IPART

Independent Pricing and Regulatory Tribunal
New South Wales

Review of prices for Hunter Water Corporation

From 1 July 2020

Draft Report
Water Pricing

March 2020

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The Independent Pricing and Regulatory Tribunal (IPART)

IPART provides independent regulatory decisions and advice to protect and promote the ongoing interests of the consumers, taxpayers and citizens of NSW. IPART's independence is underpinned by an Act of Parliament. Further information on IPART can be obtained from IPART's website: https://www.ipart.nsw.gov.au/Home.

Tribunal Members

The Tribunal members for this review are:

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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 9 April 2020.

We would prefer to receive them electronically via our online submission form <www.ipart.nsw.gov.au/Home/Consumer_Information/Lodge_a_submission>.

You can also send comments by mail to:

Review of prices for Hunter Water Corporation
Independent Pricing and Regulatory Tribunal
PO Box K35
Haymarket Post Shop, Sydney NSW 1240

Late submissions may not be accepted at the discretion of the Tribunal. Our normal practice is to make submissions publicly available on our website <www.ipart.nsw.gov.au> as soon as possible after the closing date for submissions. If you wish to view copies of submissions but do not have access to the website, you can make alternative arrangements by telephoning one of the staff members listed above.

We may choose not to publish a submission - for example, if it contains confidential or commercially sensitive information. If your submission contains information that you do not wish to be publicly disclosed, please indicate this clearly at the time of making the submission. However, it could be disclosed under the *Government Information (Public Access) Act 2009* (NSW) or the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW), or where otherwise required by law.

If you would like further information on making a submission, IPART's submission policy is available on our website.

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1 Executive summary

The Independent Pricing and Regulatory Tribunal of NSW (IPART or 'we') is reviewing the maximum prices Hunter Water Corporation (Hunter Water) can charge for the water, wastewater and stormwater services it provides to residential and non-residential customers. We last set these prices in June 2016.

As part of this review, we will also:

- Determine maximum prices for its trade waste services and miscellaneous services
- Review Hunter Water's recycled water prices for its 'mandatory' schemes, in line with our 2019 Final Report on our approach to regulating the public water utilities' recycled water prices.[1]

We are also reviewing the dishonoured or declined payment fees to specify the maximum price that Hunter Water can charge.[2]

We received Hunter Water's pricing proposal on 1 July 2019. It is available on our website.[3] We released an Issues Paper in September 2019, and in response received 59 submissions. As part of our consultation process we conducted a Public Hearing in Newcastle. A transcript is available on our website.[4]

This report sets out our draft decisions and explains their impacts for customers and Hunter Water. It also explains how we reached these decisions, and how our draft prices compare to Hunter Water's proposed prices.

We invite submissions from all interested parties, which we will consider before making our final decisions and releasing our Final Report and Final Determination (which gives legal effect to the maximum prices) in June 2020.

Submissions to this Draft Report are due by Thursday 9 April 2020.

1 IPART, *Review of pricing arrangements for recycled water and related services Final Report*, July 2019.
2 We received a referral to undertake this review from the Premier under section 12A of the IPART Act as a dishonoured or declined payment fee is not a fee for the provision of a monopoly service.
3 https://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro-Pricing/Prices-for-Hunter-Water-Corporation-from-1-July-2020.
4 https://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro-Pricing/Prices-for-Hunter-Water-Corporation-from-1-July-2020/19-Nov-2019-Transcript-for-Public-Hearing/Transcript-for-Hunter-Water-public-hearing-19-November-2019

1.1 Overview of draft decisions

We have decided to set prices for four years, from 1 July 2020 to 30 June 2024 (the 2020 determination period). Under our draft decisions:

- Prices for water, wastewater and stormwater services would fall for most customers, and would be lower than Hunter Water proposed (in large part due to a fall in the cost of capital between when Hunter Water submitted its proposal and now).
- The water usage price would increase to reflect the long run marginal costs of supplying water, and offsetting this the water service charge would decline.
- Combined water, wastewater and stormwater bills would fall for most customers in 2020-21, and then increase by inflation (or slightly above the rate of inflation) in subsequent years.
- Hunter Water would recover $156.0 million (or 10.5%) less revenue than it proposed, over four years.

All dollar figures quoted in this report are in $2019-20, unless stated otherwise. This means these prices, and any difference between them and current (2019-20) prices are expressed in real terms (that is, excluding the impact of inflation).

1.2 Our draft prices

In July 2019, Hunter Water proposed prices that were significantly higher than those currently charged. This was in large part due to a proposed increase in operating and capital expenditure, and a faster rate of depreciation of its assets. Hunter Water's proposed prices reflected its intent to lift expenditure in key areas of environmental compliance, public health, public safety and employee safety.[5]

Our draft prices are lower than Hunter Water proposed due to:

- A reduction in the Weighted Average Cost of Capital (WACC) that we use to calculate the return on the assets used to provide services.[6]
- Some reduction in the expenditure outlined by Hunter Water in its proposal.

The reduction in the WACC relative to Hunter Water's proposal accounts for the majority of difference between the prices in Hunter Water's proposal and our draft prices.

In turn, the reduction in the WACC reflects timing, rather than a difference in position between Hunter Water and IPART. Hunter Water proposed the same methodology as IPART for determining the WACC, but market conditions have changed between when Hunter Water submitted its pricing proposal and now. If Hunter Water was to submit its pricing proposal now, the difference between its proposed prices and our draft prices would be significantly less (all else being equal).

5 Hunter Water, *Pricing Proposal to IPART*, 1 July 2019, p ii.

6 See the Fact Sheet on our website for more information: https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/information-management-policy-biannual-market-update-%e2%80%93-sea/fact-sheet-bi-annual-market-update-february-2020.pdf

Under our draft decisions, prices for most water, wastewater and stormwater services would fall in 2020-21, and then remain constant in real terms. There are two exceptions:

- We have accepted Hunter Water's proposed water usage charge of $2.41 per kL.[7] This charge would increase by 1% in real terms over the 2020 determination period. In 2023-24, the usage price of $2.49 would be $0.12 per kL (or 5.1%) higher compared with the current usage charge. This increase would allow customers greater control over their bills.
- The wastewater service charge for apartments would increase by 11.5% over four years as we continue to align the charge between apartments and houses over time.

Hunter Water currently levies an Environmental Improvement Charge (EIC) which is $41.01 per customer in 2019-20.[8] Our draft decision is to discontinue this charge from the beginning of the 2020 Determination, consistent with Hunter Water's proposal.

We have also removed the location-based discount for large water users in line with Hunter Water's proposal to phase out this discount. However, we made a draft decision to defer the phase-out, to commence in 2021-22 rather than in 2020-21.

Our draft water usage and service charges are set out in Table 1.1 and Table 1.2. As noted, our draft water usage price is the same as that proposed by Hunter Water, however, the water service charge is moving from $100.40 to $4.18 as a result of a lower revenue requirement due to lower costs of capital and reductions to Hunter Water's proposed expenditure.

Residential

Our draft prices for water, wastewater and stormwater services for residential customers are provided in Table 1.1. A complete set of proposed prices is available in Chapter 8. Table 1.1 also presents the total percentage price changes for Hunter Water's major services over the next 4 years.

As noted above, the usage price is increasing over the determination period, while there is a steep fall in the water service charge for both houses and apartments.

7 Hunter Water, *Pricing Proposal to IPART*, 1 July 2019, p 38.
8 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, pp 41-42.

Table 1.1 Draft prices for major residential services from 1 July 2020 ($2019-20 – ie, excluding the effects of inflation)

Charge description	2019-20	2020-21	2021-22	2022-23	2023-24	Change 2020-2024
Water						
Usage ($/kL)	2.37	2.41	2.44	2.46	2.49	5.1%
Service – houses & apartments	100.40	4.18	4.18	4.18	4.18	-95.8%
Wastewater						
Service - houses[a]	649.28	645.63	645.63	645.63	645.63	-0.6%
Service - apartments[a]	535.66	548.79	564.93	581.07	597.21	11.5%
Stormwater						
Houses	79.63	78.04	78.04	78.04	78.04	-2.0%
Apartments	29.47	28.87	28.87	28.87	28.87	-2.0%

[a] This is calculated by multiplying the meter connection charge by a discharge factor and adding a deemed usage allowance. For example, for 2019-20, the connection charge of $758.51 for houses is multiplied by a 75% discharge factor and a deemed usage allowance of $80.40 is added. Apartments are charged at 82.5% of the total charge for houses in 2019-20. This increases by 2.5% each year over the 2020 determination period.

Source: Hunter Water, *Pricing Proposal to IPART*, 1 July 2019, pp 38, 42; *Technical Paper 8*, p 45; and IPART analysis.

Our draft prices for wastewater service charges are a $3.65 decrease from current prices for houses. The charge for apartments is increasing in real terms (ie, excluding inflation). By the last year of the 2020 determination period, apartments would be charged $61.55 more than they are currently, an increase of 11.5%, as they transition towards an alignment of the price with houses.

Stormwater prices would fall in the first year of the 2020 determination period for houses and apartments by 2.0%, or $1.59 and $0.60 respectively.

Non-residential

Water usage prices for non-residential customers are set as for residential customers. The wastewater usage price for non-residential customers has been set at $0.67, to increase with inflation.

Table 1.2 Draft charges for major non-residential services from 1 July 2020 ($2019-20 – ie, excluding the effects of inflation)

Charge description	2019-20	2020-21	2021-22	2022-23	2023-24	Change 2020-2024
Water						
Usage - ($/kL)[a]	2.37	2.41	2.44	2.46	2.49	5.1%
Service - small customers (20mm meter stand-alone)	100.40	4.18	4.18	4.18	4.18	-95.8%
Service - other (25mm meter equivalent)[b]	156.89	6.53	6.53	6.53	6.53	-95.8%
Wastewater						
Usage non-residential ($/kL)	0.67	0.67	0.67	0.67	0.67	0%
Service - small customers (20mm meter stand-alone)[c]	758.51	753.64	753.64	753.64	753.64	-0.6%
Connection - other (25mm metre equivalent)[b,d]	1,185.17	1,177.57	1,177.57	1,177.57	1,177.57	-0.6%
Stormwater						
Small (≤1,000m^2) or low impact	79.63	78.04	78.04	78.04	78.04	-2.0%
Medium (1,001 to 10,000m^2)	260.08	254.87	254.87	254.87	254.87	-2.0%
Large (10,001 to 45,000m^2)	1,654.10	1,620.98	1,620.98	1,620.98	1,620.98	-2.0%
Very large (>45,000m^2)	5,255.48	5,150.26	5,150.26	5,150.26	5,150.26	-2.0%

a First 50,000 kL per year. Some users receive a discount for usage exceeding 50,000 kL per year.

b Larger meters pay a multiple of the 25mm meter charge depending on the size of the meter.

c This calculation is derived in the same way as for residential customers except a 100% discharge allowance is used.

d Meter connection component has been multiplied by a discharge factor of 100% and scaled according to actual meter size.

Source: Hunter Water, *Pricing Proposal to IPART*, 1 July 2019, pp 38, 42, 45, 49; *Technical Paper 8*, p 15 and IPART analysis.

1.3 Bills would fall for all residential customer categories, and most non-residential customers

Under our draft prices, assuming the same water usage over time, all residential customers' combined water, wastewater and stormwater bills would fall in 2020-21, and only increase by inflation (or slightly above the rate of inflation) in subsequent years.

Over the four years of the 2020 determination period, our draft prices for water, wastewater and stormwater result in:

- A 0.5% nominal increase for typical house bills[9], and
- A 3.5% nominal increase for typical apartment bills.[10]

9 Hunter Water assumes water consumption of 185 kL per year for a typical household. The typical house also includes stormwater charges.

10 Hunter Water assumes water consumption of 115 kL per year for a typical apartment. The typical apartment also includes stormwater charges.

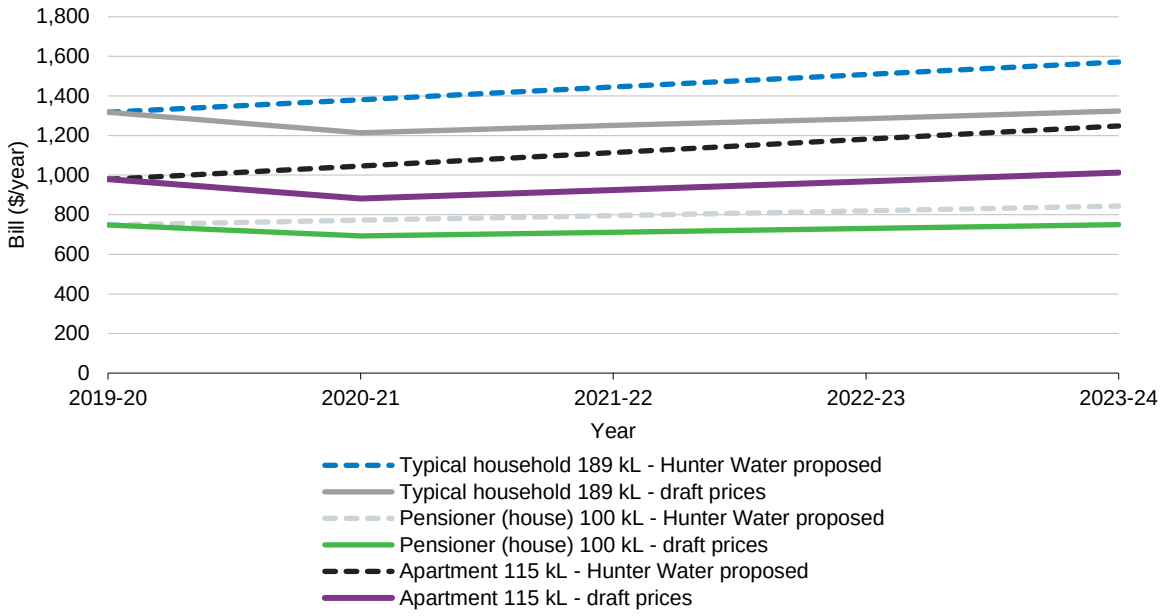
Under our draft prices, bills for apartments would increase at a greater rate than bills for houses as there would be a continuation of transitional arrangements (at 2.5% per year) for aligning wastewater service charges for apartments with those of houses.

Table 1.3 Bill impacts for typical residential customers with stormwater services ($nominal – ie, including inflation)

Customer (usage)	2019-20 (Current)	2020-21	2021-22	2022-23	2023-24	Change 2020-2024
House (189 kL)	1,318	1,214	1,251	1,286	1,324	
Annual change	-	*-7.9%*	*3.0%*	*2.8%*	*3.0%*	*0.5%*
Apartment (115 kL)	979	882	925	968	1,013	
Annual change	-	*-9.9%*	*4.8%*	*4.6%*	*4.7%*	*3.5%*
Pensioner (100 kL)	748	693	712	731	750	
Annual change	-	*-7.4%*	*2.7%*	*2.6%*	*2.7%*	*0.3%*

Note: Includes charges for discretionary programs.

Figure 1.1 Indicative bills for a typical house, typical apartment and pensioner in a house ($nominal – ie, including inflation)



Note: Includes stormwater (except for pensioner) and discretionary expenditure.

Data source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 46, and IPART analysis.

For non-residential customers, the bill impacts under our draft prices would depend on meter size and discharge factor, as well as water and wastewater usage. For some of these customers, bill impacts would also depend on the land area of their property.

Our modelling of Hunter Water's proposed prices for different types of non-residential customers found that bills would change by between -2% and 3% (in nominal terms) across a range of typical customers.[11]

However, under our draft decisions, most non-residential customers would likely see a reduction in their combined water, wastewater and stormwater bill in 2020-21.

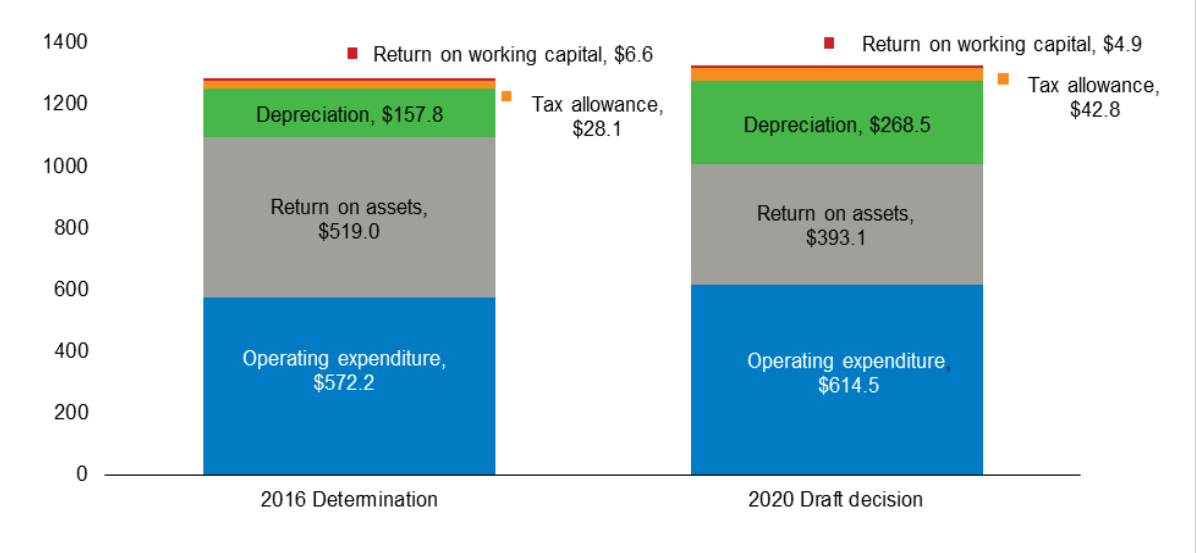
1.4 We are encouraging Hunter Water to be more efficient and responsive to its customers

1.4.1 Hunter Water would recover less revenue per year than it proposed

In setting our draft prices for the 4-year determination period, we aimed to set prices so that Hunter Water could recover a notional revenue requirement (NRR) of $331.0 million per year, on average. This is 10.5% lower than Hunter Water's proposal.

Figure 1.2 compares the total building block values used to set prices in 2016 and our draft decisions. The drivers of the difference are discussed below.

Figure 1.2 Comparison of total building block values ($millions, $2019-20)



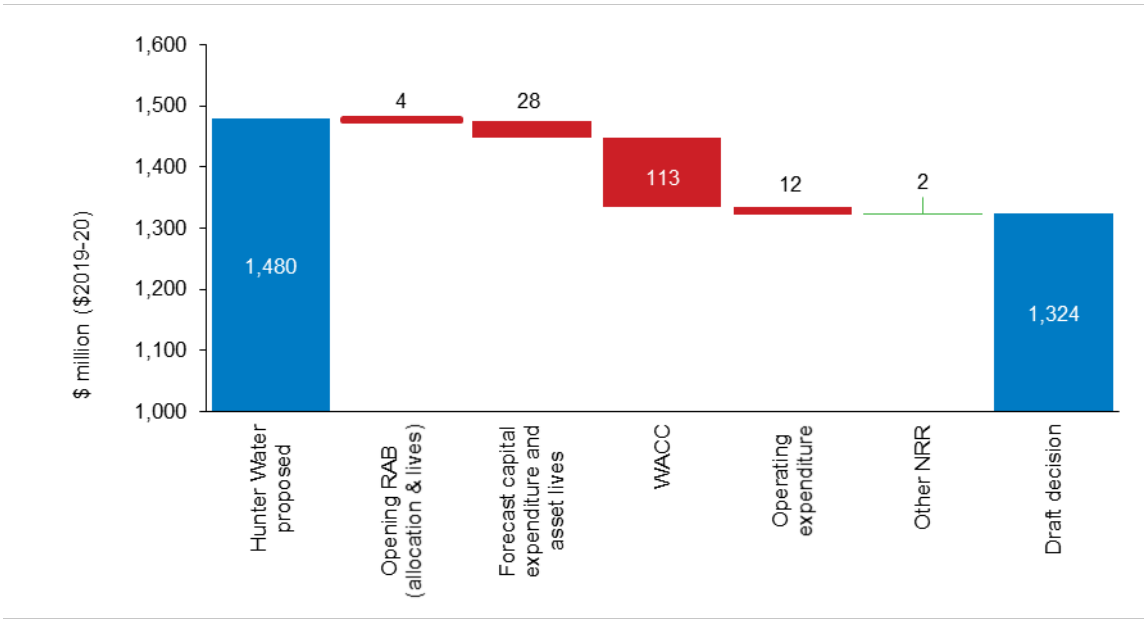
Source: IPART, *Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, Final Report*, June 2016, p 38; IPART analysis.

1.4.2 Key drivers of the reduction in revenue requirement

Figure 1.3 below illustrates the impacts of our various decisions on Hunter Water's proposed revenue requirement. We discuss the key drivers in the sections below.

11 Hunter Water reports bills for 19 non-residential customer types. The largest increase is for 'Shopping centre with high strength trade waste' and the smallest for 'Small nursery low discharge factor'. Hunter Water, *Pricing Proposal to IPART*, *Technical Paper 8,* 1 July 2019, p 47, and IPART analysis.

Figure 1.3 The key decisions in changes from Hunter Water's proposed NRR to our draft NRR



Note: The block 'Opening RAB' refers to the impact on notional revenue from IPART's decision on past capex, allocation of existing asset into more RAB categories and lives of existing assets.

Data source: IPART analysis.

Historical and forecast capital expenditure

Hunter Water proposed an increase in expenditure over the 2020 determination period, compared to what we used to set prices in the 2016 determination period. The proposed increase in expenditure over the 2020 determination period included:

- A 9.4% increase in average annual operating expenditure compared to that used to set prices in our 2016 Determination
- A 75.4% increase in capital expenditure compared to that used to set prices in our 2016 Determination.

We mostly found Hunter Water's proposed expenditure to be efficient. This decision was informed by a review undertaken by our expenditure consultant Aither.[12]

Overall, our draft decisions reflect our view that Hunter Water's operating and capital expenditure need to increase to ensure that the level of service to customers does not deteriorate. While our decision on the efficient level of expenditure over the 2020 determination period is lower than proposed by Hunter Water, it is still higher than we used to set prices in 2016. This would help maintain assets and the services they deliver, and to avoid service interruptions or future higher costs from asset failure.

Our draft decisions on the historical and forecast capital expenditure to be included in the regulatory asset base (RAB) are lower than Hunter Water proposed, and reduce the NRR by around $3 million per year.

12 Aither, *Hunter Water expenditure review*, 14 December 2019.

Ongoing efficiency factor

We have applied an ongoing efficiency adjustment of 0.8% to expenditure.

There are two types of efficiency adjustments we consider:

- **Catch-up efficiency** - this is the efficiency 'gap' between an individual company within the industry and the efficiency frontier.
- **Ongoing efficiency** – this represents the frontier shift, the efficiency savings that even a perfectly efficient firm would make with assumed productivity gains over time.

We consider that long-term multi-factor productivity (MFP) in the Australian economy is an appropriate indicator of Hunter Water' potential for productivity gain over the 2020 determination period. We have used historical economy-wide data to apply a 0.8% per year compounding efficiency factor.[13] This reduces our draft operating expenditure and capital expenditure by $12.4 million and $12.3 million over the 2020 determination period respectively.

Depreciation

We have increased the depreciation allowance that Hunter Water can recover over the 2020 determination period, compared to what we used to set prices in 2016.

Hunter Water proposed that we disaggregate its regulatory asset base (RAB), and significantly reduce the economic lives of the infrastructure it uses to deliver services. We agree that Hunter Water's depreciation allowance should increase, however our draft decisions on the RAB and asset lives mean that the increase is lower than that proposed by Hunter Water.

While our draft decision on the total depreciation allowance of $268.5 million over the determination period is $111 million (70.1%) higher than we used to set prices in 2016, it is $20.0 million (or 6.9%) lower than that proposed by Hunter Water.

Weighted Average Cost of Capital (WACC)

The effect on prices of the proposed increase in capital expenditure in the upcoming determination period has been offset by a reduction in the weighted average cost of capital (WACC).

Compared to Hunter Water's proposal, the changes in the WACC have had by far the most significant impact. The reduction in the NRR from the change in the WACC as shown in Figure 1.3 of $113 million accounts for around 72% of the change in NRR between IPART's and Hunter Water's proposed NRR.

This is largely a function of timing: Hunter Water's proposal used the same methodology to set the WACC as IPART, however between when Hunter Water submitted its proposal and now, market conditions have changed, lowering the WACC from 4.1% to 3.2%.

13 IPART analysis, using data from the Productivity Commission, *2019 Productivity Bulletin*, May 2019.

That said, water assets have long lives and as such typically remain in the RAB for many decades. Any future increases in the WACC would place upward pressure on prices and customer bills.

Demand volatility adjustment

In the 2016 Determination, we decided that at the next price review we would consider "an adjustment to the revenue requirement and prices" to address any over- or under-recovery of revenue over the 2016 determination period due to a material variation between forecast and actual water sales.[14]

We have decided to apply the adjustment, for the three years of the 2016 determination period for which actual water sales data is available. This results in $10.3 million to be returned to customers over the next four years (NPV neutral).

1.4.3 Discretionary expenditure

We have established a discretionary expenditure framework to encourage utilities to be more responsive to their customers and more innovative.

Discretionary expenditure is incurred when a utility invests in projects that provide services or achieve outcomes that go beyond service standards or environmental obligations stipulated in the utility's operating licence or other regulatory requirements.

We have enhanced our framework to guide both our assessment of discretionary expenditure, and the utilities' implementation of discretionary expenditure proposals. The framework emphasises customer willingness to pay, and also ensures utilities deliver on their commitments to customers through appropriate delivery incentives.

Hunter Water proposed discretionary expenditure to irrigate public open spaces with recycled water at a cost of $6 million, and to improve the amenity of stormwater channels at a cost of $11.3 million. We have allowed Hunter Water to recover the costs of these projects from its residential customers through a discretionary expenditure charge of $1.43 per property per year.[15]

1.4.4 Changes to the form of regulation and price structures

Demand volatility adjustment mechanism

As noted above, we have applied a demand volatility adjustment mechanism (DVAM) to water sales and revenue in the 2016 determination period. We also made a draft decision to include this mechanism for the 2020 determination period.

Hunter Water also proposed a 'modified DVAM' to help manage its exposure from drought-related expenditure and revenue risks that it might face in the coming years. It proposed

14 IPART, *Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, Final Report*, June 2016, pp 97-98.

15 Hunter Water, *Pricing Proposal to IPART, Technical Paper 2*, 1 July 2019, p 66 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 2 p 66; IPART analysis.

annual adjustments to service prices to recover lost revenue, to apply when water restrictions are in place and water sales are more than 5% lower than had been forecast for that year. An end of period reduction would also apply.[16]

Our draft decision is to not accept this proposal. One of Hunter Water's main arguments was to protect its financial health and credit rating. We consider that Hunter Water can expect to recover lost revenue due to drought restrictions in the short to medium term through the end-of period DVAM or if its water sales exceed forecasts in other years. The annual adjustment would also cause undue price volatility for customers.

Water usage price

We have made a draft decision to increase the water usage price as it reflects the long run marginal costs of water supply (LRMC). The LRMC of water supply is the additional cost to Hunter Water of permanently increasing water supply by one unit or, in other words, the costs of ensuring that water supply meets demand over the long-term.

We favour setting water usage prices for metropolitan water utilities with reference to the best available estimate of the LRMC of water supply, to encourage efficient water consumption, as this sends an appropriate signal about the cost of meeting sustained increases in water demand over the long term.

We note that our decision is to accept the price proposed by Hunter Water, who noted that most of its customers prefer to maintain, or increase the variable charge.

This gives customers a degree of control over their bills. Under our draft prices, a typical household using 189 kL per year would save $69 per year if it reduced its usage by 15%. A typical apartment using 115 kL per year could save around $42 for the same 15% reduction in water use (ie, there would be lower savings as a typical apartment uses less water).

1.5 Outline of draft decisions on key issues

Our draft decisions on key issues are outlined in the tables that follow.

16 Hunter Water, *Supplementary Response to IPART Issues Paper*, 6 November 2019, pp 12-14.

Table 1.4 Draft decisions on revenue requirement issues

Topic	IPART's Decision	Rationale
Capital expenditure - historical	Set efficient expenditure at $607 million between 2015-16 and 2019-20. A reduction of 2019-20 capital expenditure by $5 million.	Deferral of expenditure from 2019-20 to 2020-21, based on likely timing of project costs.
Capital expenditure - forecast	Efficient expenditure is $646 million over the 2020 determination period. A reduction of Hunter Water's proposed capital expenditure by $60 million.	Adjustments to proposed expenditure on projects and programs of $48 million. Apply a continuing efficiency factor of 0.8% per annum reducing capital expenditure by an additional $12 million.
Operating expenditure	Set efficient operating expenditure over the 2020 determination period at $614 million. A reduction of Hunter Water's proposed expenditure by $12 million.	Minor adjustments to some operating expenditure items. Apply a continuing efficiency factor of 0.8% per annum.
Regulatory depreciation	Regulatory depreciation allowance over determination period of $269 million. Reduction of $20 million compared to Hunter Water's proposal.	Disaggregated Hunter Water's RAB. Reduced asset lives relative to our 2016 Determination, but longer than proposed by Hunter Water.
Return on assets	Set the WACC at 3.2%. (Hunter Water used a WACC of 4.1% in its proposal using our standard methodology).	Used our standard methodology to calculate the WACC, applying updated market information.
Output measures	Set output measures that track the progress of discretionary expenditure and ensure Hunter Water's customers are informed on discretionary expenditure. Rationalised existing output measures.	This would hold Hunter Water accountable on the progress of its discretionary expenditure and ensure it collects relevant information to inform our next review.

Table 1.5 Draft decisions on pricing issues

Topic	IPART's Decision	Rationale
Prices – Water usage price	Adopt Hunter Water's proposed usage price of $2.41 in 2020-21 ($2019-20) for residential/ non-residential customers with annual 1% real increases over the determination period.	Usage price is based on Hunter Water's estimate of LRMC and customer preferences. We have reviewed the estimates and accept Hunter Water's proposal to increase the usage price and consider customer preferences.
Water service price	Set a water service charge of $4.18 ($2019-20) for residential/ non-residential customers on 20mm meters.	Service charge is calculated as a residual after the revenue raised from the usage charge is calculated.
Prices – Wastewater services	Adopt Hunter Water's proposed usage price of $0.67 in 2020-21 ($2019-20) for non-residential customers, but hold constant in real terms (not nominal terms) over the determination period. Remove previous discharge allowance component from service charge for non-residential customers.	This reflects our approach to increase the wastewater usage charge in the future with reference to LRMC rather than SRMC of supply. Improved transparency, simplicity and cost-reflectivity of non-residential service charges by removing the discharge allowance.
Prices – Stormwater services	Adopt Hunter Water's corrected forecast stormwater numbers for the 2020 determination period. Set a service charge (for residential and non-residential customers), maintaining the current approach for setting stormwater charges.	Hunter Water advised it will refund customers overcharged due to previous forecast errors. We determined that the scope and scale of overcharging (as a result of higher prices due to understated customer numbers) does not appear to be material in terms of bill impacts.
Location-based pricing	Defer phasing-out of discount provided to large customers in seven specific geographic areas to commence in 2021-22 to align usage price with wider customer base in 2024-25.	Accept Hunter Water's proposal to phase-out the discount. However, deferral of one year would provide customers facing large bill shocks more time to adjust.
Environmental improvement charge	Charge expired on 30 June 2020.	
Trade waste charges	Accept Hunter Water's restructured trade waste prices, except the price uplift from $5.95 to $9.20 in 2023-24 for tankered customers.	Invite Hunter Water to provide more information on capital program to provide assurance on efficiency, prudence and timing of proposed capital project.
Miscellaneous charges	Accept restructuring of most miscellaneous charges with reduction of dishonoured and declined payment fee to $27.85.	Hunter Water undertook a comprehensive review of its miscellaneous charges and has demonstrated efficiency improvements.
Raw water	Replace 'unfiltered water' charge (that includes a service charge and discounted usage charge) with a 'raw water' usage charge of $0.38 per kL.	Accepted Hunter Water's approach to use a bottom up 'cost plus' approach, which better reflects the costs incurred by Hunter Water.

Table 1.6 Draft decisions on other proposals

Topic	IPART's Decision	Rationale
Length of Determination	4-year determination period	Accepted Hunter Water's revised proposal, which it preferred in order to manage drought-related risks.
Demand volatility	Maintain the demand volatility adjustment mechanism (DVAM) for the 2020 determination period.	The DVAM provides an appropriate mechanism to manage uncertainty.
Efficiency carryover mechanism (ECM)	Maintain an ECM for operating expenditure, and not extend it capital expenditure.	This removes an incentive for the utilities to delay efficiency gains for operating expenditure. However, we have not identified a suitable incentive mechanism to apply to capital expenditure.
Unregulated pricing agreements	Maintain existing ability to enter into unregulated pricing and service level arrangements with large customers, and seek comment on how the term large 'customer' should be applied.	There has been no uptake of these agreements but we do not see reason to remove them. There may be some confusion around the applicability of the definition.
Discretionary spend	Developed a discretionary expenditure framework. Allowed Hunter Water to recover the costs of its proposed projects from residential customers.	Our framework would allow utilities to be responsive to customers while providing accountability around the delivery of proposed projects.
Drought cost pass-through mechanism	No decision on pass-through mechanism.	Hunter Water did not propose a drought cost pass-through project.
Recycled water	Continue to defer setting prices for these schemes, and where water sales from a least-cost scheme displace potable water sales, Hunter Water can retain the revenue. Where no potable water is displaced, the revenue should be shared on a 50:50 basis with customers.	Hunter Water's proposed prices of its 'mandatory' schemes are reasonable. Hunter Water has a number of 'least-cost' recycled water schemes, which are funded via w prices (as they are considered the least-cost means of delivering sewerage services). Allowing the utility to retain recycled water revenue from least-cost schemes compensates it for lost water sales, but where no water sales are lost, the customers should share in the additional revenue which is made through the assets they fund.

1.6 List of draft decisions

Form of regulation

1 To set a 4-year determination period. 28

2 To implement the 2016 demand volatility adjustment in the 2020 determination period to address over-recovered revenue from water sales over the 2016 determination period, and as a result, return $10.3 million to customers over the 2020 determination period. 30

3 To consider a demand volatility adjustment mechanism at the next review of Hunter Water's prices, to apply to any differences between forecast and actual water sales revenue over the 2020 determination period beyond a 5% (+ or -) materiality threshold, operating on a one year lag. 30

4 To not adopt Hunter Water's proposed modified demand volatility adjustment mechanism. 31

5 To maintain the efficiency carryover mechanism for operating expenditure for the 2020 determination period. 32

6 To maintain an option to enter unregulated pricing agreements with large non-residential customers (defined as those with annual water consumption greater than 7.3 ML). 34

Operating expenditure

7 To set Hunter Water's operating expenditure allowance at $614.5 million over four years as shown in Table 4.1. 35

Capital expenditure

8 To set the efficient level of past capital expenditure since 2015-16 to be included in the Regulatory Asset Base (RAB) as set out in Table 5.1. 43

9 To set Hunter Water's efficient level of capital expenditure to be included in the Regulatory Asset Base (RAB) for the 2020 determination period at $646.0 million, as set out in Table 5.3. 43

Notional revenue requirement

10 To set the notional revenue requirement (NRR) of $1,323.8 million as set out in Table 6.1. 54

11 To subtract from the NRR the revenue from our decisions on the demand volatility adjustment mechanism, trade waste services, miscellaneous services, non-regulated assets, and raw water and bulk water services, in accordance with Table 6.2. 56

12 To set prices to recover the total adjusted NRR over four years, in present value terms. 57

13 To calculate the return on assets using: 59

Water, wastewater and stormwater prices

Discretionary expenditure

Recycled water prices

Other prices

48 To adopt Hunter Water's proposed miscellaneous and ancillary charges as presented in Appendix R, and for these charges to be indexed annually in line with changes in the CPI. 119

49 To defer setting maximum prices for the "Reservoir construction inspection and WAE fee', which Hunter Water will charge by quote. 119

50 To deduct the miscellaneous and ancillary services revenue as set out in Table 11.3 from the notional revenue requirement, for the purpose of setting other water and wastewater prices. 119

51 To specify a maximum dishonoured and declined payment fee of $27.85 ($2019-20) to apply from 1 July 2020, annually adjusted for inflation as presented in Table 11.4. 121

52 To set the raw water charges on a cost-plus basis as set out in Table 11.6. 123

53 To set the unmetered property charge as: 124

- a A water service charge equivalent to the stand-alone 20mm meter charge, and 124
- b A deemed water usage component based on 180 kL of deemed water usage per year (as set out in Table 11.7). 124

54 Set an approach to calculate charges for temporarily unmetered properties based on a property's average daily consumption from the corresponding billing period in the most recent year that data is available. 125

1.7 Issues on which we are seeking comment

1 Should the definition of large non-residential customers be expanded to include customers whose water usage from multiple properties exceeds 7.3ML annually? What would the benefits and risks be? 34

2 Are there reasons why Hunter Water's wastewater usage charge should not be set with reference to the LRMC of supply? 84

3 Should Hunter Water include a share of wastewater capital costs in trade waste prices? 114

4 Would setting differential prices between wastewater catchments, based on the LRMC of supply, be a more appropriate basis for setting high strength prices than the current approach, which is based on operating costs only? 114

5 Is Hunter Water's proposed $5.7 million capital program to upgrade receiving stations at wastewater treatment plants for tankered customers efficient? 116

6 What strategies could Hunter Water adopt to mitigate bill shocks for some trade waste customers? 117

7 Should any trade waste price increases be transitioned to avoid negative effects? 117

2 Context for the review

IPART sets the maximum prices for services that Hunter Water Corporation (Hunter Water) supplies under the *Hunter Water Act 1991*. This will be our 11th pricing determination for Hunter Water. We first reviewed prices for water, wastewater and stormwater services in 1993. We also administer Hunter Water's operating licence, which includes service standards.

In determining maximum prices, we have considered the matters under section 15 of the *Independent Pricing and Regulatory Tribunal Act* (IPART Act). Section 15 requires us to consider a range of matters when determining prices, including the costs of providing the services, customer affordability, environmental impact and service standards (see Appendix A for how we have addressed these matters).

This chapter outlines our review process, the broader setting, and themes for this review including Hunter Water's operating environment and the drivers of Hunter Water's costs.

The sections below explain:

- What this review is aboutHunter Water's operating environment
- Our review process and how we seek your feedback
- The key themes of this price review.

At the same time as reviewing Hunter Water's prices, we are reviewing prices that Sydney Water and WaterNSW - Greater Sydney can charge.

2.1 We are reviewing the prices Hunter Water can charge for its services

Hunter Water provides services to residential and non-residential customers in the Lower Hunter region, including Newcastle, as shown in Figure 2.1.

Figure 2.1 Area of Hunter Water's operations

Data source: Hunter Water, *Pricing Proposal to IPART*, 1 July 2019, p vi.

Hunter Water provides water, wastewater and stormwater services[17]:

- **Its water services include** to source water (from two dams and/or two sandbeds), treat water, store water in reservoirs, and deliver the water to customers (around 60 billion litres per year). Hunter Water differs from Sydney Water as it manages water sources (ie, dams and sandbeds). It also provides some customers with raw water, recycled water and bulk water. Hunter Water has around 270,000 water customers (connections).
- **Its wastewater services include** to collect wastewater from customers, treat it at one of 19 separate wastewater treatment plants, either reuse or discharge treated wastewater, and dispose of biosolids. It also accepts and treats liquid trade waste from commercial customers. Hunter Water has around 240,000 wastewater customers (connections).

17 Hunter Water, *Pricing Proposal to IPART*, 1 July 2019, p vii, 48; and Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 19, 22.

- **Its stormwater services include** to maintain about 90 kilometres of stormwater channels. These constitute the 'trunk drainage' of the larger stormwater system, most of which is the responsibility of local councils. Hunter Water has around 71,000 stormwater customers.

Most customers receive both water and wastewater services, and pay through a combination of fixed and usage prices. Around 30% of customers also pay a fixed annual stormwater service charge.

2.2 We undertake a comprehensive review when setting prices

Our periodic pricing reviews span 12 months and considers, broadly, the utility's efficient costs (or revenue needs), forecast demand for services, appropriate price structures, and the impacts of our decisions.

Our regulatory framework aims to ensure that Hunter Water's prices provide it with sufficient revenue to recover its efficient costs of delivering its services to its customers, while complying with its regulatory requirements (including environmental regulatory requirements and service standards in its operating licence).

Our price review begins with Hunter Water's pricing proposal, which it submitted to us on 1 July 2019. This review is our response to Hunter Water's proposal.

Hunter Water proposed operating and capital expenditure, prices, and a preferred regulatory framework for the five years from 1 July 2020. It provided some more information in two submissions to our Issues Paper (on 21 October 2019, and a supplementary submission on 6 November 2019). All of these documents are available on our website.

Figure 2.2 outlines the process undertaken by Hunter Water and by us prior to and during this review.

Figure 2.2 Summary of our propose-respond model

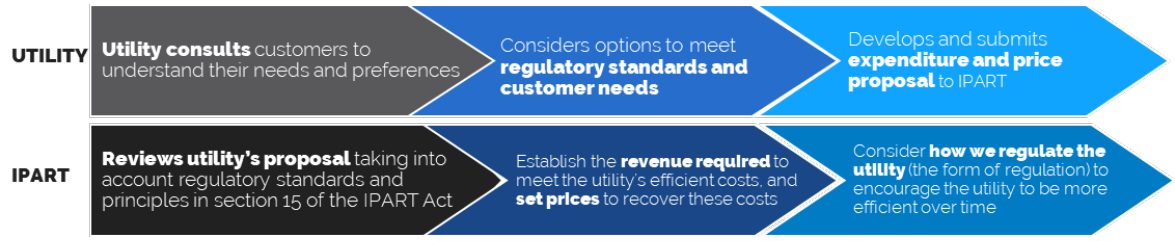


Figure 2.3 provides an overview of key decisions we make when setting prices and where they are discussed in this Draft Report. Appendix B provides a more detailed explanation of our approach to setting prices.

Figure 2.3 Key decisions in our price review

2.3 We undertake a consultative review process, and this is the last stage of our public consultation process

We have completed our draft assessment of:

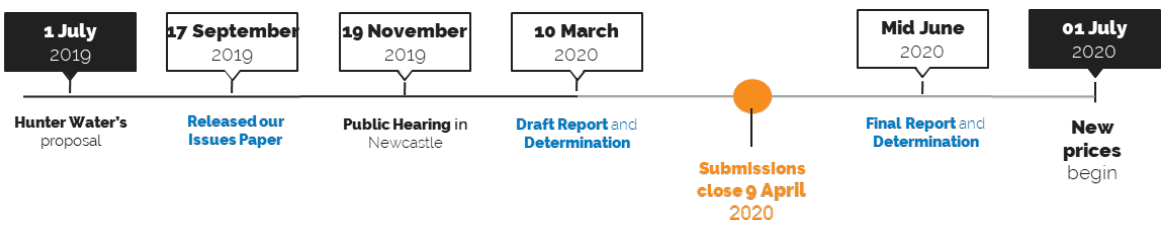
- Hunter Water's efficient costs of supplying its services
- Appropriate prices and price structures to recover these costs from customers.

In doing so, we have taken into account a broad range of issues, consistent with the matters we must consider under the IPART Act. Our response to these matters is provided in Appendix A.

This Draft Report forms the basis of our last consultation period before we make our final decisions. We have already sought feedback on an Issues Paper, and held a public hearing.

Figure 2.4 below sets out the review timeline, including when stakeholders can have their say.

Figure 2.4 Indicative timetable for this review



2.4 What are the key themes influencing this price review?

Hunter Water's typical operating environment and cost drivers

Hunter Water is a State Owned Corporation (SOC), wholly owned by the NSW Government. It is governed by a suite of legislative instruments covering obligations to public health, the environment, dam safety, water management and competition in the water industry. We set prices to recover the efficient cost of Hunter Water delivering its monopoly services, while complying with its regulatory requirements.

Broadly, Hunter Water's costs are driven by:

- Meeting its **service standards** and **regulatory obligations**, including existing and new or amended standards or obligations as they arise.
- Expanding its monopoly services to new customer areas ('**growth costs**'). Since 2008, developer charges that would otherwise cover these costs have been set to zero in line with NSW Government policy (see Box 2.1). Accordingly, costs related to growth are recovered from the broader customer base through retail prices.
- Implementing the **Lower Hunter Water Plan**.[18] This includes:
  - **Reacting** to short-term water supply issues, such as demand management through water restrictions and customer education, and
  - **Planning** to ensure water supply for the long term, as the plan is under review (see below).
- Implementing **discretionary** projects, where it demonstrates its customers are willing to pay to receive services above its regulated standards or are willing to pay for any external benefits of recycled water schemes. This is a relatively new element of our price review framework.

Drought and water restrictions

The Hunter region has been in a prolonged state of drought and at the time of drafting, Hunter Water's customers are subject to level one water restrictions.[19] The prospect of on-going drought has brought a degree of uncertainty to Hunter Water's operations, specifically regarding:

- Additional expenditure to manage demand, such as water efficiency programs, community engagement, and operational impacts such as sewer chokes, and managing leakage.
- Reduced demand and lower revenue (or, at least, demand and revenue variability).

18 NSW Department of Finance and Services, Metropolitan Water Directorate, *Lower Hunter Water Plan*, January 2014.

19 Level 1 water restrictions were implemented on 16 September 2019 for the first time in 25 years, and replaced by Level 2 water restrictions on 20 January 2020. The Lower Hunter region returned to Level 1 water restrictions from 24 February 2020 as a result of rainfall and improved dam storage levels. See Hunter Water's website for update on restrictions: https://www.hunterwater.com.au/Save-Water/Water-Restrictions/Water-Restrictions.aspx

- Expenditure to plan for a proposed desalination plant. This would only be built if dams reach low enough levels (and after implementing less expensive conservation measures), however, Hunter Water has been required to begin the planning phase for the construction.[20]

In spite of recent rains, this highlights the need to plan and prepare for climate variability.

Long-term planning for water security

The Lower Hunter Water Plan (LHWP) is aimed at ensuring a reliable water supply in the Hunter and Newcastle area. The first LHWP was released in 2014 and was developed by the Metropolitan Water Directorate in consultation with Hunter Water and other government agencies involved in water management.[21] Hunter Water is responsible for implementing many of the actions in the plan.

Currently, the 'safe yield' of drinking water for Hunter Water is around 76 billion litres a year, and current estimates are that demand for water will reach the safe yield in 2037,[22] that is, the Lower Hunter's water supply is secure for around 20 years.

The LHWP is currently under review, with an updated plan expected to be released in 2021. The review is taking into account a broad range of options to prepare for the longer term water needs of the community, with some of these actions already being undertaken, particularly on the demand management side. Considerations include to:[23]

- **Manage demand**, through water conservation programs, reducing leaks and increasing re-use through recycled water for non-drinking purposes and potentially stormwater harvesting, and
- **Increase supply**, with options identified for additional dams, desalination, groundwater sources, and inter-regional transfers.

Hunter Water has engaged experts in the field and is undertaking community consultation to hear stakeholder views and preferences, including identification of options.[24] It is encouraging that the review process seems comprehensive and is taking a holistic approach to managing water resources.

Increased emphasis on risk

Hunter Water reviewed its risk framework in 2017 and used this to inform its ongoing forward program. In its pricing proposal, Hunter Water indicates that a review of its risks is a key driver of the increases in operating expenditure and capital expenditure, both for the 2016 and 2020 determination periods.[25] It states:

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20 Hunter Water, *Supplementary Response to IPART Issues Paper*, 6 November 2019, p 4.
21 NSW Department of Finance and Services, Metropolitan Water Directorate, *Lower Hunter Water Plan*, January 2014, p 1.
22 Hunter Water, *Water in the Lower Hunter*, p 2. Available online here: https://yourvoice.hunterwater.com.au/34086/documents/108753
23 Hunter Water, *Media Release All options under consideration in Lower Hunter Water Plan review*, 8 February 2020, pp 1-2.
24 See https://yourvoice.hunterwater.com.au/water-future for more information.
25 Hunter Water, *Pricing Proposal to IPART*, 1 July 2019, p 3.

> We undertook a comprehensive review of all risk areas building on our existing Enterprise Risk Management Framework. This work has driven a re-assessment of our investment priorities…. We've built these risk assessments into all business cases and board papers. We have developed risk treatment plans for those risk areas that are outside of tolerance, being mindful of bill impacts for customers and tolerating a longer timeframe to reduce less critical risks. Our forward capital program is driven in large part by the outcomes of this work.[26]

We engaged expert consultants Aither to review Hunter Water's proposed expenditure. This review found Hunter Water has a maturing approach to risk management and its framework appears appropriate and robust. It found Hunter Water's proposed expenditure to be mostly efficient and with a reasonable allocation of risk, with some minor exceptions that shifted risk to customers.[27] We have accounted for this in our draft decisions on expenditure.

Low interest rate environment has muted the impact of increases in capital expenditure

Our draft prices are relatively stable compared to the current prices – falling slightly in real terms. This is significantly different from Hunter Water's proposed prices.

However, a key driver of this difference between Hunter Water's proposed prices and our draft prices is a fall in the weighted average cost of capital (WACC), representing about 72% of the movement in its revenue requirement. Hunter Water's proposal used the same methodology to set the WACC as IPART, however between when Hunter Water submitted its proposal and now, market conditions have changed, lowering the WACC from 4.1% to 3.2%.[28]

That is, if Hunter Water submitted its pricing proposal now, with an updated WACC, its proposed revenue requirement and prices would be significantly closer to our draft decisions. This is further highlighted by us finding Hunter Water's proposed expenditure to be mostly efficient.

26 Hunter Water, *Pricing Proposal to IPART*, 1 July 2019, p 3.
27 Aither, *Hunter Water expenditure review*, 14 December 2019, pp ix – x.
28 Hunter Water's initial proposal included a WACC of 4.1%. In response to our Issues Paper, it recalculated prices with a 3.2% WACC which are closer to our draft decision. Hunter Water, *Pricing Proposal to IPART*, 1 July 2019, p 33; and Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, pp i-ii.

Box 2.1 Developer charges have been set to zero since 2008

A developer charge is a location-specific upfront charge that reflects the additional costs (capital and operating) of servicing new development. The charge is designed to recover the difference between the system-wide average costs, and the costs of servicing the specific development area.

Levying developer charges on developers can ensure that existing customers do not face higher costs as a result of new development, signals the different costs of providing services in different locations, and enhances the potential for competition in the provision of water and wastewater services to new developments.

In 2008, the NSW Government set water, wastewater and stormwater developer charges for Sydney Water and Hunter Water to zero. This was facilitated by a direction from the Treasurer to Sydney Water and Hunter Water under section 18(2) of the IPART Act 1992. This policy is currently still in place.

As a result of this decision, since 2008, the prudent and efficient growth expenditure incurred to service new development has been added to Sydney Water's and Hunter Water's notional revenue requirements and has been recovered through their respective prices to all customers.

3 Form of regulation

This chapter discusses the 'form of regulation', or the set of methods we use to regulate prices for the utility's monopoly services. The form of regulation can determine how risk is allocated amongst the regulated utility, its customers and taxpayers, and includes:

- How long we set prices for before our next review
- Whether prices are directly or indirectly controlled
- How we can incentivise the utility to improve its performance
- How revenue and cost risks are shared between the utility and its customers.

In 2016 we introduced some new mechanisms for Hunter Water (and Sydney Water), which aim to encourage these businesses to become more efficient and provide them some flexibility to better respond to customers' preferences and behaviour. These were:

- The demand volatility adjustment mechanism (DVAM)
- The efficiency carryover mechanism (ECM)
- The option for unregulated pricing agreements (UPAs).

Below, we assess the application of these mechanisms for the 2016 determination period, and whether to apply them for the next price path; we also assess an 'adjusted DVAM' that Hunter Water proposed.

3.1 A 4-year determination period

For each water pricing review, we decide how long to set prices for (the length of the determination period). In general, the determination period can be between one and five years, depending on the circumstances. In Appendix B (Box B.4) we list the matters we consider when we set the determination length, including confidence in expenditure forecasts and the need to incentivise efficiency gains and promote regulatory certainty.

Our draft decision is:

1 To set a 4-year determination period.

Our draft decision is to set prices from 1 July 2020 for four years, as we consider this appropriately balances a range of matters – including incentives for efficiency gains, minimising regulatory costs, and risks of inaccurate forecasts.

Hunter Water initially proposed a five-year period, but revised this down

Hunter Water initially proposed a 5-year determination period, noting that IPART's regulatory framework is robust enough to manage the risks of a longer determination

period,[29] and that a 5-year period would best facilitate a comprehensive review of the broader regulatory framework, which was proposed by Hunter Water.[30]

However, in response to our Issues Paper, Hunter Water revised this to propose a 4-year determination period for two reasons:[31]

- It found the shorter period was the most appropriate way to manage the risk of un-forecast drought-related expenditure. It noted that, depending on water storages, Hunter Water may incur capital expenditure to construct a desalination plant ($100 million) to manage supply. These costs were not included in its pricing proposal.
- A comprehensive review of IPART's regulatory approach would work best if the Sydney Water and Hunter Water price reviews were aligned, noting that Sydney Water had proposed a 4-year Determination.

There was limited feedback from other stakeholders on this matter. Both the Public Interest Advocacy Centre (PIAC) and Cessnock City Council supported a 4-year determination period over a 5-year one.[32]

We agree that drought conditions and climate variability cause uncertainty around potential expenditure and revenue shortfalls from lower demand. Whilst other elements of our regulatory framework aim to appropriately manage and allocate expenditure and revenue risks,[33] we have accepted Hunter Water's proposal for a 4-year determination period. This also is a reasonable balance of managing the matters listed in Box B.4, including the need for regulatory certainty, and incentives for Hunter Water to improve efficiency, and for these efficiencies to be passed on to customers through a reset of prices.

3.2 Demand volatility adjustment mechanisms to address uncertainty

Our 2016 price review included a DVAM to protect customers and Hunter Water from material variations between forecast and actual water sales. We stated we would consider, at the next price review, an adjustment to the utility's revenue requirement to address any over- or under-recovery of revenue over the 2016 determination period due to material variations (exceeding +/-5% over the whole determination period) between forecast and actual water sales.[34]

29 This occurs with mechanisms including our expenditure review process, revised WACC methodology (which includes a 'true up'), the demand volatility adjustment mechanism, efficiency carryover mechanism, option for unregulated price agreements, and a new proposed drought cost pass-through mechanism.

30 Hunter Water, *Pricing Proposal to IPART, Technical Paper 3*, 1 July 2019, p A-5.

31 Hunter Water, *Supplementary Response to IPART Issues Paper*, 6 November 2019, pp 4, 7-8.

32 PIAC supports alignment with the Sydney Water Determination, and considers the increased risk of exceeding allowances in the 5-year period are unacceptable and unnecessary. Cessnock City Council's arguments related to reducing delays to introducing sewerage infrastructure to towns. PIAC, *Submission to IPART's Issues Paper – Review of prices for Hunter Water Corporation from 1 July 2020*, October 2019, p 7; and Cessnock City Council, *Submission to IPART's Issues Paper – Review of prices for Hunter Water Corporation from 1 July 2020*, October 2019, p 3.

33 Utilities can propose a cost pass-through mechanism to manage unexpected expenditure (although this requires particular information being available to meet our criteria), and we have decided to consider a demand volatility adjustment mechanism at the next price review to address revenue risk over the determination period.

34 IPART, *Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, Final Report*, June 2016, pp 97-98.

In response to our Issues Paper, Hunter Water proposed a modified DVAM with an annual adjustment and end-of-period true-up to protect it against revenue risk in the case of prolonged water restrictions.[35]

3.2.1 Demand volatility adjustment for the 2016 determination period

During the first three years of the 2016 determination period, water sales for Hunter Water exceeded the 5% materiality threshold, and we have decided to apply the mechanism to return some revenue to customers in the 2020 determination period.

Our draft decisions are:

2 To implement the 2016 demand volatility adjustment in the 2020 determination period to address over-recovered revenue from water sales over the 2016 determination period, and as a result, return $10.3 million to customers over the 2020 determination period.

3 To consider a demand volatility adjustment mechanism at the next review of Hunter Water's prices, to apply to any differences between forecast and actual water sales revenue over the 2020 determination period beyond a 5% (+ or -) materiality threshold, operating on a one year lag.

Our draft decision for the 2016 demand volatility adjustment is higher than Hunter Water had proposed in response to our Issues Paper (an $8.8 million adjustment).[36] Hunter Water had calculated this using our preliminary framework, which we have amended for our draft decision.

Applying the mechanism at this review

In our Issues Paper, we sought feedback on a preliminary approach to applying the DVAM, as our 2016 Final Report did not specify details on its application.[37] Our draft decision is to mostly apply the preliminary approach, with two amendments to the way we calculate the revenue to be returned. The approach we have applied is as follows:

1. It is triggered when revenue from actual water sales differs from forecasts by more than 5% (+ or -). (The 2016 Final Report did not specify if the material variation referred to sales volumes or sales revenue.)
2. It is based on actual sales with a one year lag. For the 2016 determination period, our analysis has therefore considered three years of water sales. The actual sales for the final year of the Determination (2019-20) are not available at the time of our review, but will be included in our considerations at the next price review.
3. The revenue adjustment includes:

a) All revenue above the 5% materiality threshold (comparatively, our preliminary position had been to subtract the efficient cost of providing the additional water).

b) The holding costs (to the customer) of the additional revenue (this was not included in our preliminary approach).

35 Hunter Water, *Supplementary Response to IPART Issues Paper*, 6 November 2019, pp 12-14.
36 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 36.
37 See IPART, *Review of prices for Hunter Water Corporation From 1 July 2020 – Issues Paper*, September 2019, pp 74-76.

4. We made the adjustment to the NRR and smoothed it over each year of the 2020 determination period in an NPV-neutral way.

Appendix D provides a detailed explanation of our approach, including our consideration of stakeholder feedback.

The DVAM should be available for the 2020 determination period

We consider that a DVAM remains relevant for the 2020 determination period, particularly given the outcome over the 2016 determination period to date, and the uncertainty around the impact of water restrictions on water sales.

Hunter Water also supported retaining the DVAM for the 2020 determination period, to work in conjunction with its proposed modified DVAM (see below), if the modified DVAM would be triggered.[38] We will set a DVAM for the 2020 Determination, where consideration of an adjustment is triggered when revenue from actual water sales differs from forecasts by more than 5% (+ or -).

3.2.2 Hunter Water's proposed modified DVAM

In response to our Issues Paper, Hunter Water considered a modified DVAM could be designed and implemented to address material revenue shortfalls in exceptional circumstances. It proposed that:

- It would apply if:
  - mandated water restrictions were in place, and
  - water sales were more than 5% below IPART's allowance.
- Revenue shortfalls in one year would be recovered through an adjustment to the water service price the following year.

This would protect Hunter Water against the risk of a pro-longed period of water restrictions that could severely impact Hunter Water's water sales revenue.[39] Hunter Water argued that its performance against key financial metrics would deteriorate in any drought event, in the absence of such a mechanism.[40]

Our draft decision is:

4 To not adopt Hunter Water's proposed modified demand volatility adjustment mechanism.

We decided not to accept Hunter Water's proposal for two main reasons:

- The purpose of the mechanism is to safeguard Hunter Water's financial health in the event of a sustained and severe reduction in water sales. We have assessed Hunter Water's financeability (see Chapter 12), and consider that our draft prices, including the retrospective application of the DVAM, do not negatively affect Hunter Water's ability to raise capital efficiently.

38 Hunter Water, *Supplementary Response to IPART Issues Paper*, 6 November 2019, p 13.
39 Hunter Water, *Supplementary Response to IPART Issues Paper*, 6 November 2019, p 12.
40 Hunter Water, *Supplementary Response to IPART Issues Paper*, 6 November 2019, p ii.

- A modified DVAM and the proposed annual adjustments, if triggered, would lead to volatility in the water service charge. The existing DVAM – which assesses water sales in aggregate over a determination period – does not create the same annual fluctuations but still mitigates revenue risk to Hunter Water.

The existing demand volatility adjustment mechanism ensures that Hunter Water is compensated for any under-recovery below the -5% materiality threshold in the following price period – ie, Hunter Water can expect to recover its lost revenue in the short to medium term. This largely negates any lasting financial impacts and financeability concerns.

3.3 We will retain the current efficiency carryover mechanism (ECM)

In 2016, we introduced an ECM for operating expenditure, which allows a utility to retain permanent efficiency savings for a fixed period regardless of when in the determination period they are achieved.[41]

This mechanism aims to remove the incentive for a utility to delay efficiency savings from the end of one determination period to the beginning of the next.[42] The ECM currently applies to the utility's operating expenditure only, and our decision is to maintain the current arrangement. Appendix C provides a detailed explanation of how the ECM works.

To date, we have not applied the mechanism in practice – it was available for Hunter Water, Sydney Water and WaterNSW[43] but none of the utilities made a claim under the mechanism for this price review.

Our draft decision is:

5 To maintain the efficiency carryover mechanism for operating expenditure for the 2020 determination period.

The ECM only applies to operating expenditure

As noted, the ECM applies to operating expenditure only – it does not apply to **capital expenditure**.[44] In our 2016 Final Report, we did acknowledge the potential value in encouraging efficient trade-offs between operating and capital expenditure, and that this issue

41 See IPART, *Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, Final Report*, June 2016, pp 29-32.

42 Without this, utilities could be incentivised to delay implementing efficiencies. Under our pricing framework, we set maximum prices for the regulatory period based on our assessment of the business' efficient costs, and if the business can deliver its services at a lower cost, then it retains the benefits until we reassess its costs at the next price review. This is 'incentive regulation' because it rewards the utility for finding efficiencies, which, if permanent, are passed on to customers in the next pricing period. However, the financial reward to the utility is highest in the first year (as this means the reward is collected in each year of the determination) and deteriorates over the regulatory period, hence providing an incentive to delay efficiencies to the start of the following determination period.

43 IPART, *Review of prices for Hunter Water Corporation From 1 July 2016 to 30 June 2020 Final Report*, June 2016, pp 13-14; and IPART, *Review of prices for Sydney Water Corporation From 1 July 2016 to 30 June 2020 Final Report*, June 2016, pp 18-19.

44 This was due to the additional complexity of introducing an ECM for capital expenditure, the risk of unintended consequences (ie, incentivising the business to over-forecast and inefficiently defer capital expenditure), and the limited opportunities for efficient trade-offs between operating and capital expenditure.

could be explored further in the future.[45] In the lead up to this review, we asked the utilities whether the ECM should be extended to include capital expenditure.

The utilities expressed mixed views on an ECM for capital expenditure

Hunter Water noted reservations about the effectiveness of the current ECM model because it only applies to operating expenditure and is asymmetric[46] (that is, it only applies to efficiency gains, but not to losses).

WaterNSW considers that a capital incentive scheme (either ECM or another) would not result in improved outcomes for the utility and customers; and that the lumpy nature of capital expenditure can be related to different stages of the asset life-cycle, business decisions and planning, and/or government-directed investment, rather than efficiency.[47]

Sydney Water indicated interest in exploring an ECM for capital expenditure and re-iterated its proposal from 2016.[48]

We maintain our views outlined in our 2016 price reviews, which are:

- To limit the ECM to operating costs only because of:
  - The risks of unintended consequences associated with strengthening capital expenditure incentives (such as to over-forecast and inefficiently defer capital expenditure).
  - The additional complexity, such as the practicality of undertaking an ex-post assessment of capital expenditure, and the nuances of achieving equalised incentives across operating and capital expenditure.
- Our ECM is asymmetric in the sense that while it equalises the incentive to achieve permanent efficiency savings over time, it preserves all other features of the current form of regulation. That is:
  - Permanent cost increases are held by the business until the next price review, when they are assessed by the regulator and, if determined to be efficient, passed on to customers (through price increases as a result of an increase in the business's operating expenditure allowance) – this provides an incentive for the business to avoid inefficient increases in costs.
  - Temporary over and under spends are retained by the business – this provides an incentive for the business to manage within its budget.

