PRICES FOR SYDNEY WATER FROM 1 JULY 2020

Issues Paper September 2019
WATER REVIEWS
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The Independent Pricing and Regulatory Tribunal (IPART)

IPART provides independent regulatory decisions and advice to protect and promote the ongoing interests of the consumers, taxpayers and citizens of NSW. IPART’s independence is underpinned by an Act of Parliament. Further information on IPART can be obtained from IPART’s website:
The Tribunal members for this review are:
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Mr Ed Willett
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The team working on this review also includes:
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Invitation for submissions

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

Submissions are due by 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 Sydney Water Corporation prices
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.
Executive Summary

The Independent Pricing and Regulatory Tribunal of NSW (IPART or we) is setting the maximum prices Sydney Water Corporation (Sydney Water) can charge for the water, wastewater and stormwater drainage services it provides to residential and non-residential customers. We will also set the maximum prices for Sydney Water’s trade waste services and a range of ancillary and miscellaneous services, and monitor Sydney Water’s recycled water prices.

We will set prices to apply from 1 July 2020 for up to five years.

We have released this Issues Paper to

- Summarise Sydney Water’s proposed revenue needs and prices for the 2020 determination period.
- Outline the process we will follow to conduct the review, including the decisions we will make.
- Seek stakeholder feedback on the key issues for this review.

Sydney Water’s proposed prices and bill impacts

**Water prices**  Maintain water usage price in real terms, with a price of $2.13/kL (in $19/20), based on the results of its customer engagement and its updated estimates of the long-run marginal cost (LRMC) of water supply.

- Reduce water service prices by 12% in the first year of the period (or $10 per year for a typical household), and then maintain constant prices in real terms.

**Wastewater prices**  Reduce the wastewater usage price by 48% in the first year of the period, to $0.61/kL, based on the short-run marginal cost (SRMC) of providing wastewater treatment services.

- Increase the wastewater service price by 12% in the first year of the period, and then maintain constant prices.

**Stormwater prices**  Increase stormwater service charges by 8% in the first year of the period, then maintain constant prices. This is applicable to 25% of Sydney Water’s customers who receive stormwater services from Sydney Water.

**Typical bill**  A typical bill would fall by about 4% (in real terms), reflecting the reduced water service price.
Sydney Water’s proposal

**Revenue requirement**

- $10.7 billion over four years from 1 July 2020 (compared to $10.5 billion over four years from 1 July 2016).

- Large increase in capital expenditure driven by investment in wastewater assets to meet future growth and the costs of more conservative asset management practices.

- Revenue is based on “average” weather conditions, with Sydney Water to absorb any additional costs it will incur if drought continues.

**Customer prices**

- Average real bill reduction of about 4% for a typical residential household owing to lower interest rates.

- Proposed reduction in the wastewater usage price based on short-run costs. This change would increase prices for residential customers, and reduce prices for non-residential customers.

**Encouraging better outcomes**

- Engaged with over 10,000 customers on prices and some ‘discretionary’ projects before submitting its pricing proposal.

- Proposed $100 million of ‘discretionary’ expenditure based on this engagement.

IPART’s review approach

**Revenue requirement**

- Engage expert consultants to review Sydney Water’s historical and proposed costs, and apply a building block model to establish Sydney Water’s efficient revenue needs.

**Customer prices**

- Set maximum prices to recover Sydney Water’s efficient costs, taking into account our pricing principles and the requirements of the IPART Act.

**Encouraging better outcomes**

- Review Sydney Water’s customer engagement including discretionary projects.

- Consider a range of measures to encourage Sydney Water to be more efficient and deliver better outcomes to customers.

**Key review issues**

**Revenue requirement**

- Is the large increase in expenditure required and sufficiently justified? Are Sydney Water’s planned investments to service Sydney’s growing population efficient?

- Should Sydney Water’s efficient costs be based on “average” weather conditions, or expected conditions over the next four years?

**Customer prices**

- Setting cost-reflective water and wastewater usage prices, by developing more accurate estimates of the long-run costs of providing these services. How can Sydney Water’s customer engagement be improved to inform future pricing proposals?
Process for conducting the review

We received Sydney Water’s pricing proposal on 1 July 2019, which outlines its proposed revenue needs and prices. It is available on our website.

Our Issues Paper explains the propose-respond 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 make submissions in response to this paper (details on how to make a submission are provided on page iii at the start of the paper).

