IPART

Independent Pricing and Regulatory Tribunal
New South Wales

Review of prices for Hunter Water Corporation

From 1 July 2020

Issues Paper
Water Pricing

September 2019

ISBN 978-1-76049-367-7

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:

Dr Paul Paterson, Chair

Mr Ed Willett

Ms Deborah Cope

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

John Madden (02) 9113 7780

Sheridan Rapmund (02) 9290 8430

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 21 October 2019.

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.

Contents

1 Executive summary

The Independent Pricing and Regulatory Tribunal of NSW (IPART or 'we') has begun a review to determine 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. 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 will make a determination on these prices for a period of up to five years, starting from 1 July 2020 (the 2020 determination period).

All dollar figures quoted in this Issues Paper are in $2019-20, unless stated otherwise.

1.1 Process for conducting the review

We received Hunter Water's pricing proposal on 1 July 2019. It is available on our website.[2]

This Issues Paper explains the process we will follow to conduct the review, the approach we will use to make our pricing decisions, and the key issues we will consider in making these decisions. It also sets out our preliminary views on some of these issues. We invite all interested parties to provide feedback and make submissions in response to this paper. Details on how to respond are provided on page iii at the start of the paper.

Figure 1.1 How prices are set under a propose-respond regulatory model

We will hold a public hearing in Newcastle on 19 November 2019, to provide stakeholders with another opportunity to share their views on Hunter Water's pricing proposal and the key issues for this review.

1 IPART, Review of pricing arrangements for recycled water and related services Final Report, July 2019.
2 https://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro-Pricing/Prices-for-Hunter-Water-Corporation-from-1-July-2020.

We will consider all comments made in submissions and at the public hearing before making our draft decisions. We will then release a Draft Report and Draft Determination in March 2020, and invite further comments from stakeholders and Hunter Water. We will consider all these comments before making our Final Determination and publishing our Final Report in June 2020, with new prices to apply from 1 July 2020.

1.2 Hunter Water's pricing proposal for water, wastewater and stormwater services

1.2.1 Length of determination period and expenditure

Hunter Water has proposed a 5-year determination period (from 2020-21 to 2020-25). This is one year longer than the 2016 Determination.

Revenue requirement

Hunter Water proposed a revenue requirement of $375.9 million per year over the 5-year period. This is $55.0 million, or 17.1%, per year higher than the revenue allowed for in the 2016 Determination.

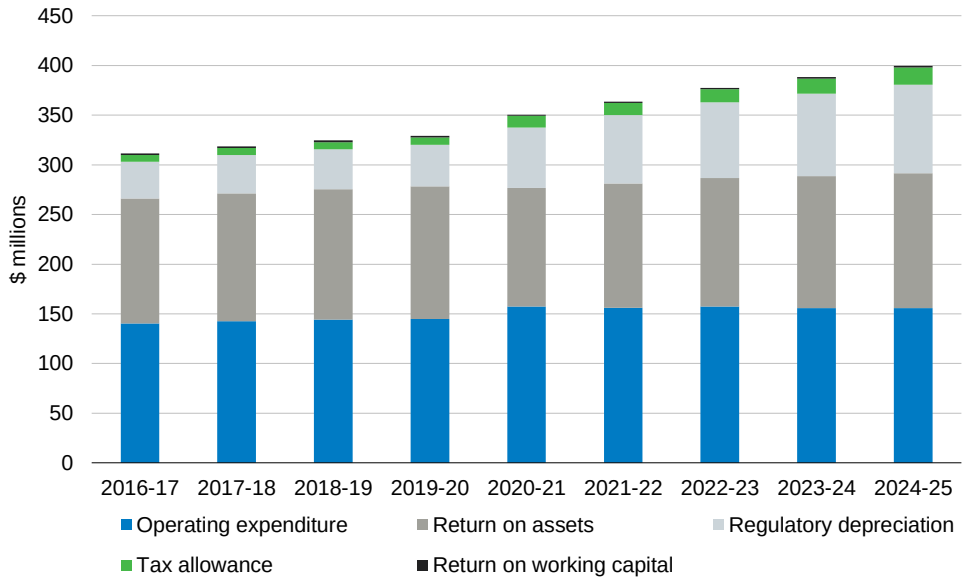
Hunter Water has also estimated that by the end of June 2020, it will have spent significantly more than the expenditure we used to estimate prices for the 2016 Determination. It forecasts a 4.1% overspend in operating expenditure, and 28.0% higher capital expenditure than that allowed.

Hunter Water has 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 includes:

- 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.

Hunter Water's allowed revenue over the 2016 Determination, and that proposed for the next five years, is shown in Figure 1.2.

Figure 1.2 Hunter Water's allowed revenue in the 2016 Determination, and proposed revenue for the 2020 determination period



Data source: Hunter Water Pricing Proposal, 1 July 2019, Technical paper 6, pp 4, 8; IPART calculations.

The proposed revenue Hunter Water has said it needs to recover its efficient costs (or its notional revenue requirement (NRR)) results in increases in customer bills above the level of inflation (see section 1.2.2).

Operating expenditure

By June 2020, Hunter Water expects its operating expenditure to exceed the amount used to set prices in our 2016 Determination by $23.7 million, or 4.1%. This is a result of spending exceeding allowances for wastewater and corporate services in particular.

Hunter Water's proposed annual average operating expenditure over the 2020 determination period is $156.5 million per year, which is 5.1% more than its average annual operating expenditure over the 2016 determination period, and 9.4% more than the annual average operating expenditure we used to set prices over the 2016 determination period.

Capital expenditure

Hunter Water proposes a significant increase in its average level of capital expenditure over the next five years (Table 1.1). Hunter Water states this expenditure level is similar to expenditure levels prior to 2011.[3]

3 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, p 12.

Table 1.1 Annual average expenditure by service for determination periods ($million, $2019-20)

	Annual average ($million)		Difference between determination periods		Service as proportion of total expenditure	
	2016 period	2020 period	($million)	(%)	2016 period	2020 period
Water	49.7	54.7	5.0	10%	39%	31%
Wastewater	57.2	84.9	27.8	49%	45%	49%
Stormwater (excl. discretionary)[a]	2.3	4.7	2.3	98%	2%	3%
Corporate (excl. discretionary)[b]	17.4	25.4	8.0	46%	14%	15%
Discretionary	0.6	4.6	4.0	666%[c]	0.5%	3%
Total	**127.2**	**174.3**	**47.1**	37%		

a For the 2016 Determination period, Hunter Water's discretionary expenditure was included in the stormwater expenditure. We have separated this out.

b For the 2020 Determination period, Hunter Water's discretionary expenditure is included in the corporate expenditure. We have separated this out.

c Since the 2016 determination period, we have revised our approach to considering discretionary expenditure.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, pp 15, 28, 65; Hunter Water AIR/SIR, SIRCapex 2, row 4417; IPART calculations.

The proposed capital expenditure program will contribute to an increase in Hunter Water's Regulatory Asset Base (RAB) of $0.5 billion over five years, to reach $3.4 billion. We use the RAB to generate an appropriate return on capital, so this will have an ongoing effect on prices over the lifetime of these assets.

The effect on prices of the proposed increase in capital expenditure in the upcoming determination period has been offset by a reduction in interest rates – referred to as the Weighted Average Cost of Capital (WACC). Hunter Water proposed a WACC of 4.1% for the 2020 determination period (compared to 4.9% in the 2016 determination period). However, water assets have long lives and as such typically remain in the RAB for many decades. If all of Hunter Water's proposed capital expenditure is added to the RAB, this would result in upward pressure on customer bills if interest rates rise.

Depreciation and discretionary expenditure

Hunter Water has proposed an increase in depreciation costs of $36.0 million per annum, or 91.4%, compared to our 2016 Determination.[4] This is due mainly to a proposed disaggregation of its RAB into sub-categories, and reduced asset lives.

The proposal also includes $25.1 million in discretionary expenditure, which Hunter Water indicates is supported by customer willingness to pay surveys. This is to fund stormwater channel beautification ($11.3 million in the 2020 determination period and $2.3 million in the 2016 determination period), and the provision of recycled water for irrigation of public spaces ($11.5 million in the 2020 determination period).[5]

4 IPART, Review of prices for Hunter Water Corporation - From 1 July 2016 to 30 June 2020, June 2016, p 38; Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 8; IPART analysis.

5 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 2 p 66; Technical Paper 4, p 22.

1.2.2 Proposed prices and bill impacts

Hunter Water provides three core monopoly services, which it uses as the basis for charging:

- Water supply
- Wastewater services
- Stormwater management.

As a result of Hunter Water's proposed expenditure plans, its prices for water, wastewater and stormwater services over the next 5 years would increase in real terms.

Residential

Hunter Water's proposed prices for water, wastewater and stormwater services for residential customers are provided in Table 1.2. A complete set of proposed prices is available in Chapter 7. Table 1.2 also presents the total percentage price changes for its major services over the next 5 years.

Table 1.2 Hunter Water's proposed charges 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	2024-25	Change 2020-2025
Water							
Usage ($/kL)	2.39	2.41	2.44	2.46	2.49	2.51	5%
Service – houses & apartments	100.88	100.42	98.53	98.81	97.00	97.24	-4%
Wastewater							
Service - houses[a]	651.98	675.59	699.78	724.88	750.59	777.22	19%
Service - apartments[a]	537.89	574.25	612.31	652.40	694.29	738.35	37%
Stormwater							
Houses	80.01	84.63	89.56	94.77	100.29	106.14	33%
Apartments	29.61	31.32	33.14	35.07	37.12	39.28	33%

[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 $762.11 for houses and $628.74 for apartments is multiplied by a 75% discharge allowance and a deemed usage allowance added of $80.40 for houses and $66.33 for apartments.

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

There is a proposed increase in the water usage price of 1% annually (from $2.39/kL to $2.51/kL in 2024-25). Proposed prices for wastewater service charges increase by around $25 a year for houses, and $40 a year for apartments on average, in real terms (ie, excluding inflation). Stormwater prices are also increasing for houses and apartments by 33%, or $5.23 and $1.93 a year, respectively.

Over the 5 years of the 2020 determination period, the proposed prices for water, wastewater and stormwater result in:

- A 24.2% nominal and a 9.8% real increase for typical house bills[6], and
- A 33.7% nominal and an 18.2% real increase for typical apartment bills.[7]

Under Hunter Water's proposal, 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.

Hunter Water currently levies an Environmental Improvement Charge (EIC) which is $41.20 per customer in 2019-20. It has proposed to discontinue this charge from the beginning of the 2020 Determination.[8]

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

	2019-20	2024-25	Annual change		Change over determination period	
House	1,316	1,635	64	4%	319	24%
Pensioner household[a]	752	989	47	6%	237	31%
Apartment	984	1,316	66	6%	332	34%

a We have estimated the bill impacts for a Pensioner household including stormwater as data was not presented in Hunter Water's proposal.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 46 and IPART calculations.

Non-residential

Hunter Water has proposed non-residential prices and total percentage price changes for its major services for the next regulatory period as shown in Table 1.4.

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

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

8 The EIC was used to provide wastewater services to the Wyee 'backlog' area as well as an additional five projects in the Lower Hunter. Hunter Water observed our recent approach in the 2018 Developer Charges Determination, where the existing property owner is liable for Hunter Water's cost of building an extension of the wastewater network to the connecting property.

Table 1.4 Hunter Water's proposed charges for major non-residential services from 1 July 2020 ($2019-20)

Charge description	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	Change 2020 -2025
Water							
Usage - ($/kL)[a]	2.39	2.41	2.44	2.46	2.49	2.51	5%
Service - small customers (20mm meter stand-alone)	100.88	100.42	98.53	98.81	97.00	97.24	-4%
Service - other (25mm meter equivalent)[b]	157.63	156.90	153.95	154.38	151.57	151.94	-4%
Wastewater							
Usage non-residential ($/kL)[c]	0.67	0.65	0.64	0.62	0.61	0.59	-12%
Service - small customers (20mm meter stand-alone)[d]	842.51	872.60	902.92	934.70	966.72	1,000.21	19%
Connection - other (25mm metre equivalent)[b,e]	1,190.79	1,244.98	1,297.87	1,355.17	1,411.22	1,471.70	24%
Stormwater							
Small (<1,000m^2) or low impact	80.01	84.63	89.56	94.77	100.29	106.14	33%
Medium (1,001 to 10,000m^2)	261.31	276.39	292.49	309.53	327.56	346.64	33%
Large (10,001 to 45,000m^2)	1,661.94	1,757.86	1,860.27	1,968.63	2,083.29	2,204.61	33%
Very large (>45,000m^2)	5,280.39	5,585.15	5,910.52	6,254.80	6,619.11	7,004.60	33%

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 Charge for volume of wastewater in excess of the discharge allowance (120kL per year in 2019-20).

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

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

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

The impact on non-residential customers' bills depends on their meter size and discharge factors, as well as their water and wastewater usage. Hunter Water modelled the impact of its proposed prices on different types of non-residential customers, and found that bills will increase between 17% and 44% (in nominal terms) across a range of typical customers.[9]

9 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, 1 July 2019, Technical Paper 8, p 47.

1.2.3 Proposed changes to the form of regulation and price structures

Hunter Water has proposed some changes to the way we regulate, and the way it levies prices.

Hunter Water has proposed phasing out its l**ocation-based pricing** for 19 customers with an annual water usage above 50,000 kL, which is based on estimates of cost differentials in seven different zones. This provided a discount to certain large water users, and its removal will therefore result in increased prices for those customers, but a reduction for all other customers.

In our 2016 Determination we included a **demand volatility mechanism**. Under this mechanism, if water sales were higher or lower than those used to set prices, we would consider a revenue adjustment in future periods. Hunter Water has reported that its water sales are currently expected to be 6.7% above the water sales forecast used to set prices, which would trigger the demand volatility adjustment mechanism.

Hunter Water has also indicated that it would submit details during the review process of any proposed **drought response cost pass-through** mechanism.

1.2.4 Recycling schemes

Hunter Water has 18 existing recycled water schemes, supplying about 3,500 ML of recycled water each year.[10] It has also proposed a new recycled water scheme to be funded by its broader customer base on the basis of its customers' willingness to pay, at a cost of $11.5 million.[11]

Hunter Water has proposed prices for two 'higher-cost' 'mandatory' recycled water schemes, which will service around 1,170 residential customers.[12] Hunter Water has not identified any material avoided or deferred costs associated with these schemes that it is seeking to recover from the broader customer base. Our approach for these mandatory schemes is to assess whether the proposed recycled water prices meet our recycled water pricing principles.

1.3 Our preliminary responses on key issues

Our preliminary responses on key issues arising from Hunter Water's pricing proposal are outlined below.

1.3.1 Hunter Water's proposed increases in capital and operating expenditure

Hunter Water has proposed a significant increase in expenditure compared to the 2016 determination period. As outlined above, Hunter Water has proposed a 75.4% increase in capital expenditure from what we allowed in the 2016 determination period, as well as a 9.4% increase in operating expenditure.

Hunter Water has identified a need for increased expenditure after reviewing risks and comparing performance to other utilities and seeks to improve compliance with its legislative

10 Hunter Water Annual Information Return.
11 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 2, p 67.
12 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 19.

requirements. Hunter Water also notes that it is spending significantly to reduce water losses from the system as it is the worst performer in terms of leakage per connection out of 15 comparable water utilities across Australia.

We have engaged consultants – Aither – to review and make recommendations on Hunter Water's historical capital expenditure, and its proposed operating and capital expenditure.

We will also examine whether Hunter Water's proposed expenditure reflects an adequate sharing of risk between the organisation and its customers. We will review the role of performance standards benchmarking with other utilities as a driver of expenditure, as opposed to compliance with regulatory requirements or in accord with customer preferences and willingness to pay.

Depreciation

Hunter Water has proposed an increase in depreciation costs as a result of shorter asset lives and disaggregation of its RAB.[13] The finer breakdown of its assets allows a more detailed specification of asset lives when calculating depreciation.

The effect of this is a significant reduction in the economic lives of both its existing assets and its proposed new assets. Shorter asset lives mean that assets depreciate faster, resulting in higher depreciation. Depreciation cost is proposed to increase from $42 million in 2019-20, to $89 million in 2024-25.[14]

In principle, we support the disaggregation of the RAB and the more accurate application of asset lives in calculating regulatory depreciation. This allows the timing of revenue to better match the consumption and use of a utility's assets. In turn, this means prices are more cost-reflective and there is equity between generations of customers.

We will investigate the method that Hunter Water has used to disaggregate its RAB, to ensure that the existing and proposed assets have been allocated to the appropriate category, at the appropriate value. We will also investigate Hunter Water's proposed asset lives. There has been a significant reduction in the weighted average life of Hunter Water's assets. This is a critical factor in putting upward pressure on its proposed revenue requirement and, in turn, prices.

Capital and operating expenditure are two major factors that directly impact the revenue required to deliver services. Table 1.5 provides a summary of Hunter Water's proposals and our response on issues that affect its NRR.

13 We use the RAB to calculate how much revenue Hunter Water needs to cover the depreciation of its assets and how much it should earn for a return on its assets.

14 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 8.

Table 1.5 Our preliminary positions on proposals affecting revenue requirement

Topic	Hunter Water's Proposal	Preliminary position
Proposed expenditure and cost drivers	Increase in revenue requirement to reduce its risk profile. Major expenditure drivers include wastewater treatment, water management (in particular reduction of losses), and ICT improvements.	We will review this as part of our expenditure review including examining the appropriate level of risk to accept to meet standards.
Capital expenditure	A significant increase driven by assessment of risk. Water expenditure is increasing by 10% and wastewater expenditure is increasing by 49% between determination periods.	We will review the efficiency of capital costs in our expenditure review.
Operating expenditure	Increasing by 9.4% between determination periods. Drivers include external labour costs, treatment plant operations, and energy expenditure.	We will review the efficiency of operational costs in our expenditure review.
Regulatory depreciation	Revised method to disaggregate its RAB, and a significant reduction in the economic lives of its assets.	It is appropriate for Hunter Water to disaggregate the RAB. We will review the disaggregation of the RAB and the asset lives applied to the new RAB components.
Return on assets	Proposed WACC is 4.1%. Hunter Water supports using our standard methodology.	We will calculate the WACC using our standard methodology, applying updated market information.
Tax allowance	Tax liabilities double under the proposal. Hunter Water used our standard approach to calculate its tax allowance.	We will calculate tax liabilities after other expenditure and revenue decisions are made.
Return on working capital	Hunter Water used our standard approach. Proposes a move to a 3-month billing cycle.	We have no concerns with the proposed 3-month billing cycle.
Output measures	Updated targets in existing suite of output measures to help determine the delivery effectiveness of its capital program.	We will assess Hunter Water's proposed new output measures in our expenditure review.

1.3.2 Hunter Water's proposed prices

Setting efficient water and wastewater usage prices

When setting prices, we balance our preference for prices to be cost-reflective against a range of other factors, including customer affordability and government funding commitments.

When setting water usage prices, we have generally favoured setting prices with reference to the long run marginal cost (LRMC) of water supply. 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.

For wastewater usage charges, we have typically not set these prices with reference to LRMC. Rather, we have often set prices with reference to estimates of short-term variable costs. In large part, this has reflected data limitations. It also reflects that wastewater is managed over multiple catchments that are not connected, and setting a single usage price will not be

perfectly cost-reflective for all customers. In contrast, water is provided across an interconnected network.

Nevertheless, we also see merit in setting wastewater usage prices with reference to LRMC, as this would signal the long-term capital costs that Hunter Water will need to incur to meet increased demand. Accurate estimates of the LRMC of wastewater supply, preferably by supply catchment, would inform Hunter Water's expenditure planning, the calculation of avoided costs associated with recycling schemes (and hence assessment of the viability of recycled water schemes), and the calculation of prices to wholesale customers. Through this review we propose working with Hunter Water to collect data to estimate the LRMC for wastewater services.

Recycled water schemes and customer willingness to pay

Hunter Water is proposing that $11.5 million be funded from the broader customer base (through water, wastewater and stormwater prices) to fund recycled water schemes that would irrigate parks and public open space, on the basis that its customers are willing to pay. Hunter Water calculates these proposed schemes would increase typical residential bills by around $2.00 per year, depending on what services a customer receives.[15]

We will assess this proposal against the funding arrangements outlined in our recent Final Report on our approach to regulating recycled water prices[16], and in particular assess whether there is sufficient evidence of customer willingness to pay.

Table 1.6 Our preliminary positions on proposals affecting prices

Topic	Hunter Water's Proposal	Preliminary position
Water sales and customer numbers	Forecasting increases in residential (0.4% per year) and non-residential (0.6% per year) demand over the five years to 2024-25. It is also forecasting growth in residential (1.2% per year) and non-residential (0.8% per year) connections.	We will examine the key assumptions used to forecast water demand and customer connections.
Prices – Water services	Usage charge (residential and non-residential) – Real increase of around 1% per year over 5 years (excluding location based usage charges). Service charge (residential and non-residential) – Decline of 3.6% as a result of increase in usage price.	We will review estimates of LRMC using best available information to ensure the usage price is set at appropriate levels.
Prices – Wastewater services	Usage charge (non-residential) – Maintain constant in nominal terms (at $0.67 per kL), ie, slight decline in real terms for non-residential customers. Note: there is no wastewater usage charge for residential customers. Service charge (residential and non-residential) – Real increase of around 4% per year, due to higher expenditure.	We will seek to gain better understanding of LRMC to assess if real decreases in wastewater usage charges are appropriate.

15 Hunter Water, Pricing Proposal, 1 July 2019, Technical Paper 2, p 67.
16 IPART, Review of pricing arrangement for recycle water and related services, July 2019.

Prices – Stormwater services	Service charge (residential and non-residential) – Real increase of around 33% over 5-year period to recover proposed increased investment in stormwater assets. Note: There are no usage charges for stormwater.	Consultants will review capital expenditure on stormwater assets over the regulatory period.
Bulk water price to the Central Coast Council	Apply price set by IPART in 2019 review of Central Coast Council's water prices, may enter an unregulated price agreement with the Council. Assumed zero net transfers over regulatory period.	We have recently determined this price, concurrent with our determination of the Central Coast Council's water prices.
Location based pricing	Remove the discount provided to 19 large customers in seven specific geographic locations over the 5-year period.	Accept the proposal subject to consideration of customer impacts.
Environmental improvement charge	Set to zero.	Accept the proposal.
Trade waste charges	Significant restructure of charges resulting in substantial increases for some customers.	Review charges during our price review to ensure cost reflectivity.
Miscellaneous charges	Significant changes including restructuring of some charges with others being discontinued. Two new charges to be introduced.	Review charges during our price review to ensure cost reflectivity.
Unmetered customers	Update service and usage prices in line with all other customers - affects three properties.	There may be a better proxy to charge commercial unmetered customers than the average residential usage.
Raw water	Replace 'unfiltered water' charge (that includes a service charge and discounted usage charge) with a 'raw water' usage charge of $0.53 per kL only.	Accept the proposal subject to assessing if raw water supply costs are efficient.

1.3.3 Hunter Water's form of regulation and other proposals

Demand volatility

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".[17] Hunter Water has indicated that its water sales will likely be higher than the 5% trigger level.

Based on actual sales to 2017-18 the materiality threshold for the demand volatility adjustment mechanism will be met over the 2016 determination period. Our preliminary view is to return to customers any water sales revenue above the 5% threshold collected over the first three years of the 2016 determination period, net of any costs of delivery, by reducing Hunter Water's revenue requirement over the 2020 determination period. In deciding whether to apply a demand volatility adjustment mechanism over the 2020 determination period, we propose to only use actual water sales data available for the 2016 determination period to assess volatility and calculate the impact on revenue.

17 IPART, Review of prices for Hunter Water Corporation – Final Report, June 2016, pp 97-98.

Discretionary expenditure

Discretionary expenditure is expenditure to provide services or achieve outcomes that are not mandated or go beyond service standards stipulated in the utility's operating licence or other regulatory instruments/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, and the proposal would best fit with the utility's responsibilities.[18] Our recent decisions on recycled water pricing also recognise the importance of customer willingness to pay.[19]

We propose assessing this discretionary expenditure against our principles, which include an assessment of customer willingness to pay. To aid transparency and accountability we will consider a separate charge on customer bills to recover any costs attributable to discretionary expenditure. This would also provide flexibility over time if a discretionary expenditure project provided specific benefits to a set of customers.

Table 1.7 Our preliminary positions on other proposals

Topic	Hunter Water's Proposal	Preliminary position
Length of Determination	5-year determination period	Accept, subject to review of outer year estimates.
Demand volatility	Reported over-recovering revenue in the 2016 determination period. Suggests returning the revenue that exceeded the 5% threshold.	We will consider returning revenue after we assess costs associated with revenue from additional sales. We will include the demand volatility adjustment mechanism for the 2020 Determination based on revenue from water sales.
Efficiency carryover mechanism (ECM)	No proposal to make a claim under the current ECM.	Our preliminary position is to retain the existing operating expenditure ECM but not introduce a capital expenditure ECM at this review.
Unregulated pricing agreements	Maintain existing ability to enter into unregulated pricing and service level arrangements with large customers.	No change to the current threshold of water usage at 7.3 ML or more per year.
Discretionary spend	Proposed $25.1 million in capital expenditure for discretionary projects.	Apply our framework, assess willingness to pay and efficiency and consider separate charge on bills.
Drought cost pass-through mechanism	May propose a pass-through, and will confirm its intention in its response to this Issues Paper.	We will review any proposal using our cost pass-through principles.
Recycled water	For 'mandatory schemes', set its recycled water usage charge at 90% of the proposed potable water usage charge and remove recycled water service charge. Applies to two schemes. Proposed new schemes.	We intend to apply our July 2019 Recycled Water pricing arrangements to existing and proposed schemes. For Hunter Water's proposed discretionary recycled water scheme we will assess information on customer willingness to pay.

18 IPART, Review of prices for Sydney Water Corporation, Final Report, June 2016, p 37.
19 IPART, Review of pricing arrangements for recycled water and related services, July 2019.

1.4 Structure of this Issues Paper

The remainder of this Issues Paper provides more information on this review, Hunter Water's pricing proposal, and our preliminary response to this proposal:

- Chapter 2 outlines the context for the review.
- Chapters 3 to 6 discuss the issues related to the steps in our approach for setting water, wastewater and stormwater prices:
  - Chapters 3 and 4 focus on the key inputs for applying this approach, including the allowance for operating expenditure, prudent and efficient capital expenditure, and the allowances for a return on capital, regulatory depreciation and tax.
  - Chapters 5 outlines Hunter Water's proposed discretionary expenditure.
  - Chapters 6 covers the forecast sales volumes and customer numbers.
- Chapter 7 and 8 look at the issues related to setting prices for Hunter Water's services, including trade waste and ancillary and miscellaneous services.
- Chapter 9 presents the impacts of the proposed prices on customer bills and Hunter Water's financial performance.
- Chapter 10 addresses key elements of Hunter Water's regulatory environment that may affect our decisions and inputs into this review.
- Chapter 11 addresses the issues related to recycled water pricing.

Each of these chapters highlights the questions on which we particularly seek stakeholder comment. For convenience, these questions are listed below. Stakeholders are also welcome to provide input on other issues related to this review.

1.5 List of issues for stakeholder comment

Operating expenditure and capital expenditure

Return on assets, depreciation, and other building block allowances

Discretionary expenditure

Demand and customer numbers for water, wastewater and stormwater

Prices for water, wastewater and stormwater services

Prices for other services

2 How we set prices and context for this review

This chapter outlines our review process and the standard 'building block' framework, which we apply when setting maximum prices for metropolitan water utilities like Hunter Water. It also outlines the drivers of Hunter Water's costs, such as regulatory and environmental requirements.

The following sections discuss:

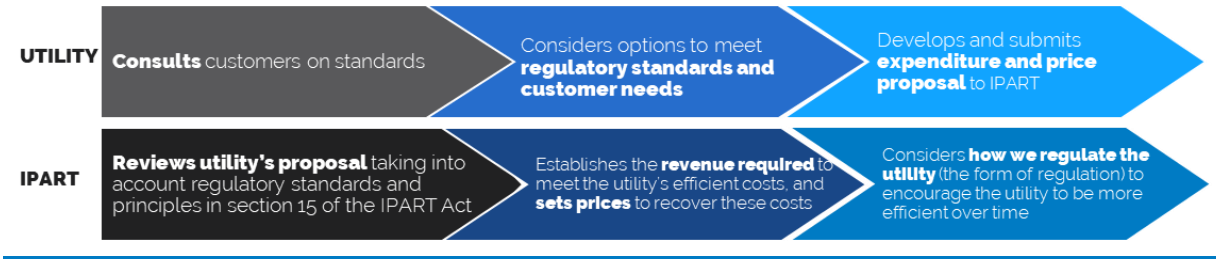
- **Our review process,** including how and when we seek stakeholders' views
- **The services** that Hunter Water delivers
- **Our pricing framework,** including how we assess Hunter Water's efficient costs of delivering its services, and how these costs are recovered through prices
- **The key drivers** of Hunter Water's operating and capital costs of delivering its services.

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 Our propose-respond review process

This review sets the maximum prices Hunter Water can charge its customers for water, wastewater, and stormwater services and related miscellaneous and ancillary services.[20] We are using a propose-respond regulatory model in this review (Figure 2.1).

Figure 2.1 Summary of our propose-respond model



Hunter Water submitted a pricing proposal on 1 July 2019, which includes its proposed operating and capital costs, prices, and preferred regulatory framework for the five years from 1 July 2020.

In determining Hunter Water's maximum prices, we will respond to its proposal and make an assessment of:

20 These are monopoly services that we review under section 11 of the *Independent Pricing and Regulatory Tribunal Act 1992 (NSW)* (the IPART Act). We also have a standing order made under section 12A of the IPART Act to review Hunter Water's dishonoured or declined payment fees. In making our price determination, we will have regard to the requirements of section 15 of the IPART Act (see Appendix A). Current legislation can be accessed at legislation.nsw.gov.au.

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

We will also take into account a broad range of issues consistent with the matters we must consider under the *Independent Pricing and Regulatory Tribunal Act* 1992 (the IPART Act). These matters are provided in Appendix A.

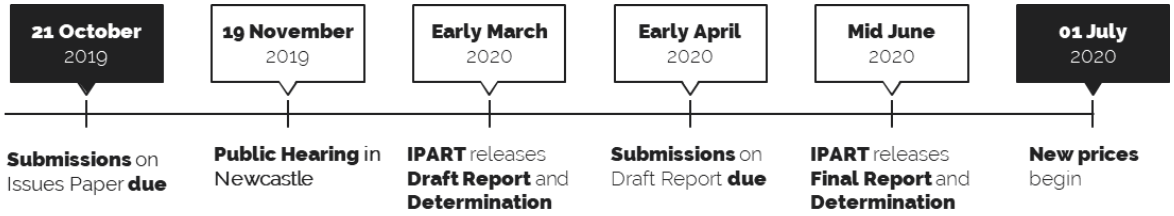
2.1.1 We will consult with stakeholders before we set prices

This Issues Paper is our initial response to Hunter Water's pricing proposal. In it, we discuss and seek feedback on the key issues that we have identified for the review. We will also consider stakeholder feedback on issues related to the review that are not explicitly discussed in this report.

Later in the review, we will hold a public hearing and release a Draft Report to elicit further stakeholder views as our analysis of the issues progresses.

Figure 2.2 below sets out the review timeline, including when stakeholders can have their say.

Figure 2.2 Indicative timetable for this review



2.2 What services does Hunter Water provide?

Hunter Water supplies water, wastewater and stormwater services to residential and non-residential customers in the Lower Hunter region, including Newcastle.