We have received no other stakeholder comments on the ECM.

45 Further information on the ECM we established is available in Chapter 3 and Appendix E in the 2016 Final Report of our determination of Sydney Water's prices. IPART, *Sydney Water Corporation: Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016*, Final Report, June 2016.
46 Hunter Water, *Pricing Proposal to IPART, Technical Paper 3*, 1 July 2019, p B-12.
47 WaterNSW, *WaterNSW Pricing Proposal to the Independent Pricing and regulatory Tribunal*, July 2019, p 54.
48 Sydney Water, *Price proposal 2020-24*, July 2019, Attachment 7, pp 3-5.

3.4 We will retain the option for unregulated pricing agreements

Our current form of regulation involves setting maximum prices for regulated services that apply to all customers for each year of the determination period. In our 2016 review, we decided to allow Hunter Water to enter into unregulated pricing agreements (UPAs) with large non-residential customers, provided the costs and revenues of these unregulated agreements were ring-fenced from the regulated cost base.[49]

As yet, Hunter Water has not entered into any UPAs. At a high level, it considered the potential for UPAs but did not enter into any formal or informal negotiation processes with customers. It supports maintaining the mechanism in the 2020 determination period and it has indicated an intention to seek such an agreement with Central Coast Council for the inter-regional bulk water transfers.[50]

Our draft decision is:

6 To maintain an option to enter unregulated pricing agreements with large non-residential customers (defined as those with annual water consumption greater than 7.3 ML).

Our 2016 Determination defines the customers that could enter into a UPA as a 'large non-residential **property**' that is serviced by one or more individual meters, where that property has annual metered water consumption greater than 7.3 ML.[51] We acknowledge that some customers may have multiple properties where, combined, the water usage of the multiple properties would exceed 7.3ML annually, but no individual property would have such great water usage.

We seek feedback on whether this definition should be expanded to include customers with multiple properties. In particular, we would be interested to know whether there are customers that fall into this definition and what impacts might arise from expanding the definition.

IPART seeks comments on the following:

1 Should the definition of large non-residential customers be expanded to include customers whose water usage from multiple properties exceeds 7.3ML annually? What would the benefits and risks be?

Appendix B contains more information about UPAs.

49 See IPART, *Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, Final Report*, June 2016, pp 23-28.

50 Hunter Water, *Pricing Proposal to IPART, Technical Paper 3*, 1 July 2019, pp A-22 – A-23.

51 And that property does not receive joint water supply/sewerage services. See IPART, *Hunter Water Corporation Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016 Determination*, June 2016, pp 2, 56 and 59.

4 Operating expenditure

This chapter sets out our assessment of the operating expenditure allowance that we should provide for Hunter Water when setting its prices. Our draft decision on the operating expenditure allowance reflects our view of the efficient level of operating costs Hunter Water will incur in providing its services over the 2020 determination period. These costs include all day-to-day expenditure on items such as labour, energy, materials, plant and fleet, operating contracts, external consultants and/or contractors and employee provisions.

To inform our draft decision on operating expenditure, we engaged Aither to review the efficiency of Hunter Water's proposed operating expenditure allowance and recommend any efficiency savings that it considered that Hunter Water should achieve.

We also considered the level of ongoing efficiency improvements that water utilities, including Hunter Water, should be able to make over the next four years.

4.1 Operating expenditure decision

Our draft decision is:

7 To set Hunter Water's operating expenditure allowance at $614.5 million over four years as shown in Table 4.1.

Our draft decision is to set Hunter Water's allowance for operating expenditure at $614.5 million over the 2020 determination period. This is $12.4 million (or 2.0%) lower than Hunter Water proposed in its July 2019 pricing proposal.

Table 4.1 Draft decision on Hunter Water's efficient operating expenditure ($million, $2019-20)

	2020-21	2021-22	2022-23	2023-24	Total
Water	48.7	46.8	45.9	44.9	186.2
Wastewater	54.4	54.7	55.2	54.1	218.4
Stormwater	1.1	1.2	1.2	1.1	4.6
Corporate	51.8	51.0	51.5	50.9	205.2
Total	**156.0**	**153.6**	**153.7**	**151.0**	**614.5**

Note: Operating expenditure includes bulk water purchase costs and excludes costs related to ring-fenced recycled water schemes.

Our draft decision reflects our assessment of the level of operating expenditure an efficient utility would incur in delivering services to Hunter Water's customers. In making our decision, we considered:

- Hunter Water's operating expenditure over the 2016 determination period
- The level of operating expenditure Hunter Water forecast over the 2020 determination period

- Efficiency savings we consider Hunter Water could make over the four years of the 2020 determination period.

We have accepted Aither's recommendations on adjustments to operating expenditure for specific items. However, we have applied a different ongoing efficiency factor (0.8% per annum) than recommended by Aither (0.4%).[52]

Our draft decision together with Hunter Water's proposed operating expenditure allowance and our adjustments is shown in Table 4.2. Hunter Water's additions to its initial proposal and our adjustments to its proposed operating expenditure, as shown in Table 4.2, are explained below.

Table 4.2 Draft decision compared to Hunter Water's proposed operating expenditure for the 2020 determination period ($million, $2019-20)

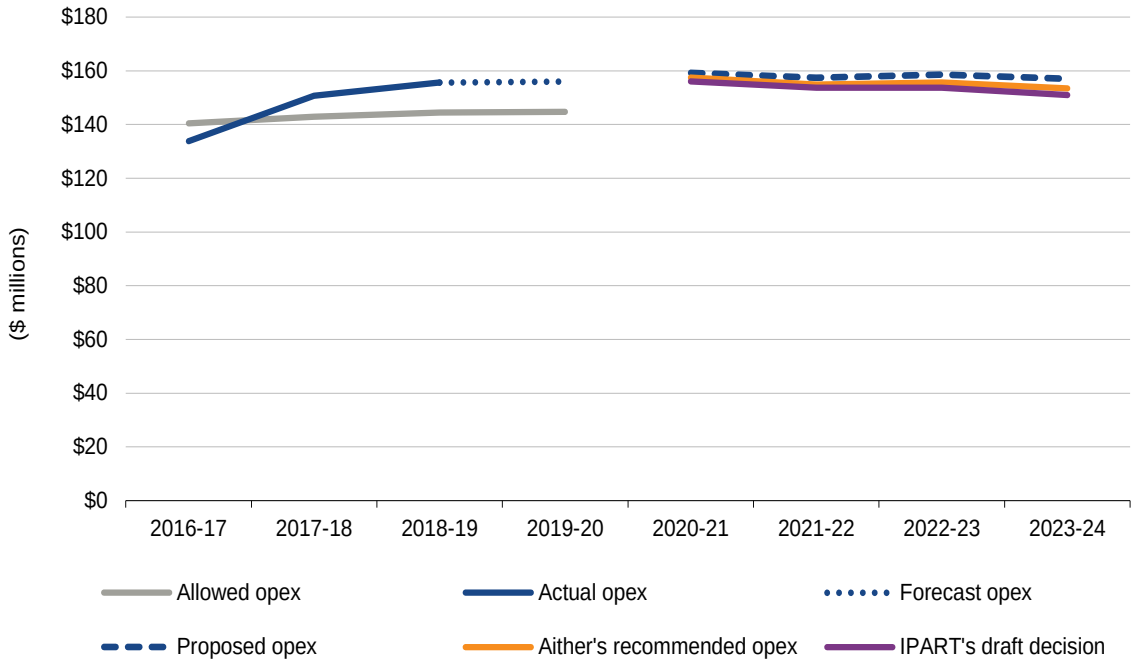
	2020-21	2021-22	2022-23	2023-24	Total
Hunter Water's 1 July proposal	**157.3**	**156.2**	**157.5**	**155.8**	**626.8**
Hunter Water's amendments to proposal					
Energy costs after error found	1.6	0.9	0.7	0.7	3.9
Opex from amended demand	0.4	0.4	0.4	0.4	1.5
Deferral of quarterly billing	-0.9	0.0	0.0	0.0	-0.9
Changes to operations	-0.1	-0.3	-0.1	0.0	-0.5
Corporate labour expenditure	-1.0	-1.0	-1.0	-1.0	-4.0
Efficiency adjustment (0.8% per annum)	-1.3	-2.5	-3.7	-4.9	-12.4
Draft decision	**156.0**	**153.6**	**153.7**	**151.0**	**614.5**
Difference	**-1.2**	**-2.6**	**-3.7**	**-4.8**	**-12.4**
Difference (%)	**-0.8%**	**-1.7%**	**-2.4%**	**-3.1%**	**-2.0%**

Source: Aither, *Hunter Water expenditure review*, 14 December 2019; IPART analysis.

Figure 4.1 below shows our draft decision on Hunter Water's efficient operating expenditure over the 2020 determination period compared to Hunter Water's proposed and Aither's recommended levels of efficient expenditure. It also shows Hunter Water's actual operating expenditure over the 2016 determination period and the level of operating expenditure we used to set prices in 2016.

52 Aither, *Hunter Water expenditure review*, 14 December 2019, p 123.

Figure 4.1 Draft decision on Hunter Water's efficient operating expenditure compared to historical and proposed/recommended ($million, $2019-20)



Source: Aither, *Hunter Water expenditure review*, 14 December 2019, pp 90, 127-130; IPART analysis.

4.2 Review of proposed operating expenditure

4.2.1 Operating expenditure over the 2016 determination period

Over the 2016 determination period, Hunter Water's total actual operating expenditure was $596.1 million, or $149.0 million per year. This was $23.9 million in total, and $6.0 million per year (or 4.2%) higher than we used to set prices in 2016. This is set out in Table 4.3.

Table 4.3 Hunter Water's operating expenditure over the 2016 determination period ($million, $2019-20)

	2016-17	2017-18	2018-19	2019-20	Total
Determination	140.3	142.6	144.4	144.9	**572.2**
Actual/forecast[a]	133.8	150.7	155.6	156.0	**596.1**
Difference	*-6.5*	*8.1*	*11.2*	*11.1*	***23.9***
Difference (%)	*-4.7%*	*5.7%*	*7.8%*	*7.7%*	***4.2%***

[a] Figure for 2019-20 is a forecast.

Source: Hunter Water Annual Information Return update, October 2020; IPART analysis.

The difference between the allowance for operating expenditure in the 2016 determination period and the amount Hunter Water spent helps inform our decision on the efficient level of operating expenditure over the 2020 determination period.

Hunter Water's higher expenditure was in large part driven by:

- Unbudgeted long cycle preventative maintenance (LCPM).[53]
- Higher contract labour expenditure on corporate activities.
- Energy expenditure for wastewater.[54]

4.2.2 Our assessment of efficient operating expenditure over the 2020 determination period

In its July 2019 pricing proposal, Hunter Water proposed operating expenditure of $626.8 million over the four years to 2023-24.[55] This is an average of around $156.7 million per year, which is:

- $7.7 million per year (or 5.2%) **higher** than Hunter Water's actual average operating expenditure over the 2016 determination period
- $13.7 million (or 9.5%) **higher** than the operating expenditure we used to set prices in 2016.

Hunter Water stated in its pricing proposal that it is a low cost service provider, and that in 2015-16 and 2016-17 it had the "…lowest operating cost per property of any major [water] utility in Australia".[56] However, it argues that the result of very low operating expenditure has been the utility having a relatively high operational risk.

Following a comprehensive review of its risk, Hunter Water has taken steps to reduce its risks:

> We have committed to invest in activities that will result in risk reduction in areas currently outside of our risk appetite, thereby ensuring services continue to be provided in line with community expectations and meet safety, environmental and compliance requirements.[57]

In particular, Hunter Water proposes to increase expenditure in corporate and general operations, partially offset by reductions in labour and maintenance, relative to 2019-20.

In its submission to our Issues Paper in October 2019, Hunter Water increased its proposed operating expenditure by an additional $4.6 million over four years. This was to:

- Correct an error in its forecast energy costs contained in its July 2019 pricing proposal (+$3.9 million)[58]
- Include additional operating costs associated with higher water demand forecasts (+$1.5 million)[59]
- Include savings from deferring its adoption of quarterly billing to 2021-22 (-$0.85 million).[60]

---

53 LCPM aims to improve asset reliability, optimise the asset life of treatment plant infrastructure and reduce lifecycle asset costs. This is a change from their previous reactive approach to asset maintenance. Hunter Water states that they expect this higher up-front expenditure to defer future capital investment and ensure that they meet compliance requirements (Aither, Hunter Water expenditure review, Final Report, December 2019, p 106).

54 Aither, *Hunter Water expenditure review*, 14 December 2019, p 89.

55 Aither, *Hunter Water expenditure review*, 14 December 2019, pp 127-130.

56 Hunter Water, *Pricing Proposal to IPART*, *Technical Paper 5*, 1 July 2019, p 4.

57 Hunter Water, *Pricing Proposal to IPART*, *Technical Paper 5*, 1 July 2019, p 4.

58 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 56.

59 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 35.

60 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 58.

4.2.3 Aither recommended some adjustments

Aither reviewed Hunter Water's proposed operating costs and found them to be generally efficient. However, it recommended two adjustments:

- **Labour costs** (33% of opex) were insufficiently justified compared to expenditure in earlier years, and it recommended an annual reduction of $1 million, or 0.6%.
- **Operations costs** (19% of opex) included a risk-averse approach to the potential costs of transitioning to a new operations provider, and it recommended sharing the risk of these costs with customers, amounting to a 0.5% annual reduction in these costs for three years.

Labour expenditure

Labour costs comprise 33% of Hunter Water's total forecast operating costs over the 2020 determination period.[61]

Hunter Water's labour expenditure over the 2016 determination period was $9.5 million (or 4.8%) higher than we used to set prices in 2016, and this expenditure has increased since 2016-17 (see Table 4.4).

Table 4.4 Hunter Water's labour expenditure over the 2016 determination period ($million, $2019-20)

	2016-17	2017-18	2018-19	2019-20[a]	Total
Determination	50.8	48.7	48.9	48.6	197.0
Actual/forecast	48.6	51.6	54.3	52.0	206.5
Difference	-2.2	2.9	5.4	3.4	9.5
Difference (%)	-4.3%	6.0%	11.0%	7.0%	4.8%

a Figures for 2019-20 are forecasts.

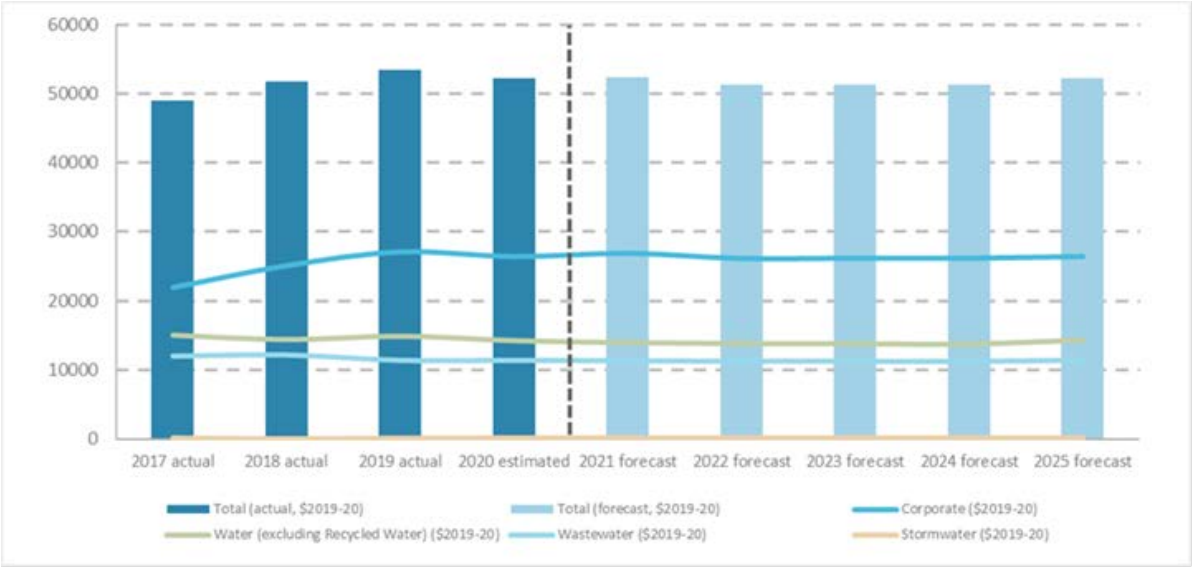
Note: Labour expdenditiure is net of capitalised labour.

Source: Aither, *Hunter Water expenditure review*, 14 December 2019, p 95.

Hunter Water has used historical operating expenditure as the basis for its forecasts over the 2020 determination period,[62] and its increase in labour expenditure since 2016-17 has been driven by increases in corporate expenditure (see Figure 4.2).

61 Aither, *Hunter Water expenditure review*, 14 December 2019, p 93.
62 Aither, *Hunter Water expenditure review*, 14 December 2019, p 101.

Figure 4.2 Comparison of actual and forecast labour expenditure ($'000s, $2019-20)



Note: Figures shown here are net of capitalised labour.

Data source: Aither, *Hunter Water expenditure review*, 14 December 2019, p 96.

In its assessment of Hunter Water's operating expenditure, Aither had concerns regarding the justification for this increase. It states that:

> Aither has concerns regarding the justification of the previous increases in labour expenditure that now form the basis for the forecast of labour expenditure in the upcoming regulatory period. Aither therefore proposes a downward adjustment to Hunter Water's forecast labour expenditure of $1 million per annum to reflect a lower level of base expenditure. This adjustment is a subjective assessment of the lack of robust justification provided for the increased labour expenditure rather than a build-up of definitive changes that occurred over that time.
>
> Corporate labour expenditure was the key driver behind this previous increase in labour expenditure for the business. Given this, Aither proposes that the adjustment be made to the corporate product, which will then be allocated across the other products within the framework.[63]

Our draft decision is to accept Aither's recommended adjustment of $1 million per year.

Operations expenditure

Operations costs comprise the expenditure required to operate infrastructure, including:

- Water and wastewater treatment plants
- Water and wastewater pumping stations
- Energy costs
- Chemical costs
- Laboratory costs to monitor water and wastewater quality.

63 Aither, *Hunter Water expenditure review*, 14 December 2019, p 101.

Hunter Water's treatment operations and laboratory functions are contracted out to external service providers via a competitive tender.[64]

In its July 2019 pricing proposal, Hunter Water proposed around $121.3 million in operations expenditure over the four years of the 2020 determination period.[65] In its October 2019 submission to our Issues Paper, it revised this upwards by around $1.5 million over the four years, to account for the operations costs associated with its revised higher water demand forecasts.[66]

Aither found that Hunter Water's proposed operating costs associated with both the operations contract and laboratory services contract were largely efficient. However, both contracts are due to expire during the 2020 determination period. As part of its pricing proposal, Hunter Water included additional operating costs relating to the transition to a new contract and, potentially, a new service provider.

Aither considers that while transition costs are inevitable in developing and negotiating a new contract, some of the proposed tranistion costs may not occur if the incumbent provider is selected. According to Aither:

> Hunter Water is proposing to recover all potential transition costs from customers regardless of the decision on the future service provider, however it will not necessarily incur all of these transition costs if the incumbent is reappointed. Given this, Aither does not think it appropriate that customers bear all of the risk associated with those costs when there is a chance that Hunter Water may not incur them at all. In order to share the risk, Aither therefore proposes to share these potential costs between Hunter Water and its customers. In the absence of any expected outcome of the procurement processes, Aither has assumed that these forecast costs should be shared 50:50 with the customer base.[67]

Our draft decision is to accept Aither's recommended adjustments to operations expenditure.

This results in a $0.53 million reduction in operations expenditure over the determination period, relative to Hunter Water's proposed costs.

4.3 Catch-up and ongoing efficiency

We have applied an ongoing efficiency adjustment of 0.8%

We have previously considered applying efficiency factors to utilities' forecast operating expenditure. This accounts for the productivity improvements that efficient companies should reasonably be able to make over the next determination period.

There are two types of efficiency adjustments we consider:

- **Catch-up efficiency** - this is the efficiency 'gap' between an individual company within the industry and the efficiency frontier.

64 Aither, *Hunter Water expenditure review*, 14 December 2019, p 105.
65 Aither, *Hunter Water expenditure review*, 14 December 2019, p 112.
66 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 35.
67 Aither, *Hunter Water expenditure review*, 14 December 2019, pp 110-111.

- **Ongoing efficiency** – this represents the frontier shift, the efficiency savings that even a perfectly efficient firm would make with assumed productivity gains over time.

Aither took a 'bottom-up' approach to catch-up efficiencies for Hunter Water. This entails assessing specific proposed programs and assessing whether the efficiencies are systematic and could be applied across the program of expenditure. Aither did not recommend any catch-up efficiency for Hunter Water for the 2020 determination period.

Aither did recommend an annual adjustment of 0.4% per year, compounding, over the 2020 determination period to reflect the scope for ongoing efficiency. This recommendation is based on Aither's findings that:

- Hunter Water is currently a low to medium cost water utility
- The recommended adjustment would bring Hunter Water in line with the efficiencies evident in the Victorian water industry.[68]

However, we consider that long-term multi-factor productivity (MFP) in the Australian economy is an appropriate indicator of Hunter Water' potential for productivity gain over the 2020 determination period. Our analysis of historical data published by the Productivity Commission suggests that an appropriate range for ongoing productivity based on MFP is between 0.6% and 0.8% per annum.

We present detailed analysis of productivity factors and MFP in Appendix E.

Our draft decision to apply a 0.8% per year compounding efficiency factor reduces Hunter Water's proposed operating expenditure by $12.4 million over the 2020 determination period.

68 Aither, *Hunter Water expenditure review*, 14 December 2019, p 123.

5 Capital expenditure

This chapter presents our assessment of Hunter water's efficient capital expenditure.

Under the building block method, capital costs are not recovered as they are spent. Instead, efficient capital expenditure is added to the Regulatory Asset Base (RAB) and recovered over time through allowances for a return on assets and regulatory depreciation.

As with operating expenditure, we engaged Aither to review Hunter Water's historical and forecast capital expenditure and recommend the efficient amount to include in the RAB. As part of its review, Aither also reviewed the appropriate asset lives for both new and existing assets. Asset lives are discussed further in Chapter 6 and Appendix G.

This chapter sets out our assessment of Hunter Water's efficient level of capital expenditure. It discusses:

- Hunter Water's actual capital expenditure during the 2016 determination period.
- Hunter Water's proposed capital expenditure for the 2020 determination period.
- Our draft decisions on Hunter Water's efficient level of capital expenditure.

5.1 Capital expenditure draft decision

We have made draft decisions to largely accept Hunter Water's past and proposed capital expenditure program.

Hunter Water forecasts that its capital expenditure over the 4-year 2016 determination period will be $503.4 million, which is $106.0 million (or 26.7%) higher than we used to set prices in 2016.[69] We have made some adjustments to this forecast of around $5.0 million.

Hunter Water has proposed $706.2 million in capital expenditure over the 2020 determination period.[70] This is 40.3% higher than its capital expenditure over the 2016 determination period.

We have reduced the level of capital expenditure over the 2020 determination period by $60.2 million, or 8.5% of the $706.2 million proposed by Hunter Water.[71]

Our draft decisions are:

8 To set the efficient level of past capital expenditure since 2015-16 to be included in the Regulatory Asset Base (RAB) as set out in Table 5.1.

9 To set Hunter Water's efficient level of capital expenditure to be included in the Regulatory Asset Base (RAB) for the 2020 determination period at $646.0 million, as set out in Table 5.3.

69 Aither, *Hunter Water expenditure review*, 14 December 2019, p 41; Hunter Water Annual Information return, September 2019; IPART analysis.
70 Aither, *Hunter Water expenditure review*, 14 December 2019, pp 69, 80-81; IPART analysis.
71 This excludes Hunter Water's proposed capital expenditure on discretionary projects discussed in Chapter 9.

Historical capital expenditure since 2015-16

Table 5.1 Draft decision on Hunter Water's efficient capital expenditure between 2015-16 and 2019-20 ($million, nominal)

	2015-16	2016-17	2017-18	2018-19	2019-20[a]
Water	29.9	32.7	49.9	61.4	46.0
Wastewater	56.9	43.9	33.5	36.0	106.2
Stormwater	0.7	0.5	0.5	6.1	1.7
Corporate	12.2	9.7	20.2	15.7	20.3
Total	**99.7**	**86.8**	**104.1**	**119.2**	**174.3**

a Figure for 2019-20 are forecasts.

Note: Excludes capital expenditure on discretionary projects.

Our draft decision on the efficient level of capital expenditure since 2015-16 reflects our assessment of how much of Hunter Water's actual capital expenditure should be included in the RAB.

We have accepted Aither's recommendation of a $5 million adjustment to capital expenditure in 2019-20.[72] We have also accepted Aither's recommendation that all of Hunter Water's actual capital expenditure between 2015-16 and 2018-19 was efficient.[73] Table 5.2 below shows that when converted in to $2019-20, our draft decision is to set the efficient level of expenditure between 2015-16 and 2019-20 at $607.0 million.

Table 5.2 Draft decision compared to Hunter Water's proposed capital expenditure between 2015-16 and 2019-20 ($million, $2019-20)

	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Hunter Water's 1 July proposal	108.6	92.8	109.1	122.2	179.3	**612.0**
Farley WWTP upgrade					-5.0	**-5.0**
Draft decision	108.6	92.8	109.1	122.2	174.3	**607.0**
Difference (%)	0.0%	0.0%	0.0%	0.0%	-2.8%	**-0.8%**

Note: Excludes $2.1 million of Hunter Water's forecast expenditure on discretionary projects in 2019-20.

Source: Hunter Water's annual information return, September 2019; IPART analysis.

72 Aither, *Hunter Water expenditure review*, 14 December 2019, p 50.

73 Aither, *Hunter Water expenditure review*, 14 December 2019, p xi. Although 2019-20 is part of the 2016 determination period, capital expenditure in 2019-20 is a forecast.

Forecast capital expenditure over the 2020 determination period

Table 5.3 Draft decision on Hunter Water's efficient capital expenditure for the 2020 determination period ($million, $2019-20)

	2020-21	2021-22	2022-23	2023-24	Total
Water	34.5	50.1	53.8	49.9	188.3
Wastewater	119.4	78.9	80.1	52.3	330.6
Stormwater	3.6	2.7	4.6	5.7	16.6
Corporate	33.9	38.0	18.2	20.4	110.5
Total	**191.4**	**169.7**	**156.6**	**128.3**	**646.0**

Note: Excludes capital expenditure on discretionary projects.

We have accepted Aither's recommendations on adjustments to forecast capital expenditure on specific projects and programs.[74] We have also applied an ongoing efficiency factor (0.8% per annum) to Hunter Water's capital program over the 2020 determination period.

Our draft decision on efficient capital expenditure over the 2020 determination period, together with Hunter Water's proposed capital expenditure and our adjustments is shown in Table 5.4.

74 Aither, *Hunter Water expenditure review*, 14 December 2019, pp xi-xv.

Table 5.4 Draft decision compared to Hunter Water's proposed capital expenditure for the 2020 determination period ($million, $2019-20)

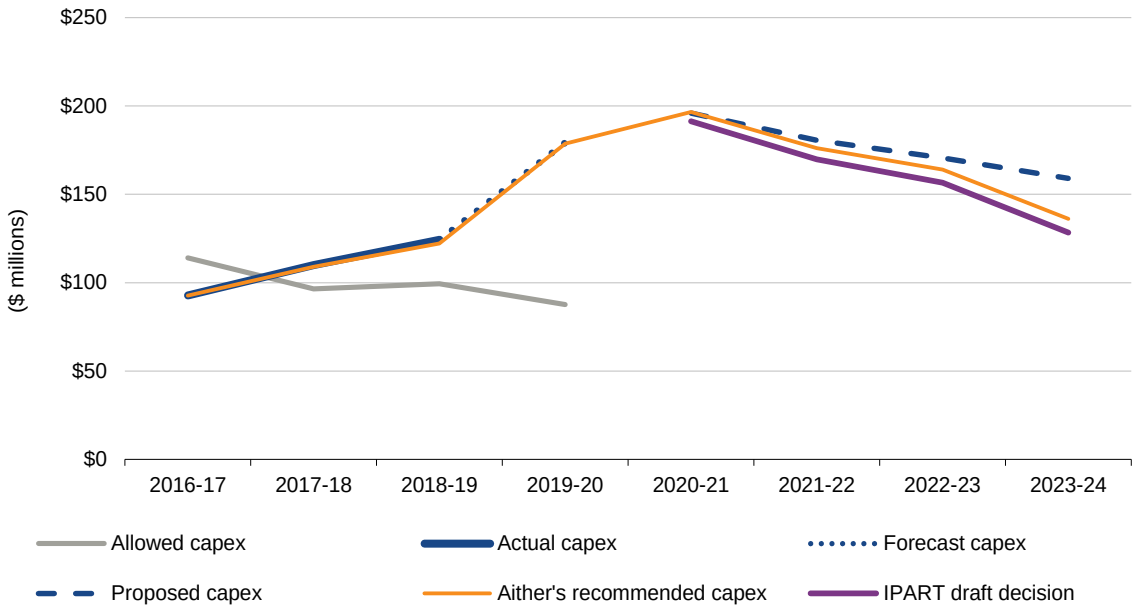
	2020-21	2021-22	2022-23	2023-24	Total
Hunter Water's 1 July proposal[a]	**195.9**	**180.7**	**170.6**	**159.1**	**706.2**
Water network Capacity Upgrades	-1.4	-1.4	-1.4	-1.4	**-5.4**
Minor Asset Renewals Programs – Wastewater	-2.0	-2.3	-2.3	-2.6	**-9.2**
Farley WWTP upgrade	5.0	0	0	0	**5.0**
Treatment Plant Chemical Containment and Safety Upgrades Program	-1.8	-1.8	-1.8	-1.8	**-7.2**
Other Wastewater Treatment Plant Upgrade Program	0	0	0	-16.2	**-16.2**
Water treatment minor works	-0.3	-0.3	-0.3	-0.3	**-1.4**
Water network (critical mains)	0	0	-1.9	-1.9	**-3.8**
Minor water mechanical and electrical network assets	-0.3	-0.3	-0.3	-0.3	**-1.0**
Minor water structures	-1.3	-1.3	-1.3	-1.3	**-5.4**
Mandatory Standards Program	-0.8	-0.8	-0.8	-0.8	**-3.2**
Efficiency adjustment (0.8%, annual compounding)	-1.5	-2.7	-3.8	-4.2	**-12.3**
Draft decision	**191.4**	**169.7**	**156.6**	**128.3**	**646.0**
Difference	***-4.5***	***-10.9***	***-14.0***	***-30.8***	***-60.2***
Difference (%)	***-2.3%***	***-6.1%***	***-8.2%***	***-19.4%***	***-8.5%***

[a] Excludes capital expenditure on discretionary projects.

Source: Aither, *Hunter Water expenditure review, Final report*, 14 December 2019; IPART analysis.

Figure 5.1 below shows our draft decision on Hunter Water's efficient actual and forecast capital expenditure allowances compared to Hunter Water's proposed and Aither's recommended levels of efficient expenditure. This figure shows that our draft decisions on both the historical and forecast level of efficient capital expenditure are significantly higher than what we used to set prices in 2016.

Figure 5.1 Draft decision on Hunter Water's efficient capital expenditure compared to historical and proposed/recommended ($million, $2019-20)



Note: Excludes capital expenditure on discretionary projects.

Data source: Hunter Water annual information return, September 2019; Aither, *Hunter Water expenditure review, Final report*, 14 December 2019; IPART analysis.

5.2 Review of historical capital expenditure

Hunter Water's actual capital expenditure was higher than we forecast in 2016

Hunter Water forecasts that its actual/forecast[75] capital expenditure over the 4-year 2016 determination period will be $106.0 million (or 26.7%) higher than we used to set prices in 2016.[76] This is shown in Table 5.5 below.

Table 5.5 Hunter Water's capital expenditure over the 2016 determination period ($million, $2019-20)

	2016-17	2017-18	2018-19	2019-20	Total
Determination	114.0	96.5	99.3	87.6	**397.4**
Actual/forecast[a]	92.8	109.1	122.2	179.3	**503.4**
Difference	-21.2	12.6	22.9	91.7	**106.0**
Difference (%)	-18.6%	13.1%	23.1%	104.7%	**26.7%**

[a] Figure for 2019-20 is a forecast.

Note: Excludes capital expenditure on discretionary projects.

Source: Hunter Water Annual Information Return update, September 2019; IPART analysis.

When we set prices in 2016, we included a review of Hunter Water's proposed capital expenditure to 2020. Whilst our decisions in 2016 provided Hunter Water a capital allowance

75 Capital expenditure for 2019-20 is a forecast.
76 Excluding capital expenditure on discretionary projects.

based on those decisions, our regulatory approach recognises that the projects and programs planned to be undertaken by a utility may need to change with shifting needs and priorities. As such, we do not rigidly hold utilities to their proposed projects or level of capital expenditure.

As set out above, Hunter Water forecasts that its actual capital expenditure over the 2016 determination period would be 26.7% higher than we allowed for when setting prices in 2016.[77]

In its pricing proposal, Hunter Water states that:

> During the current price period we experienced increased risks that materialised through operational incidents and identified deteriorated asset condition. We managed these risks by bringing projects forward, increasing minor asset renewals and undertaking new projects. The increased investment needs were challenged through our structured internal gateway processes, resulting in prudent and efficient budget constraints being systematically imposed upon the business and the capital investment proposal embodied in this price submission.[78]

Aither reviewed Hunter Water's expenditure over the 2016 determination period and found it to be largely efficient. It reviewed projects and programs that were the major contributors to the higher expenditure. It found that increases in expenditure were driven by:

- Increased incidents of asset failure
- An improved asset condition assessment process, which brought forward expenditure on assets identified as in critical condition
- Expanded project scope
- Higher than forecast costs on major projects.[79]

Whilst it found that Hunter Water's historical expenditure was largely efficient, Aither recommended that $5.0 million on the Farley WWTP (wastewater treatment plant) be deferred from 2019-20 to 2020-21. Aither stated:

> The assessment of capital expenditure for 2019-20 determined that it was unlikely that Hunter Water would be able to fully invest the $14 million works planned for the Farley WWTP upgrade in the current period, given that the tender process was only due to be completed in January 2020. The assessment considered that $5 million should be deferred to the forecast period.[80]

We have accepted Aither's recommendations on Hunter Water's historical capital expenditure.

77 Hunter Water Annual Information Return update, September 2019; IPART analysis.
78 Hunter Water, *Pricing Proposal to IPART, Technical Paper 4*, 1 July 2019, p 14.
79 Aither, *Hunter Water expenditure review, Final report*, 14 December 2019, p 48.
80 Aither, *Hunter Water expenditure review, Final report*, 14 December 2019, p 53.

5.3 Review of proposed capital expenditure in the 2020 determination period

Adjustments to Hunter Water's proposed projects and programs

Hunter Water proposed $706.2 million[81] in capital expenditure over the 2020 determination period.[82] This is:

- $202.8 million (or 40.3%) higher than its capital expenditure over the 2016 determination period.
- $308.8 million (or 77.7%) higher than what we used in 2016 to set prices over the 2016 determination period.

Aither reviewed Hunter Water's proposed capital expenditure over the 2020 determination period and recommended a number of adjustments to specific programs and projects. In total, Aither recommended a $47.9 million (or 6.8%) reduction to Hunter Water's proposed expenditure.[83]

We have accepted Aither's recommended adjustments to Hunter Water's proposed capital expenditure program over the 2020 determination period.

Aither made a number of specific recommendations to Hunter Water's proposed capital program, the most significant of which are reductions of:

- $16.2 million to the major wastewater treatment plant upgrade program. Aither found that two of the seven proposed projects in the $108 million program should be deferred to beyond the 2020 determination period.[84]
- $9.2 million in proposed capital expenditure on minor wastewater asset renewals. Aither found that there was insufficient rigorous evidence to justify the proposed increase, and that the scale of the program was overly risk averse. [85]
- $5.4 million for water network capacity upgrades. Aither found that the proposed costs of augmenting capacity in existing assets were overly conservative.[86]
- $7.2 million for treatment plant chemical containment and safety upgrades. The Environment Protection Authority (EPA) has issued Hunter Water with directives to undertake containment and safety works at some of its sites, including Dungog WWTP. Aither found that Hunter Water's proposal to extend this program for sites that are not covered by EPA directives is overly risk averse.[87]
- $14.8 million on other reductions to projects and programs.

81 Excluding capital expenditure on discretionary projects.
82 Aither, *Hunter Water expenditure review, Final report*, 14 December 2019, pp 81-83.
83 Aither, *Hunter Water expenditure review, Final report*, 14 December 2019, pp 81-83.
84 Aither, *Hunter Water expenditure review, Final report*, 14 December 2019, pp 55-57.
85 Aither, *Hunter Water expenditure review, Final report*, 14 December 2019, pp 52-53,57.
86 Aither, *Hunter Water expenditure review, Final report*, 14 December 2019, pp 51-52,57.
87 Aither, *Hunter Water expenditure review, Final report*, 14 December 2019, pp 54,57.

Partially offsetting these reductions, is an increase in capital expenditure in 2020-21 arising from Aither's recommended deferral of $5 million on the Farley WWTP upgrade from 2019-20 to 2020-21.

Aither also reviewed Hunter Water's 'water loss improvement program'. The objective of this program is to ensure that Hunter Water's water losses from leakage are not excessive. We consider it important that Hunter Water's water conservation is aimed at reducing water leakage to its optimal level. If leakage is too high, valuable water is being wasted. On the other hand, as leakage is reduced, it becomes more and more expensive to fix leaks relative to the amount of water saved. We expect Hunter Water to reduce leaks where the costs incurred are less than the value of the water saved.

As part of the requirements of Hunter Water's Operating Licence, IPART has approved Hunter Water's methodology to determine its economic level of water conservation (ELWC).[88] Key elements of the ELWC methodology are shown in Box 5.1 below.

Box 5.1 Hunter Water's ELWC methodology

The methodology requires Hunter Water to complete water conservation activities up until the point that doing so is more expensive than the value of water saved. A project will go ahead so long as the levelised cost of the project is less than the value of water saved by the project.

$$Project\ levelised\ cost = \frac{PV(Project\ delivery\ cost) - PV(Avoided\ costs) - PV(Externalities)}{PV(Water\ saved)}$$

In turn, the value of water is calculated as follows:

$$Value\ of\ water = Direct\ water\ supply\ cost + Drought\ response + Scarcity\ value + Externalities$$

For short-run projects, Hunter Water's ELWC shows the short run values of water in the table below.

Hunter Water's short run value of water used in ELWC calculation

Total water storage level	Social cost ($/kL)
80%-100%	0.46
70%-79%	0.48
60%-69%	3.55
50%-59%	8.37

Source: Hunter Water ELWC Methodology Paper, 2019.

Hunter Water's leakage has reduced from around 19.6ML/day to 18.5ML/day in 2018-19, which meets its estimate of the economic level of leakage.[89]

Hunter Water has proposed to spend $32.8 million on its water loss improvement program between 2020-21 and 2024-25.[90] Aither reviewed Hunter Water's proposed expenditure on

88 Hunter Water Operating Licence, 2017-2022.
89 Hunter Water, *Water Conservation Report 2018-19*, September 2019, p 16.
90 Hunter Water, *Pricing Proposal to IPART, Technical Paper 4*, 1 July 2019, p 33.

the water loss reduction program and found it to be in line with its ELWC methodology and as such found it to be efficient.[91]

Summary

Overall, Aither found that most of Hunter Water's proposed increase in capital expenditure is justified and efficient. It considered Hunter Water's capital delivery processes including asset management, strategic planning, governance and risk management and found them "robust and conducive to efficient investment decision making".[92] In addition to Hunter Water's decision making processes, Aither also found that its capital project delivery aligns with standard industry practice.

However, it found that Hunter Water's risk assessment approach to some projects led to higher costs for some proposed projects. It found that:

> …in some cases, a risk averse approach to project scoping and decision-making has been adopted that has resulted in a higher-cost option being preferred. This approach may inappropriately shift risk away from Hunter Water and onto its customer base via higher pricing to recover the costs associated with the higher-cost option.[93]

Given the above findings, the project and program adjustments Aither recommended are relatively modest.

Aither's recommended adjustments are explained in further detail in Appendix F.

5.4 Catch-up and ongoing efficiency

We have applied an ongoing efficiency adjustment of 0.8%

As with operating expenditure, we have previously considered applying efficiency factors to utilities' forecast capital expenditure where appropriate. This includes:

- **Catch-up efficiency** - this is the efficiency 'gap' between an individual company within the industry and the efficiency frontier.
- **Ongoing efficiency** – this represents the frontier shift, the efficiency savings that even a perfectly efficient firm would make with assumed productivity gains over time.

Aither did not recommend an ongoing efficiency factor for Hunter Water's capital expenditure as it is of the view that:

- For its ongoing programs, Hunter Water has undertaken benchmarking exercises to compare its costs with comparable utilities.

91 Aither, *Hunter Water expenditure review, Final report*, 14 December 2019, pp 56-57.
92 Aither, *Hunter Water expenditure review, Final report*, 14 December 2019, p x.
93 Aither, *Hunter Water expenditure review, Final report*, 14 December 2019, p x.

- For major projects where benchmarking is not appropriate, Hunter Water consistently applies leading practices to ensure efficiencies, including separating design and construction tenders and packing smaller similar projects into larger tenders to achieve economies of scale.[94]

We note Aither's assessment that Hunter Water's systems and processes place it in the leading group of utilities in Australia.[95] However, we consider that it is appropriate to add an ongoing efficiency factor to Hunter Water's proposed capital expenditure.

This reflects our view that ongoing productivity improvements should enable an efficient firm to improve its performance in planning and delivering its capital program over time. As discussed in Chapter 4, and in Appendix E, we have applied an adjustment of 0.8% per annum. In arriving at this figure, we have weighed our assessment of short and long-term productivity in Australia, and Aither's assessment that Hunter Water has robust processes.

One of our considerations in deciding on a 0.8% efficiency factor was multi-factor productivity (MFP) in the Australian economy. As MFP includes all inputs, including both operating and capital costs, we consider that this factor should apply to capital expenditure, as well as operating expenditure. As such, our draft decision is to apply a 0.8% per annum efficiency factor to Hunter Water's capital expenditure program over the 2020 determination period.

Table 5.6 shows the impact of a 0.8% annual (compounding) efficiency adjustment applied to Aither's recommended efficient capital expenditure allowance for Hunter Water, with a total reduction of $12.3 million over the 2020 determination period.

Table 5.6 Impact of applying an 0.8% annual efficiency adjustment ($million, $2019-20)

	2020-21	2021-22	2022-23	2023-24
Hunter Water Proposed	**195.9**	**180.7**	**170.6**	**159.1**
less Project and program adjustments	-2.9	-8.2	-10.1	-26.6
Adjusted expenditure	**192.9**	**172.5**	**160.4**	**132.5**
Percentage efficiency adjustment (compounding)	-0.8%	-1.6%	-2.4%	-3.2%
Adjustment for efficiency ($million)	-1.5	-2.7	-3.8	-4.2
IPART draft decision	**191.4**	**169.7**	**156.6**	**128.3**

We present detailed analysis of productivity factors and the MFP in Appendix E.

94 Aither, *Hunter Water expenditure review, Final report*, 14 December 2019, pp 70-71.
95 Aither, *Hunter Water expenditure review, Final report*, 14 December 2019, p 71.

6 Notional revenue requirement

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

This chapter presents our approach and decisions on the total NRR, as well as any adjustments we make to account for revenue from sources other than water, wastewater and stormwater customers. We also compare the NRR with that used to set prices in the 2016 Determination and that in Hunter Water's proposal.

6.1 How do we assess the notional revenue requirement?

We have continued to use the 'building block' approach to calculate the NRR. In this approach, we break down Hunter Water's costs into five components (or building blocks), namely:

- **Operating cost allowance,** to cover costs such as maintenance and administration costs (see Chapter 4)
- **Capital cost allowance**, comprised of:
  - **return on** the assets that Hunter Water uses to provide its services (see Chapter 5 and Appendix I)
  - **regulatory depreciation** (or a **return of** the assets that Hunter Water uses to provide its services), which involves deciding on the appropriate asset lives and depreciation method (see Appendix G).
- **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 five building blocks is the NRR, and represents our assessment of the total efficient costs Hunter Water should incur in delivering its services. Once we calculated Hunter Water's NRR, we took account of any adjustments to accommodate revenue that Hunter Water will receive from other sources.

We then decided on the approach we would use to convert this amount into prices. This involved setting the **target revenue** for each year – that is, the actual revenue we expect Hunter Water to generate from prices and charges for that year. We smoothed the revenue requirement across the years to make prices constant over the four years. 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 Hunter Water and its customers.

In this review we have also considered and set draft prices for discretionary expenditure. We have kept this separate to the NRR for water, wastewater and stormwater services.

A full discussion of our approach to calculating the NRR is set out in Appendix H.

6.2 The total draft NRR over four years

Our draft decision is:

10 To set the notional revenue requirement (NRR) of $1,323.8 million as set out in Table 6.1.

The total draft NRR is $1,323.8 million over four years, as set out in Table 6.1. This is $156 million (10.5%) less than Hunter Water's proposal over the four years of the 2020 determination period. We present our decisions related to each of the building blocks in the table below. Each building block is discussed later in this chapter.

Table 6.1 Draft NRR and comparison to Hunter Water's proposal ($million, $2019-20)

	2020-21	2021-22	2022-23	2023-24	Total	% of total
Operating expenditure	156.0	153.6	153.7	151.0	614.5	46.4%
Depreciation	58.6	65.0	70.2	74.7	268.5	20.3%
Return on assets	93.4	97.2	100.2	102.3	393.1	29.7%
Tax allowance	0.9	1.2	1.3	1.5	4.9	0.4%
Return on working capital	10.3	10.2	10.6	11.8	42.8	3.2%
Total NRR	**319.3**	**327.2**	**336.1**	**341.3**	**1,323.8**	
Hunter Water's proposal	350.4	363.5	377.6	388.3	1,479.8	
Difference ($)	-31.1	-36.3	-41.5	-47.0	-156.0	
Difference (%)	-8.9%	-10.0%	-11.0%	-12.1%	-10.5%	

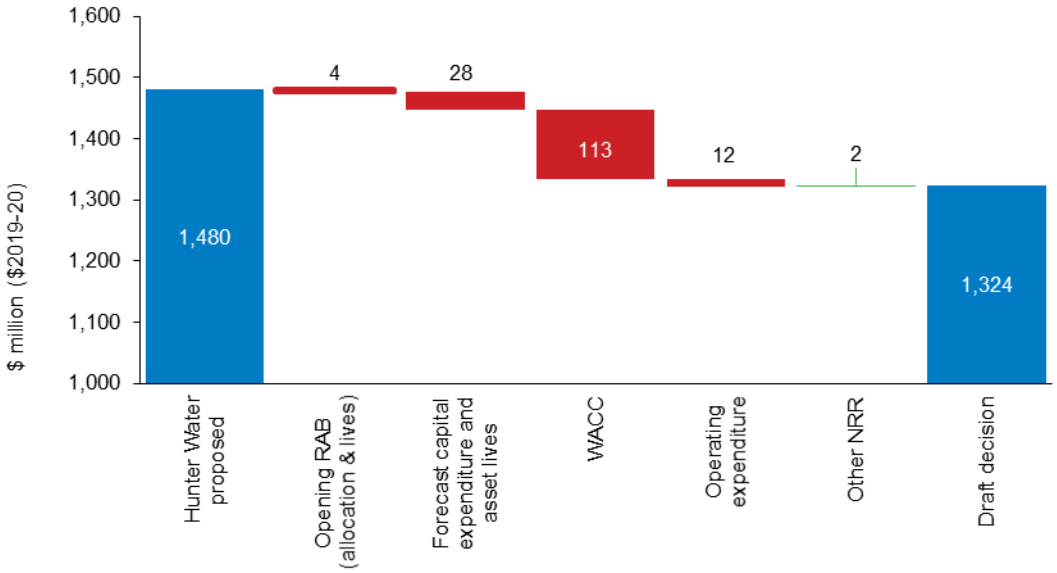
Note: Totals may not add due to rounding.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 8; IPART analysis.

6.3 Our draft NRR is lower than proposed by Hunter Water

Compared to Hunter Water's proposal, our draft NRR is $156 million or 10.5% lower over the four years. Figure 6.1 illustrates the impacts of our various decisions on this difference. The changes in the WACC have had by far the most significant impact. This is largely a function of timing: Hunter Water's proposal used the same methodology to set the WACC as IPART, however between when Hunter Water submitted its proposal and now, market conditions have changed, lowering the WACC from 4.1% to 3.2%. That is, if Hunter Water submitted its pricing proposal now, its proposed NRR would be significantly closer to our draft NRR.

Figure 6.1 The key decisions in changes from Hunter Water's proposed NRR to our draft NRR



Note: The block 'Opening RAB' refers to the impact on notional revenue from IPART's decision on past capital expenditure, allocation of existing asset into more RAB categories and lives of existing assets.

Data source: IPART analysis.

6.4 The total NRR is higher than used in the 2016 review

Our total draft NRR (before adjustments) is $40.1 million (or 3%) higher than we used to set prices in 2016 over four years (after adjusting for inflation).[96] Comparatively, the draft NRR includes:

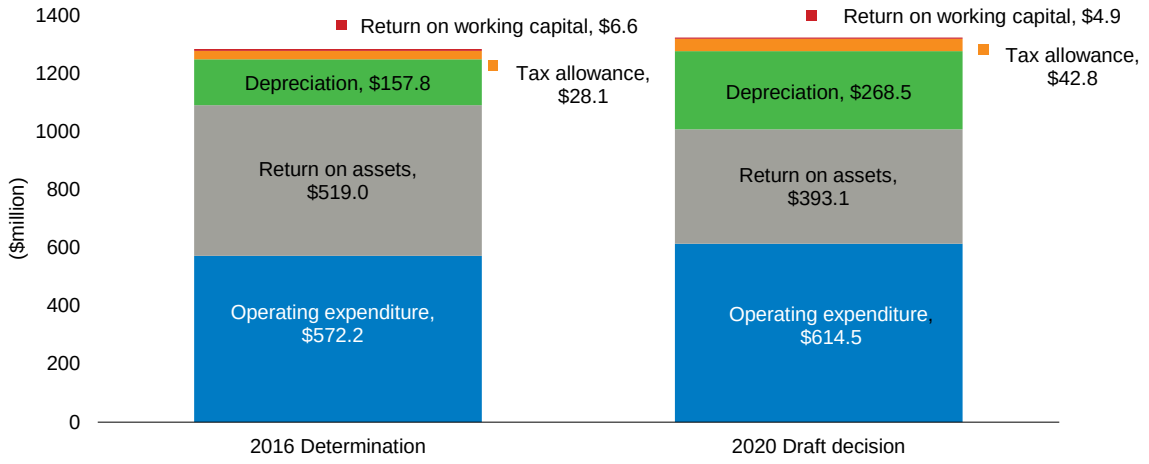
- A higher allowance for operating expenditure, reflecting Hunter Water's proposed increases.
- A lower return on assets, driven by the lower WACC.
- A higher allowance for regulatory depreciation, due to the RAB disaggregation and use of shorter asset lives than in the 2016 Determination.
- A higher tax allowance, related to the increased RAB[97].
- A slightly lower return on working capital allowance, mainly due to the lower WACC.

Figure 6.2 below compares the total NRR under our draft decision, with the NRR we used to set prices in 2016.

96 Even so, typical bills using the draft prices will be lower than in 2019-20 (in real terms). This is due to an increase in customer numbers, essentially sharing the costs amongst more customers.

97 The reduced WACC affects the cost of debt, which does not affect the tax calculation.

Figure 6.2 Comparison of our draft NRR and that used in the 2016 Determination ($million, $2019-20)



Data source: IPART analysis.

6.5 Adjustments made to the NRR

Before setting water, wastewater and stormwater prices to recover the NRR, we subtract revenue that Hunter Water is forecast to receive from other sources. This ensures that the utility does not over-recover that efficient level of expenditure, and that customers do not pay too much. These other sources include:

- **The demand volatility adjustment mechanism (DVAM).** This mechanism seeks to ensure there is a reasonable match between Hunter Water's revenue requirement and its revenue from water sales. We apply the DVAM when actual water sales differ from the forecast sales that we used to set prices by +/-5%. This review is the first time we have applied a DVAM: our decision is to return $10.3 million to customers over the 2020 determination period, to account for higher than forecast water sales over the 2016 determination period. This is explained in more detail in Chapter 3 and Appendix D.
- **Trade waste services, miscellaneous services, raw water and bulk water services**. These are used by small subsets of customers, and they are priced separately to the water, wastewater and stormwater services. Chapter 11 provides our detailed assessment of the prices for these services.
- **A share of revenue from non-regulated sources,** when made using regulated assets. This acknowledges that the customers have paid for the asset, and should therefore share in some of the gains. In section 6.9 of this chapter we explain how we have treated non-regulated revenue from various sources.

Our draft decision is:

11 To subtract from the NRR the revenue from our decisions on the demand volatility adjustment mechanism, trade waste services, miscellaneous services, non-regulated assets, and raw water and bulk water services, in accordance with Table 6.2.

Table 6.2 Draft adjustments to the NRR ($million, $2019-20)

	2020-21	2021-22	2022-23	2023-24	Total
IPART decision NRR from building blocks	319.3	327.2	336.1	341.3	1323.8
Demand volatility adjustment	10.3	0.0	0.0	0.0	10.3
Trade waste revenue	2.6	2.6	2.6	2.6	10.2
Miscellaneous charges	2.3	2.3	2.3	2.3	9.2
Revenue from raw water and bulk water	3.0	3.3	3.7	4.1	14.1
Non-regulated revenue	1.4	1.4	1.4	1.4	5.4
Total adjustments	**19.5**	**9.5**	**9.9**	**10.3**	**49.2**
Revenue to be recovered by water, wastewater and stormwater prices	**299.8**	**317.7**	**326.2**	**330.9**	**1274.6**

Note: Totals may not add due to rounding.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 8; IPART analysis.

6.6 Approach to smoothing revenue requirement

Our draft decision is:

12 To set prices to recover the total adjusted NRR over four years, in present value terms.

We decided to set prices to recover the adjusted NRR by the end of the determination period, rather than to recover the annual NRR by the end of each year of this period. This is in line with our usual practice. This approach smooths the impact of price changes over the period, thus reducing price volatility for customers, and revenue volatility for Hunter Water.

However, this approach also means the target revenue to be recovered in each year of the period will not equal the NRR in each year (see Table 6.3). To ensure that Hunter Water and customers do not benefit or lose from this arrangement, we set prices so that the target revenue expected to be received from prices equates to the NRR over the determination period, in 'present value' terms. That is, prices are set over the 4-year determination period so that the present value of the target revenue equals the present value of the NRR (ie, the price path is NPV neutral).

Table 6.3 Comparison of NRR and smoothed target revenue ($million, $2019-20)

	2020-21	2021-22	2022-23	2023-24	4-year NPV[a]
NRR	309.0	327.2	336.1	341.3	1,213.7
Target revenue from prices	319.3	325.6	330.8	336.9	1,213.7
Difference	**-10.3**	**1.6**	**5.3**	**4.4**	**0.0**

[a] Sum over the four years on a present value basis, assuming a discount rate equal to the real pre-tax WACC (3.2%).

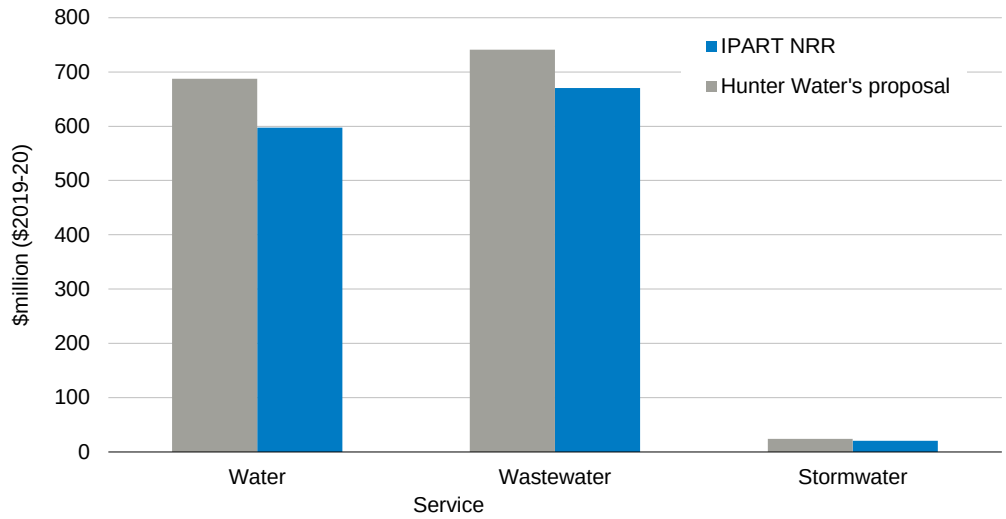
Note: Totals may not add due to rounding.

6.7 NRR for each service

To set prices for each service, we calculate a separate NRR for water, wastewater and stormwater services, to ensure customers who do not have access to one or more of the services do not pay for them.[98]

Each of these NRRs are based on the cost build-up for the individual service, with an allocation of corporate costs. The wastewater NRR is the largest at $670.2 million over four years, followed by water ($597.3 million) and stormwater ($20.6 million). These are also smoothed before we set prices. Figure 6.3 compares our draft NRR for four years with Hunter Water's proposal, by service.

Figure 6.3 Draft NRR compared to Hunter Water's proposal, by service ($million, $2019-20)



Data source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, pp 10-11; IPART analysis.

6.8 Summary of our building block decisions

This section provides our decisions on the key NRR inputs, with a brief explanation. Other chapters and appendices in this report provide further analysis including, amongst other things, what Hunter Water proposed, and how we considered stakeholder comments.

6.8.1 Operating allowance

Operating expenditure is the biggest building block, at 46.4% of the total revenue requirement. Our draft decision on the operating expenditure allowance is provided and explained in Chapter 4.

98 The adjustments are allocated depending on the infrastructure that is used to derive the revenue. The DVAM adjustment is taken from the water NRR because the over recovery is from water usage.

6.8.2 Capital allowance

The two biggest building blocks after operating expenditure are based on the value of the total stock of Hunter Water's assets. Our decision on the efficient level of capital expenditure contributes to this (see Chapter 5). These are the allowances for:

- **A return on assets,** which provides a return on the capital invested in Hunter Water's assets used to provide its services – that is, its regulatory asset base (RAB) – and aims to ensure that Hunter Water can continue to make efficient capital investments in the future (29.7% of the total).
- **A return of these assets (or regulatory depreciation)**. This allowance recognises that by providing services to customers, a utility's assets will wear out over time, and therefore aims to ensure that the costs of the assets are recovered from users over the useful life of the assets (20.3% of the total).

Return on assets

Broadly, we calculate the return on assets by multiplying the value of the RAB over the determination period by an efficient rate of return (the WACC), for each year of the determination period.

Our draft decisions are:

13 To calculate the return on assets using:

   a An opening RAB of $2,869.5 million for 2020-21, and the RAB for each year as shown in Table 6.4.

   b A WACC of 3.2%.

14 To apply a true-up of annual WACC adjustments in the next Determination.

Table 6.4 presents our draft decisions on the RAB values. The RAB tends to increase over time as capital expenditure exceeds depreciation. Under our decision, the RAB would increase by $367.5 million over the four years, which is $62.5 million (or 14.5%) less than under Hunter Water's proposal. There are multiple inputs to the RAB.

Chapter 5 provides our assessment of capital expenditure, the next section explains how we reached our decision on the depreciation allowance, and Appendix I provides the parameters we used to calculate the WACC.

Table 6.4 Opening RAB values going forward (as at 1 July; $million, $2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	Change over 4 years[a]
Opening RAB		**2,869.5**	**3,001.1**	**3,104.6**	**3,184.6**	**315.1**
Plus: Actual prudent and efficient capex		191.2	169.5	151.3	128.3	
Less: Cash capital contributions		0.0	0.0	0.0	0.0	
Less: Asset disposals		0.0	0.0	0.0	0.0	
Less: Allowed regulatory depreciation		59.6	66.0	71.4	75.8	
Plus: Indexation		0.0	0.0	0.0	0.0	
Closing RAB	**2,869.5**	**3,001.1**	**3,104.6**	**3,184.6**	**3,237.0**	**367.5**
Hunter Water's proposal (closing RAB)	2,877.3	3,015.9	3,130.8	3,228.2	3,307.3	430.0
Difference ($)		-14.76	-26.15	-43.62	-70.26	
Difference (%)		-0.5%	-0.8%	-1.4%	-2.1%	

a The shows the difference between the 2020-21 opening RAB and the 2023-24 closing RAB.

Note: Totals may not add due to rounding.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, pp 12-13; IPART analysis.

How to treat annual changes in the WACC

In our 2018 WACC methodology, we decided that at each price review we would consider whether to either:

- Update prices annually to reflect the updates in the WACC annually, or
- Use a regulatory true-up at the next period, which we would pass through to prices at the beginning of the next period.

Our draft decision is to use a regulatory true-up approach. This approach provides greater price stability for customers, and is consistent with Hunter Water's proposal. Further discussion on this is provided in Appendix I.

Regulatory depreciation

Regulatory depreciation aims to recover the cost of an asset over its useful life, to ensure that the customers that benefit from the asset pay for it. To calculate the regulatory depreciation, we typically divide the value of assets by their expected lives. For simplicity, we do this at an aggregated level.

In this review, we have made some significant changes to the way we calculate depreciation allowance, in response to Hunter Water's proposal. Hunter Water had proposed to disaggregate the RAB from 4 categories into 21 categories and apply shorter asset lives than we have applied in previous determinations.

Our draft decision is:

15 To, in order to calculate the depreciation allowance:

a Accept Hunter Water's proposal to disaggregate its RAB, but when disaggregating the RAB, to account for the 'line in the sand' approach when the RAB was first set in 2000.

b Use the straight-line depreciation method, and

c Not accept Hunter Water's proposed asset lives, and instead use longer asset lives for new and existing categories, as shown in Table 6.5.

Table 6.5 Draft asset lives to be applied to new and existing assets, by RAB category

RAB sub-category	Corporate		Wastewater		Water		Stormwater	
	Existing	New	Existing	New	Existing	New	Existing	New
Civil	31.9	67.6	69.5	140.0	89.8	90.0	68.1	150.0
Electrical/ Mechanical	23.2	9.0	23.2	35.0	23.2	25.0	23.2	25.0
Equipment	NA	10.0	7.2	15.0	7.2	15.0	7.2	15.0
Intangible	NA	10.0	7.2	15.0	7.2	15.0	7.2	15.0
Non-depreciating	0		0		0		0	
Transition	10		NA		NA		NA	

Our main divergence from Hunter Water's proposal is to set different asset lives. Instead of Hunter Water's proposal, we applied lives that are closer to those we used in the 2016 Determination:

- The lives we have applied to **existing assets** reflect the weighted average life of 62 years, as recommended by Jacobs (our expenditure consultants at the time) in our 2016 review. This is longer than Hunter Water proposed, but shorter than has been used to date.
- The lives we have applied to **new assets** are the same as those we apply to new assets in our review of Sydney Water's prices. Under Hunter Water's proposal, there was a significant difference in the weighted average life of new assets between Sydney Water and Hunter Water. We consider that there is no reason that asset lives should differ markedly between Sydney Water and Hunter Water.[99]

Appendix G contains a complete discussion about our decisions on the RAB disaggregation method and our decision on the appropriate asset lives.