We will hold a public hearing on November 26, 2019, to provide stakeholders with another opportunity to provide their views on Sydney Water’s pricing proposal and the key issues for this review.

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, and invite further comments from stakeholders and Sydney Water. There will be a further opportunity provided to respond to our Draft Report in March 2020. We will consider all these comments before making our Final Determination and publishing our Final Report in June 2020.

Figure 1.2 Indicative timetable for this review

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 October 2019</td>
<td>Submissions on Issues Paper due</td>
</tr>
<tr>
<td>26 November 2019</td>
<td>Public hearing at SMC Centre, Sydney</td>
</tr>
<tr>
<td>Early March 2020</td>
<td>IPART releases Draft Report and Determination</td>
</tr>
<tr>
<td>Early April 2020</td>
<td>Submissions on Draft Report due</td>
</tr>
<tr>
<td>Mid June 2020</td>
<td>IPART releases Final Report and Determination</td>
</tr>
<tr>
<td>01 July 2020</td>
<td>New prices begin</td>
</tr>
</tbody>
</table>

Note: These dates are indicative and may
Sydney Water’s pricing proposal

Sydney Water has proposed that it requires $10.7 billion of revenue over the next four years to recover its operating, capital and other costs (Table 1.1). This is $0.2 billion (2%) higher than the allowance we set for the 2016 determination, which covered the 4-year period from 2016-17 to 2019-20, and is comparable with Sydney Water’s forecast actual expenditure of $10.8 billion over this period.

Table 1.1 Sydney Water’s proposed revenue ($2019-20 billion)

<table>
<thead>
<tr>
<th>Proposed revenue by costs</th>
<th>2016 determination IPART allowance</th>
<th>2016 determination Sydney Water’s forecast costs</th>
<th>2020 determination Sydney Water’s forecast costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating costs</td>
<td>5.4</td>
<td>5.5</td>
<td>5.4</td>
</tr>
<tr>
<td>Capital costsa</td>
<td>4.8</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Other costsb</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Notional revenue requirement</td>
<td>10.5</td>
<td>10.8</td>
<td>10.7</td>
</tr>
</tbody>
</table>

a This includes a ‘return on assets’ and a ‘return of assets’
b This includes the allowance for a return on working capital and a tax allowance

Note: Totals may not add up due to rounding. Source: Sydney Water Price Proposal 2020-24, IPART, Review of Prices for Sydney Water Corporation from 1 July 2016 to 30 June 2020 - Final Report, June 2016, p 75; IPART analysis.

Capital expenditure

As outlined in Chapter 4 of this report, the efficient capital expenditure that Sydney Water incurs is added to a Regulatory Asset Base (RAB) and recovered from customers over time.

Sydney Water has proposed capital expenditure of $4.5 billion over the 2020 determination period, a 68% increase compared to what we allowed ($2.7 billion) in the 2016 determination.

As shown in Figure 1.3, these costs are much higher than Sydney Water’s historical average capital expenditure, and are driven by the costs of:

- **Servicing growth.** In the absence of developer charges, the increased costs of servicing new development are borne by the broader customer base, and this factor represents 42% ($570 million) of the proposed increase in capital expenditure.

- **Proactive asset management.** Sydney Water intends to implement a more proactive asset management strategy to respond to a recent deterioration in performance, particularly the environmental performance of its wastewater network. This accounts for 52% ($704 million) of the proposed increase in capital expenditure.

**The large increase in capital expenditure has been offset by a reduction in interest rates** – referred to as the Weighted Average Cost of Capital (WACC). Sydney Water proposed a WACC of 4.1% for the 2020 determination period (compared to a WACC of 4.9% in the 2016 determination period).

1 All prices presented in this Issues Paper are in $2019-20 unless otherwise specified.
Operating expenditure

Sydney Water proposed a 2% increase in core operating costs for the 2020 determination period, compared to what we allowed in the 2016 determination period. Sydney Water’s intention to implement more proactive asset management would increase its operating costs.

While drought conditions over the 2016 determination period have increased Sydney Water’s operating costs in recent years, including expenditure on weather related network repairs and maintenance, Sydney Water’s proposed operating expenditure over the 2020 determination period assumes average weather conditions. If drought continues, Sydney Water anticipates a further increase in operating expenditure in 2019-20 and into the 2020 determination period.

Around 30% of Sydney Water’s proposed operating costs are for ‘bulk water’. Sydney Water does not own or operate the assets that produce ‘bulk water’, such as dams and desalination plants, and instead is supplied with bulk water from WaterNSW and the Sydney Desalination Plant (SDP).