2.2.1 Water services

Hunter Water has two dams and two sandbeds that it can take water from. It then treats this water and may store it in storage reservoirs before delivering it to its customers. It delivers around 60 billion litres per year.[21]

Hunter Water charges its customers a fixed service charge and a usage charge for drinking water. It also provides some customers with unfiltered water.

21 Hunter Water Pricing Proposal, 1 July 2019, p VII.

2.2.2 Wastewater services

Hunter Water operates 19 separate wastewater systems. It collects wastewater from its customers, treats it with its treatment plants, and then either reuses or discharges treated wastewater, and disposes of biosolids.[22]

Hunter Water charges its residential customers a fixed wastewater service charge, which includes a deemed usage component that reflects the average customer wastewater discharge (or 'discharge allowance') into the wastewater network. It charges non-residential customers both a fixed service charge and a usage charge if they discharge more than the discharge allowance.

2.2.3 Stormwater services

Although most stormwater systems are the responsibility of local councils, Hunter Water owns and maintains about 90 kilometres of stormwater channels. Stormwater charges are applied to properties within Hunter Water's declared stormwater catchment areas, which covers about one third of its customers.[23] This is a fixed amount for either houses or apartments, whereas non-residential properties are charged based on their land area, and can apply for a 'low-impact' charge.

2.3 How do 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. This Issues Paper outlines the decisions we will make as part of this review to set Hunter Water's maximum prices. Figure 2.3 provides an overview of key considerations when setting prices and where they are discussed in this Issues Paper.

The sections below briefly explain how we approach the two major elements of the review. That is:

1. Estimating Hunter Water's 'notional revenue requirement' (NRR) – item 2 in Figure 2.3, and
2. How Hunter Water's efficient costs (ie, the NRR) are shared between customers through price structures – item 5 in Figure 2.3.

We then outline other recent and concurrent reviews that might impact the decisions in this review.

22 Hunter Water Pricing Proposal, 1 July 2019, p VII.
23 Hunter Water Pricing Proposal, 1 July 2019, pp VI, 48.

Figure 2.3 Key decisions in a price review

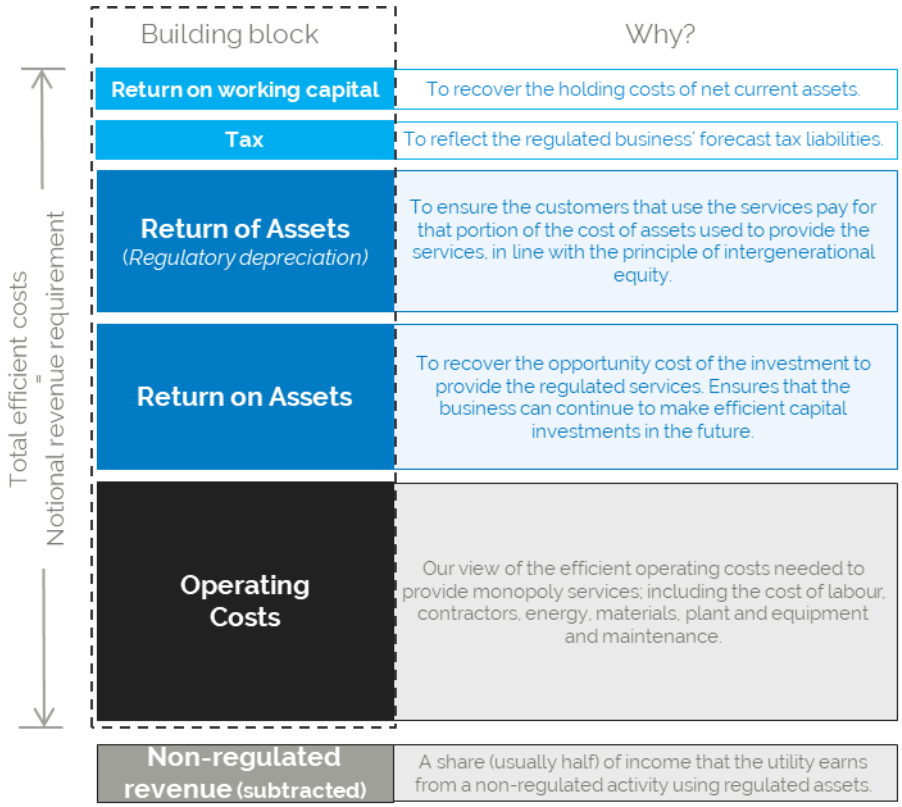
2.3.1 Estimating the efficient costs

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 2.4 provides a brief explanation of each building block allowance within the NRR. We generally set prices to recover the utility's NRR.[24]

Chapters 3 and 4 in this Issues Paper provide more detail on how we calculate the 'building blocks', what Hunter Water has proposed for each building block, and our initial response. We have engaged expert expenditure consultants to assist us in determining the efficient operating and capital costs for Hunter Water, including any potential efficiency gains it can reasonably achieve over the determination period.

24 Before setting prices, we subtract from the NRR 50% of any non-regulated revenue that Hunter Water may generate. The prices we set recover the remaining NRR. Non-regulated revenue is generally very small compared to regulated revenue.

Figure 2.4 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.

We propose to continue using our building block method to set the NRR. This is in line with Hunter Water's proposal and our standard approach.

2.3.2 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.[25] 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. Chapters 7 and 8 include more information on price structures and proposed prices.

Box 2.1 outlines our principles in setting prices.

25 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.

Box 2.1 Our pricing principles

Our overarching principle is that prices should be cost-reflective. This means that:

- Prices should only recover sufficient revenue to cover the efficient historical and 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.

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 Hunter Water to administer, and customer preferences.

2.3.3 Other 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 2.2, along with a weblink to the relevant documents on our website.

Box 2.2 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.

After this review, we will work with regulated water businesses in NSW, other interested stakeholders, and regulators in other jurisdictions to further develop our framework and address any issues that may arise.

2.4 What drives Hunter Water's costs?

We set prices to recover the efficient cost of Hunter Water delivering its monopoly services, while complying with its regulatory requirements. Hunter Water's costs can be allocated into broad categories. These categories will be discussed below, and are the costs:

- To meet its existing service standards and **regulatory obligations**, including any new or amended standards or obligations
- To deliver its monopoly services to new customer areas ('**growth costs**')
- To implement any long-term plans under the **Lower Hunter Water Plan**
- Of **discretionary** projects, where it demonstrates its customers are willing to pay to receive services above its regulated standards.

2.4.1 Regulatory obligations

Hunter Water is a State Owned Corporation (SOC), wholly owned by the NSW Government. It is governed by:

- The *Hunter Water Act* 1991 (NSW) (the Hunter Water Act)
- The *State Owned Corporations Act* 1989 (NSW) (SOC Act).

Its roles and responsibilities are prescribed by various legislative instruments, including:

- The *Public Health Act* 2010
- The *Water Management Act* 2000
- The *Environmental Planning and Assessment Act* 1979
- The *National Parks and Wildlife Act* 1974, and the *Protection of Environmental Operations Act* 1997
- The *Dam Safety Act* 2015
- The *Water Industry Competition Act* 2006
- The IPART Act, and an operating licence administered by IPART.[26]

Hunter Water's primary regulators are:

- **IPART**: sets the maximum prices that Hunter Water can charge for its monopoly services, and administers Hunter Water's operating licence which includes its obligations in relation to customer service, water quality, and system performance. We also monitor and report on compliance, and periodically review the licence conditions.
- **NSW Environment Protection Authority (EPA):** issues Environment Protection Licences[27] for Hunter Water's wastewater network, pumping stations and treatment systems, and monitors and regulates Hunter Water's environmental performance.
- **NSW Health:** regulates the quality and safety of Hunter Water's drinking water.
- **Department of Planning, Industry and the Environment:** regulates Hunter Water's water extractions from the natural environment and administers Hunter Water's Water Management Licences.[28]
- **The Dams Safety Committee:** formulates measures to ensure the safety of dams, and maintains surveillance of 'prescribed dams'.

2.4.2 Investments to service growth

As the population grows, Hunter Water must expand its network to service development, which requires investment to upgrade existing and build new water, wastewater and stormwater infrastructure. Since 2008, developer charges that would otherwise cover these costs have been set to zero in line with NSW Government policy (Box 2.3). Accordingly, costs related to growth are recovered from the broader customer base through retail prices.

26 Issued to Hunter Water under Part 5 of the *Hunter Water Act 1991* to apply from 1 July 2017.
27 Under the *Protection of the Environment Operations Act 1997 (NSW).*
28 Under the *Water Act 1912* and *the Water Management Act 2000.*

Box 2.3 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 (see Appendix C). 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 customers.

Hunter Water sets out its approach to funding capital works that support urban growth in guidelines for funding and procuring assets.[29] Hunter Water changed its approach to funding growth in January 2018 following consultation on its previous policy on funding growth related infrastructure.[30]

Hunter Water requires the developer to fund and deliver the minimum reticulation assets within the development. Its policy for funding assets depends on the timing of the development in relation to the timing in Hunter Water's growth maps. When development is within five or ten years according to the growth plan,Hunter Water will pay the costs of connection assets or upsized reticulation assets in a staged manner. If development is beyond ten years, Hunter Water will not pay the costs of connection assets, unless the developer is required to upsize these assets for future or adjoining developments.[31] In these circumstances, Hunter Water will pay the marginal costs for upsizing the connection assets. Hunter Water will not pay for medium-sized reticulation assets.[32]

Hunter Water provides tendering and procurement requirements for works to be funded.

2.4.3 The Lower Hunter Water Plan

This is the Government's medium term plan to ensure the Lower Hunter region's water needs are effectively met. It applies to Hunter Water and the Central Coast Council, and sets out a mix of supply and demand measures to:

29 Hunter Water, Funding and delivery of growth infrastructure Guidelines for funding and procuring assets, June 2019.

30 IPART, Developer charges and backlog sewerage charges for metropolitan water agencies 2018, p 115.

31 Connection assets are those assets that are outside the development and connect the development to Hunter Water's trunk infrastructure.

32 Hunter Water, Funding and delivery of growth infrastructure Guidelines for funding and procuring assets, June 2019, p 4. For more information and relevant documents, see Hunter Water's website: https://www.hunterwater.com.au/Building-and-Development/Funding-of-Growth-Infrastructure/Funding-of-Growth-Infrastructure.aspx

- Provide water security during drought
- Ensure reliable water supplies to meet growing water demand due to a growing population and increased business and industry activity
- Help protect aquatic ecosystems
- Maximise net benefits to the community.[33]

In particular, the plan includes network augmentation options and triggers for action. It considers normal conditions as well as drought conditions in the Lower Hunter region, and is designed to be flexible enough to respond to different conditions.[34]

The current plan (from 2014) is under review, with a revised version due for NSW Government consideration in 2021.[35]

2.4.4 Discretionary spending

Although Hunter Water's costs are largely driven by delivering its monopoly services within its regulatory framework, it may elect to undertake discretionary expenditure. This is expenditure to achieve outcomes above those required by regulatory obligations (eg, service outcomes above those mandated in Hunter Water's Operating Licence or Environment Protection Licences).

To allow discretionary expenditure to be recovered from regulated prices, we consider that utilities need to supply justification, including evidence that customers are willing to pay for the discretionary expenditure (ie, willing to pay to achieve the service outcome above that required by regulation).

In 2016, we established a set of principles to assess discretionary expenditure. See Chapter 5 for further discussion.

33 Metropolitan Water Directorate, Lower Hunter Water Plan, January 2014, p 7.
34 Metropolitan Water Directorate, Lower Hunter Water Plan, January 2014, pp 63-67.
35 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 10.

3 Operating expenditure and capital expenditure

As set out in Chapter 2, Hunter Water's efficient operating and capital expenditure are key inputs to the building block framework from which we derive customer prices. The level of expenditure should be sufficient to allow the utility to efficiently supply its services to customers, while meeting its regulatory requirements, including mandated service standards and environmental standards. For this review, we will also assess Hunter Water's proposed expenditure for discretionary projects. Chapter 5 provides details on the principles we will apply when assessing discretionary projects.

Hunter Water has reported its forecast[36] total operating expenditure and capital expenditure over the 2016 determination period, and proposed operating expenditure and capital expenditure for the five years from 1 July 2020 (2020 determination period).[37]

Overall, Hunter Water's forecast total operating expenditure and capital expenditure over the 2016 determination period is higher than the levels we used to set prices in 2016. Over the four years of the 2016 determination period, Hunter Water forecasts that its total operating expenditure will be $596.1 million, or $23.7 million (4.1%) higher than we used to set prices in 2016. It forecasts that its total capital expenditure will be $508.7 million, or $111.3 million (28.0%) higher than we used to set prices.

Hunter Water proposes further increases over the five years from 1 July 2020, which are on average 9.4% and 75.4% higher for operating expenditure and capital expenditure, respectively, than the average annual expenditure allowances we used to set prices in the 2016 Determination (Figure 3.1).

In its pricing proposal, Hunter Water indicates that a review of its risks is a key driver of the expenditure increases in operating expenditure and capital expenditure, both for the 2016 and 2020 determination periods.[38] It states:

> 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.[39]

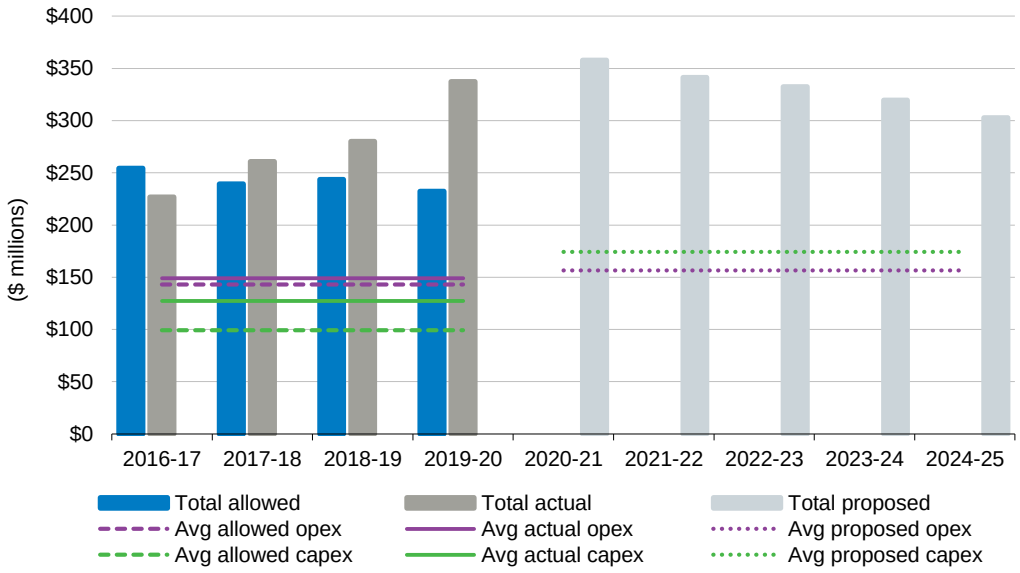
36 This refers to expenditure already incurred in the period from 2016-17 to 2018-19, and expenditure forecast to incur in 2019-20.

37 We require utilities to submit 5-year forecasts. Hunter Water has proposed a 5-year Determination period, which we may accept or reduce. We assess the merits of this in Chapter 10.

38 Hunter Water Pricing Proposal, 1 July 2019, p 3.

39 Hunter Water Pricing Proposal, 1 July 2019, p 3.

Figure 3.1 Hunter Water's total expenditure - allowed and actual/forecast for the 2016 determination period, and proposed for the 2020 determination period ($million, $2019-20)



Note: 'Actual' expenditure for 2019-20 is a forecast, as the actual data is not available at this time.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, Table 4.2 and Table 5.1, pp 15, 28; Technical Paper 5, Table 6.2 and Table 7.1, pp 18, 39.

Other key expenditure drivers are:

- **To meet mandatory standards**. This is mostly to meet existing standards and to reduce the risk of breaching standards, although there is some expenditure to meet new requirements.
- **To replace assets.** Renewals programs are currently undertaken and planned for the 2020 determination period, particularly to reduce risks of non-compliance and risks to public safety. Hunter Water has moved from a reactive to a proactive asset maintenance framework.
- **To meet expected growth.** Large capital expenditure programs, in particular to improve wastewater systems, are planned. Hunter Water has also introduced a mechanism whereby it enters into agreements with developers to repay them for appropriate infrastructure costs that they incur.

In this review, we will assess Hunter Water's proposed costs using our efficiency test (Box 3.1).

Box 3.1 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).

This chapter presents more detail on Hunter Water's:

- Operating expenditure over the 2016 and 2020 determination periods (section 3.1)
- Capital expenditure over the 2016 and 2020 determination periods and the impact on its regulatory asset base (RAB) (section 3.2).

Chapter 4 discusses:

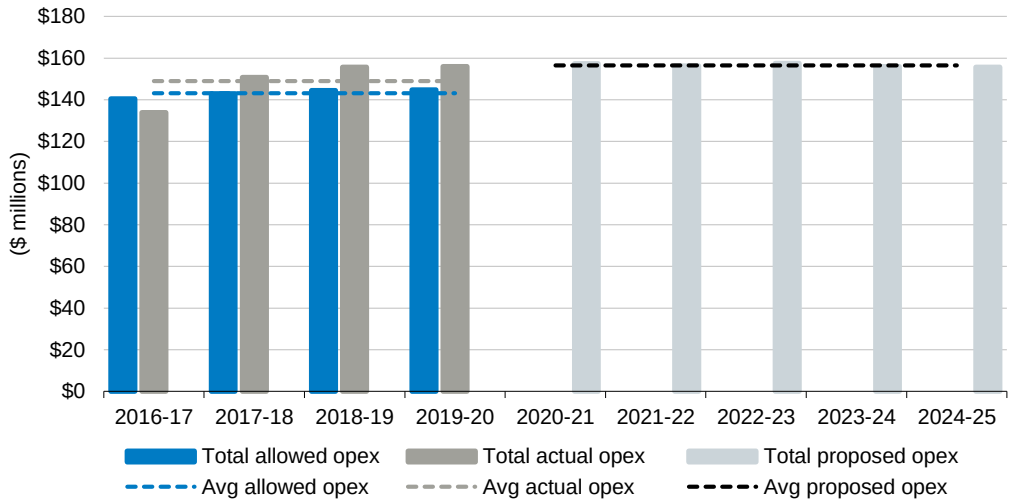
- Hunter Water's proposed return on assets and depreciation costs, which are related to capital expenditure
- Hunter Water's proposed remaining 'building block' allowances
- The total proposed NRR.

3.1 Operating expenditure

The allowance for operating expenditure in the building block 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.

Figure 3.2 provides an overview of the operating expenditure we allowed in the 2016 Determination; how much Hunter Water actually spent or expects to spend by 30 June 2020; and how much it proposes to spend in the five years from 1 July 2020.

Figure 3.2 Operating expenditure – allowed and actual/forecast for the 2016 determination period, and proposed for the 2020 determination period ($million, $2019-20)



Note: 'Actual' expenditure for 2019-20 is a forecast, as the actual data is not available at this time.
Source: Hunter Water Pricing Proposal, Technical Paper 5, Table 6.2 and Table 7.1, pp 18, 39.

3.1.1 Hunter Water's operating expenditure for the 2016 and 2020 determination periods

Drivers of Hunter Water's expected total operating expenditure over the 2016 determination period

By June 2020, Hunter Water expects its actual operating expenditure to exceed the amount allowed in our 2016 Determination by $23.7 million (4.1%).[40] Operating expenditure in each of the final two years of the 2016 determination period is expected to exceed the allowed expenditure by 7.8%.

Hunter Water states that operating expenditure for its wastewater and corporate services in particular exceeded our respective allowances in the 2016 Determination, whilst operating expenditure for water and stormwater services was within our respective allowances in the 2016 Determination. The additional expenditure was on:

- External labour costs ($14.2 million)
- Changes to treatment operations (treatment contract, $5.2 million)
- Dungog drinking water project ($3.1 million)
- Site remediation ($2.9 million)
- Energy expenditure (price and usage, $2.8 million).

40 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 5, p 18.

This was partially offset by expenditure in some categories falling below our allowance:

- Internal labour (-$6.5 million)
- Licence fees (-$4.7 million)
- Land tax and Council rates (-$4.5 million).[41]

In the 2016 Determination, we included an efficiency carryover mechanism (ECM) whereby Hunter Water could apply to retain the savings of certain efficiency improvements into the next price period, depending on when the efficiencies were made. It has not made a claim using this. Chapter 10 has further explanation on the ECM.

Drivers of Hunter Water's proposed operating expenditure from 2020 to 2025

Hunter Water proposes operating expenditure of $782.8 million over five years, or an annual average of $156.5 million (compared to its forecast annual average operating expenditure of $149.0 million over the 2016 determination period). The proposed expenditure over the 2020 determination period is based on 2019-20 forecast operating expenditure, with a minor (0.3%) increase per year, before inflation.[42] Compared to 2019-20 projections, Hunter Water proposes:

- Lower expenditure on labour, maintenance and regulatory costs, and energy
- Higher expenditure for corporate expenditure (mainly ICT) and operations costs such as its treatment operations contract, and laboratory costs.[43]

In 2014, Hunter Water sold its head office but continued to lease it. In our 2016 Determination, we did not allow the entire rent costs, with a view to reviewing this expenditure item again in 2019, and Hunter Water stated our allowance for this item was $2.1 million less over the four years than the cost it incurred. Hunter Water considers the rent of $2.6 million per year it pays under its contract to be efficient, as it is similar to the annual market rent valuation of $2.3 million provided by an independent valuer.[44]

Reasons given for expenditure

Hunter Water submits that it has **low operating costs per customer** compared to peer utilities, even with its lower density network (which would normally produce higher cost operations) and that this comes with a relatively high level of operational risk.[45]

Hunter Water's move **to manage its risk exposure** has increased its actual and proposed operating expenditure, including on:[46]

- Additional labour costs to improve workplace safety[47]
- Variations to its treatment operations to improve standards
- Its move from a reactive to lower-risk proactive asset maintenance framework.

41 Hunter Water Pricing Proposal, 1 July 2019, Technical paper 5, p 20.
42 Hunter Water Pricing Proposal, 1 July 2019, Technical paper 5, p 39.
43 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 5, pp 40-46.
44 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 5, p 25.
45 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 5, pp 4-7.
46 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 5, p 4.
47 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 5, p 10.

Hunter Water also notes that it is spending significantly to **reduce water losses** from the system as it is the worst performer in terms of leakage per connection out of 15 comparable water utilities across Australia.[48]

Hunter Water submits it has **achieved efficiency improvements** in a numbers of areas, including a civil maintenance productivity program, and energy management. It also proposed further efficiencies for the 2020 determination period, including savings from a solar energy scheme (with capital investment), ICT upgrades including a move to e-billing, and moving the contact centre in-house.[49]

Further, Hunter Water's significant **capital expenditure program impacts on its proposed operating expenditure,** by both decreasing maintenance costs where assets are replaced, and increasing some operational costs as they require more electricity, chemicals and specialist operators.[50]

3.1.2 Our approach to assessing operating expenditure, and preliminary assessment

Hunter Water's proposed average annual operating expenditure over the 2020 determination period is 5.0% more than its average annual operating expenditure over the 2016 determination period, and 9.4% more than the annual average operating expenditure we used to set prices over the 2016 determination period (Figure 3.2). We will assess Hunter Water's proposed efficiency using our efficiency test (Box 3.1).

Hunter Water's aim of reducing its risks is a key driver of increased operating expenditure. We note that moving from reactive to proactive maintenance programs may reduce the risk of failure, but can introduce inefficiencies if managed poorly. We consider that there is an efficient level of risk that the organisation should bear, and we will seek to understand why the previous risk levels are now unacceptable.

Further, Hunter Water has increased spending to reduce water losses from its network, stating that it was performing relatively poorly on this indicator compared to peer utilities. We do not consider that direct comparison of National Performance Report (NPR) data in itself is sufficient to justify expenditure to meet the performance levels of peers. Hunter Water adds that the additional expenditure meets the Efficient Level of Water Conservation (ELWC)[51] methodology approved under its operating licence.

Hunter Water has proposed a number of efficiencies which include significant capital costs. The efficiency of this expenditure will be assessed as part of our capital expenditure review.

48 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 5, pp 4, 11.
49 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 5, pp 29-31, 48-49.
50 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 5, p 39.
51 In accordance with its operating licence requirements, Hunter Water has developed a methodology to assess the economic level of water conservation. This is used to assess the costs and benefits of water conservation projects and to determine which options are economically efficient to implement, that is, if the benefits are at least equal to the costs. For leakages, this applies to leakages at and downstream from water treatment plants. This replaced the previous 'Economic Level of Leakage'. Hunter Water, *Hunter Water Operating Licence 2017-2022*, 2017, p 7.

We note that Hunter Water did not include an adjustment to its forecasts for assumed efficiency gains going forward. We have previously included an adjustment to efficient operating expenditure to account for expected efficiency gains over the period. For instance, in the 2016 Determination, we included a continuing efficiency factor of 0.25% per year, on controllable operating costs.[52] This adjustment would provide an incentive for Hunter Water to seek ongoing efficiency gains over the 2020 determination period, as would be expected from an efficient firm in a competitive market.

3.1.3 Our preliminary position

At this stage, we have not formed a preliminary view on Hunter Water's proposed operating expenditure. We have engaged Aither (consultants with expertise in this area) to undertake a detailed review of Hunter Water's expenditure. Aither's report will inform our draft decision, but we also welcome the views of all stakeholders.

IPART seeks comments on the following:

1 Is Hunter Water's proposed operating expenditure efficient?

2 Should we include an adjustment factor to recognise that Hunter Water should be realising ongoing efficiency gains over time?

3.2 Capital expenditure

As explained in Box 3.1, we apply our efficiency test to actual capital expenditure incurred over the 2016 determination period, and the proposed expenditure for the 2020 determination period, and only add efficient capital expenditure to the RAB (see Box 3.2 for how the RAB affects prices). Therefore, we will:

- **Review actual expenditure**, and adjust the RAB allowances that we included in the 2016 Determination for the 2016 determination period to only include efficient expenditure that actually occurred, and
- **Review proposed (or forecast) expenditure,** to be included in the RAB for the 2020 Determination period.

52 IPART, Review of prices for Hunter Water Corporation Final Report, June 2016, p 53.

Box 3.2 How capital expenditure impacts 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 4, section 4.1)

   We note that we are currently in a low WACC environment, which dampens the impact that capital expenditure has on prices. However, assets paid for through capital expenditure remain in the RAB for the duration of their lives, and a future WACC increase could significantly impact prices.

2. Allowance for **regulatory depreciation**, whereby the total cost of an asset is recovered over its life. Importantly, Hunter Water has proposed changes to its asset lives – which would result in significant increases to its depreciation allowances and hence its prices. (See Chapter 4, section 4.2).

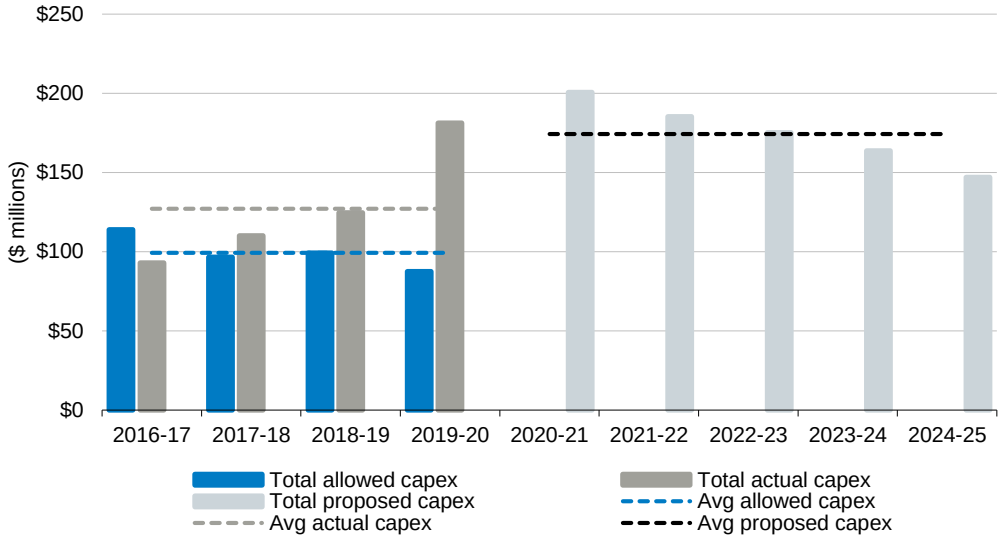
3.2.1 Hunter Water's capital expenditure for the 2016 and 2020 determination periods

The costs of the capital expenditure program since 2016 and that proposed for the next five years are significantly higher than the cost we allowed in the 2016 Determination.

Figure 3.3 provides an overview of the capital expenditure we allowed in the 2016 Determination; how much Hunter Water spent or expects to spend by 30 June 2020; and how much it proposes to spend in the five years from 1 July 2020. Below that, Figure 3.3 shows the annual average capital expenditure by water, wastewater, stormwater and corporate services, incurred over the 2016 determination period, compared to the proposal for the 2020 determination period. We have also separated the discretionary expenditure for transparency.[53]

53 We set Hunter Water's prices to recover the efficient costs it needs to provide mandated service levels and meet its mandatory standards. 'Discretionary expenditure' is when the utility invests in projects that provide services or achieve outcomes that are not mandated or go beyond service standards stipulated in their operating licence or other regulatory instruments/requirements. This expenditure can be in response to customer preferences for instance, and supported by evidence of customer willingness to pay.

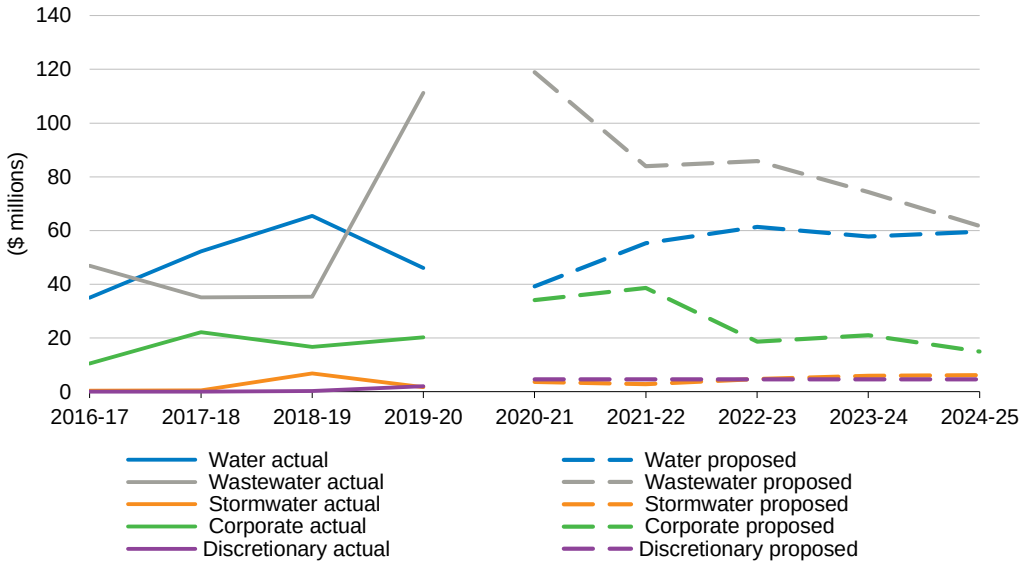
Figure 3.3 Capital expenditure – allowed and actual/forecast for the 2016 determination period and proposed for the 2020 determination period ($millions, $2019-20)



Note: 'Actual' expenditure for 2019-20 is a forecast, as the actual data is not available at this time.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, Table 4.2 and Table 5.1, pp 15, 28.