99 We generally expect these to be similar except for some minor differences on exception. For instance, Hunter Water owns bulk water assets such as dams and Sydney Water does not.

6.8.3 Tax allowance

Our tax allowance is not intended to recover Hunter Water'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 full 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.

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. When we forecast the tax allowance we also assessed Hunter Water's forecasts for assets received free of charge and tax depreciation.

Our draft decision is:

16 To, for the purpose of calculating the tax allowance:

a Apply a tax rate of 30%

b Accept Hunter Water's forecast of assets free of charge, and

c Accept Hunter Water's forecast tax depreciation, adjusted for our decisions on capital expenditure.

Table 6.6 below provides a comparison of our draft decision with Hunter Water's proposal. The main driver of the difference is the change in the WACC between Hunter Water's proposal and our draft. Appendix H provides a detailed explanation of our approach to estimating the tax allowance.

Table 6.6 Comparison of our draft tax allowance to Hunter Water's proposal ($million, $2019-20)

	2020-21	2021-22	2022-23	2023-24	Total
Hunter Water's proposal	11.9	12.4	13.3	15.1	52.7
Our draft decision	**10.3**	**10.2**	**10.6**	**11.8**	**42.8**
Difference ($)	-1.6	-2.2	-2.7	-3.3	-9.9
Difference (%)	-13.4%	-18.0%	-20.5%	-21.9%	-18.7%

Note: Totals may not add due to rounding.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 29; IPART analysis.

6.8.4 Working capital allowance

The working capital allowance ensures Hunter Water recovers the costs it incurs due to the time delay between providing a service and receiving the money for it (ie, when bills are paid). To calculate this allowance, we applied our standard approach. In summary, this involves:

1. Calculating the net amount of working capital the business requires, using the formula:

   working capital = receivables – payables + inventory + prepayments

2. Calculating the return on this amount by multiplying it by the nominal post-tax WACC.

More information on our standard approach can also be found in our working capital Policy Paper on our website.

Our draft decision is:

17 To, for the purpose of calculating the working capital allowance:

- a Accept Hunter Water's proposed parameters that:
  - i. Half of the service charge is billed in advanced and half in arrears
  - ii. There is a delay of 23 days before bills need to be paid.
- b Calculate the proportion of revenue derived from service charges separately for each service based on forecast revenue.
- c Adjust Hunter Water's proposal to account for a delay in its move to quarterly billing.

Table 6.7 below provides a comparison of our draft decision with Hunter Water's proposal. The difference is minor, resulting mainly from Hunter Water's one year deferral of its move to quarterly billing. Appendix H provides a detailed explanation of our approach to calculating the working capital allowance.

Table 6.7 Comparison of our draft return on working capital allowance to Hunter Water's proposal ($million, $2019-20)

	2020-21	2021-22	2022-23	2023-24	Total
Hunter Water's proposal	1.0	1.2	1.3	1.5	5.0
Our draft decision	**0.9**	**1.2**	**1.3**	**1.5**	**4.9**
Difference ($)	-0.06	0.0	0.0	0.0	-0.1
Difference (%)	-6.4%	0	0	0	0%

Note: Totals may not add due to rounding.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 8; IPART analysis.

6.9 How we reached our decisions on adjustments

As noted earlier, before setting prices for water, wastewater and stormwater, we reduce the NRR by revenue that Hunter Water would receive through other means. This is to ensure it does not over-recover. Below, we provide our decisions on revenue from:

- Applying the demand volatility adjustment mechanism (DVAM), and
- Non-regulated revenue.

6.9.1 Applying the demand volatility adjustment mechanism (DVAM)

In the 2016 Determination, we decided that at the next price review we would consider "an adjustment to the revenue requirement and prices" to address any over- or under-recovery of revenue over the 2016 determination period due to a material variation between forecast and actual water sales. A material variation was defined as "more than 5% (+ or -) over the whole determination period".[100]

We have determined that, based on revenue from water sales, Hunter Water over-recovered by $33.1 million ($2019-20) or 7.2% over the first three years of the 2016 determination period, and we have decided to return the revenue that exceeds the 5% threshold to customers.

In our Issues Paper, we sought feedback about how the DVAM should be applied. We reviewed the feedback and have decided that the adjustment should be implemented as follows:

- The trigger is when revenue from water sales exceeds forecasts by more than 5% (+ or -). (IPART's 2016 Final Report did not specify if the material variation referred to sales volumes or sales revenue.)
- The DVAM is based on actual sales with a one year lag
- We adjust for all revenue above the 5% materiality threshold
- We account for the holding costs of additional revenue, and
- The revenue is an adjustment to the NRR and spread out over each year of the 2020 determination period in an NPV-neutral way (this happens when we smooth the NRR).

The application results in $10.3 million being returned to the customers. Chapter 3 and Appendix D provide further explanation of our consideration of the DVAM.

6.9.2 Non-regulated revenue

We encourage water utilities to optimise the use of their assets and seek ways to generate revenue in ways other than from traditional services – provided this doesn't compromise the delivery of their core services. For instance, this could include renting land or facilities if there is an interested lessor. Where a utility does this by using assets that have been paid for by the customers of the traditional services, we typically share this revenue with the customers that have paid for the asset.

Sharing the revenue encourages the utilities to pursue non-regulated revenue, while ensuring customers also benefit from the arrangements because they pay for the assets. In the past, we have typically applied a 50:50 sharing ratio of the revenue. For this review we have diverged slightly from our past approach in some instances.

100 IPART, *Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, Final Report*, June 2016, pp 97-98.

Our draft decisions are:

18 To allow Hunter Water to retain the revenue from recycled water schemes where the water displaces some potable water sales, as compensation for lost potable water sales.

19 To share with customers 10% of the revenue from the sale of bio-banking credits as shown in Table 6.8.

20 To share with customers 50% of other non-regulated revenue as shown in Table 6.8, including from:

   a Rentals, and

   b Recycled water schemes where the water does not displace potable water sales.

For more information on:

- Our approach to revenue from recycled water, see Chapter 10, or
- Our approach to other non-regulated revenue, including bio-banking credits, see Appendix H.

Table 6.8 Non-regulated revenue to be removed from the NRR ($'000s, $2019-20)

Revenue source	2020-21	2021-22	2022-23	2023-24	Total
Bio-banking	54.2	54.2	54.2	54.2	216.6
Recycled water	0.3	0.3	0.3	0.3	1.1
Other, including rentals	1,306.3	1,299.7	1,295.9	1,296.1	5,198.0
Total	**1,360.7**	**1,354.1**	**1,350.3**	**1,350.5**	**5,415.7**

Note: Totals may not add due to rounding.

Source: Hunter Water, Annual Information Return to IPART, September 2019, 'Revenue' row 153; Correspondence with Hunter Water (email), 10 December 2019 and 20 January 2020; IPART analysis.

7 Demand and customer numbers

A key step in our price setting process is to decide on Hunter Water's forecasts for water sales, wastewater discharge volumes and billable connections. These forecasts are used to determine the price levels necessary to recover Hunter Water's NRR.

It is important that the forecasts are reasonable. Differences between forecast and actual water sales over the determination period would lead to an over- or under-recovery of revenue. If forecasts are lower than actual sales, customers would pay higher than efficient prices (as the utility would 'over-recover' relative to its efficient costs). If they are higher than actual sales, Hunter Water may not earn sufficient revenue to recover its efficient costs.

In this chapter, we present our draft decisions on Hunter Water's forecast water sales and customer numbers for the 2020 determination period.

7.1 Forecast water sales volumes

Forecast water sales volumes are used to determine the water service charge, wastewater discharge volumes, and the wastewater service charge.

Hunter Water expects water sales volumes to increase by around 333 ML (or 0.5%) per year over the 2020 determination period, with residential water sales to increase by 0.4% per year, and non-residential water sales to increase by 0.6% per year. These increases reflect expected changes in the underlying determinants of water demand such as population growth, water efficiency improvements and consumer behaviour. The forecasts also factor in advice from major non-residential customers on expected future demand.[101]

Hunter Water's forecast annual sales volumes over the 2020 determination period are lower than actual sales in 2017-18 and 2018-19. This is due to lower than expected rainfall over the 2016 determination period.[102] Hunter Water's forecast water sales for the 2020 determination period are based on an assumed return to average weather conditions and long-term average rainfall levels.[103]

Hunter Water's demand forecasting approach comprises two stages:

1. Top-down climate correction[104] – deriving a climate corrected (or climate normalised) level of total demand in the base year
2. Bottom-up forecasting – modelling how different types of customers use water in their homes and businesses in that climate corrected base year and basing forecasts on how that would change over time.

101 Correspondence with Hunter Water (email), 3 December 2019.
102 Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 11.
103 Weather conditions affect water demand. In a given year, hotter and drier conditions would lead to higher than average water usage, while cooler or wetter conditions lead to lower usage.
104 References in this chapter to "climate correction" and "climate corrected" demand refer to the removal of the influence of short term (day-to-day) changes in weather. This is distinct from issues arising from "climate change".

More information on Hunter Water's demand forecasting approach is set out in Appendix J.

Our draft decision is:

21 To adopt Hunter Water's forecast water sales volumes as shown in Table 7.1.

Table 7.1 Draft decision on water sales volumes (ML)

	2019-20[a]	2020-21	2021-22	2022-23	2023-24
Residential	38,316	38,439	38,579	38,705	38,859
Non-residential	20,399	20,594	20,879	20,887	20,949
Bulk water sales	1,372	1,385	1,426	1,518	1,611
Net inter-regional transfers with Central Coast Council	-	-	-	-	-
Total[a]	**60,087**	**60,417**	**60,884**	**61,110**	**61,419**

a Full year forecast for 2019-20. Hunter Water has indicated that actual water sales for 2019-20 would be lower than forecast due to water restrictions. Based on actual water sales for the period from July 2019 to the end of January 2020, total water sales for 2019-20 are expected to be around 56.1 GL. This updated forecast assumes that water restrictions would be lifted at the end of March 2020. Correspondence with Hunter Water (email), 11 February 2020.

Note: 2019-20 figures are included for comparison.

Source: Correspondence with Hunter Water (email), 3 December 2019.

The annual water sales volumes in Table 7.1 are around 1,375 ML (or 2.3%) higher than those presented in our Issues Paper, due to Hunter Water's updated forecasts of non-residential water sales.[105] The updated forecast provides a more accurate representation of average non-residential demand.[106]

7.1.1 Reasons for our decision

We have assessed Hunter Water's new climate correction methodology, and its existing Integrated Supply-Demand Planning (iSDP) model. We consider that Hunter Water's forecast water sales volumes are reasonable.

In 2019, the NSW Department of Planning, Industry and Environment (DPIE) engaged Jacobs (a specialist consulting firm) to undertake a review of Hunter Water's demand model. Jacobs reviewed and made recommendations on Hunter Water's new climate correction methodology, its existing iSDP model, and the linking of climate correction to the iSDP. Hunter Water has addressed all of Jacobs' high priority recommendations[107] – these are reflected in the forecast water sales volumes presented in Table 7.1.

We also asked our expenditure consultant, Aither, to review Hunter Water's demand model. Aither determined that Hunter Water's new climate correction methodology is a more robust modelling approach compared to Hunter Water's previous method for establishing the demand starting point, and the continued use of the iSDP model is appropriate.[108]

105 Hunter Water's updated forecasts of non-residential demand include increases arising from climate dependent aspects of demand (eg, sports field irrigation and air-conditioning cooling tower use).
106 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 33.
107 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 30.
108 Aither, *Hunter Water expenditure review*, 14 December 2019, p 150.

7.2 Forecast water and wastewater customer numbers

Forecast customer numbers are also used in calculating the water and wastewater service charges.

Generally, increases in water and wastewater connections reflect housing activity and business growth. Hunter Water recorded higher than expected growth in residential water connections in the 2016 determination period due to strong growth in the local housing sector.[109] Hunter Water expects housing activity to moderate over the 2020 determination period. Connections growth is forecast at around 1.2% per year for water connections and 1.3% for wastewater connections - these growth rates are more reflective of historic trends.[110]

Hunter Water's forecast customer numbers do not include the end-use customers of private network operators within its area of operations. Hunter Water estimates that existing private network operators will account for 2,000 to 3,000 connections over the next 10 years, and an additional 500 dwellings will be served by new private schemes by 2024-25.[111]

Our draft decision is:

22 To adopt Hunter Water's forecast water and wastewater customer numbers as shown in Table 7.2 and Table 7.3.

Table 7.2 Draft decision on billable water connections

	2019-20	2020-21	2021-22	2022-23	2023-24
Residential (No.)					
Houses	196,910	198,656	200,403	202,149	204,053
Multi-premises	43,239	44,480	45,721	46,961	48,064
Total residential	**240,150**	**243,136**	**246,123**	**249,110**	**252,117**
Non-residential (ME)[a]					
20mm individual	5,757	5,818	5,872	5,913	5,948
Multi-premises	914	924	932	939	945
20mm and above	22,536	22,777	22,987	23,147	23,284
Total non-residential	**29,208**	**29,519**	**29,792**	**29,998**	**30,176**

a ME is the number of 20mm 'meter equivalents'.

Note: 2019-20 figures are included for comparison.

Source: Correspondence with Hunter Water (email), 3 February 2020 and IPART analysis.

109 Hunter Water recorded increases of around 1.7% per year in residential water connections in 2017-18 and 2018-19. This is higher than the forecast annual growth rate of around 1.2% in the 2016 Final Report. Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 18.

110 Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 15.

111 Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 5.

Table 7.3 Draft decision on billable wastewater connections

	2019-20	2020-21	2021-22	2022-23	2023-24
Residential (No.)					
Houses	186,017	187,755	189,536	191,410	193,445
Multi-premises	43,867	45,136	46,406	47,677	48,808
Total residential	**229,884**	**232,892**	**235,942**	**239,087**	**242,253**
Non-residential (ME)[a]					
20mm individual	4,016	4,077	4,133	4,177	4,217
Multi-premises	383	388	394	398	402
20mm and above	11,838	12,018	12,181	12,312	12,428
Total non-residential	**16,236**	**16,484**	**16,707**	**16,887**	**17,047**

[a] ME is the number of 20mm 'meter equivalents'.

Note: 2019-20 figures are included for comparison.

Source: Correspondence with Hunter Water (email), 3 February 2020 and IPART analysis.

7.2.1 Reasons for our decision

As the provider of almost all water and wastewater services in the Lower Hunter region, Hunter Water's forecast growth in water and wastewater customer numbers should reflect growth in residential dwellings. For the 2020 determination period, residential dwelling growth is expected to return to the historic trend of around 1.2% per year. This is slightly higher than the population growth rate of 1% per year observed in the Lower Hunter region over the last 25 years, and is due to a gradual decline in occupancy (people per household) as the proportion of apartments in Hunter Water's customer base increases over time.[112]

We asked Aither to review Hunter Water's population projections and forecast customer numbers for the 2020 determination period. Aither determined that Hunter Water's population projections are reasonable in the context of this price review as they are broadly in line with other publicly available population forecasts released by the Australian Bureau of Statistics and DPIE.[113]

Aither accepted Hunter Water's reasons for assuming a slowdown in housing activity over the 2020 determination period (compared to recent years), given tighter lending standards, a decline in dwelling approvals, increased time on the market for property sales and increased discounting of property prices by vendors.[114]

7.3 Forecast stormwater customer numbers

Hunter Water provides stormwater drainage services to around 30% of its water customers (about 71,000 customers) – 96% residential and 4% non-residential.[115]

112 Hunter Water, *Pricing Proposal to IPART*, 1 July 2019, p 34.
113 Aither, *Hunter Water expenditure review*, 14 December 2019, pp 161 and 173-174.
114 Aither, *Hunter Water expenditure review*, 14 December 2019, p 174.
115 Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 22-24.

To set stormwater prices we forecast billable stormwater properties for each of the four years of the determination period. We use estimates of residential and non-residential properties and set a service charge for:

- Residential customers based on property type (houses and apartments)
- Non-residential customers based on four area-based categories.

Changes in the number of billable stormwater properties generally reflect factors such as subdivision, rezoning and unit development.[116]

Our draft decisions are:

23 To adopt Hunter Water's forecast number of billable stormwater properties for 2020-21 to 2023-24 for setting stormwater prices for the 2020 determination period presented in Table 7.4.

24 To adopt the forecast proportion of houses and apartments for residential and Small, Medium, Large and Very Large property categories for non-residential presented in Table J.1 in Appendix J.

Table 7.4 Draft decision on billable stormwater properties for 2020-21 to 2023-24

	2018-19[b]	2019-20[c] (Current)	2020-21	2021-22	2022-23	2023-24
Residential[a]	65,090	67,412	67,711	68,010	68,309	68,609
Residential – % change	-	3.6%	0.4%	0.4%	0.4%	0.4%
Non-Residential	2,980	3,057	3,057	3,057	3,057	3,057
Non-residential – % change	-	2.6%	0.0%	0.0%	0.0%	0.0%

a Includes "vacant land".

b Reported 1 July 2019, Hunter Water, *Pricing Proposal to IPART, Technical Paper 7,* 1 July 2019, p 24.

c Includes Hunter Water's data revisions received in January 2020.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 7,* 1 July 2019, p 24, correspondence with Hunter Water (email), 13 January and 3 February 2020 and IPART analysis.

7.3.1 Reasons for our decision

Hunter Water identified errors in its previously used stormwater customer numbers

In its 1 July 2019 proposal, Hunter Water reported that over the 2016 determination period, the number of residential customers increased by a total of 5.7% and non-residential customers increased by 3.1%, compared to forecast growth for the period between 1.2% and 0.0% respectively.[117]

In its 1 July 2019 proposal, Hunter Water also forecast annual growth in the number of billable stormwater residential properties for the 2020 determination period at 0.4% per year, with no

116 Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 22.
117 Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 24.

growth expected in billable stormwater non-residential properties (Table J.2 in Appendix J). Hunter Water made a nominal allowance for growth in respect to residential development based on historic experiences and having regards to in-fill development. It made no allowance for growth in non-residential connections, due to the low probability and high uncertainty of growth. This is consistent with previous years' forecasts. According to Hunter Water, the main driver for minor historical fluctuations in non-residential property numbers has been the re-development of non-residential properties to residential properties.[118]

Hunter Water also noted a one-off increase of 2,048 in the number of stormwater properties from 1 July 2019 as a result of the identification and correction of data entry errors originating in its billing system in 2006.[119] These errors have created charging issues (discussed below) and a pricing issue (discussed in Chapter 8).

Hunter Water will refund customers erroneously charged

The errors incorrectly designated some properties eligible for a charge, whilst also classifying eligible properties with incorrect characteristics (land area). This resulted in previous determination charges being applied incorrectly to some customers. The errors resulted in:

- 422 properties not eligible for stormwater charges being erroneously charged ($0.49 million in total)
- 31 customers being overcharged due to the incorrect charge being applied ($0.05 million in total)
- 2,155 customers being undercharged due to the incorrect charge being applied ($2.01 million in total) (Table J.4 in Appendix J).[120]

Hunter Water has advised that for the customers that were erroneously charged/overcharged (by a total of $0.54 million since 2006), it will refund those that are still customers by issuing credits to their bills, and those that are no longer customers will be able to claim back monies overpaid through its website. It has also indicated it will not seek to recover the $2.01 million (in total) it undercharged from the 2,155 customers relative to previous determinations.

We note that the charging errors are also being considered as part of IPART's current audit of Hunter Water's operating licence, and any compliance matters will be dealt with by IPART as part of the audit reporting process.

Hunter Water has corrected the errors to set prices and also expects 0.4% growth annually

In addition to some customers being over or undercharged compared to previous determinations, the count of stormwater customers provided to us for the 2016 determination period understated the number of stormwater customers by 2,048 (discussed further in section 8.5).

118 Correspondence with Hunter Water (email), 13 February 2020, and Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 24.

119 Correspondence with Hunter Water (email), 14 January 2020, and Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, pp 22-23.

120 IPART, *Review of prices for Hunter Water Corporation From 1 July 2020 – Issues Paper*, September 2019, p 72, and correspondence with Hunter Water (email), 22 January 2020.

In January 2020, Hunter Water revised its forecast for billable stormwater properties (Hunter Water has corrected the data entry errors from July 2019 onwards). The revision results in a 3.6% increase in the number of residential properties and a 2.6% increase in the number of non-residential properties between 2018-19 and 2019-20.

Growth over the 2020 determination period is forecast at 0.4% annually for residential properties, with no growth forecast for non-residential properties.

We have included Hunter Water's correction of the errors in our forecasts of billable stormwater properties for 2020-21 to 2023-24, to set stormwater prices for the 2020 determination period. This would have the effect of lower stormwater prices.

We have also accepted Hunter Water's proposal to charge houses in community title developments as houses (ie, according to their property type, rather than based on meter connection type) instead of as apartments as they are currently charged. This has resulted in a shift of 185 apartments to the houses category.[121]

7.4 Forecast wastewater discharge volumes

Currently, Hunter Water's non-residential customers are liable for a volumetric wastewater usage charge if their deemed wastewater discharge is above the discharge allowance of 120 kL per annum.[122] Residential and non-residential customers pay for discharges equal to the discharge allowance through the wastewater service charge.

We have made a draft decision to remove the discharge allowance for non-residential customers, so that each non-residential customer pays for usage based on estimates of their actual wastewater discharges. This means that our 'chargeable discharge volumes' are equal to Hunter Water's 'total discharge' volumes in Table 7.5. Hunter Water has calculated its forecast 'total discharge' volumes by analysing past trends of non-residential wastewater discharge as a proportion of non-residential water sales, and applying this trend to its forecast water sales volumes.[123]

Our draft decision is:

25 To adopt the forecast wastewater chargeable discharge volumes presented in Table 7.5.

121 Correspondence with Hunter Water (email), 3 February 2020.
122 Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 14.
123 Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 14.

Table 7.5 Draft decision on non-residential wastewater discharge volumes (ML)

	2020-21	2021-22	2022-23	2023-24
Hunter Water proposed[a]				
Total discharge	7,029	7,111	7,191	7,277
Discharge allowance	(851)	(860)	(870)	(880)
Chargeable discharge volumes	6,179	6,251	6,321	6,396
IPART decision				
Chargeable discharge volumes	7,029	7,111	7,191	7,277

a These are different to the forecast wastewater discharge volumes in Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 14 due to revisions to Hunter Water's forecast water sales volumes.

Source: Correspondence with Hunter Water (email), 3 December 2019.

Hunter Water analysed its non-residential wastewater customer base and found that almost half of its customers discharge less than the 120 kL per year discharge allowance. Our draft decision would improve cost-reflectivity and reduce wastewater charges for this subset of customers. Our draft decision on the discharge allowance for non-residential customers is discussed in further detail in section 8.3.

8 Water, wastewater and stormwater prices

In this chapter we set out our draft prices for Hunter Water's water, wastewater and stormwater services to apply from 1 July 2020. The draft prices for Hunter Water's other services, such as trade waste and miscellaneous services, are presented in Chapter 11.

Currently, Hunter Water's residential customers pay the following charges for water, wastewater and stormwater services:

- **Water** – a consumption-based water usage charge (per kL) and a standard (fixed) water service charge.
- **Wastewater** – a standard (fixed) wastewater service charge, including an amount for a deemed volume of wastewater discharge (with transitional arrangements applying to eventually align house and apartment service charges).
- **Stormwater** – a fixed stormwater service charge, which differs for standalone and multi-premises customers (ie, houses and apartments).
- A separate fixed **Environmental Improvement Charge** (EIC). This charge expires on 30 June 2020.

Non-residential customers currently pay the following charges:

- **Water** – a consumption-based water usage charge (per kL, which is the same rate as residential customers, except for some large water users) and a meter-based fixed water service charge (20 mm meter non-residential customers and mixed development non-residential customers pay the same as residential customers).
- **Wastewater** – a per kL consumption-based wastewater usage charge above a discharge allowance, and a meter-based fixed wastewater service charge.
- **Stormwater** – a fixed stormwater service charge that differs based on the size of the property.
- A separate **fixed EIC** charge. This charge expires on 30 June 2020.

As part of this review we added a charge to recover Hunter Water's proposed discretionary expenditure, as discussed in Chapter 9. We also accepted Hunter Water's proposal to phase out the location-based discount to the water usage charge for large customers (see section 8.2).

The sections below summarise our draft decisions on water, wastewater and stormwater prices.

8.1 Water prices

Our draft decisions are:

26 To set Hunter Water's maximum usage charge at $2.41 per kL in 2020-21 ($2019-20) and increase the charge by 1% in real terms over the 2020 determination period as shown in Table 8.1.

27 To set Hunter Water's maximum water service charges as shown in Table 8.2 for residential customers and Table 8.3 for non-residential customers.

8.1.1 Water usage charge

In its 1 July 2019 proposal, Hunter Water put forward a proposed maximum water usage charge of $2.41 in 2020-21 ($2019-20), increasing by 1% in real terms each year over the 2020 determination period.[124] The same water usage charge would apply to both residential and non-residential customers

We have adopted Hunter Water's proposed water usage price.

Table 8.1 Draft water usage price (residential and non-residential) ($/kL, $2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	% change 2019-20 to 2023-24
Hunter Water proposed	2.37	2.41	2.44	2.46	2.49	5.1%
IPART draft prices	2.37	2.41	2.44	2.46	2.49	5.1%

Source Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, Hunter Water, *Response to IPART Issues Paper*, 21 October 2019 and IPART analysis.

8.1.2 Water service charge

Water service charges for residential customers are based on a deemed 20mm water meter connection. Table 8.2 shows the draft water service charge for residential customers.

124 Hunter Water, *Pricing Proposal to IPART,* 1 July 2019, p 38.

Table 8.2 Draft residential water service charge ($/year, $2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	% change 2019-20 to 2023-24
Hunter Water proposed						
Houses	100.40	100.42	98.53	97.00	97.24	-3.1%
Apartments[a]	100.40	100.42	98.53	97.00	97.24	-3.1%
IPART draft prices						
Houses	100.40	4.18	4.18	4.18	4.18	-95.8%
Apartments	100.40	4.18	4.18	4.18	4.18	-95.8%

[a] Includes residential properties in multi-premises and non-residential properties in mixed multi-premises.

Note: Hunter Water revised its demand and customer numbers in its 21 October 2019 Response to IPART's Issues Paper.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, Hunter Water, *Response to IPART Issues Paper*, 21 October 2019 and IPART analysis.

The non-residential 20 mm meter service charge is equivalent to the residential service charge. Table 8.3 displays a range of service charges for different meter sizes. Meters larger than 20mm pay a multiple of the 20mm meter charge depending on the size of the meter.

Table 8.3 Draft non-residential water service charge ($/year, $2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	change 2019-20 to 2023-24
Hunter Water proposed						
-20mm meter	100.40	100.42	98.53	97.00	97.24	-3.1%
-25mm meter	156.89	156.90	153.95	154.38	151.57	-3.4%
-40mm meter	401.63	401.67	394.11	395.22	388.01	-3.4%
-100mm meter[a]	2,510.14	2,510.44	2,463.17	2,470.13	2,425.08	-3.4%
IPART draft prices						
-20mm meter	100.40	4.18	4.18	4.18	4.18	-95.8%
-25mm meter	156.89	6.53	6.53	6.53	6.53	-95.8%
-40mm meter	401.63	16.71	16.71	16.71	16.71	-95.8%
-100mm meter[a]	2,510.14	104.45	104.45	104.45	104.45	-95.8%

[a] Larger meters pay a multiple of the 20mm meter charge depending on the size of the meter.

Note: Hunter Water revised its demand and customer numbers in its 21 October 2019 Response to IPART's Issues Paper.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, Hunter Water, *Response to IPART Issues Paper*, 21 October 2019 and IPART analysis.

8.1.3 Reasons for our decision

Water usage charge

Our draft water usage price reflects our draft decision to accept Hunter Water's proposal to increase the usage price. We generally aim to set the water usage charge with reference to estimates of the Long Run Marginal Cost (LRMC) of water supply, as this promotes efficient water usage and investment decisions. This is because LRMC signals the costs of supplying

water to meet demand over the long-term, including the costs of any required future supply augmentation measures.

Hunter Water stated that its proposed water usage price is set with reference to the best available estimate of the LRMC of water supply, and customer preferences.[125]

In proposing its water usage charge, Hunter Water considered feedback from its customers, that higher (variable) usage charges and therefore lower (fixed) service charges enable customers to have greater control over their bills. A survey undertaken by Hunter Water found that 60 percent of customers preferred a usage price above $2.00/kL, and 60 percent of this group preferred an increase up to or above $2.60/kL.[126]

Hunter Water is working on the next iteration of the Lower Hunter Water Plan (LHWP), which the NSW Government is scheduled to consider in 2021.[127] Hunter Water engaged consultants Marsden Jacob Associates (MJA) who developed estimates of LRMC of water supply between $2.00 and $2.50.[128] We have reviewed these estimates and consider they are reasonable.

Hunter Water's proposed water usage price would result in the utility recovering a higher proportion of its fixed costs through variable charges, meaning it may bear higher revenue risk. However, we note there are measures to manage this risk including the demand volatility adjustment mechanism discussed in Chapter 3.

Water service charges

In setting prices, we have first set the water usage price and calculated the forecast revenue raised through usage charges. We then set the fixed price to recover the balance of the relevant NRR.

We aim to set prices that are cost reflective so that similar customers face similar charges. A customer's service charge should reflect that customer's relative draw on the capacity of the system.

We set fixed charges on the basis of the size of a customer's actual meter or deemed meter. All residential customers are deemed to have a 20mm meter for cost allocation and pricing purposes (ie, they all pay the same charge regardless of whether they have their own meter or share a meter). We have continued to charge all residential customers in the same manner regardless of whether they are in an apartment or a house.

Non-residential customers are charged based on their actual meter size (or their share of the actual meter size serving their complex), apart from those in mixed multi-premises (ie, with residential customers), who pay the residential charge. This is because there is greater variety in water and wastewater use for non-residential customers, and the meter size more accurately reflects the customer's draw on the capacity of the system.

125 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 5.
126 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 9.
127 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 10.
128 Marsden Jacob Associates, *Hunter Water Long Run Marginal Cost Estimates – Water Supply Augmentation*, 2019.

Water service charges for multi-premises

We set charges for properties in multi-premises or joint service arrangements[129] differently. In multi-premises:

- Residential properties are charged a deemed 20mm residential service charge
- Non-residential properties in non-residential multi-premises are charged a share of the non-residential charge based on the size of the common meter servicing the multi-premises
- Non-residential properties in mixed multi-premises (a multi-premises with at least one residential property and at least one non-residential property) are charged a deemed 20mm residential service charge.

We charge non-residential properties in mixed multi-premises differently from non-residential properties in non-residential multi-premises. For mixed multi-premises, we could set prices so that either customers within such a development are charged based on whether they are residential or non-residential customers (ie, the 20mm charge if they are residential or based on their share of the common meter serving the development if they are non-residential[130]); or they are all charged as residential customers, so that they are all deemed to have a 20mm meter for cost allocation and pricing purposes. We have taken the latter approach, as data from Sydney Water in 2012 indicated that strata-titled mixed multi-premises have, on average, six residential dwellings for every one non-residential occupancy.[131]

Properties within joint service arrangements are treated as properties within a multi-premises for the purposes of assigning charges. With respect to properties within joint service arrangements, Hunter Water has proposed treating each property based on its pricing class (ie, house, shop, mine, etc) instead of as a property within a multi-premises.[132] This would especially impact metered non-residential properties in mixed development joint service arrangements[133], which are currently charged a deemed 20mm residential charge and under the proposal would be charged a non-residential charge based on the individual or common meter servicing the property. For the parent property[134] this would be the one or more common meters servicing the arrangement, and for the child properties[135] this would be the meter connecting that property to the parent property.

Our draft decision is to not accept this proposal, as it would mean the parent property of each joint service arrangement may be charged for a larger meter than it would otherwise be charged if it were not in a joint servicing arrangement. This is because the parent property's

129 Properties in joint service arrangements serviced by a common meter are treated as properties within a multi-premises serviced by a common meter.
130 In this scenario, if the non-residential property is metered it would be charged based on its meter size.
131 IPART, *Review of prices for Sydney Water Corporation from 1 July 2012 to 30 June 2016 – Final Report, June 2012*, p 154
132 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, pp 60 and 61; and Correspondence with Hunter Water (email), 23 January 2019.
133 Properties in mixed joint service arrangements are treated as properties in mixed multi-premises, meaning that all properties are charged a deemed 20mm meter.
134 The property directly connected to Hunter Water's supply system.
135 The properties connected to the parent property which are not individually connected to Hunter Water's supply system.

meter is also required to service each downstream property as well as the parent property. This is discussed further in Appendix L.

We recognise that the current price structure for mixed development joint service arrangements is not ideal. However, on balance, we have made a decision to maintain current pricing arrangements for these properties.

Our approach to setting service charges results in some differences between some non-residential customers, and between non-residential and residential customers. Non-residential customers with shared meters pay a proportion of that meter charge, which may be less than the 20mm standalone charge.[136] The minimum charge for residential customers, even those with shared meters, is equivalent to the 20mm meter standalone charge. Further, non-residential customers in mixed multi-premises may pay more than those in non-residential premises. This is because they pay the residential charge (ie, the 20mm meter standalone charge).

8.2 Location-based water usage charges

Our draft decision is:

28 To commence phasing-out the location-based water usage price discounts for large water users (ie, customers that consume in excess of 50,000 kL per year and are located in particular zones of Hunter Water's area of operations) in 2021-22 and transition the phase-out over four years as shown in Table 8.4.

Hunter Water originally proposed phasing out the location-based discount over the 5-year determination period so that a common usage price would apply to all customers in 2024-25. In its proposal, Hunter Water considered that removing location-based pricing would make the usage charge more cost reflective and provide signals to customers to encourage efficient investment and consumption decisions.[137]

We have decided to phase out the location-based discount that applies to some large customers consuming more than 50,000 kL of water per year, but defer the commencement of the phase-out by one year. This means the phase-out would commence in 2021-22, with a transition so that all customers would face the same usage price in 2024-25, the first year of the 2024 determination period.

Table 8.4 shows our draft decision on how location-based discounts would be phased out for those large customers eligible for a discount, over the 2020 determination period.

136 This is because the minimum charge for non-residential customers applies at the meter, while these properties are sharing a portion of the meter charge.

137 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, pp 18-20.

Table 8.4 Draft discounted usage price for select 'large' users at specific locations ($/kL, $2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24
Base usage price	2.37	2.41	2.44	2.46	2.49
Dungog	1.91	1.94	2.08	2.22	2.37
Kurri Kurri	2.35	2.39	2.42	2.45	2.48
Lookout	2.22	2.26	2.32	2.38	2.45
Newcastle	2.16	2.20	2.28	2.35	2.43
Seaham-Hexham	1.96	1.99	2.12	2.25	2.38
South Wallsend	2.26	2.30	2.36	2.40	2.46
Tomago-Kooragang	1.91	1.94	2.08	2.22	2.37
All other areas	2.37	2.41	2.44	2.46	2.49

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, Hunter Water, *Response to IPART Issues Paper*, 21 October 2019 and IPART analysis.

8.2.1 Reasons for our decision

In 2018-19, location-based charges applied to 19 'large' water customers, consuming more than 50,000 kL of water each per annum. Hunter Water has around 43 'large' users, however not all receive a discount, as it only applies in seven specific geographic zones. The discount varies at each location (from 1% in Kurri Kurri to 25% in Dungog), depending on the capital related costs in each operational zone.[138]

We support cost-reflective prices, because they promote efficient investment and consumption decisions, and for reasons of equity. However, Hunter Water's location-based water usage price discount is not a genuinely cost-reflective price, because it is not available to all customers based on their location (ie, there is not a convincing case that it reflects the different costs of supplying different locations) and because there is no information to suggest that the cost of supplying water to a customer declines with higher levels of consumption.

Given this, there is a risk that the discount sends distortive signals to those customers receiving it, and shifts costs to other customers. The discount reduces usage revenue from large users by around $2.3 million in 2020-21 (and would rise to around $3.0 million in 2024-25).[139] Hunter Water estimated this translates to an increase in the water service charge of about $10 per year for each residential customer.[140]

We received mixed views in response to our Issues Paper on location-based pricing.[141] Some respondents considered removing the discounts would be inequitable while others supported the principle of bringing customers to a common usage price albeit noting that a more consultative process should be undertaken with relevant customers groups.

138 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8,* 1 July 2019, p 18.
139 IPART analysis.
140 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8,* 1 July 2019, p 18.
141 See for example, *Submissions to IPART's Issues Paper* from Orica, Port Waratah Coal, PIAC and Hunter Business Chamber.

We accept Hunter Water's proposal to phase out the location-based discount. However, we have made a draft decision to defer the phase-out to commence in 2021-22 rather than in 2020-21 for two key reasons:

- We consider that Hunter Water's consultation with large users was not timely or adequate
- Some large users would see significant bill impacts from removal of the discount.

We consider that deferring the phase-out would give customers currently receiving the discount an extra year to prepare for higher prices, as well as Hunter Water an opportunity to work further with its large users to explore alternative avenues for managing water demand.

Appendix K provides more information on location-based discounts, including our assessment of Hunter Water's consultation and bill impacts from removing the discounts.

8.3 Wastewater charges

We calculate wastewater charges in a similar way to water services, in that we first set wastewater usage prices, then forecast revenue from wastewater usage prices, and then set the fixed charges to recover the balance of the wastewater NRR.

Our draft decisions are:

29 To set Hunter Water's maximum usage charge for wastewater services in 2020-21 at $0.67 ($2019-20) and hold it constant in real terms in each year of the determination period as shown in Table 8.5.

30 To set Hunter Water's maximum wastewater service charges as shown in Table 8.6 for residential customers and Table 8.7 for non-residential customers.

31 To continue the transition of wastewater service charges for apartments to align with wastewater service charges for houses at the rate of 2.5% per year.

32 To remove the discharge allowance component of the wastewater service charge for non-residential customers and instead apply the usage charge to all estimated wastewater discharged (ie, water usage x appropriate discharge factor).

33 To set a minimum non-residential charge for wastewater equal to 75% of the 20mm service charge.

34 To set the maximum wastewater service charge for multi-premises residential properties with a common meter in a community title development, the house charge, (if it is a house), or the apartment charge, (if it is an apartment).

8.3.1 Wastewater usage charge

An explicit wastewater usage charge applies only to non-residential customers. Non-residential customers pay a wastewater usage charge per kilolitre for the estimated volume of domestic strength waste[142] discharged into the wastewater system.[143]

Residential customers do not pay an explicit usage charge, but pay usage charges on a deemed volume of wastewater discharged, ie, all Hunter Water residential customers pay for the same amount of wastewater usage, which is incorporated in their service charge. This is discussed further in the section on wastewater service charges below.

Table 8.5 Draft wastewater usage charge – non-residential customers ($/kL, $2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	% change 2019-20 to 2023-24
Hunter Water proposed	0.67	0.65	0.64	0.62	0.61	-8.9%
IPART draft prices	**0.67**	**0.67**	**0.67**	**0.67**	**0.67**	**0%**

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, Hunter Water, *Response to IPART Issues Paper*, 21 October 2019 and IPART analysis.

8.3.2 Wastewater service charge

Residential customers pay a base wastewater service charge based on a 20mm meter, multiplied by a 75% discharge factor plus a charge for a deemed wastewater discharge of 120 kL per year (discharge allowance). Table 8.6 shows our draft residential wastewater service charges.

Table 8.6 Draft residential wastewater service charge ($/year, $2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	% change 2019-20 to 2023-24
Hunter Water proposed						
Houses	649.28	675.59	699.78	724.88	750.99	15.6%
Apartments	535.66	574.25	612.31	652.39	694.29	29.6%
IPART draft prices						
Houses	649.28	645.63	645.63	645.63	645.63	-0.6%
Apartments	535.66	548.79	564.93	581.07	597.21	11.5%

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, Hunter Water, *Response to IPART Issues Paper*, 21 October 2019 and IPART analysis.

142 The costs of higher strength discharges are recovered through liquid trade waste prices, which are levied on non-residential customers on top of standard wastewater charges.

143 Except for the very largest dischargers, volumes of discharge are not directly metered. They are estimated based on a sewerage discharge factor (SDF) multiplied by a customer's metered water consumption. A customer's SDF represents the proportion of water usage that is discharged back into the wastewater system.

We have changed the way to calculate non-residential wastewater service charges:

- Previously, customers paid a base wastewater service charge based on actual meter size multiplied by their appropriate discharge factor and a fixed discharge allowance.
- Our draft decision removes the fixed discharge allowance. Non-residential customers would now pay the base wastewater service charge based on meter size multiplied by the appropriate discharge factor. The usage charge would apply to all wastewater based on estimated usage (ie, water consumption x appropriate discharge factor).

Table 8.7 Draft non-residential wastewater service charge ($/year, $2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	% change 2019-20 to 2023-24
Hunter Water proposed						
-20mm meter	758.51	796.79	830.64	867.31	903.18	19.1%
-25mm meter	1,185.17	1,244.98	1,297.87	1,355.17	1,411.22	19.1%
-40mm meter	3,034.04	3,187.14	3,322.55	3,469.23	3,612.72	19.1%
-100mm meter[a]	18,962.74	19,919.65	20,765.95	21,682.68	22,579.48	19.1%
IPART draft prices						
-20mm meter	758.51	753.64	753.64	753.64	753.64	-0.6%
-25mm meter	1,185.17	1,177.57	1,177.57	1,177.57	1,177.57	-0.6%
-40mm meter	3,034.04	3,014.58	3,014.58	3,014.58	3,014.58	-0.6%
-100mm meter[a]	18,962.74	18,841.09	18,841.09	18,841.09	18,841.09	-0.6%

a Larger meters pay a multiple of the 25mm meter charge depending on the size of the meter.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, Hunter Water, *Response to IPART Issues Paper*, 21 October 2019 and IPART analysis.

8.3.3 Reasons for our decision

Wastewater usage charges

Hunter Water proposed that the wastewater usage charge remain constant in nominal terms at $0.67, consistent with the 2013 and 2016 Determinations.[144] We have made a draft decision to hold it constant at $0.67 in real terms.

As flagged in our Issues Paper, we see merit in us and Hunter Water gaining a better understanding of its LRMC of wastewater supply.[145] In our 2012 review of price structures for metropolitan utilities, we decided that wastewater usage charges should be set with reference to (but not necessarily at) the short run marginal cost (SRMC) of transporting, treating and disposing of domestic strength effluent.

144 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 30.
145 IPART, *Review of prices for Hunter Water Corporation from 1 July 2020, Issues Paper*, September 2019, p 89.

In our 2016 final reports for Hunter Water and Sydney Water's prices, we indicated that there were various arguments for and against SRMC versus LRMC pricing. More recently, as part of the 2019 Central Coast price review, we indicated that the LRMC of supplying wastewater services is a more appropriate basis for setting wastewater usage prices.[146] This is our current view.

Setting wastewater usage prices with reference to LRMC would signal the full cost of an additional unit of discharge (including both the operating and capital costs over the longer term). This could improve price signals (and potentially encourage competition) and provide greater transparency around the avoided costs of recycled water schemes, especially if separate LRMCs could be estimated for each catchment. This is a point recognised by Frontier Economics, in its recent review of impediments to the uptake of cost-effective water recycling, for Infrastructure NSW and the NSW Government.[147]

Hunter Water has not collected and collated the data to estimate the LRMCs in its 19 wastewater catchments. Our estimates of LRMC for 18 of Sydney Water's wastewater catchments varied from \$0.77/kL to \$14.76/kL, with a weighted average of \$3.29/kL across all catchments.[148] As the LRMCs for Sydney Water would be reasonably representative of Hunter Water's range, this would indicate that the LRMC for wastewater is higher than Hunter Water's proposed and our draft usage prices.

We consider that wastewater usage prices could be increased in the future, if more refined estimates of LRMC are formulated. We note that any such increase in usage prices would be offset by reductions to service (fixed) charges. On balance, we consider maintaining wastewater usage prices in real terms is appropriate at this stage.

IPART seeks comments on the following:

2 Are there reasons why Hunter Water's wastewater usage charge should not be set with reference to the LRMC of supply?

Wastewater service charges

We have made a decision to retain the current structure for calculating residential wastewater service charges. However, we have decided to remove the discharge allowance from the wastewater service charge for non-residential customers.

In our 2019 Central Coast Council Price Determination, we removed the discharge allowance from non-residential customers' service charge as we considered that non-residential customers' wastewater prices would be more transparent and cost reflective if they were based on all discharges being calculated on metered water usage multiplied by the relevant discharge factor.[149]

146 See, for example, IPART, *Review of Central Coast Council's water, sewerage and stormwater prices*, Final Report, May 2019, p 105.

147 Frontier Economics, *Economic regulatory barriers to cost-effective water recycling – A report prepared for Infrastructure NSW*, July 2018, p 27, can be accessed at https://www.planning.nsw.gov.au/-/media/Files/DPE/Reports/economic-barriers-to-cost-effective-water-recycling-report-2019-01-15.pdf

148 IPART analysis.

149 IPART, *Review of Central Coast council's water, sewerage and stormwater price to apply from 1 July 2019*, Final Report, May 2019, p 102.

Currently, Hunter Water's non-residential customers are deemed to discharge 120 kL per annum to the sewer network, and their service prices reflect this. The wastewater usage charge is then applied to any discharge volumes above this threshold (or 'discharge allowance'), where discharge volumes are measured as metered water usage multiplied by the relevant discharge factor (which can vary by business type, for non-residential customers).

Hunter Water estimated that around 48% of its non-residential customers discharge less than the discharge allowance of 120 kL per year.[150] Under our draft decision, these customers would face more cost-reflective bills (as there is no assumed minimum discharge).[151] They would face a meter connection service charge (excluding a deemed discharge volume) and a usage charge applied to estimates of their actual wastewater discharges, estimated by applying their discharge factors to their metered water consumption.

Previously, a minimum non-residential charge applied, that was set equal to the standard residential charge (ie, 75% of the 20mm service charge plus the deemed discharge allowance). We have made a draft decision to retain a minimum charge for non-residential customers, but set it at 75% of the 20mm service charge only. Without a minimum charge, non-residential customers with a 20mm meter and a low discharge factor would pay significantly less than residential customers because the connection charge is multiplied by the discharge factor. This recognises that the costs of a wastewater system are largely fixed.[152] A minimum charge shares these fixed costs between residential and non-residential customers equitably.

We have made a draft decision to continue transitioning the apartment wastewater service charge to align with the house service charge at the rate of 2.5% per year. This means the two prices will align in 2026-27, as first envisaged in the 2013 Determination.[153]

Community title developments

Currently, properties in a community title development that are serviced by one or common meters are classified and charged as properties within a multi-premises. This means that a freestanding house can be charged differently based on whether it is in a community title development and serviced by a shared meter or not.[154] Hunter Water has proposed that properties in community title developments with one or more common meters should not be classified and charged as properties within a multi-premises.[155] We consider that Hunter Water's proposal is reasonable, as discussed in Appendix L.

We have decided to accept Hunter Water's proposal to charge properties in community title developments based on whether they are a stand-alone house, or an apartment.

150 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 45.
151 Assuming that discharge factors multiplied by water usage is a reasonable indication of sewerage discharges.
152 Stormwater and groundwater infiltration/inflows into the system mean that regardless of direct volumetric discharges by customers, the collection, and transportation and treatment assets need to be sized for peak wet weather flows.
153 IPART, *Hunter Water Corporation's water, sewerage, stormwater drainage and other services, Review of prices from 1 July 2013 to 30 June 2017*, Final Report, June 2013, p 12.
154 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 61.
155 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 61.

8.4 Environmental Improvement Charge (EIC)

Our draft decision is:

35 To discontinue the Environmental Improvement Charge (EIC) from 1 July 2020.

Hunter Water has proposed to set the Environmental Improvement Charge (EIC) to zero from the beginning of the 2020 Determination. It is currently $41.01 per wastewater customer per year.[156] We have accepted Hunter Water's proposal to discontinue the EIC for the 2020 determination period.

8.4.1 Reasons for our decision

Hunter Water has provided backlog sewerage services since the 1980s, generally following Ministerial Directions to complete such works. Hunter Water has proposed setting the EIC to zero from 1 July 2020, as it has no NSW Government direction to undertake further backlog sewerage works and to fund such works via prices to the general customer base. In the past, backlog sewerage services have been funded by a combination of NSW Government social program funding and the EIC levy.

Hunter Water also noted that IPART has established an approach and formula to determine who pays for backlog services in the recent Developer Charges Determination.[157] In broad terms, the approach is based on the 'impactor pays' principle, where owners are responsible for the costs of the service (as they create the need to incur the cost), unless there are identifiable broader benefits to the community (eg, health and environmental benefits), in which case costs could be shared with the wider customer base.[158]

In response to our Issues Paper, Cessnock City Council strongly opposed discontinuation of the EIC, noting that the cost to residents to pay for backlog services to their homes was too high. At the Public Hearing, both Cessnock City Council and the City of Newcastle raised concerns about funding backlog services to certain townships in their area.[159]

We consider that in the absence of Government direction for Hunter Water to deliver further backlog sewerage services and for these to be funded via prices to the broader customer base, there is no strong case for the broader customer base to continue funding these services.

In Appendix M, we set out alternative options for funding such schemes.

156 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 41.
157 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 41.
158 IPART, *Maximum prices to connect, extend or upgrade a service for metropolitan water agencies*, Final Report, October 2018. *Review of prices for Hunter Water to apply from 1 July 020*, November 2019, p 12.
159 Cessnock City Council, *Submission to IPART Issues Paper*, 2019 and Public Hearing Transcript, *Review of prices for Hunter Water to apply from 1 July 2020*, November 2019, pp 11 and 66- 67.

8.5 Stormwater charges

Hunter Water provides stormwater drainage services to around 30% of its water customers (about 71,000 customers – 96% residential and 4% non-residential).[160] Stormwater services to other customers are provided by local councils and are funded through council rates. Hunter Water charges its customers whose properties are in areas serviced by the stormwater channels it owns and operates.

Currently, Hunter Water's stormwater prices comprise:

- For residential customers – a service charge based on property type (ie, houses or multi-premises, eg, apartments)
- For non-residential customers – a service charge levied on four area-based categories.

To calculate stormwater prices we establish the appropriate price structure, set an appropriate share of costs for each category of property and then allocate the relevant share to the number of properties in each category.

8.5.1 Our draft decision

Our draft decisions are:

36 To use the property charging ratios presented in Table 8.8 to set stormwater prices.

37 To set stormwater charges as presented in Table 8.8.

160 Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 22.

Table 8.8 Draft stormwater prices for 2020 determination period ($2019-20)

	2019-20 (Current)	2020-21	2021-22	2022-23	2023-24	% change between 2019-20 and 2023-24	Property charging ratio
Residential							
Houses (standalone)[a]	79.63	78.04	78.04	78.04	78.04	-2.0%	1.00
Apartments (multi-premises)[b]	29.47	28.87	28.87	28.87	28.87	-2.0%	0.37
Non-residential							
Small (≤1,000 m^2) or low impact	79.63	78.04	78.04	78.04	78.04	-2.0%	1.00
Medium (1,001 m^2 to 10,000 m^2)	260.08	254.87	254.87	254.87	254.87	-2.0%	3.27
Large (10,001 m^2 to 45,000 m^2)	1,654.10	1,620.98	1,620.98	1,620.98	1,620.98	-2.0%	20.77
Very large (>45,000 m^2)	5,255.48	5,150.26	5,150.26	5,150.26	5,150.26	-2.0%	66.00

a Includes "vacant land".

b Includes "low impact residential properties".

Source: IPART analysis.

The draft stormwater prices are a 2.0% reduction on 2019-20 levels across the 2020 determination period for all property categories. Hunter Water proposed a 26% increase in prices over the 2020 determination period due to increases in its NRR (see Appendix N). Since Hunter Water's proposal, there have been reductions in Hunter Water's NRR for stormwater as a result of a:

- Minor reduction in expenditure (by $0.1 million for operating expenditure and $0.37 million for capital expenditure) following our expenditure review
- Lower WACC – ie, 3.2% compared to 4.1% at the time of Hunter Water's proposal.

Hunter Water has also corrected errors in its customer numbers, resulting in the NRR now being spread across a larger stormwater customer base in determining prices.

Box 8.1 Hunter Water's current stormwater price structure

Hunter Water's stormwater price structure applies a constrained area-based approach, which comprises:

- For residential customers – a service charge based on property type (ie, houses or multi-premises, eg, apartments)
- For non-residential customers – a service charge levied on four area-based categories (to reflect a relationship between land area and stormwater runoff – and hence the positive relationship between a property's land area and its contribution to the need for Hunter Water to incur stormwater management costs).

Non-residential area-based charges are set as a multiple of the 'base' charge for a house, calculated using property charging ratios. We set these ratios relative to the average land area for each property category, adjusted to reflect other cost drivers and consideration of impact analysis. These ratios represent the price relativities between the different property categories and are used to allocate the relevant share of the target NRR for stormwater services to each property category.

We assume that each category is equivalent to a number of 'base' units. For example, currently apartments are considered to be 0.37 of a base unit (or house) and the very large non-residential category is assumed to have the same impact as 66.00 houses.

Where a property has a low run-off, such as farmland, it can be eligible for a low-impact rate, set equal to the:

- Residential house rate for non-residential low impact properties
- Residential apartment rate for low impact houses (and low impact vacant land).

8.5.2 Reasons for our draft decision

We consider a constrained area-based approach for stormwater charges appropriate

We have maintained the area-based charging approach for non-residential customers, which was first introduced in 2005.

We refer to this approach as a 'constrained' area-based price structure. This is because, while there is a positive relationship between prices and area of a customer's property, this relationship is not purely linear as stormwater charges increase at a declining rate as land area increases. Larger properties pay higher stormwater charges overall, but the charge per m^2 is scaled relative to property area so that smaller properties pay proportionally more per m^2 than larger properties (see Appendix N).

We have decided to maintain the current approach and general price structure for setting Hunter Water's stormwater charges, as:

- We consider that prices should be cost-reflective and reflect an impactor pays approach (whereby the party that created the need to incur the cost pays). A property's land area is a reasonable and readily available proxy for the costs that each property imposes on the stormwater system.

- It recognises that land area is a key cost driver, but not the only cost driver, of stormwater costs. A variety of factors determine each property's contribution to the stormwater system, such as land size and slope, vegetation or proportion of impervious area, land use, soil type, on-site retention and reuse and property management.[161]
- We consider that continuing to charge on a constrained area-basis mitigates potential bill impacts on any one customer group (in this case, larger properties) associated with transitioning to or adopting linear land area-based charges (see Appendix N).
- It is consistent with the existing stormwater pricing approach for Sydney Water and the Central Coast Council.[162]

Responses to our Issues Paper were mixed, one suggested an impervious area tariff

In our Issues Paper, we asked stakeholders about Hunter Water's proposed stormwater charges, and whether they are reasonable.

Professor Peter Coombes (Urban Water Cycle Solutions) proposed that an impervious area tariff, levied by local governments, would be a more appropriate and cost-effective approach to charging for stormwater services.[163] In response, we note that implementing this would likely require legislative framework changes and further analysis to ensure that the benefits of this approach would exceed its costs. This could be considered ahead of the next Hunter Water pricing review as part of a wider review of the basis of charging for stormwater services. It may also be appropriate to consider whether prices for each non-residential land area category should be set on a $/m^2$ basis to more evenly distribute costs within the category.

Other submissions in response to our Issues Paper commented on price levels being unaffordable in general terms.

We consider maintaining low impact customer categories appropriate

While we consider land area to be the best available proxy for determining and allocating stormwater costs, there are instances where the contribution to costs of each property could be quite different. Some large undeveloped properties, such as parks, sports fields and golf courses, have greater ability to absorb stormwater flows than developed properties with hard surfaces. To reflect this, we introduced a low impact customer category for non-residential properties as part of the 2005 Determination.[164] This allows non-residential customers to apply for a lower charge by demonstrating to Hunter Water that their property makes a relatively small contribution to stormwater load. In 2016 we introduced a similar low impact category for the owners of houses for which only a small proportion of stormwater leaves the property, as we consider the impactor pays principle also applies to residential customers.[165]

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161 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 44.

162 IPART, *Review of prices for Sydney Water Corporation From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, p 180, *Review of Central Coast Council's water, sewerage and stormwater prices To apply from 1 July 2019 – Final Report*, May 2019, p 109.

163 Coombes, P.J., *Submission to IPART's Issues Paper – Review of prices for Hunter Water Corporation from 1 July 2020*, October 2019, p 10.

164 IPART, *Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority, Prices of water supply, wastewater and stormwater services, Final Determination and Report*, June 2005, p22.

165 IPART, *Review of prices for Hunter Water Corporation From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, pp 126-127.

We have decided to maintain a low-impact charge to continue protecting properties that genuinely have a low impact on the stormwater system.

We consider maintaining charges for vacant land and dual occupancies is appropriate

Stormwater charges for vacant land are currently the same as for a house. Hunter Water reports that 716 properties are classified as "vacant land" in 2019-20, all of which are non-residential.[166] In line with the impactor pays principle, we have decided to maintain charges for vacant land as these properties utilise the stormwater system, albeit the impact is likely to be lower than if the land was not vacant.

In 2016 we decided to apply an approach to stormwater charges for dual occupancies that is broadly consistent with how dual occupancies are charged for water and wastewater services.[167] That is, where if:

- Each dual occupancy property is serviced by one individual meter only, they are treated as a residential multi-premises, and they are each charged as one apartment
- The dual occupancy properties are serviced by one common meter only, they are together charged as one house
- The dual occupancy properties are serviced by more than one common meter, each property is charged as a separate apartment.

We have decided to maintain the current approach as, whilst we don't consider meters an indicator of cost, they help identify dual occupancies for the purpose of charging for stormwater services, which would otherwise be difficult.

We consider maintaining current property charging ratios to set prices appropriate

We have decided to use the current ratios presented in Table 8.8 to set stormwater charges, to prevent substantial bill impacts to non-residential customers associated with transitioning more quickly towards or adopting charges based purely on land area for the 2020 Determination. These currently represent the price relativities between the different property categories and are used to allocate the relevant share of the target NRR for stormwater services to each property category. Using the current ratios, residential customers move to an 87.5% contribution, noting that these customers represent 85.9% of land area serviced by Hunter Water (see Appendix N).

We have not adjusted draft prices to reflect historical differences in demand forecasts

In addition to some customers being over or undercharged compared to previous determinations, the count of stormwater customers provided to us for the 2016 determination period understated the number of stormwater customers by 2,048.[168] This means that some prices in the 2016 Determination were possibly set higher than they would have been had the correct number of customers been identified, as the allocation of the NRR across the different categories would have been different. As a result of the errors and underestimated number of properties, we allocated the stormwater revenue requirement across 2,048 fewer customers,

166 Hunter Water Annual Information Return, July 2019.
167 IPART, *Review of prices for Hunter Water Corporation From 1 July 2016 to 30 June 2020 – Final Report*, June 2016, pp 127-128
168 Correspondence with Hunter Water, received 14 January 2020.

resulting in some stormwater customers paying more and some paying less throughout the 2016 determination period than was intended (see Appendix N). However, the impacts are not straightforward given the process for allocating share of NRR to different categories.

The scope and scale of the impacts do not appear to be substantial for residential and smaller non-residential customers (these customers may have underpaid by less than about $1.10 per year). For larger customers, the dollar impact is greater (these customers may have overpaid by up to about $380, or 10%, per year for very large customers).

We have not made adjustments to stormwater prices for the 2020 determination period to account for these impacts given that:

- Hunter Water has advised it will refund customers erroneously charged or overcharged (and will not seek to recover the monies it undercharged customers)
- The scope and scale of overcharging does not appear to be material in terms of bill impacts
- It would not necessarily result in cost-reflective and equitable pricing as current/future customers would be paying less than the efficient prices
- Prices for the 2016 determination period were set on the best available information at the time.

9 Discretionary expenditure

Discretionary expenditure is incurred when a utility invests in projects that provide services or achieve outcomes that go beyond service standards or environmental obligations specified in the utility's operating licence or other regulatory requirements.

Hunter Water has included two discretionary expenditure projects in its pricing proposal.

This is the first time we have explicitly set prices to recover the costs of discretionary projects. We have adopted this approach to allow and encourage utilities to be responsive to their customers. Demonstrating customer support and ensuring accountability are the underpinning principles of our approach to discretionary expenditure.

We have developed a draft framework to guide our assessment of discretionary expenditure, and to ensure the delivery of the commitments made by utilities to their customers is subject to appropriate oversight (see Appendix O). We have also made draft decisions on Hunter Water's proposed discretionary expenditure, and on how the costs of this discretionary expenditure should be recovered from customers. Finally, we outline a number of output measures that would enable the delivery of the discretionary expenditure to be tracked.

9.1 Customer engagement is a key element of a utility's pricing proposal

As outlined in our *Guidelines for Water Agency Pricing Submissions*, a utility should have a strong and up to date understanding of its customers' preferences, and this should inform a utility's decision-making and pricing submission.[169]

In our 2016 Sydney Water pricing review we noted that we would consider, and could allow, discretionary expenditure to be recovered via regulated prices, but that we would require clear evidence that the utility's customers have the capacity and willingness to pay for the discretionary expenditure.[170] Our recycled water framework also allows for the costs of recycled water schemes to be recovered from the broader customer base to the extent that there is sufficient evidence that the broader customer base is willing to pay for the external benefits of the recycled water scheme.

It is our view that significant or material changes to a utility's service standards, environmental obligations or other regulatory outcomes should be addressed through appropriately consulting with customers and the entity which enforces the regulation, so that any update to standards or regulations reflects community preferences.

However, where the cost to achieve a discretionary outcome is relatively small, utilities can propose recovering expenditure through prices from either part of, or its entire, broader customer base.

169 IPART, *Guidelines for Water Agency Pricing Submissions*, November 2018, pp.20-21.
170 IPART, *Review of prices for Sydney Water Corporation from 1 July 2016 to 30 June 2020 - Final Report*, June 2016, p 37.

9.2 We have developed a framework for discretionary expenditure

Our draft decision is:

38 To establish a discretionary expenditure framework, to apply to current and future discretionary proposals.

We have developed a framework for discretionary expenditure, which provides a structure to articulate our principles for consideration of proposals, including (1) the application of relevant assessment criteria, (2) setting appropriate pricing structures and prices, and (3) stipulating on-going requirements as discretionary projects are implemented (see Appendix O).

Our framework provides guidance to the utilities and establishes processes and checks to ensure that the prices paid by customers are no more than they are willing to pay for the discretionary projects, and that the characteristics of the projects are aligned with those described to customers. A summary of our framework can be found in Table 9.1.

Our framework has two stages.

- Stage 1 – **Assessment** - Phases 1 to 3 of our framework outlines the steps we will take to assess a utility's proposed discretionary expenditure, including whether it is a discretionary project, has customer support and the expenditure is efficient.
- Stage 2 – **Delivery and Oversight** - Phases 4 and 5 of our framework focus on implementation, and measures to ensure delivery of the projects in line with customers' expectations.

