by water users with privately owned or government owned meters.[51]

Table 14.1 Summary of Water NSW's proposed metering charges ($/year)

	Charge ($/year)	Privately owned meter	Government owned meter
Telemetry/non-telemetry charge	345	✓	✓
Scheme management charge	77	✓	✓
Meter service charge – operating costs	1,269	✗	✓
Meter service charge – capital costs	601	✗	✓
Total ($/year)		**422**	**2,292**

Source: Water NSW, *Supplementary pricing proposal to IPART*, December 2020, pp 27, 29, 37. Water NSW did not specify in its December 2020 proposal what year dollars the proposed charges are in.

51 For meters subject to the new metering framework. We note that except for meters on sensitive groundwater areas, all meters below 100mm in diameter are exempt from the new requirements and hence these proposed charges.

- **All water users** would pay an annual $77 scheme management charge.[52] Currently meter charges only apply to water users with meters (whether privately owned or government owned), rather than all licence holders.
- **Water users with privately owned meters** would pay the $77 scheme management charge, as well a $345 telemetry/non-telemetry charge.
- **Water users with Government owned meters** would pay the $77 scheme management charge, $345 telemetry/non-telemetry charge and an additional annual meter service charge of $1,870 made up of:
  - Operating costs of maintaining the meters and support systems - $1,269
  - Annualised capital costs of meter and metering equipment - $601.

Water NSW already charges a meter service charge (see Chapter 13). Table 14.2 compares the meter charges in Water NSW's June 2020 proposal with IPART's draft decision on these charges, as well as the revised charges in its December 2020 proposal.[53]

Table 14.2 Meter charges proposed by Water NSW in June 2020 & December 2020 ($/year)

	Meter charge (proposed by Water NSW in June 2020)		Meter charges (proposed by Water NSW in December 2020)				
Licence holders	Water NSW's proposal	IPART's draft decision	Telemetry / non telemetry	Scheme mngt.	Meter service – opex	Meter service capex	**Total**
	Per meter	Per meter	Per meter	Per licence	Per meter	Per meter	
Govt. owned meter							
R	487.82 to 690.03	Accepted proposal	345	77	1,269	601	**2,292**
U/G (tel)	514.31 to 580.97	Accepted proposal	345	77	1,269	601	**2,292**
U/G (non-tel)	403.47 to 455.77	Accepted proposal	345	77	1,269	601	**2,292**
Privately owned meter (R/U/G)	416	207.08	345	77	0	0	**422**
No meter	0	0	0	77	0	0	**77**

Note: Under Water NSW's June 2020 proposal, metering charges vary depending on meter size. R = Regulated, U = Unregulated and G = Groundwater. Water NSW did not specify in its December 2020 proposal what year dollars the proposed charges are in.

Note: The meter charges from the June 2020 proposal will be in place until they are replaced by the revised meter charges as the new metering program is phased in.

Source: IPART calculations and Cardno, *Review of Water NSW's Metering Reform Costs - Draft Report for IPART*, March 2021, pp 9, 13; Water NSW, *WAMC pricing proposal to IPART*, June 2020, Tables 72 to 74 pp 134-135, and Cardno, *WAMC Expenditure Review* - Final Report to IPART, pp 183-184.

52 This charge is intended to recover a range of scheme costs (eg, recording and reporting, DAS and DQP portal, general enquiries and education).

53 We have asked for clarification in section 14.4.3 below whether the new metering service charges replace the existing ones, or are in addition to it.

14.2.1 Unders and overs mechanism

Water NSW considers there is uncertainty and "an element of stepping into the unknown" with the metering reforms. Therefore, it has proposed we introduce an 'unders and overs' mechanism for the WAMC and Water NSW rural bulk water determinations.[cxxxiii] It considers this will protect customers and Water NSW from any unintended windfall gains or losses associated with forecasting the costs of implementing the reform program.[cxxxiv]

14.3 Impacts on water users and Water NSW

The benefits of improved compliance and monitoring of water use are clear. The NSW Government's reforms are comprehensive, and will significantly improve the monitoring and compliance of bulk water usage and water resource management in NSW.

Nonetheless, the overall impacts of Water NSW's metering implementation proposal are potentially far-reaching. Customers and water users who are required to install or upgrade their meter will face higher bills, significantly higher in some cases. Many water users who have not previously required meters will for the first time need to pay for one to be installed, maintained and operated. This adds significantly to the average cost of holding a licence, particularly for holders of smaller entitlements who need to meet the new metering requirements.

At the same time, Water NSW faces significantly higher overall costs in implementing and administering the reforms, with potential risks and uncertainties around costs, timing and technology.

We consider that there are also potentially wider implications of Water NSW's proposed metering charges. Given the relative increase in costs that smaller water users in particular would face, we are interested in whether the costs of metering might lead to broader changes in customer behaviour such as:

- any consolidation of entitlements, as smaller licence holders sell or relinquish their entitlements
- water users down-sizing meters to below 100mm, to avoid meeting the new requirements and costs
- the trade of water out of NSW, as the higher average costs of holding entitlements in NSW makes interstate trades relatively more attractive.

If there were changes such as these, it may impact the scope and scale of Water NSW's metering program and hence its efficient costs.

We discuss the impacts of Water NSW's metering proposal on different stakeholders in the following sections. We are also seeking feedback from stakeholders on some of the key issues the proposal raises.

We consider that the additional costs faced by customers/water users will be significant relative to their existing bills, particularly those with government owned meters. The analysis below considers the bill impacts of metering compared to customers and water users' total bills in 2020-21.

In addition to the costs that Water NSW is proposing, customers and water users who don't have a government owned meter will also be required to purchase a new or replacement meter at their own expense. These costs would be borne by the customer and are not part of Water NSW's proposal.

14.3.1 Impacts on customers and water users in regulated rivers

The overall bill impacts arising from Water NSW's proposal on Water NSW rural bulk water customers and WAMC water management charges are significant.

Government owned meters

Table 14.3 sets out the overall impact on Water NSW bulk water bills for typical regulated river General Security licence holders with a government owned meter.[54] We note that not all customers in these valleys have a government owned meter.

Table 14.3 Indicative impact of metering proposal on bills on regulated rivers with government owned meters (nominal, $/year)

Valley	ML entitlement	2021 bill[a]	Additional metering charges[b]	% increase caused by metering
Murray	75	1,085	1,814	157.7%
Murrumbidgee	150	1,257	1,814	144.3%
South Coast	90	2,884	1,814	62.9%

a Includes Water NSW bulk water charges, WAMC charges, MDBA and BRC charges and MSCs.

b Net of existing MSC charges.

Note: Assumes a 100mm meter.

Source: IPART analysis.

These figures show that the impact on a typical customer with a government owned meter is significant. In the Murray and Murrumbidgee valleys, a customer's total bill will more than double. In the South Coast valley, the total impact of the metering reforms is over a 60% increase in indicative bills.

We note that the percentage impacts increase with smaller licence entitlement volumes and usage. 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.

Customer owned meters

Table 14.4 sets out the overall impact on Water NSW bulk water bills on typical General Security licence holders in regulated rivers with a government owned meter in each valley.

54 Water NSW states that government-owned meters are present on regulated rivers in the Murray, Murrumbidgee and South Coast valleys.

Table 14.4 Indicative impact of metering proposal on bills on regulated rivers with customer owned meters ($/year, $2020-21)

Valley	ML entitlement	2021 bill[a]	Additional metering charges[b]	% increase caused by metering
Border	100	1,528	422	40.2%
Gwydir	1,000	10,111	422	4.4%
Namoi	500	11,973	422	3.7%
Peel	100	1,914	422	29.4%
Lachlan	200	2,699	422	19.0%
Macquarie	100	1,457	422	43.1%
Murray	75	1,085	422	69.6%
Murrumbidgee	150	1,257	422	54.2%
North Coast	100	2,107	422	25.9%
Hunter	80	2,236	422	24.0%
South Coast	90	2,884	422	17.5%

a Includes Water NSW bulk water charges, WAMC charges and MDBA and BRC charges.

b Net of existing MSC charges.

Note: Assumes a 100mm meter.

Source: IPART analysis.