Figure 3.4 Capital expenditure by business and discretionary expenditure - 2016 determination period and proposed for the 2020 determination period ($millions, $2019-20)



Note: For the 2016 determination period, Hunter Water's discretionary expenditure was included in the stormwater expenditure, and for the 2020 determination period, Hunter Water's discretionary expenditure was included in the corporate expenditure. We have separated these out.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, pp 15, 28, 65; Hunter Water AIR/SIR, SIRCapex 2, row 4417; IPART calculations.

Hunter Water proposes an increase in its average level of capital expenditure over the next five years (Table 3.1). Hunter Water submits this expenditure level is similar to expenditure levels prior to 2011.[54]

Table 3.1 Annual average expenditure by type, actual/forecast for 2016 determination period, and proposed for 2020 determination period ($millions, $2019-20)

	Annual average ($ millions)		Difference between determination periods		Service as proportion of total expenditure	
	2016 period	2020 period	($millions)	(%)	2016 period	2020 period
Water	49.7	54.7	5.0	10.0%	39.1%	31.4%
Wastewater	57.2	84.9	27.8	48.6%	44.9%	48.7%
Stormwater (excl. discretionary)[a]	2.3	4.7	2.3	98.4%	1.8%	2.7%
Corporate (excl. discretionary)[b]	17.4	25.4	8.0	46.2%	13.7%	14.6%
Discretionary	0.6	4.6	4.0	665.8%[c]	0.5%	2.6%
Total	**127.2**	**174.3**	**47.1**	**37.0%**		

a For the 2016 determination period, Hunter Water's discretionary expenditure was included in the stormwater expenditure. We have separated this out.

b For the 2020 determination period, Hunter Water's discretionary expenditure was included in the corporate expenditure. We have separated this out.

c Since the 2016 determination period, we have revised our approach to considering discretionary expenditure.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, pp 15, 28, 65; Hunter Water AIR/SIR, SIRCapex 2, row 4417; IPART calculations.

Drivers of Hunter Water's expected total capital expenditure over the 2016 determination period

By June 2020, Hunter Water expects its actual capital expenditure to exceed our 2016 Determination allowance by $111.3 million (28.0%). Whilst capital expenditure moderately exceeded our allowance in 2017-18 and 2018-19, it is forecast to double our allowance for 2019-20, with significant expenditure ($111.2 million) on wastewater services expected to take place this year. The forecast variance is a combination of:

- Changes in the expenditure profile of projects (eg, timing and costs)
- More investment in asset provisions (eg, for renewals)
- Projects not previously identified.[55]

Hunter Water indicates that a significant capital expenditure item was water and wastewater renewals, accounting for 77% (or $154 million) of water capital expenditure, and 58% (or $132 million) of wastewater capital expenditure.[56] For corporate services, a significant expenditure was on ICT improvements ($46.6 million), accounting for 67% of corporate services capital expenditure.

54 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, p 12.
55 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, p 15.
56 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, pp 16, 19.

Drivers of Hunter Water's proposed capital expenditure from 2020 to 2025

Hunter Water proposes capital expenditure of $871.4 million over the five years from 1 July 2020. This is more than its forecast average annual expenditure over the 2016 determination period, and significantly exceeds the annual average allowance we used to set prices over the 2016 determination period (Figure 3.3 above). Of this expenditure:

- Wastewater services account for about half the proposed capital expenditure ($84.9 million annually, on average), and the majority of the increased capital expenditure compared to the 2016 determination period, with an additional $27.8 million proposed annually. Major projects include $129 million to upgrade four wastewater treatment plants for growth or environmental reasons.[57]
- Water services are the second largest cost item ($54.7 million annual average). Proposed expenditure is 10% greater than actual (or expected) over the 2016 determination period to provide water services. Major expenditure programs include $76 million for water asset renewals, and $31.9 million to upgrade water network capacity.[58]
- Discretionary expenditure is a relatively small cost item at 2.6% of expenditure. However, it is the first time we have assessed whether to include it in a price review, and this is further discussed in Chapter 5.

Hunter Water states that the main drivers of its capital expenditure program for the 2020 determination period are:

- Asset and service reliability ($314.6 million)
- To meet existing and new mandatory standards ($260.7 million and $26.2 million, respectively)
- To fund growth ($194.1 million, with $180.8 million funded through developer contributions)[59]
- To improve efficiency ($53.2 million)
- For discretionary expenditure ($22.8 million).

Impact on RAB

Under Hunter Water's proposal, its capital expenditure would add around $493 million to the RAB over the 2016 determination period and $871 million to the RAB over the 5-year 2020 determination period (Table 3.2).

57 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, p 35.
58 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, pp 32-33.
59 Developer charges are upfront charges water utilities levy on developers to recover the costs of providing water, wastewater and/or stormwater infrastructure to new developments. They ensure that existing customers do not face higher costs as a result of new development, and signal the different costs of providing services to different locations and, in an environment of postage stamp prices, enhance the potential for competition in providing water and wastewater services to new developments. However, in 2008, the NSW Government set water, wastewater and stormwater developer charges for Sydney Water and Hunter Water to zero.

Table 3.2 Hunter Water's proposed RAB values

	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25
Opening RAB	2,261	2,340	2,430	2,544	2,677	2,877	3,016	3,131	3,228	3,307
Capital expenditure	100	87	104	121	181	200	185	175	164	147
Cash capital contributions	-9	-5	-4	-5	-7	-	-	-	-	-
Asset disposals	0	-1	0	-	-	-	-	-	-	-
Regulatory depreciation	-34	-35	-38	-40	-43	-62	-70	-78	-85	-91
Indexation	23	45	52	57	69					
Closing RAB	**2,340**	**2,430**	**2,544**	**2,677**	**2,877**	**3,016**	**3,131**	**3,228**	**3,307**	**3,363**
Capital expenditure over period					**493**					**871**

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, Table 4.1 and Table 4.2, pp12-13.

Reasons given for expenditure

As indicated for its operating expenditure, Hunter Water's increase in actual and proposed capital expenditure follows from its **review of organisation risks.** It found that additional capital investment was required to sufficiently reduce risks in the following areas: uncontrolled drinking water leakage; non-compliance with environmental legislation, operating licence requirements and agreed water quality standards; inability to manage biosolids and recycled water; inadequate water/wastewater capacity; critical asset failure; and unsafe work environment/behaviours.[60]

It also submits that it **reduced capital investment between 2014 and 2019 due to concerns about maintaining its credit metrics**, and this has reduced the 'headroom' between its performance levels and the standards it must meet. It contends that during this time, assets continued to deteriorate, and increased Hunter Water's risk of not meeting mandatory standards or growth needs.[61] In its proposal, Hunter Water states that:

> Over the last two price periods we have tightly controlled our expenditure to achieve low costs of service but performance data showed that we needed to increase investment to provide customers with a better offer in terms of value for money…. the data shows that such low levels of investment are not sustainable.[62]

Hunter Water provided some performance data and projections to support the need for expenditure to meet mandatory standards.[63] In particular, it reports **falling compliance of wastewater treatment plants** with environmental protection licences, and forecasts that

60 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, p 6.
61 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, p 12.
62 Hunter Water Pricing Proposal, 1 July 2019, p1.
63 Conditions in Hunter Water's operating licence set some service standards that it must meet, including in relation to national drinking water guidelines, water pressure, disruptions to water service, and uncontrolled wastewater overflows. Further, environmental protection licences set standards for wastewater treatment, volume and load concentration limits for discharges.

without significant expenditure it will breach its operating licence condition limiting the number of properties receiving low pressure. Further, using NPR indicators, **Hunter Water has benchmarked some performance statistics to its peer water utilities, and found it was among the poorer performers for some wastewater indicators,** namely 'sewerage mains breaks and chokes'[64] and 'sewerage complaints'.[65] It also considered some water performance statistics but was performing comparatively better.[66]

Output measures

In our 2016 *Review of Hunter Water's prices*,[67] we set out a range of output measures that Hunter Water had to report its progress against in the four years to 2020. These are set out in Appendix E. Hunter Water stated that it expects to meet or exceed nine of the eleven output measures we required it to report against. For the items 'trunk mains undergoing condition assessment' and 'critical trunk mains replacement' it expects to exceed the targets by around three- and four-fold respectively. For the two targets not met, results are expected to be within 90% of the target.[68] The two output measure targets it does not expect to meet are:

- Switchboards at 40 sites replaced (expected outcome, 36)
- Replacement of 67,000 20mm customer water meters (expected outcome, 62,021).

Hunter Water has proposed output measures for the 2020 Determination which are consistent with the activities used for output measures for the 2016 Determination. For the 2020 determination period, Hunter Water has proposed new targets for each measure; in general, it plans to increase outputs for water services, and reduce them for mechanical and electrical services.[69]

3.2.2 Our approach to assessing capital expenditure, and preliminary assessment

We aim to set prices at levels that provide a utility with sufficient revenue to recover the efficient costs of supplying its services, while complying with its regulatory requirements. We will apply our efficiency test (Box 3.1) in determining the appropriate level of expenditure. Some preliminary observations are below.

Firstly, capital expenditure is typically 'lumpy', meaning that variations in expenditure across years can be reasonable. Whilst Hunter Water's proposed capital expenditure is significant, we note that the annual average proposed capital expenditure ($174 million) is similar to that prior to 2014 (for instance, we adopted $185 million annual expenditure for the 2009-13 determination period[70]).

As noted in the section on our response to Hunter Water's proposed operating expenditure, we consider that there is an efficient level of risk that the organisation should bear, and we

64 Measured both as number per 100km of main and number per 1,000 customers.
65 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 2, pp 42-43.
66 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 2, pp 37-38.
67 IPART, Review of prices for Hunter Water Corporation Final Report, June 2016, pp 180-185.
68 These are 'replace switchboards' and 'replace 20mm customer meters'.
69 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, pp 25-26, 52.
70 IPART, Hunter Water Corporation's water, sewerage, stormwater drainage and other services Review of prices from 1 July 2013 to 30 June 2017, June 2013, Table 6.1, p 65. Data has been adjusted for inflation.

will seek to understand previous and projected risk levels and how they impact the capital expenditure programs.

Regarding Hunter Water's service comparison to other utilities, we consider that care must be taken when making direct comparisons using NPR data, as there could be good reasons to explain the difference in performance. We also note that there are mandatory (regulatory) standards in place which are taken to represent standards acceptable to customers and the community. In determining efficient levels of expenditure, performance against mandatory standards should take prominence over comparisons with other utilities. Our general approach is to only allow expenditure to achieve performance levels greater than mandatory standards (ie, 'discretionary expenditure') where there is sufficient evidence of customer willingness to pay (see Chapter 5).

Following a preliminary assessment, we note that Hunter Water's historical and recent performance against operating licence conditions does not show a decline. That is, it is not clear that the state of Hunter Water's assets is currently compromising its compliance with its operating licence. However, we acknowledge that this may not be the case in the future if Hunter Water were to 'under-invest' in its network. We will further consider the nature of the non-compliances against the EPA licences during our review, and assess consequences for efficient levels of expenditure.

Further, we include output measures to track progress against expenditure, however these are not mandatory. Efficient expenditure may result in actual outputs varying from the target (whether lower or higher). Whilst Hunter Water significantly exceeded some output targets, particularly in water service provision, and proposes further increasing these, this may represent an efficient level of expenditure. We will address this in our review.

3.2.3 Our preliminary position

At this stage, we have not formed a preliminary view on the efficient level of Hunter Water's capital expenditure. We have engaged Aither (consultants with expertise in this area) to undertake a detailed review of Hunter Water's expenditure. Aither's report will inform our draft decision, but we also welcome the views of all stakeholders.

Aither will also investigate whether, in proposing significant capital investment, Hunter Water has considered all credible options, including recycled water solutions where appropriate. This has always been IPART's standard to meet efficiency tests.[71]

IPART seeks comments on the following:

3 Is Hunter Water's proposed capital expenditure efficient?

4 Has Hunter Water proposed a fair share of risk between the organisation and customers in developing its capital expenditure programs?

71 This addresses a recommendation by Frontier Economics, in its review of the economic barriers to water recycling, that IPART should consider amending our Guidelines for Water Agency Pricing Submissions to be more explicit about requiring regulated utilities to consider options (including recycled water where appropriate) when making major investment decisions. See Frontier Economics, Economic regulatory barriers to cost-effective water recycling, July 2018 pp 51-55.

5 Is it appropriate to move from reactive to proactive asset management, given the additional cost?

6 How significant was the reduced compliance with Environmental Protection Licences? Does this reflect a systematic or one-off issue?

7 Is the forecast reduction in compliance levels based on reasonable evidence?

8 How much emphasis should be put on benchmarking with other utilities in terms of performance standards and hence required capital expenditure?

9 Are Hunter Water's proposed new output measures reasonable?

4 Return on assets, depreciation, and other building block allowances

This chapter discusses how we derive the remaining 'building block' allowances (operating expenditure is explained in Chapter 3) to generate a notional revenue requirement (NRR) for Hunter Water. It also presents the total NRR resulting from all the building blocks, which is used to derive prices.

It presents Hunter Water's proposed:

- Return on assets allowance, including the proposed weighted average cost of capital (WACC) (section 4.1)
- Regulatory depreciation, and considers whether Hunter Water's proposed method to disaggregate the regulatory asset base (RAB), and revised proposed asset lives are appropriate and reflect Hunter Water's use of the assets (section 4.2)
- Tax and working capital allowances (section 4.3)
- Total NRR and other adjustments (section 4.4).

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.

We note that Hunter Water's proposed regulatory depreciation allowance is significantly higher than the regulatory depreciation we used to set prices in 2016. Hunter Water has revised the inputs to the calculation, including disaggregating its RAB and reducing the economic lives of its assets. We will closely review Hunter Water's proposal regarding depreciation.

4.1 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 WACC. In 2018, we revised our standard methodology to calculate the WACC (see Box 4.1 for a summary of the changes).

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, we also recognise that the WACC will likely increase over time, which in the future would magnify the impact of Hunter Water's proposed capital expenditure increases for the 2020 period.

Box 4.1 Summary of changes to our WACC method

We use a 'trailing average' approach to calculate both historic and current cost of debt

Our 2013 method set the cost of debt as the midpoint between our estimates of the historic and current cost unless there is significant economic uncertainty, and did not update this cost during the regulatory period. In response to stakeholder feedback that this approach creates a refinancing risk for regulated businesses, we decided to estimate both the historic and current cost of debt using a trailing average approach, which will update the cost of debt annually over the regulatory period.

We update the cost of debt annually within a regulatory period and decide how annual changes are passed through on a case-by-case basis, as part of our price review process

We considered whether we should update prices to reflect the updated cost of debt annually, or use a regulatory true-up in the notional revenue requirement for the next period, which we would pass through to prices at the beginning of the next period. We decided to determine the most appropriate option on a case-by-case basis, as part of our price review process. Where we decide to use a true-up, we will use the WACC as the discount rate for calculating the true-up.

We use the expected rate of inflation over the regulatory period

We measure the cost of debt and equity in nominal terms, but apply a real post-tax WACC. Therefore, we need to adjust the nominal measurements by inflation to derive a real WACC.

We decided to use the expected rate of inflation over the regulatory period (previously we used 10 years of expected inflation). We calculate the expected rate of inflation by first calculating the geometric average of the forecast change in the level of prices over the regulatory period, and then converting this average into an annual inflation rate separately.

Source: IPART, Review of our WACC method – Final Report, February 2018.

4.1.1 Hunter Water's proposal

Hunter Water has accepted our standard methodology to calculate the WACC and applied it to its RAB estimates. It does not have a preference at this stage for how we apply annual price adjustments, and notes that both methods are Net Present Value (NPV) neutral.[72]

Whilst it applied the most recent WACC estimate of 4.1% to develop its proposal, Hunter Water forecasts that by the time we finalise our review, the WACC may be as low as 3.5%. It has calculated that this would reduce the indicative real annual price increases of 2.6% to 0.6%.[73]

4.1.2 Our preliminary position

We propose using our standard methodology to calculate the WACC. The inputs we use will be updated prior to our Draft Report and again for our Final Report and Determination based on market data. However, prior to that, we are seeking stakeholder feedback on the equity beta, and how we should make annual price adjustments.

72 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 15; Hunter Water Pricing Proposal, 1 July 2019, Technical Paper, p A10.

73 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 19.

Equity beta

The equity beta for a firm measures the relationship between its returns on equity to that of the market as a whole.[74] In our 2018 review of our WACC method, we decided we would re-estimate the equity beta at each price review.[75] While we may not necessarily change the equity beta that we have determined for the water industry, we are mindful that an equity beta analysis outside the current price review may not be sufficiently timely.

We will use the broadest possible selection of proxy companies to estimate the equity beta (but exclude thinly traded stocks). In forming this selection, we seek stakeholder feedback on the comparable industries we should include to establish the proxy companies we use in this review. More information is provided in our fact sheet *Estimating equity beta* available on our website.[76]

Annual price adjustments

Implementing a trailing average involves updating the cost of debt at the start of each year within a regulatory period. To do this, we need to decide in each price review whether annual changes in the cost of debt will:

- Flow through to prices in the subsequent year (ie, annual updates), or
- Be cumulated and passed through via a true-up in the subsequent regulatory period.

The two options are equivalent in present value terms to customers and the utility. For our recent review of Central Coast Council prices, we preferred the regulatory true-up method because it would provide certainty to customers about their prices over the period we considered.[77] If the true-up is smoothed over the following pricing period, we do not expect price shocks to be any more likely compared to an annual update.

IPART seeks comments on the following:

10 In determining the equity beta to feed into the WACC, what comparable industries should we include to establish the proxy companies that we use in this review?

11 Should we update prices annually for the cost of debt, or pass these changes through via a true-up in the subsequent regulatory period?

74 A firm with more volatile returns than the market would have an equity beta greater than 1, and a firm with less volatile returns than the market would have an equity beta of less than 1.

75 IPART, Review of our WACC method – Final Report, February 2018, p 61.

76 https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/investigation-administrative-legislative-requirements-sea-wacc-methodology-2017/fact-sheet-estimate-equity-beta-1-april-2019.pdf

77 IPART, Review Central Coast Council's water, sewerage and stormwater prices – To apply from 1 July 2019, May 2019, pp 33-35.

4.2 Regulatory depreciation costs – RAB breakdown and asset lives

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.

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.

To date, we have applied an aggregated approach to asset lives in calculating the depreciation allowance for Hunter Water.[78] We have used one asset life for existing assets and one asset life for new assets (see Table 4.2 below), and applied these lives to four RAB values: for water, wastewater, stormwater and corporate assets. However, as outlined below, Hunter Water has now proposed a more disaggregated approach to applying asset lives and calculating regulatory depreciation, on the grounds that it would more accurately reflect the economic lives of its assets, and hence more accurately calculate its regulatory depreciation allowance. This has the effect of lowering its asset lives and significantly increasing its regulatory depreciation allowance.

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 will over-pay (ie, pay for future customers' consumption of the assets). If they are too long, today's customers will 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. Therefore, in principle, we support approaches that result in more accurate asset lives and the calculation of regulatory depreciation. However, in implementing new approaches, we are also mindful of bill impacts, and hence the potential need to transition to new approaches.

We outline below Hunter Water's proposed depreciation allowances and method for calculating these allowances, how this method differs from its previous method, and our preliminary position. We will consider a number of issues or questions in relation to Hunter Water's proposal, including:

- Are the assets in the appropriate RAB categories?
- Are the assigned asset lives appropriate?
- Is the 'corporate transition' category an appropriate way to manage bill impacts?

4.2.1 Hunter Water's proposed depreciation allowances

Table 4.1 below shows that Hunter Water has proposed a significant increase in its depreciation allowances. This is driven by its proposed new method for calculating its depreciation allowances, together with its additional proposed capital expenditure.

78 This is similar to other utilities that we regulate, with the exception of Sydney Water which changed the way its RAB was aggregated in 2008.

Hunter Water submits that the asset lives previously used to calculate its depreciation allowances have been too high, led to under-recovery of its costs, and in turn impacted on its financeability. As such, it considers its revised asset lives would allow it to make more efficient investment decisions in relation to individual assets.[79]

Table 4.1 Proposed depreciation costs ($million, $2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Depreciation costs	42.0	60.5	68.9	76.2	82.9	89.2
Annual change ($)		18.5	8.4	7.3	6.7	6.3
Annual change (%)		*44.1%*	*13.9%*	*10.6%*	*8.8%*	*7.6%*

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

Hunter Water's methodology

To date, for the purpose of calculating the depreciation allowance, Hunter Water has 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 4.2 shows the asset lives used in previous Hunter Water price reviews.

Table 4.2 Asset lives used in previous 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, 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, June 2016, p 78).

Hunter Water has proposed to:

- Disaggregate each of its current four RABs into five categories: civil, electrical/mechanical, equipment, intangibles and non-depreciating – thus creating 20 asset categories[80]
- Add a '21st' 'corporate transition' category to manage bill impacts
- Apply revised asset lives to each of its new RAB categories.

Hunter Water apportioned each of the existing four RAB values into its five sub-categories. For water, wastewater and stormwater RABs, it did this based on the depreciated replacement

79 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, pp 19-20.

80 Hunter Water lists the types of assets (or parts there-of) that it put in each of the 20 categories (see Appendix D).

cost of assets; and for corporate, it did this based on the gross replacement cost.[81] It used the gross replacement cost to disaggregate the corporate RAB because it considered that the previous depreciation rates applied to the corporate RAB were not appropriate and the majority of assets have shorter asset lives.[82]

Hunter Water then allocated a weighted average asset life to each category (see Table 4.3). These are generally 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 4.4).

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.[83] 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.[84]

In addition, the 'transition' category is allocated a 50-year life, to manage the bill impacts of shortening corporate asset lives. Hunter Water proposes to 'quarantine' the value of corporate equipment and corporate intangibles as at 30 June 2020 ($128.7 million – known as 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. Without this transitional measure, Hunter Water estimates that bill increases under the proposal would be significant, at 5.1% annually in real terms.[85]

Table 4.3 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, 1 July 2019, Technical Paper 6, p 26.

81 *Depreciated replacement cost* (DRC) and *gross replacement cost* (GRC) and are two different ways to assess the value. The *DRC* is the cost to replace the asset minus the accumulated depreciation that has been paid. The *GRC* is an estimate of the full cost it would take to rebuild the same asset today. If the cost exceeds the original cost, then it should be adjusted for quality/output improvements if they exist.

82 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 23.

83 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, pp 21, 26.

84 Department of Primary Industries – Office of Water, NSW Reference Rates Manual: Valuation of water supply, sewerage and stormwater assets, June 2014.

85 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, pp 25, 27.

Table 4.4 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 reduces to 38 years.

Source: Hunter Water Annual Information Return, July 2019; Sydney Water Annual Information Return, June 2019; IPART calculations.

4.2.2 Our approach to assessing depreciation and preliminary position

Hunter Water's proposed change to its RAB categories and asset lives has a significant impact on its depreciation costs (see Table 4.5). We have modelled it using the following three steps in this order:

1. Adopt Hunter's proposed disaggregation of the four RABs into 21 categories (which include non-depreciating assets)
2. Change the existing asset lives to align with Hunter Water's proposal
3. Change the new asset lives to align with Hunter Water's proposal in Table 4.3.

Table 4.5 The impact of Hunter Water's proposed RAB disaggregation and asset lives on depreciation ($million, $2019-20)

	2020-21	2021-22	2022-23	2023-24	2024-25	Total	Impact
Depreciation costs calculated using 2016 method[a]	45.6	48.2	51.0	53.9	55.8	254.4	
1. Only adopting new categorisation	36.6	39.1	41.8	44.7	47.0	209.2	**-45.2**
2. Incorporating Hunter Water's proposed existing asset lives	58.5	61.1	63.8	66.6	68.9	318.8	**109.6**
3. Incorporating Hunter Water's proposed new asset lives	61.8	70.3	77.7	84.6	91.0	385.3	**66.5**

a This includes the decreasing asset lives on the transition path we used to set prices in our 2016 review of Hunter Water's prices (see IPART, Review of prices for Hunter Water Corporation, June 2016, p 79),

Note: These regulatory depreciation costs represent end of financial year values, which are discounted to mid-year values under the building block approach to reflect the recovery of revenue throughout the year.

Source: IPART calculations.

In principle, disaggregating the RAB into more categories and applying asset lives specific to each category should result in a more accurate and cost-reflective method of determining regulatory depreciation. That is, it should produce a depreciation profile that more closely matches the consumption of assets. Further, we note that Hunter Water's proposal is broadly consistent with the approach used to set prices for Sydney Water.[86]

86 Sydney Water disaggregated its RAB into 20 sub-categories for our 2008 Determination.

Nevertheless, with the assistance of our expenditure consultant, Aither, we will carefully review both how Hunter Water has allocated the RAB across its proposed new asset categories, and the asset lives applied to these categories. We will also consider whether it is necessary to gradually transition towards (or phase in) any changes from the method for calculating the depreciation allowance, to manage customer bill impacts. In addition, we will examine the best way to implement such a transition.

Whilst we appreciate that the intent of Hunter Water's proposed 'transition' category is to manage bill impacts on customers, this may be a less transparent approach than setting the depreciation allowance (and NRR) as accurately as possible, and then transitioning customer bills to achieve full cost recovery.

IPART seeks comments on the following:

12 Has Hunter Water appropriately classified its assets into the different categories? Is there a better approach or can improvements be made?

13 How reasonable are Hunter Water's proposed asset lives? Are there alternative approaches or can improvements be made to better reflect the expected lives?

14 Is it appropriate to manage the price impacts with the 'corporate transition' category? Is there a better approach?

4.3 Tax allowance and return on working capital

The final two 'building blocks' in Hunter Water's NRR are an allowance for tax and the return on working capital.

The calculation of both working capital and tax allowances is inter-related with other components of the NRR such as the return on capital, which in turn, depends on our decision with respect to the RAB and forecast capital expenditure and the WACC. The final return on working capital and the tax allowance will reflect these decisions. As a result, we are not directly seeking comments on the allowance for tax and return on working capital, however we welcome any feedback stakeholders may have on the methods we employ.

4.3.1 Tax allowance

We include an explicit allowance for tax, because we use a post-tax WACC to estimate the return on assets in the NRR.[87] This allowance reflects what Hunter Water's tax liabilities would be under our regulatory settings.

For this purpose, taxable income is the NRR (before 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.

87 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.

Hunter Water has proposed a $69.9 million tax allowance to cover the liability that a comparable business would be likely to incur (Table 4.6). This is based on:

- A 30% tax rate and hypothetical franking credit
- Estimated tax depreciation instead of regulatory depreciation
- Adjustment for contributed assets received free of charge
- Benchmark gearing.[88]

Table 4.6 Hunter Water's proposed tax allowance ($million, $2019-20)

	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Tax allowance	11.9	12.4	13.3	15.1	17.2	69.9

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 8.

We note that the method Hunter Water used to estimate the tax allowance is consistent with our method. As noted earlier, the final tax allowance is directly impacted by other decisions that we will make during this review. Hunter Water's proposed average annual tax allowance is almost double that of the previous period (see Table 4.9). It appears that this is related to its proposed change to its depreciation allowance.[89]

4.3.2 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 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).

In 2018, we developed a standard approach to calculate the working capital allowance.[90] 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.

Hunter Water states it used our approach to propose total net working capital of $102.2 million over the five years from 1 July 2020. It then calculated a return on that working capital of $6.6 million over the five years (see Table 4.7).[91]

We note that the **return** on working capital included in Hunter Water's proposed revenue requirement is lower than allowed for in the previous period, mostly because of the lower WACC.

88 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 29.
89 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 28.
90 IPART, Working Capital Allowance Policy Paper, November 2018.
91 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 31.

Table 4.7 Hunter Water's proposed return on working capital ($million, $2019-20)

	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Proposed working capital	15.1	18.3	20.6	22.8	25.4	**102.2**
Proposed return on working capital to be included in the NRR	1.0	1.2	1.3	1.5	1.6	**6.6**

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, pp 8, 31.

Hunter Water adds that its proposal includes:

- Moving from its 4-month billing cycle to a 3-month billing cycle, with 23 'days of delay' between reading the water bill and the bill due date.
- Timing bills so that some customers pay their fixed charges in advance and some in arrears, and these timing differences, on average, cancel each other out.
- Basing inventory and prepayment amounts on the actual amounts in 2017-18.[92]

4.4 Notional Revenue Requirement (NRR)

As discussed in Chapter 2, we use expenditure 'building blocks' to generate an NRR for Hunter Water. We then generally set prices to allow Hunter Water to recover this NRR. Operating expenditure is discussed in Chapter 3, and the other building blocks are discussed in the earlier sections of this chapter. Hunter Water's proposed NRR is shown in Table 4.8.

Table 4.8 Hunter Water's proposed NRR ($million, $2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Operating expenditure	144.9	157.3	156.2	157.4	155.8	155.7
Return on assets	133.4	119.6	124.9	129.3	133.0	135.9
Regulatory depreciation	42.0	60.5	68.9	76.2	82.9	89.2
Tax allowance	7.4	11.9	12.4	13.3	15.1	17.2
Return on working capital	1.7	1.0	1.2	1.3	1.5	1.6
Notional revenue requirement	**329.3**	**350.4**	**363.5**	**377.6**	**388.3**	**399.5**
Less revenue adjustments[a]	*6.5*	*6.5*	*6.6*	*6.6*	*7.0*	*7.3*
Target revenue from usage and service charges (unsmoothed)[b]	322.8	343.9	357.0	371.0	381.3	392.2
Target revenue from usage and service charges (smoothed)[c]	328.9	343.6	355.9	368.5	381.9	396.0

a Revenue adjustments include other regulated, non-regulated, miscellaneous and trade waste revenue.

b This is the revenue that would be recovered from water, wastewater and stormwater prices.

c The revenue is smoothed over the period to increase at a regular rate.

Note: 2019-20 is shown for comparison.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 8.

Hunter Water notes that compared to the revenue requirements allowed in the 2016 Determination, regulatory depreciation constitutes a larger proportion of the total (increasing from 12% to 19%), with operating expenditure and return on assets correspondingly constituting smaller proportions of the total (42% and 35% respectively, down from 45% and

92 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 31.

40% respectively in the 2016 Determination).[93] Hunter Water further points out that if the WACC falls to 3.5% (according to its forecasts), the target revenue would fall by 5.6%, from $1,845.8 million to $1,742.8 million over the five years.[94]

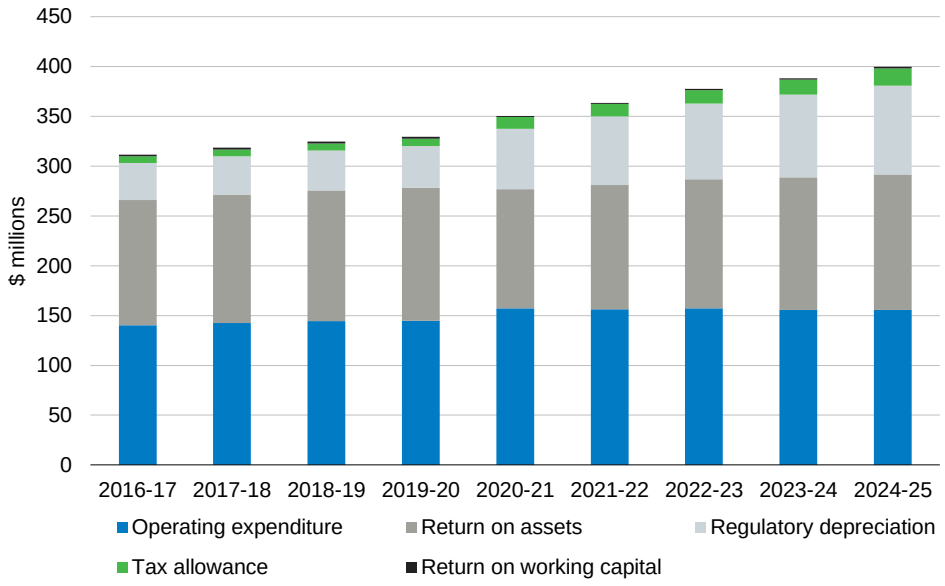
We note that the proposed NRR for the 2020 determination period is higher than what we used to set prices in 2016, and increasing, with the main change being the regulatory depreciation allowance (Table 4.9 and Figure 4.1). We will assess the component parts of the NRR individually, to determine the NRR for the 2020 determination period.