Table 9.1 Overview of our discretionary expenditure framework

Phase	Description
Phase 1: Project definition	▼ **The project or outcome is adequately described and defined**. At a minimum, the project or outcome specification must include the following characteristics and conditions: – Location, customers/users benefiting from (or creating the need for) the project, delivery timeframes, whether it will be replacing another service and outcomes expected. ▼ The project or outcome **fits within the utility's responsibilities and is related to its monopoly services.** ▼ The project is discretionary.
Phase 2: Willingness to pay	▼ Survey participants are given **sufficient context and information** on the proposed project or outcome. This should align with the characteristics and conditions of the project definition identified in Phase 1. ▼ The survey identifies customers' maximum **willingness to pay dollar amounts**. These will be the upper limit to **the customer share of the cost of the project/outcome** estimated in Phase 3**.** ▼ The survey used to elicit customer willingness to pay is **well designed and the results are statistically valid.** ▼ Bill impacts should be shown in the context of the broader bill impact.
Phase 3: Efficiency test	▼ **The project/s is prioritised and optimised** within the utilities' broader responsibilities. ▼ The project/s is the **most efficient way of achieving the outcome**. ▼ Total efficient cost estimates should transparently **net off any avoided costs and/or grants.**
Phase 4: Recovery & delivery incentives	▼ The proposed **prices to customers recover only the efficient cost** of the outcome or project determined in phase 3. ▼ Bill impact per household is equal to or less than willingness to pay from phase 2. ▼ Charges are recovered from customer categories whose willingness to pay was assessed in phase 2. ▼ **Separate RAB** with appropriate asset lives to enable discretionary expenditure to be tracked. ▼ Transparent and accountable – utility to develop and propose approaches to ensure accountability. ▼ Next period adjustment will consider whether any underspend is returned to customers or retained by the utility for other projects or as an efficiency gain.
Phase 5: Implementation & performance commitments	▼ **Capture the program as an output measure** to ensure sufficient reporting on what is achieved. ▼ **Ex-post adjustment mechanism** to ensure only investments in line with project definition in willingness to pay survey are added to the RAB. ▼ Where proposed expenditure is not carried out or outcomes are not delivered, funds collected through the discretionary charge may be returned to customers in the subsequent determination period. ▼ Outline expectation that the **charge remains equal to or below demonstrated willingness to pay amount** over the long term.

9.2.1 Assessment of a utility's proposed discretionary expenditure

We first consider whether a proposed project is sufficiently related to a utility's monopoly service provision, and then whether it is necessary to meet a utility's mandatory obligations or if it is discretionary.

What is discretionary expenditure?

A utility's proposal can include two categories of costs. These are the costs to:

- Comply with its **mandatory obligations**. For example, service levels under its operating licence and environmental licence obligations set by the Environment Protection Authority (EPA).
  - We set prices to recover the efficient level of these costs that enables a monopoly service provider to deliver its services in compliance with its other regulatory obligations.
- Undertake **discretionary projects**. These are projects which are not driven or required by an external regulator or body.

The framework aims to enable ongoing customer-driven investment

Our framework emphasises the importance of demonstrating customer willingness to pay for discretionary projects. Utilities should aim to conduct robust and well-designed willingness to pay surveys which produce statistically significant results. This would ensure that any expenditure proposals put forward by a utility will be sufficiently supported and, therefore, would likely be approved. The application of this framework is new, and we acknowledge that utilities are still developing their approaches to discretionary expenditure proposals. Therefore, we expect them to recognise and adopt potential improvements during the next four years.

We engaged a consultant, Gillespie Economics, to provide guidance on demonstrating willingness to pay, and to review the willingness to pay survey conducted by Hunter Water.[171] As willingness to pay acts not only as an important gauge of customer support, but also as a cap on the contribution we allow a utility to recover from customers, it is important that these studies have integrity and are based on the appropriate principles. In our view, it is also important that these studies can be used when assessing the costs and benefits of significant projects.

Gillespie Economics also provided comments in relation to our draft best practice principles for demonstrating willingness to pay, which currently focus on contingent valuation approaches, including a recommendation that we develop best practice principles that also apply to choice modelling approaches. Our draft best practice principles for demonstrating willingness to pay are included in Appendix O.

Proportionality between proposed expenditure and required evidence of willingness to pay

We note that it is important that the extent of the willingness to pay surveys conducted by the utility are proportionate to the relative quantum of the discretionary expenditure proposed compared to its overall expenditure proposal.

Two approaches to willingness to pay studies were identified from utilities' pricing proposals:

171 Gillespie Economics, *Assessment of Hunter Water's and Sydney Water's Customer Willingness to Pay Surveys*, *Report for IPART*, January 2020.

- **Economic willingness to pay studies,** which elicit the maximum willingness to pay across the population of customers for defined environmental, social or cultural outcomes.
- **Market research based willingness to pay studies,** which estimate the proportion of customers who would be willing to pay a price that would cover the costs of different levels of a proposed investment.

The first type of study provides an estimate of the indirect and non-use benefits that a project may provide to the customer base. This value may be higher if people outside the customer base also value an outcome.

We recognise that there should be a proportional sliding scale relative to the size of the proposed discretionary expenditure which dictates the level of resources and evidence required to demonstrate that each element of the framework has been met. For example, a small-scale capital project should not necessitate the same extensive customer engagement and gateway processes, including a cost-benefit analysis and economic willingness to pay study, as a larger project.

A market research approach may be appropriate for smaller proposed discretionary investments, and for selecting projects to engage further with customers on from a menu of possible projects, without requiring the same level of detail as an economic measure of willingness to pay.

Economic willingness to pay studies, however, should be conducted in conjunction with a market research approach, cost-benefit analysis, and business case for larger projects, to ensure that thorough and robust processes are in place to support greater amounts of proposed expenditure.

Costs should only be recovered from categories of customers with demonstrated willingness to pay

We consider that there should be alignment between the categories of customers surveyed to demonstrate willingness to pay, and the categories of customers that bear the cost of discretionary expenditure.

Utilities should only recover the efficient level of expenditure

As part of our framework, we apply our usual efficiency test to discretionary capital expenditure to ensure customers are only charged the efficient cost of delivering the project or outcome. Where the proposal is for a specific project, it can be included in the expenditure review with other capital expenditure, including ex-post capital expenditure reviews.

Where the proposal is for a funding envelope to deliver an outcome over the determination period, we would expect to see accurate estimates of likely outcomes and that any efficiencies that materialise through the implementation of a program could result in the delivery of 'more' of the outcome, to the extent this is consistent with customers' willingness to pay.

9.2.2 Implementation of a utility's discretionary expenditure proposal

Ensuring a utility is accountable for the delivery of the project

We need to hold utilities accountable for any proposed discretionary expenditure. The delivery of the utility's proposal should match the customers' understanding of what they are paying for, and the outcome should be delivered over the specified timeframe at an efficient cost. This is particularly important given the absence of any additional regulatory processes such as obligatory service standards or environmental standards that a utility must uphold in relation to this type of expenditure.

Transparency is important to ensure that the utility's activities and prices are well understood by stakeholders and its customers. Achieving discretionary outcomes are at a cost to the utility, and are outside of the mandated requirements on utilities in delivering their monopoly services to their customers. It is important that customers fully understand the implications of these outcomes on prices.

Ensuring transparency and accountability to customers

To enhance transparency and accountability around discretionary expenditure to customers, we consider that utilities must take steps to inform customers about the discretionary charges they will incur, and the outcomes these charges will deliver. Examples of this could include presenting the discretionary expenditure charge as a separate line item on customer bills (the Customer Supported Programs charge); distributing information pamphlets to customers; or directing bill payers to the utility's website for further information on discretionary expenditure including charges and expected outcomes.

Delivery incentives

We are aiming to provide incentives that ensure that utilities are accountable to customers, and that they appropriately gauge project risks prior to making commitments to customers.

When considering the incentives to ensure project delivery, the utility should be aware of the financial implications if it cannot meet its stated outcomes on which it has gained community support. We realise that this assessment may not be purely objective, however, many of the projects that would be classed as discretionary would be discrete in nature and amenable to defining a clear set of outcomes.

The clear incentive for focus on delivery will be achieved through:

- Our standard approach to ex-post adjustments to capital expenditure during the next review, coupled with
- A next period adjustment to assess whether any underspend is returned to customers, used to provide similar outcomes or retained by the utility as an efficiency gain. This is a slightly different approach to our standard approach, as we are focussed on discrete discretionary proposals which may not be 'part' of a much wider expenditure profile where it is expected that proposed expenditure would be subject to on-going review and re-prioritisation as part of normal business.

This approach would achieve outcomes based regulation for program expenditure which is closely aligned with customer preferences.

9.3 Our decisions on Hunter Water's proposed discretionary expenditure

After a substantial customer engagement program, Hunter Water proposed two projects as discretionary expenditure for the 2020 determination period. We discussed Hunter Water's proposed discretionary projects in our Issues Paper, noting that we intended to apply our best practice principles for demonstrating willingness to pay to assess whether the expenditure should be approved for this review. Using these principles as a basis, we have applied the newly developed framework for assessing discretionary expenditure on the two proposed projects.

Our draft decisions are:

39 To allow Hunter Water to recover the costs of the following projects from its broader customer base:

- a For the recycled water for irrigation of public spaces project, $6.0 million recovered from residential customers on a per property basis
- b For the stormwater amenity improvement project, $11.3 million recovered from residential customers on a per property basis.

40 To allow the costs of the discretionary projects to be recovered from residential customers through an annual $1.43 per property charge.

41 To request that as part of its response to this Draft Report, Hunter Water outlines how it proposes ensuring progress on discretionary projects is communicated effectively to its customers.

9.3.1 We have decided to allow Hunter Water to recover the costs of its proposed discretionary projects from the broader customer base

In developing our framework, we acknowledge that since it is the first time we have assessed proposed discretionary expenditure, we should exercise a level of discretion in allowing discretionary prices to be charged by Hunter Water. There are a number of requirements within our framework that aim to ensure transparency and accountability for utilities, which we have developed after receiving Hunter Water's proposal. We consider that these should be applicable to future proposals.

9.3.2 Recycled water for irrigation of public spaces

Hunter Water has identified several parks and sporting fields that could use recycled water for irrigation. This would save drinking water supplies and reduce the amount of effluent discharged to waterways. Hunter Water indicates this would cost $6 million over the 2020 determination period.[172]

Our assessment

We have assessed this project against our framework in more detail in Appendix P.

172 Hunter Water, *Supplementary Response to IPART Issues Paper*, 6 November 2019, p 17.

Overall, we consider that while the willingness to pay survey conducted by Hunter Water had some shortcomings, consulting with customers on potential projects is a positive step, and going forward, the process around this engagement can be refined. However, we note that this willingness to pay survey was limited to residential customers, and therefore we have decided to allow recovery of the costs of the project only from residential customers.

9.3.3 Stormwater amenity improvement

Hunter Water is proposing to improve the amenity of its stormwater channels by planting vegetation around the stormwater channels to screen them from view, and by replacing concrete with more natural materials. It has undertaken to improve the amenity on at least one kilometre of stormwater channel, at a cost of $11.3 million over the determination period.[173]

Our assessment

We have assessed this project against our framework in more detail in Appendix P.

Overall, we consider that the willingness to pay survey conducted by Hunter Water is appropriate, given the scale of the proposed project, and that the project has sufficient customer support. However, we note that this willingness to pay survey was limited to residential customers[174], and therefore we have decided to allow recovery of the costs of the project only from residential customers.

9.3.4 We have decided how much customers can be charged to recover the costs of discretionary expenditure

The discretionary expenditure proposals submitted by Hunter Water are shown in Table 9.2.

Table 9.2 Hunter Water's proposed discretionary expenditure ($2019-20)

Project	Capital Cost	Customers cost recovered from	Discretionary charge per year	Basis of charge
Recycled water for irrigation	$6.0 million	All customers	Around $2.00	Not specified
Stormwater amenity improvement	$11.3 million	All customers	$2.68	Not specified
Total	**$17.3 million**		**Around $4.68**	

Note: Hunter Water initially proposed $11.5 million for recycled water for irrigation, but revised this to $6 million in its November response to our Issues Paper.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 5*, 1 July 2019, p 42; Hunter Water *Supplementary Response to IPART Issues Paper,* 6 November 2019, p 17; Hunter Water, *Pricing Proposal to IPART, Technical Paper 2, 1 July 2019, pp 66-67;* IPART analysis.

The discretionary expenditure we have decided to allow for each project, and the resultant discretionary charge, is shown in Table 9.3. The discretionary charge is set in 2019-20 dollars in real terms, and would increase with inflation throughout the determination period. The fall in the cost of capital (the WACC) has contributed to draft prices that are lower than those

173 Hunter Water, *Pricing Proposal to IPART, Technical Paper 5,* 1 July 2019, p 42.
174 Hunter Water, *Pricing Proposal to IPART, Technical Paper 1*, 1 July 2019.

proposed by Hunter Water, however it would still collect sufficient revenue to fund the proposed programs and achieve the outcomes consistent with its proposal.

Table 9.3 Our draft decision on discretionary expenditure ($2019-20)

Project	Capital Cost	Customers cost recovered from	Discretionary charge per year	Basis of charge
Recycled water for irrigation	$6.0 million	All residential customers	$0.57	Per dwelling
Stormwater amenity improvement	$11.3 million	All residential customers	$0.86	Per dwelling
Total	**$17.3 million**		**$1.43**	Per dwelling

To calculate the discretionary expenditure amounts to be recovered from each customer, we followed a number of steps:

- Where appropriate, we applied our efficiency test to the projects to determine the efficient capital expenditure to be recovered
- We established a regulatory asset base for discretionary expenditure
- We determined which customers the discretionary costs should be recovered from, to ensure alignment with demonstrated willingness to pay.

We have considered the cost of the projects

Recycled water for irrigation of public spaces

Hunter Water has proposed spending $6 million to irrigate open spaces with recycled water. This amount is a 'funding envelope' rather than the anticipated cost for a specific project. Hunter Water has a number of projects it is considering, and will proceed with some of these projects to the value of $6 million, with the aim of delivering the outcome of at least 20 ML of additional wastewater recycling for irrigation per year by the end of the determination period. We have not applied an efficiency factor as we did for Hunter Water's other proposed expenditure, rather we will conduct an ex-post assessment of the efficiency of the capital expenditure as part of the next review.

Stormwater amenity improvement

Hunter Water has proposed spending $11.3 million to naturalise stormwater channels. This amount is a 'funding envelope' rather than the anticipated cost for a specific project. Hunter Water has a number of projects it is considering, and will proceed with some of these projects to the value of $11.3 million, with the aim of delivering the outcome of naturalising at least 1 km of stormwater channel over the determination period. We have not applied an efficiency factor to this proposed amount, rather we will conduct an ex-post assessment of the efficiency of the capital expenditure as part of the next review.

Costs should only be recovered from customers with demonstrated willingness to pay

We consider that there should be alignment between the customers surveyed to demonstrate willingness to pay, and the customers that pay the discretionary charge.

Hunter Water received sufficient responses from its residential customers when calculating average willingness to pay, citing difficulties engaging with non-residential customers.[175] Accordingly we propose applying a discretionary charge to its residential customers in the 2020 determination period.

9.3.5 We have decided to apply output measures for Hunter Water's discretionary expenditure

Setting outcomes-focused output measures for Hunter Water's discretionary expenditure will help ensure it is accountable to its customers. The proposed measures will hold Hunter Water to account for what it has committed to by requiring it to publicly report on the progress of its discretionary projects in its next proposal.

Our draft decision is:

42 To apply the output measures in Table 9.4 in relation to Hunter Water's discretionary expenditure.

Table 9.4 Draft output measures relating to Hunter Water's discretionary expenditure

No.	Project description	Measure	Target
1	A discretionary project to improve the amenity of stormwater channels.	The length of stormwater assets that have undergone 'naturalisation' in accordance with the willingness to pay study.	Minimum 1 km.
2	A discretionary project to provide more recycled water for the irrigation of public open spaces.	The additional volume of recycled water being used to irrigate public open spaces by the end of the determination period.	Minimum of 20ML pa.
3	Informing customers of its delivery of discretionary expenditure, and the bill impact of discretionary expenditure	Evidence of how Hunter Water has provided this information to its customers.	Hunter Water to propose in response to our Draft Report.

The output measures outline the relevant information we would need to inform our next review. We have decided to set:

- One measure for each discretionary project, to track the progress made against delivering the proposed outcomes.
- One measure to ensure Hunter Water informs its customers of the discretionary expenditure. We will consider what Hunter Water proposes in its response to our Draft Report before defining this measure.

We consider that end of period reporting is appropriate for these output measures.

[175] Emma Turner, Hunter Water, Hunter Water Public hearing, Transcript, 19 November 2019, pp 57-61.

9.4 Future application of the framework

In some instances, it may be possible that expenditure that is discretionary when proposed by the utility becomes part of meeting its monopoly service obligations. This could occur when licence conditions or mandatory environmental standards are changed, such that expenditure initially proposed to exceed standards is now expenditure to meet the new (higher) standards.

There are a number of requirements within the framework which ensure transparency and accountability for utilities, which are deemed necessary for future proposals.

In future price reviews, we will encourage utilities to apply our framework to any proposed discretionary expenditure to ensure that all criteria have been met and our principles of transparency, accountability and efficiency are upheld.

Our draft decision is:

43 To request that Hunter Water includes a business case, proposed output measures and customer engagement strategies in future discretionary expenditure proposals.

10 Recycled water prices

Recycled water is wastewater or stormwater that has been collected and treated so that it can be reused for urban irrigation, industrial processes, environmental flows, and residential uses such as garden watering and toilet flushing.

In July 2019, we finalised a review of the pricing arrangements for the public water utilities' recycled water schemes, which:

- Considered how to fund recycling schemes
- Considered how to set prices to customers of recycled water schemes
- Set a methodology to calculate developer charges for recycled water schemes.[176]

The revised approach reduces regulatory barriers to cost effective water recycling and seeks to ensure that recycled water is assessed in the same way as other options for delivering water and wastewater services. We provide an overview of the key elements of our framework in section 10.1 below.

In sections 10.2 and 10.3 of this chapter, we first discuss the prices for recycled water that Hunter Water provides, and then the treatment of revenue from recycled water schemes.

Our decisions outlined in this chapter align with the approach we established in our 2019 recycled water review and result in minimal changes to Hunter Water's proposal regarding recycled water prices and revenue.

10.1 Our recycled water framework

For funding purposes, we distinguish between 'least-cost' or 'higher-cost' recycled water schemes:

- A 'least-cost' scheme is the most efficient way of supplying water, wastewater and/or stormwater services.
- A 'higher-cost' scheme is one which is not least-cost.

Under our framework, least-cost schemes are funded by the broader customer base. For example, if a recycled water scheme is the least-cost way of providing sewerage services (ie, the collection, treatment and disposal of wastewater), then the utility can recover its costs from the broader customer base via wastewater prices.[177] Hunter Water has a number of such 'least-cost' recycled water schemes (see Table 10.2 later in this chapter).

Higher-cost schemes can also be funded by the broader customer base via water and/or wastewater prices, to the extent the scheme results in any[178]:

176 IPART, *Review of pricing arrangements for recycled water and related services*, 1 July 2019.
177 IPART, *Review of pricing arrangements for recycled water and related services*, 1 July 2019, p 21.
178 IPART, *Review of pricing arrangements for recycled water and related services*, 1 July 2019, pp 24-25.

- Avoided water and/or wastewater costs (net of any foregone revenue to the utility) to the broader customer base
- External benefits, as shown by the broader customer base's willingness to pay.

Any residual costs of the higher-cost recycled water scheme (ie, the scheme's costs less the value of avoided costs + external benefits recovered from the broader customer base), should be ring-fenced and be recovered from:

- Any external funding sources, including any government or third party contributions
- Customers of the recycled water scheme
- Recycled water developer charges.

For this price review, Hunter Water has not made a claim for any deferred or avoided costs to be recovered from its broader customer base. Hunter Water has, however, sought to recover the costs of new recycled water schemes to irrigate public open spaces from its broader customer base, based on the broader customer base's 'willingness to pay'. This is considered in Chapter 9 of this Draft Report.

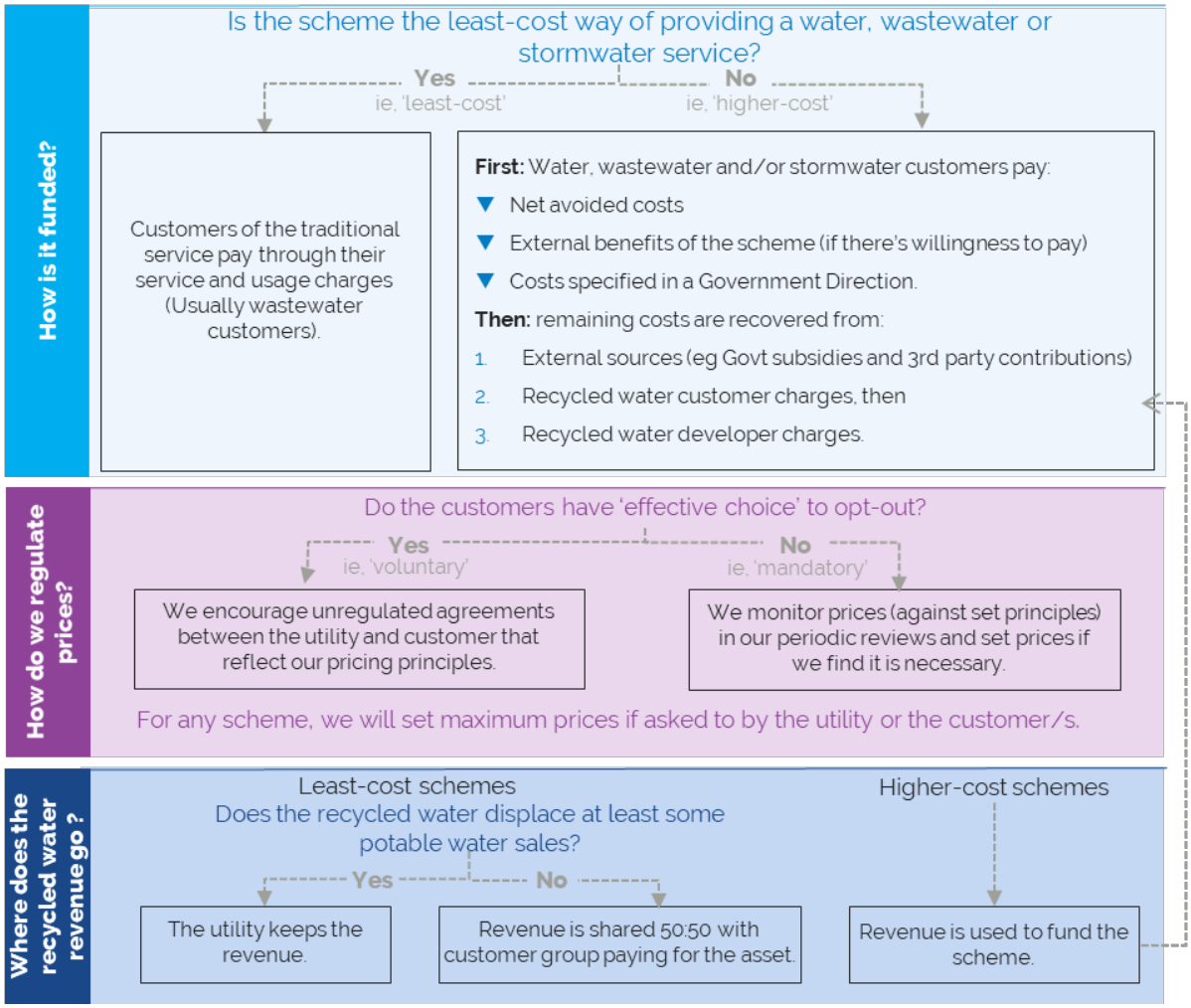
For price regulation purposes, we also distinguish between recycled water schemes on the basis of customer choice[179]:

- A scheme is considered mandatory if customers have no effective choice but to be supplied by the recycled water scheme. For these, we monitor prices against our pricing principles and may step in to set prices where we deem there is cause, including if requested to.
- A scheme is considered voluntary if customers have effective choice about whether to be supplied by the recycled water scheme. For these, we encourage unregulated pricing agreements and would set prices under a scheme-specific review if requested to do so by customers or the public water utility.

Figure 10.1 below provides an overview of our approach.

179 IPART, *Review of pricing arrangements for recycled water and related services*, 1 July 2019, p 65.

Figure 10.1 Key elements of IPART pricing arrangement for recycled water



Source: Based on IPART, *Review of pricing arrangements for recycled water and related services*, 1 July 2019.

10.2 Proposed prices for mandatory schemes meet our pricing principles

Hunter Water has two mandatory schemes. As outlined above, we monitor Hunter Water's proposed prices for these recycled water schemes, and we will only step in and determine maximum prices for these schemes when we identify a need to do so, or if we are asked to.

Our draft decision is:

44 To continue to defer setting prices for Hunter Water's recycled water schemes.

We assessed Hunter Water's proposed prices for its mandatory recycled water schemes against our pricing principles (Box 10.1). We found Hunter Water's proposed prices are reasonable and do not provide cause for us to step in and determine prices.

Box 10.1 Pricing principles for mandatory recycled water services

The structure and level of recycled water prices:

1. Should ensure that appropriate price signals are sent to recycled water users with the aim of balancing supply and demand, and should entail an appropriate allocation of risk.
2. Should include a usage charge, which must have regard to the price of substitutes (such as potable water and raw water). Where the usage charge exceeds the substitute price, water utilities must demonstrate willingness to pay by the recycled water customer.
3. May include a fixed service charge, which should have regard to customer impacts, willingness to pay and not act as a material incentive for customers to disconnect from the recycled water scheme.
4. Should have regard to an efficient distribution of costs between recycled water customers and developers, in line with our funding framework for mandatory recycled water services.
5. Should be simple and understandable.

10.2.1 Hunter Water's prices for two mandatory schemes

Hunter Water's two mandatory schemes were commissioned in 2018-19 and service recent residential developments in Gillieston Heights and Chisholm.[180] We agree with Hunter Water that these two schemes should be considered mandatory schemes as the costs for residential customers to disconnect from these systems serves as an effective barrier to disconnection.

These two schemes are also 'higher-cost', and hence their costs are ring-fenced from the broader customer base. Our expenditure consultant, Aither, reviewed the ring-fencing arrangements and found them to be reasonable and consistent with IPART's requirements.[181]

Hunter Water proposed to[182]:

- Set the usage price at 90% of the potable water usage price that applies on 1 July (which increases from $2.17/kL to $2.24/kL over four years under Hunter Water's proposed usage price).
- Not set a service charge, ie, remove the current $20 per annum fixed service charge.

Hunter Water's proposal is a departure from its current charging practice. It has adopted a new approach in response to feedback from some customers.[183]

180 Hunter Water, *Pricing Proposal to IPART, Technical Paper 9*, 1 July 2019, p 19. Prior to commissioning, potable water was being supplied through the recycled water system whilst the recycled water was infrastructure was being completed. See IPART, *Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, Final Report*, June 2016, p 148.

181 Aither, Hunter Water expenditure review, 14 December 2019, pp 145-146.

182 Hunter Water, *Pricing Proposal to IPART, Technical Paper 9*, 1 July 2019, p 22.

183 Hunter Water has previously applied a 'fairness test' to determine the recycled water price. It set the recycled water prices so that the average customer bill on a reticulated system (assuming 40% of usage was recycled water) equalled the average bill of a customer on potable water only. This method disadvantages recycled water customers with lower overall usage, and Hunter Water has received complaints to this effect. Hunter Water, *Pricing Proposal to IPART, Technical Paper 9*, 1 July 2019, p 22.

Table 10.1 Our assessment of Hunter Water's proposed prices against our pricing principles

Principle	Our assessment
1	The price is likely to support a balance of supply and demand. Currently, Hunter Water has forecast that it would be able to match the supply and demand of recycled water, and not require potable top-up. The impact that price can have on demand is limited because: ▼ These schemes are residential, so the recycled water is connected to particular uses on each property. ▼ Hunter Water does not foresee further properties connecting to recycled water.[a] Based on our draft usage prices, a customer with the average annual usage of 77kL would save $18.48 to $19.25 annually compared to what they would pay if that recycled water were potable water.
2	The usage charge is set lower than the potable water usage price, which is the alternative for these customers.
3	Hunter Water proposed no fixed charge. This is consistent with guidance in our 2019 framework that "utilities should be cautious in adding new fixed charges to customer bills".
4	We did not assess the allocation of costs between developers and customers. This is because Hunter Water considers that all funds from development have been received at this stage. In 2015, the state Treasurer granted Hunter Water approval to set developer charges at 2012-13 levels, and effectively under-recover costs, in response to the number of connections being lower than anticipated. In our 2019 review of recycled water pricing arrangements, we stated that this is effectively a Direction from the Treasurer to set lower prices. We also note that Hunter Water expects that only 20% of the scheme costs will be recovered through prices and developer charges.
5	The overall structure is very straightforward and easy to understand.

[c] Whilst increased demand for recycled water reduces demand for potable water, there is also a point when demand for recycled water would exceed the volume that can be produced at the plant. This would lead to an inefficient volume of potable water top-up.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 9*, 1 July 2019, p 19 – 22; IPART, *Review of pricing arrangements for recycled water and related services*, 1 July 2019, pp 28-29; IPART analysis.

10.2.2 Some stakeholders expressed a need to incentivise recycled water

Five submissions to our Issues Paper expressed a view that the use of recycled water should be increased and/or incentivised to address the issue of increasing water scarcity.[184] Most referred to increasing the amount of recycled water being used, and one advocated compelling industry to use recycled water.[185] One Hunter Water individual stakeholder commented that "Customers should not have to pay more for water that is recycled simply because of pricing structures that make it so".[186]

Hunter Water's revised approach to set prices less than the potable water usage price, and without the service charge, aligns with this stakeholder's view.

184 Submissions to IPART's Issues Paper – Review of prices for Hunter Water Corporation from 1 July 2020, October 2019, From PIAC, R.Banyard; S.Corbett; Save the Williams River Coalition; Anonymous (W19/2265)

185 Anonymous (W19/2265), *Submission to IPART's Issues Paper – Review of prices for Hunter Water Corporation from 1 July 2020*, October 2019, p 1.

186 S.Corbett, *Submission to IPART's Issues Paper – Review of prices for Hunter Water Corporation from 1 July 2020*, October 2019, p 1.

We also note that options for using recycled water are limited, as under current policy settings it cannot be used directly to supply drinking water. As such, the addition of recycled water within a water supply system generally incurs additional infrastructure distribution costs that may otherwise be avoided if it could be used directly as drinking water. That is, the relative competitiveness of recycled water against alternatives could be enhanced if purified recycled water was able to be used as drinking water.

When we review prices for water, wastewater and stormwater services, we allow expenditure for the most cost effective way to provide each of those services. If recycled water is the most efficient way to provide one of these services, the expenditure is used to set prices. Where it is not the most cost effective option, our regulatory framework does still allow for the costs of providing recycled water to be funded from the broader customer base (ie, not just direct customers of the recycled water scheme) where:

- there are external benefits, as evidenced by customer willingness to pay,
- there are net avoided water, wastewater and/or stormwater costs, as a result of the recycled water scheme, or
- the Government has directed the costs be passed through to customers, under section 16A of the IPART Act.

Hunter Water is also required to consider and report against its optimal level of investment in recycled water (as well as demand management and leakage management), as part of its operating licence requirements related to its Economic Level of Water Conservation (ELWC) methodology. Box 5.1 in Chapter 5 provides more information on the ELWC.

10.2.3 We are satisfied that the remaining schemes are not mandatory

Hunter Water's remaining recycled water schemes are 'voluntary', as the recycled water customers, who are non-residential, would have lower barriers to leave the scheme (see Table 10.2). For these schemes, we encourage unregulated pricing agreements and would only step in and determine prices if requested to by either Hunter Water or the recycled water customers – which has not occurred.

Table 10.2 Summary of Hunter Water's voluntary recycled water schemes

Customers of higher-cost schemes	Customers of least-cost schemes	
▼ Kurri Kurri TAFE	▼ Branxton Golf Club	▼ Karuah Irrigation scheme
▼ The Vintage Golf Course	▼ Clarence Town Irrigation scheme	▼ Kurri Kurri Golf Club
	▼ East's Golf Course	▼ Oceanic Coal
	▼ Eraring Power Station	▼ Paxton Woodlot
	▼ Farmers (four customers)	▼ Stonebridge Golf Club
		▼ Waratah Golf Club

10.3 We reviewed the share of revenue from least-cost recycled water schemes

In our 2019 review of recycled water pricing, we decided that where there is a least-cost recycled water scheme, the public water utility should retain all of the revenue earned from recycled water sales, as compensation for displaced potable water sales.[187]

Our draft decision is:

45 To treat forecast revenue from least-cost recycled water schemes by:

- a For schemes where recycled water displaces potable water sales, allowing the utility to retain the revenue
- b For schemes where recycled water does not displace potable water sales, sharing the revenue on a 50:50 ratio with the broader customer base.

10.3.1 Not all recycled water displaces potable water

For this review, we have distinguished between those least-cost schemes where the recycled water use displaces potable water sales, and those where it doesn't. In most cases, we would expect recycled water use to displace potable water sales.

Hunter Water identified that four of its 11 least-cost schemes do not result in potable water savings. That is, according to Hunter Water, the recycled water is used for irrigation purposes that would not otherwise occur with potable water.[188]

Our draft decision is to share revenue from recycled water sales from these schemes with the broader customer base, because customers have paid for the asset (essentially on the basis that it is providing a wastewater service) and they should share in a return on the additional revenue, in line with our approach to other sources of non-regulated revenue. The share of revenue to the water utility still provides an incentive to find more least-cost schemes, albeit less than if the utility retained the revenue in full.

For simplicity, the default approach allows the utilities to retain 100% of the revenue if at least **some** potable water sales are displaced by the recycled water scheme. We would share the revenue on an exception basis, ie, where it is clear that the scheme is not displacing potable water sales. Otherwise, Hunter Water should keep the recycled water revenue from least-cost schemes.

10.3.2 The revenue to be shared with customers is minimal

The revenue to be shared with customers has a minor impact on wastewater prices, as it is subtracted from the wastewater NRR before wastewater prices for the broader customer base are set (see Chapter 6 for more information).

187 IPART, *Review of pricing arrangements for recycled water and related services*, 1 July 2019, p 21.
188 Correspondence with Hunter Water (email), 22 January 2020.

Hunter Water identified four least-cost schemes that did not replace potable water sales. It receives revenue from one of these schemes,[189] a $548 fixed charge per year, indexed annually.[190] For the remaining least-cost schemes (ie, those where recycled water does replace potable water) Hunter Water can retain all of the forecast revenue.

189 The remaining schemes are on Hunter Water land.
190 Correspondence with Hunter Water (email), 22 January 2020.

11 Other prices

Hunter Water provides a range of services other than water, wastewater and stormwater. This chapter sets out our draft decisions on the prices that Hunter Water may charge for the following services:

- Non-residential trade waste services
- Miscellaneous and ancillary services, including dishonoured and declined payment fees
- Raw water services
- Unmetered water services.

Subject to operational needs, Hunter Water also transfers bulk water to the Central Coast Council (and vice-versa). In 2019, concurrent with our determination of the Central Coast Council's water and wastewater prices, we also determined the prices for these bulk water transfers.[191]

11.1 Trade waste prices

Trade waste charges are levied on industrial and commercial customers whose discharge to the wastewater system is more contaminated than regular domestic wastewater. Hunter Water forecasts it will have trade waste agreements with approximately 2,300 sewered and 30 tankered customers in 2020-21.[192]

Hunter Water's trade waste revenue comprises a small proportion (less than 1%) of its total NRR. Our draft decision would result in an increase in annual average trade waste revenue of around $200,000 over the 4-year determination period, compared to the previous period. However, as a proportion of total NRR, trade waste revenue would continue to comprise less than 1%.

Hunter Water's pricing structure for trade waste comprises:[193]

- A fixed component – ie, administration fees, which recover the costs of administering trade waste agreements and conducting inspections
- A variable component – ie, high strength/pollutant charges, either based on the contaminant load (per kg) or discharge volume (per kL), to recover the costs of the transport, treatment and disposal of trade waste.

Hunter Water has proposed a significant restructure of many of its trade waste prices. Our draft decisions reflect our acceptance of the proposed restructure of most of Hunter Water's trade waste charges for both sewered and tankered customers, as they result in more cost reflective charges.

191 IPART, *Bulk water transfers between Hunter Water Corporation and Central Coast Council, Maximum prices from 1 July 2019*, May 2019.
192 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 3.
193 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, pp 14-15.

Our draft decisions are:

46 To set the maximum trade waste prices for 2020-21 as presented in Appendix Q, Table Q.1, Table Q.2 and Table Q.3 and for these charges to be indexed annually in line with changes in the CPI.

47 To deduct the trade waste revenue of $2.6 million per annum from the notional revenue requirement as set out in Table 11.1.

11.1.1 Reasons for our decision

In 2019, Hunter Water undertook a comprehensive review of its trade waste charges, ie, its administrative and high strength charges for both sewered and tankered customers. As part of the review, it engaged consulting engineers GHD to provide technical expertise for updating its high strength charges.

For its sewered trade waste customers, Hunter Water has proposed:

- Increasing trade waste administration fees to be cost reflective, particularly for those customers in higher risk categories[194]
- Restructuring its high strength charges by applying separate charges for biochemical oxygen demand (BOD) and total suspended solids (TSS) at each of its wastewater treatment plants. These charges are based on Hunter Water's variable operating costs (eg, electricity, and operations and maintenance costs).[195]
- Lowering the threshold above which the BOD and TSS charges apply to make them consistent with thresholds adopted for domestic strength wastewater throughout Australia.[196]
- Introducing high strength charges for moderate customers to reflect their actual discharge, and provide incentives for controlling trade waste discharges.[197]

For its tankered customers, Hunter Water has proposed:

- Increasing administration fees to be more cost reflective of the time spent managing and auditing customers[198]
- Introducing a single network-wide volumetric charge of $5.95 per kL of discharge ($2019-20) in lieu of existing pollutant charges, and increasing this charge to $9.20 in 2023-24 to recover the costs of a proposed capital expenditure program.[199]

Hunter Water also proposed removing charges for heavy metals, phosphorous and sulphate for both sewered and tankered customers, as these were not considered to be significant cost drivers. It argued that administering these charges is inefficient as the costs of laboratory analysis often exceeds the revenue generated.[200]

194 Hunter Water classifies customers based on their risk profile and business activity. The customer types include minor, moderate, major and tankered customers. See Appendix Q for more detail on customer types.
195 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 9.
196 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 9.
197 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 15.
198 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 13.
199 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 60.
200 Hunter Water, *Pricing Proposal to IPART, Technical Paper 9*, 1 July 2019, p 10.

We consider the proposed changes are reasonable as they are consistent with IPART's trade waste pricing principles as they currently stand (see Box 11.1), and generally more cost reflective than the existing price structure.

In 2019, we engaged Marsden Jacob Associates (MJA) to review our trade waste pricing principles. MJA made some key observations for clarifying these principles, including that:

- Standards for acceptance should account for the risk associated with the effective transport, treatment and management of treated sewage as well as the impact on systems and mandated standards and obligations placed on water businesses
- 'Efficient costs' should include future operating and capital expenditure as well as corporate overheads and reflect the LRMC (based on reasonable assumptions of demand) and differential cost of treatment between catchments where material.

We are aware that Hunter Water's high strength charges currently reflect its variable operating costs and an allocation of corporate overheads and not capital costs or the LRMC for different treatment plants (see Appendix Q for the types of costs Hunter Water recovers in high strength charges).[201]

We consider that Hunter Water's high strength charges could be more cost-reflective in coming years if they reflected the LRMC of supplying trade waste services at each wastewater treatment plant. This would include the long-term capital costs that Hunter Water would need to incur to meet any increase in demand, and it would ensure that the impactor pays principle is more fully reflected through trade waste prices.

IPART seeks comments on the following

3 Should Hunter Water include a share of wastewater capital costs in trade waste prices?

4 Would setting differential prices between wastewater catchments, based on the LRMC of supply, be a more appropriate basis for setting high strength prices than the current approach, which is based on operating costs only?

201 Hunter Water, *Pricing Proposal to IPART, Technical Paper 9*, 1 July 2019, p 10.

Box 11.1 IPART's trade waste pricing principles

The application of appropriate pricing principles to trade waste requires that:

- Standards for acceptance should be set on the basis of the capacity of current systems to transport, treat and dispose of the wastes, having regard to the health and safety of wastewater workers.
- Trade waste charges should cover the efficient costs to the water supplier of handling these wastes, including an allocation of corporate overheads.
- Charges should vary to reflect differences in the cost of treating waste to the required standards at particular locations.
- Water suppliers should set charges and standards in a manner that is transparent and accurate. The method of measurement should be reliable and the basis for setting charges should reflect costs incurred as far as possible.

Where environmental reasons are made for variations from the pricing principles detailed above, then sufficient evidence needs to be available to justify these variations. The basis for calculating greater than cost charges where environmental justifications exist should also be justified.

11.1.2 We decided not to accept Hunter Water's proposal to recover costs of proposed modifications to five receival stations for tankered customers

On balance, we have decided not to accept Hunter Water's proposal to increase the network-wide volumetric charge for tankered customers, from $5.95 in 2020-21 to $9.20 in 2023-24 ($2019-20) at this point in time.

Hunter Water has proposed a $5.7 million capital program to modify five receiving stations at the wastewater treatment plants[202] by 2022-23, and seeks to recover the cost of these upgrades directly from tankered customers through an increase in the proposed volumetric charge from $5.95 in 2020-21 to $9.20 in 2023-24 (the final year of the 2020 determination period).[203] Hunter Water estimates this is additional revenue of around $461,000 in 2023-24.[204]

Hunter Water notes its system to collect tanker wastewater charges exposes it to a number of risks, including:[205]

- Fraud (relating to volume and discharge type)
- Potential breach of environmental licences and obligations from non-compliant pollutant load
- Treatment plant process issues from the effects of non-compliant pollutant loads.

Hunter Water has proposed capital expenditure to allow driver identification, meters and screening units for each station and plans to deliver it in 2022-23, with cost recovery to

202 Of Hunter Water's 19 wastewater treatment plants, five are permitted to receive tankered discharges, ie, at Burwood Beach (portable toilet waste only), Dora Creek, Kurri Kurri, Morpeth and Raymond Terrace.
203 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 60.
204 Correspondence with Hunter Water (email), 10 December 2019.
205 Hunter Water, *Pricing Proposal to IPART,* Technical Paper 9, 1 July 2019, p 14.

commence in 2023-24. Hunter Water also took into consideration the results of a 2018 survey of (23) tankered customers, where the customers raised the need for extended access and timelier billing.[206]

We recognise Hunter Water's need to improve controls and facilities at receiving stations. However, after reviewing the early business documentation Hunter Water provided for this project, we have concerns about its timing. We note that:

- The project is at a very early stage and while Hunter Water has explored some options, a robust business case for the preferred option has not yet been developed.
- Hunter Water proposes a high price increase in 2023-24 for tankered customers, from $5.95 to $9.20 (per kL of discharge volume). At this point in time there is a degree of uncertainty that the project would go ahead in 2022-23.
- Hunter Water's consultation with tankered customers (ie, the 2018 survey) explored issues around satisfaction with the service, but not costs of the service.

On balance, our draft decision is to retain the price of $5.95 throughout the determination period.

However, in its submission to this Draft Report, we invite Hunter Water to provide more information around this project to improve the certainty around the costs, benefits and timing of the proposed project. If we are assured that the project can be delivered within the timeframe, we will establish a separate RAB or an annuity to enable the setting of a price for tankered customers. Alternatively, cost recovery for the project could be deferred to the next (2024) determination period at which time we would assess the efficiency and prudence of Hunter Water's proposed capital expenditure program.

IPART seeks comments on the following:

5 Is Hunter Water's proposed $5.7 million capital program to upgrade receiving stations at wastewater treatment plants for tankered customers efficient?

11.1.3 Trade waste revenue

Our draft decision is to set Hunter Water's forecast trade waste revenue at an annual average of $2.6 million (see Table 11.1). In 2023-24, this would be around $400,000 less than Hunter Water proposed, as we have not accepted its proposal to recover the cost of modifying its receival stations for tankered customers from 2023-24. More detail on the break-down of trade waste revenue by customer type is provided in Appendix Q.

Under our decision, trade waste revenue would comprise around 0.8% of Hunter Water's NRR.[207]

206 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 13.
207 The total revenue from trade waste is deducted from the NRR before setting water, wastewater and stormwater prices.

Table 11.1 Trade waste revenue proposed and draft decision ($million, $2019-20)

	2020-21	2021-22	2022-23	2023-24	Total
Hunter Water proposed	2.6	2.6	2.6	3.0	10.8
IPART draft decision	2.6	2.6	2.6	2.6	10.4

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 9*, 1 July 2019 and IPART analysis.

11.1.4 Some 'moderate' and 'major' customers would face higher bills

Table 11.2 provides indicative bill impacts of our draft decisions on trade waste prices. Bill impacts are relatively low for some customers, eg, service stations and medium licensed hotels (3% increase).

However, the impact would be significant for some 'moderate' and 'major' customers, where the trade waste component of their bill would increase under our draft decisions by around $2,789 (or 101%) for some large licensed clubs; $10,777 (or 239%) for some large industrial firms with high strength trade waste; and around $7,790 (or 890%) for some shopping centres with high strength trade waste. Bill increases for these categories of customers are largely driven by:

- For some 'moderate' customers, eg, the 'shopping centre with high strength trade waste' – the application of the new BOD/TSS charges based on the actual strength of discharges, where previously only administration charges were levied.
- For some 'major' customers, eg, 'large industrial firm with high strength trade waste' – the reduction of the high strength threshold for BOD from 350mg/L to 240mg/L, and, in the particular case depicted in the table below, the increase in price per kg of BOD for its catchment, due to higher treatment costs. We note that other 'major' customers may not be impacted to the same degree if prices for their catchment remain more stable.

We consider Hunter Water's proposed charges are more cost-reflective – so that the prices trade water customers' pay more closely reflect the costs they impose on the system.

We seek stakeholder views on these draft prices.

IPART seeks comments on the following:

6 What strategies could Hunter Water adopt to mitigate bill shocks for some trade waste customers?

7 Should any trade waste price increases be transitioned to avoid negative effects?

Table 11.2 Indicative bill impacts from changes in trade waste prices – various customer groups ($nominal)

Customer type	Expected total water and wastewater bill, 2019-20	Annual trade waste charge		
		2019-20	2020-21	Increase
Service stations, medium licensed hotels, small industrial firms, large office.	Varies 1,190 to 20,930	120	124	3%
Fast food outlet	3,566	876	997	14%
Shopping centre with low strength trade waste	24,453	876	1,116	27%
Regional shopping centres	349,720	27,556	36,859	34%
Large licensed clubs	55,383	2,748	5,537	101%
Large industrial firm with high strength trade waste (13,000 kL usage)	48,456	4,514	15,291	239%
Shopping centres with high strength trade waste	33,729	876	8,666	890%

[a] Hunter Water analysed two configurations of 'Large industrial firms with high strength trade waste'. The one presented here has the higher impact.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, pp 53-71.

11.2 Miscellaneous and ancillary charges

Miscellaneous and ancillary charges are levied on customers on a fee for service basis. These are generally one-off activities, such as connections, inspections, and testing.

Miscellaneous charges fall into two broad categories:

- Development fees, for the administrative processes for new developments (eg, a stormwater channel connection)
- Customer service fees related to individual properties (eg, a conveyancing certificate).

Hunter Water calculates these charges in accordance with our miscellaneous charges methodology, which requires that the charges recover:[208]

- Direct labour costs (hourly), including on-costs
- Business unit overheads
- Material costs, where incurred.

There are currently 55 miscellaneous and ancillary charges[209] contributing less than 1% of Hunter Water's total revenue.[210] Under Hunter Water's proposed changes, revenue from its miscellaneous and ancillary service charges would continue to comprise less than 1% of its total revenue.

208 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 23.
209 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 24.
210 Hunter Water, Miscellaneous and Ancillary model; and IPART analysis.

Our draft decisions are:

48 To adopt Hunter Water's proposed miscellaneous and ancillary charges as presented in Appendix R, and for these charges to be indexed annually in line with changes in the CPI.

49 To defer setting maximum prices for the "Reservoir construction inspection and WAE fee', which Hunter Water will charge by quote.

50 To deduct the miscellaneous and ancillary services revenue as set out in Table 11.3 from the notional revenue requirement, for the purpose of setting other water and wastewater prices.

11.2.1 Reasons for our decision

We have decided to accept Hunter Water's proposed changes to its miscellaneous and ancillary charges as we consider they are reasonable. In the lead up to the 2020 determination period, Hunter Water undertook a comprehensive review of its miscellaneous and ancillary charges; in particular, its business processes and labour inputs, with a view to aligning costs with service delivery. It stated that it examined all processes and recalculated the cost-basis for all charges. Its review involved assessing whether:[211]

- Existing charges are still required based on current service practices and the materiality of revenue received from the charge
- Existing charges can be restructured for simplification and administrative efficiency
- New charges could be introduced to recover the costs of miscellaneous services that it provides
- Existing charges reflect the cost of service delivery.

Hunter Water commented that the review process demonstrated it has achieved significant efficiencies during the current price period, allowing it to propose lower charges for most miscellaneous and ancillary services.[212] Hunter Water's proposed changes would also reduce the overall number of miscellaneous and ancillary charges from 55 to 45.[213]

In our 2016 Final Report for Hunter Water, we flagged that there were disparities between Hunter Water's and Sydney Water's miscellaneous and ancillary charges. We proposed a targeted review of these charges as part of the next price review (ie, the 2020 review). However, we noted that the review would be conducted in a manner proportionate to the size of revenue from miscellaneous and ancillary services. [214] We did not engage a consultant for this pricing review, given Hunter Water's own comprehensive review and its efficiency improvements.

We have deferred setting prices for the reservoir construction inspection and WAE fee

We deferred setting a price for one miscellaneous service – ie, 'reservoir construction inspection and work-as-executed (WAE)'. We have insufficient information at this time to fix

211 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 23.
212 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 24.
213 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 24.
214 IPART, *Review of prices for Hunter Water Corporation, from 1 July 2016 to 30 June 2020*, Draft Report, p 136.

a maximum price for this service, in part because Hunter Water provides these services infrequently and the costs vary on a job-by job basis.[215]

11.2.2 Miscellaneous and ancillary charges revenue

Our draft decision is to accept Hunter Water's forecast annual revenue from miscellaneous and ancillary charges, excluding revenue from the standpipe bond charge, as presented in Table 11.3.

Under our draft decision, the miscellaneous and ancillary charges revenue would comprise around 0.7% of Hunter Water's NRR for the 2020 determination period.

The average annual revenue forecast for miscellaneous and ancillary services for the 2020 determination period is $2.3 million ($2019-20), which is less than the average annual revenue from these services of $3.1 million ($2019-20) during the previous 2016 determination period.[216]

Table 11.3 Annual revenue forecast for miscellaneous and ancillary services proposed and draft ($2019-20)

	2020-21	2021-22	2022-23	2023-24	Total
Hunter Water proposed	2.3	2.4	2.4	2.4	**9.4**
IPART draft decision	2.3	2.3	2.3	2.3	**9.2**

Note: In our draft decision we have deducted the revenue from the standpipe bond charge of about $51,000 per annum as typically these bonds are returned to customers and not counted as revenue per se. This accounts for the difference between Hunter Water's proposed miscellaneous and ancillary services revenue and IPART's draft decision.

Source: Hunter Water, Miscellaneous and Ancillary model and IPART analysis.

11.3 Dishonoured and declined payment fees - section 12A review

Dishonoured and declined payment fees are not fees for the provision of a monopoly service. We are not able to determine these fees under section 11 of the IPART Act (unlike all other prices in this Draft Report) as section 11 only enables us to determine maximum prices for 'government monopoly services'.

However, we received a referral from the NSW Premier on 7 December 2015 under section 12A of the IPART Act to review Hunter Water's dishonoured and declined payment fees. A copy of the referral and the terms of reference for this review are provided in Appendix S.

Hunter Water uses a single fee for all dishonoured or declined payments (also referred to as irregular and dishonoured payments). This includes:

- Irregular or dishonoured cheques
- Credit card payment declines

215 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 90.
216 We deduct the miscellaneous and ancillary services revenue from the notional revenue requirement.

- Direct debit payment declines.

Hunter Water proposes to reduce this dishonoured and declined payment fee, commencing 1 July 2020, from $30.15 to $27.85 ($2019-20),[217] a decrease of $2.30 or 7.6%.

Hunter Water has indicated that this change reflects savings in the labour cost component of the fee[218], while the third-party fees (eg, the fees imposed by banks and Australia Post) remain the same.

Our draft decision for the section 12A review is:

51 To specify a maximum dishonoured and declined payment fee of $27.85 ($2019-20) to apply from 1 July 2020, annually adjusted for inflation as presented in Table 11.4.

11.3.1 Reasons for our decision

Hunter Water's proposed fee of $27.85 (Table 11.4) is composed of an administrative fee (labour cost) and a third-party fee[219]:

- The administrative labour cost component is based on the time taken to handle a dishonoured or declined payment
- The third-party fee is imposed by the service provider (ie, $2.56 for a direct debit dishonour fee, a $10.00 bank fee for a dishonoured cheque and $29.60 for an Australia Post dishonour fee). In 2016, Hunter Water decided to use the lowest fee, ie, $2.56 for all transaction types. It proposes to continue this approach.

Table 11.4 Draft maximum dishonoured and declined payment fee

Cost component	$2019-20
Hunter Water administrative labour costs	25.28
Third party contractor costs	2.56
Proposed fee	**27.85**

Source: Hunter Water, *Pricing Proposal to IPART*, 1 July 2019, *Technical Paper 9*, p 98.

We received a submission on dishonoured and declined fees from PIAC supporting the reduction in fees. However, PIAC questioned if the fee is warranted at all and whether the fee component derived from Hunter Water's administrative costs is already included in customers' bills as part of general operating costs.[220]

At the Public Hearing, Hunter Water explained that already it does not pass on the higher third party charges to customers. It also pointed to its hardship policy, whereby customers in financial hardship are able to have their fee waived or use a payment plan on application.[221]

217 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 98.
218 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 98.
219 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 9, 1 July 2019, p 98.
220 Public Interest Advocacy Centre, Submission to IPART's Issues Paper – *Review of prices for Hunter Water Corporation from 1 July 2020*, p 7.
221 Transcript of Public Hearing, 19 November 2019, *Review of prices for Hunter Water to apply from 1 July 2020*, p 63.

In response to PIAC, we note that utilities are required to recover labour, business unit overheads and materials costs as part of the methodology for setting miscellaneous and ancillary charges (see section 11.2). As well, the miscellaneous and ancillary charges revenue (which includes dishonoured and declined payment fees revenue) is deducted from the NRR before we set prices for water, wastewater and stormwater.

11.3.2 Dishonoured and declined payment fees revenue

Hunter Water's forecast assumes a two per cent increase per year for the quantity and revenue of dishonoured and declined payment fees based on the trend of historical volumes. The forecast quantity and revenue for dishonoured and declined payment fees is presented in Table 11.5.

We have accepted Hunter Water's forecast dishonoured and declined payment fee revenue which is incorporated in the overall miscellaneous and ancillary charges revenue.

Table 11.5 Forecast quantity and revenue for dishonoured and declined payment fees ($2019-20)

Annual forecast	2020-21	2021-22	2022-23	2023-24	Total
Quantity	946	965	984	1,004	**3,899**
Revenue	$26,346	$26,875	$27,404	$27,961	**$108,587**

Note: Forecast revenue from dishonoured and declined payment fees is included in the total miscellaneous and ancillary charges revenue as presented in Table 11.3.

Source: Hunter Water, Miscellaneous and Ancillary model and IPART analysis.

11.4 Raw water (unfiltered water) charges

Hunter Water delivers water to around 70 customers located along the Chichester Trunk Gravity Main (CTGM), which transfers bulk water from Chichester Dam to Dungog water treatment plant (WTP). These residential, rural and non-residential customers have long-standing arrangements with Hunter Water to draw water from the CTGM.[222]

The water used by these customers is not treated and, although intermittently chlorinated[223], is not considered safe for drinking without additional measures being taken by customers.[224]

We introduced usage charges per kilolitre for "unfiltered water" in 2000 for customers extracting water from the CTGM. In its pricing proposal, Hunter Water argued that the service delivered to these customers is a raw water service, rather than unfiltered. It stated that:

> Hunter Water chlorinates the CTGM water at Chichester Dam, but we cannot rely on this barrier alone without other processes, including filtration, to provide sufficient disinfection to make the water

222 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 8, 1 July 2019, p 20.
223 The primary purpose of the chlorine dosing at the dam is to oxidise iron and manganese into colloidal particles so that they can be removed at Dungog WTP. (The length of the CTGM pipeline between the dam and WTP provide sufficient oxidation time).
224 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 8, 1 July 2019, p 21.

safe for human consumption. The water can vary markedly in quality, particularly turbidity levels, after heavy rain and runoff into Chichester Dam.[225]

We agree with Hunter Water that the water extracted directly from the CTGM by customers is more appropriately classified as raw water. Unfiltered water would, at a minimum, more typically be systemically chlorinated as a primary disinfection barrier. The chlorination undertaken at Chichester Dam is not dosed to target drinking water standards; but rather to assist in treatment at Dungog WTP.

Hunter Water is working with raw water customers on the CTGM to minimise the risks associated with raw water use.

Our draft decision is:

52 To set the raw water charges on a cost-plus basis as set out in Table 11.6.

Table 11.6 Draft decision on raw water charges ($/kL, $2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24
Raw water charge	2.17	0.38	0.38	0.38	0.38

Source: IPART analysis.

11.4.1 Reasons for our decision

We have used a cost-plus approach to set the draft raw water price

In 2016, we set the unfiltered water price using a top down or "retail-minus" approach. As the water is not filtered, we subtracted Hunter Water's average treatment costs per kilolitre from the standard water usage charge for fully treated water.

In its pricing proposal, Hunter Water proposed the price be based on a bottom up or "cost-plus" approach. This involves using the building block approach to calculate Hunter Water's total bulk (or raw) water costs, and dividing this by Hunter Water's total consumption. This generates Hunter Water's cost per kilolitre of collecting and storing raw water.[226]

We agree with Hunter Water on using a cost-plus approach. In making our draft decision, we consider that the cost-plus approach better reflects the costs incurred by Hunter Water in delivering raw water to these customers. While it excluded treatment costs, our previous retail-minus approach included significant operating and capital costs associated with Hunter Water's distribution system – which raw (or previously unfiltered) water customers did not use.

However, in deriving the average cost per kilolitre we have used Hunter Water's total water *production* rather than its total water *consumption.* This means that these customers do not pay for water losses, most of which is leakage from Hunter Water's distribution system not used by these customers.

225 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 8, 1 July 2019, p 21.
226 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 8, 1 July 2019, p 21.

Our draft decision on the raw water usage price is $0.38 per kilolitre. This is $0.15 (or 28%) lower than Hunter Water's proposed price of $0.53 per kilolitre.[227]

11.5 Unmetered properties

Some residential and non-residential properties serviced by Hunter Water do not have water meters.[228] These customers do not pay an explicit water usage charge. Rather, they are deemed a usage component that is added to their fixed water service charge. Hunter Water has advised it has around 33 unmetered properties, with roughly half being residential properties and half being small commercial properties.[229]

We set an unmetered service charge for these properties as there is no meter to record usage. Hunter Water is working to reduce the size of this customer group, where possible, by either metering the property or confirming if there has been a disconnection.[230]

Currently, Hunter Water charges these customers a service charge that implicitly includes two components:

- A water service charge equivalent to a 20 mm meter residential service charge
- 180 kL of deemed water usage per year (ie, 180 kL multiplied by the water usage price).

Based on this approach, Hunter Water has proposed an unmetered property water charge ($2019-20) in 2020-21 of $534, which excludes wastewater and stormwater charges.[231]

There are also other circumstances where properties are unmetered. Hunter Water's customer contract (s15.3.3) provides that:

> If a meter is stopped or damaged, an estimated usage will be calculated on a basis that is representative of your usage pattern.

Our draft decision is:

53 To set the unmetered property charge as:

a A water service charge equivalent to the stand-alone 20mm meter charge, and

b A deemed water usage component based on 180 kL of deemed water usage per year (as set out in Table 11.7).

Table 11.7 Draft decision on the unmetered water charge ($2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24
Unmetered property charge	527.00	448.55	465.44	480.95	498.93

Source: https://hunterwater.com.au/Resources/Documents/Fact-Sheets/Customer-Charges/Customer_Charges_Jun19.PDF; and IPART analysis.

227 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 8, 1 July 2019, p 23.
228 Unmetered are properties where Hunter Water is unable to locate the meter or has not been able to install water meters due to access problems at the connection points.
229 Correspondence with Hunter Water (email), 3 December 2019.
230 Correspondence with Hunter Water (email), 3 December 2019.
231 Hunter Water, *Pricing Proposal to IPART*, Technical Paper 8, 1 July 2019, p 24.

Our draft decision is:

54 Set an approach to calculate charges for temporarily unmetered properties based on a property's average daily consumption from the corresponding billing period in the most recent year that data is available.

11.5.1 Reasons for our decision

Unmetered properties can still use water, even without a meter. In 2013 IPART set a deemed water usage amount of 180 kL of water usage per year in addition to a water service charge component. This pricing method was maintained in 2016, and we still consider this is appropriate for the 2020 Determination.

In some cases, a property may be temporarily unmetered. This may arise as a result of redevelopment or the meter may be temporarily unable to be read by Hunter Water. Hunter Water has informed us that to estimate usage when a meter is temporarily unavailable, it uses the daily average usage for that property from the corresponding billing period in the previous year, or the last year for which data is available. It applies the daily average to the number of days the meter is unavailable.

We consider that this is a reasonable approach with the benefit that it is seasonally adjusted.

We note that Hunter Water intends to move from a 4-monthly billing cycle to a 3-monthly billing cycle in 2021. This may add complexity to the calculation. However, we will provide Hunter Water with the discretion to manage this change.

12 Impacts of draft prices

This chapter outlines the impacts of our pricing decisions on Hunter Water's customers and Hunter Water. We consider the impacts of these decisions on the affordability of water, wastewater and stormwater services for various residential customer groups, including pensioners. For non-residential customers, we have examined a sample of customer types and sizes. We have assessed the impact of our trade waste draft prices in Chapter 11.

This chapter also discusses the implications of our pricing decisions on other matters we must consider under section 15 of the IPART Act (see Appendix A). These include:

- Hunter Water's financial viability and shareholders
- General inflation
- Hunter Water's service standards
- The environment.

We are satisfied that the 2020 Draft Determination achieves an appropriate balance between these matters.

This chapter presents our findings on bill impacts in terms of nominal dollar impacts – **that is, bill impacts including the impact of forecast inflation**.[232]

Further detail on the impacts of our draft prices can be found in Appendix T.

12.1 Impacts on Hunter Water's customers

A Hunter Water customer bill generally comprises:

- Fixed charges for water and wastewater, and
- Usage charges for water and wastewater (the wastewater usage charge is only applicable to non-residential customers).

In addition, about 30% of customers pay a stormwater drainage charge – a fixed charge paid by customers if they are located in one of Hunter Water's stormwater drainage areas.

Under our draft prices, changes in customer bills (compared to current bills) would not be uniform as we have increased the water usage price (so bill impacts would vary with the level of usage). In addition, the wastewater service charge is increasing for apartments as prices transition to alignment between houses and apartments. The water service charge, the wastewater service charge for houses, and stormwater service charge are all decreasing.