Concurrent to this review of Sydney Water’s prices, we are reviewing and setting the prices for WaterNSW’s bulk water supply costs to Sydney Water. For more information, please see our Issues Paper on our Review of prices for WaterNSW Greater Sydney from 1 July 2020.

We set the prices that Sydney Water pays the Sydney Desalination Plant in our 2017 Review of prices for the Sydney Desalination Plant. In this review, we will also decide how the desalination costs we previously set are reflected in Sydney Water’s prices to its customers.

In August 2019, as a consequence of the current drought conditions, the NSW Government announced that it had begun preliminary planning to double the capacity of the Sydney Desalination Plan. An augmentation to the existing Sydney Desalination Plant may impact the prices Sydney Water pays for its bulk water.

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2 Core operating costs exclude bulk water purchase costs from WaterNSW and SDP.
Customer engagement

In 2018, Sydney Water undertook a customer engagement program to help inform parts of its pricing proposal. This included consulting customers on their preferred price structures, and estimating customers’ willingness-to-pay for four ‘discretionary’ projects that are above and beyond Sydney Water’s current service and regulatory obligations.

From this, Sydney Water identified three discretionary projects, with a total cost of around $100 million, that it proposes are funded by customers over the 2020 determination period.

Sydney Water’s proposed prices

The table below shows the key prices that Sydney Water has proposed.

Table 1.2 Key prices in Sydney Water’s price proposal (2019-20)

<table>
<thead>
<tr>
<th></th>
<th>2019-20</th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential service price $/year</td>
<td>83</td>
<td>73</td>
<td>73</td>
<td>73</td>
<td>73</td>
</tr>
<tr>
<td>Water usage pricea $/kL</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
</tr>
<tr>
<td>20mm non-residential service chargeb $/year</td>
<td>83</td>
<td>73</td>
<td>73</td>
<td>73</td>
<td>73</td>
</tr>
<tr>
<td><strong>Wastewater</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential service price $/year</td>
<td>590</td>
<td>658</td>
<td>658</td>
<td>658</td>
<td>658</td>
</tr>
<tr>
<td>Deemed wastewater usage charge $/a (residential and non-residential)</td>
<td>178</td>
<td>92</td>
<td>92</td>
<td>92</td>
<td>92</td>
</tr>
<tr>
<td>20 mm non-residential service chargeb $/year</td>
<td>590</td>
<td>658</td>
<td>658</td>
<td>658</td>
<td>658</td>
</tr>
<tr>
<td>Wastewater usage price $/kL</td>
<td>0.18</td>
<td>0.61</td>
<td>0.61</td>
<td>0.61</td>
<td>0.61</td>
</tr>
<tr>
<td><strong>Stormwater</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units, small (&lt;200 sq m) non-residential $/year</td>
<td>25</td>
<td>27</td>
<td>27</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>Houses, medium (201-1,000 sqm) non-residential $/year</td>
<td>80</td>
<td>86</td>
<td>86</td>
<td>86</td>
<td>86</td>
</tr>
<tr>
<td>Large (1,001 - 10,000 sqm) non-residential $/year</td>
<td>463</td>
<td>502</td>
<td>502</td>
<td>502</td>
<td>502</td>
</tr>
<tr>
<td>Very large (10,001 - 45,000 sqm) non-residential $/year</td>
<td>2,059</td>
<td>2,230</td>
<td>2,230</td>
<td>2,230</td>
<td>2,230</td>
</tr>
<tr>
<td>Largest (&gt;45,000 sqm) non-residential $/year</td>
<td>5,148</td>
<td>5,576</td>
<td>5,576</td>
<td>5,576</td>
<td>5,576</td>
</tr>
</tbody>
</table>

a Water usage price excludes cost pass-throughs from the Sydney Desalination Plant. Non-residential service charges for larger water meter sizes are calculated as: (meter size in mm x 20 mm meter price) / 400.

b All wastewater prices assume a 100% sewerage discharge factor (SDF). Sydney Water’s default SDF is 78%.

Note: 2019-20 prices were not available when Sydney Water finalised its pricing proposal. The prices for 2019-20 are based on Sydney Water’s forecast of inflation, and some costs.

Source: Sydney Water Annual Information Return to IPART, July 2019.
Bill impacts

Sydney Water indicated that under its proposal, a typical annual residential water and wastewater bill would be about $45 (or 4%) lower in real terms, from year 2020-21, and then increase at the rate of inflation over the 2020 determination period. This assumes that the SDP is not supplying water to Sydney Water. If SDP is operational, Sydney Water expects this to add about $40 per year to a typical residential bill (see Figure 1.4).