Table 4.9 Comparison of average annual building block values - 2016 Determination and Hunter Water's proposal for 2020 Determination ($million, $2019-20)

	Annual average used in 2016 Determination	Annual average proposed for 2020 Determination	Difference ($)	Difference (%)
Operating expenditure	143.1	156.5	13.4	9.4%
Return on assets	129.7	128.5	-1.2	-1.0%
Regulatory depreciation	39.5	75.5	36.0	91.4%
Tax allowance	7.0	14.0	6.9	99.2%
Return on working capital	1.6	1.3	-0.3	-20.8%
Total notional revenue requirement	**320.9**	**375.9**	**55.0**	**17.1%**

Source: IPART, Review of prices for Hunter Water Corporation – Final Report, June 2016, p 38; Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 8; IPART calculations.

Figure 4.1 NRR in 2016 Determination and Hunter Water's proposal for the 2020 Determination ($million, $2019-20)



Data source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 8; IPART calculations.

93 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 9.
94 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 19.

4.4.1 Adjustments

Before we use the NRR to calculate prices, we subtract some revenue that is received from customers for services other than regular water, wastewater and stormwater services.

Hunter Water proposed adjustments totalling $34.0 million over five years (Table 4.10). This includes the expected revenue from trade waste and miscellaneous services, and other regulated and non-regulated revenue (eg, revenue from recycled water).[95]

Table 4.10 Hunter Water's proposed revenue adjustments ($million, $2019-20)

	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Revenue adjustments	6.5	6.6	6.6	7.0	7.3	34.0

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 8.

Hunter Water's approach is consistent with our typical practice. However, in July 2019, we revised our approach to the funding of recycled water schemes, and decided that a utility should keep the revenue from least-cost recycled water schemes rather than sharing it with its customer base.[96] For Hunter Water, this means the revenue adjustment would decrease by about $0.1 million annually.[97]

95 Non-regulated revenue refers to the revenue that Hunter Water earns by providing unregulated services that use regulated assets. It is our policy to share this 50/50 between the customers and the business, to encourage the business to seek revenue using its regulated assets (which, under our approach, would ultimately benefit customers of regulated services).

96 IPART, Review of pricing arrangements for recycled water and related services, July 2019, p 21.

97 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, p 32.

5 Discretionary expenditure

We set Hunter Water's prices to recover the efficient costs of supplying its monopoly services to its customers. The prices recover the efficient operating and capital expenditure required for Hunter Water to meet service standards to its customers (eg, as specified in its operating licence), and to comply with its other regulatory obligations (eg, as specified in its 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).[98]

Our recent decisions on recycled water pricing also recognised the importance of customer willingness to pay.[99] 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.[100] We have set out a number of best practice principles for demonstrating willingness to pay, and for consulting with customers around discretionary expenditure.[101]

In this chapter we describe Hunter Water's proposed discretionary expenditure and its customer survey of willingness to pay for these proposed projects. We then outline our approach to assessing discretionary expenditure, our best practice principles for demonstrating willingness to pay, and our principles guiding customer engagement. Finally, we provide our preliminary views on how we might ensure transparency of any discretionary expenditure over time. We note that one of Hunter Water's proposed discretionary expenditure projects is for recycled water. Hence, this is also discussed in Chapter 11, on recycled water.

98 IPART, Review of prices for Sydney Water Corporation, Final Report, June 2016, p 37.
99 IPART, Review of pricing arrangements for recycled water and related services, July 2019.
100 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, July 2019, p 2.
101 IPART, Review of pricing arrangements for recycled water and related services, July 2019, p 61.

5.1 Hunter Water's proposal on discretionary expenditure

Hunter Water is proposing two projects which it classes as discretionary for the 2020 determination period:

- Improving amenity on at least one kilometre of landscaped stormwater channel
- Irrigating public open spaces with recycled water.[102]

For these projects, Hunter Water proposes adding $22.8 million of capital expenditure to its corporate RAB, and recovering this capital expenditure and associated operating expenditure[103] from its water, wastewater and stormwater service charges to its residential and non-residential customers throughout the 2020 determination period.

It has also incurred discretionary expenditure in the 2016 determination period. This expenditure was for improvements in the amenity of Cottage Creek stormwater channel, at a capital cost of $2.3 million.[104] Hunter Water proposes adding this capital expenditure to its stormwater RAB, and recovering it and any ongoing maintenance costs through its stormwater prices, which are paid by approximately 30% of Hunter Water customers[105].

Table 5.1 Discretionary expenditure included in Hunter Water's pricing proposal

Proposed discretionary project	Determination period	Capital Cost	Operating Cost	Recovered through
Stormwater channel naturalisation – at least 1 km	2020	$11.3 million	Not provided	Water, wastewater and stormwater service charges
Recycled water to irrigate public open spaces	2020	$11.5 million	Not provided	Water, wastewater and stormwater service charges
Naturalisation of Cottage Creek stormwater channel	2016	$2.3 million	Not provided	Stormwater charges

Source: Hunter Water's Pricing Proposal, 1 July 2019, Technical Paper 2, pp 66-67; Technical Paper 4, p 22.

5.1.1 How Hunter Water selected its proposed discretionary projects – willingness to pay survey approach

Hunter Water initially considered seven discretionary projects for the 2020 determination period, focussing on improved liveability and environmental services. Some of these projects relate directly to Hunter Water's provision of monopoly services. For example, increasing stormwater harvesting and wastewater recycling. These are treated as discretionary expenditure as there are other more cost-effective supply options than the proposed projects.[106] Other proposals aim to naturalise and widen stormwater channels where Hunter Water's responsibility is limited to maintaining the current capacity.[107] It also considered undertaking expenditure to reduce its carbon footprint. This was not proposed as

102 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 2, pp 65-67.
103 Hunter Water has indicated that there is associated operating expenditure, but it has not included the operating expenditure estimates in the figures in its pricing proposal.
104 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, p 22.
105 Hunter Water Pricing Proposal, 1 July 2019, p 48.
106 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 1, p 14.
107 Hunter Water Pricing Proposal, 1 July 2019, p48.

discretionary expenditure after analysis showed that the expenditure was efficient in that it paid for itself.

These seven projects were included in a customer survey that sought to identify customers' willingness to pay for what were described as discretionary liveability and environmental services. Hunter Water surveyed 680 residential customers. Hunter Water considers that the survey sample was representative of its residential customer base in terms of age, gender, dwelling type, income, ownership, language spoken at home, local government area and types of service (eg, whether respondents lived in a Hunter Water stormwater service area or not).

The survey results indicate that over 70% of customers surveyed were willing to pay to some extent for the discretionary projects Hunter Water ultimately included in its pricing proposal. These results, which are presented in Hunter Water's proposal in detail, are summarised in Table 5.2. Hunter Water stated that the survey found that respondents were generally comfortable for it to decide the locations in which these discretionary investments should occur.

Table 5.2 Projects proposed in Hunter Water's willingness to pay (WTP) survey

Project	Minimum bill increase proposed in survey (per year)	Survey respondents willing to pay at least minimum bill increase	Average WTP (per year)	Included as discretionary expenditure
Stormwater channel naturalisation	$20.00	74%	$33.87	Yes
Carbon footprint reduction	$1.00	78%	$3.57	No
Increasing stormwater harvesting	$2.00	81%	$4.40	No
Increasing wastewater recycling for business and industry	$15.00	54%	$11.32	No
Increasing wastewater recycling for irrigation of public open spaces	$1.00	77%	$2.68	Yes
Increasing water conservation programs	$1.00	71%	$1.30	No
Flood mitigation in Wallsend	$15.00	44%	$6.67	No

Source: Hunter Water's Pricing Proposal, 1 July 2019, Technical Paper 1, Attachment A, Hunter Water customer willingness to pay survey, p 14.

5.1.2 Hunter Water has proposed two discretionary projects for the 2020 determination period

Improved stormwater channel amenity

Hunter Water owns and maintains approximately 97 kilometres of stormwater assets, of which about 50 kilometres are open stormwater drains. Currently, about 90% or 45 kilometres of the open stormwater drains are concrete lined. Hunter Water's stormwater network serves

about 30% of its total customer base.[108] Local councils have responsibility for the remainder of the stormwater network in Hunter Water's area of operations.

Hunter Water is proposing to improve the amenity of its concrete channels by planting vegetation around the stormwater channels to screen them from view, and by replacing concrete with more natural materials.[109]

Hunter Water's residential customer survey found that most respondents were willing to pay more for investment in bank work and landscaping of open stormwater channels. The level of willingness to pay was similar irrespective of whether those surveyed were stormwater customers. Most households surveyed (62%) were comfortable with Hunter Water determining where the stormwater naturalisation should occur.

Hunter Water proposes spending $11.3 million on stormwater amenity works in the 2020 determination period[110], which is based on its willingness to pay survey that found 74% of respondents would be willing to pay between $5 and $20 per household per year for at least 1 km of amenity improvement works.

Irrigation of public open spaces with recycled water

Hunter Water has identified several parks and sporting fields in Newcastle and Lake Macquarie that could use recycled water for irrigation. This would save drinking water supplies and reduce the amount of effluent discharged to waterways.[111]

Our recently released recycled water report[112] allows the broader customer base to fund recycled water schemes to the extent there is sufficient evidence of customer willingness to pay for the scheme's specific external benefits. Hunter Water's survey found that most respondents were willing to pay more for it to increase the amount of wastewater turned into recycled water for irrigation of parks and sporting grounds. Most households surveyed indicated they were comfortable with Hunter Water determining where the additional investments should occur.

Hunter Water proposes spending $11.5 million on recycled water for irrigation of public open space, which represents around $2.00 per household per year. Hunter Water has indicated that the weighted average willingness to pay per household for increasing wastewater recycling for irrigation of public open spaces is $2.68 per year. Hunter Water intends to determine the exact location of the irrigated greenspaces based on technical considerations and interest from prospective recycled water end-use customers.

108 Hunter Water Pricing Proposal, 1 July 2019, p 48.
109 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 2, p 65.
110 Hunter Water has not indicated how much this equates to per household per year.
111 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 2, p 66.
112 IPART, Review of pricing arrangements for recycled water and related services, July 2019.

5.1.3 Hunter Water incurred discretionary expenditure in the 2016 determination period

Naturalisation of Cottage Creek stormwater channel

Hunter Water has already undertaken works to naturalise part of an existing stormwater channel. It proposes recovering from stormwater customers $2.3 million in capital expenditure from 2018-19 and 2019-20 that was spent on naturalising Cottage Creek stormwater channel, in addition to ongoing maintenance costs. This project was co-funded by a grant[113] from the Newcastle Port Community Contribution Fund that is administered by the Hunter and Central Coast Development Corporation.[114]

5.2 IPART's response on discretionary expenditure

We have not formed a preliminary view on whether Hunter Water's proposed discretionary expenditure should be recovered from prices. As outlined below, we will consider Hunter Water's proposal, particularly its information on its customers' willingness to pay relative to best practice principles on demonstrating willingness to pay.

However, we welcome and support Hunter Water's efforts in seeking to understand what additional services or outcomes its customers are willing to pay for. As outlined in our November 2018 *Guidelines for Water Agency Pricing Submissions*, we aim to replicate the effects of a competitive market so that utilities deliver what customers want at the lowest prices (or, in other words, they maximise value to their customers). Therefore, in regulating prices, we aim to ensure that prices reflect:

- The efficient costs of providing the monopoly services, while meeting broader regulatory requirements
- Customer preferences and willingness to pay.

Therefore, utilities' pricing submissions should reflect the efficient costs of providing services, and a strong understanding of what their customers want.

5.2.1 Our approach to discretionary expenditure

In our 2016 Determination of Sydney Water's prices, we set out how we would consider any discretionary expenditure proposed by water utilities we regulate (see Box 5.1). Central to this is our consideration of customer willingness to pay for the discretionary expenditure (and its outcomes).

113 Hunter Water has included the entire capital cost of $2.3 million in its proposal, without deducting the value of the grant.
114 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, p 22.

Box 5.1 What we have said about our approach to discretionary expenditure

IPART is not responsible for setting the environmental or liveability objectives of the community, nor for determining the best way for such objectives to be met. Rather, we ensure the prices we set for Sydney Water and Hunter Water reflect the efficient costs of these utilities complying with their regulatory requirements.

IPART would consider, and could allow, expenditure proposals to achieve standards higher than those mandated by Parliament and/or government. In such a case, IPART would require clear evidence that it would be prudent and efficient for customers to pay to exceed the mandated standards. For instance, IPART would consider:

- Whether the issue has been considered by Parliament and/or government when setting the existing standard or regulatory requirements and whether the facts around the issue have changed since that time.
- Whether the proposal would fit best with Sydney Water's/Hunter Water's responsibilities or whether it would fit best with another party's or parties' responsibilities such as another arm of government or local government.
- Whether Sydney Water's/Hunter Water's customers have both the capacity and willingness to pay more to realise the higher standard.
  - Proponents would need to provide evidence for IPART to consider in forming a judgement on whether Sydney Water's/Hunter Water's customers have the capacity and willingness to pay the higher prices required to meet the higher standard.

Sources: IPART, Review of prices for Sydney Water Corporation, June 2016, pp 34-41.

We also considered the broader customer base's willingness to pay for recycled water schemes in our 2019 Final Report on recycled water prices.[115] In this report we stated,

> IPART recognises the wider economic benefits of recycled water through our decision to expand the funding framework to include the value of external benefits. 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.
>
> If the external benefit is not specific to recycled water, then it should be assessed on equal terms with other service options, with preference to the least-cost approach to delivering the benefit (or required outcome).

We will consider whether the recycled water projects proposed by Hunter Water align with the principles as outlined above. We note that when applying a set of principles for the first time it is an opportunity to test and, if necessary, clarify our approach. In particular, we will examine the alignment of Hunter Water's proposed projects with the characteristics and conditions Hunter Water described to customers when consulting with them on their willingness to pay for these types of projects. We will assess whether there is a reasonable match between what customers said they are willing to pay for and the expenditure and projects proposed by Hunter Water, and whether Hunter Water has provided its customers with sufficient context and information in assessing their willingness to pay. This is in accord with the best practice principles for conducting willingness to pay surveys outlined in Box 5.2.

115 IPART, Review of pricing arrangements for recycled water and related services, July 2019, p 2, p 58.

These principles are also included in our recent Final Report on our *Review of pricing arrangements for recycled water and related services*.

Box 5.2 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

Box 5.3 shows our customer consultation principles, from our current *Guidelines for Water Agency Pricing Submissions*, which provides guidance to utilities in developing their pricing proposals.

Box 5.3 Our customer consultation principles

Our Guidelines for Water Agency Pricing Submissions, include customer consultation principles, however, we view that the specific content of the consultation is the responsibility of the utility.

- **Relevant**: The utility targets its engagement at the issues it is seeking input on and makes the engagement relevant to the circumstances of the utility and its customers.
- **Representative**: The utility gives a representative sample of customers potentially affected by the proposal meaningful opportunity to participate and sufficient time to provide their views.
- **Proportionate:** The utility conducts engagement that is proportionate to the potential impact on service and/or price and does not place an undue burden on participants.
- **Objective:** The utility's engagement is objective and not biased towards a particular outcome.
- **Clearly communicated and accurate:** The utility provides clear and accurate information to customers during the engagement process. The utility presents information in a form that makes clear: what the purpose of the engagement is; how the utility will use the results; any potential trade-offs between service and price; and the impacts (including cumulative impacts on services and/or bills) of the options being considered. Customers are provided with feedback on how the results of the customer engagement have informed the utility's position.

Utilities should have a strong understanding of customer preferences. It is a utility's responsibility to engage with customers to understand their views, priorities and needs, which should then inform decision-making and its pricing submission.

Source: IPART, Guidelines for Water Agency Pricing Submissions, November 2018, p 23

5.2.2 Areas we will investigate further

In assessing Hunter Water's proposed discretionary expenditure to be recovered via general water, wastewater and/or stormwater prices, we will consider whether it has provided sufficient evidence that its customers are willing to pay, whether the proposed expenditure is efficient in delivering the outcomes customers are willing to pay for, and how this expenditure should be reflected in prices.

Willingness to pay

We will determine whether Hunter Water has demonstrated sufficient evidence of customer willingness to pay for its proposed discretionary expenditure, by assessing its proposal against the principles in Box 5.2.

For example, the best practice principles for demonstrating customer willingness to pay require that the sample of customers surveyed should be representative of the customer base that would have to pay under the utility's proposal.

Hunter Water has engaged with a sample of its residential customers through a willingness to pay survey, but has not included non-residential customers in this survey. It has proposed that this survey demonstrates its customers' willingness to pay for the discretionary expenditure included in the 2020 determination period. We will test the representativeness of the customers potentially affected by the proposal as part our review of proposed discretionary expenditure.

Efficient cost principles still apply to discretionary projects

Our efficiency test of Hunter Water's historical and forecast operating and capital expenditure includes discretionary expenditure. That is, we will look at whether the proposed discretionary expenditure is the most efficient means of obtaining the outcome or delivering the services that customers are willing to pay for. Our efficiency test is described in Box 3.1 in Chapter 3.

Our expenditure consultants will assess whether the costs Hunter Water is proposing for its discretionary expenditure are efficient costs.

We will consider how discretionary costs should be shared across customer groups and other parties

For the discretionary projects in the 2020 determination period, Hunter Water is proposing that the costs are shared across the broader customer base. It proposes allocating these costs to all customers – both residential and non-residential – across water, wastewater and stormwater customer categories. We will examine the appropriate allocation across the customer base for this expenditure, taking into account customer willingness to pay.

In some cases we will also look at whether co-investments are appropriately considered, such as the co-contribution from another party for Hunter Water's Cottage Creek stormwater channel project.

Discretionary expenditure should be transparent to customers

We consider that as the estimated willingness to pay amount is per household, 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 also aid transparency of discretionary expenditure over time.

As pricing approaches evolve over time, it would also allow Hunter Water to bill only those customer groups with demonstrated willingness to pay (eg, residential customers only) and ensure each customer within that customer group makes a fair contribution to the costs of any discretionary expenditure, that is no more than the amount demonstrated by a willingness to pay survey. A separate charge may provide maximum accountability and transparency around the impact of discretionary expenditure on customer bills. We note there may be small administrative costs, though improvements in ICT systems should minimise any costs.

IPART seeks comments on the following:

15 Should we allow the proposed discretionary expenditure to be recovered from Hunter Water's service charges?

16 Is there another way to gauge support from non-residential customers whose willingness to pay has not been tested, or should non-residential customers be excluded from paying for the proposed discretionary expenditure?

17 Should the costs of discretionary expenditure be recovered though a separate charge on customer bills?

6 Demand and customer numbers for water, wastewater and stormwater

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 will lead to an over- or under-recovery of revenue. If forecasts are lower than actual sales, customers will pay higher than efficient prices (as the utility will '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 Hunter Water's sales and customer forecasts for the 2020 determination period, and our preliminary responses to these forecasts. We also consider whether to make an adjustment in the 2020 Determination to account for variations between forecast and actual water sales over the 2016 determination period.

6.1 Actual water sales and customer numbers over the 2016 determination period

In the 2016 Determination we adopted Hunter Water's forecast water sales. Hunter Water indicated in its proposal that actual sales have exceeded forecasts by 8.7% over the first two years of the 2016 determination period due to lower than expected rainfall and population growth in excess of forecasts.[116] As Table 6.1 shows, total actual/forecast sales[117] are expected to exceed forecasts by 14,946 ML or 6.7% over the 2016 determination period. If this is the case, Hunter Water will over-recover its required revenue over the determination period.

The expected net variation between total actual and forecast sales is greater than the 5% threshold we set for the demand volatility adjustment mechanism in the 2016 Determination. Hunter Water indicated in its proposal that it supports the use of the mechanism, but has made no adjustment to its revenue requirement for the 2020 determination period at this stage.[118] The demand volatility adjustment mechanism is discussed in further detail in section 6.3.

116 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 11.
117 Actual water sales for 2016-17, 2017-18, and first six months of 2018-19. Forecast water sales for second six months of 2018-19 and 2019-20.
118 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, p A-8.

Table 6.1 Variance between IPART determined and actual/forecast water sales over the 2016 determination period (ML)

	2016-17	2017-18	2018-19	2019-20	Total
Residential					
IPART 2016 Determination	36,890	36,951	37,025	37,118	147,984
Hunter Water actual/forecast[a]	39,753	43,065	42,025	39,011	163,854
Non-residential (including bulk water sales)					
IPART 2016 Determination	17,889	18,426	18,880	19,172	74,367
Hunter Water actual/forecast[a]	17,460	19,650	16,761	19,573	73,444
Total					
IPART 2016 Determination	54,779	55,376	55,906	56,290	222,351
Hunter Water actual/forecast[a]	57,213	62,715	58,786	58,584	237,297
Variance (ML)	2,434	7,338	2,881	2,294	14,946
Variance (%)	4.4	13.3	5.2	4.1	6.7

a Half year forecast for 2018-19. Full year forecast for 2019-20.

Note: Totals may not add due to rounding.

Source: IPART, *Review of prices for Hunter Water Corporation – Final Report*, June 2016, p 89; Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 11 and IPART calculations.

Hunter Water recorded increases of 1.7% per year in residential water connections in 2017-18 and 2018-19 (see Table 6.2). This is higher than the forecast annual rate of growth of 1.3% in the 2016 Determination.[119] Hunter Water attributed higher than expected growth in residential water connections to strong growth in the local housing sector.[120] Growth in residential water connections above forecasts is estimated to account for around 8% of the 14,946 ML of extra water sales over the 2016 determination period.[121]

Table 6.2 Variance between IPART determined and actual/forecast billable water connections over the 2016 determination period

No.	2016-17	2017-18	2018-19	2019-20
Residential				
IPART 2016 Determination (No.)	228,653	231,529	234,406	237,281
Hunter Water actual/forecast[a] (No.)	229,089	232,879	236,849	240,257
Change year-on-year in actual/forecast sales (%)	-	1.7	1.7	1.4
Variance (No.)	436	1,350	2,443	2,976
Non-residential				
IPART 2016 Determination (ME)[b]	29,964	30,386	30,808	31,226
Hunter Water actual/forecast[a] (ME)	28,512	28,599	28,862	29,198
Change year-on-year in actual/forecast sales (%)	-	0.3	0.9	1.2
Variance (ME)	-1,452	-1,787	-1,946	-2,028

a Half year forecast for 2018-19. Full year forecast for 2019-20.

b ME is the number of 20mm "Meter Equivalents".

Source: IPART, Review of prices for Hunter Water Corporation – Final Report, June 2016, p 93; Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 18; and IPART calculations.

119 IPART, Review of prices for Hunter Water Corporation – Final Report, June 2016, p 94.
120 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 3.
121 This suggests that the key driver of extra water sales over the 2016 determination period is water usage by customers, rather than higher than expected growth in residential water connections.

6.2 Hunter Water's proposed forecast water sales and customer numbers

Hunter Water used the integrated supply-demand planning (iSDP) model for its water demand forecasts (Box 6.1). This model was also used by Hunter Water for its pricing proposals for the 2013 and 2016 Determinations.[122]

Box 6.1 Hunter Water's demand model

The iSDP model produces forecasts for residential demand based on end-use (activities), and non-residential demand using sector trends.

- Demographic factors such as population growth, number of dwellings/connections and household size are used as inputs for all sectors, and are updated annually.
- Separate models are used to calculate demand for each of the residential end-use components. NSW sales data for relevant appliances is used as an input into the model.
- Non-residential demand forecasts are based on information from Hunter Water's Customer Services Group. Economic trends, changes in recycled water demand and water conservation measures are used as inputs to the forecast.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, pp 8-9.

Hunter Water has developed a new climate correction methodology. It relies on regression analysis of climatic variables to per capita consumption to understand the long-term impact of climate on water demand.[123] The methodology adjusts for climatic variables including temperature, rainfall and evaporation to estimate a climate corrected demand starting point, which represents the amount of water used by the current customer profile in an average climatic year.[124] This is then used as a calibrated base year for the iSDP model.[125]

Hunter Water's new methodology for forecasting water demand was reviewed by Jacobs Australia Pty Limited (Jacobs) on behalf of the Department of Industry Water.[126] While Jacobs supported the methodology, it identified some high priority areas for improvement, which are currently being addressed by Hunter Water. These include:

- Using up-to-date NSW appliance sales data to improve residential demand forecasts
- Reviewing assumptions used to forecast water demand for commercial and industrial customers
- Confirming the linking process between climate correction and the iSDP.[127]

This is expected to be completed by September 2019.[128]

122 IPART, Review of prices for Hunter Water Corporation – Final Report, June 2016, p 90.
123 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 9.
124 Jacobs, Peer Review of Hunter Water Demand Model, Phase 1: Demand Tracking Model Review – Final Report, July 2019, p ii and p 10.
125 Jacobs, Peer Review of Hunter Water Demand Model, Phase 2: Peer Review of iSDP – Final Report, July 2019, p 1.
126 This review was undertaken in two parts between March and May 2019. Jacobs reviewed Hunter Water's application of a Demand Tracking Model to estimate a climate corrected demand starting point, and Hunter Water's iSDP forecasting model. Jacobs released its Final Reports for the review on 15 July 2019.
127 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, pp 9-10 and and Jacobs, Peer Review of Hunter Water Demand Model, Phase 2: Peer Review of iSDP – Final Report, July 2019, p 1.
128 Correspondence with Hunter Water (email), 8 August 2019.

6.2.1 Forecast water sales

Hunter Water's water sales forecasts incorporate 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.[129]

Hunter Water expects total water demand to increase by around 400 ML (or 0.7%) per year over the 2020 determination period, with residential demand to increase by 0.4% per year, non-residential demand to increase by 0.6% per year, and bulk water sales to increase by 6.0% per year (see Table 6.3).[130] Bulk water sales as a percentage of total sales is expected to increase from 3.1% in 2019-20 to 4.0% in 2024-25 due to forecast growth of private operators in the region, resulting in a diversion of some water sales from residential to bulk water.[131]

Hunter Water's annual sales forecasts over the 2020 determination period are lower than the latest available full year of actual sales data (ie, 2017-18). This is because the forecasts are based on average weather conditions and long-term average rainfall levels.[132] Sensitivity testing under various climatic scenarios was undertaken by Hunter Water but was not considered to be appropriate for the calculation of efficient prices, and therefore not included in Hunter Water's pricing proposal.[133]

Table 6.3 Hunter Water's forecast water sales for the 2020 determination period (ML)

	2019-20 (base year)	2020-21	2021-22	2022-23	2023-24	2024-25	Total change
Residential							
Sales	39,011	39,159	39,332	39,493	39,667	39,855	844
Change (%)	-	0.4	0.4	0.4	0.4	0.5	2.2
Non-residential							
Sales	17,779	17,999	18,150	18,147	18,222	18,312	533
Change (%)	-	1.2	0.8	0.0	0.4	0.5	3.0
Bulk water sales							
Sales	1,794	1,871	1,948	2,097	2,247	2,396	602
Change (%)	-	4.3	4.1	7.7	7.1	6.6	33.5
Total							
Sales	58,584	59,030	59,431	59,737	60,135	60,563	1,979
Change (%)	-	0.8	0.7	0.5	0.7	0.7	3.4

Note: 2019-20 figures included for comparison. Hunter Water projected zero net inter-regional transfers with Central Coast Council over this period.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 13 and IPART calculations.

129 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 13.

130 Annual percentage increases are on average.

131 Hunter Water Annual Information Return, July 2019; IPART calculations and Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 25.

132 Weather conditions affect water demand. In a given year, hotter and drier conditions will lead to higher than average water usage, while cooler or wetter conditions lead to lower usage. Climate correction removes the short term impact of weather variations, and sets water demand on the assumption that weather will be "average". Hunter Water uses more than 45 years of daily weather data in its new climate correction process. Jacobs, Peer Review of Hunter Water Demand Model, Phase 1: Demand Tracking Model Review – Final Report, July 2019, p ii.

133 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 12.

Growth in forecast sales is driven by expected increases in billable water connections, as water sales per customer is expected to decrease over the 2020 determination period. Table 6.4 below compares Hunter Water's actual average water usage per customer over the 2016 determination period to its forecasts over the 2020 determination period.

Table 6.4 Hunter Water's historical and forecast water sales per customer (kL)

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Residential	170	182	175	160	159	157	156	155	154
Non-residential	1,326	1,435	1,132	1,333	1,319	1,308	1,291	1,280	1,271
Total average	231	247	226	223	222	220	218	216	215
Change in total average sales per customer (%)	-	7.0	-8.8	-1.2	-0.6	-0.7	-0.9	-0.8	-0.7

Note: Half year forecast for 2018-19. Full year forecasts for 2019-20 and thereafter.
Source: Hunter Water Annual Information Return, July 2019 and IPART calculations.

On a per capita basis, water consumption is expected to decrease by an average of 0.6% per year, or 2.8% over the 5-year determination period.[134]

6.2.2 Forecast wastewater discharge volumes

Non-residential customers are liable for a wastewater usage charge if the volume of wastewater they discharge is above a certain threshold (known as the discharge allowance).[135]

Wastewater volumes for non-residential customers are estimated by applying a sewer discharge factor to metered water usage. The sewer discharge factor reflects the estimated percentage of metered water usage that is discharged back into the wastewater system.[136] Only around 30 non-residential customers have their wastewater discharges directly metered.[137]

Hunter Water developed forecasts for total wastewater discharge volumes by analysing past data on wastewater discharge as a percentage of non-residential water sales, and applying this to future water sales forecasts. Table 6.5 shows Hunter Water's forecast total discharge and chargeable discharge volumes. Hunter Water proposes to maintain the level of discharge allowance as a proportion of future total discharge volumes at 14.9% over the 2020 determination period.[138]

134 Hunter Water Annual Information Return, July 2019 and IPART calculations.
135 Residential and non-residential customers pay for discharges equal to the discharge allowance through their service charges.
136 Direct metering of wastewater discharge is complex and typically cost-prohibitive, except where very large volumes are discharged.
137 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 14.
138 Hunter Water set the level of discharge allowance as a proportion of future total discharge volumes at 14.9% based on the average of the allowance over the past three years.
Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 14.

Table 6.5 Hunter Water's forecast wastewater discharge volumes for the 2020 determination period (ML)

	2020-21	2021-22	2022-23	2023-24	2024-25
Total discharge	5,998	6,047	6,084	6,120	6,156
Discharge allowance	(891)	(899)	(904)	(910)	(915)
Chargeable discharge volumes	5,107	5,148	5,180	5,210	5,241

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 14.

6.2.3 Forecast customer water and wastewater connections and stormwater properties

Annual growth in billable water connections has been as high as 1.7% per year in recent years. For the 2020 determination period, Hunter Water expects growth to return to the long-term trend of 1.2% per year (see Table 6.6).[139]

Table 6.6 Hunter Water's proposed billable water connections

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Residential (No.)						
Connections	240,257	243,309	246,360	249,412	252,471	255,501
Change (%)	-	1.3	1.3	1.2	1.2	1.2
Non-residential (ME)						
Connections	29,198	29,509	29,782	29,988	30,166	30,339
Change (%)	-	1.1	0.9	0.7	0.6	0.6

Note: 2019-20 figures included for comparison.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, pp 18-19 and IPART calculations.