Bills for residential and non-residential customers also decrease as we have removed the Environmental Improvement Charge that was paid by wastewater customers (other than pensioners) and the Clarence Town Levy, as they have expired.

232 We use an inflation assumption of 2.5% per year over the 2020 determination period.

We have also phased out location-based water usage charge discounts for large water customers consuming more than 50,000 kL of water commencing in 2021-22, so that all customers would face the same usage price in 2024-25 (ie, the first year of the next determination period).

For residential customers, we have included the costs of discretionary projects in bill impacts, which accounts for about 0.1% to 0.3% of their bills.

Under our draft prices:

- Bills for **typical residential customers** in houses and apartments decrease in 2020-21 and then increase in line with, or at a slightly higher rate than, the inflation rate in the following three years.
- Bills for **pensioners** in houses and apartments decrease in 2020-21 and then increase in line with, or at a slightly higher rate than, the inflation rate in the following three years.
- Bills for **most non-residential customers** decrease for water and wastewater services in 2020-21 and then increase in line with, or at a slightly higher rate than, the inflation rate in the following two years.
- Residential and non-residential customers would experience stormwater bill decreases over the determination period.

We have assessed the impact of our draft prices on Hunter Water customers and consider the impact reasonable. In reaching our pricing decisions we have considered the impacts of these prices for residential customers by usage level, household size and income, and for a sample of non-residential customers.

12.1.1 Draft prices lead to residential bills lower than Hunter Water proposed

Residential customers incur slightly different bills if they are houses or apartments.

As shown in Table 12.1 (and in Appendix T), compared to current bills, residential bills would be lower for many customers for the first year of the 2020 Determination, and then change by 2.6% to 5.1% per year, with increases due to an increasing usage price and inflation.

The prices are also lower than Hunter Water proposed, with the decrease mainly due to a lower WACC now compared to when Hunter Water submitted its pricing proposal.

Further detail is provided in Appendix T.

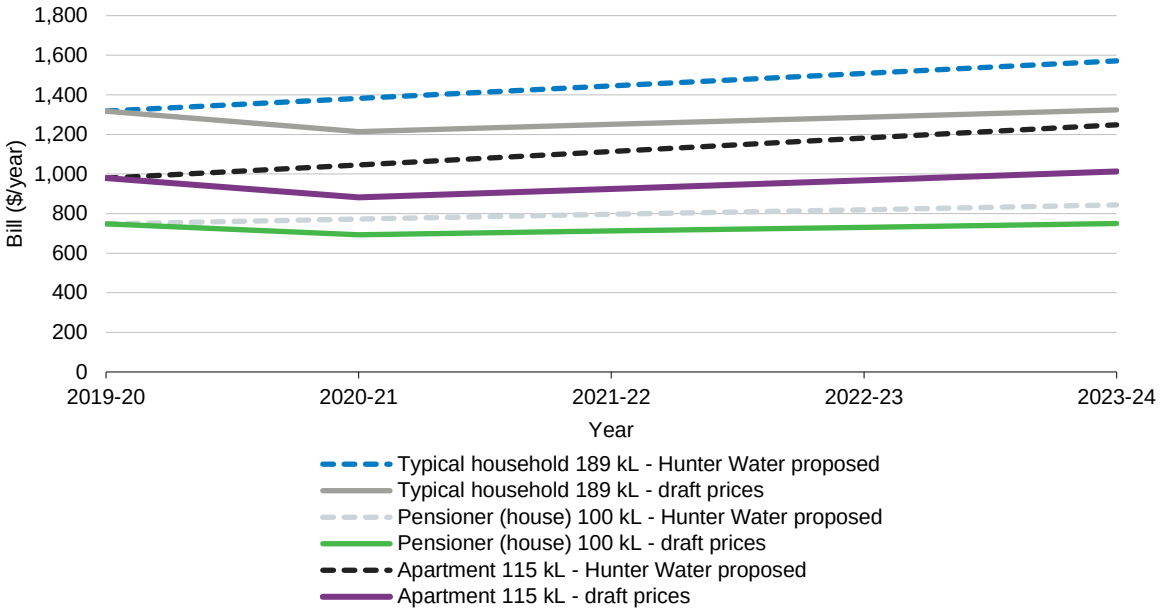
Table 12.1 Indicative bills for a typical house, apartment and pensioner under our draft prices ($nominal – ie, including inflation)

Customer (usage)	2019-20 (Current)	2020-21	2021-22	2022-23	2023-24	% change between 2019-20 and 2023-24
House (189 kL)	1,318	1,214	1,251	1,286	1,324	
Annual change	-	*-7.9%*	*3.0%*	*2.8%*	*3.0%*	*0.5%*
Apartment (115 kL)	979	882	925	968	1,013	
Annual change	-	*-9.9%*	*4.8%*	*4.6%*	*4.7%*	*3.5%*
Pensioner (100 kL)	748	693	712	731	750	
Annual change	-	*-7.4%*	*2.7%*	*2.6%*	*2.7%*	*0.3%*

Note: Includes stormwater charges and discretionary expenditure charges.

Source: IPART analysis.

Figure 12.1 Indicative bills for a typical house, apartment and pensioner ($nominal – ie, including inflation)



Note: Includes stormwater charges (except for pensioner) and discretionary expenditure charges.

Data source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 46, and IPART analysis.

Box 12.1 What is included on a residential customer's bill?

A residential customer's bill generally includes a:

- Water charge comprised of a usage charge ($/kL) and an annual service charge ($/year)
- Wastewater service charge comprised of a usage charge based on a deemed usage allowance ($/year) and an annual service charge ($/year)
- Stormwater drainage charge which is an annual service charge ($/year) for stormwater services for properties located within a stormwater drainage Area (ie, not all customers).

Previously, bills have also included the Environmental Improvement Charge (for wastewater customers other than pensioners) and the Clarence Town Levy.

As the water usage charge component of a customer's bill relates directly to the amount of water used by a household, customers can, to a degree, minimise their bills by using less water. However, a large portion of a customer's bill is fixed given wastewater charges and stormwater charges are fixed (based on fixed costs).

Under our draft decisions, from 2020-21, a residential customer's bill will also include a ($/year) charge to allow Hunter Water to recover the costs of discretionary projects.

Bills for small households fall but rise for large households, apartments and pensioners

Smaller households tend to use less water, so given that a component of the bill is based on a variable (per kL) water usage charge, larger households (which tend to use more water in total) tend to have larger bills than smaller households. Under our draft prices, the per kL water charge increases for all residential customers, as does the wastewater service charge for apartments. At the same time, the water service charge, wastewater service charge for houses and stormwater service charge all decrease.[233]

The change in annual residential bills from 2019-20 to 2023-24 is a decrease of around 3% for a typical small household (by $31) compared to about a 3% increase for a large household (by $44). For apartments this increase is around $34.

Bills for low income households fall but would typically rise for higher income households

Within Hunter Water's area of operations our 2015 household survey data indicates that (on average) lower income households use less water and so may have lower bills than higher income households.[234] Under our draft prices, the annual residential bill for a low income household (including stormwater) using 134kL of water per year[235] would reduce by about $15 (from 2019-20 to 2023-24). Over the same period, the bill for a high income household using 215kL of water per year[236] would increase by about $16.

233 We have also removed the Environmental Improvement Charge and Clarence Town Levy.
234 We note that this does not account for the fact that low income households tend to have fewer occupants.
235 IPART, *Residential water usage in Sydney, Hunter and Gosford – Results for the 2015 household survey*, September 2016, p 7.
236 IPART, *Residential water usage in Sydney, Hunter and Gosford – Results for the 2015 household survey*, September 2016, p 7.

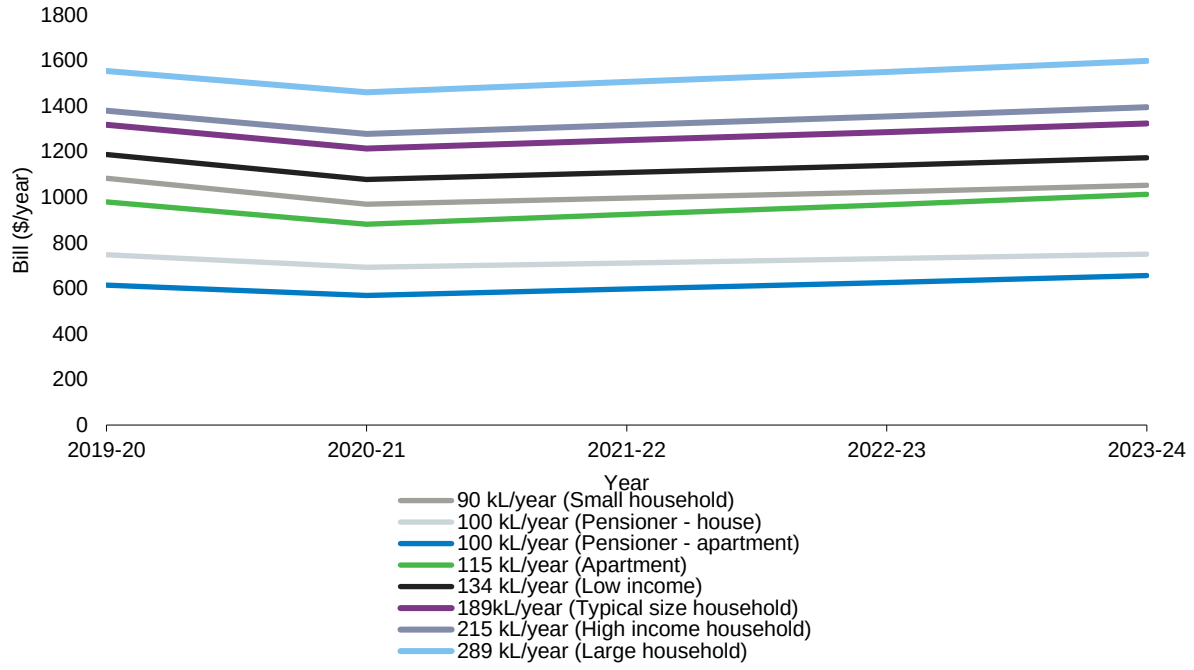
Affordability is a concern for many Hunter Water stakeholders

Stakeholder responses to our Issues Paper raised affordability as a key issue in the context of general increases in the costs of living, including other essential services; wage stagnation; pension growth and low interest rates; and limited ability to reduce bills given usage makes up a small component. Cessnock City Council also commented that its constituents are of lower socio-economic standing, whilst some submissions queried why Hunter Water's bills appear higher than in other areas of the state (eg, Sydney and Central Coast).

There are a range of different factors that may impact a customer's bill, including household size, property type (ie, house or apartment), household income and whether a pensioner rebate is received.[237]

Our 2015 household survey results indicated that the Hunter region has a higher level of low income households (35%) compared to Eastern Sydney (22%) and Western Sydney (27%), but a similar level compared to Gosford (35%). Using ABS data, we estimate that a typical Hunter Water customer's bill represented about 2.0% of household income in 2019-20, compared to 1.3% for a Sydney Water customer or 1.4% for a Central Coast Council customer. Under our draft prices, this would reduce to about 1.8% for a typical Hunter Water customer in 2020-21 (see Appendix T).

Figure 12.2 Indicative bills under draft prices by level of water usage and customer type ($nominal – ie, including inflation)



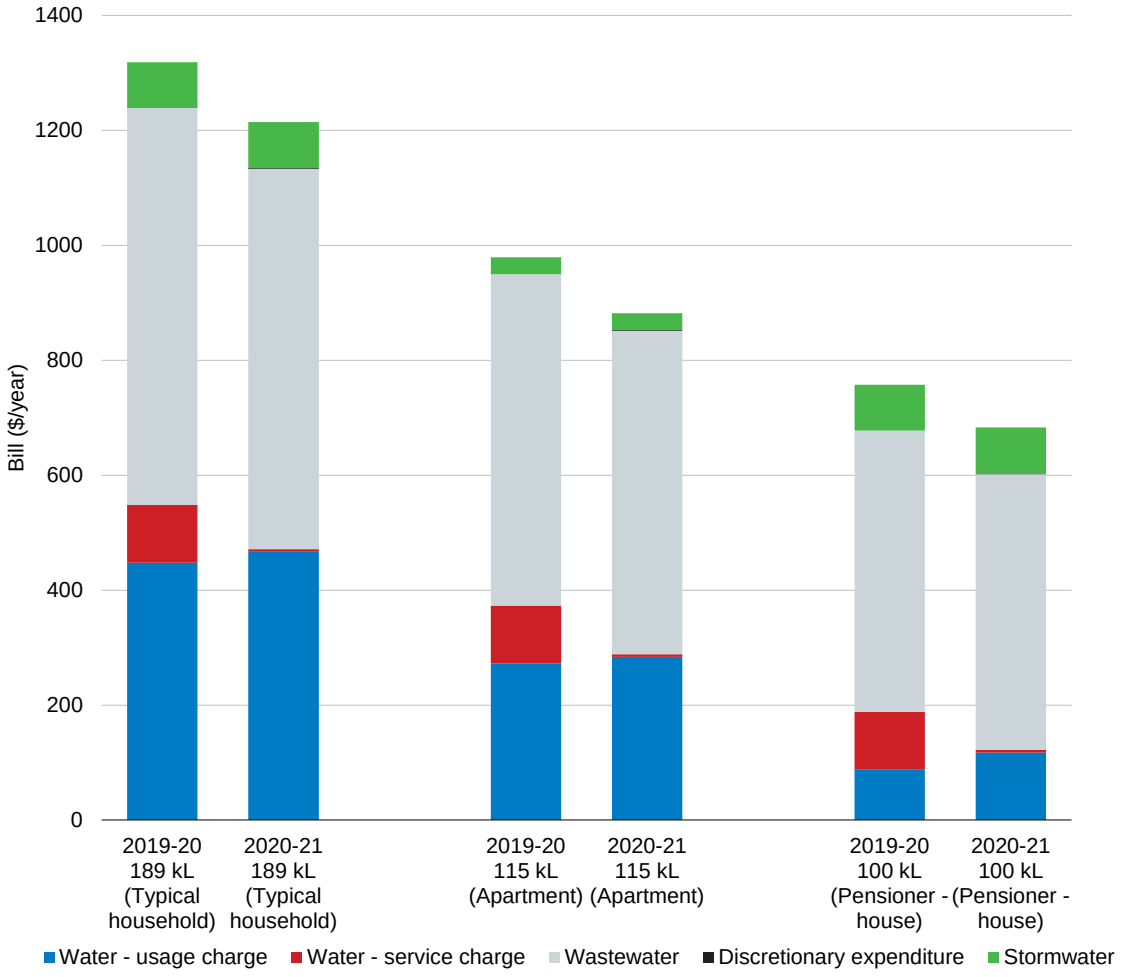
Note: Includes stormwater.

Data source: IPART analysis.

237 Hunter Water provides rebates to pensioners, and the amount is linked to movements in water and wastewater bills. In 2019-20, this rebate was about $318.

Figure 12.3 presents bill impacts by component, ie, the water usage charge, water service charge, wastewater charge and stormwater charge for typical residential customers. Under our draft prices, about 39% of a typical customer's bill (for a house) would correspond to the water usage charge, whilst the remaining 61% would correspond to the fixed water, wastewater and stormwater charges (including the charge for discretionary or customer supported programs).

Figure 12.3 Indicative bills for typical house, pensioner and apartment by component under draft prices ($nominal – ie, including inflation)



Data source: IPART analysis.

12.1.2 Bill impacts for non-residential customers are mixed

Non-residential customers' bills depend on their meter configuration and discharge factors, as well as their water and wastewater usage, which can vary significantly depending on the size and nature of the customer.

Our draft prices result in average annual nominal bill changes between 2019-20 and 2023-24 ranging from -2% to 6% (see Appendix T, Table T.10). In comparison, Hunter Water's proposed prices, on average, would result in an annual nominal increase of between 3% and

7% for non-residential customers. Our draft prices are lower than Hunter Water's proposed prices mainly as a result of a lower WACC now compared to when Hunter Water submitted its pricing proposal.

We present the annual bill impacts (in nominal terms) for a sample of non-residential customers in Appendix T.

12.2 Impacts on Hunter Water's financial sustainability

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 price decisions are likely to affect the business's financial sustainability and ability to raise funds to manage its activities, over the upcoming regulatory period.

To assess financeability, we look at three indicators in both a benchmark and an actual test:

- Interest coverage ratio
- Funds from operations (FFO) over debt
- Gearing.

In 2018, we reviewed the financeability test we use as part of our price regulation process. In this review, we decided to:

- Broaden the test by calculating financeability tests for both the benchmark and actual business
- Adjust the target ratios we use to assess financeability
- Clarify the process to identify any financeability concerns, and
- Tailor the remedy for a financeability concern based on its source.[238]

To assess Hunter Water's financeability over the 2020 determination period, we analysed its forecast financial performance, financial position and cash flows for both the benchmark and actual business. We then forecast financial ratios for both tests and assessed Hunter Water's financial ratios compared to our target ratios. Our target ratios and the results of these tests are presented below.

Table 12.2 Target ratios for the benchmark and actual test

	Benchmark test (real cost of debt)	Actual test (actual cost of debt)
Interest cover	>2.2x	>1.8x
FFO over debt	>7.0%	>6.0%
Gearing	<70%	<70%

Source: IPART, *Review of our financeability test – Final Report*, November 2018, p 3.

The results of the financeability test for Hunter Water based on its proposed prices are presented in Table 12.3.

238 IPART, *Review of our financeability test – Final Report*, November 2018, p 1.

We have calculated the indicators based on our draft NRR and draft prices, using a WACC estimate of 3.2%. These are shown in Table 12.4.

Table 12.3 Financeability test results based on Hunter Water's proposed prices

	2020-21	2022-23	2022-23	2023-24
Interest cover				
Benchmark test	3.2	3.3	3.3	3.5
- Does it meet the target?	✓	✓	✓	✓
Actual test	2.2	2.2	2.2	2.2
- Does it meet the target?	✓	✓	✓	✓
FFO over debt				
Benchmark test	6.7%	7.0%	7.2%	7.6%
- Does it meet the target?	×	✓	✓	✓
Actual test	5.9%	6.1%	6.3%	6.6%
- Does it meet the target?	×	✓	✓	✓
Gearing				
Benchmark test	60%	60%	60%	60%
- Does it meet the target?	✓	✓	✓	✓
Actual test	54%	54%	54%	54%
- Does it meet the target?	✓	✓	✓	✓

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 36.

Table 12.4 Financeability test results based on our draft prices

	2020-21	2022-23	2022-23	2023-24
Interest cover				
Benchmark test	4.4	4.2	4.2	4.3
- Does it meet the target?	✓	✓	✓	✓
Actual test	2.0	1.9	1.9	1.9
- Does it meet the target?	✓	✓	✓	✓
FFO over debt				
Benchmark test	6.8%	6.4%	6.4%	6.7%
- Does it meet the target?	×	×	×	×
Actual test	5.0%	4.7%	4.8%	5.0%
- Does it meet the target?	×	×	×	×
Gearing				
Benchmark test	60%	60%	60%	60%
- Does it meet the target?	✓	✓	✓	✓
Actual test	51%	52%	52%	51%
- Does it meet the target?	✓	✓	✓	✓

Source: IPART analysis.

Under our draft prices, Hunter Water meets two of the three target ratios (interest cover and gearing), but does not achieve the target funds from operations (FFO) over debt over the 2020 determination period.

The Real FFO over debt is forecast to slightly underperform against the benchmark target during the regulatory period. However, we do not consider this constitutes a financeability concern.

The financeability metric FFO over debt is designed to test whether a firm generates sufficient free cash flow to repay its debt over the economic life of its assets. For a regulated firm, FFO represents the sum of the depreciation allowance and the after-tax return on equity. Thus it can be influenced by changes to the regulatory asset lives and the permitted return on equity.

Since February 2018, the permitted return on equity for a water business has reduced from 5.95% to 4.95% in real post-tax terms.[239] This change has reduced the real FFO over net debt ratio by approximately 0.67% between 2018 and 2020.[240]

We did not update our financeability target ratios to reflect this change because our targets are general financial market standards and were the subject of consultation during our financeability review. The target ratios make standard underlying assumptions on asset lives and return on equity. Clearly some of those assumptions do not strictly apply to the present water utility price reviews. However, we see value in retaining the standard targets because they are widely used in financial markets and by ratings agencies. When we next review our financeability test we may consider this issue in more detail.

Our building block method of establishing prices ensures that Hunter Water will be able to finance and repay its debt while providing its owners with a market return on equity. The building block method accounts for all cashflows in a more precise and detailed way than the FFO over net debt ratio test does. Therefore, we consider that the FFO over net debt metric does not indicate a problem with Hunter Water's financial sustainability at our draft prices.

Implications for the consolidated fund

Under section 16 of the IPART Act, IPART is required to report on the likely impact to the Consolidated Fund if prices are not increased to the maximum levels permitted. If this is the case, then the level of tax equivalent and dividends paid to the Consolidated Fund would fall. The extent of this fall would depend on Treasury's application of its financial distribution policy and how the change affects after-tax profit.

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239 See, for 2018:
https://www.ipart.nsw.gov.au/Home/Industries/Special-Reviews/Regulatory-policy/WACC/Market-Update/Spreadsheet-WACC-Model-February-2018
and, for 2020:
https://www.ipart.nsw.gov.au/Home/Industries/Special-Reviews/Regulatory-policy/WACC/Market-Update/Spreadsheet-Model-WACC-model-February-2020
On the tab "WACC Calculator", set cell C14 to "Water". The current real-post tax cost of equity is in cell C82 and the long term average post-tax cost of equity is in cell D82. The average of these two values for 2018 was 5.95%. For 2020, with the transition to trailing average enabled (cell C41 set to "Yes"), the average of these two values was 4.95%.

240 This finding is based on 60% gearing and an assumption of unchanged asset lives between February 2018 and February 2020.

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.

12.3 Implication for general inflation

Under section 15 of the IPART Act, we are required to consider the effect of our determinations on general price inflation. The Australian Bureau of Statistics (ABS) does not collect data on Hunter Water's water and wastewater prices. The national consumer price index (CPI) is based only on capital city prices, hence the change in Hunter Water's prices are unlikely to have a measurable effect on the national CPI.

However, within its area of operations, we expect that changes in Hunter Water's prices would have a similar effect on inflation as that of changes to Sydney Water's prices in Sydney.

Currently, water and wastewater costs in Sydney contribute 0.7% towards Sydney's consumer price index (All groups, Sydney).[241] Assuming a similar contribution in the Lower Hunter region, the average annual decrease in cost of about 0.2% for the typical household would not have a material impact on inflation.[242]

12.4 Implications for Hunter Water's service standards

Under our Draft Determination, we expect Hunter Water to achieve both operating and capital efficiency savings. We are satisfied that Hunter Water can achieve these savings, and thus generate sufficient revenue to achieve service standards at or above those expected by customers and required under its operating licence.

Hunter Water is licensed under the *Hunter Water Act 1991* (NSW). The Act requires Hunter Water to hold an operating licence that is issued by the Minister and reviewed annually by IPART. This licence contains a number of standards that Hunter Water must meet, or risk facing penalties associated with a breach of licence conditions. Hunter Water's pricing proposal identified the expenditure required for it to meet its regulatory obligations, including under both its operating and environmental licences.[243] The operating licence also includes performance indicators against which Hunter Water's performance is reviewed as part of the annual audit of its compliance with the licence. During 2016-17, IPART reviewed Hunter Water's operating licence. The new licence commenced on 1 July 2017, and applies to 30 June 2022.

In its review of Hunter Water's operating and capital expenditure for the 2020 Determination, Aither noted that Hunter Water's asset performance generally met required service standards during the 2016 determination period.[244]

241 Australian Bureau of Statistics, *Information Paper: Introduction of the Consumer Price Index Weight Update, 2019 (cat. no.6470.0.55.002)*.

242 The average annual decrease in bills of 0.2% for the typical household would contribute -0.0014 percentage points ($0.7\% \times -0.2\% = 0.0014\%$) to inflation.

243 Hunter Water, *Pricing Proposal to IPART, Technical Paper 4*, 1 July 2019, p 5.

244 Aither, *Hunter Water expenditure review*, 14 December 2019, p 48.

12.5 Implications for the environment

Hunter Water's environmental impacts are regulated by relevant Commonwealth, NSW and local environmental legislation, regulation and regulatory bodies.

For example, DPIE Water regulates Hunter Water's extraction of water from the natural environment, and the Environment Protection Authority (EPA) regulates Hunter Water's discharges from its wastewater treatment plants, recycling plants and reticulation systems.

In its review of Hunter Water's operating and capital expenditure for the 2020 Determination, Aither noted that increased concern from the EPA about the compliance of a range of assets with environmental requirements has exemplified the risks arising from insufficient past expenditure to maintain asset condition and performance. Almost half of the capital expenditure in the current period has been in response to existing mandatory standards (including environmental standards).[245]

As discussed in Chapter 5, Hunter Water has proposed expenditure for wastewater compliance improvement upgrades and renewals for the 2020 determination period, which Aither considers is efficient.[246]

Based on the advice of our consultants, we consider that our decisions on prudent and efficient capital and operating expenditure would allow Hunter Water to continue to meet environmental standards over the 2020 determination period.

245 Aither, *Hunter Water expenditure review*, 14 December 2019, pp 42-43.
246 Aither, *Hunter Water expenditure review*, 14 December 2019, pp 61-62.

Appendices

A Requirements under the IPART Act

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).

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 Environment Administration Act 1991) by appropriate pricing policies that take account of all the feasible options available to protect the environment

g) The impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets

h) The impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body

i) The need to promote competition in the supply of the services concerned

j) Considerations of demand management (including levels of demand) and least cost planning

k) The social impact of the determinations and recommendations

l) Standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

Table A.1 outlines the sections of the report that address each matter.

Table A.1 Consideration of section 15(1) matters by IPART

Section 15(1)	Report reference
a) Cost of providing the services	Chapter 6 sets out Hunter Water's total efficient costs to deliver its regulated services over the determination period. Further detail is provided in Chapters 4 and 5, and appendices E, F, G and H on efficient historical and forecast expenditure.
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 Hunter Water requires to deliver its regulated services and meet mandated requirements. This is addressed throughout the report, particularly in Chapters 4 and 5 (where we establish the efficient historical and forecast expenditure) and Chapters 8, 9, 10, and 11 (where we set out our pricing decisions).
c) Appropriate rate of return and dividends	Chapter 6 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. Appendix I provides full details.
d) Effect on general price inflation	Chapter 12 outlines our estimate that the impact of our prices on general inflation is negligible.
e) Need for greater efficiency in the supply of services	Chapters 4 and 5 set out our decisions on Hunter Water's efficient historical and forecast expenditure. These decisions would promote greater efficiency in the supply of Hunter Water's regulated services.
f) Ecologically sustainable development	Chapters 4 and 5 set out 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 6 and 12 explain how we have provided Hunter Water 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 4 and 5 determine the prudent and efficient cost of construction and operational contracts that Hunter Water 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 (eg, we have included a tax allowance for Hunter Water as set out in Chapter 6.
j) Considerations of demand management and least cost planning	Chapters 4 and 5 outline how we have assessed Hunter Water's efficient historical and forecast expenditure required to deliver its regulated services at least cost. Chapter 8 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 Hunter Water, its customers and the NSW Government (on behalf of the broader community).
l) Standards of quality, reliability and safety	Chapters 4 and 5 detail our consideration of Hunter Water'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 under section 14A of the IPART Act

IPART is required under section 14A of the IPART Act to have regard to the following matters:

a) The government agency's economic cost of production

b) Past, current or future expenditures in relation to the government monopoly service

c) Charges for other monopoly services provided by the government agency

d) Economic parameters, such as discount rates, or movements in a general price index (such as CPI), whether past or forecast

e) A rate of return on the assets of the government agency

f) A valuation of the assets of the government agency

g) The need to maintain ecologically sustainable development (within the meaning of section 6 of the Protection of the Environment Administration Act 1991) by appropriate pricing policies that take account of all the feasible options available to protect the environment

h) The need to promote competition in the supply of the service concerned

i) Considerations of demand management (including levels of demand) and least cost planning.

Table A.2 outlines the sections of the report that address each matter.

Table A.2 Consideration of section 14A(2) matters by IPART

Section 14A(2)	Report reference
a) Government agency's economic cost of production	Chapter 6 sets out Hunter Water's total efficient costs to deliver its regulated services over the determination period. Further detail is provided in Chapters 4 and 5 on efficient historical and forecast expenditure.
b) Expenditures in relation to the government monopoly service	Chapters 4 and 5 set out our decisions on Hunter Water's efficient historical and forecast expenditure.
c) Charges for other monopoly services	Chapter 11 sets out our decisions on Hunter Water's prices for other monopoly services.
d) Economic parameters, such as discount rates, or movements in CPI	Chapter 6 and Appendix I set out how we have indexed Hunter Water's regulatory asset base to account for inflation. Chapters 8 and 11 explain how we have set prices to raise revenue that recovers efficient costs over the determination period in net present value terms.
e) Rate of return on the assets of the government agency	Chapter 6 and Appendix I outline 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.
f) Valuation of the assets	Chapter 6 and appendices G and H set out the value of Hunter Water's assets on which we consider it should earn a return on capital and an allowance for regulatory depreciation.
g) Ecologically sustainable development	Chapters 4 and 5 set out Hunter Water's efficient historical and forecast expenditure that allows it to meet all of its regulatory requirements, including its environmental obligations.
h) Need to promote competition	In determining efficient costs, we have been mindful of relevant principles such as competitive neutrality (eg, we have included a tax allowance for Hunter Water as set out in Chapter 6).
i) Considerations of demand management and least cost planning	Chapters 4 and 5 outline how we have assessed Hunter Water's efficient historical and forecast expenditure required to deliver its regulated services at least cost. Chapters 8 and 11 outline 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).

A.3 Matters under section 16 of the IPART Act

The Draft Determination which accompanies this report increases a maximum price for a government monopoly service, or determines a methodology which would or might increase such a price.

If the prices were not increased to the maximum we set, this could impact on Treasury's consolidated fund to the degree that it would result in a reduced shareholder dividend. Chapter 12 provides further information.

B How we set prices

We set the maximum prices Hunter Water can charge its customers for its monopoly services, to recover the efficient costs needed to deliver its water, wastewater and stormwater services. We also consider the structure of the prices we set and how to encourage efficient consumption and investment decisions.

The sections below briefly explain how we approach the two major elements of the review. That is:

1. Estimating Hunter Water's efficient costs and 'notional revenue requirement' (NRR) (section B.1), and
2. How the NRR is shared between customers through price structures (section B.2).

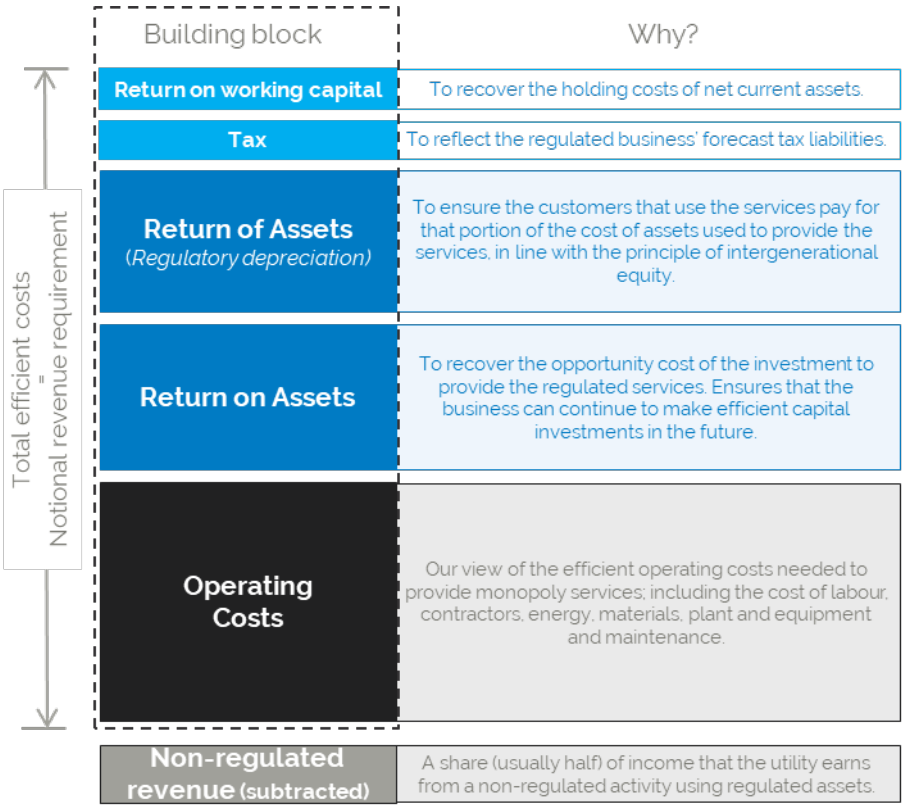
B.1 Estimating the efficient costs

Our first step in determining prices is to calculate the notional revenue requirement (NRR), which represents our view of the total efficient costs for Hunter Water to provide regulated services in each year of the determination period.

As in previous reviews, we have used a 'building block' method to calculate the NRR, which represents our view of the efficient costs for Hunter Water to deliver its regulated services. Figure B.1 provides a brief explanation of each building block allowance within the NRR. We generally set prices to recover the utility's NRR.

The sections below provide more detail on how we calculated each component of the building block, and where in the report you can find more detail regarding our assessment for this review of Hunter Water's prices.

Figure B.1 Building block approach to calculating notional revenue requirement (NRR)



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

B.1.1 Operating expenditure

The allowance for operating expenditure in the building block approach reflects our view of the efficient level of operating costs required to deliver Hunter Water's services to its customers over the determination period. These costs include the costs of labour, service contractors, energy, materials, and plant and equipment.

We engage expert consultants to assess the efficiency of the utility's proposed operating expenditure, to examine whether the expenditure represents the best and most cost effective way of delivering regulated services. Our efficiency test is presented in Box B.1, and our assessment of operating expenditure is provided in Chapter 4.

Box B.1 Our efficiency test

The efficiency test examines whether a utility's operating and capital expenditure represents the best and most cost-effective way of delivering monopoly services to customers.

Broadly, the efficiency test considers both how the investment decision is made, and how the investment is executed, having regard to, amongst other matters, the following:

- Customer needs, subject to the utility's regulatory requirements
- Customer preferences for service levels, including customers' willingness to pay
- Trade-offs between operating and capital expenditure, where relevant
- The utility's capacity to deliver planned expenditure
- The utility's expenditure planning and decision-making processes.

The efficiency test is applied to:

- Historical capital expenditure, and
- Forecast capital and operating expenditure

that is included in the utility's revenue requirement, for the purposes of setting regulated prices.

The efficiency test is based on the information available to the utility at the relevant point in time. That is:

- For forecast operating and capital expenditure, we assess whether the proposed expenditure is efficient given currently available information.
- For historical capital expenditure, we assess whether the actual expenditure was efficient based on the information available to the utility at the time it incurred the expenditure (ie, whether the utility acted prudently in the circumstances prevailing at the time it incurred the expenditure).

B.1.2 Capital allowance - Return on Assets and Regulatory depreciation

After operating expenditure, the two largest allowances in the NRR are for a **return on assets** and **regulatory depreciation**, both of which are related to Hunter Water's existing assets and capital expenditure.

The capital expenditure is also subject to the same efficiency test as operating expenditure. As explained in Box B.1, we apply our efficiency test to **actual** capital expenditure incurred over the current period (2016 determination period), and the proposed expenditure for the upcoming determination period (ie, 2020 determination period), and we only add efficient capital expenditure to the RAB.

Box B.2 explains how capital expenditure affects prices, and the return on assets and regulatory depreciation are both explained further below.

Box B.2 How capital expenditure is an input into prices

Under our building block model, we do not include the up-front capital costs in prices, but instead, we add their value to the Regulatory Asset Base (RAB) to calculate capital-related allowances to be included in the Notional Revenue Requirement (NRR) and recovered via prices:

1. **Allowance for a return on assets**. This is the RAB value multiplied by the weighted average cost of capital (WACC). We have a standard methodology to calculate the return on assets (WACC methodology) and we do not propose any changes (see Chapter 6, section 6.8, and Appendix I).
2. **Allowance for regulatory depreciation**, whereby the total cost of an asset is recovered over its life. Importantly, Hunter Water proposed changes to its asset lives – which would result in significant increases to its depreciation allowances and hence its prices (see Chapter 6, section 6.8 and Appendix G).

Return on assets

The return on assets allowance represents our assessment of the opportunity cost of the capital invested to provide the regulated services. Our approach ensures that the business can continue to make efficient capital investments in the future.

To calculate this allowance, we multiply the value of the RAB in each year of the determination period by an appropriate rate of return, which we calculate as the weighted average cost of capital (WACC). In 2018, we revised our standard methodology to calculate the WACC (available on our website), and Appendix I provides details on how we have applied it.

We note that we are in an environment of low returns on capital, which mitigates the impact of RAB increases in the 2020 determination period. However, assets paid for through capital expenditure remain in the RAB for the duration of their lives, and we also recognise that the WACC would likely increase over time, which in the future would magnify the impact of Hunter Water's proposed capital expenditure increases for the 2020 period.

Regulatory depreciation

The building block model includes an allowance for a return **of** assets (regulatory depreciation). We typically use straight line depreciation to calculate this allowance, which means that the value of the asset is returned to the utility evenly over the asset's economic life. That is, the value of an asset is divided by its assumed life in years to determine the annual allowance for depreciation for that asset.

It is important that the asset lives we use in calculating Hunter Water's depreciation allowance are accurate – ie, they reasonably reflect the consumption of its assets. If they are too short, today's customers would over-pay (ie, pay for future customers' consumption of the assets). If they are too long, today's customers would pay less but future customers may pay for assets that they don't use, and the utility may also face financeability concerns for a period of time.

In practice, we do not divide every asset's value by its specific life. Some form of aggregation is required – eg, dividing the RAB by the weighted average life of assets in the RAB, or

dividing parts of the RAB by the weighted average life of assets in each part. For this review, our draft decision it to disaggregate Hunter Water's RAB from 4 to 21 categories. This is discussed further in Chapter 6 with technical details in Appendix G.

B.1.3 Tax

We include an explicit allowance for tax, because we use a post-tax WACC to estimate the return on assets in the NRR.[247] This allowance reflects what Hunter Water's tax liabilities would be under our regulatory settings.

Our tax allowance is not intended to recover Hunter Water'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 full 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.

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 taxable income. For this purpose:

- Taxable income is the notional revenue requirement (excluding tax allowance) less operating cost allowances, tax depreciation, and interest expenses.
- We require the business to provide forecast tax depreciation, which we may adjust to reflect the Tribunal's decisions on capital expenditure and AFOC.
- Other items such as interest expenses are based on the parameters used for the WACC, and the value of the RAB and working capital.

B.1.4 Return on working capital

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 (ie, when bills are paid).

In 2018, we developed a standard approach to calculate the working capital allowance, which can be found on our website.[248] In summary, 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.

247 Hunter Water pays tax equivalents to NSW Treasury under the National Tax Equivalents Regime (NTER). The regulatory tax allowance we set is not intended to match Hunter Water's actual tax equivalent payments. It is derived using our assessment of efficient expenditure, the regulatory gearing ratio (ie, debt to equity ratio) and our decision on the WACC and cost of debt.

248 IPART, *Working Capital Allowance Policy Paper*, November 2018.

B.2 Setting prices to recover the NRR

Once we determine the utility's NRR using the building block methodology, we then generally set prices to recover the NRR.

In structuring prices, we aim to find a balance between the principle that customers should pay for the costs they create, thus sending appropriate price signals; and having a relatively simple and easy to understand framework. We generally work within a postage stamp pricing framework, consistent with Government policy.[249] A key consideration for setting prices is how to balance the share of revenue that should be recovered from fixed charges against variable (or usage) charges for water and wastewater services. We often set the usage charge with reference to the marginal cost of supply, with fixed (or service) charges set to recover the remaining revenue requirement. Chapter 8 includes more information on price structures for water, wastewater and stormwater services, and our draft prices.

Box B.3 outlines our principles in setting prices.

Box B.3 Our pricing principles

In setting maximum prices for regulated water businesses, our overarching principle is that prices should be cost-reflective. This means that:

- Prices should only recover sufficient revenue to cover the prudent historical and efficient forecast costs of delivering the monopoly services. Prices for individual services should reflect the efficient costs of delivering the specific service.
- Price structures should match cost structures, whereby:
  - Usage charges reference an appropriate estimate of marginal cost (ie, the additional cost of supplying an additional unit of water or sewerage services), and
  - Fixed service charges recover the remaining costs.
- Customers imposing similar costs on the system pay similar prices.

Through the signals they send, cost-reflective prices promote the efficient use and allocation of resources, which ultimately benefits the whole community. The sum of the fixed and usage prices customers pay reflects the total cost of the services provided. By reflecting the revenue needed to efficiently provide the services, cost-reflective prices also ensure efficient investment in water infrastructure and service provision.

Other factors we generally consider when deciding on price structures include whether prices are transparent, easy for customers to understand and WaterNSW to administer, and customer preferences.

B.2.1 Non-residential large water users have the option to opt-out of our prices

In our 2016 reviews, we decided to allow Hunter Water and Sydney Water to enter into unregulated pricing agreements (UPAs) with large non-residential customers. Neither utility entered a UPA during the 2016 determination period. Our draft decisions is to maintain the option in the 2020 determination period for Hunter Water (see Chapter 3).

[249] Postage stamp pricing means that customers pay the same for a service regardless of where in the utility's area of operations they are located. That is, we generally cannot set location-based prices.

How does the unregulated pricing agreement work?

We continue to set maximum prices for monopoly services. However, if Hunter Water and a large non-residential customer enter into a pricing agreement, they would opt-out of the prices we set, and be subject to the agreement instead (for water supply and sewerage services only). Key feature of this pricing option are that:

- UPAs are optional and are only entered into voluntarily if the agreement is mutually beneficial to the utility and the large non-residential customer. If the foreseen benefits do not outweigh the costs, then parties should not enter the agreement. The additional, administrative burden to negotiate, manage and ring-fence the agreement should be factored in when considering an agreement.
- The costs and revenues associated with the customer would have to be ring-fenced from the broader cost and revenue base, to ensure that the broader customer base does not subsidise the costs of servicing a large customer.
- The customer would not be able to opt back in to regulated prices within the determination period unless written into the pricing agreement or both parties agree to terminate the pricing agreement, and this should be factored into considerations.

B.3 How long to set prices for?

For each water pricing review, we decide on the length of the determination period. In general, this can be between one and five years.

We decide this on the appropriate determination length a case-by-case basis, and in doing so, we consider the range of factors outlined in Box B.4.

Box B.4 Factors we consider in deciding the length of a determination

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

- 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.

Longer determination periods have several advantages over shorter periods. For example, a longer period:

- Provides greater stability and predictability (which may lower a utility's business risk and assist investment decision making), and
- Creates strong incentives for a utility to increase efficiency; and reduces regulatory costs.

However, longer determination periods also have disadvantages. These include:

- Increased risk associated with using inaccurate data to set prices
- Possible delays in customers benefitting from any efficiency gains
- The risk that changes in the industry would impact the effectiveness of the determination.

B.4 Other IPART reviews

Other reviews that we have undertaken recently or are undertaking concurrently may interact with the decisions we make in either estimating the required revenue, setting Hunter Water's prices, or considering the form of regulation. These reviews are listed in Box B.5, along with a weblink to the relevant documents on our website.

Box B.5 Other related IPART reviews we consider when setting prices

We are concurrently reviewing the prices for Sydney Water and Water NSW. These reviews follow a similar framework, but may raise issues that we have not yet identified for Hunter Water.

We periodically review parts of our approach to setting water prices. Related reviews include:

- How we calculate the weighted average cost of capital (Review of our WACC method, February 2018)
- How we assess the utility's financeability (Review of our financeability test, November 2018)
- How we calculate the working capital allowance (Working Capital Allowance Policy Paper November 2018)
- How we treat any asset disposals (Asset Disposals Policy Paper, February 2018)
- How developer charges should be priced (Developer charges and backlog sewerage charges for metropolitan water agencies, October 2018)
- The conditions in Hunter Water's operating licence (Review of Hunter Water's operating licence July 2017)
- How recycled water services should be funded and priced, including recycled water developer charges (Review of pricing arrangements for recycled water and related services, July 2019)
- How wholesale customers, ie, *Water Industry Competition Act 2006* (WICA) licensees purchasing water and/or wastewater services from Hunter Water, should be charged (Prices for wholesale water and sewerage services, June 2017)
- Central Coast Council's water prices, including the transfer price between the Central Coast and Hunter Water (Review of Central Coast Council's water, sewerage and stormwater prices, May 2019).

For each of these reviews, relevant documents are available on our website.

C Efficiency carryover mechanism

An Efficiency Carryover Mechanism (ECM) mitigates the incentive for a regulated utility to delay reporting efficiency savings. This is because any permanent cost savings retained by the business for the period would be passed onto customers through lower prices at the next price determination regardless of when these savings are identified within the regulatory period.

For an ECM to apply:

1. The regulated utility will need to include details of efficiency savings in its next pricing submission, and be able to demonstrate these are permanent efficiency improvements.
2. IPART will then assess the efficiency gain and the appropriate level of funds to be carried forward.

In this appendix, we explain why an Efficiency Carryover Mechanism (ECM) would remove an incentive for the utility to delay efficiency savings it identifies during a regulatory period until the beginning of the following period. It provides worked examples of how the ECM removes this incentive by identifying efficiency savings that are permanent, and allowing the utility to retain permanent efficiencies savings for the same amount of time, regardless of when they are implemented by the utility. For example, for a 4-year determination, any permanent efficiency savings would be retained for four years.

Sections C.1 and C.2 below compare the 'profits' that a utility would enjoy if it implemented a permanent efficiency saving under the regulatory framework that does not have ECM, with those available under the ECM. Section C.3 explains how the ECM is applied. Section C.4 explains why we implement the ECM with a 1 year lag.

C.1 Regulatory framework without an ECM

The four tables in Figure C.1 show the profits that a regulated utility retains after making an efficiency improvement **decrease** the further into a regulatory period that the efficiency is made. The efficiency is then incorporated into the regulatory allowance – in the form of lower prices to customers – in the next determination period and the utility gains no more profit from that efficiency. This creates the incentive for the utility to delay efficiencies to the first year of a new regulatory period.

Figure C.1 assumes that an efficiency saving implemented by a utility in the final year of a determination would be identified by IPART in the expenditure review process.

Figure C.1 How the current framework incentivises delaying efficiencies

Permanent saving made in year 1

	Regulatory Period 1				Regulatory Period 2			
Year	1	2	3	4	5	6	7	8
	$	$	$	$	$	$	$	$
Allowance	100	100	100	100	80	80	80	80
Actual	80	80	80	80	80	80	80	80
Annual profit	20	20	20	20	-	-	-	-
Total profit in period				**80**				

Permanent saving made in year 2

	Regulatory Period 1				Regulatory Period 2			
Year	1	2	3	4	5	6	7	8
	$	$	$	$	$	$	$	$
Allowance	100	100	100	100	80	80	80	80
Actual	100	80	80	80	80	80	80	80
Annual profit	-	20	20	20	-	-	-	-
Total profit in period				**60**				

Permanent saving made in year 3

	Regulatory Period 1				Regulatory Period 2			
Year	1	2	3	4	5	6	7	8
	$	$	$	$	$	$	$	$
Allowance	100	100	100	100	80	80	80	80
Actual	100	100	80	80	80	80	80	80
Annual profit	-	-	20	20	-	-	-	-
Total profit in period				**40**				

Permanent saving made in year 4

	Regulatory Period 1				Regulatory Period 2			
Year	1	2	3	4	5	6	7	8
	$	$	$	$	$	$	$	$
Allowance	100	100	100	100	80	80	80	80
Actual	100	100	100	80	80	80	80	80
Annual profit	-	-	-	20	-	-	-	-
Total profit in period				**20**				

Note: Regulatory period 2 does not necessarily have to be the same length as previous regulatory period. We have not made a decision on the length of the subsequent regulatory period. The tables in this figure are illustrative only.

C.2 How the ECM removes the incentive to delay savings

The ECM removes the incentive to delay savings by allowing the utility to retain profits for each permanent saving as though the saving were made in year 1 of the determination period in the scenario above. That is, the total profit for the utility is the same regardless of which year the efficiency was made.

The four tables in Figure C.2 demonstrate the ECM for a 4-year determination. Using the same example as in Figure C.1, the utility retains an $80 profit regardless of which determination year it makes the saving in. This is because we calculate a "carryover" into the next determination period.

After four years, the saving is passed onto customers.

Figure C.2 How the ECM removes incentives to delay efficiencies

	Regulatory Period 1				Regulatory Period 2			
Permanent saving made in year 1								
Year	1	2	3	4	5	6	7	8
	$	$	$	$	$	$	$	$
Base allowance	100	100	100	100	80	80	80	80
Actual	80	80	80	80	80	80	80	80
Permanent saving	20	20	20	20	-	-	-	-
Incremental saving	20	20	20	20	-	-	-	-
Carryover calc	N/A	N/A	N/A	N/A				
Net allowance	100	100	100	100	80	80	80	80
Annual profit	20	20	20	20	-	-	-	-
Total profit in period				80				-
Permanent saving made in year 2								
Year	1	2	3	4	5	6	7	8
	$	$	$	$	$	$	$	$
Base allowance	100	100	100	100	80	80	80	80
Actual	100	80	80	80	80	80	80	80
Permanent saving	-	20	20	20	-	-	-	-
Incremental saving	-	20	20	20	-	-	-	-
Carryover calc		20	20	20	20			
Net allowance	100	100	100	100	100	80	80	80
Annual profit	-	20	20	20	20	-	-	-
Total profit in period				60				20
Permanent saving made in year 3								
Year	1	2	3	4	5	6	7	8
	$	$	$	$	$	$	$	$
Base allowance	100	100	100	100	80	80	80	80
Actual	100	100	80	80	80	80	80	80
Permanent saving	-	-	20	20	-	-	-	-
Incremental saving	-	-	20	20	-	-	-	-
Carryover calc			20	20	20	20		
Net allowance	100	100	100	100	100	100	80	80
Annual profit	-	-	20	20	20	20	-	-
Total profit in period				40				40
Permanent saving made in year 4								
Year	1	2	3	4	5	6	7	8
	$	$	$	$	$	$	$	$
Base allowance	100	100	100	100	80	80	80	80
Actual	100	100	100	80	80	80	80	80
Permanent saving	-	-	-	20	-	-	-	-
Incremental saving	-	-	-	20	-	-	-	-
Carryover calc				20	20	20	20	
Net allowance	100	100	100	100	100	100	100	80
Annual profit	-	-	-	20	20	20	20	-
Total profit in period				20				60

Note: Regulatory period 2 does not necessarily have to be the same length as previous regulatory period. We have not made a decision on the length of the subsequent regulatory period. The tables in this figure are illustrative only.

C.3 Applying the ECM

If the utility decides to apply the ECM, the utility would need to calculate the following values:

- **Under (over):** first the utility identifies the difference between the base allowance set by IPART to its actual expenditure.
- **Outperformance:** second, the utility only reports where it underspends against our allowances (overspends are omitted).
- **Permanent gain:** working backwards from year 4 to year 1, the utility then determines how much of the outperformance in year 4 also occurred in year 3, how much of the outperformance that occurred in both year 4 and 3 occurred in year 2, etc.
- **Incremental gain:** working forwards from year 1 to 4, it then determines the first year that a permanent saving occurred. It is this 'incremental gain' in each year that would be carried forward for four years through the ECM calculation that follows.
- **ECM calculations:** ensures that any incremental gain is carried forward and held for four years.

At the next determination period, we would consider these calculations, and decide whether the savings identified by the utility are permanent.

Why there is a 1-year lag in implementation

In practice, at the time we undertake our review, we only have a forecast of expenditure in the final year of the determination period.

To address this limitation, we make three adjustments.

First, we lag the implementation of the ECM by one year. For example, with a 4-year determination period, we apply the ECM calculation to the first three years of the current determination period (years 1, 2, and 3), and to the final year of the previous regulatory period (ie, year 0). Efficiency savings in the final year of the current period (year 4) would be included in the ECM calculation for the following determination period.

Second, we assume an efficiency saving made in year 3 is permanent. Therefore, the benefit is held in year 3 and year 4, and the ECM allows the benefit to be carried forward in years 5 and 6.

Figure C.3 shows the first two adjustments. In this example, the two regulatory periods are years 1 to 4 (regulatory period 1), and year 5 to 8 (regulatory period 2). The ECM is then applied to operating expenditure in Years 0 to 3 in the first regulatory period, and years 4 to 7 in the second.

Figure C.3 ECM is lagged one year so that it is based on actuals

	Regulatory Period 1				Regulatory Period 2				
	ECM1				ECM2				
Year	**–**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
	$	**$**	**$**	**$**	**$**	**$**	**$**	**$**	**$**
Base allowance	100	100	100	100	100	80	80	80	80
Actual	100	100	100	80	80	80	80	80	80
Under (over)	–	–	–	20	20	–	–	–	–
Outperformance	–	–	–	20	20	–	–	–	–
Performance gain	–	–	–	20					
Incremental gain	–	–	–	20					
ECM1 calc									
▼ year 0	–	–	–	–	–				
▼ year 1		–	–	–	–	–			
▼ year 2			–	–	–	–	–		
▼ year 3				20	20	20	20	–	
ECM benefit						**20**	**20**		
Total allowance		**100**	**100**	**100**	**100**	**100**	**100**	**80**	**80**
Total gain (loss)		**–**	**–**	**20**	**20**	**20**	**20**	**–**	**–**

Data source: The numbers in this figure are illustrative only.

The third adjustment made is to ensure that any efficiency made in the final year of a determination period is only retained for one regulatory period, in present value terms. This is because we review efficiency savings made in the final year of a determination in the following period. For example, with a 4-year determination period, it is five years before we review this expenditure. Therefore, the utility would have retained these cost savings for five years.

Figure C.3 shows that we would calculate a 'year 0 adjustment' to ensure permanent savings made in the last year of a determination are only held for the length of the determination period, in this example for four (and not five) years.

In this example, a permanent efficiency saving of $20 is made in Year 0. Without an adjustment factor, the business would retain this saving for five years. The 'Year 0 adjustment' offsets the fifth year of benefit (received in year 4) with a corresponding negative adjustment to the allowance in the first year of the next regulatory period (ie, year 5). Note that we are inflating this adjustment term by the WACC[250] in order to ensure incentives are fully equalised in present value terms (because the WACC represents our view of the appropriate discount rate).

250 If cash flows are assumed to occur at the end of each year, this should be the WACC used for regulatory period 2.

Figure C.4 ECM adjustment to ensure savings are held for no longer than determination

	Regulatory Period 1				Regulatory Period 2				
	ECM1				ECM2				
Year	**–**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
	$	**$**	**$**	**$**	**$**	**$**	**$**	**$**	**$**
Base allowance	100	100	100	100	100	80	80	80	80
Actual	80	80	80	80	80	80	80	80	80
Under (over)	20	20	20	20	–	–	–	–	–
Outperformance	20	20	20	20	–	–	–	–	–
Performance gain	20	20	20	20					
Incremental gain	20	–	–	–					
ECM1 calc									
▼ year 0	20	20	20	20	20				
▼ year 1		–	–	–	–	–			
▼ year 2			–	–	–	–	–		
▼ year 3				–	–	–	–		
▼ year 0 adjust.						-21			
ECM benefit						-21	–	–	–
Total allowance		100	100	100	100	59	80	80	80
Total gain (loss)	20	20	20	20	20	-21		–	–

Data source: We have assumed a real WACC of 5% in this example. The numbers in this figure are illustrative only.

Retaining the saving for five years would be inconsistent with the purpose of the ECM of equalising incentives over time. The business may have an incentive to delay savings until the last year of a determination period in order to maximise returns.[251]

The adjustment term only applies to a permanent efficiency saving that is made in the final year of a regulatory period. Because the business receives this benefit for five years initially (years 0, 1, 2, 3, and 4), the adjustment term inflates the fifth year of this benefit (received in year 4) by the WACC and returns it to customers in year 5.

[251] This incentive already exists under the current form of regulation.

D Demand volatility adjustment mechanism

As outlined in Chapter 3, we have made a draft decision to implement a demand volatility adjustment of $10.3 million in the 2020 determination period to address over-recovery in the 2016 determination period.

Our demand volatility adjustment mechanism approach is set out below.

1. Limit the analysis to the three years of actual water sales data available in the 2016 determination period. This is because actual water sales for 2019-20 will not be available until after our 2020 Determination has commenced. This negates the need for an adjustment in the future to account for the difference between forecast and actual water sales for 2019-20.

   We will use a staggered 4-year approach in further determination periods. This means that water sales from 2019-20 to 2022-23 will be used for the demand volatility adjustment mechanism assessment for the 2020 determination period.

2. Calculate the revenue raised from water sales over the three years to 30 June 2019. We have used revenue from water sales, rather than sales volumes because the intended purpose of the demand volatility adjustment mechanism is to address revenue volatility. We have included holding costs in our calculations to account for interest earned or foregone as a result of any over- or under-recovery of revenue.

3. Determine if the variation between forecast and actual revenue from water sales exceeds the 5% (+ or -) materiality threshold, and if so, calculate the amount above the 5% threshold. This is the demand volatility adjustment amount.

4. Implement the demand volatility adjustment amount through the NRR, spread over each year of the 2020 determination period in an NPV-neutral way.

In this appendix, we set out our calculations for the $10.3 million demand volatility adjustment, and discuss alternative options for our application of the demand volatility adjustment mechanism.

D.1 Hunter Water has triggered the demand volatility adjustment mechanism

Table D.1 compares Hunter Water's actual water sales and revenue from water sales against those set in IPART's 2016 Determination. The net level of variation in water sales from 2016-17 to 2018-19 is 15,697 ML or 9.5%, with annual variance ranging from 4.4% higher (in 2016-17) to 13.3% higher (in 2017-18). Hunter Water attributed higher water sales over this period to lower than expected rainfall and population growth in excess of forecasts.[252]

Using the demand volatility adjustment mechanism approach set out above, we determined that Hunter Water over-recovered by $33.1 million ($2019-20) or 7.2% over the period from

[252] Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 11 and correspondence with Hunter Water (email), 2 December 2019.

2016-17 to 2018-19. Our adjustment of **$10.3 million** ($2019-20) represents the incremental 2.2% above the 5% materiality threshold.

Table D.1 Draft decision on the demand volatility adjustment

	2016-17	2017-18	2018-19	Total
Water sales (ML)				
IPART 2016 Determination	54,779	55,376	55,906	166,061
Hunter Water actual	57,213	62,715	61,830	181,758
Variance	2,434	7,339	5,924	15,697
Variance (%)	4.4	13.3	10.6	9.5
Revenue from water sales, including holding costs[a] ($millions, $2019-20)				
IPART 2016 Determination	159.8	152.3	145.1	457.2
Hunter Water actual	162.0	170.8	157.5	490.3
Variance	2.3	18.4	12.5	33.1
Variance (%)	1.4	12.1	8.6	7.2

[a] We used the pre-tax WACC of **5.9%** from the 2016 Determination to calculate holding costs.

Note: The difference between the percentage variance in water sales and percentage variance in revenue from water sales is mainly due to location-based pricing ie, some of Hunter Water's industrial and commercial customers that consume in excess of 50,000 kL per year pay a lower water usage price.

Hunter Water provided updated water sales for 2018-19 through email correspondence with IPART. This differs from Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 11 as the updated figure reflects actual water sales. No revisions were made to water sales for 2016-17 and 2017-18.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 11, correspondence with Hunter Water (email), 2 December 2019 and IPART analysis.

D.2 We considered whether to use data for the four years of the 2016 determination period

The demand volatility adjustment mechanism we have applied to make our draft decision uses **three years** of data, from 2016-17 to 2018-19.

We considered the option of using data for the full 4-year regulatory period ie, including data for 2019-20. Actual water sales in 2019-20 are expected to fall below IPART's 2016 allowance due to the introduction of water restrictions in September 2019.[253] Under-recovery in 2019-20 would partly offset over-recovery over the first three years of the 2016 determination period, and impact the magnitude of the demand volatility adjustment.

Our draft decision is to use three years of data, given that actual water sales for 2019-20 will not be available until after our 2020 Determination has commenced. This negates the need for an adjustment in the future. Hunter Water said in its response to the Issues Paper that it accepts our reasoning for only applying the demand volatility adjustment mechanism to years of actual water sales.[254]

253 Hunter Water has provided an updated water sales figure for 2019-20 based on actuals up to the end of January 2020, and forecasts for the remaining five months. This updated water sales figure of 56.1 GL for 2019-20 is 0.4% lower than IPART's allowance of 56.3 GL set in the 2016 Final Report. Correspondence with Hunter Water (email), 11 February 2020.

254 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 37.

D.3 We decided against adjusting for additional efficient operating costs

We indicated in our Issues Paper that we would consider subtracting the additional costs associated with servicing higher demand from the demand volatility adjustment.

To calculate the additional efficient operating costs, Hunter Water applied its SRMC of $0.11/kL to the volume of water sales above those set in IPART's 2016 Determination. Hunter Water determined that in aggregate, it incurred an additional $1.8 million in operating costs by supplying this water. As the demand volatility adjustment mechanism only applies to over-recovery above the materiality threshold, it then calculated the portion of operating costs related to water sales above the 5% threshold – this resulted in a proposed adjustment of $0.6 million.[255]

Given that the additional efficient operating costs represent only a small percentage of water usage charges, we consider that adjusting for marginal costs would have little material impact on demand volatility adjustment outcomes.[256] As a result, under our draft approach to applying the demand volatility adjustment mechanism, we will return all of the revenue above the 5% threshold to customers.

We would apply this symmetrically in the case of under-recovery ie, include a revenue adjustment to provide Hunter Water with all of the revenue below the -5% threshold if it sells less water than forecast, without making an adjustment for the avoided marginal costs resulting from lower demand. We expect that the incurred and avoided marginal costs will offset each other over time.

255 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 36.
256 Hunter Water's SRMC of $0.11/kL is around 5% of its water usage charge of $2.37/kL.

E Continuing and catch-up efficiencies

In reviewing the expenditure of water utilities, we may decide to apply catch-up efficiency targets to the proposed expenditure of those that are not yet at the frontier. The catch-up efficiency adjustment reflects the scope to make efficiency improvements in systems and processes to achieve the performance of an efficient frontier company over time.

In addition, we generally apply a continuing efficiency adjustment. This adjustment reflects that ongoing productivity improvements should reduce costs gradually over time. It represents the scope for a top performing or 'frontier' company to continue to improve efficiency over time as innovation and new technologies enable firms to do more with less input.

The continuing efficiency adjustment is important to ensure that water utilities continue to innovate and deliver efficiency benefits to customers. By putting a quantitative target in place, we establish an expectation of continuous improvement.

This appendix presents our assessment of the ongoing efficiency adjustments that we have applied to Hunter Water.

E.1 An ongoing efficiency adjustment should apply to both operating and capital expenditure

For any capital intensive business, some of the most important opportunities for productivity gain are in its capital program. Some of the activities carried out in delivering its services such as project cost estimation, capital program planning, procurement and delivery of capital works are areas where innovation and process improvements provide scope for efficiency gains.

We consider that if an ongoing adjustment for productivity improvements is justified, then it should be applied to both capital expenditure and operating expenditure.

E.2 What productivity target is best supported by evidence?