Figure 1.4  Sydney Water’s proposed customer bills ($nominal)

While non-residential customers’ bill impacts depend on their meter size and discharge factors as well as their water and wastewater usage, Sydney Water’s proposed bill reduction for these customers would generally be greater than or equal to the proposed reduction for residential customers.

Figure 1.5 highlights the cost drivers that impact customer bills. It shows that the decrease in customer bills is largely driven by a reduction in interest rates.

Figure 1.5  Cost drivers of Sydney Water’s proposed residential bills

Source: Sydney Water Price proposal 2020-24, IPART analysis.
Key issues for this review

Sydney Water’s proposed increases in capital and operating expenditure

As outlined above, Sydney Water has proposed a 68% increase in capital expenditure from what we allowed in the 2016 determination period, as well as an increase in operating expenditure. The increased expenditure is driven by the costs of servicing growth, as well as a change in its asset management strategy to a more proactive asset management approach. The change in asset management is also to address recent deterioration in the environmental performance of its wastewater network.

This is a large increase in expenditure. We will decide whether an increase of this magnitude is required and sufficiently justified. In setting prices, we will also investigate to what extent increased expenditure is required as a result of past performance, and whether it is appropriate for these costs to be borne by customers in future periods.

We have engaged expert consultants - Atkins Cardno (Atkins) - to review Sydney Water’s historical capital expenditure, and its proposed operating and capital expenditure. Atkins will make recommendations to IPART on Sydney Water’s efficient operating and capital expenditure. When making our decisions, we will consider our consultants’ recommendations, the information we receive from Sydney Water and stakeholder feedback.

Basing expenditure on ‘average’ weather conditions

Sydney Water has proposed an operating expenditure allowance for the 2020 determination period that it considers is based on a return to ‘average’ weather conditions. If drought persists, it proposes to absorb any additional operating expenditure that it directly incurs.

First, we will assess whether Sydney Water’s proposed costs truly reflect a return to ‘average’ weather conditions. For example, Sydney Water’s proposed increase in expenditure on preventative maintenance may be partly a response to drier weather conditions. However, we also need to decide whether Sydney Water’s allowance should be based on average weather conditions. This includes its expenditure on water conservation and drought response measures. More broadly, in our concurrent review of WaterNSW Greater Sydney prices, WaterNSW has proposed a number of cost pass-throughs, including for contingent projects that WaterNSW considers it may need to proceed with to ensure water security. In the WaterNSW review, we will consider if any of these cost pass-throughs are appropriate. If they are, in this review we will consider how these costs would be reflected the prices Sydney Water charges its customers.
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. As discussed in Chapter 7 of this Issues Paper, in this review we aim to improve upon our existing estimates of LRMC for Sydney Water.

For wastewater usage charges, we have typically not set these prices with reference to LRMC. 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 Sydney Water will need to incur to meet increased demand. Accurate estimates of the LRMC of wastewater supply, preferably by supply catchment, would inform Sydney 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 wholesale prices to wholesale customers. Through this review we propose working with Sydney Water to collect data to estimate the LRMC for wastewater services.

Sustainability of price decreases

Because interest rates have fallen, Sydney Water has been able to propose a small bill reduction despite a large increase in expenditure. However, over the medium-longer term, bill increases may be larger and significant, especially if interest rates rise.

As discussed further in Chapter 2 of this paper, a key driver of Sydney Water’s increased expenditure is the costs that Sydney Water incurs to service new development as Sydney’s population expands. For many water utilities, a ‘developer charge’ is levied on a developer, to provide a signal to the developer about the costs of servicing new properties. In contrast, because developer charges are set to zero for Sydney Water, these costs are instead added to Sydney Water’s RAB and gradually recovered from the broader customer base. This means that over time the costs of servicing new growth accumulate and place upward pressure on prices, potentially reducing the affordability of bills.
Structure of this Issues Paper

The following chapters of this Issues Paper provide more information on this review, Sydney Water’s pricing proposal, and our preliminary response to this proposal.

- **Chapter 2** provides background and context to this review. It explains the service and regulatory requirements that impact Sydney Water’s pricing proposal, and how IPART establishes the efficient revenue requirement and maximum prices for Sydney Water.