These figures show that the impact on a typical customer with a customer owned meter in most valleys is less severe than for government owned meters, but still significant in most cases. However, we note that this is the impact of Water NSW charges only, and as such excludes the customers' own cost of installing, upgrading and maintaining their own meter. So while the figures in this table give an indication of the impacts of water NSW's metering proposal, they do not include the impacts of the customer meeting their obligations under the new metering regulations.

14.3.2 Impacts on customers and water users in unregulated rivers

As with regulated rivers, water users on unregulated rivers also face significant increases in WAMC bills.

We note that bill impacts presented here are for a medium user with a 500ML entitlement and 60% water usage.[55] Actual bill impacts for each water user depend on a number of factors including entitlement volumes, usage and whether they currently pay meter charges.

Government owned meters

Table 14.5 sets out the overall impact on WAMC bulk water bills on General Security licence holders in unregulated rivers with a Government owned meter.

55 Water users with smaller entitlements on unregulated rivers face a minimum annual charge (MAC) of $213.74. Any water user paying the MAC who has a 100mm government owned meter and is required to comply with the new metering policy would face a bill increase of around 305%.

Table 14.5 Indicative impact of metering proposal on bills on unregulated rivers with government owned meters ($/year, $2020-21)

Valley	ML entitlement	2021 bill[a]	Additional metering charges[b]	% increase caused by metering
Murray	500	$2,582	$1,888	63.3%
Murrumbidgee	500	$3,379	$1,888	49.9%
South Coast	500	$1,322	$1,888	109.4%

a Includes WAMC charges, MDBA and BRC charges and MSCs.

b Net of existing MSC charges.

Note: Assumes a 100mm meter.

Source: IPART analysis

The impacts on indicative bills for water users with government owned meters in unregulated rivers are significant in all valleys. We also note that we have used a standard entitlement of 500 ML for comparative purposes. Many water users on unregulated rivers hold significantly smaller entitlements and would face higher percentage increases under the new framework.

Customer owned meters

Table 14.6 sets out the overall impact on WAMC bulk water bills on General Security licence holders in unregulated rivers with a customer owned meter.

Table 14.6 Indicative impact of metering proposal on bills on unregulated rivers with customer-owned meters ($/year, $2020-21)

Valley	ML entitlement	2021 bill[a]	Additional metering charges[b]	% increase caused by metering
Border	500	$1,896	$422	22.3%
Gwydir	500	$1,896	$422	22.3%
Namoi	500	$1,896	$422	22.3%
Peel	500	$1,896	$422	22.3%
Lachlan	500	$2,219	$422	19.0%
Macquarie	500	$2,219	$422	19.0%
Far West	500	$2,822	$422	15.0%
Murray	500	$2,582	$422	16.3%
Murrumbidgee	500	$3,379	$422	12.5%
North Coast	500	$3,773	$422	11.2%
Hunter	500	$1,288	$422	32.8%
South Coast	500	$1,322	$422	31.9%

a Includes WAMC charges and MDBA and BRC charges.

b Net of existing MSC charges.

Note: Assumes a 100mm meter.

Source: IPART analysis

As with regulated rivers, the impacts of Water NSW's proposed metering charges are significantly lower in unregulated rivers for water users with a customer owned meter. However, this excludes the additional costs incurred by the customer directly in complying with the policy, including the purchase, upgrade and maintenance of the meter.

14.3.3 Impacts on customers and water users in groundwater

The impact on groundwater users of the metering reforms are shown below.

Government owned meters

Table 3.4 sets out the overall impact on WAMC bulk water bills on groundwater licence holders with a government owned meter.

Table 14.7 Indicative impact of metering proposal on bills on groundwater with government owned meters ($/year, $2020-21)

Valley	ML entitlement	2021 bill[a]	Additional metering charges[b]	% increase caused by metering
Inland	500	$3,274	$1,888	57.7%
Murrumbidgee	500	$2,309	$1,888	81.8%
Coastal	500	$2,272	$1,888	83.1%

a Includes WAMC charges, MDBA and BRC charges and MSCs.

b Net of existing MSC charges.

Note: Assumes a 100mm meter.

Source: IPART analysis.

As with surface water the impacts are significant for water users with government owned meters on groundwater. The impacts range from 58% in inland sources to 83% in the coastal groundwater region.

Customer owned meters

Table 14.8 sets out the overall impact on WAMC bulk water bills on groundwater licence holders with a customer owned meter.

Table 14.8 Indicative impact of metering proposal on bills on groundwater with customer owned meters ($/year, $2020-21)

Valley	ML entitlement	2021 bill[a]	Additional metering charges[b]	% increase caused by metering
Inland	500	$2,871	$422	14.7%
Murrumbidgee	500	$1,905	$422	22.1%
Coastal	500	$1,868	$422	22.6%

a Includes WAMC charges and MDBA and BRC charges.

b Net of existing MSC charges.

Source: IPART analysis.

Water users with a customer owned meter will face a less significant increase in Water NSW's proposed charges than those with a government owned meter. However, this excludes the additional costs incurred by the customer directly in complying with the policy, including the purchase, upgrade and maintenance of the meter.

Most groundwater customers will require a meter for the first time. This is particularly the case in coastal regions where Water NSW estimates the existing number of groundwater meters will need to increase from 56 to 2,657.[cxxxv]

14.3.4 We are seeking stakeholder feedback on bill impacts

As set out above, the potential impacts on typical customer bills are significant. We are interested in stakeholder feedback on the affordability of the proposed charges and how they will affect licence holders, particularly for smaller volume entitlements.

We seek stakeholder comment on:

3 Do you consider the indicative scheme proposed costs are affordable and what are the impact of proposed bill increases on licence holders?

Will the metering proposal lead to some consolidation of entitlements?

Whether on government owned or customer owned meters, water users face significant costs in complying with the new policy. Given the relative scale of the proposed increases in costs for water users, we are interested in any potential flow on effects the metering proposal may have in the bulk water and irrigation sector more generally.

Small volume licence holders who are required to pay the costs proposed by Water NSW will face higher percentage increases in their total bills than those with larger entitlements. The fixed per-meter charges in Water NSW's proposal means the average cost per megalitre of holding and using water will be higher for smaller licence holders.

We are interested in whether this may lead to some consolidation of entitlements in NSW. If small volume water users can obtain greater value by permanently trading their entitlement than paying the ongoing total costs of holding it, it may lead to fewer water users, holding larger entitlements where trading is possible.

We seek stakeholder comment on:

4 Will Water NSW's proposal result in a consolidation of entitlements and fewer licence holders?

Will the metering proposal lead to water users downsizing their meters?

The metering policy requires all meters of 100mm or greater to comply with the new metering standards and requirements, and as such face the proposed charges and other associated costs.

Water NSW's information shows that the most common size of meters for water users on regulated and unregulated rivers is between 100mm and 149mm.[cxxxvi] We are interested in whether there is scope for, or analysis that suggests, downsizing a pump to below 100mm (say) would be a potential outcome of the policy.

While we consider that downsizing works in this manner would incur additional costs on a water user, if the avoided upfront and ongoing costs are significant enough, it may make financial sense to do this if the required flow rates could still be delivered.

If this were the case, it may affect the scale and scope of Water NSW's proposed metering program and hence its overall costs and timing.

We seek stakeholder comment on:

5 Will the metering policy result in some water users downsizing their works to avoid the 100mm meter threshold for the new policy?

Customers and water users with government owned meters can opt out

Water NSW's MSC for customers and water users with government owned meters means that such customers face significantly higher charges than those with customer owned meters. However, this excludes the private costs of purchase, installation and maintenance associated with customer owned meters, which may be significant.

Water NSW has stated that government-owned meters will be limited to those already in place, and will not be extended to any other customers who wish to have a government owned meter.

Customers and water users who currently have a government owned meter can opt out of the scheme, and switch to a customer owned meter.[cxxxvii] The MSC is based on the total *average* operating and capital costs of making all current government owned meters compliant with the new policy. As customers can opt out, it could lead to a situation where:

- some customers whose cost of meeting the new policy would be significantly lower than the average MSC of $1,870 opt out of the scheme and pay lower costs with a customer owned meter
- Water NSW faces a significant increase in the average costs (and hence the MSC) of administering the government owned meter scheme, as lower-cost customers opt out.