Our review of Productivity Commission multi-factor productivity (MFP) data suggests that a sustained average annual MFP improvement[257] of between 0.6% and 0.8% is achievable in Australia.[258] These results include performance from 1975-76 to 2017-18. They reflect economy-wide performance,[259] ie, all industry sectors and all firms in each sector—not just

257 We consider that MFP is a more useful productivity indicator than labour productivity for a public water utility, which must make substantial capital investments efficiently.

258 Productivity Commission (2019) *PC Productivity Bulletin* May 2019.

259 While productivity estimates are available for the combined energy and water utility sector, we prefer to examine productivity changes across the entire Australian economy. The productivity of the energy sector has been impacted by market restructuring, and policy uncertainty for the past twelve years.

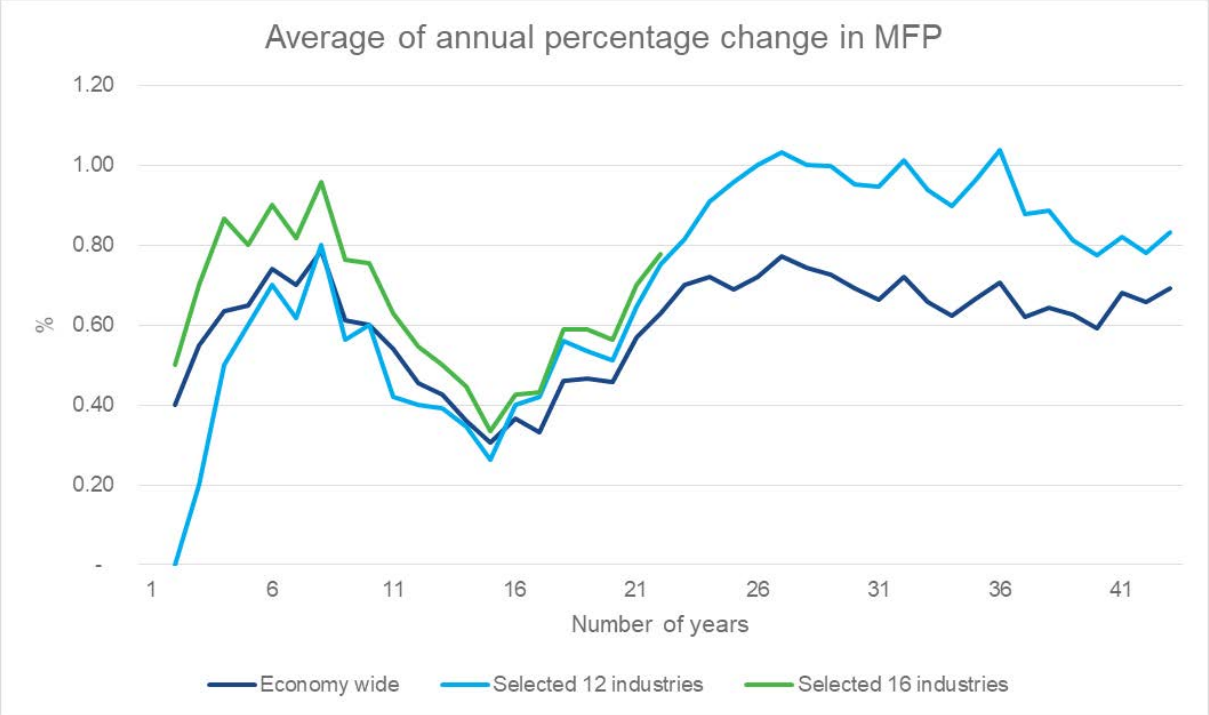
frontier firms. In that sense, this range is conservative. Recognising this conservatism, our draft decision is to accept the top end of that range: 0.8% per annum.

Evidence from the Productivity Commission

The Productivity Commission's 2019 Productivity Bulletin presents MFP estimates for the Australian economy from 1975-76 to 2017-18. Figure E.1 shows the arithmetic averages over various time periods ending in 2017-18 of the annual percentage changes in MFP. It shows that the average MFP growth rate was between 0.4% and 1.0% per annum over the most recent six years. Then that average dropped to around 0.3% per annum from 2006-07, before returning to the range 0.6% to 1.0% per annum when examining averages over 23 years or more.

In the graph below, on the horizontal axis, 1 corresponds to the 2017-18 year only, 11 corresponds to the eleven-year period 2006-07 to 2017-18, and so on.

Figure E.1 Average of annual MFP changes (%)



Data source: Productivity Commission, *PC Productivity Bulletin 2019 – Charts,* May 2019; IPART analysis.

Table E.1 below presents average annual MFP growth over various time horizons ending with 2017-18.

Table E.1 Annual MFP growth, economy-wide, selected averaging periods to 2017-18 (%)

	5 years	10 years	20 years	40 years
Selected 12 industries	0.70	0.42	0.65	0.82
Economy wide	0.74	0.54	0.57	0.68

Source: Productivity Commission, *PC Productivity Bulletin 2019 – Charts*, May 2019; IPART analysis.

We observe similar averages for the economy-wide MFP growth, and the MFP growth for the 12 selected industry and 16 selected industry market sector groups presented in the Productivity Commission's bulletin. The 12 industry group has a longer historical data series available than the 16 selected industry group (Box E.1 shows which industries are in the different groups).

The Productivity Commission states that the most accurate estimates of productivity are for the market sector industry groups — where prices are set and therefore easier to value output. The four industries in the non-market sector (eg Public administration and safety, and Health care and social assistance) are more difficult to measure outputs.

The MFP is a more holistic indicator than labour productivity

We consider that MFP is a more appropriate indicator of the potential productivity improvements for a water utility than labour productivity. MFP captures the effect of capital productivity as well as labour productivity. Both are important to capital intensive businesses like water utilities.

The 'all industries' data is a better reflection of potential efficiency gains than the 'utilities' sector

While the 'utilities' industry sector seems similar in profile to the water utilities, the negative rates of productivity growth shown in Table E.2 (below) are probably not reflective of an efficient frontier. Rather, they likely reflect the particular issues that have been experienced in Australia over these time frames, especially in the energy sector, which has seen significant restructuring and is not considered to be performing well. For this reason, we consider that whole-economy indicators of MFP growth are more indicative of an efficient production possibility frontier.

For comparison, Table E.2 below presents MFP growth in Australia over selected time periods for 'all industries' and for 'utilities'.

Table E.2 MFP growth, selected industries, selected time periods (average annual %)

Industry	8 years - 2003-04 to 2011-12	6 years - 2011-12 to 2017-18	2017-18
'Utilities' - Electricity, gas, water and waste services	-3.83	-0.42	-1.74
All industries	0.01	0.7	0.44

Source: Productivity Commission, *2019 Productivity Bulletin*, May 2019, Figure 1.7, IPART analysis.

What is an appropriate time period to look at when determining a continuing efficiency adjustment?

We consider that a figure of between 0.6% and 0.8% per annum is consistent both with recent averages and much longer-term productivity averages.

The period of low average productivity growth in-between recently and the longer-term is influenced by poor MFP results in the period before and immediately after the Global Financial Crisis. Table E.2 indicates that between 2003-04 and 2011-12, average annual MFP growth was only 0.01%. This period of low productivity growth may reflect turmoil in financial markets rather than the productivity that would be expected in more normal circumstances. We consider it is the reason that the 10 year averages shown in Table E.1 are so much lower than averages over shorter and longer periods.

Box E.1 Industry coverage used

Market sector (12 industries)	**Market sector (16 industries)**
Agriculture, forestry & fishing	Market sector (12 industries) plus
Mining	Rental, hiring & real estate services
Manufacturing	Professional, scientific & technical services
Electricity, gas, water & waste services	Administrative & support services
Construction	Other services
Wholesale trade	
Retail trade	**Non-market sector (4 industries)**
Accommodation & food services	Public administration & safety
Transport, postal & warehousing	Education & training
Information media & telecommunications	Health care & social assistance
Financial & insurance services	Ownership of dwellings
Arts & recreation services	

Source: Productivity Commission, *Productivity Bulletin*, May 2019, Box A.1, p 49.

F Capital expenditure

This appendix provides additional detail on how we made our draft decisions on the efficient level of Hunter Water's:

- Historical capital expenditure over the 2016 determination period.
- Forecast capital expenditure over the 2020 determination period.

It sets out how we considered Aither's observations and recommendations on Hunter Water's capital expenditure allowance, and the adjustments we made to specific projects and programs.

Our draft decision is to accept all of Aither's recommended adjustments to specific projects and programs.

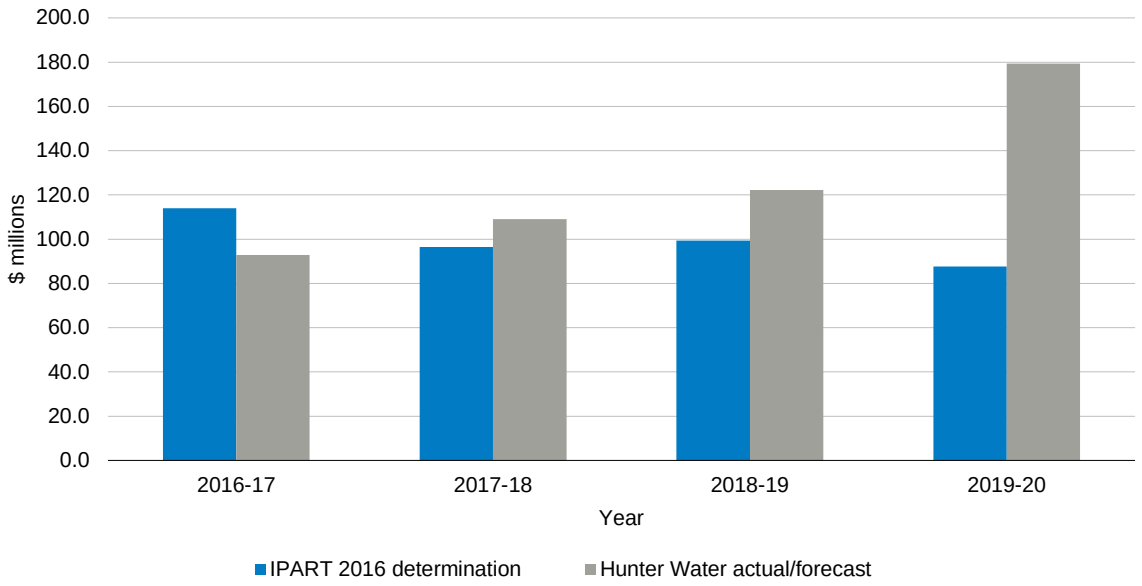
F.1 Capital expenditure over the 2016 determination period

Hunter Water's actual/forecast[260] capital expenditure over the 2016 determination period was considerably higher than we allowed for when setting prices in 2016.

In total, Hunter Water forecasts that its actual capital expenditure over the 2016 determination period would be $106 million[261] (or 27%) higher than we used to set prices in 2016.[262] This is shown in Figure F.1 below.

260 The final year of the 2016 determination period (2019-20) is yet to be finalised and as such figures for 2019 - 20 are forecasts.
261 Hunter Water Annual Information Return, September 2019; IPART analysis.
262 Excluding capital expenditure on discretionary projects.

Figure F.1 Hunter Water's actual/forecast and IPART's 2016 determined capital expenditure over the 2016 determination period ($millions, $2019-20).



Note: Excludes capital expenditure on discretionary projects. Figures for 2019-20 are forecasts.
Data source: Hunter Water annual information return, September 2019; IPART analysis.

This figure shows that Hunter Water has spent more than we allowed for when setting prices in 2016 in the final three years of the period.

We have reduced historical capital expenditure by $5 million

In its assessment of Hunter Water's efficient historical expenditure, Aither recommended one adjustment, to the Farley WWTP upgrade project.

Farley WWTP upgrade

The Farley WWTP discharges effluent to Fishery Creek, which the EPA has indicated is unable to receive nutrient loads above Hunter Water's existing licence conditions. An upgrade to the plant is required to address significant growth in the catchment, as well as specific asset reliability and performance concerns.

When we set prices in 2016, we included an allowance of $13 million in the current determination period to increase treatment capacity to ensure mandatory standards continue to be met. Further investigation subsequently identified additional challenges, including a lack of compliance with biosolids management requirements, as well as potential groundwater contamination arising from the condition of some assets on the site. The proposed capital expenditure has increased to $70 million, including $57 million over the 2020 determination period.

Aither's assessment

Aither assessed capital expenditure on this project as broadly efficient. This project has expanded in scope to address some significant issues and associated risks at the site. Sustained concern from the EPA is indicative of the project need, while a suitable and broad range of options has been identified and robustly assessed.[263]

While Aither considered the total costs and scope of the project to be efficient, its review found that it was unlikely that Hunter Water would be able to fully invest the $14 million works planned for the Farley WWTP upgrade in the current period, given that the tender process was only due to be completed in January 2020. As such it recommended that $5 million should be deferred to the forecast period, from 2019-20 to 2020-21.[264]

Our draft decision is to accept Aither's recommended $5 million adjustment to the Farley WWTP upgrade.

F.2 Forecast capital expenditure over the 2020 determination period

Excluding capital expenditure on discretionary projects, Hunter Water has proposed $706.2 million in capital expenditure over the 2020 determination period.[265] This represents an increase of $308.8 million (77.7%) from the IPART allowance of $397.4 million for the 2016 determination period, and an increase of $202.8 million (40.3%) over its actual/forecast expenditure for the same period.

Aither recommended reducing Hunter Water's capital expenditure by $47.9 million to $658.3 million.[266] In making its recommendation, Aither made a number of specific adjustments to Hunter Water's proposed capital projects and programs.

We have accepted Aither's recommended adjustments to Hunter Water's proposed capital expenditure for the 2020 determination period. Our draft decisions on specific adjustments are shown below in Table F.1. Our rationale for these adjustments are described in the following sections.

263 Aither, *Hunter Water expenditure review*, 14 December 2019, p 53.
264 Aither, *Hunter Water expenditure review*, 14 December 2019, p 53.
265 Hunter Water Annual Information Return, September 2019; Aither, *Hunter Water expenditure review*, 14 December 2019, pp 43,69; IPART analysis.
266 Aither, *Hunter Water expenditure review*, 14 December 2019, pp 43,69,81-82 and IPART analysis.

Table F.1 Draft decisions on project and program adjustments to Hunter Water's proposed capital expenditure ($millions, $2019-20)

	2020-21	2021-22	2022-23	2023-24	Total
Hunter Water's 1 July proposal[a]	**195.9**	**180.7**	**170.6**	**159.1**	**706.2**
Water network Capacity Upgrades	-1.4	-1.4	-1.4	-1.4	**-5.4**
Minor Asset Renewals Programs - Wastewater	-2.0	-2.3	-2.3	-2.6	**-9.2**
Farley Wastewater Treatment Plant Upgrade Stage 3B (deferral from previous)	5.0	0	0	0	**5.0**
Treatment Plant Chemical Containment and Safety Upgrades Program	-1.8	-1.8	-1.8	-1.8	**-7.2**
Other Wastewater Treatment Plant Upgrade Program	0	0	0	-16.2	**-16.2**
Water treatment minor works	-0.3	-0.3	-0.3	-0.3	**-1.4**
Water network (critical mains)	0	0	-1.9	-1.9	**-3.8**
Minor water mechanical and electrical network assets	-0.3	-0.3	-0.3	-0.3	**-1.0**
Minor water structures	-1.3	-1.3	-1.3	-1.3	**-5.4**
Mandatory Standards Program	-0.8	-0.8	-0.8	-0.8	**-3.2**
Draft decision	**192.9**	**172.5**	**160.4**	**132.5**	**658.3**
Difference	*-2.9*	*-8.2*	*-10.1*	*-26.6*	***-47.9***
Difference (%)	*-1.5%*	*-4.5%*	*-5.9%*	*-16.7%*	***-6.8%***

[a] Excludes capital expenditure on discretionary projects.

Source: Aither, *Hunter Water expenditure review*, 14 December 2019; IPART analysis.

F.2.1 Reduce other wastewater treatment plant upgrades by 16.2 million

Major WWTP upgrade program

Hunter Water proposes major upgrades at a number of wastewater treatment plants (WWTP), comprising asset improvements or capacity enhancements, primarily to address growth and environmental compliance issues.

Major upgrades (exceeding $10 million each) are proposed at seven WWTP sites, in addition to the Farley WWTP upgrade (reviewed separately and summarised in section F.1 above). A total expenditure of $107.9 million is proposed for the forecast period.[267]

Aither's assessment

Aither recommended an adjustment of $16.2 million to Hunter Water's WWTP upgrade program.[268] In general, Aither found that the majority of the proposed expenditure (for five of seven projects) was efficient. It found that it responds to clear drivers and is underpinned by thorough and appropriate planning, design and procurement processes.[269]

267 Aither, *Hunter Water expenditure review*, 14 December 2019, p 55.
268 Aither, *Hunter Water expenditure review*, 14 December 2019, p 57.
269 Aither, *Hunter Water expenditure review*, 14 December 2019, p 55.

However, Aither had three key issues which it considered warranted an adjustment, namely:

- Some proposed costs were to address biosolids management issues, which could be influenced by Hunter Water's broader and ongoing Biosolids Management strategy.
- There is uncertainty about the future discharge licence requirements from the EPA.
- That the timing of some of the growth-driven expenditure is overly conservative, and could be deferred without breaching compliance.

Aither found that:

> While the eventual need for the projects is sound, it is considered that the timing is overly conservative, and the associated expenditure could be deferred without impacting Hunter Water's licence compliance. It is recommended that proposed expenditure of $24 million for these two projects be deferred beyond the forecast period.

We note that Aither's recommendation of a $24 million reduction is based on a five-year forecast (ie, to 2024-25). As the 2020 determination period extends only to 2023-24, we have only included Aither's recommended adjustments for the first four years, or $16.2 million.

F.2.2 Reduce minor wastewater asset renewal programs by $9.2 million

Minor wastewater asset renewals

This program involves provision for the condition assessment and renewal of minor assets within the wastewater system.

Aither states that:

> This is a program that supports ongoing delivery of wastewater services to meet service standards. Hunter Water has proposed increases in renewing minor civil and mechanical and electrical assets in the forecast regulatory period to address asset condition and align associated risk with the business' risk appetite.[270]

Aither's assessment

Aither found that the proposed increase in expenditure on the **network** was efficient. It found that the increase in proposed expenditure on these network assets is proportionate to the increase in asset failures.

However, it has recommended a $6.0 million reduction in expenditure on **wastewater structures**. It found that there was "insufficient rigorous evidence…to substantiate the claim that increased expenditure is required on **wastewater structures** to address public safety risks and manage inflow and infiltration."[271]

It also recommended further reductions for **mechanical and treatment** assets. It found that the outcomes of the risk assessment approach were too conservative.

270 Aither, *Hunter Water expenditure review*, 14 December 2019, p 52.
271 Aither, *Hunter Water expenditure review*, 14 December 2019, p 53.

F.2.3 Reduce minor water structures by $5.4 million

Minor water network asset renewals

This program renews network structures in the water supply system.

Aither's assessment

Aither found that the justification for the increase in proposed expenditure on mechanical and electrical and minor water structures was not justified.[272] It justified its recommendation on a similar assessment as that for minor wastewater asset renewals shown above.

F.2.4 Reduce water network capacity upgrades by $5.4 million

Water network capacity upgrades

Hunter Water constructs new transfer mains, pump stations and associated facilities to ensure growing demand from new customers across the system can be met. Two ongoing programs address, respectively, capacity upgrades in the existing network, and extension of the network to Greenfield areas.

Aither states that:

> Expenditure for network expansion into new subdivisions is $14.6 million for the forecast regulatory period, compared with $3.9 million in the current period. There is also a significant increase in expenditure forecast for existing network capacity upgrades, with $25.9 million proposed in the forecast period compared with $1.5 million in the current regulatory period. Growth in connections are expected to continue at a similar or slightly reduced rate in this period.[273]

Water network capacity upgrades

Expenditure in the current period was much lower than forecast, arising from two main factors:

- A higher proportion of growth in existing, rather than Greenfield, areas, and
- Changing customer behaviour that no longer aligns with pre-2016 design standards for peak flows, which allowed Hunter Water to make use of spare capacity to cater for growth.

Given that Hunter Water has also advised that customer expectations for flow and pressure are being met expenditure in the current period was assessed as efficient.

Aither states that:

> The unit rate adopted as the basis for forecast expenditure for general increases in *existing* network capacity upgrades is markedly higher than that used for Greenfield development. Hunter Water acknowledges that the cost per dwelling to service infill development (in established areas with an

272 Aither, *Hunter Water expenditure review*, 14 December 2019, p 60.
273 Aither, *Hunter Water expenditure review*, 14 December 2019, p 51.

existing network) should generally be lower. However, this is partially offset by the need to upgrade parts of the existing network to deliver flows to greenfield development areas.[274]

Aither argues that Hunter Water did not provide specific evidence that unit costs are higher for capacity upgrades of existing assets. As such, it recommends that expenditure on this $16.9 million program should be reduced by 40 per cent. This results in a $6.8 million reduction over five years, or $5.4 million over the 4-year 2020 determination period.[275]

F.2.5 Reduce minor water network mechanical and electrical renewals by $1.0 million

Minor water network mechanical and electrical renewals

This program renews minor mechanical and electrical assets in the water supply system.

Aither's assessment

Aither found that the increase in proposed expenditure on mechanical and electrical assets was not justified.[276] It based its recommendation on a similar assessment as that for minor wastewater asset renewals shown above.

F.2.6 Reduce Treatment Plant Chemical Containment and Safety Upgrades Program by $7.2 million

Treatment Plant Chemical Containment and Safety Upgrades

The Environment Protection Authority (EPA) has issued Hunter Water with directives to undertake containment and safety works at some of its sites, including Dungog WWTP.

Aither states that:

> This program involves a range of works across a number of Hunter Water's operational sites, to address environmental contamination risks and ensure that the facilities meet current health and safety requirements. It continues work commenced in the current period to address EPA directives at Dungog WTP (see related project above) as well as at 23 sites across the water and wastewater distribution network.[277]

The program addresses specific incidents and EPA requirements at certain sites as we as a more general assessment of chemical containment equipment across Hunter Water's network.

Aither's assessment

Aither found that the program as a whole was justified, given the specific directives from the EPA, and Hunter Water's identification of health and safety risks.

274 Aither, *Hunter Water expenditure review*, 14 December 2019, p 52.
275 Aither, *Hunter Water expenditure review*, 14 December 2019, pp 52, 57.
276 Aither, *Hunter Water expenditure review*, 14 December 2019, p 60.
277 Aither, *Hunter Water expenditure review*, 14 December 2019, p 54.

However, Aither considered that the scope and scale of Hunter Water's proposed expenditure was disproportionate and overly risk-averse. It states that:

> Specifically, Hunter Water has taken the view that condition assessment and the need for secondary containment installation is undertaken across all facilities, on the basis that the EPA has specified this need for selected facilities where directives are currently in place. However, there is no requirement or basis for this level of containment at facilities that are not the subject of EPA action, reflecting an overly risk averse position that arises because of the recent attention from the EPA. If not for the past poor performance by Hunter Water and related EPA directives, it is unlikely that this position would be taken, and a more risk tolerant approach would be acceptable (which is also consistent with wider industry practice).[278]

As such, Aither recommended a reduction in the program of $9 million over five years, or $7.2 million over the 4-year 2020 determination period.

F.2.7 Reduce water network critical mains program by $3.2 million

Aither states that:

> Hunter Water has documented a strategic approach to the management of critical mains and has invested in a systematic program of condition assessment in the current program. This has helped inform a series of major (greater than $2 million) expenditure proposals in the forecast period:
>
> - Completion of the Balickera Tunnel works ($6.85 million), the commencement of which was supported in the 2016 Determination
> - $5.8 million for remedial works on three sections of the CTGM, which is consistent with the priorities in the detailed asset management plan for that asset
> - $15.8 million for a critical mains safety program.
>
> The critical safety mains program is a new initiative that arose following the failure of the CTGM. It involves risk-based, prioritised replacement or rehabilitation of pipelines and related works to address public safety and customer risks.[279]

Aither's assessment

While Aither considers that the method used to assess the impacts of potential asset failure is sound, it states that there are valid reasons that the project costs could be delayed and potentially higher than the outturn costs.

As such it recommends a reduction in the total project cost from $15.8 million to $12.0 million or $3.9 million over the 4-year determination period.[280]

F.2.8 Reduce mandatory standards program by $3.2 million

Aither considered Hunter Water's broader systems and processes in making recommendations on efficient capital expenditure.

278 Aither, *Hunter Water expenditure review*, 14 December 2019, pp 54-55.
279 Aither, *Hunter Water expenditure review*, 14 December 2019, p 59.
280 Aither, *Hunter Water expenditure review*, 14 December 2019, p 60.

Aither's assessment

Aither found that for project scoping and decision making where there is a material dependency on subjective risk assessment, there are several other projects that Aither did not review that are likely to be overly risk averse.

As such, Aither has recommended a $3.2 million reduction over the 4-year 2020 determination period.[281]

281 Aither, *Hunter Water expenditure review*, 14 December 2019, p 70 and IPART analysis.

G Disaggregation of the RAB and asset lives

In its pricing proposal, Hunter Water proposed to disaggregate its existing four regulatory asset bases (RABs) into 21 smaller RABs.

This appendix sets out the method we used to disaggregate Hunter Water's RAB.

G.1 Disaggregation of the RAB

Hunter Water's proposal to disaggregate its RAB

Hunter Water currently has four RABs, one for each of water, wastewater, stormwater businesses and corporate. In its pricing proposal, Hunter Water proposed to disaggregate each of these RABs into five sub-categories, namely:

- Civil
- Mechanical/Electrical
- Equipment
- Intangibles
- Non-depreciating.[282]

It has also proposed a 6th RAB sub-category in corporate - in addition to the 5 corporate sub-categories above - as a transition RAB. It proposed that the entire 1 July 2020 values of the "Equipment" and "Intangible" RAB sub-categories in corporate be transferred to a "Transition" RAB. It argues that this Transition RAB mitigates the impact on bills following the disaggregation. Hunter Water proposes that this RAB be allocated a long asset life (50 years) and would not be added to through future capex.

We disaggregated Sydney Water's RAB into 20 sub-categories at our 2008 Determination, on the basis that the methodology better reflects the efficient recovery of investment over the life of an asset.

Hunter Water has not proposed any adjustment to the total value of its RAB, only to how many categories that the RAB is split into.

We agree that we should disaggregate the RAB

The RAB was set at the 'line in the sand 'at a discount to the value of physical assets. As old assets expire and are renewed, they enter the RAB at full value. As such, eventually the RAB will match the full physical value of efficiently invested assets.

282 Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 21.

We agree that Hunter Water's historical depreciation allowance has been too low. In our 2016 Determination, we began transitioning asset lives lower, in line with the recommendations of our expenditure consultant, Jacobs.

We consider that disaggregating Hunter Water's RAB would produce a depreciation allowance that better matches the varying rate at which Hunter Water consumes its assets. It allows short lived assets, (such as ICT) to be depreciated quickly and long lived civil assets more slowly. It also helps ensure that the capital renewals enter the RAB at the same time that assets being replaced expire. This also means that through time, the prices customers pay in any given year better reflect the capital costs of the assets used to deliver their services.

We have used a different approach to that proposed by Hunter Water

Hunter Water has proposed that the value of each of the four business RABs be maintained. That is, that the total value of Water, Wastewater, Stormwater and Corporate RABs would not be affected by the disaggregation. We consider this is appropriate, as it helps ensure that capital expenditure for a particular service (eg, water) is recovered by the users of that service.

Hunter Water has proposed that the Water, Wastewater and Stormwater RABs be each broken down into the five sub-categories using the relative depreciated replacement cost (DRC) of the assets in its fixed asset register (FAR). This allows short-lived assets to be depreciated quickly and the full investment returned over the true life of the asset.

However, we consider that a better approach is to account for the impairment on assets when we first set the RAB at the line in the sand (LITS) in 2000. At the LITS, Hunter Water's RAB was 42% of the total DRC of its assets. As such, we have discounted assets that were constructed pre-LITS by 58% when disaggregating the RAB. We consider that this approach:

- Better reflects the type and value of assets that have contributed to the total RAB
- Aligns with our asset disposals policy, where pre-LITS assets are removed from the RAB at 42% of their sales price – to reflect their 'regulatory value'.

We have included a transition RAB in corporate

Hunter Water has proposed that the "equipment" and "intangible" subcategories in the Corporate RAB be combined into a transition RAB subcategory. It proposed that this transition RAB of $129 million would be ring-fenced from future capital expenditure and depreciated over 50 years. Going forward, "equipment" and "intangible" capital expenditure would be added to those specific RAB sub-categories.[283]

It argues that this will moderate the impacts on customer bills arising from the RAB disaggregation and its proposed asset lives.[284]

This issue has arisen as a result of the difference between the asset life we have historical used for new assets (ie, 100 years)[285] and the actual useful life of new corporate equipment and

283 Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 27.
284 Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 27.
285 Prior to our 2016 Determination we set asset lives for new assets at 100 years. At our 2016 Determination we began transitioning asset lives for new assets down to 84 years by 2019-20 (see IPART, *Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, Final Report*, June 2016, p 79).

intangible assets (proposed 5 years). This means that while investments in new equipment and intangible assets over the years have in reality expired quickly, the 100-year RAB life has meant that Hunter Water has been recovering the consumption of this capital much more slowly. This has created a situation where historical investments remain in the RAB far beyond their useful physical lives.

We consider that a transition RAB is necessary to depreciate historical expenditure on corporate intangible and equipment assets. However, we do not consider that a 50 year asset life for this category is appropriate. This is discussed further below in our analysis of asset lives.

Our draft decision on the disaggregated RAB values together with those proposed by Hunter Water are shown in Table G.1. It shows that our approach delivers generally higher RAB values in relatively shorter lived asset categories (such as mechanical/electrical) and lower RAB values in longer lived asset categories, in particular non-depreciating.

Table G.1 Draft decision on Hunter Water's opening RAB compared to Hunter Water's proposal ($million, $2019-20)

Business unit	RAB sub-category	Draft decision	Hunter Water proposed
Corporate	Civil	15	14
	Electrical/Mechanical	6	3
	Equipment[a]	0	0
	Intangible[a]	0	0
	Corporate Transition[a]	119	129
	Non-depreciating	11	5
	Sub-total	**151**	**151**
Water	Civil	1,048	1,093
	Electrical/Mechanical	153	101
	Equipment	13	9
	Intangible	0	0
	Non-depreciating	25	36
	Sub-total	**1,239**	**1,239**
Wastewater	Civil	812	740
	Electrical/Mechanical	205	134
	Equipment	12	8
	Intangible	0	0
	Non-depreciating	403	552
	Sub-total	**1,433**	**1,433**
Stormwater	Civil	46	46
	Electrical/Mechanical	0	0
	Equipment	0	0
	Intangible	0	0
	Non-depreciating	1	1
	Sub-total	**47**	**47**
Total		***2,870***	***2,870***

[a] The Corporate transition RAB ($119 million) is the sum of the "Equipment" ($86 million) and "Intangible" ($33 million) RABs derived using our disaggregation method.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, pp 13,22-25; Hunter Water's fixed asset register; IPART analysis.

G.2 Asset lives

Hunter Water proposed significantly shorter lives

For the purpose of calculating the depreciation allowance, Hunter Water has previously had four RABs: water, wastewater, stormwater and corporate; and we applied an asset life for new assets and an asset life for existing assets to each of these RABs. Table G.2 shows the asset lives used in previous Hunter Water price reviews.

Table G.2 Asset lives used in previous Hunter Water Determinations (years)

Year	Pre-2016	2016-17	2017-18	2018-19	2019-20
New assets	100	96	92	88	84
Existing assets	70	69	68	67	66

Source: IPART, *Hunter Water Corporation's water, sewerage, stormwater drainage and other services – Review of prices from 1 July 2013 to 30 June 2017, Final Report*, June 2013, p 85; IPART, *Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, Final Report*, June 2016, p 79.

Note: In our 2016 price review, we commissioned our expenditure consultant, Jacobs, to review Hunter Water's asset lives. Jacobs recommended 67 years for new assets and 62 years for existing assets, which we accepted. However, we decided to transition towards these asset lives to mitigate bill impacts (see IPART, *Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, Final Report*, June 2016,p 78).

Hunter Water has proposed to apply revised asset lives to each of its new RAB sub-categories as set out in below.

Table G.3 Hunter Water's proposed asset lives for 2020 Determination (years)

	Water		Wastewater		Stormwater		Corporate	
	Existing assets	New assets	Existing assets	New assets	Existing assets	New assets	Existing assets	New assets
Civil	48	90	62	90	47	117	22	42
Electrical/mech.	16	25	16	25	16	25	16	25
Equipment	5	11	5	11	5	11	5	11
Transition	n/a	n/a	n/a	n/a	n/a	n/a	50	n/a
Intangibles	5	5	5	5	5	5	5	5
Non-depreciating	0	0	0	0	0	0	0	0

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 26.

These are significantly shorter than what we have used to previously set prices. Further, the proposed asset lives for its new assets are also shorter than Sydney Water's, on a weighted average basis (see Table G.4).

Table G.4 Comparison of weighted average life of existing and new assets (years)

		Weighted average life
Existing assets at July 2020	HWC proposed[a]	50
	2016 Determination	65
New assets over 2020 Determination	HWC proposed	56
	SWC proposed	71

a Includes non-depreciating assets for comparison. If non-depreciating assets are excluded from the calculation, the weighted average asset life of existing depreciable assets reduces to 38 years.

Source: Hunter Water Annual Information Return, July 2019; Sydney Water Annual Information Return, June 2019; IPART analysis.

Hunter Water states that its proposed asset lives for existing assets are based on regular revaluations undertaken by external independent asset consultants. Each of the five categories has a mix of assets with similar lives, and the weighted average asset life allocated

to each category used weightings based on the depreciated value of each asset.[286] Its proposed lives for new assets are in line with the asset lives in the *NSW Reference Rates Manual* published by the NSW Office of Water.[287]

In addition, the 'transition' category is allocated a 50-year life, to manage the bill impacts of shortening corporate asset lives.[288]

We have set longer lives for existing assets than proposed by Hunter Water, but shorter than historical

Hunter Water's proposed lives of its existing assets are significantly shorter than we have used previously to set Hunter Water's prices (see Table G.4) We asked our expenditure consultant, Aither, to review the proposed asset lives as part of its general expenditure review.

Aither had some concerns about the integrity of some of the data in Hunter Water's fixed asset register (FAR). Hunter Water used the FAR to derive its proposed asset lives.

In its final report to IPART, Aither states:

> …through our review we had some concerns regarding the accuracy of the FAR. Aither considers there are two key aspects to the current and ongoing accuracy of the FAR:
>
> - Initial accuracy for establishing the disaggregated values, and
> - Ongoing accuracy for determining the 'remaining asset lives' for future regulatory periods.[289]
>
> Based on the information provided by Hunter Water, Aither considers that the concerns that we have regarding the integrity of the FAR are not sufficient enough to oppose the proposed disaggregated approach. The transition to a more disaggregated RAB that is proposed by Hunter Water, while not perfect, will result in a more economically efficient recovery of asset values than the current aggregated approach.[290]

However, we have some concerns regarding the data in the FAR, particularly on the lives of existing assets. Hunter Water engages Public Works Advisory to review the values and asset lives of assets in its FAR. Aither found that:

> As for asset lives, the Public Works Advisory reports adopt lives generally consistent with the range of values Hunter Water uses in its fixed assets register. Public Works Advisory had no condition data for water network assets, while for sewerage assets, Hunter Water's current asset condition assessment is focussed on a small number of high-priority critical assets, consequently no condition-based reassessments of asset lives were undertaken.[291]

Given the magnitude of the proposed change in asset lives, we consider that condition assessments should inform the expected lives of different assets and asset classes.

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286 Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, pp 21, 26.
287 Department of Primary Industries – Office of Water, NSW Reference Rates Manual: Valuation of water supply, sewerage and stormwater assets, June 2014.
288 Hunter Water proposes to 'quarantine' the value of corporate equipment and corporate intangibles as at 30 June 2020 ($128.7 million –the Corporate Transition RAB) and depreciate this asset over 50 years instead of five years. This essentially recovers 2% of the total cost each year instead of 20% each year, as would be the case if the new proposed life of five years were applied.
289 Aither, *Hunter Water expenditure review*, 14 December 2019, p 78.
290 Aither, *Hunter Water expenditure review*, 14 December 2019, p 78.
291 Aither, *Hunter Water expenditure review*, 14 December 2019, p 77.

In 2016, our consultant Jacobs, recommended transitioning the lives of existing assets from 70 to 62 years. In our 2016 Determination, we subsequently set the transition period over 8 years, so that by 2024, prices would be set based on an asset life of 62 years for existing assets.

Given the scale of the change proposed by Hunter Water, our draft decision is for the 2020 determination period to set the lives of existing assets in each of the RAB sub-categories (excluding the 'Transition' sub-category) so that the weighted average asset life of all of Hunter Water's assets is 62 years.

We intend to undertake a comprehensive review of both existing and new asset lives for Hunter Water, Sydney Water, Central Coast Council and Essential Energy (Broken Hill). This would ensure that all regulated utilities are treated consistently and that the asset lives we use to set prices are reflective of their useful economic life.

We have set the life of the corporate transition RAB sub-category to 10 years, compared to 50 years as proposed by Hunter Water. This achieves two outcomes:

- It increases Hunter Water's short-term depreciation allowance for this category, in light of our draft decision to use longer asset lives than it proposed for the remainder of the RAB.
- It better reflects the timing of the use of the intangible and equipment assets that this transition RAB represents. We consider that having customers in 50 years' time still paying for assets that were consumed delivering services between 2000 and 2020 is unreasonable and not cost-reflective.

Table G.5 below sets out our draft decision on the lives of existing assets compared to those proposed by Hunter Water.

Table G.5 Draft decision on lives of existing assets compared to Hunter Water's proposal (Years)

Business unit	RAB sub-category	Draft decision	HWC proposed	Difference
Corporate	Civil	31.9	22	9.9
	Electrical/Mechanical	23.2	16	7.2
	Equipment	NA	NA	NA
	Intangible	NA	NA	NA
	Non-depreciating	0	0	0
	Transition	10	50	-40
Water	Civil	**69.5**	48	21.5
	Electrical/Mechanical	**23.2**	16	7.2
	Equipment	**7.2**	5	2.2
	Intangible	**7.2**	5	2.2
	Non-depreciating	**0.0**	0	0
Wastewater	Civil	**89.8**	62	27.8
	Electrical/Mechanical	**23.2**	16	7.2
	Equipment	**7.2**	5	2.2
	Intangible	**7.2**	5	2.2
	Non-depreciating	**0.0**	0	0
Stormwater	Civil	**68.1**	47	21.1
	Electrical/Mechanical	**23.2**	16	7.2
	Equipment	**7.2**	5	2.2
	Intangible	**7.2**	5	2.2
	Non-depreciating	**0.0**	0	0
Total weighted average		**62**	**50**	**12**

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 26; IPART analysis.

We have set longer lives for new assets than Hunter Water proposed, but shorter than historical

For determinations between 2000 and 2013, we set prices using lives of new assets, or capital expenditure, of 100 years. At our 2016 Determination, we began transitioning new asset lives from 100 years to 67 years. This was in line with Jacobs' recommendations on the lives of new assets.

For the 2020 Determination, Hunter Water has proposed asset lives for capital expenditure in each of its 16 depreciable RAB sub-categories.[292] Its proposed weighted average asset life of new assets is 56 years. As set out in Table G.4 above, this is 15 years (or 21%) lower than the weighted average life of new assets proposed by Sydney Water in its pricing proposal for the 2020 Determination.

Table G.6 below compares Hunter Water and Sydney Water's proposed lives of new assets by RAB sub-category for their respective 2020 Determinations.

Table G.6 Comparison of Hunter Water and Sydney Water's proposed lives of new depreciable assets (Years)

Business unit	RAB sub-category	Hunter Water	Sydney Water	Difference
Corporate	Civil	42	68	-26
	Electrical/Mechanical[a]	25	9	16
	Equipment[b]	11	10	1
	Intangible[b]	5	10	-5
	Sub-total	**16**		
Water	Civil	90	140	-50
	Electrical/Mechanical	25	35	-10
	Equipment	11	15	-4
	Intangible	5	15	-10
	Sub-total	**66**		
Wastewater	Civil	90	90	0
	Electrical/Mechanical	25	25	0
	Equipment	11	15	-4
	Intangible	5	15	-10
	Sub-total	**60**		
Stormwater	Civil	117	150	-33
	Electrical/Mechanical	25	25	0
	Equipment	11	15	-4
	Intangible	5	15	-10
	Sub-total	**110**		
Total weighted average [a]		**56**	**71**	**-15**

a Sydney Water has separate RAB sub-categories for "mechanical" and "electrical". Figures shown in electrical/mechanical are the averages of the two individual categories for Sydney Water.

b Sydney Water has a single "Electronic" RAB sub-category which covers both "equipment" and "intangible". As such, the life for new "Electronic" assets is shown here under both "Equipment" and "Intangible".

Note: The four non-depreciating RAB sub-categories have no asset lives and as such have been excluded from this table. Hunter Water's proposed "Transition" RAB sub-category includes existing assets only, and as such no new assets.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 26; Sydney Water Annual Information Return, July 2019.

We consider that in general, similar new assets in Hunter Water should have the same asset lives as those in Sydney Water. Whilst there may be some minor differences on exception (for

292 This excludes the four non-depreciating sub-categories, and the Transition RAB sub-category as it includes existing assets only.

instance, Hunter Water owns bulk water assets such as dams and Sydney Water does not), we would expect new asset lives to be the same between the two utilities for the same sub-categories.

Given the proposed difference in new asset lives from Sydney Water together with Hunter Water's significant reduction in the weighted asset life of new assets, we have set lives of Hunter Water's new assets in line with Sydney Water's. This ensures consistency between the two utilities, and still delivers an increase in Hunter Water's depreciation allowance compared to the 2016 Determination.

Table G.7 below sets out our draft decision on the lives of new assets.

Table G.7 Draft decision on lives of new assets (years)

Sub-category	Corporate	Water	Wastewater	Stormwater
Civil	68	140	90	150
Mechanical/Electrical	9	35	25	25
Equipment	10	15	15	15
Intangibles	10	15	15	15

We will review asset lives before the next price review

In general, we agree with Hunter Water that the asset lives we have used previously to set prices have been too long. This has led to an under-recovery of capital and a growth in the RAB from asset renewals.

It has also contributed to lower financial ratios, contributing to concerns about Hunter Water's financeability at times. However, given the scale of Hunter Water's proposed increase in depreciation costs, we will undertake a comprehensive review of new and existing asset lives for:

- Hunter Water
- Sydney Water
- Central Coast Council
- WaterNSW-Greater Sydney
- Essential Energy (Broken Hill).

H Notional revenue requirement

This appendix outlines how we calculated some key inputs to the NRR. It explains our decisions on:

- The value of the RAB
- The tax allowance
- The working capital allowance, and
- Adjustments to the NRR.

H.1 Value of the regulatory asset base (RAB)

The RAB represents the value of Hunter Water's assets on which we consider it should earn a return on capital and an allowance for regulatory depreciation.

In calculating the opening RAB, we rolled forward the RAB we set in the last determination period and carried this forward to include our draft decisions on capital expenditure and depreciation. The steps we took were to:

- Add prudent and efficient capital expenditure (see Chapter 5)
- Deduct cash capital contributions (explained below)
- Deduct the regulatory value of asset disposals (explained below)
- Deduct the regulatory depreciation we allowed at the 2016 Determination and for the next period, and
- Added the annual indexation of the RAB.

Our decisions on the RAB are set out in Table H.1 and Table H.2 below, with a comparison of our decision on the RAB values that Hunter Water proposed.

- For the 2016 period, our draft decisions have made minor changes to Hunter Water's proposal, with a 1.3% difference in the RAB increase over the five years.
- For the 2020 period, our draft decisions have slightly more impact, with the change in RAB over the period being 14.5% lower than that in Hunter Water's proposal.

Table H.3 presents our decisions on the RAB by business area.

We present our analysis and decisions regarding the treatment of historical cash contributions and asset disposals below the tables.

Table H.1 RAB roll-over for 2015-16 and the 2016 determination period

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	Change over 5 years[a]
Opening RAB		**2,260.6**	**2,340.1**	**2,430.3**	**2,544.5**	**2,675.8**	
Plus: Actual prudent and efficient capex		99.7	86.8	104.1	119.2	174.3	
Less: Cash capital contributions		8.9	5.0	4.2	5.2	6.9	
Less: Asset disposals		0.2	1.6	0.3	0.0	-	
Less: Allowed regulatory depreciation		34.1	35.2	37.5	40.0	42.7	
Plus: Indexation		23.1	45.2	52.1	57.2	69.0	
Closing RAB	**2,260.6**	**2,340.1**	**2,430.3**	**2,544.5**	**2,675.8**	**2,869.5**	**608.9**
Hunter Water's proposal (closing)	2,260.6	2,339.7	2,430.2	2,544.2	2,676.7	2,877.3	616.7
Difference ($)		-0.4	-0.1	-0.3	0.9	7.8	7.8
Difference (%)		0.0%	0.0%	0.0%	0.0%	0.3%	

[a] This shows the difference between the 2015-16 opening RAB and the 2019-20 closing RAB. The result differs from just comparing the closing RAB which does not account for changes in the other adjustments.

Note: Totals may not add due to rounding.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, pp 12-13; IPART analysis.

Table H.2 RAB for the 2020 determination period ($million, $2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	Change over 4 years[a]
Opening RAB		**2,869.5**	**3,001.1**	**3,104.6**	**3,184.6**	
Plus: Actual prudent and efficient capex		191.2	169.5	151.3	128.3	
Less: Cash capital contributions		0.0	0.0	0.0	0.0	
Less: Asset disposals		0.0	0.0	0.0	0.0	
Less: Allowed regulatory depreciation		59.6	66.0	71.4	75.8	
Plus: Indexation		0.0	0.0	0.0	0.0	
Closing RAB	**2,869.5**	**3,001.1**	**3,104.6**	**3,184.6**	**3,237.0**	**367.5**
Hunter Water's proposal (closing RAB)	2,877.3	3,015.9	3,130.8	3,228.2	3,307.3	430.0
Difference ($)		-14.8	-26.2	- 43.6	-70.3	- 62.5
Difference (%)		-0.5%	-0.8%	-1.4%	-2.1%	

[a] This shows the difference between the 2020-21 opening RAB and the 2023-24 closing RAB. The result differs from just comparing the closing RAB which does not account for changes in the other adjustments.

Note: Totals may not add due to rounding.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, pp 12-13; IPART analysis.

Table H.3 Our annual RAB decision by business compared to Hunter Water's proposal ($million, $2019-20)

	2020-21 opening	2020-21 closing	2021-22 closing	2022-23 closing	2023-24 closing
Water	**1,238.9**	**1,249.7**	**1,275.3**	**1,303.6**	**1,327.0**
Hunter Water's proposal	1,241.1	1,248.9	1,271.6	1,298.9	1,320.9
Difference	*-0.2%*	*0.1%*	*0.3%*	*0.4%*	*0.5%*
Wastewater	**1,432.7**	**1,531.0**	**1,586.3**	**1,636.0**	**1,661.6**
Hunter Water's proposal	1,435.7	1,531.2	1,589.4	1,647.4	1,691.7
Difference	*-0.2%*	*-0.0%*	*-0.2%*	*-0.7%*	*-1.8%*
Stormwater	**47.1**	**50.0**	**52.0**	**55.8**	**60.6**
Hunter Water's proposal	50.0	52.5	54.2	57.7	62.3
Difference	*-5.7%*	*-4.7%*	*-4.1%*	*-3.4%*	*-2.7%*
Corporate	**150.8**	**170.5**	**191.0**	**189.2**	**187.8**
Hunter Water's proposal	150.5	183.2	215.6	224.3	232.4
Difference	0.2%	-6.9%	-11.4%	-15.7%	-19.2%

Note: Totals may not add due to rounding.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 13; IPART analysis.

H.1.1 Cash capital contributions

Cash capital contributions that a utility receives from third parties towards its capital expenditure, such as government grants, are netted off capital expenditure (ie, they do not enter the RAB). This ensures that customers do not pay a return on assets or regulatory depreciation for capital expenditure that the utility has already had funded from other sources.

However, utilities would normally need to pay tax on capital contributions. Prior to 2016, this tax amount was included in the tax allowance building block. In the 2016 reviews for Sydney Water, Hunter Water and WaterNSW, we changed this approach so that we now deduct the cash contributions net of tax from the capital expenditure allowance, effectively capitalising the tax impact on capital contributions into the RAB.

Historical cash capital contributions

Prior to 2008, the main source of cash capital contributions for Hunter Water was from developer charges. However, on 17 December 2008, the NSW Government set water and sewerage developer charges to zero for both these utilities. As a result, the amount to be deducted from capital expenditure due to cash capital contributions is minor.

Hunter Water reported $30.1 million in cash capital contributions comprising[293]:

- Revenue from the Environmental Improvement Charge (EIC) totalling $26.3 million
- A $1.7 million contribution in 2019-20 from the NSW Government for the Wyee backlog sewer scheme
- $2.1 million for contributions from various third parties. These are not developer contributions but rather contributions from various 'non-developer' sources such as from customer projects under the urban infill backlog sewer schemes (not funded through the EIC) or federal Government grants.[294]

We have adjusted the RAB for the cash capital contribution amounts shown in Table H.4.

Table H.4 Historical cash capital contributions deducted from the RAB ($ million, nominal)

	2015-16	2016-17	2017-18	2018-19	2019-20	Total
EIC	6.8	5.0	4.2	5.1	5.2	26.3
Government contribution	0	0	0	0	1.7	1.7
Third parties	2.1	0	0	0	0	2.1
Total	**8.9**	**5.0**	**4.2**	**5.1**	**6.9**	**30.1**

Note: The table presents the total cash contributions for water, sewerage and stormwater (net of tax allowance for 2017 to 2019). Totals may not add due to rounding.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 14, and Hunter Water 2018-19 AIR/SIR, 'Capex by RAB', Table 5.1.3.

Future cash contributions

Hunter Water Environmental Improvement Charge (EIC) will no longer apply in the 2020 determination period, and Hunter Water stated that it is not aware of any future cash contributions beyond 2019-20.[295] Consequently it has forecast zero cash contributions.

The 4-year historical average of contributions, excluding the EIC, is around $8,000 per year.[296] Given the current policy of the NSW Government to set developer charges to zero, we consider Hunter Water's proposal to be reasonable and have accepted it. At the next review, we will adjust the RAB for actual contributions received.

H.1.2 Adjustments for asset disposals

Asset disposals can include asset sales, write-offs and write-downs. The value of any regulatory assets Hunter Water disposed of during the 2016 determination period, as well as any assets it proposes to dispose of during the 2020 determination period, are deducted from the RAB. This ensures customers are not charged a return on assets or regulatory depreciation for assets that are no longer used to provide regulated services.

293 Net of applicable tax allowance. Correspondence with Hunter Water (email), 29 November 2019.
294 Hunter Water confirmed that these contributions are not developer charges for water and sewerage. Correspondence with Hunter Water (email), 29 November 2019.
295 Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 13.
296 Based on additional data provided by Hunter Water, and IPART analysis. Numbers do not match Table H.4 due to rounding. Correspondence with Hunter Water (email), 29 November 2019.

We applied our 2018 asset disposals policy[297] in this review to deduct asset disposals from the RAB. Under this policy, we regard disposals as significant if they attract capital gains tax or account for more than 0.5% of the opening RAB value of the relevant service in the year in which the disposal occurred. The key principles of our disposal policy are provided in Box H.1.

Box H.1 IPART's asset disposal policy

Under IPART's asset disposal policy, we categorise asset sales and asset write-offs into significant or non-significant disposals. Significant disposals represent more than 0.5% of opening value of the RAB in the year in which the disposal occurs. For example, if a water asset is sold for more than 0.5% of the opening RAB for water assets, it would be considered a significant asset disposal.

- Significant asset write-offs are assessed on a case by case basis.
- The treatment of significant asset sales depends on whether the assets are pre line-in-the sand or post line-in-the-sand.
  - Pre-line-in-the-sand: regulatory values to be deducted from the RAB are estimated by multiplying the sale values by the RAB to DRC (depreciated replacement costs) ratio at the time the initial RAB value is established.
  - Post-line-in-the-sand: we estimate the regulatory value of the assets sold, based on the information available to us. For example, by tracking actual capex.
- For non-significant asset write-offs, we do not deduct any value from the RAB, except as deemed necessary on a case by case basis.

For non-significant sales, we deduct the sales values from the RAB, net of efficient sales costs.

Hunter Water's proposal included information on the value of assets it had disposed of, or forecast to dispose of from 2015-16 to the end of the 2016 determination period. These asset disposals total $1.8 million.[298] After reviewing this and some subsequent information our draft decision to deduct $2.1 million from Hunter Water's RAB for historical asset disposals, as shown in Table H.5. Below is our analysis on Hunter Water's asset sales. Hunter Water did not propose any significant write-offs.

Significant historical asset sales

Hunter Water identified six significant asset sales over the 2016 determination period and proposed a total of $1.7 million to be deducted from the RAB. Four of those asset disposals relate to assets that were purchased pre- line-in-the-sand[299] and we accept Hunter Water's approach to deduct 42% of the sale prices of these assets from the RAB, in line with our disposal policy.

For the remaining two significant assets, we have adjusted the amount to be deducted from the RAB, to align with our asset disposals policy.

297 IPART, *Asset Disposals Policy Paper (for application to water businesses)*, February 2018, available here.
298 Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, pp 14-15; IPART analysis.
299 Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, pp 14-15; IPART analysis.

- **Land sale at Benolba.** Hunter Water identified this land as a 'post line-in-the-sand' asset, for which the RAB value would be deducted. However, Hunter Water had deducted the sales price of $538,000 (in 2016).[300] We calculated the RAB value at the time of disposal as the purchase price ($786,000 in 2007) indexed by inflation to 2016. As a result, we deducted $973,024 from the RAB for this asset disposal.
- **Land sale at Bennetts Green.** Hunter Water also treated this land sale as a 'post line-in-the-sand asset', and deducted the sales price of $339,000 from the RAB as this was the latest known price for the land. However, Hunter Water later confirmed that this asset was in its ownership pre 2000, but had been lost from records, with the earliest recorded value being from 2012.[301] Given that this asset was purchased prior to 2000, we treated it as a pre line-in-the-sand asset. In accordance with our policy, we deducted 42% of the sales price (at $142,000) from the RAB, which is our best estimate of its regulatory value in the RAB.

Non-significant disposals

We accepted Hunter Water's non-significant asset disposals of $0.2 million (nominal) over the period. This is about 0.01% of Hunter Water's opening RAB value of the year in which the assets are disposed of.

Table H.5 IPART's asset disposals to be removed from the RAB for the period 2013 to 2019 ($millions, $nominal)

	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Non-significant disposals	0	0.1	0.1	0	0	0.2
Significant sales	0.2	1.5	0.2	0	0	1.9
Total	**0.2**	**1.6**	**0.3**	**0**	**0**	**2.1**
Hunter Water's proposal	0.4	1.1	0.3	0	0	1.8
Difference ($)	*-0.2*	*0.5*	*0*	*0*	*0*	*0.3*

Note: The table presents the total asset sales for water, sewerage and stormwater.

Source: Hunter Water 2018-19 AIR/SIR and IPART analysis.

300 Correspondence with Hunter Water (email), 2 December 2019.
301 Correspondence with Hunter Water (email), 2 December 2019.

H.2 Return on capital

Our return on assets allowance is equal to the value of the RAB in each year of the determination period multiplied by an appropriate rate of return. As for previous reviews, we have determined the rate of return using an estimate of the WACC.

For the WACC decision, we applied our published methodology. Appendix I sets out the parameters that we used.

Our draft decisions have resulted in lower return on capital than Hunter Water had proposed (See Table H.6 below). This follows from our draft decisions that resulted in a lower RAB (see section H.1 above) but mostly, from the lower WACC.

Table H.6 Comparison of our draft decision on return on assets, and Hunter Water's proposal ($millions, $2019-20)

	2020-21	2021-22	2022-23	2023-24	Total
Hunter Water's proposal	119.6	124.9	129.3	133.0	506.8
Our draft decision	**93.4**	**97.2**	**100.2**	**102.3**	**393.1**
Difference ($)	-26.2	-27.7	-29.1	-30.7	-113.7
Difference (%)	-21.9%	-22.2%	-22.5%	-23.1%	-22.4%

H.3 Allowance for tax and working capital

As discussed in Chapter 6, we include an explicit allowance for tax, because we use a post-tax WACC to estimate the allowance for return on assets in the revenue requirement. This allowance reflects an efficient benchmark business's forecast tax liabilities. Our building block methodology also includes a working capital allowance.

H.3.1 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.[302]

The tax allowance is one of the last building block items we calculate, due to its dependence on other items such as operating cost allowances and WACC parameters.

To establish the tax allowance, we:

- Adopted a 30% tax rate, because the NRR for Hunter Water is above the small business tax threshold of $50 million per annum.

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

- Accepted Hunter Water's forecast tax depreciation but updated it to reflect our decisions on capital expenditure
- Accepted Hunter Water's forecast non-cash contributions (or AFOC).

Table H.7 shows our draft decision on the tax allowance. Our tax allowance is lower than Hunter Water's proposed tax allowance, mainly due to a lower WACC.

Table H.7 Comparison of our draft decision on tax allowance and Hunter Water's proposal ($millions, $2019-20)

	2020-21	2021-22	2022-23	2023-24	Total
Hunter Water proposal	11.9	12.4	13.3	15.2	52.8
Our draft decision	**10.3**	**10.2**	**10.6**	**11.8**	**42.8**
Difference ($)	-1.6	-2.2	-2.7	-3.4	-10.0
Difference (%)	-13%	-18%	-20%	-22%	-18.8%

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 29; IPART analysis.

Forecast tax depreciation

Tax depreciation is an input into the tax calculation. IPART's policy for business that pay tax or tax equivalents is to use the tax deprecation amounts forecast by the businesses when we calculate the tax allowance.[303] This approach means that our tax depreciation reflects actual business practice (eg, actual tax depreciation rates and depreciation methods).

Hunter Water's forecast tax depreciation amounts incorporate depreciation on:

- Existing assets
- Forecast capital expenditure, and
- Assets free of charge (AFOC).

We have reviewed Hunter Water's and accepted Hunter Water's approach to forecasting tax depreciation with the exception that we have amended the depreciation on forecast capital expenditure to reflect our draft decision rather than Hunter Water's proposed amount.

Forecast non-cash capital contributions

Non-cash capital contributions (also known as Assets Free of Charge, or 'AFOC') are assets that utilities receive for free. Non-cash capital contributions do not affect the RAB, and utilities do not earn a return on or of those assets. Utilities, however, are required to pay tax equivalents on the value of non-cash capital contributions. As such, we need to include forecast AFOC as revenue in the calculation of the regulatory tax allowance building block.

Hunter Water's proposal includes a forecast value for AFOC. To assess the likelihood of Hunter Water's proposal eventuating we have compared proposed values to averages of historical actual AFOC. This shows that Hunter Water's forecasts are for less AFOC than in recent years, but closer to longer term averages (Table H.8). This indicates that Hunter Water's

303 IPART, *The incorporation of company tax in price determinations, Other Industries – Final Decision*, December 2011, pp 17-18.

estimates are reasonable. We have accepted Hunter Water's forecast non-cash capital contributions as set out in Table H.9 below.

Table H.8 Averages of proposed and historical AFOC ($millions, $2019-20)

Proposed AFOC (4 year average)	Historical averages			
	3-year	4-year	5-year	8-year
26.5	34.1	32.7	31.9	30.0

Source: Hunter Water, September AIR/SIR, 'SIR Capex 4', rows 30-33; IPART analysis.

Table H.9 Our decision on assets free of charge ($millions, $2019-20)

Product	2020-21	2021-22	2022-23	2023-24	Total
Water	9.9	9.3	9	9	37.2
Wastewater	18.3	17.3	16.7	16.7	69.0
Stormwater	-	-	-	-	-
Total	**28.2**	**26.7**	**25.6**	**25.6**	**106.1**

Note: Totals may not add due to rounding.

H.4 Revenue adjustments for non-regulated revenue

We encourage water utilities to seek ways to generate revenue in ways other than traditional services, for instance, through renting some of their land if there is an interested lessor. Where they do this by using assets that have been paid for by the customers of the traditional services, we typically share this revenue with the customers that have paid for the asset.

Sharing the revenue encourages the utilities to pursue non-regulated revenue while ensuring customers also benefit from the arrangements because they pay for the assets. In the past, we have typically applied a 50:50 sharing ratio of the revenue. For this review we have diverged slightly from past approach for two sources of revenue:

- Revenue from least-cost recycled water schemes where the recycled water displaces potable water (See Chapter 10).
- Revenue from bio-banking credits (explained below).

How we treat revenue from bio-banking credits

Our treatment of revenue from participation in the bio-banking scheme differs from our usual approach to non-regulated revenue. Comparatively, a smaller proportion is shared with customers. This recognises that Hunter Water would bear non-negligible scheme participation costs (such as setup and ongoing costs) and responsibilities of the scheme that create increased revenue risk. Scheme participation requires set up costs, as well as enters the business into perpetual agreements with ongoing costs and responsibilities. A biodiversity Conservation trust is established and funded through the first sales of biodiversity credits.

Our draft decision is that when a piece of land is entered into the scheme, it should be treated as follows:

- **Treatment of the land in the RAB**: If the land was operational at the RAB creation in 2000, but had since become non-operational, then its value should be removed from the RAB. Alternatively, if the land either is still operational, or if was non-operational in 2000, then there would be no change to the RAB.
- **Costs recovered through the scheme, or avoided because of participation in the scheme**: Operational costs, common corporate overheads, or land tax associated with the managing the land should no longer be recovered from customers, as these should either be recovered through annual repayments through the Biodiversity Conservation Trust, or are avoided by entering the Scheme (eg, land tax). We would remove these costs from the regulated cost base where identification is simple, and the utilities should provide an estimate of these costs.
- **Revenue from selling credits**: The utility could retain 90% of the revenue from credit sales due to the additional costs from participating in the scheme, such as setup and ongoing costs and responsibilities that create increased risk for the utility. 10% should be shared with customers, by removing it from the NRR when setting prices.

In its proposal, Hunter Water's forecast revenue from bio-banking credits was zero. It stated that it had entered one piece of land into the scheme and intended to sell the credits in the current period, ie, 2019-20. It did not progress any further sites to enter the scheme.[304]

However, during the course of our review, Hunter Water informed us that it had not yet sold the credits, and revised its forecast revenue from the credits to be about $2.1 million over the next few years.[305] It also provided that:

- The land is operational land (so no adjustment to the RAB).
- It has not undertaken maintenance is recent years, so is unable to quantify avoided costs and has no basis to quantify corporate overhead costs. We consider this is reasonable. If no maintenance budget has be allocated to this site then this is likely to continue going forward, and a share of corporate overheads is likely to be minor.
- The land was already exempt from land tax as it was categorised as a 'public garden'.[306]

As such, we have decided to share 10% of the revenue with customers. Given uncertainty around the selling of credits, we have assumed Hunter Water would receive this revenue evenly over the four years of the determination, at $541,500 a year.

Table H.10 Expected revenue from biodiversity bio-banking offsets, and amount to be shared with customers

	2020-21	2021-22	2022-23	2023-24	Total
Revenue from bio-banking scheme	541,500	541,500	541,500	541,500	2,166,000
Share for customers	**54,150**	**54,150**	**54,150**	**54,150**	**216,600**

Note: Totals may not add due to rounding.

Source: Correspondence with Hunter Water (email), 10 December 2019; IPART analysis.