Around 96% of Hunter Water's water customers are also provided with wastewater services.[140] Wastewater connections are expected to grow in line with water connections, particularly for the residential sector. Hunter Water expects billable residential wastewater connections to grow at a rate of 1.3% per year over the 2020 determination period (Table 6.7).[141]

Table 6.7 Hunter Water's proposed billable wastewater connections

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Residential (No.)						
Connections	229,929	232,964	236,042	239,213	242,401	245,520
Change (%)	-	1.3	1.3	1.3	1.3	1.3
Non-residential (ME)						
Connections	16,185	16,432	16,655	16,834	16,993	17,152
Change (%)	-	1.5	1.4	1.1	0.9	0.9

Note: 2019-20 figures included for comparison.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, pp 21-22 and IPART calculations.

139 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 15.
140 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 3.
141 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 15.

Around 30% of Hunter Water's water customers are located in stormwater service areas. Changes in the number of billable stormwater properties reflect factors such as subdivision, rezoning and unit development.[142]

Hunter Water reported in its pricing proposal that it has discovered errors in its stormwater property counts due to incorrect data entered into its billing system in 2006. This resulted in:

- Some properties located in its stormwater network not being charged
- Some properties not located in its stormwater network being erroneously charged
- Some customers being undercharged with others being overcharged.[143]

For customers that were erroneously charged or overcharged relative to IPART's 2016 Determination, Hunter Water has advised that it will refund those that are still customers by issuing credits to their bills,[144] and those that are no longer customers will be able to claim back monies overpaid through a website. It has also indicated it will not seek to recover the $2.1 million it undercharged customers.[145] This billing error will be considered as part of our audit of Hunter Water's operating licence later this year, and any compliance matters will be managed in line with our Compliance and Enforcement Policy.[146]

Hunter Water made a revision to its count of stormwater properties (a one-off increase of around 2,000 stormwater properties from 1 July 2019) to address this billing error (see Table 6.8). For the 2020 determination period, it forecasts an increase in billable residential stormwater properties of 0.4% per annum from 2020-21.[147]

Table 6.8 Hunter Water's proposed billable stormwater properties

	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Residential							
Properties	65,090	67,541	67,841	68,141	68,441	68,741	69,041
Change year-on-year (No.)	-	2,451	300	300	300	300	300
Non-residential							
Properties	2,980	3,042	3,042	3,042	3,042	3,042	3,042
Change year-on-year (No.)	-	62	0	0	0	0	0

Note: 2018-19 and 2019-20 figures included for comparison.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 24 and IPART calculations.

As the actual number of customers receiving stormwater services since 2006 has been underestimated, it may be that prices in the 2016 Determination have been higher than they would have been had the correct number of customers been identified.[148] We will consider the scale and scope of the updated customer information and whether prices should be adjusted for any historical differences.

142 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 22.
143 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, pp 22-23.
144 Customers can use this credit to offset the cost of their next bill, or receive a refund.
145 Correspondence with Hunter Water (email), 17 April 2019.
146 IPART, Compliance and Enforcement Policy, December 2017.
147 Hunter Water only delivers stormwater services in some parts of its area of operations. As such, only around 30% of its total customer base receives stormwater services from Hunter Water. Local councils deliver stormwater services outside of these areas.
148 Since there would have been more customers to pay for the same efficient costs of stormwater.

6.2.4 Other demand and connection forecasts

Hunter Water noted that developers' use of private network operators within its area of operations will impact on growth in residential connections, with some new residential connections being serviced by these private networks. Hunter Water estimates that private network operators that are already operating 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.[149] However, aggregate water demand is expected to remain largely unaffected, as Hunter Water continues to supply water for these connections as a wholesale provider, rather than in its traditional role as a retail provider. The impact of emerging urban water competition has been captured in Hunter Water's volumetric and connections forecasts.[150]

Hunter Water has a supply agreement in place with the Central Coast Council to balance water supply and demand conditions. Transfers are dependent on weather conditions in each region, and a model is used to determine the expected annual transfer amount. At this stage, Hunter Water expects zero net inter-regional transfers with the Central Coast Council over the 2020 determination period.[151]

6.2.5 IPART's response on forecast water sales and customer numbers

We have asked our expenditure consultant, Aither, to review Hunter Water's demand estimates. This will inform our decision on whether Hunter Water's forecast water sales and customer numbers are reasonable.

Hunter Water advised us after it submitted its proposal that it intends to submit revised demand forecasts to us in September 2019 as a result of its climate correction methodology.[152] In making our decision on these forecast water sales and customer numbers, we will review:

- Hunter Water's iSDP model and climate correction methodology
- Input assumptions.

We will also seek further information on stormwater properties.

IPART seeks comments on the following:

18 Is Hunter Water's demand forecasting model appropriate? Are the inputs used to estimate the model also appropriate?

19 Do you agree with Hunter Water's proposal to use a new climate correction methodology to generate a climate corrected demand starting point?

20 Do you agree with Hunter Water's forecast that per capita water consumption will decrease by 2.8% over the next 5 years under long-term average weather conditions?

149 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 5.
150 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 25.
151 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 26.
152 Correspondence with Hunter Water (email), 8 August 2019.

6.3 Demand volatility adjustment mechanism

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".[153]

We consider it appropriate to take a risk sharing approach between the utility and customers for small variations (ie, less than 5%) between forecast and actual water sales. However, for larger variations we consider that applying a demand volatility adjustment mechanism:

- Ensures that prices are cost-reflective over the medium term. If actual consumption is much higher or much lower than forecast, this could result in customers paying too much, or conversely, affect the financeability of the utility.
- Provides protection to customers, given the utility has a financial incentive to under-forecast demand (and in doing so exceed its NRR).

It is likely, based on actual sales to 2017-18, that the materiality threshold for the demand volatility adjustment mechanism will be met over the 2016 determination period. Although Hunter Water is supportive of the demand volatility adjustment mechanism,[154] IPART has discretion on **whether** and **how** to apply the mechanism. We said in the 2016 Determination that we would consult as part of the next price review on how the volatility mechanism could be applied, if a material variation were to occur.

6.3.1 IPART's response on the demand volatility adjustment mechanism

Hunter Water reported different variances in percentage terms between forecasts (used to set prices in the 2016 Determination) and its actuals over the 2016 determination period for **water sales** and **revenue from water sales** (see Table 6.9). It advised that the difference between the two is due to the escalation of revenues in the 2016 Determination to $2019-20, and location-based water pricing for large customers.[155] It is our view that the adjustment threshold should apply to the **revenue from water sales**.

153 IPART, Review of prices for Hunter Water Corporation – Final Report, June 2016, pp 97-98.
154 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, p A-8.
155 Correspondence with Hunter Water (email), 23 July 2019.

Table 6.9 Variance in water sales and revenue from water sales over the 2016 determination period

	2016-17	2017-18	2018-19	2019-20	Total
Water sales (ML)					
IPART 2016 Determination	54,779	55,377	55,905	56,290	222,351
Hunter Water actual/forecast[a]	57,213	62,715	58,786	58,584	237,297
Variance (ML)	2,434	7,338	2,881	2,294	14,946
Variance (%)	4.4	13.3	5.2	4.1	6.7
Revenue from water sales ($millions, $2019-10)					
IPART 2016 Determination	130.7	132.0	133.1	134.0	529.8
Hunter Water actual/forecast[a]	132.6	147.9	139.5	137.4	557.5
Variance ($millions)	1.9	15.9	6.4	3.5	27.6
Variance (%)	1.4	12.1	4.8	2.6	5.2

a Half year forecast for 2018-19. Full year forecast for 2019-20.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, p A-8.

Hunter Water stated that the incremental 0.2% in revenue from water sales above the 5% threshold is forecast to be $1.1 million. It would prefer any adjustment be spread over multiple years in an NPV-neutral way.[156]

In deciding whether to apply a demand volatility adjustment mechanism over the 2020 determination period, an approach we may consider is set out below.

1. Limit the analysis to the three years of actual water sales data available in the 2016 determination period: that is from 2016-17 to 2018-19 inclusive.[157] This negates the need to use forecasts for 2019-20. Actual sales in 2019-20 would then be included in any analysis and potential application of a demand volatility mechanism for the next Determination, which is likely to be in July 2024 or 2025.
2. Calculate the revenue raised from water sales over the three years to 30 June 2019. If this value is greater than 5% above our forecast revenue for the total three-year period, calculate the amount of revenue above the 5% threshold.
3. Subtract estimates of the additional efficient operating costs associated with servicing customer demand above the 5% threshold, to ensure that these costs are recovered.
4. Subtract the remaining amount (ie, the revenue obtained from water sales above the 5% threshold less the efficient costs of supplying this additional water) from our calculation of Hunter Water's NRR over the 2020 determination period.

Alternatively, we could calculate the revenue from water sales above our forecast revenue over the first three years of the 2016 determination period, and make an adjustment for the entire variation, ie, 5.2% of revenue from water sales, adjusted for any efficient operating costs. This would mean that all of the net revenue from actual water sales above forecast would be returned to customers over the next 5 years.

156 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, pp A-8 to A-9.

157 Hunter Water will submit actual sales for 2018-19 to IPART in September 2019. Actual sales for 2019-20 will not be available until after the 2020 Determination is released.

Sydney Water also exceeded its water sales forecasts over the 2016 determination period, based on actuals for 2016-17 and 2017-18 and forecasts for 2018-19 and 2019-20. It proposed an adjustment based on the variation between forecast and actual sales over the three years to 2018-19, as actuals for 2019-20 will not be available in time for the 2020 Determination. For further price reviews, it proposed that over- or under-recovery in the last year of a review period would be recovered with the years of actuals in the following period.[158] For example, an adjustment in the 2025 Determination (assuming a five-year determination period) would be based on the variation between forecast and actual revenue from water sales from 2019-20 to 2023-24.

Sydney Water's proposal is in line with the approach we outlined above. Our preliminary position is to accept a staggered approach to the application of the demand volatility adjustment mechanism for Hunter Water, subject to further analysis.

We are interested in stakeholders' views on whether we should implement the adjustment mechanism, how we should calculate the amount to be adjusted and how to implement any adjustment in setting prices.

IPART seeks comments on the following:

21 Do you agree with our proposed approach to determining whether and how to implement the demand volatility adjustment mechanism for the 2020 Determination?

22 Should we maintain the demand volatility adjustment mechanism for future price determinations?

158 Sydney Water Pricing Proposal, 1 July 2019, Attachment 7: Regulatory framework and application, pp 7-8.

7 Prices for water, wastewater and stormwater services

In this chapter we discuss Hunter Water's proposed prices for water, wastewater and stormwater services to apply from 1 July 2020.

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

- **Water** – a per kL consumption-based water usage charge and a standard (fixed) water service charge.
- **Wastewater** – a standard (fixed) wastewater service charge (transitional arrangements currently apply to align house and apartment service charges). A separate fixed Environmental Improvement Charge (EIC) also applied in the 2016 determination period.
- **Stormwater** – a fixed stormwater service charge that differs for standalone and multi-premises customers (ie, houses and apartments).

Non-residential customers pay the following charges:

- **Water** – a per kL consumption-based water usage charge (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. A separate fixed EIC also applied in the 2016 determination period.
- **Stormwater** – a fixed stormwater service charge that differs based on the size of the property.

Hunter Water has not proposed changes to the basic structure of its prices, although it proposes changes to price levels to reflect its estimate of its revenue requirement, forecast water sales and customer numbers.

In assessing Hunter Water's proposed prices and relevant structures we will consider appropriate pricing principles for water as well as price stability, customer preferences and managing revenue risk for the utility.

The proposed prices for Hunter Water's trade waste, bulk water, unfiltered water (also called raw water), and miscellaneous services related to water, wastewater and stormwater supply are presented in Chapter 8.

7.1 Overview of Hunter Water's proposal on water, wastewater and stormwater prices

Hunter Water does not propose changing the current price structure for its major water services. However, it has proposed changes to price levels, which affect the relativities between fixed and usage charges for its major water services. In aggregate terms, over the 2020 determination period and based on Hunter Water's proposal, we estimate fixed charges would comprise around 59% of Hunter Water's revenue requirement, with usage charges comprising the remaining 41%.[159]

Table 7.1 presents Hunter Water's proposed prices and percentage price changes for its major services for the next regulatory period.

Table 7.1 Hunter Water's proposed charges for major services from 1 July 2020 ($2019-20)

Charge description	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	Change 2020 -2025
Water							
Water - usage							
Residential and Non-residential ($/kL)[a]	2.39	2.41	2.44	2.46	2.49	2.51	5%
Water - service							
Residential							
Houses, apartments	100.88	100.42	98.53	98.81	97.00	97.24	-4%
Non-residential							
Small customers (20mm meter stand-alone)	100.88	100.42	98.53	98.81	97.00	97.24	-4%
Other (25mm meter equivalent)[b]	157.63	156.90	153.95	154.38	151.57	151.94	-4%
Wastewater							
Wastewater - usage							
Non-residential ($kL)[c]	0.67	0.65	0.64	0.62	0.61	0.59	-12%
Wastewater - service							
Residential							
Houses [d]	651.98	675.59	699.78	724.88	750.59	777.22	19%
Apartments [d]	537.89	574.25	612.31	652.40	694.29	738.35	37%
Non-residential							
Small customers (20mm meter stand-alone) [e]	842.51	872.60	902.92	934.70	966.72	1,000.21	20%
Other (25mm meter equiv)[b,f]	1,190	1,244.98	1,297.87	1,355.17	1,411.22	1,471.70	24%
Environmental Improvement Charge	41.20	0.00	0.00	0.00	0.00	0.00	-100%

159 IPART calculations.

Stormwater							
Residential							
Houses	80.01	84.63	89.56	94.77	100.29	106.14	33%
Apartments	29.61	31.32	33.14	35.07	37.12	39.28	33%
Non-residential							
Small (<1,000m^2) or low impact	80.01	84.63	89.56	94.77	100.29	106.14	33%
Medium (1,001 to 10,000m^2)	261.31	276.39	292.49	309.53	327.56	346.64	33%
Large (10,001 to 45,000m^2)	1,661.94	1,757.86	1,860.27	1,968.63	2,083.29	2,204.61	33%
Very large (>45,000m^2)	5,280.39	5,585.15	5,910.52	6,254.80	6,619.11	7,004.60	33%

a First 50,000 kL per year.

b Customers with larger meters pay a multiple of the 25mm charge depending on the size of the meter.

c Charge for volume of wastewater in excess of the discharge allowance (120kL per year in 2019-20).

d The wastewater service charge is derived by multiplying the meter connection charge by the discharge factor and adding the deemed usage charge. For example in 2019-20, for houses, this is derived by multiplying the meter connection component ie, $762.11 by 75% and adding the deemed usage charge of $80.40.

e This charge is derived in the same way as for houses in note 'd' except that a discharge factor of 100% is applied.

f Charges shown are for a 100% discharge factor.

Source: Hunter Water Pricing Proposal, 1 July 2019, pp 38, 42, 45, 49 and IPART calculations.

7.2 Water usage prices

In setting prices, our overarching principle is that prices should be cost reflective, which means that:

- Prices only recover sufficient revenue to cover the efficient costs of delivering the monopoly services
- Price structures match cost structures, whereby usage prices reference an appropriate estimate of marginal cost (ie, the additional cost of supplying an additional unit of water or wastewater services) and fixed service prices recover the remaining costs.

Consequently, we calculate the usage price first and the fixed service price second.

Hunter Water customers currently pay a water usage charge based on the volume of water used, with a standard rate applying for consumption up to 50,000 kL of usage (same rate for residential and non-residential customers). Some customers that use more than 50,000kL annually, receive a discount that varies depending on their location.

We generally set the water usage price with reference to the long run marginal cost (LRMC) of water supply, with the fixed service charge calculated as a balancing item to recover the residual revenue requirement (see Box 7.1 for a snapshot of the historical evolution of water pricing). The LRMC of water supply represents the additional cost of supplying an additional unit of water services over the longer-term. It is often calculated by estimating the costs of balancing supply and demand over the longer-term (eg, 30 plus years) and therefore includes the costs of future supply augmentation measures.

Box 7.1 IPART's water pricing decisions for Hunter Water

2000 Determination – Introduction of 'location based' discounted charges for customers with water consumption above 50,000 kL (mainly industrial customers located near bulk water sources).

2009 Determination – Water usage charges set with reference to the LRMC of water supply.

2013 Determination – Alignment of water service charges for all residential premises under single ownership (to replace meter-based charging).

2016 Determination – Alignment of calculation of residential and non-residential service charges to a common 20mm meter equivalent.

Note: This list contains a summary of decisions relating to water pricing only and should not be treated as comprehensive.

Source: Various IPART Determinations and Reports.

In 2016, Hunter Water did not have an LRMC estimate as the Lower Hunter Water Plan (LHWP) did not specify the next supply augmentation as identification of supply options was at a very preliminary stage.[160] We accepted Hunter Water's proposal in 2016 to maintain the then existing maximum water usage charge at $2.22 per kL in real terms ($2015-16) over the determination period, in the interests of price stability. The usage price is $2.39 in 2019-20.

7.2.1 Hunter Water's proposed water usage price

Hunter Water has proposed real increases of 1% per year for water usage prices, a cumulative increase of 5% over the 5-year determination period (Table 7.2). It states that its proposed prices are informed by:

- The estimated growth in its NRR (see Chapter 3)
- An estimation of the LRMC of water supply
- Customer preferences, where 60 percent of customers preferred a price above $2.00/kL, and 60 percent of this group preferred an increase of up to or above $2.60/ kL[161]
- Consideration of price stability across regulatory periods, by maintaining the variable component of residential bills at around 80% for water services; or 36% for combined water and wastewater services.[162]

Table 7.2 Hunter Water's proposed water usage prices ($/kL, $2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	Total cumulative change
Base usage	2.39	2.41	2.44	2.46	2.49	2.51	5%

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 14.

160 IPART, Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, *Final Report*, June 2016, p 101.
161 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 9.
162 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 15.

Hunter Water is working on the next iteration of the LHWP, which the NSW Government is to consider in 2021.[163] It is looking at a range of smaller supply and demand measures to help defer future major and expensive investments.[164] Hunter Water engaged Marsden Jacob Associates (MJA) to help calculate LRMC estimates for water. Based on MJA's analysis, Hunter Water estimated the LRMC of water supply in the range of $2.50/kL to $4.00/kL.[165,166]

Our 2016 price review discussed the potential merits of scarcity pricing (whereby the price of water would vary inversely with storage levels to send appropriate signals about when to use or conserve existing water sources). Hunter Water flagged that it would incur unbudgeted operating costs during a drought event totalling around $26.7 million.[167]

Hunter Water stated it was working on a possible drought cost pass-through mechanism that addresses and satisfies IPART's criteria, including details on triggers, specific costs, materiality and proposed cost recovery arrangements.[168] We understand that Hunter Water may respond further in a submission to this Issues Paper. This is further discussed in section 10.2.

7.2.2 IPART's response on water usage prices

We generally favour setting water usage prices for metropolitan water utilities with reference to the LRMC of water supply to encourage efficient water consumption. Setting the usage price to reflect the LRMC signals the cost of water supply augmentation to consumers. All other things being equal, the nearer we are to the need for a water supply augmentation project and/or the larger this project, the higher the LRMC estimate (and vice-versa).

We also consider how LRMC estimates should be balanced with other factors, such as price stability; customer preferences for having a higher variable bill component; and managing revenue risk for the utility. We note that the proposed increase in usage price would reach the lower bound of Hunter Water's estimate of LRMC by 2024-25.

We will review Hunter Water's estimates of its LRMC of water supply, and seek to derive updated estimates of the LRMC based on the best available information.

IPART seeks comments on the following:

23 Is Hunter Water's proposed increase in the usage charge of 1% in real terms and 5% cumulative over the regulatory period to $2.51 per kL in 2024-25 reasonable?

24 If a revised estimate of the LRMC of water supply for Hunter Water is lower than the current estimate, should the water usage price be reduced over the 2020 determination period to reflect this lower LRMC?

25 Should Hunter Water's water usage charges vary to make drought-response costs more transparent to end-use customers (ie, by reflecting the per kilolitre cost of any drought cost pass-through)?

163 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 10.
164 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 10.
165 Hunter Water Pricing Proposal, 1 July 2019, p 40.
166 Correspondence with Hunter Water (email), 1 August 2019.
167 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, pp A14-A20.
168 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, p A-11.

7.3 Location-based water usage prices

Since 2001, 19 large customers in seven specific locations have received a discount on water purchases in excess of 50,000kL per year. Hunter Water's 'location-based' pricing does not apply to all customers in those locations, but only to specific 'large' customers in each of the seven locations. The discount varies geographically depending on the estimated capital related costs in each water operational zone. The total discount adds up to $2.3 million per year, with the five biggest customers receiving 80% of this (an average of $368,000 a year).[169]

Hunter Water has proposed phasing out its location-based water usage charges over the 5-year determination period so that a single water usage price would apply to all water sales by 2024-25 (see Table 7.3).

Table 7.3 Proposed phase out of location-based usage charges ($2019-20 per kL)

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	Total change
Base usage price	2.39	2.41	2.44	2.46	2.49	2.51	5%
Dungog	1.92	2.04	2.16	2.27	2.39	2.51	31%
Kurri Kurri	2.36	2.39	2.42	2.45	2.48	2.51	6%
Lookout	2.23	2.29	2.34	2.40	2.45	2.51	13%
Newcastle	2.17	2.24	2.31	2.37	2.44	2.51	16%
Seaham-Hexham	1.97	2.08	2.19	2.29	2.40	2.51	27%
South Wallsend	2.27	2.32	2.37	2.41	2.46	2.51	11%
Tomago-Kooragang	1.92	2.04	2.16	2.27	2.39	2.51	31%
All other areas	2.39	2.41	2.44	2.46	2.49	2.51	5%

Note: 2019-20 is the 2016 determined charge.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 20.

In its proposal, Hunter Water considered that removing location based pricing would make the charge more cost reflective and provide signals to customers to encourage efficient investment and consumption decisions.

For customers currently receiving location-based discounts, Hunter Water's proposal would increase the usage rate of their water bills by between 6% and 31% over five years, depending on the customer's location. Hunter Water has proposed phasing-out the discounts over five years to reduce the bill impact. It also intends to help affected customers develop and implement water conservation measures.

169 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 18.

7.3.1 IPART's response on location-based water usage prices

In principle, we support cost-reflective prices. However, Hunter Water's discounted price for the specific 19 large customers is not a differential price available to all customers based on their location. If there is no basis for water price discounts or variations to large customers on the basis of cost, our preliminary view is to accept Hunter Water's proposal to phase out its location-based usage prices.

In our 2016 Determination, we recommended that Hunter Water consider the merits of its location-based prices and its pricing approach to large non-residential customers generally, in particular the impacts on all customers including the broader customer base.[170] For this review, we will further consider the bill impacts on customers (both customers that pay these charges and the wider customer base), in particular whether the move to one usage price should be implemented over a shorter period if the large customers are able to reasonably bear the cost increases.

IPART seeks comments on the following:

26 Is a phase-out of location-based prices over 5-years warranted or could they be phased out faster, given the customers impacted are large users and may benefit from water conservation measures?

7.4 Water service charges

The water service charge is a fixed annual charge that recovers the costs of providing water services that are not recovered via the water usage price. The water usage share is set first (to recover the marginal cost of supplying the service, as noted in section 7.2). Therefore, our decisions regarding the water usage charges will impact on the level of water service charges.

Hunter Water proposes that its water service price structure remains the same as the 2016 Determination. That is, residential customers are charged a single dwelling-based fixed service charge for water regardless of their dwelling type and metering arrangement (eg, freestanding house or apartment), and non-residential customers are charged based on their meter size.[171] The residential charge equals the 20mm meter charge for non-residential customers. Non-residential customers served by a common meter share the meter-based service charge.[172]

As seen in Table 7.4, Hunter Water has proposed that service charges remain relatively stable in real terms, with a slight decline of 3.6% over five years ($3.64 for residential customers and non-residential customers with a 20mm meter, and proportionally higher for non-residential customers with larger meter sizes). This slight proposed real reduction in the water service charge is a result of the proposed increase in the water usage price.

170 IPART, Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, Final Report, June 2016, p 105.

171 All residential dwellings are deemed to have a 20mm water meter and non-residential customers are charged on actual meter size relative to the 20mm meter base (with non-residential customers' charges increasing with their actual meter size). Non-residential customers' service charges for meters larger than 20mm are scaled up as follows: ((meter size)^2 x 20mm service charge)/400.

172 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 15.

Table 7.4 Hunter Water's proposed service charges ($2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	Total change
Residential (houses and apartments	100.88	100.42	98.53	98.81	97.00	97.24	-3.6%
Non-residential							
20mm	100.88	100.42	98.53	98.81	97.00	97.24	-3.6%
25mm	157.63	156.90	153.95	154.38	151.57	151.94	-3.6%
40mm	403.53	401.67	394.11	395.22	388.01	388.97	-3.6%
100mm	2,522.04	2510.44	2463.17	2470.13	2425.08	2431.08	-3.6%

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 15.

7.4.1 Meter-based residential service charges

Our 2017 Wholesale Water price review identified some discrepancies in charges between residential and non-residential customers as all residential customers (houses and apartments) are deemed to have a 20mm meter so they pay the same standard service charge, whereas non-residential customers pay water and wastewater service charges according to their meter size.[173]

We asked Hunter Water to consider meter-based service charges for residential customers for both water and wastewater charges, as we considered this could provide an indication of peak usage and the customers' share of maximum network capacity.[174]

Hunter Water offered the following observations resulting from its analysis of 'common' residential service charges (where all residential customers, including those in apartments as well as standalone houses, are deemed to have a 20mm meter) versus pure meter-based pricing (see Table 7.5):

- Under meter-based charges, residential customers would contribute a slightly smaller proportion of overall revenue ($24.2 million) compared to a common charge ($24.4 million)
- The base 20mm charge is 9% higher under a meter-based approach ($109.62 versus $100.42) as there are fewer residential meter equivalents than dwellings
- The average service price per residential dwelling could be up to 65% lower under a meter-based charge approach than the 'common charge' approach (this would mostly affect apartment dwellers).

173 IPART, Prices for wholesale water and sewerage services, Sydney Water Corporation and Hunter Water Corporation, Final Report, June 2017.
174 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 16.

Table 7.5 Water service charges – common versus meter-based 2020-21 ($2019-20)

Residential water service charge 2020-21 ($2019-20)			
Residential customers	243,309 dwellings		220,398 meter equivalents
Residential revenues ($million)	24.4		24.2
Meter connection size	**Share of residential customers**	**Common charge (proposed)**	**Meter-based charge**
20mm	88%	100.42	109.62
25mm	3%	100.42	171.29
32mm	1%	100.42	280.64
40mm	3%	100.42	438.49
50mm	4%	100.42	685.15
65mm	<1%	100.42	1,157.90
80mm	1%	100.42	1,753.97
100mm	<1%	100.42	2,740.58

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, pp 16-17.

Hunter Water submitted that it prefers the existing approach that uses a deemed 20mm equivalent for residential property types rather than a meter-based service charge approach because:[175]

- There is little difference in meter sizing for residential customers unlike non-residential customers, where meter-based charging is effective due to significant variations in meter sizes
- There would be little incentive for apartment dwellers to install meters as this would cost more
- The current approach avoids billing anomalies that would occur due to unique metering arrangements in multi-premise dwellings
- There would be additional costs incurred for new billing systems
- Customers have not complained about service charges suggesting this is a low priority for them.

7.4.2 IPART's response on water service charges

For the 2016 Determination, we accepted Hunter Water's proposal for substantial real increases in water service charges, eg, 230.8% for residential customers (from $17.75 to $58.72) and from 230.8% to 265.0% for non-residential customers (eg, from $463.55 to $1,692.00 for 100mm meter connections).[176] The water service charges were relatively low when compared

175 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 17.
176 IPART, Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, Final Report, June 2016, p 117.

to other metropolitan water utilities in Australia, and the increases corresponded with reductions in the water usage component of the water bill that had been relatively high.[177]

With respect to a potential move to meter-based service charge pricing for residential customers (for water and wastewater), we note that the alignment of the calculation for residential and non-residential service charges to a common 20mm meter equivalent was a recent decision, ie, at the 2016 Determination (see Box 7.1). We accept Hunter Water's conclusion that the costs of reverting to pure meter-based service charges for residential customers may outweigh the benefits.

Our preliminary view is that the proposed service charges are currently set in an appropriate way, as water service charges result in (residual) fixed costs being evenly spread across residential and non-residential customers (ie, on a 20mm meter equivalent basis). For non-residential customers with larger or multiple meters, charges increase proportionately according to their actual meter size.

IPART seeks comments on the following:

27 Are Hunter Water's proposed water service charges for residential and non-residential customers reasonable?

7.5 Wastewater charges

The wastewater price structure is more complicated than the water price structure. It includes:

- An allowance for deemed annual usage (or discharges to the sewer network) of 120 kL per annum, multiplied by the wastewater usage price.
- A volumetric usage charge for non-residential customers for discharges above the deemed amount.
- A base fixed service charge for all customers based on water meter size. Residential dwellings are all assumed to have a 20mm meter for cost allocation and pricing purposes; the service charge for apartments is currently less than for houses however as a result of the 2016 Determination they are gradually being transitioned towards the common residential charge. In 2019-20, apartments paid 85% of the service charge paid by houses.
- The service charge is multiplied by a **discharge factor,** which is specific to property types. For instance, residential properties are assumed to have a discharge factor of 75%. Non-residential properties have sector or industry-specific discharge factors (or sometimes even customer-specific discharge factors). The discharge factor is a measure of the percentage of a customer's water consumption that is discharged to the sewer network. Discharge factors are used to effectively convert the size of a water meter to a wastewater meter (for meter-based service charges) and to estimate wastewater discharge volumes (to apply wastewater usage charges). Discharge factors are used because, unlike water consumption, wastewater discharges are often not separately metered.

177 From around 96% to around 88% during the last regulatory period as proposed by Hunter Water. IPART, Review of prices for Hunter Water Corporation from 1 July 2016, Issues Paper, September 2015, p 79.

The current price structure and methodology for calculating wastewater prices has been developed over a number of determination periods as shown in Box 7.2.

Box 7.2 IPART's wastewater pricing decisions for Hunter Water

2000 Determination – Discontinuation of wastewater usage charge for residential customers.

2013 Determination – Commenced transition to equalisation of wastewater service charges for residential property types (eg, houses and apartments) – service charge increases for apartments set at 2.5% per year.

2016 Determination – Key decisions included:

- Separation of the meter connection and deemed usage components of the wastewater service charge.
- Alignment of calculation of residential and non-residential service charges to a common 20mm meter equivalent
- Setting a residential deemed discharge allowance at 120kL per year. The non-residential discharge allowance to transition from 50kL per year in 2015-16 to 120kL per year in 2019-20.
- Continuation of transitional arrangements (at 2.5% per year) for aligning service charges for apartments with those of houses.
- Introduction of a 75% sewer discharge factor to the residential meter connection charge.

Note: This list contains a summary of decisions relating to wastewater pricing only and should not be treated as comprehensive.

Source: Various IPART Determinations and Reports.