Further, the ability to opt out suggests that customers have a choice about who provides their meter and support services. If this service is contestable, there may be an economic case to not set a maximum charge if customers have a choice of who can provide the metering service.

We seek stakeholder comment on:

6 What are the impacts, if any, on customers and Water NSW if customers with government owned meters choose the opt-out option?

7 If there are other providers who can provide the service, would there be an economic case to not set a regulated price for the MSC?

8 If you have decided or are deciding to opt out of the government owned scheme and own your own meter, please tell us the reasons why you switched or are considering switching.

9 If we do set a regulated maximum price for metering where there are alternative providers, what should we consider to ensure we support efficient outcomes in these situations?

10 What would be the implication for customers, water users and Water NSW if we don't set a regulated price for the MSC for government owned meters?

14.4 Water NSW has proposed significant costs to implement metering reforms

Water NSW has proposed significant costs to implement the NSW Government's metering reforms. In this section we discuss Water NSW's proposed costing approach and findings from Cardno's initial review of Water NSW's November supplementary pricing proposal. Water NSW has used a bottom-up approach to derive its metering reform cost estimates. Cardno's initial assessment found that:

- Some key assumptions used to forecast the costs of implementing the metering policy have not been validated by supporting evidence, appear to be overly conservative or inaccurate or are still uncertain.
- Water NSW has not performed sensitivity testing of its assumptions against the proposed expenditure. Cardno performed some sensitivity analysis of Water NSW's cost model and noted that small changes in the assumptions used can have a material impact on the overall costs.
- Water NSW has not assessed the risk and opportunities for its proposed implementation program. Cardno considers a robust implementation program should have good practice risk management. That is, to develop a comprehensive register of risk aligned with its work program and financial assumptions, conduct regular review and identify how these risks can be mitigated. This will ensure its business processes are delivering efficient outcomes.

Detailed analysis of Water NSW's proposed metering scheme management and government owned meter expenditure is summarised below.

14.4.1 Metering scheme management costs

Water NSW proposed $35.8 million in operating expenditure for its meter scheme management costs.[cxxxviii] These costs are relevant to the charges to water users with privately owned meters. As shown in Table 14.9, the main drivers are labour costs (e.g. Water NSW staff undertaking field work to download LIDs) and IT licensing fees (e.g. DAS and DQP portal). In addition, Water NSW proposed $2.9 million in capital expenditure for motor vehicles to carry out field work and corporate system to manage meter data.[cxxxix]

Table 14.9 Water NSW's proposed operating expenditure for meter scheme management ($millions, $2020-21)

Service	Overview
Downloading LID data	17.9
Operating and maintaining DAS and DQP Portal	6.2
Managing DQP certificates	0.7
Customer self-reporting	6.9
General enquiries and education	2.8
Other activities (eg, processing inactive works and faulty meters)	1.0
Total	**35.5**

Note: Water NSW included $35.5 million of operating expenditure in its submission to IPART in December 2020. In subsequent discussions with our consultant, Cardno, Water NSW has revised this operating expenditure to $35.8 million.
Source: Water NSW, *Supplementary pricing proposal to IPART*, December 2020, p 22.

Cardno's initial analysis of Water NSW's proposed operating expenditure found that:

- A significant portion of the assumed costs for initial site inspection (18% of total costs) and downloading LID data (31% of total costs) is for staff travel. Water NSW assumes that the costs for travel to the relevant inspection site is greater than the costs required to complete field tasks at the site. Water NSW's assumptions also includes cost estimates for passive tasks such as upload time to enter data into systems. Cardno considers Water NSW's assumptions and cost estimates are likely to be overstated.[cxl]

Cardno also raised concerns about a number of Water NSW's assumptions. In particular, Cardno notes Water NSW has not completed any cost benefit analysis of potential alternative approaches or options for delivering its field activities. This may include outsourcing of some tasks to reduce the time and costs required to perform its field activities at remote sites, or consider the likelihood of a larger customer base/ recommending more customers voluntarily installing telemetered meters to avoid the need for regular manual reading and downloading of LID data to lower ongoing meter reading costs.

- The operation and maintenance of DAS data portals (17% of total costs) includes a number of uncertain assumptions. Water NSW's proposal estimates a fixed number of FTE roles will be required to operate and manage these portals. Water NSW expects that it is likely that greater technical support will be required to operate these new systems. However, the required commitments for these roles are still largely unknown, Water NSW is also unclear whether it will source these roles internally or externally.
- While the tasks and inputs required for processing data (21% of total costs) are generally straightforward, Cardno found the outputs are heavily dependent on unsubstantiated assumptions. Cardno is concerned that small changes to the assumptions used for any of the key tasks can potentially have a large impact on the total time required to complete the activity and the corresponding FTEs and salary costs required.

Water NSW's proposed capital expenditure is made up of vehicle costs and costs of its corporate systems. Cardno's initial review of Water NSW's proposed capital expenditure is that these costs are significantly dependent on the accuracy and reliability of its assumptions on the time taken and staff required to conduct site inspections and download LID data. We are concerned that if these assumptions are overstated, the required level of capital expenditure is also likely to be overstated. Cardno also notes that Water NSW has not performed any sensitivity analysis of the proposed expenditure against its key assumptions.

14.4.2 Government owned meters

Water NSW proposed costs of $27.0 million to manage government owned meters. This would recover $12.4 million in operating expenditure which Water NSW forecasts it will incur over the 2021 determination period to maintain the government owned meters to a standard that complies with the new metering requirements.[cxli] Water NSW estimates it will cost $14.6 million in capital expenditure to upgrade the existing government meters to the new metering requirements. It proposed the capital charges discussed above to cover these costs.[cxlii]

Water NSW has used a bottom up cost estimate to apply an assumed per meter unit rate for a number of activities multiplied by the number of meters that are required to be made compliant. As discussed above, it appears that Water NSW's proposed costs are only to make existing government meters compliant and does not include the replacement of or installation of new government owned meters.

Cardno's initial analysis of Water NSW's proposed operating expenditure found that:

- It is unclear what is included in the proposed on site-telemetry costs as there is no granular cost build up available (27% of total costs).

- Water NSW has proposed generous allowances for consumables per year per compliant meter (6% of total costs) and these appear to be overstated.
- Water NSW's proposed approach to accuracy testing does not appear to conform to the NSW policy (2% of total costs).
- It is likely that Water NSW has overestimated the forecast costs for resealing meters/LIDs (6% of total costs), cutting back vegetation (3% of total costs), inspecting and diagnosing faulty meters (6% of total costs). [cxliii]

Water NSW's proposed capital expenditure includes a number of activities such as installation of LIDs on existing government meters, validation, excavation and removing of above ground meters, non-patent approved meter replacement, accuracy testing, rectifying damaged meters and scheme administration.

Cardno's initial analysis of Water NSW's proposed capital expenditure found that:

- Installation of LID costs are based on initial quotes from a new vendor which is reasonable, however as this is a new vendor there is a risk that this vendor may not meet the requisite requirements to perform this activity.
- It is unclear what is included in the proposed validation costs as there is no granular cost build up available (22% of total costs)
- The rationale for its assumptions on the number of meters requiring excavation, removal and replacement is unclear (15% of total costs)
- The work activities proposed to be completed to administer the government owned meter program is reasonable and appropriate, however there is no granular cost build up available to support its proposed costs (16% of total costs). Cardno considers these costs appear to be overstated.
- Water NSW's proposed approach to accuracy testing does not appear to conform to the NSW policy (18% of total costs). Cardno notes that it appears that some of the proposed costs are likely to be overstated.
- The basis for Water NSW's formula for estimating the number of damaged meters that need to be rectified (13% of total costs) is unclear. [cxliv]

14.4.3 We are seeking stakeholder feedback on Water NSW's proposed costs

Based on the information available and the significant uncertainty associated with Water NSW's assumptions as presented in Cardno's initial analysis, we consider it is difficult to determine the efficient base expenditure to be included in prices.

We are concerned that Water NSW's supplementary pricing proposal does not meet the threshold of being efficient costs. We are mindful of the potentially adverse impact on customers if we allow significant proposed costs that are, or likely to be inefficient, to be passed through regulated prices over the determination period. We consider customers should only be paying for costs which are efficient.