304 Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 33. Our approach to non-regulated revenue does not include an ex-post adjustment to account for actual non-regulated revenue.
305 Correspondence with Hunter Water (email), 10 December 2019.
306 Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 33.

H.5 Revenue to be recovered from water, wastewater and stormwater prices

The tables below show our draft decision on the amount of revenue (the adjusted NRR) to be recovered from prices for each service. The wastewater adjusted NRR is the largest, averaging $167.6 million per year over four years, followed by water ($149.3 million annual average) and stormwater ($5.2 million annual average).

Table H.11 Notional revenue requirement for water prices ($millions, $2019-20)

	2020-21	2021-22	2022-23	2023-24	Total
Operating expenditure	73.0	70.0	69.1	67.7	279.8
Depreciation	29.6	31.8	33.9	35.7	131.0
Return on assets	41.9	42.8	43.8	44.7	173.3
Return on working capital	1.0	1.1	1.1	1.2	4.4
Tax allowance	6.9	6.9	7.1	7.5	28.4
Adjustments	-12.6	-2.3	-2.3	-2.3	-19.7
Total to be collected from prices	**139.8**	**150.3**	**152.7**	**154.5**	**597.3**
Hunter Water's proposal	167	169.2	173.7	177.7	687.6
Difference	*-16.3%*	*-11.2%*	*-12.1%*	*-13.1%*	*-0.1*

Note: Numbers may not add due to rounding

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 10; IPART analysis

Table H.12 Notional revenue requirement for wastewater prices ($millions, $2019-20)

	2020-21	2021-22	2022-23	2023-24	Total
Operating expenditure	81.3	81.8	82.9	81.6	327.7
Depreciation	27.9	31.9	34.9	37.4	132.1
Return on assets	49.8	52.6	54.4	55.6	212.4
Return on working capital	-0.1	0.1	0.2	0.3	0.5
Tax allowance	3.2	3.1	3.3	4.1	13.6
Adjustments	-4.0	-4.0	-4.0	-4.0	-16.0
Total to be collected from prices	**158.1**	**165.4**	**171.8**	**175.0**	**670.2**
Hunter Water's proposal	171.3	181.8	191	197	741.1
Difference	-7.7%	-9.0%	-10.1%	-11.2%	-0.1

Note: Numbers may not add due to rounding

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 10; IPART analysis.

Table H.13 Notional revenue requirement for stormwater prices ($millions, $2019-20)

	2020-21	2021-22	2022-23	2023-24	Total
Operating expenditure	1.7	1.8	1.8	1.7	7.0
Depreciation	1.2	1.3	1.4	1.5	5.4
Return on assets	1.7	1.8	1.9	2.0	7.5
Return on working capital	0.0	0.0	0.0	0.0	0.0
Tax allowance	0.22	0.22	0.22	0.22	0.9
Adjustments	0.00	0.00	0.00	0.00	0.0
Total to be collected from prices	**4.8**	**5.1**	**5.3**	**5.5**	**20.6**
Hunter Water's proposal	5.6	6	6.3	6.6	24.5
Difference	-14.2%	-15.3%	-16.3%	-16.9%	-0.2

Note: Numbers may not add due to rounding

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 6*, 1 July 2019, p 11; IPART analysis.

I Weighted average cost of capital

This appendix shows the parameters we used to calculate the draft weighted average cost of capital (WACC), and explains our decision about how to treat annual changes in the WACC with regard to customer prices.

I.1 Our WACC estimate

Our WACC estimate is set out in Table I.1 below. In keeping with our standard WACC method[307], we adopted current market observations for the cost of debt, inflation and the market risk premium. We adopted the following industry-specific parameters:

- Gearing ratio of 60%
- Equity beta of 0.7.

307 See IPART, *Review of our WACC method, Final Report*, February 2018. Available on our website: https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/investigation-administrative-legislative-requirements-sea-wacc-methodology-2017/final-report-review-of-our-wacc-method-february-2018.pdf

Table I.1 Hunter Water WACC for draft report

	Step 1		Step 2 – Final WACC range		
	Current market data	Long term averages	Lower	Midpoint	Upper
Nominal risk free rate	1.20%	3.10%			
Inflation	2.30%	2.30%			
Implied Debt Margin	1.80%	2.60%			
Market Risk premium	8.8%	6.0%			
Debt funding	60%	60%			
Equity funding	40%	40%			
Total funding (debt + equity)	100%	100%			
Gamma	0.25	0.25			
Corporate tax rate	30%	30%			
Effective tax rate for equity	30%	30%			
Effective tax rate for debt	30%	30%			
Equity beta	0.70	0.70			
Cost of equity (nominal post-tax)	7.4%	7.3%			
Cost of equity (real-post tax)	4.9%	4.9%			
Cost of debt (nominal pre-tax)	3.0%	5.7%			
Cost of debt (real pre-tax)	0.7%	3.3%			
Nominal Vanilla (post-tax nominal) WACC	4.7%	6.3%	4.7%	5.5%	6.3%
Post-tax real WACC	2.4%	3.9%	**2.4%**	**3.2%**	**3.9%**
Pre-tax nominal WACC	5.6%	7.2%	5.6%	6.4%	7.2%
pre-tax real WACC point estimate	3.2%	4.8%	3.2%	4.0%	4.8%

Source: IPART analysis.

I.2 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.

I.3 Sampling dates for market observations

We sampled market observations for the current year to the end of January 2020, which is the last available whole month. 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. We chose that date so that the Final Report WACC would sample all years in consistent months.

I.4 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%.

I.5 Regulatory period

We adopt a standard four year regulatory period for Hunter Water.

I.6 Application of trailing average method

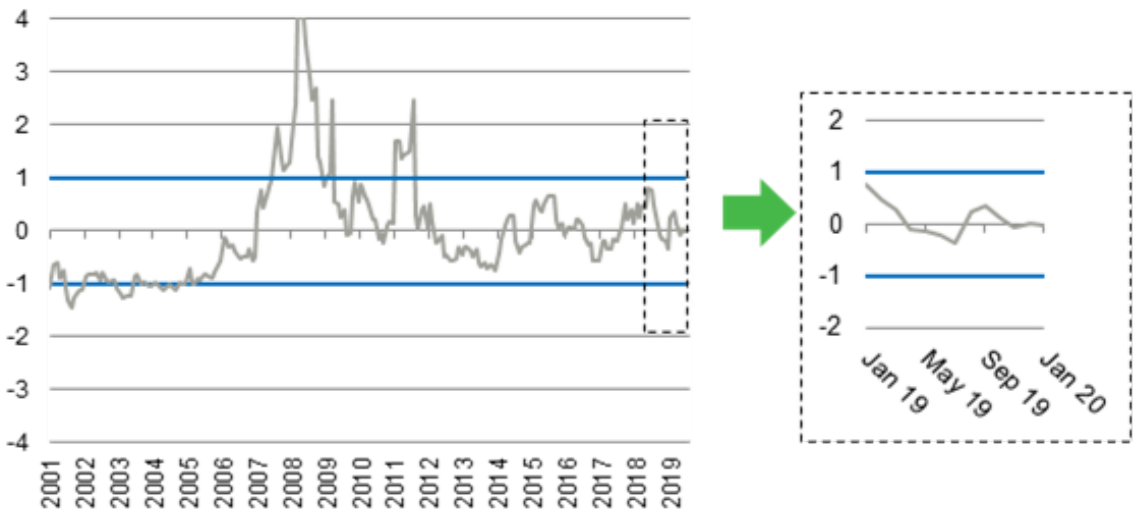
Our 2017 WACC method introduced a decision to estimate both the long-term and current cost of debt using a trailing average approach, which updates the cost of debt annually over the regulatory period. As foreshadowed in our 2017 review of the WACC method, we employ a transition to trailing average in the calculations presented above.[308]

I.7 Uncertainty index

We tested the uncertainty index for market observations to the end of January 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.

308 IPART, *Review of our WACC method, Final Report,* February 2018.

Figure I.1 IPART's uncertainty index



Data source: Thompson Reuters, Bloomberg and IPART analysis.

I.8 Annual WACC adjustments

Our 2017 review of the WACC method introduced a trailing average cost of debt. One consequence is that the WACC changes every year, as new tranches of debt are introduced to the trailing averages and the oldest tranches drop out.

We considered two options to adjust price to account for annual WACC changes:

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. Annual real price changes to reflect the changing WACC.

Hunter Water initially did not state a preference for the annual or end-of-term adjustment, but in response to our Issues Paper, it stated a preference for the end-of-term true-up.[309]

We have adopted this approach, noting that it avoids unnecessary price volatility to customers.

309 Hunter Water, *Pricing Proposal to IPART, Technical Paper 3*, 1 July 2019, p A-10; and Hunter Water, Response to IPART Issues Paper, 21 October 2019, p 19.

J Demand and customer numbers

This appendix corresponds to Chapter 7 Demand and customer numbers.

It presents supplementary information on Hunter Water's demand forecasting approach and stormwater customer numbers.

J.1 Hunter Water's demand forecasting approach

Hunter Water uses its demand forecasting model to generate water sales volumes. These are used to set the water service charges, wastewater discharge volumes, and wastewater service charges. We have made a draft decision to accept Hunter Water's forecast water sales volumes for the 2020 determination period.

As noted in Chapter 7, Hunter Water's demand forecasting approach comprises two stages:

1. Top-down climate correction to produce a demand starting point
2. Bottom-up forecasting from this demand starting point onwards.

Hunter Water has developed a new climate correction methodology to estimate the climate corrected demand starting point. The methodology is discussed in further detail below.

We also discuss Hunter Water's assumed return to historical rainfall levels in its forecast water sales volumes.

J.1.1 The demand starting point represents consumption in an "average" climate year

Hunter Water's climate correction methodology relies on a regression model – known as a Demand Tracking Model (DTM) – to predict daily demand based on climate variables (ie, temperature, evaporation and soil moisture). The key elements are:

1. **Calibration** – Hunter Water used two years of data (from 1 July 2016 to 25 July 2018) to calibrate the DTM – which calculates how daily water demand responds to different daily climate conditions.
2. **Hindcast** – Hunter Water then used the DTM to generate the daily water production that would have occurred in the calibration period under the climate variables that occurred every day from 1970 to 2019.
3. **Climate correction** – The climate corrected demand (the starting point or base year for Hunter Water's forecasts) represents the average of the hindcast daily water production.[310]

310 Jacobs, *Peer Review of Hunter Water Demand Model, Phase 1: Demand Tracking Model Review*, 15 July 2019, p 8 and Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 31.

Hunter Water's new climate correction methodology is an improvement on its previous demand starting point process as it removes the influence of short-term climate conditions on demand.[311] The DTM uses 49 years of daily data to generate the demand starting point, compared to the seven data points used by the previous process. Hunter Water considers long-term average climate conditions the most appropriate approach to forecast water demand so that water usage statistics are not influenced by one or two years of high or low water demand.[312]

DPIE commissioned Jacobs to undertake a peer review of Hunter Water's demand model in 2019 as part of the update to the Lower Hunter Water Plan, and we also asked Aither to review Hunter Water's demand forecast. Jacobs and Aither both concluded that Hunter Water's DTM methodology is a reasonable and robust basis for estimating the climate corrected demand starting point.[313]

We consider that Hunter Water's climate correction methodology produces the best available estimate of the demand starting point. This is because future climate conditions are uncertain, and the impact of increased climate variability (as a result of climate change) on water sales is difficult to predict over the short-term. Hunter Water used daily climate conditions from 1970 to 2019, which we consider to be sufficiently representative of the range of potential climate conditions likely to be experienced in the Lower Hunter region over the next four years.

We recognise that climate variability may impact water sales over the 2020 determination period. However, our demand volatility adjustment mechanism (DVAM), which we discussed in Chapter 3, can mitigate the effects of variations between forecast and actual water sales on Hunter Water's revenue. Furthermore, the significance of any emerging long-term trends in climate and the impact of this on water sales may be muted, given the relatively short 4-year pricing period. Hunter Water's ability to respond to climate variability and ensure the secure and sustainable supply of water is addressed through the NSW Government's Lower Hunter Water Plan.

J.1.2 The forecast water sales volumes do not account for drought conditions

Hunter Water's dams recorded the lowest water levels in decades during the 2016 determination period, prior to rainfall in February 2020.[314]

Hunter Water modelled the potential reduction in water sales at different restriction levels. It determined that if:

- Level 1 water restrictions apply for a full year, water sales would fall by 5.6%
- Level 2 water restrictions apply for a full year, water sales would fall by 14.7%

311 Hunter Water's previous process used the average of seven years of estimated residential garden demand to produce the demand starting point. Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 31.

312 Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 12.

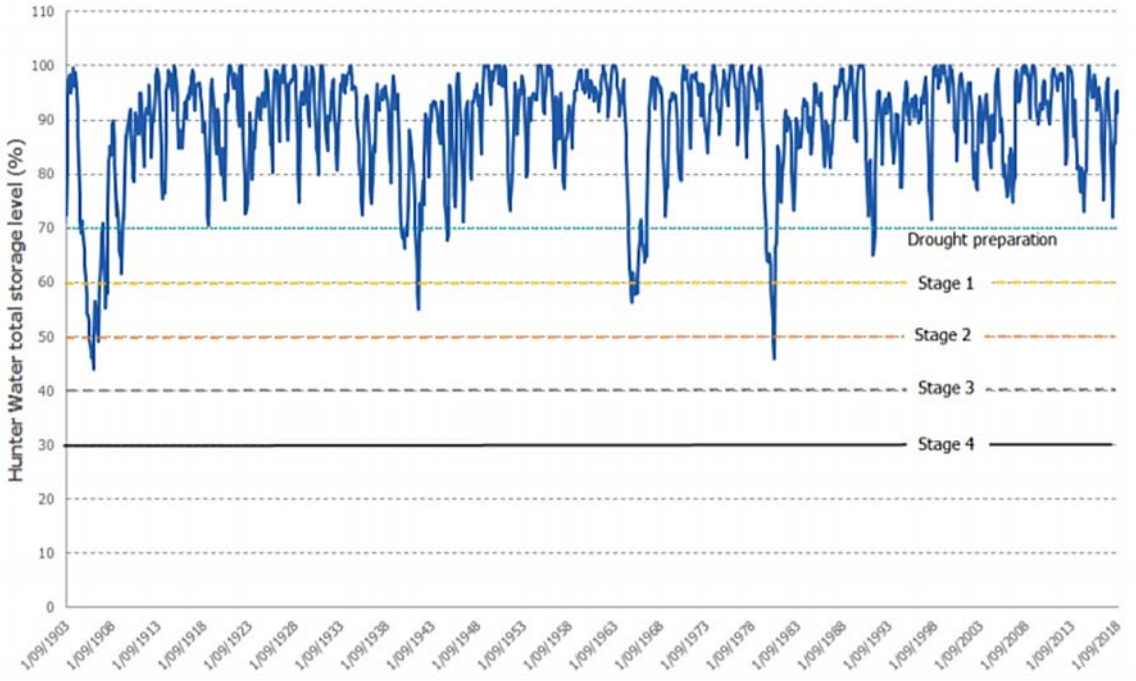
313 Jacobs, *Peer Review of Hunter Water Demand Model, Phase 1: Demand Tracking Model Review*, 15 July 2019, p iii and Aither, *Hunter Water expenditure review*, 14 December 2019, p 150.

314 Hunter Water implemented Level 1 water restrictions on 16 September 2019 for the first time in 25 years, and replaced these with Level 2 water restrictions on 20 January 2020.
Water restrictions returned to Level 1 on 24 February 2020, after rainfall in February 2020 provided a boost to water storage levels.

- Level 3 water restrictions apply for a full year, water sales would fall by 29.8%.[315]

Hunter Water's forecast water sales volumes assume no drought restrictions over the 2020 determination period.[316] We recognise there is potential for current water restrictions to continue into the 2020 determination period, but expect fluctuations in water sales to smooth out in the medium to long-term. Our assessment is based on results from Hunter Water's storage modelling, which show how Hunter Water's current storage capacity and demand would be affected if past weather patterns from 1903 onwards were re-lived (see Figure J.1).

Figure J.1 Hunter Water's modelled storage levels using past rainfall and current storage infrastructure



Data source: Hunter Water, *Supplementary Response to IPART Issues Paper*, 6 November 2019, p 11.

Figure J.1 shows that from September 1903 to September 2018, storages would have fallen below the trigger for:

- Level 1 water restrictions (ie, 60% storage levels) four times
- Level 2 water restrictions (ie, 50% storage levels) twice, and
- Storages would have never fallen below the trigger for Level 3 water restrictions (ie, 40% storage levels).

Analysis of past drought events from September 1903 to September 2018 indicates that drought-response mode (ie, managing storage levels below 70%) typically lasts for between 12 and 24 months.[317] As a result, we consider it is reasonable to exclude the impact of drought

315 Percentage decrease represents the change in water sales between the restriction scenario and an unrestricted scenario. Hunter Water, *Supplementary Response to IPART Issues Paper*, 6 November 2019, p 12.
316 Hunter Water, *Supplementary Response to IPART Issues Paper*, 6 November 2019, p 3.
317 Hunter Water, *Supplementary Response to IPART Issues Paper*, 6 November 2019, p 11.

and water restrictions in the forecast water sales. Furthermore, our demand volatility adjustment mechanism (see Chapter 3) allows for an adjustment to the NRR in the following price period should Hunter Water experience a material under-recovery of revenue due to water restrictions.

J.2 Forecast stormwater customer numbers

Our draft stormwater customer numbers have been corrected for data errors

As discussed in Chapter 7, our draft forecast of billable stormwater properties (presented in Table J.1 and Figure J.2) is based on Hunter Water's revised forecasts, which correct for data errors from July 2019 onwards. The number of houses also increased by 185, and the number of apartments decreased by 185 as houses in community title developments have been reclassified as "houses" instead of as "apartments" as they are currently charged.

As a result, the number of residential properties increases by 3.6% and the number of non-residential properties increases by 2.6% between 2018-19 and 2019-20. Hunter Water forecasts growth over the 2020 determination period at 0.4% annually for residential properties, with no growth forecast for non-residential properties. We have accepted its revised forecasts.

Table J.1 Draft decision on billable stormwater properties, 2020-21 to 2023-24

	2018-19[c]	2019-20[d] (Current)	2020-21	2021-22	2022-23	2023-24
Residential						
Houses (standalone)[a]	49,075	51,142	51,322	51,502	51,683	51,864
Apartments (multi-premises)[b]	16,015	16,270	16,389	16,508	16,626	16,745
Residential – change year-on-year (%)	-	3.6	0.4	0.4	0.4	0.4
Non-residential						
Small (≤1,000 m^2) or low impact	1,945	1,968	1,968	1,968	1,968	1,968
Medium (1,001 m^2 to 10,000 m^2)	935	973	973	973	973	973
Large (10,001 m^2 to 45,000 m^2)	86	101	101	101	101	101
Very large (>45,000 m^2)	14	15	15	15	15	15
Non-residential – change year-on-year (%)	-	2.6	0.0	0.0	0.0	0.0

a Includes "vacant land".

b Includes "low impact residential properties".

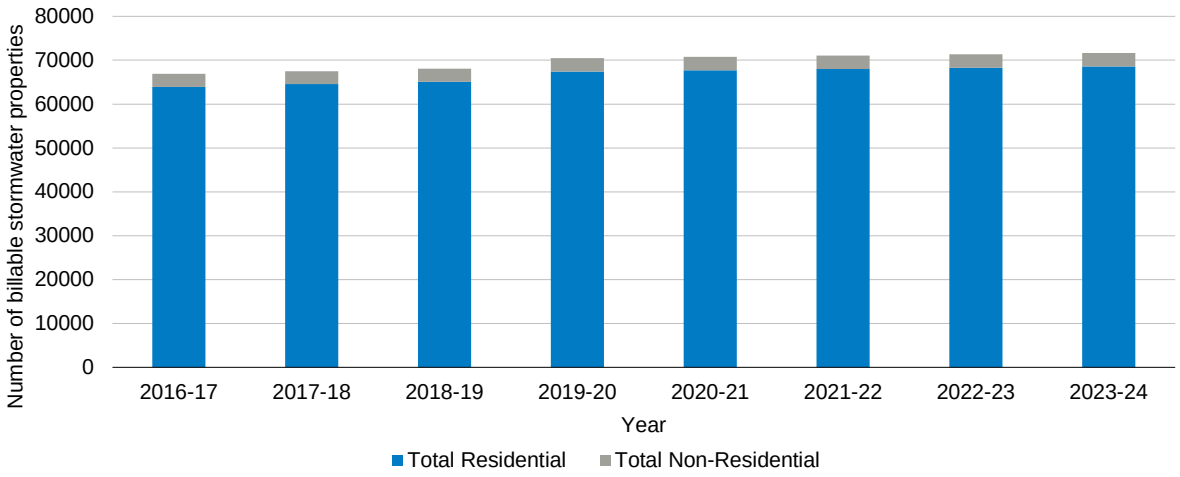
c Reported 1 July 2019, Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 24.

d Includes Hunter Water's data revisions received in January 2020.

Note: Includes redistribution of residential properties due to reclassification of 185 properties as houses.

Source: Correspondence with Hunter Water (email), 13 January and 3 February 2020, Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 24, and IPART analysis.

Figure J.2 Actual and forecast billable stormwater properties, 2016-17 to 2023-24



Data source: Correspondence with Hunter Water (email), 13 January 2020, and Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 24, and IPART analysis.

Hunter Water's proposed forecast indicated 0.4% growth annually

In its 1 July 2019 Proposal, Hunter Water forecast annual growth in the number of billable stormwater residential properties at 0.4% per year, with no growth expected in billable stormwater non-residential properties.

Table J.2 Hunter Water's proposed forecast billable stormwater properties, 2019-20 to 2023-24 (1 July 2019)

	2019-20[c] (Current)	2020-21	2021-22	2022-23	2023-24
Residential					
Houses (standalone)[a]	51,064	51,244	51,424	51,604	51,784
Apartments (multi-premises)[b]	16,477	16,597	16,717	16,837	16,957
Residential – change year-on-year (%)	-	0.4	0.4	0.4	0.4
Non-residential					
Small (≤1,000 m^2) or low impact	1,958	1,958	1,958	1,958	1,958
Medium (1,001 m^2 to 10,000 m^2)	968	968	968	968	968
Large (10,001 m^2 to 45,000 m^2)	101	101	101	101	101
Very large (>45,000 m^2)	15	15	15	15	15
Non-residential – change year-on-year (%)	-	0.0	0.0	0.0	0.0

a Includes "vacant land".

b Includes "low impact residential properties".

c Does not include redistribution of residential properties due to reclassification of 185 properties as houses, or revision of data errors.

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, p 24.

Hunter Water identified errors in its previously used customer numbers

As discussed in Chapter 7, the number of billable stormwater properties increased by 2,048 between 2018-19 and 2019-20 as a result of the identification and correction of errors in how stormwater property data had been recorded in Hunter Water's billing system. The errors resulted in 453 customers being overcharged by a total of $0.54 million and 2,155 customers being undercharged by a total of $2.01 million.

Table J.3 Increase in property numbers from 2018-19 to 2019-20 following data review

	Increase following data review	Percentage of total (%)
Residential		
Houses (standalone)[a]	1,756	85.7
Apartments (multi-premises)[b]	127	6.2
Non-residential		
Small (≤1,000 m^2) or low impact	54	2.6
Medium (1,001 m^2 to 10,000 m^2)	84	4.1
Large (10,001 m^2 to 45,000 m^2)	25	1.2
Very large (>45,000 m^2)	2	0.1
Total	**2,048**	**100.0**

[a] Includes "vacant land".

[b] Includes "low impact residential properties".

Source: Correspondence with Hunter Water (email), 14 January 2020.

Table J.4 Hunter Water customers over/undercharged from 1 July 2006 to 30 June 2019 due to data errors

Issue	Overcharged		Undercharged	
	Number	Total overcharged ($2019-20)	Number	Total undercharged ($2019-20)
Eligible but incorrect charge applied	31	$46,096	2,155	$2,010,854
Not eligible for charge	422	$489,724	0	$0
Total	**453**	**$535,820**	**2,155**	**$2,010,854**

Source: Correspondence with Hunter Water (email), 22 January 2020.

K Location-based prices

K.1 Background

Location-based discounts were first introduced in IPART's 2000 Determination.[318] In 2018-19 they applied to 19 'large' water customers consuming more than 50,000kL of water. Hunter Water has around 43 'large' users, however not all receive a discount. The discounts apply differentially at seven specific zones, varying from 1% to 25%, depending on the capital related costs in each operational zone.[319]

History

In its proposal Hunter Water submitted that it:

> …first proposed the location-based charges as a quasi-form of access pricing. In the late 1990s, we observed new competition regimes developing in other utility sectors and the potential for similar mechanisms in the water industry. Competition in other sectors led to significant price restructuring, with prices for large customers better reflecting actual cost of supply.
>
> Since then, the NSW water sector has seen a number of major regulatory changes; namely, the introduction of an access regime under the *Water Industry Competition Act 2006* and IPART taking on the role of setting wholesale prices for the supply of wholesale services to WIC utilities. Hunter Water is the only major water utility in Australia to offer a declining block tariff for large water users.
>
> The location-based water usage charge reduces the usage revenue from larger users by around $2.3 million per year relative to a case where all water users pay the standard usage price. The lower usage revenue increases the water service charge for all water customers – an increase of about $10 per year for each residential customer. The five biggest recipients account for about 80 per cent of the total discount.[320]

In our 2016 price review, we recommended that in advance of the next price review, Hunter Water consider the merits of location-based prices and its pricing approach to large non-residential customers. We asked Hunter Water to consider the impacts on all customers (ie, those that pay location-based prices and the broader customer base) of all alternative pricing approaches. We noted that consultation with customers should be a key part of this review, including the provision of information on the varying costs of supply to different customers.[321]

In its July 2019 pricing proposal, Hunter Water proposed phasing out the location-based discount over five years commencing 2020-21 so that all customers would face the same usage price in 2024-25.[322]

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318 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 4.
319 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 18.
320 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 18.
321 IPART, *Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020*, Final Report, June 2016, p 105.
322 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 21.

K.2 Impact of location-based price discounts

We consider all customers should ideally face cost-reflective prices, and unless there is information to suggest the cost of serving these large customers is lower, we consider they should face the same water usage price as all other customers.

As noted above, in its July 2019 proposal, Hunter Water estimated that, if the discounts are maintained, the usage revenue from large users would be reduced by around $2.3 million in 2020-21. This revenue would need to be recovered from the broader customer base. We estimate that under our draft decision, maintaining the location-based discount would translate to the water service charge increasing from $4.18 to $7.71 ($2019-20) per annum during the 2020 determination period.

K.3 Hunter Water's consultation with large users

However, while we consider the discounts should be phased out, Hunter Water did not consult with the affected large users until September 2019 – following the release of our Issues Paper. A longer consultation period would have given customers time to adjust.

Hunter Water did not specifically survey its large users in the lead up to submitting its pricing proposal (on 1 July 2019), although it included a question/s on phasing out the location-based pricing in its general residential/non-residential (limited numbers) survey. Respondents were marginally in favour of phasing out the location-based discount.

Hunter Water noted at the Public Hearing on 19 November 2019, that it did not include these large users receiving location-based discounts in its survey, as it understood that they would all want to minimise their bill and it did not want to bias the sample.[323]

Hunter Water informed us that it met with all major customers face-to-face between 4 and 20 September 2019 and followed this up with letters to large users, to explain its proposed phased removal of the discount. It informed us that it indicated the estimated impact of the proposed price change for each customer and invited customer feedback. It maintains that it has not received any direct feedback from this customer consultation with large users.

We consider that Hunter Water's consultation with these customers was not adequate or timely, as it did not directly consult the relevant customers prior to submitting its phase out proposal to IPART.

K.4 Largest water users would face higher bills

Table K.1 provides an indication of the impact of phasing out location-based discounts on large users' usage component, based on our draft decision on water usage prices and modelling of the phase-out of location-based discounts.

We estimate that there would be real increases in the usage component of large users' bills, in the range of $0 (or a negligible amount) to around $500,000 or up to 23%.

323 Transcript of Public Hearing, 19 November 2019, p 34.

Given the scale of some of the increases we have made a draft decision to defer the phase-out by one year, ie, to commence in 2021-22 (the second year of the 2020 determination period, see Chapter 8). We consider this would give customers time to adjust to any potential bill shocks.

Table K.1 Impacts on bills for large users from phase-out of location-based discounts ($2019-20, $'000)

Customer	2019-20 bill	Discount retained 2023-24	Discount removed 2023-24	Difference 2023-24 ($)	Difference 2023-24 (%)	Change 2019-20 2023-24 discount removed
Customer 1	2,309	2,336	2,864	528	22.6	24.0
Customer 2	2,204	2,279	2,722	443	19.4	23.5
Customer 3	1,192	1,206	1,479	273	22.6	24.1
Customer 4	1,030	1,042	1,278	236	22.6	24.1
Customer 5	683	715	877	162	22.7	28.4
Customer 6	686	703	767	64	9.1	11.8
Customer 7	523	540	589	49	9.1	12.6
Customer 8	407	432	471	39	9.0	15.7
Customer 9	387	422	460	38	9.0	18.9
Customer 10	265	266	284	18	6.8	7.2
Customer 11	160	162	199	37	22.8	24.4
Customer 12	0	135	166	31	23.0	na
Customer 13	119	133	143	10	7.5	20.2
Customer 14	74	83	91	8	9.6	23.0
Customer 15	55	79	83	4	5.1	50.9
Customer 16	47	51	56	5	9.8	19.1
Customer 17	5	5	5	0	0.0	0.0
Total	**10,146**	**10,589**	**12,534**	**1,945**	**18.4**	**23.5**

Note: Hunter Water forecasts there would be 17 large users eligible for a discount in the 2020 determination period.
Source: IPART analysis.

L Multi-premises and joint service arrangements

A multi-premises is a premises where there are two or more properties. There are different rules for charging properties within a multi-premises that are serviced by a common meter. A typical example of a multi-premises is a residential or commercial strata complex in which there are several apartments or shops (properties) at the one premises. However, a multi-premises may take other forms such as a community title development or company title development.

For each multi-premises to charge the appropriate prices we first assess the development composition of the multi-premises and then consider property types and the metering arrangements. We aim, as far as administratively possible, to impose the appropriate charge to the property type within multi-premises arrangements. We are also mindful of the risk of over-recovery from a multi-premises.

Table L.1 outlines the various combinations of composition, property type and metering arrangements and appropriate charge for the 2016 Determination and 2020 Draft Determinations.

Table L.1 Charges for properties within a multi-premises

Metering arrangement	Water service charge		Wastewater service charge	
	2016	2020	2016	2020
Apartments in a residential only development				
Common meter	Low charge - Table 1 of the 2016 Determination Harmonised to standard 20mm charge by 1 July 2019	Standard 20mm charge	Low 'apartment' charge - Table 7 of the 2016 Determination (being harmonised to the standard 20mm charge over 15 years)	Low 'apartment' charge (continuing the transition to the standard 20mm charge)
Individual meter	Low charge -Table 1 of the 2016 Determination Harmonised to standard 20mm charge by 1 July 2019	Standard 20mm charge	Low 'apartment' charge - Table 7 of the 2016 Determination (being harmonised to the standard 20mm charge over 15 years)	Low 'apartment' charge (continuing the transition to the standard 20mm charge)
Houses in a residential only development				
Common meter	Low charge -Table 1 of the 2016 Determination Harmonised to standard 20mm charge by 1 July 2019	Standard 20mm charge	Low 'apartment' charge - Table 7 of the 2016 Determination Which is being harmonised to the standard 20mm charge over 15 years	Low 'apartment' charge for most (continuing the transition to the standard 20mm charge) **Except** Community Development standalone houses are charged the standard 20mm charge
Individual meter	Low charge - Table 1 of the 2016 Determination Harmonised to standard 20mm charge by 1 July 2019	Standard 20mm charge	Low 'apartment' charge - Table 7 of the 2016 Determination Which is being harmonised to the standard 20mm charge over 15 years	Low 'apartment' charge - (which is continuing the 15 year transition to the standard 20mm charge) **Except** Community Development standalone houses are charged the standard 20mm charge
Customers in a non-residential only development				
Common meter	Meter-based charge - Table 2 of the 2016 Determination - less the meter-based charge for any downstream individual meters (priced at the multi-premises level)	A portion of the meter-based charge less the meter-based charge for any downstream individual meters	Meter-based charge - Table 9 of the 2016 Determination - less the meter-based charge for any downstream individual meters (priced at the multi-premises level and subject to a minimum charge)	A portion of the meter-based charges less the meter-based charge for any downstream individual meters

Metering arrangement	Water service charge		Wastewater service charge	
	2016	2020	2016	2020
Individual meter	Low charge - Table 1 of the 2016 Determination Harmonised to standard 20mm charge by 1 July 2019 if serviced by a single 20mm Meter, otherwise, the meter-based charge (Table 2 of the 2016 Determination)	Meter-based charge	If serviced by a single 20mm Meter - the 'house' charge - Table 8 of the 2016 Determination Harmonised to a standard 20mm charge by 1 July 2019, Otherwise, the meter-based charge - Table 9 of the 2016 Determination (subject to a minimum charge)	Meter-based charge
Residential properties in a mixed development (ie, with residential and non-residential)				
Common meter	Low charge - Table 1 of the 2016 Determination Harmonised to standard 20mm charge by 1 July 2019	Standard 20mm charge	Low 'apartment' charge - Table 7 of the 2016 Determination (being harmonised to the standard 20mm charge over 15 years)	Low 'apartment' charge (continuing the transition to the standard 20mm charge)
Individual meter	Low charge - Table 1 of the 2016 Determination Harmonised to standard 20mm charge by 1 July 2019	Standard 20mm charge	Low 'apartment' charge - Table 7 of the 2016 Determination (being harmonised to the standard 20mm charge over 15 years)	Low 'apartment' charge (continuing the transition to the standard 20mm charge)
Non-residential properties in a mixed development (ie, with residential and non-residential)				
Common meter	Low charge - Table 1 of the 2016 Determination Harmonised to standard 20mm charge by 1 July 2019	Standard 20mm charge	Low 'apartment' charge - Table 7 of the 2016 Determination (being harmonised to the standard 20mm charge over 15 years)	Low 'apartment' charge (continuing the transition to the standard 20mm charge)
Individual meter	If serviced by a single 20mm Meter - Low charge - Table 1 of the 2016 Determination Otherwise - the meter-based charge - Table 2 of the 2016 Determination	Meter-based charge	If serviced by a single 20mm Meter - the 'house' charge - Table 8 of the 2016 Determination Harmonised to a standard 20mm charge by 1 July 2019 Otherwise - the meter-based charge - Table 9 of the 2016 Determination (subject to a minimum charge)	Meter-based charge

Source: IPART, *Hunter Water Corporation Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016*, June 2016; and IPART, *Hunter Water Corporation Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2020*, March 2020.

Hunter Water has proposed that: [324]

- Residential properties in community title developments with a common meter
- Properties in joint service arrangements, should not be treated as properties within a multi-premises.

This would mean that these properties would be charged based on whether they are an apartment or house for residential properties, or charged based on their meter size for non-residential properties. This would primarily impact:

- Houses in community title developments with a common meter, as they are currently charged the apartment charge, whereas under Hunter Water's proposal they would be charged the house charge
- Non-residential properties in mixed joint service arrangements, as they are currently charged the apartment charge, whereas under Hunter Water's proposal they would be charged the non-residential charge based on their meter size.

L.1 Properties in community title developments

Properties in community title developments have two servicing options:[325]

1. All lots have direct connections to water (individually metered) and wastewater. These are the same as a Torrens title developments - the most common type of subdivision. They are usually residential (typically houses) or non-residential (typically commercial) but may be mixed.
2. One connection to water and wastewater (common meter), and may have individual (sub) meters connected to each lot.

Hunter Water currently charges properties with direct connections the higher standalone house charges and properties that share a common meter the lower multi-premises (apartment) charge, as presented in Table L.2.

Table L.2 Comparison of house and apartment service charges in 2019-20 ($2019-20)

Charge type	House charge ($)	Apartment charge ($)
Water Service	100.40	100.40
Sewer Service	649.28	535.66
Stormwater (if applicable)	79.63	29.47
Total	**829.31**	**665.53**

Source: Hunter Water, *Pricing Proposal to IPART*, Technical Paper 8, 1 July 2019, pp. 15, 41, 45; and IPART analysis.

Hunter Water argues that the use of metering arrangements to define charges rather than pricing class (e.g. house, unit, etc.) does not align well to all scenarios and has added complexity to the billing system.[326] It has stated that it is confident that it can categorise

[324] Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, pp 60 and 61; and correspondence with Hunter Water (email), 2 December 2019.
[325] Correspondence with Hunter Water (email), 2 December 2019.
[326] Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, pp 60 and 61.

properties as houses or apartments without the need to use the metering arrangement to define charges.[327]

L.1.1 Hunter Water's proposal

Hunter Water has proposed that properties in community title developments with one or more common meters should not be charged as properties within a multi-premises. This would mean that properties in community title developments would be charged based on whether they are a stand-alone house, or an apartment.[328]

This would mean that houses with a common meter in community title developments would be charged as houses instead of apartments. Hunter Water has indicated that the total increase in charges would be $158,355.60 p.a. across 77 affected entities.[329] However, as the data provided assumes each community title development is fully developed, each lot is a house (where in reality some may be multi-premises), and each lot receives a water, wastewater, and stormwater (where relevant) service. The actual impact may be lower.

L.2 Properties in Joint service arrangements

A joint services arrangement is an arrangement where services are supplied to two or more separately titled properties where only one property is connected to the water supply system, and the other properties receive services through private infrastructure connected to the directly connected property.

Under the 2016 Determination, there are cases where large non-residential customers that are the largest user of water supply service and sewerage services in a joint services arrangement pay less than their share of the costs. Hunter Water provided the example of a mine,[330] which has a common meter with six downstream houses. The mine has three water supply connections; 25mm, 80mm and 100mm (no wastewater). The 80mm also is the common meter to the six houses.

Table L.3 Service charge for a mine if considered non-residential ($2019-20)

Charges – if considered non-residential	Amount ($)
Water service charge 25 mm	156.89
Water service charge 80 mm	931.76
Water service charge 100 mm	2,510.14
Total	**3,598.79**

Table L.4 Service charge for the mine if considered residential ($2019-20)

Charges – residential	Amount ($)
House (20 mm equivalent)	100.40

327 Correspondence with Hunter Water (email), 2 December 2019.
328 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, pp 60 and 61.
329 Correspondence with Hunter Water (email), 14 January 2019.
330 Correspondence with Hunter Water (email), 2 December 2019.

Hunter Water points out that the current charging structure is inequitable as residential service charges are being applied to large non-residential customers in mixed joint service arrangements. We took this approach based on Sydney Water's 2012 data that indicated that strata-titled mixed multi-premises have, on average, 6 residential dwellings for every 1 non-residential occupancy.[331] In the case above, the equivalent charge for a single non-residential customer is $3,598.79 per year compared to the current charge of $100.40 per year. It argues that it is not considered equitable for the non-residential portion to be billed as residential.

Hunter Water has proposed treating each joint service arrangement property as a standalone property based on its pricing class (e.g. house, shop, mine, etc) instead of as a multi-premises.[332] This would especially impact metered non-residential properties in mixed development joint service arrangements, which are currently charged a deemed 20mm residential charge. Hunter Water estimates this would lead to an additional $56,109.50 p.a. in charges across 28 affected non-residential properties.[333]

Hunter Water has indicated that it is able to classify properties as residential or non-residential. All properties in joint service arrangements are currently classified as residential or non-residential in Hunter Water's billing system and the majority of these properties were assigned historically. Hunter Water periodically reviews classifications as required using methods such as google maps and nearmaps overlaid on its internal GIS system. It is uncommon for historical properties to change use.[334]

L.2.1 Our assessment of Hunter Water's proposal

Hunter Water's proposal may lead to scenarios where the parent property is charged for a larger meter than it would otherwise require, as the meter is required to also service all downstream properties. There is a risk that some parent properties would be overcharged under Hunter Water's proposed pricing structure.

In response to the identification of this risk, Hunter Water has suggested that to mitigate the issue of overcharging the parent property, the parent property should be charged the meter charge for the common meter after subtracting the individual charges for all downstream properties.[335] We consider that this may lead to zero or negative charges in some cases, which would not reflect the cost of servicing that customer.

We consider that the current price structure for mixed development joint service arrangements is not ideal. However, on balance, our draft decision is to maintain current pricing arrangements for these properties for Hunter Water.

331 IPART, *Review of prices for Sydney Water Corporation from 1 July 2012 to 30 June 2016 – Final Report, June 2012*, p 154

332 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, pp 60 and 61; and Correspondence with Hunter Water (email), 23 January 2019.

333 Correspondence with Hunter Water (email), 13 January 2019.

334 Correspondence with Hunter Water (email), 2 December 2019.

335 Correspondence with Hunter Water (email), 23 January 2019.

M Environmental Improvement Charge

M.1 Background

The Environmental Improvement Charge (EIC) is a pricing mechanism to fund the construction of wastewater systems and services for townships without a reticulated wastewater service ('sewerage backlog areas') within Hunter Water's area of operations. The charge has been levied on properties[336] connected to, and properties for which a connection was available to, the wastewater system.[337]

History

Hunter Water has provided backlog sewerage services since the 1980s. It has funded backlog schemes through a combination of NSW Government program funding and the EIC levy paid by the broader customer base.[338] The EIC in its current form was originally set to run until 2009. It was extended until 30 June 2019 to fund five further projects in the Lower Hunter. In May 2017, Hunter Water received a Ministerial Direction to complete the Wyee backlog sewerage scheme with additional funding from the Government.[339]

In 2016, IPART accepted Hunter Water's request to extend the EIC beyond its sunset date of 30 June 2019, to 30 June 2020 to cover the costs of providing backlog services to Wyee.[340]

For 2019-20, the EIC is set at $41.01 per customer. Over the 2016 determination period, Hunter Water raised around $29.2 million from the EIC.[341]

In its July 2019 pricing proposal, Hunter Water proposed discontinuing the EIC from 1 July 2020 with the completion of the Wyee works.[342] It also noted the new approach in our 2018 Developer Charges and Backlog Sewerage Charges review, where the existing property owner contributes towards the capital costs of Hunter Water's assets that provide services to the property.[343]

M.2 Some stakeholders oppose discontinuing the EIC

In response to our Issues Paper, we received three stakeholder submissions opposing Hunter Water's proposal to discontinue the EIC. In particular, Cessnock City Council strongly

336 Properties owned by eligible pensioners were exempt from paying the EIC.
337 IPART, *Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, Final Report*, June 2016, p 119.
338 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 41.
339 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 41.
340 The Government announced that the sewerage services would be provided to the township of Wyee, and that it would be funded through the EIC. It did not, however, issue IPART with a direction under section 16A of the IPART Act.
341 Hunter Water Annual Information Return, September 2019, and IPART analysis.
342 Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p 41.
343 IPART, *Maximum prices to connect, extend or upgrade a service for metropolitan water agencies*, October 2018.

opposed discontinuation of the EIC if there is no alternative equitably funded mechanism(s) for sewerage connection to backlog areas. The Council states that sewerage connection would cost affected households $55,000/lot.[344]

At the IPART Public Hearing held in November 2019, Cessnock City Council and the City of Newcastle noted areas within their boundaries that needed sewering (North Rothbury and Hexham respectively) and queried if alternative funding models existed for backlog sewerage services if the EIC was removed.[345]

We note that in the past IPART has set the EIC when there is a Ministerial Direction for works to be carried out. The decision to nominate an area for a backlog program is not within the scope of a pricing review.

From a pricing perspective there are a range of options for funding backlog sewerage services as set out in the section below.

We also note that while cost-reflective capital charges can be significant, there are direct benefits to households connecting to a reticulated wastewater system. These include:

- Improved levels of service
- An increase in the property's value
- Off-setting savings arising from no longer needing to maintain and operate an on-site (or septic) system.

M.3 Options for funding backlog sewerage services

It is the community, together with government and Hunter Water that decide whether it is optimal for particular areas to be sewered. If they are to be sewered, it is IPART's role to determine the maximum prices that both the existing and the new customers should pay.[346]

Our Developer Charges Determination sets out a formula to determine how much properties would have to pay to receive backlog sewerage services.[347] Our Determination also includes an annuity payment option for customers in these backlog properties. The annuity payment option allows customers in existing properties to pay a fixed annual amount over a period of up to 20 years, rather than a lump sum payment at the time of connection. This periodic payment may reduce the potential short-term impact on customers and allows the connection charge to be paid over a longer period.[348]

Our preferred funding approach for backlog sewerage charges is based on the following cost allocation hierarchy:

344 Cessnock City Council, *Submission to Issues Paper*, p 2.
345 Public Hearing Transcript, *Review of prices for Hunter Water to apply from 1 July 2020*, November 2019, pp 11 and 66- 67.
346 That is, how much the broader customer base should pay for sewering these areas.
347 IPART, *Maximum prices to connect, extend or upgrade a service for metropolitan water agencies*, October 2018.
348 IPART, *Maximum prices to connect, extend or upgrade a service for metropolitan water agencies*, October 2018, p 9.

- In the first instance, we prefer that the impactor pay (ie, the party that created the need to incur the cost should pay). Hunter Water could charge property owners who wish to connect to the wastewater network, as the impactor, to recover the efficient cost of building the extension.
- If that is not possible (eg, because of affordability or a social policy objective), the beneficiary should pay. If Hunter Water's broader customer base benefits from extending the connection, there may be a case to include the relevant costs in retail prices, to be funded by the broader customer base.

We note that our approach does not prevent Hunter Water from developing a new funding arrangement, or pursuing other options to meet the capital costs. Hunter Water can still connect backlog customers to new or existing systems, and there are a number of options for funding such schemes, including:

- Charging cost-reflective capital charges as per our 2018 Developer Charges Determination.
- Obtaining a direction from the Government, including a direction that part or all of the costs of the scheme be recovered from the whole customer base via general prices.
- Requesting a scheme-specific review by IPART and making the case that the costs should be funded from the broader customer base to the extent that there were broader benefits to the customer base (eg, environmental or health benefits).
- Receiving a subsidy or grant from the Government.

As a last resort, taxpayers should pay. If the benefits are realised by the broader community or environment, there may be a case for the NSW Government to fund these costs (or a share of these costs) on behalf of the broader community through a grant or subsidy.

N Stormwater prices

N.1 Draft stormwater prices are lower than Hunter Water's 1 July 2019

As discussed in Chapter 8, our draft prices are lower than Hunter Water's proposed stormwater charges which would result in real increases in service charges of around 6.5% per year (around 25.9% over the determination period).

Table N.1 Hunter Water's proposed stormwater prices – 1 July 2019 ($2019-20)

	2019-20 (Current)	2020-21	2021-22	2022-23	2023-24	% change between 2019-20 and 2023-24
Residential						
Houses (standalone)[a]	79.63	84.63	89.56	94.77	100.29	25.9%
Apartments (multi-premises)[b]	29.47	31.32	33.14	35.07	37.12	26.0%
Non-residential						
Small (≤1,000 m^2) or low impact	79.63	84.63	89.56	94.77	100.29	25.9%
Medium (1,001 m^2 to 10,000 m^2)	260.08	276.39	292.49	309.53	327.56	25.9%
Large (10,001 m^2 to 45,000 m^2)	1,654.10	1,757.86	1,860.27	1,968.63	2,083.29	25.9%
Very large (>45,000 m^2)	5,255.48	5,585.15	5,910.52	6,254.80	6,619.11	25.9%

[a] Includes "vacant land".

[b] Includes "low impact residential properties".

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 8*, 1 July 2019, p45, and IPART analysis.

Under the current price structure, larger properties pay higher stormwater charges overall, but the charge per m^2 is scaled relative to property area so that smaller properties pay proportionally more per m^2 than larger properties as shown in Table N.2.

Table N.2 Current charge per m^2 for non-residential property categories ($2019-20)

Non-residential category	$ per m^2
Small (≤1,000 m^2) or low impact	≥0.08[a]
Medium (1,001 m^2 to 10,000 m^2)	0.03 to 0.26
Large (10,001 m^2 to 45,000 m^2)	0.04 to 0.17
Very large (>45,000 m^2)	≤0.12

[a] Theoretically this charge could be up to $79.63 if the property is only 1m^2 in area.

Source: IPART analysis.

Table N.3 illustrates how the ratios operate. The 2020 ratios have changed compared to the 2016 ratios as relative prices have changed with inflation. The revenue allocation columns for the 2020 period are the outcome of our approach to setting prices with the different ratios and it is an indicator of the degree of cost reflectivity if land area was a 100% driver of stormwater costs.

Table N.3 shows the ratios used to set prices for the 2016 Determination, the ratios used to calculate draft prices and the corresponding share of the target NRR these represent. Under our draft prices, residential customers (houses and apartments) move from a 90.6% contribution to NRR to an 87.5% contribution, noting that these customers represent 85.9% of land area serviced by Hunter Water (for stormwater services).

Table N.3 Hunter Water property charging ratios and corresponding revenue allocation

	Ratio – 2016-17[c]	Revenue allocation for 2020 period using 2016-17 ratios	Ratio – 2020-21[d]	Revenue allocation for 2020 period using 2020-21 ratios	Percentage of land area – 2020 period	Ratios required for linear land area-based charging – 2020 period
Residential						
Houses (standalone)[a]	1.00	81.0%	1.00	78.2%	78.7%	1
Apartments (multi-premises)[b]	0.37	9.6%	0.37	9.3%	7.1%	0.28
Non-residential						
Small (≤1,000 m^2) or low impact	1.00	3.1%	1.00	3.0%	1.9%	0.64
Medium (1,001 m^2 to 10,000 m^2)	2.10	3.2%	3.27	4.8%	5.4%	3.61
Large (10,001 m^2 to 45,000 m^2)	13.33	2.1%	20.77	3.2%	4.2%	26.91
Very large (>45,000 m^2)	42.34	1.0%	66.00	1.5%	2.6%	113.79
Total		100.0%		100.0%	100.0%	

[a] Includes "vacant land".

[b] Includes "low impact residential properties".

[c] Price relativities between 2016 prices in $2016-17.

[d] Price relativities between 2016 prices in $2019-20.

Source: IPART analysis.

N.2 Modelling suggests potential bill increases for larger customers

We have undertaken scenario modelling to calculate what Hunter Water's stormwater prices would be under alternative ratio scenarios.

We have considered the degree of cost-reflectivity of the current pricing structure and whether there is scope for future costs to be recovered on a more cost-reflective basis. Comparison of the percentage of revenue each customer category currently contributes to Hunter Water's stormwater costs to the percentage of the total billable property area it represents suggests that:

- Apartments and small non-residential customers may be paying more than their share if these costs are based on land area
- Non-residential customers with a large or very large area base may be paying less than their share of these costs if they are driven solely by land area.

Adopting a linear land area-based charging approach would recover less revenue from residential and small non-residential customers and more revenue from large and very large non-residential customers. This would result in substantial bill increases for these larger customers (see Table N.4). For very large customers, prices would increase by 70.3% ($3,696), and for large customers prices would increase by 28.0% ($463) across the determination period (following an 87.3% price increase over the 2016 determination period).[349]

Table N.4 Draft prices if NRR allocated using linear land area-based prices ($2019-20)

	2019-20 (Current)	2020-21	2021-22	2022-23	2023-24	% change between 2019-20 and 2023-24	Property charging ratio
Residential							
Houses (standalone)[a]	79.63	78.67	78.67	78.67	78.67	-1.2%	1.00
Apartments (multi-premises)[b]	29.47	22.03	22.03	22.03	22.03	-25.2%	0.28
Non-residential							
Small (≤1,000 m^2) or low impact	79.63	50.35	50.35	50.35	50.35	-36.8%	0.64
Medium (1,001 m^2 to 10,000 m^2)	260.08	283.98	283.98	283.98	283.98	9.2%	3.61
Large (10,001 m^2 to 45,000 m^2)	1,654.10	2,116.89	2,116.89	2,116.89	2,116.89	28.0%	26.91
Very large (>45,000 m^2)	5,255.48	8,951.34	8,951.34	8,951.34	8,951.34	70.3%	113.79

a Includes "vacant land".

b Includes "low impact residential properties".

Source: IPART analysis.

349 IPART, *Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020*, Final Report, June 2016, p 125.

Table N.5 Draft prices if NRR allocated based on transitioning further towards linear area-based prices ($2019-20)

	2019-20 (Current)	2020-21	2021-22	2022-23	2023-24	% change between 2019-20 and 2023-24	Property charging ratio
Residential							
Houses (standalone)[a]	79.63	78.25	78.25	78.25	78.25	-1.7%	1.00
Apartments (multi-premises)[b]	29.47	25.82	25.82	25.82	25.82	-12.4%	0.33
Non-residential							
Small (≤1,000 m^2) or low impact	79.63	64.16	64.16	64.16	64.16	-19.4%	0.82
Medium (1,001 m^2 to 10,000 m^2)	260.08	269.17	269.17	269.17	269.17	3.5%	3.44
Large (10,001 m^2 to 45,000 m^2)	1,654.10	1,865.44	1,865.44	1,865.44	1,865.44	12.8%	23.84
Very large (>45,000 m^2)	5,255.48	7,034.54	7,034.54	7,034.54	7,034.54	33.9%	89.90

a Includes "vacant land".

b Includes "low impact residential properties".

Note: Prices are based on ratios half-way between current prices and linear land area-based prices.

Source: IPART analysis.

We have not adjusted draft prices to reflect historical differences in demand forecasts

As discussed in Chapter 8, some prices in the 2016 Determination were possibly set higher than they would have been had the correct number of customers been identified as the allocation of NRR across the different categories would have been different. This is shown in Table N.6 which estimates that about $142,000 of NRR was allocated across property categories differently to how it may have been allocated if the data errors were accounted for. Our analysis indicates that residential customers may have underpaid (by less than about $1.10 per year) and larger customers may have overpaid (by up to about $365 per year for very large customers).

Table N.6 Indicative estimate of NRR possibly under(-) or over(+) recovered during 2016 period due to impact of errors on how prices were set ($2019-20)

	2016-17	2017-18	2018-19	2019-20	Total over period
Residential					
Houses (standalone)	-17,945.60	-18,634.66	-19,687.66	-20,551.49	-76,819.41
Apartments (multi-premises)	-12,433.18	-13,163.42	-14,176.84	-15,082.90	-54,856.34
Non-residential					
Small (≤1,000 m^2) or low impact	-1,984.70	-2,061.39	-2,178.38	-2,274.51	-8,498.97
Medium (1,001 m^2 to 10,000 m^2)	6,970.77	7,301.00	7,780.28	8,191.94	30,243.99
Large (10,001 m^2 to 45,000 m^2)	20,852.38	21,808.03	23,205.60	24,397.89	90,263.91
Very large (>45,000 m^2)	4,540.33	4,750.43	5,057.00	5,319.07	19,666.83

Note: These figures are indicative estimates only.

Source: IPART analysis.

Table N.7 Indicative estimate of difference in prices if errors had been accounted for compared to 2016 prices that were charged ($2019-20)

	2016-17	2017-18	2018-19	2019-20	Average % difference over period
Residential					
Houses (standalone)	-0.35	-0.37	-0.39	-0.40	-0.5%
Apartments (multi-premises)	-0.84	-0.88	-0.94	-0.99	-3.1%
Non-residential					
Small (≤1,000 m^2) or low impact	-0.97	-1.00	-1.06	-1.11	-1.3%
Medium (1,001 m^2 to 10,000 m^2)	7.03	7.36	7.84	8.26	3.7%
Large (10,001 m^2 to 45,000 m^2)	212.78	222.53	236.79	248.96	17.7%
Very large (>45,000 m^2)	324.31	339.32	361.21	379.93	8.5%

Note: These figures are indicative estimates only.

Source: IPART analysis.

O Discretionary expenditure framework

O.1 What is discretionary expenditure

We set utilities' prices to recover the efficient costs of supplying its monopoly services to their customers. The prices recover the efficient operating and capital expenditure required for utilities to meet service standards to customers (eg, as specified in the operating licence), and to comply with other regulatory obligations (eg, as specified in Environment Protection Licences, administered by the EPA).

Discretionary expenditure could include:

- Expenditure that is not required to deliver the utility's monopoly services
- Expenditure to provide services or achieve outcomes that are not mandated, or
- Expenditure to provide a level of service that goes beyond service standards stipulated in the utility's operating licence or other regulatory requirements.

In 2016, we noted that we would consider, and could allow, discretionary expenditure to be recovered via regulated prices, but that we would require clear evidence that it would be efficient for customers to pay to exceed mandated standards. For instance, we would consider whether:

- The proposal would best fit with the utility's responsibilities or whether it would best fit with another party's responsibilities
- The utility's customers have the capacity and willingness to pay for the discretionary expenditure (based on information or evidence provided by the utility).[350]

Our recent decisions on recycled water pricing also recognised the importance of customer willingness to pay.[351] We allow for the costs of recycled water schemes to be recovered from general water and/or wastewater prices to the extent there is sufficient evidence that the broader customer base is willing to pay for the external benefits of the recycled water scheme.[352] We have set out a number of best practice principles for demonstrating willingness to pay, and for consulting with customers around discretionary expenditure.[353]

As outlined in our Guidelines for Water Agency Pricing Submissions, utilities should have a strong and up to date understanding of its customer preferences.[354] Further, it is the utility's responsibility for engaging with its customers to understand their views, priorities and needs and that this should inform a utility's decision-making and pricing submission.

350 IPART, *Review of prices for Sydney Water Corporation, Final Report*, June 2016, p 37.
351 IPART, *Review of pricing arrangements for recycled water and related services, Final Report*, July 2019.
352 To qualify for funding from the broader customer base, external benefits must be additional to any outcomes already mandated by Government, specific to the recycled water scheme(s) in question, and supported by customer willingness to pay for them. IPART, *Review of pricing arrangements for recycled water and related services, Final Report*, July 2019, p 2.
353 IPART, *Review of pricing arrangements for recycled water and related services*, *Final Report*, July 2019, p 61.
354 IPART, *Guidelines for Water Agency Pricing Submissions*, November 2018, pp 20-21.

Utilities should engage with their customers on existing business standards and where they proposes to make changes to prices or services which would impact specific customer groups. Utilities should also engage with customers if they include any discretionary expenditure in their pricing proposal.

However, we view that significant or material changes to a utility's service standards, environmental obligations or other regulatory outcomes should be dealt with by consulting with customers and the entity which enforces the regulation with an aim to update standards or regulations to reflect changing community preferences. As a second best option, where the cost to achieve a discretionary outcome is relatively small, utilities can propose expenditure allowances to achieve discretionary outcomes through the IPART pricing process. However, for any discretionary expenditure to be approved through the IPART pricing process, we:

- Require robust evidence of customer willingness to pay
- Will apply our discretionary expenditure framework (detailed below) to assess any proposal put forward by the utility
- Require utilities to annually report on output measures to ensure that they have upheld their agreement with customers.

O.2 Why have we developed a framework for assessing discretionary expenditure?

As part of the 2020 water pricing reviews, we have developed a framework to guide how we will assess the discretionary expenditure Sydney Water and Hunter Water have included in their pricing proposals. This new framework acknowledges the growing appetite for both IPART and the water businesses to take into account liveability issues (such as environmental protection) when setting prices.

Although the discretionary expenditure proposed by the utilities represents only 1 to 2 % of total proposed capital expenditure over the 2020 determination period, we expect that the quantum of this type of expenditure may increase in the future. Our framework provides guidance to the utilities and establishes robust processes and checks to ensure that the bill impact faced by customers is no more than they are willing to pay for the discretionary projects.

We note that water utilities have included discretionary expenditure in their pricing proposals in the past. Previously, we assessed this expenditure within the broader capital and operating expenditure review process. This ensured that the costs were efficient and that the utility had appropriately prioritised any discretionary expenditure within its total expenditure program. We have accepted discretionary expenditure in the past where we considered that a profit maximising business would have opted to undertake that expenditure.

O.2.1 Our discretionary expenditure framework must work for a range of different proposed projects

There is a large spectrum of potential discretionary projects with various characteristics and any discretionary expenditure framework we develop will need to apply to all possible projects.

O.2.2 Mandatory vs discretionary expenditure

A utility's proposal can include two categories of costs. These are the costs to:

- Comply with its **mandatory obligations**. For example, service levels under its operating licence and environmental licence obligations set by the Environmental Protection Authority (EPA).
  - We set prices to recover the efficient level of these costs that enables a monopoly service provider to deliver its service in compliance with its other regulatory obligations.
- Undertake **discretionary projects**. These are projects which are not driven or required by an external regulator or body.

Discretionary expenditure is incurred when a utility invests in projects that provide services or achieve outcomes that go beyond services standards/environmental obligations stipulated in the utility's operating licence or other regulatory instruments/requirements.

O.2.3 The discretionary expenditure component can be the cost difference between achieving the discretionary standard and the mandatory standard

Sydney Water and Hunter Water deliver their monopoly services within the bounds of their regulatory requirements. The cost of complying with these regulatory requirements is recovered from the prices that customers pay to use the service. For example, the Environmental Protection Authority (EPA) requires water utilities to comply with environmental protection licences (EPLs) while delivering wastewater services, and water utilities must also meet conditions imposed by their operating licence. An integral part of our price review process is to ensure that these costs are efficient and that the utility can raise sufficient revenue to recover these efficient costs.

However, a utility may undertake activities which result in outcomes that go beyond its regulatory requirements. For example, Sydney Water's operating licence includes a Water Continuity Standard. The standard requires that 9,800 properties per 10,000 properties do not experience an unplanned water interruption in a given year.[355] The cost to comply with this standard would be a mandatory cost that Sydney Water must incur. However, Sydney Water may obtain evidence to support that its customers prefer that no properties experience an unplanned water interruption in a given year and are willing to pay (through their water service charges) for Sydney Water to deliver this outcome.

355 IPART, *Recommended Sydney Water Operating Licence 2019-2023*, April 2019, p 12.

The cost to Sydney Water to ensure that the extra 200 customers are not affected by an unplanned water interruption is discretionary because it is the cost to Sydney Water to deliver an outcome that is beyond its regulatory requirements. This cost can only be recovered through prices to customers if there is evidence that the customer base is willing to pay for this 'enhanced' service.

O.2.4 We need to be conscious of the reason a utility may propose to achieve a discretionary outcome instead of its mandatory outcome

We emphasise that the example above is a simplified scenario. We acknowledge that specialised regulatory bodies set service standards, environmental obligations and drinking water quality standards (amongst other regulator obligations). These standards and obligations are set to achieve outcomes which are supported by strong evidence and cost benefit analysis. Therefore we must also consider the circumstances and context of adopting a discretionary standard that is different to the existing mandatory standard. For example, whether the discretionary standard has been considered by Parliament and/or government when setting the existing mandatory standard and whether the facts around the issue have changed since that time.

O.3 Our discretionary framework

This section will discuss first the principles that underpin the framework we have developed to assess both Sydney Water and Hunter Water's proposed discretionary framework. We then discuss in detail each phase of the framework. Table O.1 provides a summary of the framework.

O.3.1 There are a number of principles we consider key in developing a framework

Our framework is underpinned by a number of key principles.

Efficiency

Our framework encourages both cost efficiencies and efficient levels of service provision. Robust willingness to pay survey results can identify the efficient level of service provision that maximises welfare. Additionally, we also look at efficiency in terms of the least cost solution to meeting customer preferences.

Transparency

Transparency is an important element to ensure that the utility's activities and prices are well understood by stakeholders and its customers. Our discretionary framework endeavours to facilitate this transparency between the utility's activities and its customers.