- **Chapter 3** discusses Sydney Water’s customer engagement and how it has informed its pricing proposal, in particular its three proposed ‘discretionary’ projects that are above and beyond Sydney Water’s current service and regulatory obligations.

- **Chapters 4 and 5** cover Sydney Water’s proposed capital and operating expenditure allowances that drive its costs.

- **Chapter 6** covers the forecast sales volumes and customer numbers that we need in order to set prices.

- **Chapter 7** presents Sydney Water’s proposed water, wastewater and stormwater prices – these are the key services that Sydney Water provides.

- **Chapter 8** presents the prices for Sydney Water’s other services.

- **Chapter 9** discusses our ‘form of regulation’, the set of tools we use to encourage Sydney Water to become more efficient over time and deliver better outcomes for its customers.
Questions for stakeholder comment
Throughout this paper, we have asked a number of questions where we seek stakeholder feedback. These questions are also listed below. Stakeholders are welcome to comment on any of these questions, and raise other issues they consider relevant to this review.

**Customer engagement**

1. Do you agree that Sydney Water has improved on its customer engagement since the 2016 Determination? In what ways could Sydney Water's customer engagement be improved to inform future pricing proposals? 36
2. In future, should Sydney Water's customer engagement program focus more on environmental outcomes and performance? 36
3. How should customer preferences be considered, alongside economic principles when deciding Sydney Water's price structures? What other factors should we consider? 39
4. Are there any other factors we should consider in deciding whether to accept Sydney Water's proposed discretionary expenditure? 46
5. Do you have any comments on Sydney Water's proposed discretionary projects? 46
6. How should the costs of discretionary expenditure be recovered from customer bills? Should it be identified as a separate charge on the bill? 46

**Efficient capital expenditure**

7. Is Sydney Water's expected capital expenditure over the 2016 determination period efficient? 52
8. Has Sydney Water's capital expenditure over the 2016 period delivered appropriate levels of service? 52
9. Is Sydney Water's proposed capital expenditure including expenditure related to growth and existing mandatory standards over the 2020 determination period efficient? 56
10. Do you have any comments on Sydney Water's approach to planning and forecasting costs associated with growth? 56
11. Do you agree that we should adopt our 2018 WACC methodology when setting the WACC in the 2020 Sydney Water price review? 57
12. Do you agree that we should account for annual changes in the cost of debt with a regulatory true-up in the following pricing period? 57
13. Do you have any comments about Sydney Water's performance against the output measures in Appendix E? 59
14. Do you have any comments on what output measures we should use for the 2020 determination period? 59

**Efficient operating expenditure**

15. Is Sydney Water's proposed operating expenditure over the 2020 determination period efficient? 71
16. How should our review account for the risks of drought and support water conservation? 71
17  Are Sydney Water’s proposed bulk water costs reasonable? Do you agree with Sydney Water’s allocation of corporate costs to bulk water? 71

18  Are Sydney Water’s proposed pricing principles for the Hawkesbury Nepean offset scheme appropriate? For example, should the cost risks for R&D projects be passed on fully to customers, or appropriately shared between customers and Sydney Water? 71

**Forecast demand and customer numbers**

19  Are Sydney Water’s forecast water sales, customer numbers and billable wastewater volumes for the 2020 determination period reasonable? 79

20  Is Sydney Water’s demand forecasting model, and inputs used to estimate the model, appropriate? 79

21  Is Sydney Water’s adjustment to its demand forecasts to account for climate change appropriate? 79

22  Is Sydney Water’s proposal to return about $30 million of revenue to customers over the 2020 period, for higher-than-forecast water sales, reasonable? 83

23  Is Sydney Water’s proposal for the application of a volatility adjustment to be lagged by one year reasonable? 83

24  What factors should we consider in deciding whether to implement the demand volatility adjustment? 83

25  Should we maintain the demand volatility adjustment mechanism to address over or under recovery of revenue during the 2020 determination? Does a ±5% materiality threshold remain appropriate? 83

**Prices and price structures**

26  Is Sydney Water’s proposal to maintain the 2019-20 water usage charge reasonable? 91

27  Is the method that Sydney Water has used to estimate the long-run marginal cost (LRMC) of water reasonable? 91

28  Should we make changes to the SDP usage charge uplift to more closely reflect the marginal costs of producing water? 92