Hunter Water's fixed charges recover nearly all of its wastewater revenue, around 97%, including capital and operating costs of the wastewater system.[178] Hunter Water states that wastewater service costs are mostly fixed and are not impacted by wastewater discharge volumes, as wastewater costs are mostly driven by wet weather overflow rules and discharge standards in different receiving waters, that is, by location.[179]

7.5.1 Wastewater usage charge

Wastewater usage charges currently apply to the deemed usage for all customers, and, for non-residential customers, the amount they discharge to the wastewater system in excess of the deemed allowance.

Previously, we have set wastewater usage charges with reference to the short run marginal cost (SRMC) estimated as the operating cost of supplying an additional unit of wastewater services – ie, transporting, treating and disposing of domestic-strength wastewater. This cost has been estimated by calculating the variable costs associated with an additional unit of wastewater treatment – mainly power, chemical and waste disposal costs.

For this review, we asked Hunter Water to consider the option of LRMC pricing for wastewater usage instead of the variable operating cost.[180] Hunter Water noted our view that

178 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 25.
179 Hunter Water Pricing Proposal, 1 July 2019, p 46.
180 IPART, Submission Information Package to Hunter Water, 10 December 2018, Appendix E, p 13.

estimates of the LRMC of supplying wastewater services could provide important information and signals to consumers and the market, as it identifies system constraints – ie, those catchments with the highest potential future costs. See Box 7.3 for consideration of the basis of wastewater usage prices.[181]

Box 7.3 Basis of wastewater usage prices

Wastewater usage prices were historically based on the additional operating costs (eg, energy and chemicals) of treating an additional unit of wastewater. These prices underestimated the forward looking costs because they omitted the cost of capital investments to meet new demand by augmenting the capacity of the wastewater system.

We are interested in including projected capital costs to signal the costs of providing a service if augmentation to a system is required. Therefore we will calculate a LRMC for the purposes of referencing prices to this cost.

Note that, unlike water supply, which is often one integrated network for a water utility, wastewater supply is generally catchment-based (ie, a catchment of properties draining to a wastewater treatment plant) – which indicates that, ideally, a LRMC estimate would be derived for each supply catchment.

7.5.2 Hunter Water's proposed wastewater usage charge

Hunter Water did not submit an estimate (or estimates) of its LRMC of supplying wastewater services. It identified practical impediments to calculating such estimates, in particular because cost drivers for wastewater services tend to be catchment specific. Hunter Water has 19 wastewater catchments with varying sizes, timeframes for capacity constraints and investment requirements. Hunter Water notes it is not aware of a well-established and accepted LRMC methodology for wastewater systems given these issues, and supports IPART in developing common LRMC methodologies as part of a stand-alone review rather than as part of a retail price review.

Hunter Water notes that IPART's 2019 review of recycled water advocated the use of LRMC estimates for the wastewater system as a means of estimating avoided wastewater costs of recycled water schemes.

Hunter Water estimated the SRMC of its wastewater services to be around $0.20 per kL.[182] However, it proposes maintaining the existing wastewater usage charge constant in nominal terms at $0.67 per kL, consistent with IPART's approach in the 2013 and 2016 Determinations. This means that the usage charge would fall in real terms over the regulatory period, as seen in Table 7.6.

In comparison, Sydney Water has proposed reducing its wastewater usage charge from $1.18 per kL (nominal) in 2019-20 to $0.61 ($2019-20) through the 2020 determination period.

181 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 31.
182 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 31.

Sydney Water's wastewater usage charge would therefore approach similar levels to Hunter Water's usage charge by the end of the determination period if we accept the proposed prices.

As the previous section noted, Hunter Water did not propose changing the deemed allowance in the wastewater service charge (currently set at 120kL per year) above which the usage component is explicitly calculated for non-residential customers.

Table 7.6 Proposed wastewater usage charge

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Usage charge ($nominal per kL)	0.67	0.67	0.67	0.67	0.67	0.67
Usage charge ($2019-20 per kL)	0.67	0.65	0.64	0.62	0.61	0.59

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 30.

7.5.3 IPART's response to Hunter Water's proposed wastewater usage charge

In principle, we see merit in us and Hunter Water gaining a better understanding of its LRMC of wastewater supply. Accurate estimates of the LRMC of wastewater supply, preferably by supply catchment, can inform Hunter Water's expenditure planning, calculation of avoided costs associated with recycling schemes (and hence assessment of the viability of recycled water schemes), and calculation of wholesale prices to wholesale customers. As recognised by Frontier Economics, LRMC estimates can also provide important information and send signals to other potential participants in the market – such as other potential providers of recycled water services.[183] Further, if eventually reflected in retail wastewater prices, it may send important signals to customers – particularly, for example, larger non-residential customers who may have discretion in terms of where they locate, whether they discharge to the wastewater network and/or how much they discharge to the wastewater network.

We recognise that, under postage stamp pricing, there are currently limitations to the signalling benefits of wastewater usage prices. However, we still see merit in us, Hunter Water and the market more generally gaining a better understanding of its LRMC of wastewater supply, including how this varies by catchment and how it varies from the variable operating cost of supply.

We would like to gain a more detailed understanding of how customers' wastewater discharge drives capital costs in the wastewater supply network – including both in the transportation network and wastewater treatment plants. We consider that a robust LRMC estimate – whether utility wide or on a catchment by catchment basis – should be based on how increased discharge from customers affects capital expenditure on asset augmentation.

Through this review, we will seek to gain a better understanding of estimates of Hunter Water's variable operating cost and LRMC of supplying wastewater services, and assess Hunter Water's proposed usage charges in light of these estimates – while being mindful of other factors such as bill impacts and price stability.

183 Frontier Economics, Economic regulatory barriers to cost-effective water recycling – A report prepared for Infrastructure NSW, July 2018, pp 76-77, 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

IPART seeks comments on the following:

28 Is LRMC a more appropriate basis for setting wastewater usage prices than variable operating cost for Hunter Water?

29 To what extent does the direct discharge of wastewater from customers affect capital costs, and how should this be taken into account in estimating the LRMC and setting the wastewater usage charge?

30 Are Hunter Water's proposed wastewater usage charges reasonable?

7.5.4 Hunter Water's proposal for wastewater service charges

Hunter Water has proposed real price increases to it wastewater service charges of around 4.0% per year, based on an increase in expected wastewater expenditure. It maintains the increases are driven by network investments, higher operating costs and regulatory depreciation (see Chapter 3 for more detail on expenditure).[184]

Hunter Water proposes maintaining the current price structure, ie, a common residential discharge allowance of 120kL; a 75% residential wastewater discharge factor; and a continuation of the transition of apartment service charges to align with house service charges.

Hunter Water submitted that just over half of its customers preferred owners of houses and apartments to pay the same fixed charge. However, while customers in houses preferred maintaining the same transition rate, customers in apartments preferred a slower rate to align service charges for house and apartments.[185]

As Hunter Water has proposed maintaining its wastewater usage charge at current levels, in order to meet its increased wastewater revenue requirement it has proposed increasing wastewater service and connection charges for all customer types as shown in Table 7.7.

For residential customers:

- In houses, the total service charge would increase from $651.98 in 2019-20 to $777.22 in 2024-25, a cumulative increase of 19% in real terms
- In apartments, the total service charge would increase from $537.89 in 2019-20 to $738.35 in 2024-25, a cumulative increase of 37% in real terms.

For non-residential customers:

- With a 20mm meter connection, the connection charge would increase from $762.11 in 2019-20 to $941.89 in 2024-25, a cumulative increase of 24% in real terms.
- With meter connections of 25mm to 200mm, the connection charge would vary, although all customers would face a 24% cumulative increase over the regulatory period in real terms.

184 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 29.
185 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, pp 33-34.

Table 7.7 Hunter Water's proposed wastewater service and connection charges ($2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	Total change 2020-25
Residential service charge [a]							
Residential - houses	651.98	675.59	699.78	724.88	750.59	777.22	19%
Residential - apartments	537.89	574.25	612.31	652.40	694.29	738.35	37%
Non-residential connection charges [b]							
Non – residential - 20mm meter	762.11	796.79	830.64	867.31	903.18	941.89	24%
Non – residential - 25mm	1,190.79	1,244.98	1,297.87	1,355.17	1,411.22	1,471.70	24%
Non – residential - 50mm	4,763.16	4,979.91	5,191.49	5,420.67	5,644.87	5,886.81	24%
Non – residential - 80mm	12,193.67	12,748.58	13,290.21	13,876.92	14,450.87	15,070.22	24%
Non – residential - 100mm	19,052.62	19,919.65	20,765.95	21,682.68	22,579.48	23,547.22	24%
Non – residential - 200mm	76,210.46	79,679.60	83,063.81	86,730.74	90,317.91	94,188.88	24%

[a] Residential service charges shown here include the meter connection component and deemed usage component.

[b] Non-residential charges shown here include the meter connection component only. For the purpose of calculating the actual connection charge paid by non-residential customers, the connection charges shown here are to be multiplied by the customer-specific wastewater discharge factor.

Note: The meter connection sizes shown are a sub-set of all possible meter connection sizes. For a comprehensive list of meter connection sizes, see Hunter Water Proposal, 1 July 2019, Technical Paper 8, p 41.

Source: Hunter Water Pricing Proposal, 1 July 2019, pp 43, 45; IPART analysis.

7.5.5 IPART's response to Hunter Water's proposed wastewater service charge

As noted above, the current wastewater service charge includes a component to cover the variable costs of providing wastewater services. This is based on a deemed discharge volume of 120kL for each customer, representing about 75% of the water used by the average residential customer. Non-residential customers pay for usage in excess of the 120kL, which is either metered, or estimated based on water usage multiplied by a discharge factor.

In our recent review of prices for the Central Coast Council, we made some amendments to this structure, and seek your views on whether they would be appropriate for Hunter Water. There were two changes relevant to this review:

- **Different deemed discharge volume for apartments and houses**. Our data suggests that the average water usage for apartments serviced by Hunter Water is 115kL per annum, which is less than the current deemed wastewater discharge of 120kL. It could therefore be more cost reflective to include a lower deemed discharge, particularly for apartments – which would lower the overall service charge for apartments. (For Central Coast Council we found that the existing discharge allowance of 150kL for all residential customers was too high. We reduced the discharge allowance for houses to 125kL and apartments to 80kL).[186]
- **Removing the discharge allowance for non-residential customers.** This would mean non-residential customers face a meter connection service charge and a usage charge that is based on estimates of their actual wastewater discharges (which, in many cases, would be estimated by applying their discharge factors to their metered water consumption). This could simplify bills and be more cost reflective, especially in circumstances where non-residential customers discharge less than the 120kL deemed allowance annually, although we consider this would be rare. Hunter Water stated in its proposal that it would be interested to explore this further.

Hunter Water considers that differentiating charges on the basis of deemed usage volumes (see first dot point above) may cause confusion amongst customers, particularly as it questioned the materiality of the impact on customer behaviour. However, Hunter Water considers that removing the discharge allowance for non-residential customers (second dot point above) could be explored during this price review.

While our preliminary view is that Hunter Water's proposed wastewater service charges are appropriate as they are in line with previous decisions (ie, transitional arrangements and the discharge allowance), we will consider these service charges further, together with our view on efficient expenditure.

In this review, we will also evaluate the merits of removing the discharge factor applied to residential and non-residential wastewater service charges.[187] In doing so, we will consider a number of factors, including the potential price impacts on customers. We seek stakeholder views on this issue.

IPART seeks comments on the following:

31 Are the reasons for Hunter Water's proposed increases to service charges reasonable?

32 Is Hunter Water's proposal to not equalise the water service charge for apartments with houses until the next regulatory period (ie, the next determination period commencing 2025-26) reasonable?

33 Should there be a different deemed discharge for houses and apartments? What are the pros and cons of this? If so, what should the deemed discharge be, or what should we consider in calculating it?

34 Is there value in retaining the deemed discharge allowance for non-residential customers?

35 Should we remove the discharge factor applying to wastewater service charges?

186 IPART, Review of Central Coast council's water, sewerage and stormwater prices, Final Report, May 2019, p 102.

187 This is consistent with a recommendation made by Frontier Economics for Infrastructure NSW. See Frontier Economics, Economic regulatory barriers to cost-effective water recycling, July 2018, pp 74-78.

7.6 Environmental Improvement Charge

Since the 1980s, Hunter Water has provided wastewater services to townships without a reticulated wastewater service ('sewerage backlog areas'). Backlog schemes are funded through both an annual Environmental Improvement Charge (EIC) levied on all sewered properties as well as properties where there is a commitment to make wastewater services available, and the NSW Government's social program funding.

The EIC was originally set to run until 2009, but was extended to May 2017 to complete the Wyee backlog wastewater scheme which the NSW Government has committed $2.4 million directly to. An additional five projects in the Lower Hunter were funded by an extension of the EIC until 30 June 2019.

In 2016, we accepted Hunter Water's request to extend the EIC beyond its sunset date of 30 June 2019. The EIC was extended to 30 June 2020 to cover the costs of providing backlog services to Wyee.

7.6.1 Hunter Water's proposal on EIC

Hunter Water now proposes setting the EIC to zero from the beginning of the 2020 determination period as shown in Table 7.8. It also noted our recent approach, where the existing property owner is liable for Hunter Water's cost of building an extension of the wastewater network to the connecting property.[188]

Table 7.8 Hunter Water's proposal on Environmental Improvement Charge ($2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
EIC	41.20	0.00	0.00	0.00	0.00	0.00

Source: Hunter Water Proposal, 1 July 2019, Technical Paper 8, p 42.

7.6.2 IPART's response on the EIC

Our preliminary view is to accept Hunter Water's proposal to discontinue the EIC from the 2020 determination period.

7.7 Stormwater charges

Hunter Water provides some stormwater trunk drainage services, and charges those customers whose properties are in areas serviced by the stormwater channels it owns and operates. This is around 30% of its customers (about 71,000 customers) – 95% residential and 5% non-residential.[189] Most stormwater drainage services across the Hunter Water operating area are the responsibility of local councils and are funded through Council rates.

188 IPART, Maximum prices to connect, extend or upgrade a service for metropolitan water agencies, Final Report, October 2018.

189 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 42.

Hunter Water's current stormwater pricing structure 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 based on land area to reflect the relationship between land area and stormwater runoff. Where a property has a low run-off, such as farmland, it can be eligible for the low-impact rate, regardless of size.

7.7.1 Hunter Water's proposal on stormwater charges

Hunter Water intends to retain the current price structure for stormwater, but proposes real increases in service charges of around 5.8%[190] per year or around 33% over the determination period depending on property type. It submitted that the increases are to recover the costs of proposed increased investment in stormwater assets.

As seen in Table 7.9, this represents an increase from $29.61 to $39.28 ($2019-20) for apartments and from $80.01 to $106.14 ($2019-20) for houses.

Table 7.9 Hunter Water's proposed stormwater charges ($2019-20)

Property type	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	Total change
Residential							
Apartment	29.61	31.32	33.14	35.07	37.12	39.28	33%
House	80.01	84.63	89.56	94.77	100.29	106.14	33%
Non-residential							
Small or low impact	80.01	84.63	89.56	94.77	100.29	106.14	33%
Medium	261.31	276.39	292.49	309.53	327.56	346.64	33%
Large	1,661.94	1,757.86	1,860.27	1,968.63	2,083.29	2,204.61	33%
Very large	5,280.39	5,585.15	5,910.52	6,254.80	6,619.11	7,004.60	33%

Note: Non-residential charging categories are: Small (<1,000m^2) or low impact; Medium (1,001 to 10,000m^2); Large (10,001 to 45,000m^2; Very large (>45,0000m^2).

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 45 and IPART calculations.

7.7.2 IPART's response on stormwater charges

We note that current stormwater charges in 2019-20 are broadly consistent between Sydney Water and Hunter Water. However, they will diverge by the end of the next regulatory period as Sydney Water's proposed increases are less than Hunter Water's. Sydney Water has proposed an 8% increase in 2020-21 ($2019-20) and intends to keep prices constant in real terms over its 4- year determination period. On the other hand, we noted above that Hunter Water has proposed significant increases of around 33% real over its 5-year determination period.

190 Hunter Water Pricing Proposal, 1 July 2019, p x.

As discussed in Chapter 3, our consultants will review Hunter Water's proposed capital expenditure on stormwater assets and the efficient profile for this expenditure over the medium term. This will inform our decision on the appropriate level of stormwater prices for the 2020 Determination. We note that over the 2016 determination period, stormwater charges for residential customers and small non-residential customers increased by 3.7%, whilst charges for remaining non-residential customers increased by 87.3%.[191]

IPART seeks comments on the following:

36 Are Hunter Water's proposed stormwater charges reasonable?

191 IPART, Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, Final Report, June 2016, p 125.

8 Prices for other services

In this chapter, we look at Hunter Water's proposed pricing for other services such as trade waste, unfiltered water (also called raw water), unmetered properties, bulk water and miscellaneous services related to water, wastewater and stormwater supply.

Our approach to assessing Hunter Water's other prices will be similar to our assessment of prices for its major water services - ie, we will consider relevant pricing principles, customer preferences and impacts as well as the impact on price stability and revenue risk for the utility.

8.1 Trade waste charges

Trade waste charges are usually levied on industrial and commercial customers whose discharge to the wastewater system is more highly contaminated than regular domestic sewage. Hunter Water has approximately 2,300 sewered and 30 tankered[192] trade waste customers. Its trade waste charges for both sewered and tankered customers comprise:

- Fixed administration charges (eg, agreement and inspection fees)
- Volumetric charges (ie, dependent on the volume discharged) to reflect the additional costs of treating higher strength sewage (or wastewater).

Hunter Water has proposed changes to the structure and level of its trade waste charges, some of which are significant. The changes include: updating the cost-basis underpinning all charges; removing some charges (eg, some administration fees); and restructuring and increasing the level of other charges (eg, high strength pollutant charges).[193]

Under its proposal, Hunter Water's annual average trade waste revenue would be $2.98 million ($2019-20), compared to an annual average revenue of $2.26 million ($2019-20) over the 2016 determination period. We estimate Hunter Water's trade waste revenue will continue to comprise less than 1% of Hunter Water's total NRR.[194]

8.1.1 Hunter Water's administration charges for sewered trade waste customers

Agreement and inspection fees are fixed fees charged for managing trade waste customers. Table 8.1 shows Hunter Water's proposed changes to its agreement and inspection fees. Hunter Water submits that the changes to its agreement, administration and inspection fees were driven by consideration of the actual time spent managing various categories of customers.[195]

192 Tankered customers deliver effluent to the treatment plant by truck rather than by discharging into the wastewater network.
193 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, pp 5, 9-10.
194 Hunter Water Pricing Proposal, 1 July 2019, p 31.
195 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 7.

Table 8.1 Proposed changes to sewered trade waste agreement and inspection fees ($2019-20)

Charge	2019-20	2020-21 to 2024-25	Real price increase $ 2020-25	% change 2020-25
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

a New customers only

Note: Categories for agreement types comprise minor, moderate, major and tanker customers. Categories are allocated on the basis of the business type and risk profile of customers.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 8.

8.1.2 Hunter Water's high strength charges for sewered trade waste customers

Trade waste from non-residential customers has varying concentrations of contaminants, which are usually higher than domestic wastewater. Hunter Water has proposed significant changes to the structure and level of its high strength charges for trade waste customers. It engaged a consultant (GHD) to review its high strength charges. Hunter Water submits that its proposed changes reflect the current cost drivers of collecting, treating and disposing of this wastewater.[196]

Previously, high strength charges were based on the higher of the customer's Biochemical Oxygen Demand (BOD) or Total Suspended Solids (TSS) load in a combined BOD/TSS charge. Hunter Water now proposes applying high strength charges on the basis of separate loads (kg) of BOD and TSS discharge, lowering the threshold above which the charges apply and a range of other changes it considers more cost reflective.

196 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 5.

Table 8.2 provides a comparison of Hunter Water's current and proposed high strength charges at each of its 19 treatment plants.

Table 8.2 Hunter Water's proposed high strength charges ($2019-20 per kilogram) – moderate/major customers

Wastewater treatment plant	Combined BOD/TSS charge	BOD charges	TSS charges[d]
	2019-20[a]	2020-21 to 2024-25[b,c]	
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	0.25
Clarence Town	15.41	4.88	4.06
Dora Creek	2.14	1.94	0.19
Dungog	3.38	2.10	1.41
Edgeworth	1.42	1.05	0.36
Farley	1.39	1.45	0.36
Karuah	15.44	7.18	1.23
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	0.24

a These charges apply where the concentration strength is greater than 350mg/L for BOD/TSS.

b These charges apply where the concentration strength is greater than 240mg/L for BOD and 290mg/L for TSS.

c The bill impact will include both the BOD and TSS charge above the new thresholds for the 2020 determination period.

d As for note c. This reflects Hunter Water's finding that it is less costly to treat a unit of TSS than a unit of BOD.

Note 1: These charges apply only to moderate/major customers as 'minor 'customers 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 additional incentive charge for BOD/TSS (not shown here) will 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 12.

8.1.3 Hunter Water's proposed tankered trade wastewater charges

Tankered customers discharge wastewater directly at wastewater treatment plants, rather than into the wastewater distribution network. The source of this wastewater includes residential septic, effluent, portable toilet wastewater and commercial waste. There are currently 30 tankered customers at five wastewater treatment plants.[197]

197 Hunter Water Pricing Proposal, Technical Paper 9, p 15.

Hunter Water has proposed several changes to the way it charges tankered customers. They include:[198]

- Changes to and increases for some administration fees to reflect the actual time spent managing or dealing with customers (Table 8.3)
- Consolidation of volumetric charges to a uniform charge irrespective of the source of the wastewater or load of pollutants
- Discontinuation of heavy metal pollutant charges as they are not significant cost drivers.

Table 8.3 Tankered trade wastewater agreement and administrative fees ($2019-20)

Charge	2019-20	2020-21 to 2024-25	Real price change
Agreement fees			
Agreement establishment fee[a]	224.89	567.46	342.57
Agreement renewal/reissue fee	143.53	236.21	92.68
Variation to agreement fee	115.29	150.03	34.74
Annual agreement fee	-	750.30	750.30
Delivery processing fee (per delivery docket)	4.43	-	4.43
Administration fees			
Overtime costs for after-hours access to wastewater treatment plant (up to four hours)	-	440.00	440.00
Hourly rate for after-hours access that is required to extend beyond four hours	-	83.00	83.00

a New customers only.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 14.

8.1.4 Bill impacts from proposed trade waste charges

Table 8.4 provides an overview of the bill impacts of Hunter Water's proposed changes to trade waste charges. Bill impacts are outlined for typical customers, noting there is a wide range of circumstances faced by customers.

There will be significant bill increases for some customers, namely large licensed clubs (101% increase), large industrial firms with high strength trade waste (239% increase) and shopping centres with high strength trade waste (890% increase).

For other smaller customers, the impact is relatively low - eg, service stations and medium licensed hotels (3% increase) and shopping centres with low strength trade waste (4% increase).

198 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, pp 13 -15.

Table 8.4 Bill impacts of changes in trade waste charges - various customer groups ($2019-20)

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	119.79	123.58	3%
Shopping centre with low strength trade waste	24,452	875.70	1,115.88	4%
Fast food outlet	3,566	875.70	996.82	14%
Regional shopping centres	349,720	27,556	36,859	34%
Large licensed clubs	55,283	2,748	5,537	101%
Large industrial firm with high strength trade waste (13,000kL usage)[a]	48,456	4,514	15,291	239%
Shopping centres with high strength trade waste	33,729	875.70	8,666	890%

[a] Hunter Water analysed two configurations of 'Large industrial firm with high strength trade waste'. The one presented in Table 8.4 has the higher impact.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, pp 53-71.

8.1.5 IPART's response on trade waste charges

In principle, we support prices that are cost reflective. Hunter Water notes that its proposed changes to its administration fees better reflect the risk posed by each type of customer and its proposed changes to its high strength charges better reflect its costs of receiving and treating high strength discharges.[199]

We note that the customer impacts from these changes would be quite varied, with some industrial firms and shopping centres facing significant price increases.

We will assess Hunter Water's proposed trade waste and wastewater charges against our trade waste pricing principles (see Box 8.1). We will also compare these charges with other utilities to consider whether transitioning the changes over the determination period is warranted to ease bill shocks for some customers.

[199] Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 7.

Box 8.1 IPART's trade waste pricing principles

As part of our 2016 Determination we updated our trade waste pricing principles, in particular to clarify that charges should recover all efficient costs, including corporate costs. 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.

IPART seeks comments on the following:

37 Do Hunter Water's proposed changes to its trade waste charges comply with IPART's trade waste pricing principles and are they reasonable?

38 Should we transition towards Hunter Water's proposed trade waste charges over the regulatory period, to mitigate bill increases?

8.2 Raw water charges

Hunter Water currently supplies 69 customers north of Dungog with 'unfiltered water' at a discounted price.

Currently, these customers pay a service charge and a standard water usage price less an estimate of the avoided costs of the treatment process. The current charge for unfiltered water is $2.18/kL, compared to $2.39/kL for potable water.

Hunter Water proposes to discontinue 'unfiltered water charges' and replace these with 'raw water charges' to better reflect the characteristics of the service it provides – ie, a raw water service rather than a potable water supply.[200] It notes that the raw water differs significantly from the drinking water it supplies to other customers. It also indicates it is helping these customers to implement individual drinking water solutions at a cost of $3.1 million in operating expenditure, expected to occur by June 2020.

Hunter Water proposes to discontinue the existing service charge and levy a usage charge based on its 'bottom-up' estimates of its costs of supplying raw water. It proposes to calculate its raw water usage charge by dividing its raw water annual revenue requirement by its forecast volume of raw water sales.

200 Hunter Water Pricing Proposal, 1 July 2019, p 51 and Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 21.

Table 8.5 sets out Hunter Water's proposed raw water charges.

Table 8.5 Hunter Water's proposed raw water charge ($2019-20 per kL)

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Raw water charge	2.18	0.53	0.53	0.53	0.53	0.53

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 23.

8.2.1 IPART's response on raw water charges

Our preliminary position is to accept Hunter Water's proposed raw water prices, subject to reviewing how Hunter Water has estimated its raw water supply costs and consideration of any stakeholder views or comments on these prices. As previously mentioned, we favour prices that reflect the efficient costs of supply.

IPART seeks comments on the following:

39 Are Hunter Water's proposed raw water prices (in place of unfiltered water prices) reasonable?

8.3 Water prices for unmetered properties

Hunter Water has three commercial properties that are connected to water but do not have a water meter due to access problems. It currently charges these customers the residential service charge plus, in lieu of the meter, an assumed annual usage of 180kL.[201]

Hunter Water proposes maintaining the current methodology for unmetered properties, but updating prices to use the proposed service and usage prices for all other customers (Table 8.6). It notes that the methodology was based on that used for Sydney Water prices, where there are a number of residential properties unmetered.[202]

Table 8.6 Unmetered property water charge ($2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Proposed charge	530.18	534.22	537.73	541.61	545.2	549.04

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, 1 July 2019, p 24.

8.3.1 IPART's response on unmetered properties

We adopted this approach in the last two Determinations for Hunter Water's prices. We also adopted a similar approach for the recent reviews of Central Coast Council and Essential Water's prices in Broken Hill, albeit with a higher deemed usage.

However, the 180kL assumed usage is based on the average usage of Sydney Water residential (house) customers and may not be the best indicator of a commercial property's usage. There

201 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, 1 July 2019, p 24.
202 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, 1 July 2019, p 24.

may be a better proxy, to ensure the unmetered customers are charged as accurately as possible. We note that this is a minor issue impacting three customers.

IPART seeks comments on the following:

40 Is the assumed usage of 180kL for the unmetered commercial customers a reasonable reflection of what they might use? Is there an easily accessible better proxy?

8.4 Miscellaneous and ancillary charges

Miscellaneous and ancillary charges are for discrete monopoly services related to water, wastewater, stormwater and trade waste services. These are typically one-off activities used by a small number of customers. Broadly they cover:

- Development fees, for the administrative processes for new developments - eg, advice on servicing requirements and complex works design, review, and inspection.
- Customer service fees related to individual properties - eg, damaged meter replacement and provision of sewer location diagrams.

There are currently 55 such charges, representing around 1% of Hunter Water's total revenue.[203] In our 2016 review, we noted that Hunter Water's miscellaneous charges were higher than Sydney Water's for similar services. We suggested that we may engage an expert consultant to review these prices in the current review (last reviewed by our expert consultants in 2009).

Hunter Water reviewed its miscellaneous and ancillary charges, and proposed significant changes to price structures and levels, to reflect current service practices and to be cost-reflective. In summary, this includes discontinuing nine services; decreasing 31 and increasing six charges; and restructuring, replacing or amending 17 charges.[204]

Hunter Water has proposed two new miscellaneous charges:

- Application to connect to/disconnect from the water system - this is a revised charge that partly consolidates three charges to better reflect the current process of connection to and disconnection from the water system. The proposed charge is $176.
- Shutdown and charge-up for water connection/disconnection – this charge partly consolidates three previous charges to better reflect the current process of shutdown for connection/disconnection and subsequent charge-up. The proposed charge is $412.

Once the new prices are set in 2020-21, Hunter Water proposes to increase all charges annually by CPI through the regulatory period.[205] See Appendix F for a full list of Hunter Water's proposed changes to its miscellaneous and ancillary charges.

IPART seeks comments on the following:

41 Are Hunter Water's proposed miscellaneous and ancillary charges reasonable?

203 Hunter Water Pricing Proposal, 1 July 2019, p 31 and Technical Paper 9, pp 26–31.
204 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 26.
205 For the full list of miscellaneous charges see Hunter Water Proposal, Technical Paper 9, p 26-101.

8.5 Declined and dishonoured payment fees

Hunter Water charges declined and dishonoured payment fees when credit card and direct debit payments are declined, or banking authorities return cheques. While these fees are not considered monopoly services under the IPART Act, we have a standing order to review them (see Appendix B) and in 2016 we undertook a detailed review. This standing order also covers late payment fees, which Hunter Water does not levy.

Hunter Water proposes charging $27.85 for all declined and dishonoured payments. This is $2.30 less than the 2019-20 charge of $30.15, which reflects savings in labour costs.

IPART seeks comments on the following:

42 Is Hunter Water's proposed declined and dishonoured payment fee reasonable?

8.6 Bulk water transfers to the Central Coast Council

Hunter Water has a water trading arrangement with the Central Coast Council, under which either party can supply potable water to the other on request, subject to relative storage levels. This was developed as a drought resistance measure in 2006.[206] IPART determines the maximum price (or prices) at which the utilities sell the water to one another.

Hunter Water has assumed zero net transfers between it and the Central Coast council over the upcoming regulatory period because demand modelling assumes average climate conditions, and neither party would be in need of the transfers because of drought. Apart from drought response, the utilities transfer water in both directions for maintenance purposes, and they attempt to ensure net transfers are zero.

Concurrent with our recent 2019 determination of water and wastewater prices for the Central Coast Council, we made a 3-year Determination on the price that Hunter Water can charge the Central Coast Council for bulk water that it supplies (and vice-versa). We maintained the existing price in real terms ($0.70/kL) for both Hunter to Central Coast transfers and Central Coast to Hunter transfers, but also allowed the Central Coast Council and Hunter Water to enter into an unregulated pricing agreement.[207] The price we determined was based on the short run marginal cost (SRMC) estimate of the two utilities in 2013, escalated by inflation. Therefore, as a result of our recent determination, Hunter Water's bulk water transfer price to the Central Coast Council is excluded from this current review.

206 Prompted in response to the Millennium drought in the early 2000s when the Central Coast experienced a severe drought while the lower Hunter region had relatively full water storages due to significant rain.

207 Hunter Water was already in a position to enter into unregulated price agreements with certain customers.

9 Impacts of proposed prices

In this chapter, we examine the impacts of the prices proposed by Hunter Water on its customers and its financial performance.