We seek stakeholder comment on:

11 What are your views on Water NSW's proposed costs and our initial assessment of these costs?

14.5 Water NSW's proposed pricing structure and who should pay for the revised metering policy

In this section we discuss Water NSW's proposed pricing structure and our preliminary views on who should pay for:

- upgrading government owned meters
- upgrading privately owned meters
- ongoing costs, including metering compliance, recording and reporting.

We consider costs to upgrade and ensure compliance with a new legislative requirement fall under the *Metering and Compliance* activity code which has a 100% user share.

In its November supplementary pricing proposal, Water NSW outlined options it considered before reaching its preferred position to apply a fee based equivalent charge to recover costs from customers.

Water NSW's preferred option is for a separate charge to apply to all customers directly impacted by the metering reform program, represented by:

- a 'telemetry' or a 'non-telemetry charge, based on the meter technology applied to the customer. This charge is applied as an annual fee per metering installation. Water NSW has indicated that this charge would be $345 per meter for both telemetry and non-telemetry meters.
- a 'scheme management' charge, on a per licence basis (licence volume as $/licence). Water NSW have indicated that this charge would be $77 per licence.

Table 14.10 outlines Water NSW's meter reform service charges options summary and its preferred position (Option 3).

Table 14.10 Water NSW's meter reform service charges option summary

Option	Description
Option 1 – Fully bundled and socialised	A single 'fully bundled' charge which captures all charging components of the meter reform services. Costs are pro-rated and fully socialised across the Water NSW customer on either a: ▼ per entitlement basis (entitlement volume as $/ML), or ▼ per licence basis (licence volume as $/licence).
Option 2 – Fee based	Two separate charges applied to all customers directly impacted by the metering reform program (i.e. not socialised across the Water NSW customer base), represented by: ▼ A 'telemetry' or a 'non-telemetry' charge, based on the meter technology applied to the customer. This charge is applied as an annual $ fee per metering installation. ▼ A 'scheme management' charge, on a: – Per entitlement basis (entitlement volume as $/ML), or – Per licence basis (licence volume as $/licence).
Option 3 – Fee based (equivalent charge) (Water NSW proposed position)	Similar to option 2, a separate charge is applied to all customers directly impacted by the metering reform program, represented by: ▼ A 'telemetry' or a 'non-telemetry' charge, based on the meter technology applied to the customer. This charge is applied as an annual $ fee per metering installation. Although separate charges for telemetry and non-telemetry would be established, the annual fees would be the same for the 2021 determination period. ▼ A 'scheme management' charge, on a per licence basis (licence volume as $/licence).
Option 4 – Socialised (by meter type)	A single 'fully bundled' charge which captures all charging components of the meter reform services. The charge is represented as either a 'telemetry' or a 'non-telemetry' charge, based on the metered technology applied to the customer.

Source: Water NSW's Supplementary pricing proposal to IPART, November 2020

Water NSW's proposal includes two charges it proposes to levy under its equivalent charge methodology:

- **Telemetry or a non-telemetry charge** – Water NSW's preliminary analysis indicated that setting cost-reflective fees would result in a higher telemetry fee compared with the non-telemetry fee. However, it has proposed these fees be set at the same rate. It considers that while the costs of telemetry are higher than non-telemetry in the short term, those costs are likely to come down as more customers have telemetry installed and the costs of technology reduce. As such, it considers having a higher fee would not provide an efficient price signal to water users to adopt telemetry.
- **Scheme management charge** – Water NSW's proposed scheme management charge is intended to recover the wider scheme costs associated with recording and reporting, DAS and DQP portal, general enquiries and education. Water NSW has proposed applying the scheme management charge to all licence holders, rather than to only water users with meters (i.e. it is a per licence, rather than per meter charge). It considers all water users will benefit to some extent from metering reforms, so the total costs should be recovered from licence holders.

The existing charges for government owned meters vary depending on the water source (regulated rivers, un-regulated rivers and groundwater) as well as the meter size. The approach proposed by Water NSW will shift away from this approach in favour of flat fees for government owned meters across water sources and meter sizes.

14.5.1 Who should pay for the revised metering policy

As with other costs proposed by Water NSW we will apply our impactor pays framework to assess who should pay for metering policy reforms. This section outlines our preliminary views on who should pay for metering reform.

Our preliminary views are:

- A 'fee-for-service' approach to charge customers directly impacted by works to make their government owned meter compliant may be reasonable. This is consistent with our impactor pays principle because customers who rely on a government owned meter are driving the need for upgrades to make them compliant with the new legislation.
- Ongoing servicing charges for telemetry and non-telemetry meters should reflect the underlying costs of servicing each type of meter, if it is practical to do so. Our preliminary view is also that there are benefits in charging customers variable fees depending on the underlying water source and meter size, if these variables are significant drivers of the underlying costs of installing and servicing each meter type.
- The cost of upgrading privately owned meters should be borne by each individual meter-owner, net of any subsidies offered by the government. This approach would reduce cross-subsidisation by licence-holders that have already installed and maintained a compliant meter.
- Scheme management charges could apply to either individual meter owners or all licence holders. To some extent, all water users are driving the need to improve water resource management – not just those that need to comply with the new policy. However, the primary impactor, i.e., those that are predominantly causing the costs to be incurred are each individual meter owner. We seek stakeholder views on who should pay for scheme management charges.

We seek stakeholder feedback on our preliminary positions. In particular, who should pay for government owned meters and how the costs of the reforms should be shared between water users.

We seek stakeholder comment on:

12 Should scheme management charges for non-urban metering reform apply on a per licence basis (as proposed by Water NSW)?

13 Should the costs associated with installing telemetry and non-telemetry meters be the same?

14.5.2 We are uncertain about how Water NSW intends to include these metering charges

As outlined in this chapter, we consider the costs proposed by Water NSW do not meet the threshold of being efficient costs. Our preliminary view is to maintain existing metering charges for Water NSW and WAMC customers over the determination period.

We understand Water NSW proposes to replace the existing metering charges with the revised metering charges based on its updated pricing proposal. If we have sufficient information to establish the efficient costs of the proposed metering reforms, we will consider whether we should transition the existing metering charges to revised charges over the determination period or set prices to apply from 1 July 2021.

We seek your comments on:

14 If we were to set new metering charges, how should we transition between the existing charges to the new charges?

14.6 We are seeking stakeholder feedback on other key issues

For this review, we need to decide the efficient level of costs Water NSW will incur in implementing the non-urban metering reforms over the 2021 determination period, who should pay for these costs and in turn, the amount it can recover via prices to customers. We are seeking stakeholder feedback on other key issues we have identified from our review of Water NSW's pricing proposal.

14.6.1 We are concerned about whether Water NSW's proposal will effectively achieve the government's metering policy objectives

The Matthews Report identified that a key challenge with implementing reform is translating the government's desired high level reform outcomes into specific and practical measures.[cxlv]

As discussed above, we are concerned Water NSW's proposed expenditure may not meet the threshold of efficient costs. The uncertainty of Water NSW's proposed assumptions and costs may create risks to the successful implementation of metering reforms.

We are concerned Water NSW's proposal lacks proper cost-benefit analysis to ensure the implementation program will realise the expected benefits of the policy objectives. It is not clear to us whether the costs of the program, and the proposed charges to water users, have been tested against the NSW Government's technology, accuracy standards and scope of the policy.

We understand that Water NSW has obligations to implement the policy in the timeframes determined by the NSW Government. However, we consider Water NSW has a role to influence efficient outcomes. It should take an active role when putting together its implementation program to reduce uncertainty and provide good value to the NSW Government and water users. Since the metering program is imposing significant costs on water users and customers, we consider Water NSW should have:

- Undertaken appropriate cost-benefit analysis of its proposed implementation program
- Developed a more robust pricing proposal to provide greater assurance of its assumptions
- Assessed the risks and opportunities with its implementation program and identify any mitigation measures required
- Consulted with water users and customers on the proposed costs and impacts including affordability and the balance of how these costs should be recovered
- Provide clarity to water users and customers on what prices they will be required to pay under its proposed implementation program. If customers have a choice about who provides their meter and support services, this should be clearly identified.