29  Are Sydney Water’s proposed water service charges reasonable? 94

30  Should we increase the deemed usage for unmetered customers, and if so, by how much? 94

31  Is Sydney Water’s proposed unfiltered water usage price reasonable? 95

32  Is LRMC a more appropriate basis for setting wastewater usage prices than SRMC? 100

33  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? 100

34  Is Sydney Water’s proposed wastewater usage charge reasonable? 100

35  Should we remove the deemed wastewater discharge allowance for non-residential customers? 101
<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>Should we introduce explicit residential wastewater usage charges?</td>
<td>102</td>
</tr>
<tr>
<td>37</td>
<td>Should we use different discharge allowances for houses and apartments when setting wastewater service charges?</td>
<td>102</td>
</tr>
<tr>
<td>38</td>
<td>Should we remove the discharge factor applying to wastewater service charges?</td>
<td>102</td>
</tr>
<tr>
<td>39</td>
<td>Are Sydney Water’s proposed stormwater prices reasonable? Is the current constrained area based charging method appropriate?</td>
<td>105</td>
</tr>
<tr>
<td>40</td>
<td>Is it reasonable for IPART to defer setting prices for Sydney Water’s recycled schemes over the 2020 determination period?</td>
<td>108</td>
</tr>
<tr>
<td>41</td>
<td>Are Sydney Water’s proposed trade waste prices in Appendix G reasonable?</td>
<td>108</td>
</tr>
<tr>
<td>42</td>
<td>Are Sydney Water’s proposed changes to how it manages non-compliant Wastesafe customers appropriate?</td>
<td>109</td>
</tr>
<tr>
<td>43</td>
<td>Are Sydney Water’s proposed miscellaneous and ancillary services prices in Appendix H reasonable?</td>
<td>111</td>
</tr>
<tr>
<td>44</td>
<td>Are Sydney Water’s proposed reductions in the Rouse Hill drainage charges reasonable?</td>
<td>112</td>
</tr>
<tr>
<td>45</td>
<td>Are Sydney Water’s proposed late and declined payment fees reasonable?</td>
<td>113</td>
</tr>
<tr>
<td>46</td>
<td>Do you have any comments about Sydney Water’s Developer Direct application and construction services in terms of price and service?</td>
<td>115</td>
</tr>
<tr>
<td>47</td>
<td>Should the construction services provided by Sydney Water Developer Direct be price regulated, or is price monitoring by IPART more appropriate?</td>
<td>115</td>
</tr>
<tr>
<td>48</td>
<td>If we were to regulate the price of construction services provided by Sydney Water Developer Direct, how should these prices be determined?</td>
<td>115</td>
</tr>
<tr>
<td><strong>Form of regulation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>How long should we set prices for in the 2020 determination?</td>
<td>118</td>
</tr>
<tr>
<td>50</td>
<td>Should the length of Hunter Water’s determination period factor into our consideration for Sydney Water’s determination period?</td>
<td>118</td>
</tr>
<tr>
<td>51</td>
<td>Do you support a price cap as an appropriate form of price control for Sydney Water?</td>
<td>119</td>
</tr>
<tr>
<td>52</td>
<td>Do you support maintaining the option of unregulated pricing agreements between Sydney Water and large customers?</td>
<td>121</td>
</tr>
<tr>
<td>53</td>
<td>Are there any barriers preventing the uptake of unregulated pricing agreements? Can the framework be changed to encourage greater uptake without disadvantaging other customers?</td>
<td>121</td>
</tr>
<tr>
<td>54</td>
<td>How should we share Sydney Water’s non-regulated revenue with customers?</td>
<td>123</td>
</tr>
<tr>
<td>55</td>
<td>Should we continue to apply an efficiency carryover mechanism (ECM) to Sydney Water’s operating expenditure?</td>
<td>125</td>
</tr>
<tr>
<td>56</td>
<td>If we implement a cost pass-through mechanism for drought related costs in the concurrent WaterNSW price review, should we include a subsequent cost pass-through mechanism for Sydney Water to pass through costs to customers?</td>
<td>127</td>
</tr>
<tr>
<td>57</td>
<td>Do you agree that we should maintain the current cost pass-through for SDP-related bulk water costs and Shoalhaven transfer costs?</td>
<td>127</td>
</tr>
</tbody>
</table>
## Contents

1 Executive Summary

2 How do we set prices and context for review  
   2.1 Our propose-respond review process 19  
   2.2 What services does Sydney Water provide? 20  
   2.3 How do we set prices? 21  
   2.4 What drives Sydney Water’s costs? 25