Achieving discretionary outcomes are at cost to the utility and are outside of the mandated monopoly services that utilities must supply to its customers. It is important that customers fully understand the implications of these outcomes on prices.

Additionally, simplicity of both the framework and the utility's proposal would facilitate transparency.

Accountability

Our framework endeavours to hold utilities accountable for any proposed discretionary expenditure. This ensure that the utility's proposal matches customers' understanding of what they are paying for and that the outcome is delivered over the specified timeframe at an efficient cost. This element of our framework is particularly important in the absence of any additional regulatory process such as obligatory service standards or environmental standards that a utility must uphold. We also need to balance the sharing of risk associated with under or over spending on proposed discretionary projects between the utility and the broader customer base.

Equity

Our framework recognises the benefits that utilities can gain from understanding their customers' preferences, however it emphasises the need for robust evidence of customer willingness to pay. This ensures that the representative customer sample size appropriately reflects the population, especially vulnerable customer groups, small and large businesses and non-English speaking groups.

We outline our framework below and detail each step in the sections that follow.

Table 12.O.1 Discretionary framework – applies to projects that provide service levels above mandated standards

Phase	Principle	Description	Existing material
Phase 1: Project definition	▼ Accountability and transparency	▼ **The project or outcome is adequately described and defined**. At a minimum, the project or outcome specification must include the following characteristics and conditions: – Location, customer/user, delivery timeframes, whether it will be replacing another service and outcomes expected. ▼ The project or outcome **fits within the utility's responsibilities and is related to its monopoly services.**	
Phase 2: Willingness to pay	▼ Transparency and equity	▼ Survey participants are given **sufficient context and information** on the proposed project or outcome. This should align with the characteristics and conditions of the project definition identified in Phase 1. ▼ The survey identifies the customers' maximum **willingness to pay dollar amounts**. These will be the upper limit to **the customer share of cost of the project/outcome** estimated in Phase 3**.** ▼ The survey used to elicit customer willingness to pay is **well designed and results are statistically valid.** ▼ Bill impacts should be shown in the context of the broader bill impact.	Our 'best practice willingness to pay principles' we published in our Recycled Water review.

Phase	Principle	Description	Existing material
Phase 3: Efficiency test	▼ Accountability and efficiency	▼ **The project/s is prioritised and optimised** within the utilities broader and required responsibilities. ▼ The project/s is the **most efficient way of achieving the outcome**. ▼ Total efficient cost estimates should transparently **net off any avoided costs and/or grants.**	Our 'efficiency test'
Phase 4: Recovery & delivery incentives	▼ Transparency and equity	▼ The proposed **prices to customers recover only the efficient cost** of the outcome or project determined in phase 3. ▼ Bill impact per household is equal to or less than willingness to pay from phase 2. ▼ Charges are recovered from customer categories whose willingness to pay was assessed in phase 2. ▼ **Separate RAB** with appropriate asset lives to enable discretionary expenditure to be tracked. ▼ Transparent and accountable – utility to develop and propose approaches to ensure accountability. ▼ Next period adjustment will consider whether any underspend is returned to customers or retained by the utility for other projects or as an efficiency gain.	Our 'pricing principles'
Phase 5: Implementation & performance commitments	▼ Accountability	▼ **Capture the program as an output measure** to ensure sufficient reporting on what is achieved. ▼ **Ex-post adjustment mechanism** to ensure only investments in line with project definition in willingness to pay survey are added to the RAB. ▼ Where proposed expenditure is not carried out or outcomes are not delivered, funds collected through the discretionary charge may be returned to customers in the subsequent determination period. ▼ Outline expectation that the **charge remains equal to or below demonstrated willingness to pay amount** over the long term.	

O.3.2 Phase 1: Project definition

Our framework requires that any discretionary expenditure proposed by the utility is appropriately defined in terms of the outcomes the expenditure will achieve. The project's definition or desired outcome should be adequately scoped before a utility engages with customers on their willingness to pay.

In some cases, a discretionary project may be defined by the characteristics and conditions of the outcome that the utility wants to achieve instead of a specific project. This is because a utility may want to confirm the extent of their customers' willingness to pay for an outcome before allocating funds to scope and plan for a specific project that would achieve that outcome. For example, a utility's preliminary project definition may be to improve the appearance of its stormwater assets in a particular location instead of scoping out the activities that would be required to achieve this.

At a minimum, however, these characteristics and conditions should include the outcome or project:

- location(s)
- customers that would benefit from the discretionary expenditure
- estimated timeframes for delivery
- if the project would be replacing an existing service.

Discretionary expenditure should be related to the utility's monopoly services

The project or outcome that the discretionary expenditure will achieve should be related to the utility's mandatory monopoly services and fit within the utility's responsibilities. For example, the utility should confirm in its proposal:

- That the utility is the most suitable agency to deliver the proposed outcome or project.
- That the proposal best fits within the utility's responsibilities instead of another party or party's responsibilities, such as another arm of government or local government.
- That the proposal is consistent with the *Independent Pricing and Regulatory Tribunal Act 1992* and any other relevant legislation.

The utility's customers should inform the type of discretionary project/outcome proposed by the utility

The identification of any proposed discretionary project or outcome should be customer driven and as part of its proposal, a utility should show evidence of how it consulted with its customers to identify any proposed discretionary projects.

As a first step, utilities should understand its customers' priorities and preferences and this should inform not only its proposal for discretionary expenditure but in general, its overall decision-making process.

Project identification and selection

Ideally the identification of potential projects should be customer driven rather than proposed by the utility and/or its staff, or stakeholders with a vested interest in particular outcomes. The utility could offer a menu of options to customers and ask customers to rank the projects or indicate which projects of those offered they would prefer.

O.3.3 Phase 2: Are customers willing to pay?

Utilities should regularly engage with customers to understand customer preferences. This should inform which discretionary outcomes a utility includes in its pricing proposal. Additionally, it is essential that utilities show robust evidence of customers' willingness to pay for the proposed discretionary outcome. It is important to highlight that the extent of the willingness to pay surveys conducted by the utility should be proportionate to the relative quantum of the discretionary expenditure proposed compared to its overall expenditure proposal. This section outlines some elements of a robust customer willingness to pay survey. Box O.1 provides our draft best practice principles for demonstrating willingness to pay.

Survey participants should be given sufficient context and information on the proposed outcome or project

The utility should ensure that when consulting customers on their willingness to pay for proposed discretionary expenditure, there is sufficient context and supporting information provided in a clear manner to allow respondents to make informed decisions. In particular, the characteristics and conditions of the project or outcome presented in willingness to pay questions must align with the characteristics and conditions of the proposed project or outcome in the utility's pricing proposal.

Survey participants should be consulted on the same outcomes that the utility previously defined and scoped. This includes the characteristics and conditions outlined in Phase 1. The discretionary outcomes or projects should be expressed in terms of benefits that customers directly value.

The dollar amounts presented in the survey correspond with the actual estimated cost of the project or outcomes

When surveying customers on their willingness to pay, the choices presented must be in dollar amounts and require discrete voting. The dollar values that respondents are asked to vote on should correspond with the actual estimated cost of the project or outcomes and should be expressed in terms of the ongoing bill impact for the customer, not the total project cost.

Utilities should use a long-term view of the funding costs when estimating the cost of the project/outcome and presenting it to customers on a bill impact basis. This is to avoid a situation where a future change to the interest rate (or weighted average cost of capital WACC) results in future project costs greater than the originally surveyed customer willingness to pay.

The bill impact of the project should be presented in the context of the respondents' total bill, including any other planned bill increases/decreases occurring as a result of price changes external to the discretionary expenditure. Customers should be made aware of their budget constraint, and that choices could potentially subtract from the amount they can spend on other outcomes.

The surveys used to elicit customers' willingness to pay are well designed and produce statistically significant results

Estimates of willingness to pay can only be accurately drawn from a robust survey that produces valid responses. Key features of a well-designed survey include a sufficient sample size that is representative of all demographics of the broader customer population. Participants should be randomly sourced and screened to ensure all quotas for customer groups are represented and that no participants have a personal interest in the utility or related organisations.

The survey should be carried out in an appropriate format that may include multiple platforms such as online surveys, face-to-face forums and discussion groups. The survey should aim for reliability through repetition. Utilities should ensure that sensitivity to the survey instrument is tested, including whether the structure, wording and order of questions

influences responses (eg, respondents 'anchoring' answers to values seen earlier in the survey).

Results of the survey should be analysed, ensuring they are statistically significant. A survey can be deemed invalid if there are high nonresponse rates to certain questions or to the overall survey, and if there is evidence of obvious bias in the survey design or conduct.

Box O.1 Best practice principles for demonstrating willingness to pay using a contingent valuation approach to stated preference surveys

- Participants are given the impression that their answers are consequential and that they may be compelled to pay any amount they commit to in the survey. The payment mechanism by which people would financially contribute is specific and credible (eg, annual change in water or wastewater bills).
- The non-market outcomes (external benefits) in the survey are expressed in terms of outcomes that people directly value. (eg, people should be asked about willingness to pay for the environmental improvements brought about by increases in water recycling, rather than for increases in water recycling in and of itself).
- There is alignment between the external benefits being valued and the likely investment outcomes. The survey should not reflect an overly optimistic view about what benefits the scheme would achieve, and major uncertainties made clear.
- The information provided to participants is clear, relevant, easy to understand and objective. For example, this can be tested with the use of focus groups and pilot surveys, consultation with stakeholders, and inclusion of appropriate maps and diagrams.
- Participants are encouraged to consider the context of their decisions, including the broader context of expected or proposed changes in prices for other services, as well as alternative approaches to achieving the external benefits.
- The valuation questions require participants to make discrete choices (such as 'yes/no' or selecting options), and include a 'no-answer' option to identify participants that are indifferent.
- Follow-up questions are used to detect potential sources of bias, such as cases where participants did not understand the valuation question(s) or the information provided.
- The sample of people surveyed is representative of the broader customer base and large enough to permit robust data analysis. The study should clearly set out how customers were selected for the survey, the number of participants and the response rate.
- Estimates of average willingness to pay are supplemented with confidence intervals to indicate the precision of the estimates.
- Population-wide estimates of willingness to pay for external benefits are calculated in a transparent and appropriate way. Potential reasons for non-response to the survey should be identified. Sensitivity analysis should be used to demonstrate how aggregate estimates change depending on assumptions about the values held by non-respondents and the extent of the population affected by the investment.
- Survey questions are designed and analysed using appropriate statistical techniques. For example, payment levels need to cover the likely range of amounts that customers might be willing to pay, no option should clearly dominate the others, and participants should not be burdened with too many choices.

Source: Based on Productivity Commission, *Environmental Policy Analysis: A Guide to Non-Market Valuation*, January 2014, pp 44-47

O.3.4 Phase 3: Are the costs efficient?

We set prices to recover the efficient cost for the utility to deliver its monopoly services. This principle applies to any discretionary expenditure that the utility proposes. We would assess whether the proposed discretionary expenditure is the most efficient means of achieving the outcome or delivering the 'enhanced' service that the customers are willing to pay for. To do this, we apply our existing efficiency test. This way the priority of the discretionary outcome is assessed along with the mandatory outcomes that the utility is required to achieve. Our efficiency test is described in Box O.2.

A utility may propose multiple projects to achieve a discretionary outcome

We will assess the efficient costs of delivering a service or achieving an outcome. This could mean that there are multiple projects a utility may undertake to achieve a single outcome. In the case that a utility proposes multiple projects to meet a discretionary outcome, the portfolio of projects together should be the most efficient or optimum mix of projects to meet the outcome.

The efficiency test also applies to historical discretionary expenditure

As part of our efficiency test we also review historical capital expenditure incurred in the previous determination period. This assesses whether the actual expenditure was efficient based on the information available to the utility at the time it incurred the expenditure. This principle applies to discretionary expenditure, and we will do a post-expenditure assessment to ensure that the actual or historical discretionary expenditure was within the bounds of what customers are willing to pay, and the project characteristics and conditions of the project as it was delivered matched those described to willingness to pay survey participants.

Box O.1 Our efficiency test

The efficiency test examines whether a utility's capital and operating expenditure represents the best and most cost effective way of delivering services to customers.

Broadly, the efficiency test considers both how the investment decision is made, and how the investment is executed, having regard to, amongst other matters, the following:

- customer needs, subject to the utility's regulatory requirements
- customer preferences for service levels, including customers' willingness to pay
- trade-offs between operating and capital expenditure, where relevant
- the utility's capacity to deliver planned expenditure
- the utility's expenditure planning and decision-making processes.

The efficiency test is applied to:

- historical capital expenditure, and
- forecast capital and operating expenditure

that is included in the utility's revenue requirement, for the purposes of setting regulated prices.

The efficiency test is based on the information available to the utility at the relevant point in time. That is:

- for forecast operating and capital expenditure, we assess whether the proposed expenditure is efficient given currently available information

for historical capital expenditure, we assess whether the actual expenditure was efficient based on the information available to the utility at the time it incurred the expenditure (ie, whether the utility acted prudently in the circumstances prevailing at the time it incurred the expenditure).

Source: IPART, *Review of prices for Sydney Water services from 1 July 2020 – Issues Paper*, September 2019, p 48.

The utility should calculate the efficient net discretionary expenditure

Willingness to pay surveys should quantify the benefits that customers would receive from discretionary expenditure. We recognise that there may be third parties who could also benefit from the proposed project or outcome. This provides an opportunity for the utility to access funding from these third parties, or Government, to fund or partially fund discretionary projects.

Should a utility receive any third party funding for a project, our standard approach is to subtract this amount from the utility's total efficient costs, to ensure that it does not over-recover for a project.

Avoided costs should be deducted

Similarly, any avoided costs should be deducted from the total cost, and the willingness to pay survey conducted on the value of external benefits provided to the broader customer base. This is because our recycled water framework already allows any avoided costs net of revenue forgone to be recovered from the broader customer base.

O.3.5 Phase 4: Recovery from customers and delivery incentives

Phase 4 of our framework considers how the discretionary expenditure we allow should be recovered from customers, and how to hold the utility accountable for delivery of the outcomes in a way that meets customer expectations. Our general pricing principles are presented in Box O.3.

Box O.3 Our pricing principles

In setting maximum prices for regulated water businesses our overarching principle is that prices should be cost-reflective. This means that:

- Prices should only recover sufficient revenue to cover the prudent historical and efficient forecast costs of delivering the monopoly services. Prices for individual services should reflect the efficient costs of delivering the specific service.
- Price structures should match cost structures, whereby:
  - Usage charges reference an appropriate estimate of marginal cost (ie, the additional cost of supplying an additional unit of water or wastewater services), and
  - Fixed service charges recover the remaining costs.
- Customers imposing similar costs on the system pay similar prices.

Prices that are cost-reflective promote the efficient allocation and use of resources – such as water, and the capital invested to provide water supply services – by sending accurate signals to customers about the cost of services. For example, they discourage wasteful or unnecessary water usage.

Prices that are cost-reflective also promote efficient investment in water infrastructure and service provision – by ensuring that the regulated business cannot recover capital that is invested inefficiently or unwisely from the prices paid by customers.

However, we also consider other factors when setting prices, including customer impacts. For example, we may assess that customers cannot afford to fund the full efficient costs of delivering water and wastewater services. In other words, sometimes prices may not be fully cost-reflective.

Source: IPART, Review of prices for Sydney Water services from 1 July 2020 – Issues Paper, September 2019, p 24.

How much to recover?

The maximum total cost to be recovered for a specific project is the efficient expenditure identified in Phase 3. When translated to prices, it must also be less per household per year than the maximum demonstrated willingness to pay from Phase 2.

We propose creating a separate RAB for discretionary expenditure to calculate the most accurate charge. This would ensure appropriate asset lives are used that match the nature of the proposed projects.

Who should we recover it from?

At the extreme, there is scope for discretionary expenditure to be recovered from the business's entire broader customer base. However we consider there should be alignment between the sample of customers whose willingness to pay has been assessed and those customers that the costs are shared between. This may limit the recovery of discretionary

expenditure costs to, for example, residential customers only, if the willingness to pay of non-residential customers has not been assessed in Phase 2. We note there may be a higher degree of difficulty in engaging non-residential customers in willingness to pay surveys.

Discretionary expenditure should be transparent to customers

We consider that as the estimated willingness to pay amount is per customer, rather than per service, it may be more straightforward to recover the costs of discretionary expenditure through a separate, single charge on each bill. This would allow a clear comparison between the amount each customer is being asked to pay, and the demonstrated willingness to pay derived from the customer survey. It would allow water utilities to bill only those customer groups with demonstrated willingness to pay, and it would also aid transparency of discretionary expenditure over time.

A separate charge allows flexibility in recovery of discretionary expenditure

A separate charge on bills that incorporates discretionary expenditure allows utilities to target their willingness to pay surveys to customer segments relevant to a particular proposed project. For example, customers in particular locations; residential or non-residential customers; or customers of specific services. Hunter Water noted in its response to our Issues Paper that a separate charge allows the relativity between residential and non-residential meter based charges to be maintained where discretionary expenditure is recovered from only residential customers.[356]

A separate charge maximises accountability to customers

A separate charge allows utilities to easily provide context when conducting willingness to pay surveys for future discretionary expenditure. Customers would be able to make decisions on how much they are willing to pay for a project with full knowledge of how much discretionary expenditure they are currently paying for, rather than it being hidden within monopoly service charges.

Ensuring utilities are accountable for the delivery of the project

We need to hold utilities accountable for any proposed discretionary expenditure. This ensures that the utility's proposal matches the customers' understanding of what they are paying for and that the outcome is delivered over the specified timeframe at an efficient cost. This element is particularly important given the absence of any additional regulatory process such as obligatory service standards or environmental standards that a utility must uphold in relation to this type of expenditure.

To ensure accountability to customers, we have included performance commitments to ensure delivery of discretionary projects and alignment with customer expectations.

Sharing of risk between customers and the utility

For discretionary expenditure we are aiming to provide incentives that ensure that utilities are accountable to customers and appropriately gauge project risks prior to making commitments to customers.

356 Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 55.

When considering the incentives to ensure project delivery, the utility should face clear financial consequences if it cannot meet its stated outcomes on which it has gained community support. We realise that this assessment may not be purely objective, however, many of the projects that would be classed as discretionary would be discrete in nature and amenable to having a clear set of outcomes defined.

The clear incentive for focus on delivery will be achieved through:

- Our standard approach to ex-post adjustments to capital expenditure during the next review, coupled with
- A next period adjustment to assess whether any underspend is returned to customers, used to provide similar outcomes or retained by the utility as an efficiency gain. This is a slightly different approach to our standard approach as we are focussed on discrete discretionary proposals which may not be 'part' of a much wider expenditure profile.

In some cases, an underspend may be used to increase the level of a particular outcome as some projects have a 'budget envelope', and an improved level of outcome may be an appropriate strategy rather than refunding customers.

This approach will achieve outcomes based regulation for program expenditure which is closely aligned with customer preferences.

O.3.6 Phase 5: Implementation & performance commitments

Capture the program of discretionary expenditure in output measures

We propose that the outcomes associated with the discretionary expenditure, particularly those that were key to the phrasing of the willingness to pay survey, be included in the utility's output measures. This will ensure sufficient reporting on what is being achieved as a result of discretionary expenditure, and allow comparison with the project definition used as part of the willingness to pay survey. Output measures could include, for example, kilometres of stormwater channel naturalised.

Ex-post adjustment mechanism

We consider that it is essential that any discretionary project aligns with the characteristics and conditions presented as part of the willingness to pay survey. We propose an ex-post adjustment mechanism that considers whether the specific projects undertaken align with the project definition presented to customers as part of the willingness to pay survey. This mechanism should also consider whether the project is still discretionary, or if for example due to changes in licence conditions or mandatory standards it is now part of the utility's monopoly service obligations.

Part of this ex-post adjustment will include a standard review of discretionary expenditure to assess that utilities have not exceeded their initial project cost estimates. This will also ensure that utilities cannot exceed the willingness to pay price cap indicated by customers.

A next period adjustment will ensure any underspend is returned to customers, and any overspend is not recovered from customers. Alternatively, we will consider whether rather than returning any underspend to customers, the utility may instead deliver more of the proposed outcome.

What happens if expenditure is no longer discretionary?

In some instances, it may be possible that expenditure that is discretionary when proposed by the utility becomes part of meeting its monopoly service obligations. This could occur when licence conditions or mandatory environmental standards are changed such that expenditure initially proposed to exceed standards, is now expenditure to meet the new (higher) standards.

When this occurs, the expenditure becomes part of the cost base required to meet the utility's monopoly service obligations. The project would be transferred from the Discretionary Regulatory Asset Base to be folded back into the Monopoly Regulatory Asset Base, which would remove the cost of the project from the separate discretionary charge and add it to the relevant monopoly service charge.

P Assessment of Hunter Water's discretionary expenditure proposal

We have applied our draft discretionary expenditure framework to each of the proposed projects

We have applied the framework to each proposed project, using the information provided to us by Hunter Water in its proposal[357] and its supplementary response to our Issues Paper.[358]

Recycled water for irrigation of public spaces

Our application of the framework to this project is summarised in Table P.1.

Table P.1 Application of the framework to the recycled water for irrigation of public spaces proposal

Phase	Description	Assessment / Approach
Phase 1: Project definition	The proposal is based on an outcome that the utility intends to deliver through a range of possible unidentified projects, rather than a specified and scoped project – that is an increase of 150-200ML of the amount of wastewater recycled for irrigation over the determination period. Rather than specifying a location, Hunter Water has nominated its area of operations and asked customers agreement for it to decide where within that area to undertake works. Hunter Water has identified the project as discretionary.	This proposal fits within the utility's responsibilities and our recycled water framework, but is not a least-cost solution. The outcome represents a range rather than a fixed deliverable.
Phase 2: Willingness to pay	Average willingness to pay estimated as $2.68 per year per household. Representative sample of residential customers surveyed. Bill impacts shown in the context of the current bill.	Non-residential customers not surveyed so willingness to pay not demonstrated. Bill impacts not shown in the context of Hunter Water's 2020 pricing proposal.
Phase 3: Efficiency test	The proposal represents a 'funding envelope' of $6 million to deliver a range of projects to meet the defined outcome.	We have not applied an efficiency factor, as we expect any efficiencies to be reflected in the delivery of additional recycled water for irrigation.

357 Hunter Water, *Pricing Proposal to IPART, Technical Paper 1,* 1 July.
358 Hunter Water, *Supplementary Response to IPART Issues Paper*, 6 November 2019, pp 15-19.

Phase	Description	Assessment / Approach
Phase 4: Recovery & delivery incentives	Proposed recovering around $2 per customer per year from the whole customer base.	Calculated bill impact of $0.57 is within demonstrated willingness to pay. Recovery from only residential customers would align with willingness to pay survey. Separate RAB with appropriate asset lives to enable discretionary expenditure to be tracked. Separate charge in Determination.
Phase 5: Implementation & performance commitments		Not assessable at this stage, will be completed ex-post as part of 2024 Review.

Stormwater amenity improvement

Our application of the framework to this project is summarised in Table P.2.

Table P.2 Application of the framework to the stormwater amenity improvement proposal

Phase	Description	Assessment / Approach
Phase 1: Project definition	The proposal is based on an outcome that the utility intends to deliver through a range of possible unidentified projects, rather than a specified and scoped project – that is naturalisation of at least 1 km of stormwater channel over the determination period. Rather than specifying a location, Hunter Water has nominated its area of operations and asked customers' agreement for it to decide where within that area to undertake works. Hunter Water has identified the project as discretionary.	This proposal fits within the utility's responsibilities however there is some overlap with local council stormwater responsibilities. The outcome represents a range rather than a fixed deliverable.
Phase 2: Willingness to pay	Willingness to pay survey indicated 74% of customers willing to pay between $5 and $20 per year per household. Representative sample of residential customers surveyed. Bill impacts shown in the context of the current bill.	Non-residential customers not surveyed so willingness to pay not demonstrated. Bill impacts not shown in the context of Hunter Water's 2020 pricing proposal.
Phase 3: Efficiency test	The proposal represents a 'funding envelope' of $11.3 million to deliver a range of projects to meet the defined outcome.	We have not applied an efficiency factor, as we expect any efficiencies to be reflected in the delivery of additional stormwater beautification.
Phase 4: Recovery & delivery incentives	Proposed recovering around $2 per customer per year from the whole customer base.	Calculated bill impact of $0.86 is within demonstrated willingness to pay. Recovery from only residential customers would align with willingness to pay survey. Separate RAB with appropriate asset lives to enable discretionary expenditure to be tracked. Separate charge in Determination.

Phase	Description	Assessment / Approach
Phase 5: Implementation & performance commitments		Not assessable at this stage, will be completed ex-post as part of 2024 Review.

Q Trade waste prices

Q.1 Our decision on trade waste prices

Our draft decision is to set the maximum trade waste prices for 2020-21 as presented in Table Q.1, Table Q.2 and Table Q.3.

Table Q.1 Draft trade waste administration fees – sewered and tankered customers ($2019-20)

Charge	2019-20	2020-21 to 2023-24	Price change $2020-24	% change 2020-24
Minor agreement customers				
Agreement establishment fee[a]	146.49	173.30	26.81	18.3
Annual agreement fee	119.79	120.57	0.78	0.7
Agreement renewal/reissue fee	108.19	145.62	37.43	34.6
Variation to agreement fee	115.29	Charge removed	(115.29)	-
Inspection fee	127.32	Charge removed	(127.32)	-
Moderate agreement customers				
Agreement establishment fee[a]	520.43	447.93	(72.50)	-13.9
Annual agreement fee	875.70	692.90	(182.80)	-20.9
Agreement renewal/reissue fee	293.20	274.70	(18.50)	-6.3
Variation to agreement fee	115.29	148.63	33.34	28.9
Inspection fee	127.32	Charge removed	(127.32)	-
Major agreement customers				
Agreement establishment fee[a]	589.30	704.18	114.88	19.5
Annual agreement fee	487.68	2,370.83	1,883.15	386.1
Agreement renewal/reissue fee	416.80	452.03	35.23	8.5
Variation to agreement fee	115.29	148.63	33.34	28.9
Inspection fee	127.32	231.65	104.33	81.9
Tankered agreement and administration fees				
Agreement establishment fee[a]	224.89	567.46	342.57	152.3
Agreement renewal/reissue fee	143.53	236.21	92.68	64.6
Variation to agreement fee	115.29	150.03	34.74	30.1
Annual agreement fee	-	750.30	750.30	-
Delivery processing fee (per docket)	4.43	Charge removed	(4.43)	-
Overtime costs for after-hours access to wastewater treatment plant (up to 4 hours)	-	451.00	451.00	-
Hourly rate for after-hours access that is required to extend beyond four hours	-	85.08	85.08	-

[a] New customers only, once-off charge.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 10 and Response to IPART Issues Paper, 21 October 2019, p 59 and IPART analysis.

Table Q.2 Draft high strength charges for moderate and major sewered customers ($2019-20 per kilogram)

Wastewater treatment plant	Previous combined BOD/TSS charge	Draft BOD charges	Draft TSS charges
	2019-20[a]	2020-21 to 2023-24[b]	
Belmont	1.45	1.29	0.35
Boulder Bay	1.94	1.33	0.37
Branxton	5.39	3.00	2.15
Burwood Beach	0.81	0.62	0.21
Cessnock	1.81	1.62	0.26
Clarence Town	15.41	4.88	4.07
Dora Creek	2.14	1.94	0.18
Dungog	3.38	2.10	1.41
Edgeworth	1.42	1.05	0.36
Farley	1.39	1.46	0.36
Karuah	15.44	7.19	1.24
Kearsley	2.90	1.98	0.84
Kurri Kurri	3.12	3.09	0.71
Morpeth	1.07	1.51	0.44
Paxton	8.54	4.02	2.82
Raymond Terrace	2.12	2.18	0.68
Shortland	1.63	3.46	0.67
Tanilba Bay	3.32	2.44	0.68
Toronto	1.75	1.63	0.25
Incentive charge		Three times the draft BOD/TSS charge	

a The current charges apply for concentration strength greater than 350mg/L for BOD/TSS.

b The draft charges would apply for concentration strengths greater than 240mg/L for BOD and 290mg/L for TSS.

Note 1: These charges do not apply to 'minor 'customers who currently have an assumed average strength loading component built into their annual agreement fee and are not charged a separate high strength charge.

Note 2: An incentive charge for BOD/TSS (not shown here) would continue to apply at the rate of three times the base load charge.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 10 and Response to IPART Issues Paper, 21 October 2019, p 59.

Table Q.3 Draft high strength charge for tankered customers ($2019-20 per kL)

Charge	2019-20	2020-21	2021-22	2022-23	2023-24
Average strength charge ($/kL)	-	5.95	5.95	5.95	5.95

Note: Hunter Water proposed to increase the average strength volumetric charge from $5.95 to $9.20 in 2023-24. We have not accepted this increase in our draft decision**.**

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 9*, 1 July 2019, p 15, Hunter Water, *Response to IPART Issues Paper*, 21 October 2019, p 60 and IPART analysis.

Q.2 Revenue by customer type

Our draft decision results in an increase in total trade waste revenue from around $2.3 million in 2019-20 to $2.6 million in 2020-21. Table Q.4 provides further detail on the revenue increase by customer category.

Table Q.4 Break down of historical and forecast trade waste revenue by customer type ($2019-20 $'000)

Customer category	2019-20	2020-21	$ increase	% increase
Administration charges				
Minor agreement customers	303.94	323.94	20.00	6.6
Moderate agreement customers	138.54	111.27	-27.27	-19.7
Major agreement customers	123.97	416.48	292.51	236.0
Tankered agreement customers	2.57	71.30	68.73	2,674.3
Total administration charges	569.02	922.99	353.97	62.2
High strength/pollutant charges				
Minor agreement customers	00.00	00.00	00.00	00.0
Moderate agreement customers	00.00	137.07	137.07	-
Major agreement customers	722.48	653.58	-68.90	-9.5
Tankered agreement customers[a]	972.18	843.18	-129.00	-13.3
Total high strength/pollutant charges	1,694.66	1,633.83	-60.83	-3.6
Total revenue	2,263.68	2,556.82	293.14	12.9

a The average annual revenue is based on the four-year determination which includes CPI increases for all charges.

Source: Hunter Water, email correspondence, 17 January 2019 and IPART analysis.

Q.3 Background

Hunter Water categorises trade waste customers based on their risk profile and business activity (see Table Q.5). Risk categories define the level of administration and monitoring undertaken by Hunter Water.

Box Q.1 shows the typical costs recovered in Hunter Water's high strength charges as well as its rationale for not recovering capital costs in high strength charges

Table Q.5 Classification of customer types

	Minor (Sewered)	Moderate (Sewered)	Major (Sewered)	Tanker
Typical business activity	Small retail eg restaurants, mechanical shops, dentists	Large retail, spray painters, car wash, service stations, large pubs, small shopping centres	Food manufacturing, metal processing, oil refinery, hospitals, laboratories, other industry	Residential septic, commercial wastewater not connected to sewer, portable toilet waste
Description	May require pre-treatment prior to discharge	Needs pre-treatment prior to discharge and may have discharge restrictions	Needs pre-treatment, with discharge restrictions, loads may be significant with restricted substances	Wastewater discharged directly to the wastewater treatment plant via tanker
Risk level	Low	Medium	High	High
Current charges	Admin only	Admin only	Admin/high strength	Admin/high strength
Customer number	2,020	176	100	30

Note: Moderate customers will face a high strength charge in 2020, offset by a reduction in administration fees.

Source: Hunter Water Pricing Proposal, Technical Paper 9, pp 3-4.

Box Q.1 Types of costs recovered in high-strength charges

Hunter Water's high strength charges typically recover the following costs:

- Electricity used at waste water treatment plants
- Waste water treatment plant maintenance costs
- Chemicals used in wastewater treatment process
- Waste disposal costs for handling and removing biosolids
- Licence fees for load-based licensing
- Laboratory costs for monitoring and testing waste water quality at treatment plants
- Diving costs for inspecting ocean outfalls
- Other miscellaneous fixed and variable treatment plant operating costs.

Hunter Water did not propose including transportation (network) operating and maintenance costs, or capital expenditure costs in high strength costs as it is not confident about the reliability of cost estimates attributable to wastewater that exceeds domestic strength (high strength waste) or to allocate these costs across the proposed chargeable parameters. It states it investigated options for incorporating a portion of capital costs in high strength charges but decided against it because:

- Its facilities are primarily designed to treat domestic quality wastewater. It considered it was inefficient to design facilities for trade waste loads given the balance between the investment required and the risk of customers ceasing operations or initiating on-site treatment.
- The strength and volume of trade waste discharges are highly variable. Customers may also cease operations or move between wastewater treatment catchments. The inherent uncertainty results in less reliable cost recovery for long lived capital assets.

It was unable to develop a transparent, accurate and robust methodology to estimate causal relationships between treatment plant capital costs and the strength/volume of trade waste.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 10.

Q.4 Charges removed by Hunter Water

As seen inTable Q.6, Hunter Water has discontinued the current charges for heavy metals, phosphorous and sulphate as these were not considered significant cost drivers and administering these charges were considered inefficient as costs of analysis often exceeded the revenue generated.[359]

Table Q.6 Pollutant charges removed for sewered customers- $ per kilogram ($2019-20)

Wastewater treatment plant	2019-20	2020-21 to 2023-24
Heavy metals – Burwood Beach	25.12	Charge removed
Heavy metals – All other WWTP	41.44	Charge removed
Phosphorous	2.90	Charge removed
Sulphate	0.17 x (SO_4/2000)	Charge removed

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 12.

As seen in Table Q.7, for tankered customers, Hunter Water has removed volumetric charges for portable toilet effluent, septic waste and high strength waste as well as the pollutant charges for heavy metals, as these were not considered significant cost drivers. It proposes to introduce the network-wide average strength volumetric charge shown to replace these charges.

Table Q.7 Pollutant charges removed for tankered customers ($2019-20)

Charge	2019-20	2020-21	2021-22	2022-23	2023-24
Volumetric charges					
Portable toilet effluent ($/kL)	14.69	Charge removed	-	-	-
Septic waste ($/kL)	5.79	Charge removed	-	-	-
High strength waste ($/kL)	3.74	Charge removed	-	-	-
Average strength charge ($/kL)	-	5.95	5.95	5.95	9.20
Heavy metals – Burwood Beach ($/kg	23.70	Charge removed	-	-	-
Heavy metals – All other WWTP ($/kg)	39.09	Charge removed	-	-	-
Phosphorous ($/kg)	2.74	Charge removed	-	-	-
Sulphate ($/kg)	0.17 x (SO_4/2000)	Charge removed	-	-	-

Note: Hunter Water proposed an uplift in the volumetric charge in 2023-24. This is discussed below.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 15 and Response to IPART Issues Paper, 21 October 2019, p 60.

359 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 10.

R Miscellaneous and ancillary charges

R.1 Hunter Water's miscellaneous and ancillary charges

Table R.1 sets out our draft decision on miscellaneous and ancillary charges for Hunter Water. Prices are subject to CPI increases over the 2020 determination period.

Table R.1 Draft miscellaneous and ancillary charges ($2019-20)

Service no.	Function	2020-21
1	Conveyancing certificate	
(a)	over the counter	14.75
(b)	electronic	10.50
2	Property sewerage diagram	13.40
3	Service location diagram	
(a)	over the counter	10.75
(b)	electronic	8.70
4	Building over or adjacent to sewer advice	62.65
5	Water reconnection after restriction	
(a)	restriction	55.15
(b)	during business hours	61.45
(c)	outside business hours	97.95
6	Workshop flow rate test of meter – with strip test	
	20-25mm	254.00
	32mm	297.00
	40mm	298.00
	50mm light	370.00
	50mm heavy	401.00
	65mm	405.00
	80mm	604.00
	100mm	906.00
	150mm	1,114.00
7	Application for water disconnection	
(a)	water disconnection (all sizes)	26.85
(b)	recycled water disconnection (all sizes)	40.25
8	Application for water service connection (all sizes)	33.55
9	Application to assess a water main adjustment	292.00
10	Metered standpipe hire security bond	
(a)	20mm metered standpipe	287.00
(b)	32mm high flow metered standpipe	846.00
(c)	50mm metered standpipe	846.00

Service no.	Function	2020-21
11	Metered standpipe hire (quarterly fees)	
(a)	20mm metered standpipe	27.20
(b)	32mm high-flow metered standpipe	55.15
(c)	50mm metered standpipe	55.15
12	Statement of available pressure	95.95
13	Application to connect or disconnect sewer services or for a special internal inspection permit	42.95
14	Application to connect or disconnect water and sewer services (combined application)	53.65
15	Request for separate metering of units (per plan)	46.95
16	Building plan stamping	20.10
17	Determining requirements for building over/adjacent to sewer or easement	146.00
18	Hiring of a metered standpipe	
(a)	application to hire a metered standpipe	55.20
(i)	breaching of standpipe hire conditions (breach 1)	7.90
(i)	breaching of standpipe hire conditions (breach 2)	7.90
(i)	breaching of standpipe hire conditions (breach 3) - step 1	7.90
(ii)	breaching of standpipe hire conditions (breach 3) – step 2 (customer fails to return standpipe)	29.05
19	Meter affixtures/handling fee	
(a)	20mm, delivery and installation of water meter by Hunter Water	46.75
(b)	25mm, delivery and installation of water meter by Hunter Water	46.40
(c)	32mm, delivery and installation of water meter by Hunter Water	57.90
(d)	40mm, delivery and installation of water meter by Hunter Water	57.90
(e)	50mm light duty, delivery and installation of water meter by Hunter Water	108.00
(f)	50mm or larger, to be collected by customer from reception of Hunter Water	15.90
(g)	50mm or larger, delivery and installation of water meter by Hunter Water	217.00
20	Inspection of non-compliant meters	52.80
21	Connect to or building over/adjacent to stormwater channel for a single residence	90.80
22	Stormwater channel connection	243.00
23(a)	Hydraulic design assessment – less than 80mm	191.00
23(b)	Hydraulic design assessment – 80mm or larger	284.00
24	Complex works design review	
(a)	non-linear water asset	4,394.00
(b)	non-linear sewer asset	5,017.00
(c)	linear water and sewer asset	
24(c)(i)	tier 1 (0-99m)	748.00
24(c)(ii)	tier 2 (99-1000m)	3,148.00
24(c)(iii)	tier 3 (greater than 1000m)	4,582.00
25	Application to assess sewer main adjustment	324.00
26	Revision of development assessment	304.00
27	Bond application	2,412.00

Service no.	Function	2020-21
28	Development assessment application	324.00
29	Application for water or sewer main extensions	325.00
30	Application to connect to/disconnect from water system	176.00
31	Shutdown and charge-up for water connection/disconnection	412.00
32	Application for additional sewer connection point	288.00
33	Complex works inspection fees	
	non-linear water asset	6,427.00
	non-linear sewer asset	5,847.00
	linear water and sewer asset	
	tier 1 (0-99m)	694.00
	tier 2 (99-1000m)	974.00
	tier 3 (greater than 1000m)	1,329.00
34	Technical Services hourly rate	121.00
35	Remote application fee	87.90
36	Preliminary servicing advice	495.00
37	Servicing strategy review – water, sewer, recycled water	1,490.00
38	Environmental assessment report review	914.00
39	Reservoir construction inspection and WAE fee	(By quote)
40	Water cart tanker - inspection	45.45
41	Damaged meter replacements – various meter sizes	
	20mm	86.55
	25mm	147.00
	32mm	201.00
	40mm	276.00
	50mm light meter	287.00
	50mm heavy meter	318.00
	65mm	588.00
	80mm	512.00
	100mm	851.00
	150mm	2,490.00
	250mm	4,945.00
	300mm	6,126.00
42	Affix a separate meter to a unit	32.85
43	Recycled water meter affix fee	59.90
44	Application for recycled water service connection – Domestic	
(a)	Pre-laid service	21.20
(b)	Redevelopment	
	80mm meter	197.00
	100mm meter	190.00
	150mm meter	197.00
	200mm meter	276.00
	250mm meter	317.00

Service no.	Function	2020-21
	300mm meter	385.00
	375mm meter	649.00
45	Irregular and dishonoured payments[a]	27.85

Source: Hunter Water, *Pricing Proposal to IPART, Technical Paper 9*, 1 July 2019, pp 27-100 and IPART analysis.

a The irregular and dishonoured payment fee is also known as the dishonoured and declined payment fee.

R.2 Summary of changes proposed by Hunter Water

Hunter Water's review of its Miscellaneous and Ancillary charges involved making changes to its existing charges which included:[360]

- Discontinuing nine charges (eg, Bond variation charge as there was no volume for this charge)
- Price decreases for 31 charges (eg, an over the counter Conveyancing Certificate charge would decrease from $39.75 to $14.75 ($2019-20) due to process efficiencies)
- Price increases for six charges (eg, a Request for separate metering of units (per plan) charge would increase from $35.55 to $46.95 ($2019-20) as it reflects the complexity and effort involved in analysing strata plans and processing the application)
- Both increases and decreases for four charges (eg, a Meter affixtures/handling fee could increase or decrease from $54.35/$85.80 as previously only two options were offered. Hunter Water will now offer six different meter size options)
- Restructuring, replacing or amending 13 charges - , including two new charges, which partly consolidate three other charges to better reflect the current process:
  - Application to connect to/disconnect from the water system – the proposed new charge is $176
  - Shutdown and charge-up for water connection/disconnection – the proposed new charge is $412.

360 Note: The numbers will sum to more than 55 charges as in some instances they relate to sub-components of charges.

S Terms of reference – Dishonoured and declined payment fees

IPART
Doc No
File No

RECEIVED 10 DEC 2015

Reference: A1349407

Dr Peter Boxall
Chair
Independent Pricing and Regulatory Tribunal
PO Box K35
HAYMARKET POSTSHOP NSW 1240

Dear Dr Boxall

Pursuant to section 12A of the Independent Pricing and Regulatory Tribunal Act 1992, I am writing to refer a periodic investigation and report on:

- the maximum late payment fee and dishonoured and declined payment fee to be charged by Sydney Water, and
- maximum dishonoured or declined payment fee to be charged by Hunter Water.

Each periodic review is to be conducted in accordance with the attached Terms of Reference. It is intended that, where possible, each review be conducted concurrent to IPART's investigation of Sydney Water's and Hunter Water's maximum prices for its water and sewerage services. Any late maximum payment fee or maximum dishonoured or declined payment fee specified by IPART is to apply from the commencement of the next determination period, anticipated to be commencing 1 July 2016, and for such other periods as determined by IPART.

If you require further information, please contact Laura Eadie, Director, Department of Premier and Cabinet, on 9228 5546.

Thank you for your assistance in this matter.

Yours sincerely

MIKE BAIRD MP
Premier

- 7 DEC 2015

GPO Box 5341, Sydney NSW 2001 ▪ P: (02) 9228 5239 ▪ F: (02) 9228 3935 ▪ www.premier.nsw.gov.au

Periodic review of a maximum late payment fee and dishonoured or declined payment fee for Sydney Water and dishonoured or declined payment fee for Hunter Water

Terms of Reference

I, Mike Baird, Premier of New South Wales, under section 12A of the *Independent Pricing and Regulatory Tribunal Act 1992* (IPART Act), refer the following matter to the Independent Pricing and Regulatory Tribunal (IPART) for investigation and report:

- the maximum late payment and dishonoured or declined payment fee for Sydney Water Corporation (Sydney Water),
- the appropriate terms and conditions under which a late payment fee should apply under Sydney Water's customer contract, and
- the maximum dishonoured or declined payment fee for Hunter Water Corporation (Hunter Water).

In conducting each review under these terms of reference, IPART is to specify:

1. the maximum late payment fee that Sydney Water may charge under its customer contract;
2. the maximum dishonoured or declined payment fee recommended to be charged by Sydney Water;
3. the maximum dishonoured or declined payment fee that Hunter Water may charge under its customer contract; and
4. the terms and conditions to apply to the charging of the late payment fee under Sydney Water's customer contract.

Background

Sydney Water

By clause 4.4.5 of the customer contract contained in Sydney Water's Operating Licence 2015-2020, Sydney Water has the provision to charge:

> "…a late payment fee, but only if a maximum late payment fee amount is specified by *IPART* as part of a review conducted by *IPART* under the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW) ("IPART Act")."

IPART may specify the terms and conditions under which the late payment fee applies as part of the review, noting that Sydney Water cannot charge a late payment fee if:

- it has already agreed to a deferred payment date with a customer, or an arrangement to pay by instalments with respect to the overdue account balance; or
- the customer has entered into a payment arrangement with Sydney Water.

Under clause 4.11.1 of its customer contract, Sydney Water may charge a dishonoured or declined fee in an amount not exceeding the amount specified on its website, as amended from time to time.

Hunter Water

Clause 4.9.1 of the customer contract contained in Hunter Water's Operating Licence 2012-2017, provides that:

"If payment of your account is dishonoured or declined, we will charge you the relevant administrative fee set by IPART."

Matters for consideration

In undertaking an investigation under this referral, IPART should take into account the following considerations:

When reviewing the maximum late payment fee and associated terms and conditions for charging:

1. The maximum late fee should reflect the efficient costs associated with the late payment of bills.
2. The impact on different customer groups of any terms and conditions for the charging of the late payment fee under the customer contract.

In addition, IPART may take into account any other matters it considers relevant.

When reviewing the maximum dishonoured or declined payment fee:

1. The maximum dishonoured or declined fee should reflect the efficient costs incurred by the utility for dishonoured or declined payments.

In addition, IPART may take into account any other matters it considers relevant.

Consultation

In conducting a review under this referral, IPART will invite submissions from stakeholders.

Timing of periodic review

1. IPART is to conduct the investigation and report under this referral either:
    a. concurrently with its investigation of Sydney Water's and Hunter Water's maximum prices for the provision of water, sewerage, stormwater, trade waste (price review); or
    b. separately from a price review.

2. Where an investigation and report under this referral is conducted concurrently with a price review:
    a. the specified maximum fees are to apply from the date the determination commences in respect of that price review; and
    b. IPART must specify the relevant maximum fee(s) in the report prepared for the purposes of the price review (a copy of which is to be provided to the Premier).

3. Where an investigation and report under this referral is conducted separately from a price review, IPART must:
    a. set out the period during which the fees are to apply; and
    b. submit a report to the Premier once the review is completed.

T Impacts of draft prices

T.1 Impacts on Hunter Water customers

T.1.1 Indicative bill impacts for residential customers

Most residential customers' bills are for water services, about 96% of customers' bills also include wastewater services and about 30% also include stormwater services.[361]

We have undertaken analysis of the customer base, using data to assess affordability and bill impacts at different usage levels. We have estimated bill impacts for the above services for several customer categories including:

- House - small household – water usage 90 kL/year
- House – typical household – water usage 189 kL/year
- House – large household – water usage 289 kL/year
- House – low income household – water usage 134 kL/year
- House – high income household – water usage 215 kL/year
- Apartment – typical apartment – water usage 115 kL/year
- Pensioner – house – water usage 100 kL/year
- Pensioner – apartment – water usage 100 kL/year.[362]

Table T.5 shows indicative bill impacts include discretionary expenditure charges, which accounts for about 0.1% to 0.3% of customer bills.

We have also undertaken analysis to estimate the impact of a 30% and 15% reduction in water usage on customer bills (see Table T.6).

361 Hunter Water, *Pricing Proposal to IPART, Technical Paper 7*, 1 July 2019, pp 3 and 22.
362 IPART, *Residential water usage in Sydney, Hunter and Gosford – Results for the 2015 household survey*, September 2016, pp 28, 39.

Table T.1 Indicative bills for residential customers under draft prices ($nominal – ie, including inflation) – water only, excluding discretionary expenditure

Customer type	2019-20 (Current)	2020-21	2021-22	2022-23	2023-24	Change 2019-20 to 2023-24	Hunter Water's Proposal
House							
▼ 90 kL pa (small household)	314	227	235	243	252	-62	41
– *% change*	-	*-27.8%*	*3.8%*	*3.3%*	*3.7%*	*-19.7%*	*13.0%*
▼ 189 kL pa (typical household)	548	471	489	505	524	-24	78
– *% change*	-	*-14.1%*	*3.8%*	*3.3%*	*3.7%*	*-4.4%*	*14.3%*
▼ 289 kL pa (large household)	785	718	745	770	799	14	116
– *% change*	-	*-8.6%*	*3.8%*	*3.3%*	*3.7%*	*1.7%*	*14.8%*
▼ 134 kL pa (low income household)	418	335	348	359	373	-45	57
– *% change*	-	*-19.8%*	*3.8%*	*3.3%*	*3.7%*	*-10.8%*	*13.7%*
▼ 215 kL pa (high income household)	610	535	556	574	596	-14	88
– *% change*	-	*-12.2%*	*3.8%*	*3.3%*	*3.7%*	*-2.4%*	*14.4%*
Apartment							
▼ 115 kL pa (typical apartment)	373	288	299	309	321	-52	50
– *% change*	-	*-22.7%*	*3.8%*	*3.3%*	*3.7%*	*-14.0%*	*13.5%*
Pensioner							
▼ 100 kL pa (house)	188	122	126	130	135	-53	23
– *% change*	-	*-35.3%*	*3.7%*	*3.3%*	*3.7%*	*-28.0%*	*12.2%*
▼ 100 kL pa (apartment)	188	122	126	130	135	-53	23
– *% change*	-	*-35.3%*	*3.7%*	*3.3%*	*3.7%*	*-28.0%*	*12.2%*

Source: IPART analysis.

Table T.2 Indicative bills for residential customers under draft prices ($nominal – ie, including inflation) – water and wastewater services, excluding discretionary expenditure

Customer type	2019-20 (Current)	2020-21	2021-22	2022-23	2023-24	Change 2019-20 to 2023-24	Hunter Water's Proposal
House							
▼ 90 kL pa (small household)	1,004	888	913	938	965	-39	179
– % change	-	*-11.5%*	*2.8%*	*2.7%*	*2.8%*	*-3.9%*	*17.8%*
▼ 189 kL pa (typical household)	1,239	1,133	1,167	1,200	1,237	-2	216
– *% change*	-	*-8.5%*	*3.0%*	*2.8%*	*3.0%*	*-0.2%*	*17.5%*
▼ 289 kL pa (large household)	1,476	1,380	1,424	1,465	1,512	36	254
– *% change*	-	*-6.5%*	*3.2%*	*2.9%*	*3.2%*	*2.4%*	*17.2%*
▼ 134 kL pa (low income household)	1,108	997	1,026	1,055	1,086	-23	196
– *% change*	-	*-10.0%*	*2.9%*	*2.8%*	*2.9%*	*-2.0%*	*17.6%*
▼ 215 kL pa (high income household)	1,300	1,197	1,234	1,269	1,308	8	226
– *% change*	-	*-7.9%*	*3.1%*	*2.9%*	*3.1%*	*0.6%*	*17.4%*
Apartment							
▼ 115 kL pa (typical apartment)	950	851	893	935	980	30	240
– % change	-	*-10.4%*	*4.9%*	*4.7%*	*4.8%*	*3.2%*	*25.3%*
Pensioner							
▼ 100 kL pa (house)	669	611	628	645	663	-6	156
– *% change*	-	*-8.5%*	*2.7%*	*2.7%*	*2.7%*	*-0.9%*	*23.3%*
▼ 100 kL pa (apartment)	584	538	566	594	623	39	194
– *% change*	-	*-7.9%*	*5.1%*	*5.0%*	*5.0%*	*6.6%*	*33.3%*

Source: IPART analysis.

Table T.3 Indicative bills for residential customers under draft prices ($nominal – ie, including inflation) – water, wastewater and stormwater services, excluding discretionary expenditure

Customer type	2019-20 (Current)	2020-21	2021-22	2022-23	2023-24	Change 2019-20 to 2023-24	Hunter Water's Proposal
House							
▼ 90 kL pa (small household)	1,084	968	995	1,022	1,051	-33	210
– *% change*	-	*-10.7%*	*2.8%*	*2.7%*	*2.8%*	*-3.0%*	*19.4%*
▼ 189 kL pa (typical household)	1,318	1,213	1,249	1,285	1,323	5	247
– *% change*	-	*-8.0%*	*3.0%*	*2.8%*	*3.0%*	*0.4%*	*18.8%*
▼ 289 kL pa (large household)	1,555	1,460	1,506	1,549	1,598	42	285
– *% change*	-	*-6.1%*	*3.1%*	*2.9%*	*3.1%*	*2.7%*	*18.3%*
▼ 134 kL pa (low income household)	1,188	1,077	1,108	1,139	1,172	-16	227
– *% change*	-	*-9.3%*	*2.9%*	*2.8%*	*2.9%*	*-1.4%*	*19.1%*
▼ 215 kL pa (high income household)	1,380	1,277	1,316	1,353	1,394	14	257
– *% change*	-	*-7.4%*	*3.0%*	*2.9%*	*3.0%*	*1.0%*	*18.6%*
Apartment							
▼ 115 kL pa (typical apartment)	979	880	923	966	1,012	33	252
– *% change*	-	*-10.1%*	*4.8%*	*4.7%*	*4.7%*	*3.3%*	*25.8%*
Pensioner							
▼ 100 kL pa (house)	748	691	710	729	749	1	187
– *% change*	-	*-7.6%*	*2.7%*	*2.6%*	*2.7%*	*0.1%*	*25.0%*
▼ 100 kL pa (apartment)	614	568	596	625	655	41	206
– *% change*	-	*-7.5%*	*5.0%*	*4.8%*	*4.9%*	*6.7%*	*33.7%*

Source: IPART analysis.

Table T.4 Indicative bill estimate for customer support programs (ie, discretionary expenditure) ($nominal – ie, including inflation)

	2019-20 (Current)	2020-21	2021-22	2022-23	2023-24
Recycled water	-	0.59	0.60	0.62	0.63
Stormwater channel beautification	-	0.88	0.90	0.93	0.95
Total	**-**	**1.47**	**1.51**	**1.54**	**1.58**

Source: IPART analysis.

Table T.5 Indicative bills for residential customers under draft prices ($nominal – ie, including inflation) – water, wastewater and stormwater including discretionary expenditure

Customer type	2019-20 (Current)	2020-21	2021-22	2022-23	2023-24	Change 2019-20 to 2023-24	Hunter Water's Proposal
House							
▼ 90 kL pa (small household)	1,084	970	997	1,024	1,052	-31	213
– *% change*	-	*-10.5%*	*2.8%*	*2.7%*	*2.8%*	*-2.9%*	*19.7%*
▼ 189 kL pa (typical household)	1,318	1,214	1,251	1,286	1,324	6	251
– *% change*	-	*-7.9%*	*3.0%*	*2.8%*	*3.0%*	*0.5%*	*19.0%*
▼ 289 kL pa (large household)	1,555	1,,461	1,507	1,551	1,599	44	289
– *% change*	-	*-6.0%*	*3.1%*	*2.9%*	*3.1%*	*2.8%*	*18.6%*
▼ 134 kL pa (low income household)	1,188	1,079	1,110	1,140	1,173	-15	230
– *% change*	-	*-9.2%*	*2.9%*	*2.8%*	*2.9%*	*-1.2%*	*19.4%*
▼ 215 kL pa (high income household)	1,380	1,279	1,317	1,355	1,396	16	261
– *% change*	-	*-7.3%*	*3.0%*	*2.9%*	*3.0%*	*1.1%*	*18.9%*
Apartment							
▼ 115 kL pa (typical apartment)	979	882	925	968	1,013	34	255
– *% change*	-	*-9.9%*	*4.8%*	*4.6%*	*4.7%*	*3.5%*	*26.0%*
Pensioner							
▼ 100 kL pa (house)	748	693	712	731	750	2	190
– *% change*	-	*-7.4%*	*2.7%*	*2.6%*	*2.7%*	*0.3%*	*25.4%*
▼ 100 kL pa (apartment)	614	569	597	626	657	43	209
– *% change*	-	*-7.3%*	*5.0%*	*4.8%*	*4.9%*	*7.0%*	*34.1%*

Source: IPART analysis.

Table T.6 Indicative reduction in customer bill following usage reduction for 2020-21 ($nominal – ie, including inflation)

	kL/year	Difference (kL/year)	Bill ($/year)	Difference in bill ($/year)	% reduction in bill
House (typical household)	**189**		1,214		
▼ 30% usage reduction	132	57	1,074	141	11.6%
▼ 15% usage reduction	161	28	1,145	69	5.7%
Apartment (typical)	**115**		882		
▼ 30% usage reduction	81	35	798	84	9.5%
▼ 15% usage reduction	98	17	840	42	4.8%
Pensioner (house)	**100**		693		
▼ 30% usage reduction	70	30	619	74	10.7%
▼ 15% usage reduction	85	15	656	37	5.3%
Pensioner (apartment)	**100**		569		
▼ 30% usage reduction	70	30	495	74	13.0%
▼ 15% usage reduction	85	15	532	37	6.5%

Note: Includes discretionary expenditure.

Source: IPART analysis.

T.1.2 Affordability is a concern for many Hunter Water stakeholders

As discussed in section 12.1, we have considered the distribution of income in the Hunter region and undertaken analysis to estimate the proportion of household income that a typical Hunter Water customer's bill represents (see Table T.9).

Table T.7 2015 household survey results – income level by region

Income level ($2014-15)	Hunter	Eastern Sydney	Western Sydney	Gosford
Low income (up to $41,600)	35%	22%	27%	35%
Lower middle income (>$41,600 - $78,000)	21%	20%	21%	21%
Higher middle income (>$78,000 to $156,000)	25%	32%	30%	26%
High income (>$156,000)	8%	16%	12%	8%

Source: IPART, *Residential water usage in Sydney, Hunter and Gosford – Results for the 2015 household survey*, September 2016, p 13.

Table T.8 ABS data 2016 census population and income data by region ($nominal – including inflation)

	Lower Hunter	Upper Hunter	Newcastle	Sydney	Central Coast
Number of people	87,657	30,196	163,884	4,321,535	327,736
Average people per household	2.6	2.5	2.4	2.8	2.5
Median weekly household income	$1,284	$1,294	$1,355	$1,802	$1,258
Median monthly mortgage repayments	$1,625	$1,700	$1,750	$2,167	$1,750
Median weekly rent	$280	$240	$340	$450	$359

Source: ABS, 2016 Census QuickStats – Lower Hunter (SA3), Upper Hunter (SA3), Newcastle (SA3), Sydney (UCL), Central Coast (SA4), https://quickstats.censusdata.abs.gov.au.

Table T.9 Indicative bill estimates as a proportion of median household income ($nominal – ie, including inflation)

	Average/typical household bill 2019-20	% of household income
Hunter Water	$1,318	1.9%
Sydney Water	$1,185	1.3%
Central Coast Council	$926	1.4%

Note: Includes stormwater.

Source: ABS, 2016 Census QuickStats – Lower Hunter (SA3), Upper Hunter (SA3), Sydney (UCL), Central Coast (SA4), https://quickstats.censusdata.abs.gov.au, IPART, *Prices for Sydney Water From 1 July 2020 - Issues Paper*, September 2019, p 10, and *Review of Central Coast Council's water, sewerage and stormwater prices - Final Report*, May 2019, pp 175 and 177; IPART analysis.

T.1.3 Indicative bill impacts for non-residential customers

We have estimated bill impacts for a sample of non-residential customers presented in Table T.10.

Table T.10 Indicative bill impacts of draft prices – non-residential customers ($ nominal – ie, including inflation)

Customer type	2019-20	2020-21	2023-24	Annual % change	% change 2019-20 to 2023-24	% change Hunter Water's proposal
Service station	2,042	1,962	2,149	1%	5%	17%
Small shop – 20mm	1,104	966	1,049	-1%	-5%	18%
Small shop – 25mm	1,961	1,815	1,975	0%	1%	20%
Large licensed club	52,300	52,493	57,765	3%	10%	16%
Medium licensed hotel	5,736	5,618	6,156	2%	7%	18%
Regional shopping centre	320,028	330,004	364,385	3%	14%	13%
Large office – Newcastle	20,679	20,762	22,844	3%	10%	15%
Regional office – Maitland	6,515	6,323	6,924	2%	6%	18%
Small industrial firm	1,065	894	967	-2%	-9%	20%
Medium industrial firm with location-based charge	313,672	323,067	363,116	4%	16%	16%
Large industrial firm with location-based charge and no sewer	391,949	402,481	503,821	6%	29%	30%
Large industrial firm with location-based charge and sewer	539,040	552,952	665,861	5%	24%	24%
Small nursery low discharge factor	1,854	1,783	1,973	2%	6%	13%
Large nursery low discharge factor	15,411	15,584	17,277	3%	12%	14%
Fast food outlet	2,675	2,560	2,801	1%	5%	17%
Shopping centre – 4,000 kL p.a.	23,442	22,542	24,629	1%	5%	20%
Shopping centre – 9,000 kL p.a	32,644	32,938	36,266	3%	11%	15%
Large industrial firm – 45,600 kL p.a./50mm meter	122,858	127,128	140,929	3%	15%	14%
Large industrial firm – 13,000 kL p.a./multiple meters	43,657	44,493	49,062	3%	12%	14%

Note: Non-residential property type corresponds to those described in Technical Paper 8 of Hunter Water's 1 July 2019 Proposal (pp 53-71). Bill impacts exclude trade waste charges.

Source: IPART analysis.

Glossary

2016 Determination	*Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June,* published June 2016.
2016 determination period	The period from 1 July 2016 to 30 June 2020.
2020 Determination	The Determination that we will make as a result of this review. It will set out the maximum prices that Hunter Water can charge for its monopoly services from 1 July 2020.
2020 determination period	The period of four years commencing 1 July 2020.
Annual revenue requirement	The notional revenue requirement in each year of the determination period.
BOD	Biochemical oxygen demand.
CPI	Consumer Price Index.
current determination period	The period from 1 July 2016 to 30 June 2020, as set in the 2016 Determination.
determination period	Given period over which price limits (maximum prices) set by IPART apply.
DRC	Depreciated Replacement Cost.
DVAM	Demand volatility adjustment mechanism.
ECM	Efficiency carryover mechanism.
EIC	Environmental Improvement Charge.
ELWC	Economic Level of Water Conservation.
EPA	Environment Protection Authority, NSW.
EPL	Environment Protection Licence, issued by the EPA.
FAR	Fixed asset register.

GL	Gigalitre (one billion litres).
Hunter Water	Hunter Water Corporation.
Hunter Water Act	*Hunter Water Act 1991* (NSW).
IPART	Independent Pricing and Regulatory Tribunal of NSW.
IPART Act	*Independent Pricing and Regulatory Tribunal Act 1992* (NSW).
kL	Kilolitre (one thousand litres).
LHWP	Lower Hunter Water Plan.
LRMC	Long Run Marginal Cost (of supply).
ME	Meter Equivalent.
ML	Megalitre (one million litres).
NPV	Net Present Value.
NRR	Notional revenue requirement (the revenue requirement set by IPART that represents the efficient costs of providing Hunter Water's monopoly services).
PIAC	Public Interest Advocacy Centre
PV	Present Value.
RAB	Regulatory Asset Base.
Section 16A directions	Ministerial directions pursuant to section 16A of the IPART Act.
SOC	State Owned Corporation, as prescribed by Schedule 5 of the SOC Act.
SOC Act	*State Owned Corporations Act 1989* (NSW).
SRMC	Short Run Marginal Cost (of supply).
Sydney Water	Sydney Water Corporation.
target revenue	The smoothed NRR over four years to (in NPV neutral terms) which prices are set to recover, in

	order to provide Hunter Water with the NRR over the determination period.
TSS	Total suspended solids.
UPA	Unregulated pricing agreement.
upcoming determination period	the period commencing 1 July 2020.
WACC	Weighted Average Cost of Capital.
WWTP	Wastewater treatment plant