We seek stakeholder comment on:

15 Do you consider Water NSW's proposal will effectively achieve the Government's policy objectives for metering reform?

14.6.2 We are concerned about whether Water NSW will be able to deliver its proposed implementation program

Generally, if a proposed implementation program does not meet the threshold of efficient costs or ensure the effective delivery of the policy objectives, we would consider there is sufficient grounds to warrant a reassessment of the implementation program against the policy objectives to ensure the expected benefits will be realised. We consider that an effective implementation program should appropriately consider and balance the costs, benefits and risks associated with the program.

We acknowledge the NSW Government has enacted regulations to implement metering in NSW and stage its roll-out over five years. We do not want to further delay the adoption of the new non-urban water metering framework. However, given the amount of uncertainty identified in our initial review of Water NSW's pricing proposal, we are concerned about whether Water NSW will be able to achieve and deliver the metering program to the standard and requirements set out in the metering framework. We also consider there is an opportunity for the NSW Government to provide feedback and scrutinise Water NSW's proposed costs against its policy objectives.

We seek stakeholder comment on:

16 What are potential impacts on the implementation of metering reform if Water NSW's proposal does not meet the metering policy objectives?

14.7 Our preliminary position

Since Water NSW has not consulted on the proposed metering reform costs and stakeholders have not had an opportunity to comment on Water NSW's supplementary pricing submission, we do not consider it is appropriate to provide draft decisions and draft prices on Water NSW's proposed additional metering reform costs.

We recognise this means there will not be a formal submission process for stakeholders to provide feedback on our draft prices on the additional costs of metering reforms. However, we are seeking stakeholder feedback on our preliminary position. Stakeholders will also have an opportunity to comprehensively engage with Water NSW on its pricing proposal and our preliminary position at our second public hearing.

We support the NSW Government's comprehensive reforms on metering. However, we consider Water NSW's proposed implementation program is still at a preliminary stage of development. Based on the information provided to date, we are still considering the efficiency of Water NSW's proposed additional metering costs. If we are unable to obtain sufficient information to forecast efficient costs with confidence, we may not set any additional metering charges for this pricing period (in addition to its existing metering charges discussed in Chapter 13) to be included in WAMC and Water NSW's rural bulk water metering charges. This is because:

- It appears the proposed costs have not been developed with sufficient rigour to be considered efficient costs. We found a number of key assumptions used to form the cost estimates are uncertain, potentially overstated and/or have not been tested or validated.
- More work is needed to ensure Water NSW's implementation of these reforms is both effective and efficient. We found Water NSW has not performed sensitivity testing of its assumptions against the proposed expenditure. This means that small changes to some of its key assumptions may potentially have a material impact on the costs required to deliver its metering activities.
- Water NSW does not have a risk register or any mitigation measures to manage its implementation program. Due to the uncertainty over Water NSW's proposed cost assumptions there is a high level of risk that the proposed implementation program will not effectively meet the policy objectives. We consider more work is needed to identify, assess and consult on the potential impacts of Water NSW's proposal on the water sector, affected communities and the broader economy.

We also consider that it is not appropriate for Water NSW to have an 'unders and overs' mechanism to mitigate its financial risks. Water NSW should be completing a robust business case to provide assurance that its proposed costs and prices are efficient, as opposed to retrospectively seeking cost recovery for its actual costs which may potentially be inefficient.

As discussed above, we do not want to further delay the adoption of the Government's non-urban metering framework. Further, not setting draft prices does not mean Water NSW should not implement the NSW Government's non-urban metering reform policy.

We consider Water NSW should bear the risks and costs associated with the implementation of this policy until it has provided sufficient information for us to make decision on efficient costs, so they can be included in regulated prices. Water NSW should be incentivised to prepare robust pricing proposals, develop effective and coordinated long-term water resource planning and conduct effective stakeholder engagement.

We are mindful of the potentially adverse impact on customers if we allow significant proposed costs that are or are likely to be inefficient, to be passed through regulated prices over the determination period. We consider customers should only be paying for costs which are efficient.

We set Water NSW's infrastructure charges in the Murray Darling Basin in line with the WCR. Under the WCR, we are required to set charges so that that the revenue generated from all sources recovers Water NSW's efficient costs of providing infrastructure services over the determination period. While we are not yet in a position to determine efficient costs for the new metering policy at this stage, this does not mean we consider Water NSW's efficient costs of implementing the reforms to be zero.

At this stage, we are still seeking further information on the efficient costs, as well as feedback from customers, water users and other stakeholders. We will ensure that the requirements under the WCR are met when setting prices in our final determination in June 2021, including any charges we set to recover the efficient metering costs.

Appendix

A Matters considered by IPART

This appendix explains how we have 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.[cxlvi]

A.1 Matters under section 15 of the IPART Act

IPART is required under section 15 of the IPART Act to have regard to the following matters:

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 which 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 which Water NSW has entered into and costs associated with these over the next period.
i)	Need to promote competition	In determining efficient costs, we have been mindful of relevant principles such as competitive neutrality (e.g. we have 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 have assessed Water NSW's efficient historical and forecast expenditure required to deliver its regulated services at least cost. Chapter 10 outlines how we have 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 that 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.[56] Rule 29(2) and (3) specify the matters that IPART must be satisfied of when approving or determining regulated charges. Rule 29(4) explains the relevance of the Basin water charging objectives and principles that are set out below.[57]

A.2.1 Schedule 2 – Basin water charging objectives and principles[58]

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.
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

56 *Water Charge (Infrastructure) Rules 2010* (Cth).
57 Under the *Water Act 2007* (Cth), schedule 2
58 See *Water Act 2007* (Cth), schedule 2, https://www.legislation.gov.au/Details/C2016C00469

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 were found to be feasible.

Benchmarking and efficiency reviews

1. Independent and public benchmarking or efficiency reviews of pricing and service quality relevant to regulated water charges is or are to be undertaken based on a nationally consistent framework.

2. The costs of operating these benchmarking and efficiency review systems are to be met through recovery of regulated water charges.

Table A.2 outlines the sections of the report that address each matter.

Table A.2 Consideration of Water Act 2007 schedule 2 matters by IPART

Section 15(1)	Report reference
Part 2 – *Water charging objectives*	
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	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.
b) to ensure sufficient revenue streams to allow efficient delivery of the required services; and	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.
c) to facilitate the efficient functioning of water markets (including inter-jurisdictional water markets, and in both rural and urban settings); and	Chapter 11 sets out our decisions on entitlement and usage charges for infrastructure services. Chapter 5 sets out the MDBA and BRC costs we have included in setting prices.
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	Chapters 3 and 4 set out efficient expenditure required to deliver the services. Chapter 5 sets out our draft 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.
e) to avoid perverse or unintended pricing outcomes.	Chapter 7 describes how we have set the revenue requirement to meet efficient costs. Chapter 10 describes how we have 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	
1. Pricing policies for water storage and delivery in rural systems are to be developed to facilitate efficient water use and trade in water entitlements.	Chapter 10 shows how we have set prices that reflect the user share of costs of delivering the infrastructure services.
2. Water charges are to include a consumption-based component.	Chapter 10 sets out how we have set water usage charges.
3. Water charges are to be based on full cost recovery for water services to ensure business viability and avoid monopoly rents, including recovery of environmental externalities where feasible and practical.	Chapter 7 sets out our draft decisions on the efficient costs of delivering the services. Chapter 8 details how we have allocated those costs between water users and the government, based on an impactor-pays approach.
4. 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.

Section 15(1)	Report reference
	Chapter 10 sets out how we have set prices to recover the user share of those efficient costs.
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).	Chapters 3 and 4 detail our draft decisions on efficient operating costs. Chapter 8 sets out our decisions on allowances for tax equivalent costs. Chapter 7 sets out our decisions on allowances for regulatory depreciation, and the cost of capital (WACC) applied to the regulatory asset base.
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.	Chapter 8 describes how we have shared costs between users and Government. Chapter 10 sets out how we have set prices to fully recover the user share of those costs.
7. Pricing policies should ensure consistency across sections and jurisdictions where entitlements are able to be traded.	Chapter 10 sets out that we have 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	
1. Market-based mechanisms (such as pricing to account for positive and negative environmental externalities associated with water use) are to be pursued where feasible.	Chapter 10 sets out our decisions on the usage charges that send signals to water extractors.
2. 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	
3. 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.
4. 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.