To assess customer impact, we consider Hunter Water's proposed bill impacts for typical residential customers, and for a sample of non-residential customers. We may consider other methods of assessing impact as part of our draft report. All bill analysis is presented in nominal dollars – ie, including the impacts of forecast inflation.

In section 9.2, we outline Hunter Water's assessment of the impact of its proposed prices on its financial sustainability. We have established a financeability test to assess whether the proposed prices would enable it to raise finance consistent with an investment grade-rated firm over the regulatory period.

9.1 Customer bill impacts of proposed prices

Hunter Water provided information on the bill impacts of its proposed water, wastewater and stormwater prices for both residential and non-residential customer categories. The sections below outline the estimated bill impacts, inclusive of 2.5% annual inflation.

9.1.1 Residential customers

Hunter Water has presented the impact of its proposed prices on what it considers to be its typical customers.[208] Under Hunter Water's pricing proposal for the 2020 Determination:

- The typical annual residential bill (for a house including stormwater) would rise from $1,316 in 2019-20 to $1,635 in 2024-25, or $64 per year on average in nominal terms. This is an increase of 24% over the determination period or 4% per year.
- The typical annual residential apartment bill for a strata unit (with stormwater) would rise from $984 in 2019-20 to $1,316 in 2024-25 or around $66 per year on average in nominal terms. This is an increase of 34% over the determination period or 6% per year.
- The typical pensioner customer annual bill would rise from $752 in 2019-20 to $989 in 2024-25, or around $47 per year on average in nominal terms. This is an increase of 31% over the determination period or 6% per year.

The annual residential bills for typical customer households with and without stormwater charges are shown in Table 9.1.

208 Hunter Water's bill impacts analysis assumes water consumption of 185 kL per year for houses; 100 kL per year for pensioner households; and 115 kL per year for apartments.

Table 9.1 Bill impacts for typical residential customers ($nominal – ie, including inflation)

	2019-20	2024-25	Annual change		Change over determination period	
House - including stormwater	1,316	1,635	64	4%	319	24%
House - excluding stormwater	1,236	1,515	56	4%	279	23%
Pensioner household – including stormwater[a]	752	989	47	6%	237	31%
Pensioner household – excluding stormwater	672	868	39	5%	197	29%
Apartment – including stormwater	984	1,316	66	6%	332	34%
Apartment – excluding stormwater	955	1,272	63	6%	317	33%

a We have estimated bill impacts for a Pensioner household including stormwater as data was not presented in Hunter Water's proposal.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 46 and IPART calculations.

9.1.2 Non-residential customers

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.

Hunter Water does not propose changes to the structure of water, wastewater or stormwater prices for non-residential customers for the 2020 determination period. However, on average, Hunter Water's proposed prices would result in an annual nominal increase of between 4% and 8% for non-residential customers.

The annual bill impacts (in nominal terms) for a sample of non-residential customers is shown in Table 9.2.

Table 9.2 Bill impacts for a sample of non-residential customers ($nominal – ie, including inflation)

Non-residential property type	2019-20	2024-25	Annual change		Change over determination period	
Service station	2,173	2,636	92	4%	462	21%
Small shop – 20mm	1,109	1,380	54	4%	271	24%
Small shop – 25mm	1,972	2,491	104	5%	520	26%
Large licensed club	55,383	69,168	2,757	5%	13,784	25%
Medium licensed hotel	5,890	7,220	266	4%	1,330	23%
Regional shopping centre	349,720	416,694	13,395	4%	66,974	19%
Large office - Newcastle	20,930	24,983	810	4%	4,052	19%
Regional office – Maitland	6,554	8,048	299	4%	1,494	23%
Small industrial firm	1,190	1,494	61	5%	305	26%
Medium industrial firm with location based charge	316,217	380,744	12,905	4%	64,527	20%
Large industrial firm with location based charge and no sewer	394,378	546,229	30,370	7%	151,851	39%
Large industrial firm with location based charge and sewer	542,523	712,477	33,991	6%	169,953	31%
Small nursery low discharge factor	1,867	2,181	63	3%	314	17%
Large nursery low discharge factor	15,529	18,347	564	3%	2,819	18%
Fast food outlet	3,566	4,392	165	4%	826	23%
Shopping centre with low strength trade waste	24,453	30,741	1,258	5%	6,288	26%
Shopping centre with high strength trade waste	33,729	48,631	2,980	8%	14,902	44%
Large industrial firm with high strength trade waste	160,679	195,175	6,899	4%	34,496	21%
Large industrial firm with high strength trade waste	48,456	68,566	4,022	7%	20,110	42%

a These prices include trade waste charges where applicable.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 8, p 47.

9.2 Impact on Hunter Water's financial sustainability

Before we finalise our pricing decisions, we undertake a financeability test to assess how our price decisions are likely to affect the business' financial sustainability, and ability to raise funds to manage its activities, over the upcoming regulatory period. In 2018, we reviewed the financeability test we use as part of our price determination process.[209]

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.

9.2.1 Hunter Water's submission

Hunter Water assessed its financial sustainability using our 2018 financeability test. It calculated the three financial ratios based on its proposal and using a WACC of 4.1%. This indicated that it would meet the targets for real interest coverage ratio and for gearing, but would not achieve the FFO over debt metrics in each year of the period.

It also assessed its financeability using a WACC of 3.5% (its estimate of the future WACC when we finalise our Determination). With this lower WACC, its results for interest cover and gearing consistently satisfy the test, but its results for the FFO over debt ratios did not continuously meet the targets. These results are shown in Table 9.3 to Table 9.5.

Table 9.3 Hunter Water assessment of financeability – Interest cover

WACC	Test	2020-21	2021-22	2022-23	2023-24	2024-25
Current WACC 4.1%	Benchmark test - Real interest cover	3.2	3.3	3.3	3.5	3.6
	- Does it meet the target (>2.2)?	✓	✓	✓	✓	✓
	Actual test – Interest cover	2.2	2.2	2.2	2.2	2.3
	- Does it meet the target (>1.8)?	✓	✓	✓	✓	✓
WACC of 3.5%	Benchmark test - Real interest cover	3.9	3.9	3.9	3.9	3.9
	- Does it meet the target (>2.2)?	✓	✓	✓	✓	✓
	Actual test – Interest cover	2.3	2.3	2.3	2.3	2.2
	- Does it meet the target (>1.8)?	✓	✓	✓	✓	✓

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, pp 36, 38.

209 IPART, Review of our financeability test, November 2018.

Table 9.4 Hunter Water assessment of financeability – FFO over debt ratio

WACC	Test	2020-21	2021-22	2022-23	2023-24	2024-25
Current WACC 4.1%	Benchmark test - Real FFO over debt	6.7%	7.0%	7.2%	7.6%	8.0%
	- Does it meet the target (>7.0%)?	×	×	✓	✓	✓
	Actual test - FFO over debt	5.9%	6.1%	6.3%	6.6%	6.9%
	- Does it meet the target (>6.0%)?	×	✓	✓	✓	✓
WACC of 3.5%	Benchmark test - Real FFO over debt	7.0%	7.0%	6.9%	6.9%	6.9%
	- Does it meet the target (>7.0%)?	✓	×	×	×	×
	Actual test - FFO over debt	6.1%	6.1%	6.1%	6.2%	6.3%
	- Does it meet the target (>6.0%)?	✓	✓	✓	✓	✓

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, pp 36, 38.

Table 9.5 Hunter Water assessment of financeability – Gearing

WACC	Test	2020-21	2021-22	2022-23	2023-24	2024-25
Current WACC 4.1%	Benchmark test - Gearing	60%	60%	60%	60%	60%
	- Does it meet the target (<70%)?	✓	✓	✓	✓	✓
	Actual test - Gearing	54%	54%	54%	54%	54%
	- Does it meet the target (<70%)?	✓	✓	✓	✓	✓
WACC of 3.5%	Benchmark test - Gearing	60%	60%	60%	60%	60%
	- Does it meet the target (<70%)?	✓	✓	✓	✓	✓
	Actual test - Gearing	53%	53%	53%	53%	52%
	- Does it meet the target (<70%)?	✓	✓	✓	✓	✓

Source: Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, pp 36, 38.

9.2.2 IPART's response

In making our determination, we will have regard to the matters set out in section 15 of the IPART Act (see Appendix A). We will examine the impact of Hunter Water's proposed prices on customer bills.

When determining the prices for Hunter Water's services, we will assess the impact on its financeability by applying the methodology we developed in 2018. In our view, it is not critical to meet each of the targets in our financeability test, although if any target is not met, we will consider the impact on the business.

IPART seeks comments on the following:

43 What other methods for assessing whether the impacts of the proposed prices on customer bills are reasonable should IPART examine?

44 In addition to applying our financeability test, is there anything else we should consider when assessing the impact of the proposed prices on Hunter Water's financial sustainability?

10 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:

- Whether prices are directly or indirectly controlled
- How performance gains of the utility are incentivised
- How revenue and cost risks are shared between the utility and its customers.

In previous water price determinations, we have used the building block method to determine the revenue requirement (discussed in Chapter 2), and then set maximum prices (price caps) for each regulated service to recover this revenue. Hunter Water has not proposed significant changes to this approach. However, it has proposed a longer determination period than the 2016 Determination: five years as opposed to four. It has responded to the existing efficiency carryover mechanism (ECM) and the option of un-regulated pricing agreements established in the 2016 Determination. It is also considering a cost pass-through for additional costs related to drought management.

We discuss, in turn, Hunter Water's proposal and our preliminary views on:

- The length of the determination period
- Regulatory safeguards and incentive mechanisms, including a drought cost pass-through mechanism, the existing ECM, and unregulated pricing agreements.

Hunter Water has also provided some comments on IPART's approach to regulation, and on reviews we have undertaken during the determination period.

10.1 The determination length sets the time between our price reviews

We need to decide the length of the determination period. In general, the determination period can be between one and five years, depending on the circumstances and our assessment of a number of factors (see Box 10.1). We have typically favoured four years, finding that this struck an appropriate balance between providing stability for customers and the utility and incentives for efficiency gains for the regulated business, and limiting delays in customers benefitting from the efficiency gains.

Box 10.1 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.

10.1.1 Hunter Water proposed a 5-year determination period

Hunter Water proposes a 5-year determination period as it considers that the regulatory framework is sufficiently robust to manage the risks of a longer determination period to protect the business and its customers. A 5-year determination period would also facilitate comprehensive reviews of the broader framework without resourcing pressures.[210]

Hunter Water notes there are a number of mechanisms in place that reduce risks associated with a longer period, 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. Further, it considers the current sequencing of the operating licence review and the price review allows operating licence changes to be considered and incorporated into the next pricing proposal. It prefers that IPART's licence and price reviews do not become aligned. We typically review the licence every five years, with the next review due to begin in 2021.[211]

10.1.2 IPART's analysis and preliminary view

Our preliminary view is that a 5-year determination period is appropriate. During our review, we will consider the factors in Box 10.1 in weighing up the balance between a 4- and a 5-year determination period. We generally consider that longer determination periods have both advantages and disadvantages compared to shorter periods:

- **Advantages include** greater price stability and revenue predictability (which may lower a utility's business risk and assist investment decision making); strong incentives for a utility to achieve efficiency gains which are later passed on to customers; and reduced regulatory costs.
- **Disadvantages include** increased risk associated with using forecast data to set prices; possible delays in customers benefitting from any efficiency gains; and the risk that changes in the industry will impact the effectiveness of the Determination.

210 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, pp A4-A7.
211 Clause 15 (2) of the *Hunter Water Act* limits the term of a licence to five years.

A key factor in our decision will be the level of confidence that we have in expenditure forecasts in the later years, which can be a significant risk factor. We will also consider whether it is beneficial to align the Hunter Water price review with the Sydney Water price review, which we are undertaking concurrently. Sydney Water has proposed a 4-year determination period, which would leave it out of alignment with Hunter Water if we accept both proposals.[212]

IPART seeks comments on the following:

45 Is Hunter Water's proposed 5-year determination period appropriate?

10.2 Drought cost pass-through protects against uncontrollable drought-related costs

Cost pass-through mechanisms can allow uncertain and unknown costs that arise during the regulatory period to be passed through to customers within the regulatory period. This addresses the risk that actual costs may vary materially from forecast costs due to uncertain or uncontrollable events. For instance, we included cost pass-through mechanisms for Sydney Water to recover the extra costs of purchasing desalinated water from the Sydney Desalination Plant, and purchasing water transferred from Shoalhaven, both of which occur when dam levels fall.[213] Box 10.2 provides our view on when a cost pass-through might be appropriate.

In the lead up to this price review, we asked Hunter Water to propose a cost pass-through mechanism through which it could recover from customers additional costs associated with drought response measures.[214] We are unable to predict the onset or length of drought, and Hunter Water might need to employ additional operating or capital expenditure to maintain services in response to drought conditions. Hunter Water's proposed operating expenditure and capital expenditure assume 'average weather conditions'.[215]

212 Sydney Water, Keeping Sydney liveable, productive and thriving for a sustainable future Pricing proposal 2020-24, July 2019 Attachment 7, p 5.

213 IPART, Review of prices for Sydney Water Corporation Final Report, June 2016, pp 90-94.

214 We also considered including a cost pass-through mechanism in our 2016 Determination, but found the cost pass-through criteria was not met. Robust information about the efficient costs of the proposed drought response (temporary desalination plant) was not yet available. IPART, Review of prices for Hunter Water Corporation, June 2016, p 103.

215 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 7, p 12.

Box 10.2 Circumstances when cost pass-through mechanisms may apply

Cost pass-through mechanisms should only be applied in situations where:

- There is a trigger event (to activate the cost pass-through), which can be clearly defined and identified in the price determination.
- The resulting efficient cost associated with the trigger event can be fully assessed including whether there are other factors that fully or partially offset the direct cost of the event.
- The resulting cost is assessed to exceed a materiality threshold.
- The regulated business cannot influence the likelihood of the trigger event or the resulting cost.
- The mechanism is symmetric in that it applies equally to both cost increases and cost decreases (in cases where the risk can result in both cost increases and cost decreases).
- It is clear that the cost pass-through will result in prices that better reflect the efficient cost of service.

10.2.1 Hunter Water estimated its potential drought response costs

Hunter Water has estimated the additional expenses it might incur in a variety of scenarios where its dam levels fall below 70% or below 60%, depending on how long they remain at these levels (up to two years). It proposes a number of operating and capital responses, with total costs up to $26.7 million, depending on the scenario. This cost would be additional to Hunter Water's proposed 'business as usual' operating expenditure and capital expenditure.[216]

Hunter Water stated it is working on a possible drought cost pass-through mechanism that addresses and satisfies IPART's criteria, including details on triggers, specific costs, materiality and proposed cost recovery arrangements. We understand that Hunter Water may respond further in a submission to this Issues Paper.[217]

IPART seeks comments on the following:

46 Should we introduce a cost pass-through mechanism for Hunter Water's proposed drought response costs?

10.3 Efficiency carryover mechanism encourages implementation of permanent efficiencies

In 2016, we introduced an efficiency carryover mechanism (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 (see Appendix G for more information on how the ECM works). This aims to remove the incentive for a utility to delay efficiency

216 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, pp A14-A20.
217 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, p A20.

savings from the end of one determination period to the beginning of the next.[218] This was available for both Hunter Water and Sydney Water.[219] In the lead up to this review, we also asked both utilities whether the ECM should be extended to include capital expenditure.

10.3.1 Hunter Water did not propose using the ECM

Hunter Water does not propose to make a claim under the current ECM (ie, for the 2016 determination period), noting that its operating expenditure over the 2016 determination period exceeded IPART's allowance.[220] Further, it has not explicitly responded to whether the ECM should be broadened to include capital expenditure, but considers that we should set aside more time to consider the regulatory framework separate to pricing reviews (see more detail in section 10.5 below). It noted reservations about the effectiveness of the current ECM model because of its asymmetry, and the limit of the scope to operating expenditure but not capital expenditure.[221]

We also note that Sydney Water has not made a claim under the operating expenditure ECM (which is the same model as that for Hunter Water) and to date, we have not applied the mechanism in practice. Sydney Water does not propose an ECM for capital expenditure for the 2020 determination period, but recognises that having just an operating expenditure ECM may introduce a bias, which does not promote efficient trade-offs between operating expenditure and capital expenditure. It reiterates the key features of an appropriate capital expenditure efficiency mechanism that it initially proposed in 2016.[222]

10.3.2 IPART's preliminary view

Our preliminary position is to retain the existing operating expenditure ECM but not introduce a capital expenditure ECM at this time. In 2016, we considered Sydney Water's proposal to introduce a capital expenditure ECM, and we decided against it because of:[223]

- The risks of unintended consequences associated with strengthening capital expenditure incentives (such as to over-forecast and inefficiently defer capital expenditure)

218 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.

219 IPART, Review of prices for Hunter Water Corporation From 1 July 2016 to 30 June 2020 Final Report, June 2016, p13-14, and IPART, Review of prices for Sydney Water Corporation From 1 July 2016 to 30 June 2020 Final Report, June 2016, p16.

220 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, p A21.

221 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, p B12.

222 Sydney Water, Keeping Sydney liveable, productive and thriving for a sustainable future Pricing proposal 2020-24, July 2019, Attachment 7, p 5.

223 IPART, Review of prices for Sydney Water Corporation from 1 July 2016 to 30 June 2020 Final Report, June 2016, pp 268-269.

- 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.

We would like to further explore, together with stakeholders, how our future form of regulation could create efficiency incentives for capital expenditure, but this may be best undertaken in a process separate to this review.

IPART seeks comments on the following:

47 Should an efficiency carryover mechanism for capital expenditure, or other capital expenditure incentive mechanisms, be explored as part of this pricing review or in between pricing reviews?

48 What other efficiency incentive mechanisms should we consider?

10.4 Unregulated pricing agreements provide pricing flexibility

In 2016, we allowed Hunter Water to opt out of IPART's determined maximum prices and enter into separate unregulated pricing and service level arrangements (UPA) with large customers. We defined large customers as those with an annual water use of 7.3 ML or more (which, at the time, was limited to a maximum of 291 water customers). This was to encourage parties to seek mutually beneficial service arrangements to improve overall efficiency.[224]

The UPAs would have to be mutually negotiated and agreed, and Hunter Water would have to ring-fence the unregulated and regulated parts of its services to protect the long term interests of consumers. UPAs have been limited to large customers because they should have experience negotiating commercial agreements and there is a low risk they would enter into an agreement that they do not fully understand. In turn, this reduces the risk to Hunter Water and the regulatory regime. The framework would not allow the parties to opt back in to regulated prices for the term of the agreement.[225]

10.4.1 Hunter Water has not entered into an unregulated pricing agreement

Hunter Water has indicated that it has not entered into any UPAs in the 2016 determination period, but supports maintaining the mechanism in the 2020 determination period. At a high level, it considered the potential for UPAs but did not enter into any formal or informal negotiation processes with customers.[226] We allowed the same mechanism for Sydney Water, who states that a small number of customers expressed interest in UPAs but none have sought to enter into an agreement. It also supports retaining the option, noting that it is still relatively new and would benefit from a longer trial period.[227]

224 IPART, Review of prices for Hunter Water Corporation, June 2016, pp 24, 27.
225 IPART, Review of prices for Hunter Water Corporation, June 2016, pp 25-26, 28.
226 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, p A22.
227 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 7, p 8.

10.4.2 IPART's preliminary view

In principle, we support retaining this option. Allowing the option of UPAs should encourage parties to innovate and to seek mutually beneficial service arrangements to improve overall efficiency, and there is a low risk to customers or the utility from including the option in the Determination.

Further, Hunter Water has indicated an intention to seek such an agreement with the Central Coast Council.

IPART seeks comments on the following:

49 Do you support maintaining the unregulated pricing agreement framework?

50 What barriers are preventing the uptake of unregulated pricing agreements? Can the framework be changed to encourage greater uptake without disadvantaging other customers?

10.5 Approach to price regulation

As noted above, Hunter Water has proposed a 5-year determination period. In support of this, it suggested that the recent four-yearly cycle of determination periods does not allow sufficient time or opportunity for stakeholders to engage on regulatory updates or improve the regulatory model.[228]

Hunter Water suggests an extended period within the determination period (around 2 years) for IPART to engage with stakeholders and consumers and review the regulatory framework, with a view to setting a framework before utilities begin to prepare their submissions for the following price review.[229]

Hunter Water noted that IPART has undertaken reviews (eg, the WACC methodology) in **between** price reviews, and also implemented incremental changes to the regulatory framework **during** the price review. Hunter Water suggests reviewing the regulatory framework separately to the periodic price reviews would allow stakeholders to allocate more resources and time to it; enable them to propose more "far-reaching reform options" for consideration without the time pressures of a price review; and would reduce the burden of the periodic price review.[230]

Whilst it considers that IPART's regulatory framework is relatively sound, it proposed there may be merit in investigating practices undertaken in other jurisdictions regarding the weight given to customer and community engagement; linking performance standards and prices; driving costs and service improvements; tariff structures; and looking at the cost-effectiveness of environmental regulation.

228 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, pp B3-B5.
229 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, pp B2-B3.
230 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 3, pp B7-B27.

10.5.1 IPART's response

As noted earlier, we consider there is merit in a 5-year determination period for a range of reasons. We are always open to considering improvements to the regulatory framework and addressing emerging issues in the water industry. Box 2.2 in Chapter 2 lists a range of recent reviews we have undertaken to enhance elements of our regulatory approach.

We see merit in Hunter Water's proposal to undertake a comprehensive review of our regulatory framework separate to the price review and will consider this further, including the best time to undertake such a review given the scheduled price and licence reviews of other utilities we regulate.

IPART seeks comments on the following:

51 What should a review of our regulatory framework look at or focus on? When is the best time to conduct such a review?

11 Recycled water funding and 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 previous reviews, we have deferred setting a maximum price for recycled water and related services. Instead, we provided guidelines for utilities to set their prices, stipulating that the recycled water price for mandatory recycled water schemes should be no greater than the potable water usage price.

In July 2019, we finalised a review of the pricing of recycled water schemes, which resulted in changes to the way we will regulate prices for these schemes.[231] Our regulatory approach aims to support efficient investment in recycled water, including where it provides broader benefits to customers, while also protecting customers from the monopoly power of the public water utilities.

Where recycled water is the least-cost approach to supplying water, wastewater or stormwater services, it will be funded through developer charges (where they apply) and periodic charges to the broader customer base. We have also improved our approach to accommodate the costs of recycled water where it is not the least-cost solution, but provides other benefits. Notably, our regulatory approach recognises that recycled water schemes can meet multiple objectives within an integrated urban water system beyond water supply, such as increasing liveability and improving environmental outcomes.

We have taken a proportionate approach to the regulatory oversight of prices for recycled water and related services. We will monitor prices for mandatory services as part of our periodic price reviews (such as this one). For all recycled water services, we will only step in and determine maximum prices when there is a need to do so. We have designed our pricing arrangements to be flexible and administratively simple to implement.

We summarise the key elements of our Final Report on recycled water prices in section 11.1 and how we will apply this framework in this review of Hunter Water's prices.

Section 11.2 provides a summary Hunter Water's proposal, and section 11.3 presents our analysis, preliminary position, and questions.

11.1 Overview of our recycled water framework

Our recycled water framework provides a process to determine two main questions:

1. Who pays for recycled water scheme costs, and
2. What price should be charged to the recycled water customers?

231 IPART, Review of pricing arrangements for recycled water and related services, 1 July 2019.

Table 11.1 provides a summary of our approach to regulating recycled water schemes, and the sections below provide further explanation.

Table 11.1 Summary of our approach to regulating recycled water schemes

Scheme type	Costs	Pricing
Least-cost	Costs can be funded through ordinary customer periodic charges and developer charges for water, wastewater and stormwater services.	We encourage unregulated pricing agreements between Hunter Water and the recycled water customer.
Higher-cost	1. Avoided and deferred water, wastewater or stormwater costs to be recovered from the general customer base. 2. External benefits to be recovered from the general customer base where there is evidence of customer willingness to pay. Different beneficiaries to pay up to the benefits they receive. 3. Remaining costs to be ring-fenced and recovered from relevant recycled water customers.	▼ *Voluntary*: we encourage unregulated pricing agreements and will set maximum prices if requested. ▼ *Mandatory*: we will monitor prices, and if we deem that a public water utility's pricing approach is inconsistent with our pricing principles (Box 11.1), we will set a scheme-specific price during the course of a broader price review.

11.1.1 Who pays for a recycled water scheme? Is it least-cost or higher-cost?

The first step is to assess whether a recycled water system is a least-cost servicing solution or a higher-cost servicing system, as different methodologies apply to each circumstance.

A 'least-cost' scheme is one which provides the most efficient way of disposing of wastewater or providing water services compared to alternative methods (for instance, treating wastewater and discharging it into a natural waterway). Where the scheme is the most efficient way of providing water and/or wastewater services, it is taken to be a part of the water and/or wastewater network. Therefore, it can be funded through regular water and/or wastewater developer charges[232] or prices charged to the broader customer base.

However, where the scheme is not the most efficient way of providing the water or wastewater service (ie, 'higher-cost'), it cannot be fully funded from the regular customer base, as we only allow efficient expenditure to be recovered.

For a 'higher-cost' scheme, the utility should seek funding from a number of sources in the following order:

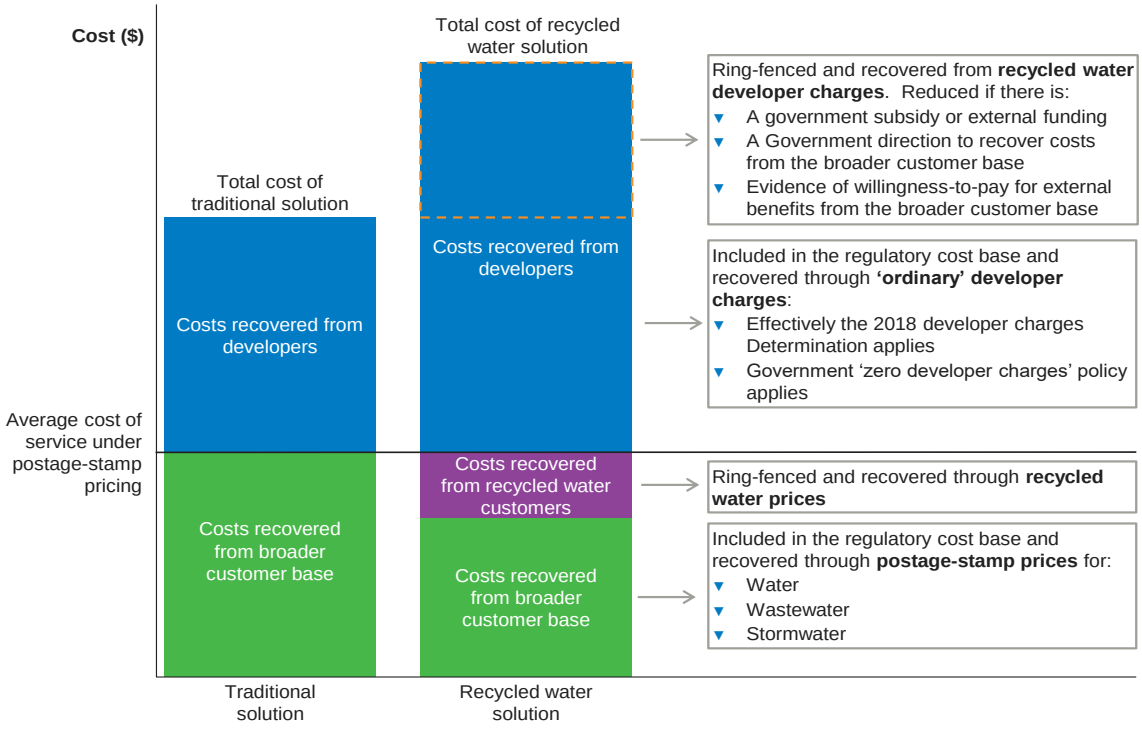
1. The broader water, wastewater and/or stormwater customer base, for any:
   a) Avoided water, wastewater and stormwater costs
   b) External benefits that are specific to the scheme in question, where there is evidence that the broader customer base's willingness to pay has been demonstrated
   c) Requirements to recover costs from the broader customer base, as specified under a Government direction.

232 Where such developer charges are in place. Currently, Hunter Water's water and wastewater developer charges are set to zero, following a Government decision in 2008.

2. The remaining costs of the recycled water scheme are to be ring-fenced, and recovered from:
   a) External funding sources, including any direct Government subsidies and third party contributions
   b) Recycled water customer charges, then
   c) Recycled water developer charges (in accordance with our Determination[233]).

Figure 11.1 below shows how the costs of a higher-cost scheme are to be recovered, compared to how the costs of a traditional (least-cost) service is recovered.

Figure 11.1 Funding framework for higher-cost recycled water schemes



Source: IPART, Review of pricing arrangements for recycled water and related services, 1 July 2019, p 25.

This funding framework allows for costs of a higher-cost scheme to be recovered from a broad range of beneficiaries. Importantly, beneficiaries should not contribute more than the benefits they each receive from the provision of recycled water.[234]

11.1.2 What price should be charged to the recycled water customers?

We will only step in and determine maximum prices for recycled water services when there is a need to do so. Sufficient protection is still afforded to customers through the pricing principles we have established as part of our recent recycled water review and the credible

233 In the review of recycled water prices, we also made a Determination on the methodology to fix the maximum prices for connecting new developments to a recycled water scheme: IPART, Maximum prices for connecting to a recycled water system – Sydney Water, Hunter Water and Central Coast Council – Final Determination, July 2019.

234 IPART, Review of pricing arrangements for recycled water and related services, 1 July 2019, p 24.

threat of regulatory intervention by IPART under a scheme-specific price review. We provide pricing principles to guide the utilities in setting prices for recycled water customers (Box 11.1).

We take a light-handed approach to regulation:

- For least-cost schemes, we encourage the utility to enter an unregulated pricing agreement with recycled water customers.
- For higher-cost schemes, we consider whether or not customers have 'effective choice' to opt out of the scheme, and distinguish them as either 'mandatory' – with no effective choice; or 'voluntary' – where there is effective choice. For mandatory schemes, we review the proposed prices during our periodic price reviews for consistency with the pricing principles, and can set a price if we consider the utility's price does not meet our principles. For voluntary schemes, we encourage the utility to enter an unregulated pricing agreement with recycled water customers – but, in the event that the parties are unable to reach an agreement, we would step in when warranted and set prices under a scheme-specific review.

Box 11.1 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 and 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.

Source: IPART, *Review of pricing arrangements for recycled water and related services Final Report*, July 2019, p 68.

11.1.3 Applying our framework

Our framework applies from 1 July 2019 and we will consider this during our current review. Where we have previously assessed recycled water schemes as either least- or higher-cost, we do not intend to revisit these decisions.

11.2 Hunter Water's proposal

Hunter Water has 18 existing recycled water schemes, supplying about 3,500 ML of recycled water each year.[235] The majority (16) of these supply water to non-residential customers, mostly golf courses as well as some farms.[236]

Hunter Water has also proposed a new recycled water project to be funded as 'discretionary expenditure' (see Chapter 5 for further discussion on 'discretionary expenditure'). This project involves using recycled water to irrigate parks and sports fields. Regardless of whether this proposed expenditure is assessed under our 'discretionary expenditure' or recycled water framework, Hunter Water proposes that this be funded by the broader customer base on the basis that customers are willing to pay for this project.

11.2.1 Existing recycled water schemes

Table 11.2 shows Hunter Water's list of its existing recycled water schemes.

Hunter Water identified four of its existing recycled water schemes as higher-cost systems; and classified two of these as voluntary (Kurri Kurri TAFE and Vintage Golf Course) and two as mandatory (Gillieston Heights and Chisholm).[237] The Gillieston Heights and Chisholm schemes service residential customers.