3 Customer engagement  
   3.1 Summary of Sydney Water’s customer engagement 32  
   3.2 Customer engagement on price structures for water and wastewater 36  
   3.3 Sydney Water’s proposal includes discretionary expenditure 39

4 Efficient capital expenditure  
   4.1 Our approach for establishing prudent and efficient capital expenditure 47  
   4.2 The key drivers of Sydney Water’s capital expenditure proposal 49  
   4.3 Sydney Water’s expected total capital expenditure for the 2016 period 50  
   4.4 Sydney Water’s proposed capital expenditure for the 2020 period 52  
   4.5 How capital expenditure is recovered from prices 56  
   4.6 Sydney Water’s performance against output measures for the 2016 period 58

5 Efficient operating expenditure  
   5.1 Our approach for establishing efficient operating expenditure 60  
   5.2 The key drivers of Sydney Water’s operating expenditure 61  
   5.3 Sydney Water’s forecast total operating expenditure from 2016 to 2020 62  
   5.4 Sydney Water’s proposed operating expenditure from 2020 to 2024 65  
   5.5 IPART’s response and other issues 70

6 Demand and customer numbers  
   6.1 Sydney Water’s expected water sales for the 2016 determination period 72  
   6.2 Sydney Water’s forecast water sales for the 2020 determination period 74  
   6.3 Demand volatility adjustment mechanism 79

7 Water, wastewater and stormwater prices  
   7.1 Summary of Sydney Water’s key prices 84  
   7.2 Water prices 86  
   7.3 Wastewater prices 95  
   7.4 Stormwater drainage services (except Rouse Hill) 102

8 Prices for other minor services  
   8.1 Recycled Water 106  
   8.2 Trade Waste Services 108  
   8.3 Miscellaneous and ancillary services prices 110  
   8.4 Rouse Hill drainage charges 111  
   8.5 Late and declined payment fees 112  
   8.6 Sydney Water Developer Direct 113
9 Form of regulation
   9.1 Length of determination period
   9.2 Form of price control
   9.3 Unregulated pricing agreements
   9.4 Non-regulated revenue
   9.5 Promoting future efficiency savings
   9.6 Considering costs risks through cost pass-throughs
   9.7 Cost allocation Manual (CAM)

Appendices
   A Matters to be considered by IPART under Section 15 of the IPART Act
   B NSW Government directions to IPART
   C Terms of reference for late payment, dishonoured or declined payment fees
   D Notional revenue requirement
   E Output measures
   F Sydney Water’s proposed prices for water, recycled water, wastewater and stormwater (including Rouse Hill)
   G Sydney Water’s proposed prices for trade waste
   H Sydney Water’s proposed prices for miscellaneous and ancillary charges
   I Sydney Water’s proposed prices for declined and late payment fees
   J The efficiency carry over mechanism
   K Bulk water cost pass through mechanisms

Glossary
2   How do we set prices and context for review

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

The following sections discuss:

- **Our review process**, including how and when we seek stakeholder’s views.
- **The services** that Sydney Water delivers.
- **Our pricing framework**, including how we assess Sydney Water’s efficient costs of delivering these services, and how this is recovered through prices.
- **The key drivers** of Sydney Water’s operating and capital costs to deliver these services.

### 2.1   Our propose-respond review process

This review sets the maximum prices Sydney Water can charge its customers for water, wastewater, stormwater and other miscellaneous and ancillary services.\(^1\) We are using a propose-respond regulatory model for this review (see Figure 1.1). This is a two-step process:

- In the first step, Sydney Water submits its pricing proposal, which includes its proposed prices, operating and capital costs and preferred approach to setting prices for the four years from 1 July 2020.
- In the second step, IPART responds to Sydney Water’s proposal, determining Sydney Water’s efficient costs, our pricing framework, and how we can set the best incentives for Sydney Water to become more efficient over time.

#### 2.1.1 How does Sydney Water put its pricing proposal together?

Sydney Water’s proposal includes its forecast costs and the prices it would need to charge its customers to recover these costs. When preparing its proposal, Sydney Water consults with its customers to determine their preferred levels of service, which then informs its service level standards, amongst other requirements, under its Operating Licence. Sydney Water then forecasts the costs required to deliver its services and the costs required to comply with its regulatory obligations. Sydney Water also incurs costs to comply with its broader regulatory requirements such as environmental obligations and water quality standards.

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\(^1\) These are monopoly services that we review under Section 11 of the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW) (the IPART Act).
2.1.2 How does IPART respond to Sydney Water’s proposal?