B Annual review

The WCR set requirements relating to the charges payable to infrastructure operators for infrastructure services. We are accredited by the ACCC to set bulk water prices for MDB valleys in line with the WCR and ACCC Pricing Principles.[59]

The WCR currently applies to rural bulk water services in Murray-Darling Basin (MDB) valleys and rural customers in the Fish River Water Supply Scheme (MDB Services). Water NSW's prices in other coastal valleys are regulated under the IPART Act.

B.1 Annual reviews

Below we outline our approach to annual reviews of prices within the 2021 determination period for the MDB valleys and the coastal valleys separately, given that our regulation of prices within each of these operational areas is subject to different requirements and legislation.

B.1.1 MDB valleys

Under the WCR we are required to set a four year determination period and to undertake an annual review of prices for MDB valleys.[60]

Given our obligations under the WCR, we will undertake annual price reviews of Water NSW's MDB valleys following applications by Water NSW.[61]

The annual price review process requires us to vary regulated charges to the extent that such variation is reasonably necessary having regard to changes in demand or consumption forecasts, price stability, and the consistency of the infrastructure charges with the requirements in the WCR.

For the 2021 Determination we intend to apply the same annual review approach we used for the 2017 Determination. Box B.1 sets out our approach to annually reviewing prices in MDB valleys.

59 Reference to the MDB valleys also includes the FRWS (excluding Oberon and Lithgow Councils).

60 WCR, Part 1(3) and Part 6, Division 3. Note that although our determination will be made under the WCR as they stood as at 30 June 2020, the annual reviews will be governed by the version of the WCR that came into effect on 1 July 2020.

61 The WCR (Part 6, Division 3) privies for the annual review of regulated charges for second or subsequent years of a regulatory period following an application by the infrastructure operator. The application must include the operator's forecast of demand for, or consumption of, services for the year to which the application relates; an explanation of why those forecast are different from its initial forecast, the operator's estimate of demand or consumption during the current year; information about how the forecast and estimate were calculated; and proposed regulated charges in respect of the year to which the application rates. The regulator may request the operator to provide further information relating to an application.

Box B.1 Annual price review of MDB valleys

For the 2021 Determination, in calculating prices for 2022-23, 2023-24 and 2024-25, for MDB valleys involves updating prices for the upcoming year, by valley, for the:

- expected number of entitlements issued for the valley in that year (for updating entitlement charges)
- expected water usage for the valley in that year based on the 20-year rolling average of past water usage (for updating usage charges)

In updating prices, we would also account for the:

- tariff structure applied in each valley
- nominal revenue allowance for each valley for that year
- water sharing plans and average water allocation ratios for each valley (which are used to determine the HS premium).

This approach is largely consistent with the approach adopted under the ACCC 2014 Decision, except our approach does not update prices to reflect the balance of the UOM as we decided to discontinue the UOM as part of our 2017 Determination.

We intend to use the formulas presented in Boxes Box B.2, Box B.3 and Box B.4 (and the accompanying tables) as part of the annual review process to determine charges for Water NSW.

Box B.2 Calculation of charges for MDB valleys, excluding Fish River Scheme

In valley ***i***, at time ***t***, the allowed charges are:

a) For high-security entitlements ($/ML of entitlement):

$$HSEC_{i,t} = \frac{HSP_{i,t} \times Share_i \times Rev_{i,t}^{NRR}}{(HSP_{i,t} \times EHSE_{i,t} + EGSE_{i,t})}$$

b) For general-security entitlements ($/ML of entitlement):

$$GSEC_{i,t} = \frac{Share_i \times Rev_{i,t}^{NRR}}{(HSP_{i,t} \times EHSE_{i,t} + EGSE_{i,t})}$$

c) For usage ($/ML):

$$UC_{i,t} = \frac{(1 - Share_i) \times Rev_{i,t}^{NRR}}{EWU_{i,t}}$$

The terms used in the above formulas are defined in Table 6.2.

Source: ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, pp 68-69, and IPART analysis.

Table B.1 Description of terms used in Box A.1

Definitions	
i	Valley: Border, Gwydir, Namoi, Peel, Lachlan, Macquari.e. Murray, or Murrumbidgee.
t	Year: 2021-22, 2022-23, or 2023-24.
$HSP_{i,t}$	High security premium for valley i, in year t, calculated as set out below.
$Share_i$	The share of entitlement charges in Water NSW's price structure for valley i.
$Rev_{i,t}^{NRR}$	The component of the (nominal) notional revenue requirement to be recovered from Water NSW customers (i.e. customer share of NRR) for valley i, in year t, given by the Building Block Model at the start of the determination period.
$EHSE_{i,t}$	The expected number of high-security entitlements issued for valley i, in year t.
$EGSE_{i,t}$	The expected number of general-security entitlements issued for valley i, in year t.
$EWU_{i,t}$	The expected water usage (or sales) for valley i, in year t, based on a 20-year moving average of past water usage.
$HSEC_{i,t}$	High security entitlement charge for valley i, in year t.
$GSEC_{i,t}$	General security entitlement charge for valley i, in year t.
$UC_{i,t}$	Usage charge for valley i, in year t.

Source: ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, pp 68-69 and IPART analysis.

The high security premium for valley i, in year t, $HSP_{i,t}$, is the product of the Security Factor $SF_{i,t}$, and the Reliability Ratio $RR_{i,t}$:

$$HSP_{i,t} = SF_{i,t} \times RR_{i,t}$$

The Security Factor for a valley, $SF_{i,t}$, is given in Table B.2.

Table B.2 Security Factors for each valley

Valley	Security Factor
Border	1.25
Gwydir	1.40
Namoi	1.25
Peel	6.54
Lachlan	2.50
Macquarie	1.88
Murray	1.31
Murrumbidgee	1.69

Source: IPART, *Review of prices for rural bulk water services for Water NSW – Final Report*, June 2017, p 224.

Box B.3 Formulas for charges for Fish River customers

Customers of the Fish River Water Supply Scheme pay water charges in three parts:

- an access charge (the Minimum Annual Quantity (MAQ) paid per kL of the customer's MAQ entitlement
- a charge for each kL of water usage that is less than or equal to the customer's MAQ entitlement (in kL), and
- a charge for each kL of water usage that is greater than the customer's MAQ.

Fish River charges are different for each water class (filtered or raw) and each customer category within each water class (minor and major customers).

The formulae that we have used to estimate the charges for each component of the Fish River for an Annual Review are described below.

$$Charge_{ix}^{MAQ\ entitlement} = \frac{Revenue_{ix}^{MAQ}}{MAQ\ level_{ix}} \quad \textbf{(1)}$$

$$Charge_{ix}^{usage \leq MAQ} = \frac{Revenue*_{ix}^{usage \leq MAQ}}{Min(Usage_{ix}, MAQ\ level_{ix})} \quad \textbf{(2)}$$

$$Charge_{ix}^{usage > MAQ} = Charge_{ix}^{MAQ\ entitlement} + Charge_{ix}^{usage \leq MAQ} \quad \textbf{(3)}$$

Where in formula (2), $Revenue*_{ix}^{usage \leq MAQ}$ is set out in formula (4) below:

$$Revenue*_{ix}^{usage \leq MAQ} = Revenue_{ix}^{total} - Revenue_{ix}^{MAQ} - Calculated\ revenue_{ix}^{usage > MAQ} \quad \textbf{(4)}$$

Where in formula (4) $Calculated\ revenue_{ix}^{usage > MAQ}$ is set out in formula (5) below:

$$Calculated\ revenue_{ix}^{usage > MAQ} = Max(0, Usage_{ix} - MAQ\ level_{ix}) \times Charge_{ix}^{usage > MAQ} \quad \textbf{(5)}$$

Source: ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, pp 72-73, and IPART analysis.