Hunter Water proposed that its least–cost schemes remain funded by the broader wastewater customer base (as these schemes are the lowest cost means of providing wastewater services – ie, of collecting, treating and disposing of wastewater). Hunter Water has ring-fenced the higher-cost schemes, meaning it keeps the associated costs and revenues separate from Hunter Water's other services. Income from the individual customers is allocated to a specific scheme. It does not identify any avoided costs from these schemes.[238]

235 Hunter Water Pricing Proposal, 1 July 2019, AIR/SIR, 'RW Mand-Vol TOTAL' row 85 and 'RW 16A TOTAL' row 85.
236 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 16.
237 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 18.
238 Hunter Water Pricing Proposal, 1 July 2019, AIR/SIR, 'RW Voluntary 1', row 275; and 'RW Voluntary 6', row 275.

Table 11.2 Hunter Water's recycled water schemes

Least-cost	Higher-cost	
	Mandatory	Voluntary
▼ Branxton Golf Course ▼ Clarence Town Irrigation Scheme ▼ Eraring Power Station ▼ Local farms, supplied from Dungog WWTP, Morpeth WWTP and Farley WWTP ▼ Karuah Irrigation Scheme ▼ Paxton woodlot ▼ Cessnock Golf Course ▼ Easts Golf Course ▼ Waratah Golf Course ▼ Kurri Kurri Golf Course ▼ Waratah Golf Club ▼ Water Utilities Australia (supplied from Shortland WWTP for use in the Kooragang Industrial Water Scheme) ▼ Onsite recycling at WWTP for use by Hunter Water ▼ Indirect agricultural reuse	▼ Gillieston Heights ▼ Chisholm	▼ Kurri Kurri TAFE ▼ Vintage Golf Course

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 18.

The Gillieston Heights and Chisholm schemes were commissioned in 2018-19[239] and will supply around 1,170 residential properties[240].

Hunter Water has recovered the costs of these schemes through a combination of sources:

- Recycled water prices (see Table 11.3)
- Recycled water developer charges - however, revenue has been less than expected because of lower than anticipated uptake, and in 2015 the NSW Treasurer gave approval for these developer charges to remain at 2012-13 levels rather than allow them to increase to recover costs[241]
- Government funding in the form of reduced dividends to Hunter Water's shareholder (the NSW Government), as a result of the decision to cap the recycled water developer charges for these schemes at 2012-13 levels.

For these schemes, Hunter Water has not identified any material cost offsets (avoided costs or external benefits) that it proposes to recover from its broader customer base.[242]

239 Customers have been paying a recycled water price prior to this. Hunter Water informed us it provided potable water through the recycled water reticulation system at the reduced recycled water prices, to encourage appropriate behaviour and safeguard against inappropriate use from taps that would eventually provide recycled water. We found this appropriate in our 2016 review. IPART, Review of prices for Hunter Water Corporation from 1 July 2016 to 30 June 2020, June 2016, p 148.

240 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 19.

241 Hunter Water received Ministerial approval set recycled water developer charges at 2012-13 levels plus inflation. It has received all anticipated developer charges revenue. Correspondence with HWC (email), 26 July 2019.

242 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 9, p 19-22.

Table 11.3 Hunter Water's proposed recycled water prices for Gillieston Heights and Chisholm ($2019-20)

	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Usage charge ($/kL)	2.08	2.17	2.20	2.21	2.24	2.26
Annual service charge ($)	23.13	0	0	0	0	0

Source: Hunter Water AIR, RW Mandated 1, rows 108-109.

For the 2020 determination period, Hunter Water's proposed usage prices for the Gillieston Heights and Chisholm schemes are 90% of its proposed (potable) water usage price, and Hunter Water proposes no service charge as in some cases this may increase prices above those of potable water only use, which would conflict with our pricing principle that a fixed service charge "should not act as a material incentive for customers to disconnect from the recycled water scheme."

11.2.2 Proposed recycled water schemes

Hunter Water's pricing proposal includes capital expenditure of $11.5 million for recycled water projects to be recovered from its broader customer base, on the basis that its broader customer base is willing to pay for these projects. This is based on its findings that 77% of its customers surveyed indicated they were willing to pay an extra $1.00 to $2.50 per year for wastewater to be recycled to irrigate parks and sports fields.[243] Hunter Water's proposal would add about $2.00 per household to customers' annual bills.

11.3 Our preliminary view

Existing recycled water schemes

In previous price reviews we have assessed whether the existing schemes are least-cost or higher-cost. We do not intend to revisit these assessments.

For the mandatory schemes (Gillieston Heights and Chisholm), we will review Hunter Water's proposed prices against our established principles for the pricing of mandatory recycled water services (Box 11.1).[244] However, our preliminary view is that Hunter Water's proposed recycled water prices for these schemes for the 2020 determination period align with these principles.

For Hunter Water's least-cost recycled water schemes, it proposes to share the revenue from recycled water prices on a 50/50 basis with the broader customer base. This aligns with our general approach to non-regulated revenue, however, in our revised recycled water framework,[245] we allow utilities to retain all the recycled water revenue from 'least-cost' schemes, in lieu of lost potable water revenue. This is worth $0.1 million annually to Hunter Water.

243 Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 1, p 19.
244 We also developed principles for developer charges for recycled water services, however, Hunter Water has not proposed new developer charges for the next price determination.
245 IPART, Review of pricing arrangements for recycled water and related services, 1 July 2019, p 6.

Proposed recycled water schemes

As outlined in Chapter 5, Hunter Water has sought to recover $11.5 million from the broader customer base for recycled water projects to irrigate parks and sports fields on the basis of its broader customer base's willingness to pay for these projects.

We note that under our 2019 recycled water pricing framework, there would be a case to recover this $11.5 million (or the relevant portion of it) from the broader customer base if there is sufficient evidence or information to answer 'yes' to any of the following questions:

- Would the recycled water projects represent the least-cost means of supplying water and/or wastewater services?
- Would the recycled water projects result in avoided or deferred water and/or wastewater costs to Hunter Water?
- Is the broader customer base willing to pay for the external benefits of these recycled water projects?

We will explore the first and second questions further with Hunter Water and our expenditure consultant, and for the third question we will consider evidence of willingness to pay submitted by Hunter Water.

IPART seeks comments on the following:

52 Are Hunter Water's proposed prices for its *mandatory* recycled water schemes (Gillieston Heights and Chisholm) consistent with our recycled water pricing principles?

53 Is there sufficient customer willingness to pay for Hunter Water's proposed new recycled water projects?

Appendices

A Matters to be considered by the Tribunal under section 15 of the IPART Act

In making determinations, IPART is required, under section 15 of the IPART Act, to have regard to the following matters (in addition to any other matters IPART considers relevant):

a) the cost of providing the services concerned

b) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services

c) the appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales

d) the effect on general price inflation over the medium-term

e) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers

f) the need to maintain ecologically sustainable development (within the meaning of section 6 of the *Protection of the Environment Administration Act 1991*) by appropriate pricing policies that take account of all the feasible options available to protect the environment

g) the impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets

h) the impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body

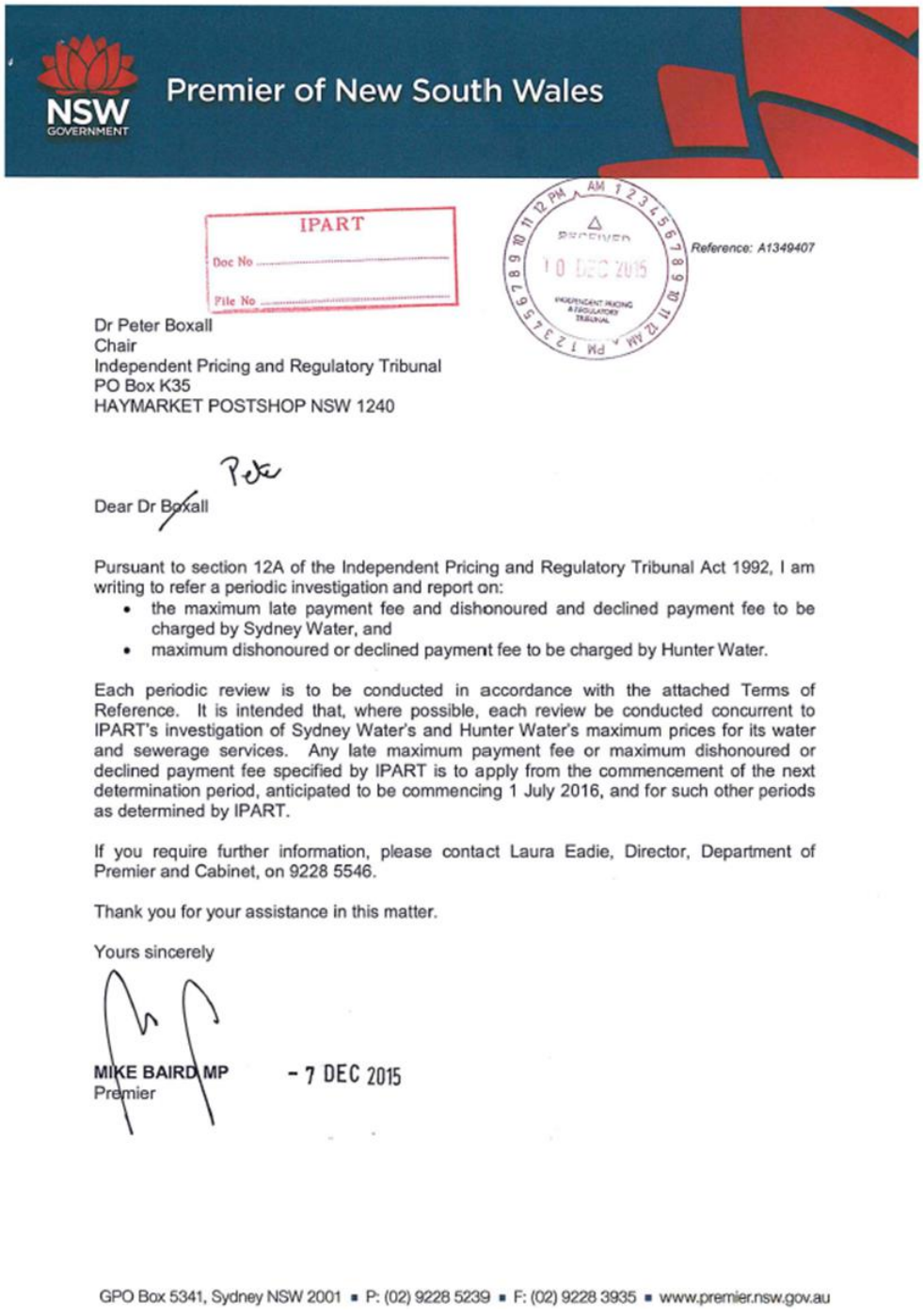
i) the need to promote competition in the supply of the services concerned

j) considerations of demand management (including levels of demand) and least cost planning

k) the social impact of the determinations and recommendations

l) standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

B Terms of reference for late payment, dishonoured or declined payment fees



Premier of New South Wales

NSW GOVERNMENT

IPART
Doc No
File No

RECEIVED 10 DEC 2015 INDEPENDENT PRICING & REGULATORY TRIBUNAL

Reference: A1349407

Dr Peter Boxall
Chair
Independent Pricing and Regulatory Tribunal
PO Box K35
HAYMARKET POSTSHOP NSW 1240

Pete

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.

C Treasurer's letter under section 18(2) of the IPART Act setting zero developer charges

NEW SOUTH WALES

TREASURER

Mr Kevin Young
Managing Director
Hunter Water Corporation
36 Honeysuckle Drive
NEWCASTLE NSW 2300

Contact M White
Telephone: (02) 9228 4266

18 DEC 2008

Dear Mr Young

I am writing in regard to the Government's decision to abolish immediately Sydney Water and Hunter Water's developer charges for water, wastewater and stormwater services.

This decision results in developer charges lower than would be charged under the current methodology determined by the Independent Pricing and Regulatory Tribunal. Such an outcome requires the Treasurer's approval under Section 18(2) of the *Independent Pricing and Regulatory Tribunal Act 1992*.

Consistent with the Government's developer charge policy, I approve zero developer charges for water, wastewater and storm water services under Section 18(2) of the *Independent Pricing and Regulatory Tribunal Act 1992*.

I note that developer charges will continue to be used to recover the cost of recycled water services to new developments. In addition, Sydney Water will retain the ability to recover from developers the cost of servicing development that is not consistent with planning policies or NSW's development program.

Yours sincerely

THE HON DAVID CAMPBELL MP
Acting Treasurer

Level 36, Governor Macquarie Tower, 1 Farrer Place, Sydney NSW 2000
Tel: (02) 9228 3535 Fax: (02) 9228 4469

D Hunter Water's RAB disaggregation

The following table presents the way in which Hunter Water disaggregated its RAB into more categories (read more in Chapter 4, section 4.2).

Table D.1 Hunter Water's disaggregation of its RAB

Asset class	Water	Wastewater	Stormwater	Corporate
Civil	▼ Dams ▼ Water Pipelines / Watermains ▼ Weirs ▼ WTW - Civil ▼ Reservoir ▼ Reservoir Roof ▼ Dam Spillway ▼ Canal ▼ Tunnel ▼ Water Tank Structure ▼ Waterway Structure WPS (pipe work, pavements, thrust blocks, roadworks, civil works) ▼ Sandbed ▼ Borehole ▼ Roads ▼ Civil upgrades ▼ Concrete structures ▼ Discharge Channels	▼ Sewer mains – Gravity, Rising overflow ▼ Tunnel/Outfall ▼ UV disinfection sys Civil ▼ WWTW Inlet works upgrade, overflow chamber ▼ Pumping Station (civil) ▼ Wet Well conversion ▼ Treatment Works ▼ Manholes ▼ Roads ▼ Fencing ▼ Buildings ▼ Landscaping ▼ Aeration tanks	▼ Trapezoidal Channel ▼ Culvert drains ▼ Bridge Section ▼ Pipe Drain ▼ Rectangular Channel ▼ Detention Basin ▼ Canal/Channel ▼ Access Roads ▼ Fencing	▼ Depots/Stores/Workshops ▼ Roads/parking areas ▼ Amenities ▼ Fencing ▼ Residences/Cottages ▼ Storage Shed ▼ Security Fencing ▼ Offices

Asset class	Water	Wastewater	Stormwater	Corporate
Electrical / mechanical	▼ HV Network – cable upgrade ▼ WPS Screens, elect, transformers, high voltage, switchrooms, PAC dosing, pump ▼ Power Distribution ▼ Water Treatment Works ▼ Flow Meters ▼ Water Chlorinators ▼ Transformers ▼ Cabling ▼ Fluoride System	▼ WWTW – Membrane Filter System ▼ Sludge Digesters ▼ Electrical Supply ▼ Switchroom ▼ UV disinfection System ▼ Sewer Pumping Station ▼ Power Distribution ▼ Sewer Vent Stack ▼ Odour control sys ▼ HV Sys & Transformers ▼ Inlet works mechanical ▼ Bioreactor ▼ ABF Tower media	▼ Flood warning alarm	▼ Electrical Switchboards ▼ Security Sys & upgrades ▼ CCTV Network ▼ Fire Systems
Equipment	▼ Water Meters (pre 2009) ▼ Condition Assessments ▼ Minor Capital ▼ Telemetry ▼ SCADA	▼ Telemetry ▼ Control Instrumentation ▼ SCADA Network ▼ General Equipment ▼ Condition assessments	▼ Condition Assessments ▼ Trash Boom	▼ Water Meters (post 2009) ▼ Metered Standpipes ▼ Radio/Phone/Telemetry ▼ ICT Hardware, Server ▼ Desktop infrastructure ▼ Radio Base ▼ Plant Equipment Office Equipment ▼ Trailer/Misc. Plant
Intangibles	▼ N/A	▼ N/A	▼ N/A	▼ Info Resources / IQMS ▼ ICT Software ▼ Intellectual Property
Non-depreciating	▼ Land ▼ Easements (pre 2009)	▼ Sewer Cavity ▼ Land ▼ Easements (pre 2009)	▼ Land ▼ Easements (pre 2009)	▼ Easements (post 2009) ▼ Land

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 6, Table 5.1, p 22.

E Output measures

We set output measures for the water agencies we regulate to determine whether they are delivering on their planned capital expenditure. This is important because we set prices to enable them to recover the forecast costs of those plans. This appendix presents:

- Hunter Water's performance against output measures, as reported for the 1 July 2016 - 30 June 2020 period (shown in Table E.1).
- Hunter Water's proposed output measures for the 5-year 2020 determination period (shown in Table E.2).

Table E.1 Activity against output measures 2016-17 to 2019-20

Output or activity measure	Target	Output expected by end June 2020
Water services		
Renewal/reliability of distribution mains	20 km	22 km
Trunk mains undergoing condition assessment	12 km	54.1 km
Critical trunk main replacement	3 km	15.4 km
Wastewater services		
Renew non-critical mains	36 km	44.1 km
Critical sewer mains undergoing condition assessment	55 km	83 km
Renewal/refurbishment of critical sewerage mains	1.5 km	3.1 km
Mechanical and electrical assets		
Telemetry upgrades (water and wastewater)	250 sites	356 sites
Switchboards replaced	40 sites	36 sites
Replacement or refurbishment of pumps	430 pumps	571 pumps
Stormwater drainage		
Stormwater drainage channel rehabilitations	0.7 km	1.37 km
Corporate		
Replace 20mm customer meters	67,000 meters	62,021 meters

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, Table 4.7, pp 25-26.

Table E.2 Proposed output measures

Output or activity measure	Target in 2016 Determination for four years (2016-17 to 2019-20)	Proposed target in 2020 Determination for five years (2020-21 to 2024-25)
Water services		
Renewal/reliability of distribution mains	20 km	36 km
Trunk mains undergoing condition assessment	12 km	130 km
Critical trunk main replacement	3 km	28 km
Wastewater services		
Renew non-critical mains	36 km	65 km
Critical sewer mains undergoing condition assessment	55 km	95 km
Renewal/refurbishment of critical sewerage mains	1.5 km	5.8 km[a]
Mechanical and electrical assets		
Telemetry upgrades (water and wastewater)	250 sites	27 sites
Switchboards replaced	40 sites	31 sites
Replacement or refurbishment of pumps	430 pumps	550 pumps
Stormwater drainage		
Stormwater drainage channel rehabilitations	0.7 km	3.4 km
Corporate		
Replace 20mm customer meters	67,000 meters	63,738 meters

a Hunter Water notified us of a typographical error it found in its proposal, and submitted its proposed target for 'Renewal/refurbishment of critical sewerage mains' should be 5.8km.

Source: Hunter Water Pricing Proposal, 1 July 2019, Technical Paper 4, Table 5.7, p 52, and email from Hunter Water, 9 August 2019.

F Hunter Water's proposed miscellaneous and ancillary charges

Table F.1 Hunter Water's proposed changes to miscellaneous charges ($2019-20)

Service no.	Function	2019-20	2024-25	Changes in prices 2020-25
1	Conveyancing certificate			
(a)	Over the counter	40.00	14.75	-63%
(b)	Electronic	15.15	10.50	-31%
2	Property sewerage diagram - up to and including A4 size (where available)	25.95	13.40	-48%
3	Service location diagram			
(a)	Over the counter	28.80	10.75	-63%
(b)	Electronic	17.85	8.70	-51%
4	Meter reading - special reads and by appointment			
(a)	During business hours	28.65		-100%
(b)	Outside business hours	116.00		-100%
5	Billing record search statement			
(a)	Individual property	70.85		-100%
(b)	Multiple properties	102.00		-100%
6	Building over or adjacent to sewer advice	86.10	62.65	-27%
7	Water restriction and reconnection after restriction			
(a)	Restriction	78.15	55.15	-29%
(b)	Water reconnection after restriction - during business hours	115.00	61.45	-47%
(c)	Water reconnection after restriction - outside business hours	136.00	97.95	-28%
8	Workshop flow rate test of meter			
(a)	Without strip test			
	20-25mm	219.00		-100%
	32mm	268.00		-100%
	40mm	271.00		-100%
	50mm light	396.00		-100%
	50mm heavy	396.00		-100%
	65mm	396.00		-100%
	80mm	526.00		-100%
	100mm	611.00		-100%
	150mm	725.00		-100%
(b)	With strip test			

Service no.	Function	2019-20	2024-25	Changes in prices 2020-25
	20-25mm	321.00	254.00	-21%
	32mm	370.00	297.00	-20%
	40mm	373.00	298.00	-20%
	50mm light	520.00	370.00	-29%
	50mm heavy	520.00	401.00	-23%
	65mm	520.00	405.00	-22%
	80mm	651.00	604.00	-7%
	100mm	735.00	906.00	23%
	150mm	851.00	1,114.00	31%
9	Application for water disconnection			
(a)	Application for water disconnection	123.00	26.85	-78%
(b)	Application for recycled water disconnection	173.00	40.25	-77%
10	Application for water service connection	136.00	33.55	-75%
11	Application to assess a water main adjustment	399.00	292.00	-27%
12	Metered standpipe hire security bond			
	20mm metered standpipe	358.00	287.00	-20%
	32mm low flow metered standpipe	435.00		-100%
	32mm high flow metered standpipe	959.00	846.00	-12%
	50mm Metered standpipe	959.00	846.00	-12%
13	Metered standpipe hire – triannual fees			
	20mm metered standpipe	72.85	27.20	-63%
	32mm low flow metered standpipe	77.20		-100%
	32mm high flow metered standpipe	112.00	55.15	-51%
	50mm Metered standpipe	112.00	55.15	-51%
14	Metered standpipe water usage fee			
15	Backflow prevention device fees			
(a)	Device test	355.00		-100%
(b)	Disconnection for noncompliance	359.00		-100%
(c)	Reconnection after rectification of noncompliance	189.00		-100%
16	Major works inspection fee	11.30		-100%
17	Statement of available pressure and flow	362.00	95.95	-73%
18	Application to connect/disconnect sewer services (for a special internal inspection permit)	61.65	42.95	-30%
19	Application to Connect/ Disconnect Water & Sewer Services (combined application)	63.05	53.65	-15%
20	Request for Separate Metering of Units (per plan)	35.80	46.95	31%
21	Unauthorised Connections	177.00		-100%
22	Building Plan Stamping	19.60	20.10	3%

Service no.	Function	2019-20	2024-25	Changes in prices 2020-25
23	Determining Requirements for Building Over / Adjacent to Hunter Water Sewer or Easement	201.00	146.00	-27%
24	Hiring of metered standpipe			
(a)	Application to hire a metered standpipe	193.00	55.20	-71%
(b)	Breach of standpipe hire condition			
	Breach 1	21.80	7.90	-64%
	Breach 2	28.80	7.90	-73%
	Breach 3 (step 1)	35.80	7.90	-78%
	Breach 3 (customer fails to return)	35.80	29.05	-19%
25	Meter Affixtures/ Handling Fee			
	Up to 50mm	54.70		-100%
	50mm or larger	86.35		-100%
26	Inspection of Non-compliant Meters	60.00	52.80	-12%
27	Connecting to or Building Over / Adjacent to a Stormwater Channel for a Single Residence	119.00	90.80	-24%
28	Stormwater Channel Connection	378.00	243.00	-36%
29	Hydraulic Design Assessment			
(a)	Residential 25-40mm	263.00		-100%
(b)	Residential >40mm	315.00		-100%
(c)	Non- Residential 25-40mm	376.00		-100%
(d)	Non- Residential >40mm	412.00		-100%
30	Pump Station Design Assessment			
	Water Pump Station	5,094.00		-100%
	Sewer Pump Station	5,610.00		-100%
	Recycled Water Pump Station	5,094.00		-100%
31	Application to Assess Sewer Main Adjustment	520.00	324.00	-38%
32	Revision of Development Assessment Requirements	431.00	304.00	-29%
33	Bond Application	1,966.00	2,412.00	23%
34	Bond Variation	283.00		-100%
35	Development Assessment Application	520.00	324.00	-38%
36	Application for Water or Sewer Main Extension	520.00	325.00	-38%
37	Connect to Existing Water System - Major Works			
(a)	Valve shutdown	765.00		-100%
(b)	Non-valve shutdown	326.00		-100%
38	Insertion or Removal of Tee and Valve			
(a)	Valve shutdown and charge up	1,204.00		-100%

Service no.	Function	2019-20	2024-25	Changes in prices 2020-25
(b)	Non-valve shutdown and charge up	752.00		-100%
39	Application for Additional Sewer Connection Point	378.00	288.00	-24%
40	Tee and Valve Connection	297.00		-100%
41	Major works Inspection & WAE fee			
	Water Pump Station	7,071.00		-100%
	Sewer Pump Station	9,579.00		-100%
	Recycled Water Pump Station	7,071.00		-100%
42	Application to Assess Encroachment on Hunter Water Land, Easement Rights or Assets	449.00		-100%
43	Technical Services Hourly Rate	117.00	121.00	3%
44	Remote Application Fee	322.00	87.90	-73%
45	Preliminary Servicing Advice	492.00	495.00	1%
46	Servicing Strategy Review		0.00	
(a)	Standard Review Process	1,261.00	1,490.00	18%
(b)	Additional Review Process	358.00		-100%
47	Environmental Assessment Report Review	1,261.00	914.00	-28%
48	Reservoir Construction Inspection & WAE Fee	By quotation		
49	Water cart tanker			
(a)	Inspection of a Water Cart Tanker	160.00	45.45	-72%
(b)	Reinspection of Water Cart Tanker Due to Non Compliance	146.00	45.45	-69%
50	Inaccessible Meter - Imputed Charge for Breach of Meter Reading Agreement	26.00		-100%
51	Damaged Meter Replacement			
	20mm	70.30	86.55	23%
	25mm	117.00	147.00	26%
	32mm	162.00	201.00	24%
	40mm	193.00	276.00	43%
	50mm light meter	413.00	287.00	-31%
	50mm heavy meter	471.00	318.00	-32%
	65mm	576.00	588.00	2%
	80mm	723.00	512.00	-29%
	100mm	752.00	851.00	13%
	150mm	1,287.00	2,490.00	93%
	250mm	4,363.00	4,945.00	13%
	300mm	5,895.00	6,126.00	4%
52	Affix a Separate Meter to a Unit	60.00	32.85	-45%
53	Recycled Water Meter Affix Fee	53.25	59.90	12%
54	Application for Recycled Water Service Connection – Domestic			

Service no.	Function	2019-20	2024-25	Changes in prices 2020-25
(a)	Pre-laid service	54.70	21.20	-61%
(b)	Redevelopment	172.00	197.00	15%
55	Irregular & Dishonest Payments	30.15	27.85	-8%
25	Meter Affixtures/ Handling Fee			
	20mm Meter installation	54.70	46.75	-15%
	25mm Meter installation		46.40	
	32mm Meter installation		57.90	
	40mm Meter installation		57.90	
	50mm Light Duty Meter installation		108.00	
	50mm & Over - Reception		15.90	
	50mm & Over - Delivery	86.35	217.00	151%
29	Hydraulic Design Assessment			
(a)	>/= 80mm Property Service size	412.00	284.00	-31%
(b)	< 80mm Property Service size	263.00	191.00	-27%
30	Complex works design review (Renamed)			
(a)	- Non-linear water asset	5,094.00	4,394.00	-14%
(b)	- Non-linear sewer asset	5,610.00	5,017.00	-11%
(c)	- Linear water and sewer asset:			
	- Tier 1 (0-99m)		748.00	
	- Tier 2 (99-1000m)		3,148.00	
	- Tier 3 (Greater than 1000m)		4,582.00	
41	Complex Works Inspection Fee (Renamed)			
(a)	- Non-linear water asset	7,071.00	6,427.00	-9%
(b)	- Non-linear sewer asset	9,579.00	5,847.00	-39%
(c)	- 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	
30 (Proposed - after revision of all numbering)	Application to Connect/Disconnect to Water system	176.00	176.00	Not comparable
31 (Proposed - after revision of numbering)	Shutdown and Charge up	412.00	412.00	Not comparable

Source: Hunter Water Pricing Proposal, 1 July 2019, Miscellaneous and Ancillary model.

G How the ECM works

In this appendix, we explain how 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 determination 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 efficiency 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 G.1 and G.2 below compare the 'profits' that a utility would enjoy if it implemented a permanent efficiency saving under a regulatory framework that does not have an ECM, with those available under the ECM. Section G.3 explains how the ECM is applied. Section G.4 explains why we implement the ECM with a 1-year lag.

G.1 Regulatory framework without an ECM

Figure G.1 shows that the profits that a regulated utility retains after making an efficiency improvement **decrease** the further into a regulatory period that the efficiency improvement 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 G.1 How the framework without the ECM 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 the 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.

G.2 How the ECM removes the incentive to delay savings

The ECM removes the incentive for the utility 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 improvement was made.

Figure G.2 demonstrates the ECM for a 4-year determination. Using the same example as in Figure G.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 G.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 the 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.

G.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.

G.4 Why there is a 1-year lag in implementation

In practice, at the time we undertake our review, we only have a forecast for 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 G.3 shows the first two adjustments. In this example, the two regulatory periods are years 1 to 4 (regulatory period 1), and years 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 G.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	-	-	-	-
Permanent 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	-	-

Source: IPART analysis.

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 G.4 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[246] in order to ensure incentives are fully equalised in present value terms (because the WACC represents our view of the appropriate discount rate).

246 If cash flows are assumed to occur at the end of each year, this should be the WACC used for regulatory period 2.

Figure G.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	-	-	-	-	-
Permanent gain	20	20	20	20					
Incremental gain	20	-	-	-					
ECM1 calc									
- year 0	20	20	20	20	20				
- year 1		-	-	-	-	-			
- year 2			-	-	-	-	-		
- year 3				-	-	-	-		
- year 0 adjustment						-21			
ECM benefit						-21	-	-	-
Total allowance		100	100	100	100	59	80	80	80
Total gain (loss)	20	20	20	20	20	-21	-	-	-

Source: IPART analysis.

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.[247]

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.

247 This incentive already exists under a regulatory framework with no ECM.

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 period	The period of five years commencing 1 July 2020 proposed by Hunter Water.
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.
Annual revenue requirement	The notional revenue requirement in each year of the determination period.
current determination period	The period from 1 July 2016 to 30 June 2020, as set in the 2016 Determination
CPI	Consumer Price Index
determination period	Given period over which price limits (maximum prices) set by IPART apply.
DRC	Depreciated Replacement Cost.
EIC	Environmental Improvement Charge.
ELWC	Economic Level of Water Conservation.
EPA	Environment Protection Authority.
EPL	Environment Protection Licence.
GL	Gigalitre.
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.
LGAs	Local Government Areas.
LHWP	Lower Hunter Water Plan.
LRMC	Long Run Marginal Cost (of supply).
ME	Meter Equivalent.
ML	Megalitre.
Notional revenue requirement (NRR)	Revenue requirement set by IPART that represents the efficient costs of providing Hunter Water's monopoly services.
NPV	Net Present Value.
RAB	Regulatory Asset Base.
Section 16A directions	Ministerial directions pursuant to section 16A of the IPART Act.
SOC	State Owned Corporation.
SOC Act	*State Owned Corporations Act 1989* (NSW).
SRMC	Short Run Marginal Cost (of supply).
Sydney Water	Sydney Water Corporation
Target revenue	The revenue Hunter Water generates from maximum prices set by IPART for that year.
Upcoming determination period	the period commencing 1 July 2020.
WACC	Weighted Average Cost of Capital
WAPC	Weighted Average Price Cap
WIC Act	*Water Industry Competition Act 2006* (NSW).
WWTP	Wastewater Treatment Plant.