Table B.3 Description of terms used in Box B.3

Definitions	
Formula 1	
$Charge_{ix}^{MAQ\ entitlement}$	The MAQ entitlement charge per kL of entitlement for customer category *i* purchasing water class *x*.
$Revenue_{ix}^{MAQ}$	The required revenue to be collected from MAQ charges for customer category *i* purchasing water class *x*.
$MAQ\ level_{ix}$	The historical annual kL of MAQ entitlement by customer category *i* purchasing water class *x*.
Formula 2	
$Charge_{ix}^{usage \leq MAQ}$	The charge for each unit of water usage under or equal to the MAQ level for customer category *i* purchasing water class *x*.
$Revenue *_{ix}^{usage \leq MAQ}$	The required revenue to be collected from usage charges for customer category *i* purchasing water class *x*.
$Usage_{ix}$	The amount of the historical water usage for customer category *i* purchasing water class *x*.
Formula 3	
$Charge_{ix}^{usage > MAQ}$	The charge for each unit of water that is used after crossing the MAQ threshold for customer category *i* purchasing water class *x*.
Formula 4	
$Revenue_{ix}^{total}$	The total required revenue to be collected from charges for customer category *i* purchasing water class *x*.
$Calculated\ revenue_{ix}^{usage > MAQ}$	The revenue collected from charging for usage in excess of the MAQ (at the value calculated in Formula 3) for customer category *i* purchasing water class *x*.

Source: ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, p 73, and IPART analysis.

Box B.4 Calculation of MDBA and BRC charges

In valley ***i***, at time ***t***, the allowed charges are:

a) For high-security entitlements ($/ML of entitlement):

$$HSEC_{i,t}^{MDBA/BRC} = \frac{HSP_{i,t} \times Share_i \times Rev_{i,t}^{MDBA/BRC}}{\left(HSP_{i,t} \times EHSE_{i,t} + EGSE_{i,t}\right)}$$

b) For general-security entitlements ($/ML of entitlement):

$$GSEC_{i,t}^{MDBA/BRC} = \frac{Share_i \times Rev_{i,t}^{MDBA/BRC}}{\left(HSP_{i,t} \times EHSE_{i,t} + EGSE_{i,t}\right)}$$

c) For usage ($/ML):

$$UC_{i,t}^{MDBA/BRC} = \frac{(1 - Share_i) \times Rev_{i,t}^{MDBA/BRC}}{EWU_{i,t}}$$

The terms used in the above formulas are defined in Table B.4.

Source: ACCC, *Final Decision on State Water Pricing Application: 2014-15 – 2016-17*, June 2014, pp 75-77 and IPART analysis.

Table B.4 Description of terms used in Box F.4

Definitions	
i	Valley: Border, Murray, or Murrumbidgee.
t	Year: 2021-22, 2022-23, or 2023-24.
$HSP_{i,t}$	High Security Premium for valley i, in year t, calculated as set out below.
$Share_i$	The share of entitlement charges in Water NSW's MDBA/BRC price structure for valley i.
$Rev_{i,t}^{MDBA/BRC}$	The MDBA/BRC component of the (nominal) notional revenue requirement to be recovered from Water NSW customers (i.e. customer share of NRR) for valley i, in year t, given by the Building Block Model at the start of the determination period.
$EHSE_{i,t}$	The expected number of high-security entitlements issued for valley i, in year t.
$EGSE_{i,t}$	The expected number of general-security entitlements issued for valley i, in year t.
$EWU_{i,t}$	The expected water usage for valley i, in year t, based on a 20-year moving average of past water usage.
$HSEC_{i,t}^{MDBA/BRC}$	High security MDBA/BRC entitlement charge for valley i, in year t.
$GSEC_{i,t}^{MDBA/BRC}$	General security MDBA/BRC entitlement charge for valley i, in year t.
$UC_{i,t}^{MDBA/BRC}$	MDBA/BRC usage charge for valley i, in year t.

Source: ACCC, Final Decision on State Water Pricing Application: 2014-15 – 2016-17, June 2014, pp 75-77 and IPART analysis.

The high security premium for valley i, in year t, $HSP_{i,t}$, is the product of the Security Factor SF_i, and the Reliability Ratio $RR_{i,t}$:

$$HSP_{i,t} = SF_{i,t} \times RR_{i,t}$$

The Security Factor for a valley, SF_i, is given in Table B.5below.

Table B.5 Security Factors for each valley

Valley	Security Factor
Border	1.25
Murray	1.31
Murrumbidgee	1.69

Source: IPART, *Review of prices for rural bulk water services for Water NSW – Final Report*, June 2017, p 228.

B.1.2 Coastal valleys

As discussed in Chapter 2, we have decided on a four year determination period, from 1 July 2021 to 30 June 2025 for coastal valleys that are regulated under the IPART Act.[62] Unlike the WCR, the IPART Act does not require annual reviews.

Water NSW did not propose an annual review process for the coastal valleys in its pricing proposal. Our draft decision is to maintain our current approach and not undertake annual reviews of Water NSW's prices in the coastal valleys for the 2021 Determination.

We consider that the costs of undertaking annual reviews that would meet the requirements for a pricing review under the IPART Act would likely outweigh the benefits.

62 Coastal valleys include the Hunter, North Coast and South Coast valleys, as well as the Oberon and Lithgow Councils.

C Output measures

We set output measures for the water agencies that we regulate to inform us and stakeholders whether they are delivering on their planned capital expenditure. This is important because we set prices to enable them to recover the forecast costs of those plans. Moreover, ongoing inability to meet output measure targets could indicate that the required levels of service, to which we have linked our prices, are not being met and there is a deficiency in the planning and delivery of capital projects.

While meeting output measure targets is important, conclusions about 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.

C.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, out 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.[63]

We asked our expenditure review consultants, Atkins to assess Water NSW's performance against these output measures as part of its expenditure review. Table 12.3 shows Atkins comments against the information provided by Water NSW in their pricing proposal outlining their activity against each of the output measures.

63 Aither, *WaterNSW Expenditure Review Final Report*, February 2017, p19.

Table C.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.

Project	Output measure	Expected completion	Activity 2018-19	Review comments
Regulatory Health and Safety expenditure by valley on 'Renewals – Safety'	WHS risks lowered to As Low As Reasonably Practicable (ALARP), providing a safe working environment for staff, reducing risk to the public, and maintaining operability	30 June 2020	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 of works across 170 sites, approximately 40% of which has 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 are being carried out on the spillway section of the dam, extending the works until December 2020.	Recognised that 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.	Recognised that 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 following 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.	The Water NSW dam engineering team have, since this comment, 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.

C.2 Output measures – 2021 determination period

Table C.2 lists our proposed output measures for the 2021 Determination. These are based on advice from Atkins, our expenditure review consultations.

Water NSW did not proposed output measures within their pricing proposal. We will work with Water NSW to refine the output measures to ensure they are focused on delivering outcomes for customers.

Table C.2 Proposed output measures for 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 and Tyreel Weir fish passage offset schemes to the satisfaction of DPI Fisheries	FY25	Detailed design and construction of the novel fish passage schemes at the two weirs and agreed with DPI Fisheries
Fish pass planning, design, programming	Final business case and detailed designs for the remaining nine 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 two pilot fish pass schemes at Gunidgera and Tyreel Weir progress with developing the business cases and detailed design and program for delivery of the remaining nine 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	

Project	Output measure	Target completion	Activity
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 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

Project	Output measure	Target completion	Activity
Customer measure	Achieve 75% 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 four 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	Dec-21	To reflect the recommendations of the corporate cost allocation review in Section 8 of this report.

D Weighted average cost of capital

To calculate an allowance for the return on assets in the revenue requirement, we multiply the value of the 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 draft decisions on the WACC for Water NSW's assets for MDB valleys and Coastal valleys is set out in Chapter 7.

D.1 We use two methods to calculate a WACC

For our review of Water NSW's rural bulk water services we use two 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.[64]

D.1.1 We set a WACC for rural MDB valleys in accordance with 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.[cxlvii] 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.

Section D.2 explains our methodology for each parameter in more detail.

64 We set prices in coastal valleys under the IPART Act.

Table D.1 sets out the parameters that were used to derive the 1.3% post-tax real WACC for Water NSW's MDB valleys.

Table D.1 WACC calculation using WCR parameters

	Market data
Nominal risk free rate	0.93%
Inflation	2.10%
Implied Debt Margin	1.36%
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)	5.1%
Cost of equity (real-post tax)	3.0%
Cost of debt (nominal pre-tax)	2.3%
Cost of debt (real pre-tax)	0.2%
Nominal Vanilla (post-tax nominal) WACC	3.4%
Post-tax real WACC	**1.3%**
Pre-tax nominal WACC	4.0%
pre-tax real WACC point estimate	1.9%

Source: IPART Analysis.

D.1.2 We use our standard approach to calculate a WACC for Coastal valleys

We use 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 D.2 explains our methodology for each parameter in more detail.

Table D.2 sets out the parameters that were used to derive the 2.8% post-tax real WACC for Water NSW's Coastal valleys.

Table D.2 WACC calculation 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	0.90%	2.60%			
Inflation	2.10%	2.10%			
Implied Debt Margin	1.50%	2.60%			
Market Risk premium	8.4%	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)	6.8%	6.8%			
Cost of equity (real-post tax)	4.6%	4.6%			
Cost of debt (nominal pre-tax)	2.4%	5.2%			
Cost of debt (real pre-tax)	0.3%	3.0%			
Nominal Vanilla (post-tax nominal) WACC	4.2%	5.8%	4.2%	5.0%	5.8%
Post-tax real WACC	**2.0%**	**3.7%**	**2.0%**	**2.8%**	**3.7%**
Pre-tax nominal WACC	4.9%	6.6%	4.9%	5.8%	6.6%
Pre-tax real WACC point estimate	2.8%	4.4%	2.8%	3.6%	4.4%

Source: IPART Analysis.

D.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.

D.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 propose to adopt 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 multiline 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.

D.2.2 Sampling dates for market observations

We sampled all market observations as of 31 December 2020, which at the time of finalising our decision was the latest available whole month of data.[65] 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 RBA one-year ahead forecast sourced from the November 2020 Statement of Monetary Policy.[cxlviii] This approach is consistent with the approach we applied in our 2017 price review.

D.2.3 Tax rate

We assume that 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 eligible for a reduced corporate income tax rate. Therefore, we use a tax rate of 30%.

D.2.4 Regulatory period

We adopt a standard four year determination period for Water NSW Rural.

65 We intend to update our calculation of the WACC using the latest available data for our Final Report.

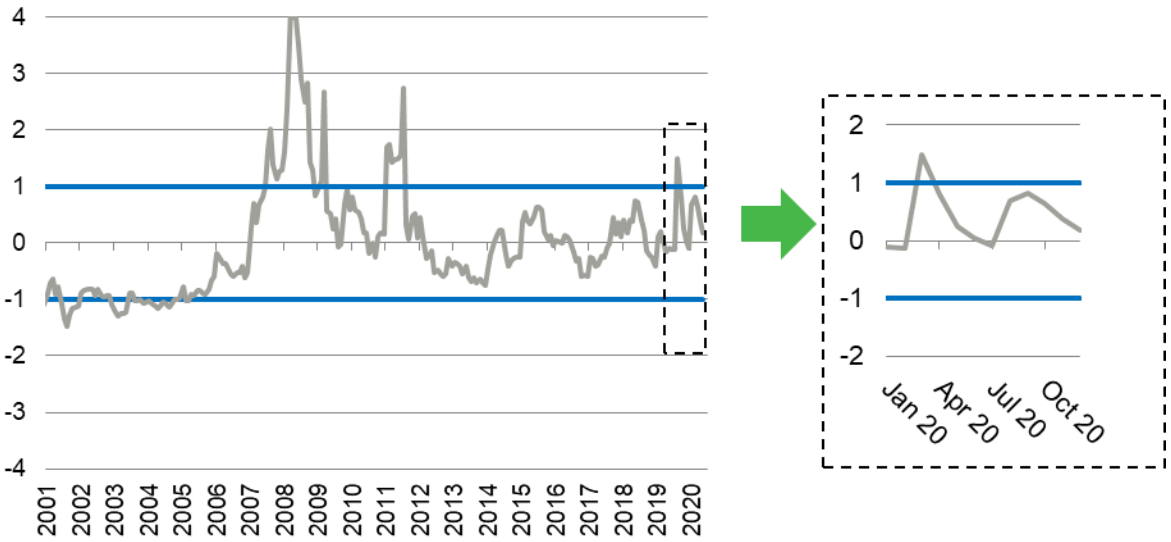
D.2.5 Application of trailing average method

Our 2017 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 2017 review of the WACC method, we employ a transition to trailing average in the calculations presented above.

D.2.6 Uncertainty index

We tested the uncertainty index for market observations to the end of December 2020. It was within the bounds of plus and minus one standard deviation of the long-term mean value of zero. Therefore we maintain the default 50% – 50% weighting between current and historic market estimates of the cost of debt and the cost of equity.

Figure D.1 IPART's uncertainty index



Data source: Refinitiv, Bloomberg and IPART calculations.

Glossary

2017 Determination	Bulk Water Prices for State Water Corporation and Water Administration Ministerial Corporation, September 2006 (Determination Nos 4 and 5, 2006)
2017 determination period	The period from 1 July 2017 to 30 June 2021, as set in the 2017 Determination
2021 Determination	Review of bulk water charges for state water corporation, June 2010 (Determination No 2, 2010)
2021 determination period	The period from 1 July 2021 to 30 June 2025, that will be set in the 2021 Determination
ACCC	Australian Consumer and Competition Commission
ACCC's Pricing Principles	Pricing principles for price approvals and determinations under the WCR
BRC	Border Rivers Commission
Capex	Capital expenditure
CPI	Consumer Price Index
Customer share of costs	We have decided to refer to what has previously been known as the 'user share of costs' as the 'customer share of costs', given that there are users of rural bulk water services (e.g. the community at large), that do not contribute to the recovery of Water NSW's NRR
DPI Water	Department of Primary Industries Water
DPIE	Department of Planning, Industry & Environment
FCR	Full cost recovery
FFO	Funds from operations
FRWS	Fish River Water Supply Scheme
GS	General security

GL	Gigalitre
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
HS	High security
ICDs	Irrigation corporations and districts
IPART	Independent Pricing and Regulatory Tribunal of NSW
IPART Act	Independent Pricing and Regulatory Tribunal Act 1992 (NSW)
kL	Kilolitre
MDB	Murray Darling Basin
MDBA	Murray Darling Basin Authority
MAQ	Minimum Annual Quantity
ML	Megalitre
mm	Millimetre
MSC	Meter service charges
NRR	Notional revenue requirement. Revenue requirement set by IPART that represents the efficient costs of providing Water NSW's regulated monopoly services
NPV	Net Present Value
NRAR	Natural Resources Access Regulator
NSW	New South Wales
NSWIC	New South Wales Irrigators' Council
Opex	Operating expenditure
PIAC	Public Interest Advocacy Centre
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.
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 (Infrastructure) Rules 2010 made under s 92 of the Water Act 2007 (Cth)
YACTAC	Yanco Creek and Tributaries Advisory Council

[i] Water NSW, *Submission to IPART's Issues Paper for the Water NSW review*, October 2020, p 32, IPART analysis.
[ii] Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 91; and IPART analysis.
[iii] Water NSW, *Submission to IPART's Issues Paper for the Water NSW review*, October 2020, p 13.
[iv] Water NSW, *Submission to IPART's Issues Paper for the Water NSW review*, October 2020, p 15.
[v] Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 74.
[vi] Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 187.
[vii] Water NSW email to Atkins and IPART – 15 December 2020.
[viii] Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 52.
[ix] Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 86.
[x] Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 84.
[xi] Water NSW, *Response to Atkins expenditure review Draft Report for Rural Valleys*, 4 December 2020, p 11.
[xii] Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 84.
[xiii] Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 161.
[xiv] Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 52.
[xv] Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 87.
[xvi] Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 87.

[xvii] IPART, Review of WAMC's Water Management Prices and Review of Water NSW's Bulk Water Prices, 17 November 2020, pp 63-66.
[xviii] Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, pp 131-132 and IPART analysis.
[xix] Atkins, Water NSW *Expenditure Review, Final Report for IPART*, 19 February 2021, p 130 and IPART analysis.
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