After receiving Sydney Water’s proposal, we will review its proposed expenditure. To do this, we have engaged expert consultants – Atkins Cardno – to assist us in determining the efficient capital and operating costs of delivering Sydney Water’s services. This will include an assessment of the efficiency gains Sydney Water can reasonably achieve over the determination period.

After determining Sydney Water’s efficient costs, we set the revenue Sydney Water would need to recover these costs, called the Notional Revenue Requirement (NRR). The NRR ensures that Sydney Water can:

- meet its service standards under its operating licence,
- meet its other regulatory requirements (such as environmental obligations), and
- deliver any discretionary spending that is above and beyond these requirements, where there is sufficient evidence that customers are willing-to-pay.

We then set the maximum prices Sydney Water can charge its customers to recover the NRR, taking into account forecast customer numbers and sales volume forecasts. To set prices we consider our ‘form of regulation’. These are methods we use to encourage Sydney Water to become more efficient and deliver better outcomes for customers.

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

We will consult with stakeholders before we set prices

This Issues Paper is IPART’s initial response to Sydney Water’s pricing proposal. It identifies the key issues for the review and our approach to setting prices. We raise questions throughout this paper to facilitate stakeholder views.

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.

2.2 What services does Sydney Water provide?

Sydney Water supplies water, wastewater and stormwater drainage services to residential and non-residential customers in the Sydney, Illawarra and Blue Mountains areas.

Water services

Sydney Water primarily purchases bulk water from WaterNSW Greater Sydney. It also purchases water from the Sydney Desalination Plant (SDP) when WaterNSW’s dam levels fall below 60% of total dam storage. Sydney Water then treats this water before delivering it to its customers.

Sydney Water charges its customers a fixed service charge and a usage charge for drinking water.

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2 SDP operating rules are set out in the 2017 Metropolitan Water Plan.
Wastewater services

Sydney Water operates 24 separate wastewater systems including 16 wastewater treatment plants. It collects wastewater from its customers, treats it through its treatment plants and then either reuses or discharges treated sewage (or wastewater) into waterways such as rivers, or the ocean.3

Sydney Water charges its residential customers a fixed 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 greater than the discharge allowance (currently $1.18/kL).4

As discussed further in Chapter 9, some of Sydney Water’s wastewater treatment networks are ‘declared’ services under the Water Industry Competition Act 2006 (WIC Act). These declared services are Sydney Water’s North Head, Bondi and Malabar sewerage reticulation networks. A third party must be granted access to these declared services, subject to certain criteria and the establishment of an access agreement or determination. This ‘third-party access’ can facilitate competition and encourage more efficient outcomes by allowing new entrants to compete with incumbent supplies in the provision of water and/or wastewater services to end use customers.

Stormwater services

Although most stormwater systems are the responsibility of local councils, Sydney Water owns and maintains 452 kilometres of stormwater channels, which service about 600,000 properties. Stormwater charges are applied to properties within Sydney Water’s declared stormwater catchment areas.5

2.3 How do we set prices?

We set the maximum prices Sydney Water can charge its customers for its monopoly services, to recover the efficient costs for Sydney Water to deliver its water, wastewater and stormwater services. We also consider how we can structure prices to encourage efficient consumption and investment decisions. This Issues Paper outlines the decisions we will make as part of this review to set Sydney Water’s maximum prices and Figure 2.1 provides an overview of our key considerations when setting prices and where they are discussed in this Issues Paper.

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4 See Chapter 7 for more information on current prices.
5 Sydney Water pricing proposal to IPART, June 2019, Attachment 1, p 7.
2.3.1 Estimating the efficient costs

In previous reviews we have used a ‘building block’ method to establish the NRR. The NRR represents the efficient costs for Sydney Water to deliver its regulated services. Figure 2.2 provides a brief explanation of each cost building block allowance within the NRR.\(^6\) We generally set prices to recover the utilities NRR. Appendix D provides more detail on how we calculate each of these allowances. Capital and operating costs are discussed in more detail in Chapter 4 and 5.

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\(^6\) We subtract a portion, typically 50%, of any non-regulated revenue that Sydney Water may generate from the NRR, to set the revenue which is recovered from customer prices.
Figure 2.2 Building block approach to calculating notional revenue requirement (NRR)

<table>
<thead>
<tr>
<th>Building block</th>
<th>Why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on working capital</td>
<td>To recover the holding costs of net current assets</td>
</tr>
<tr>
<td>Tax</td>
<td>To reflect the regulated business's forecast tax liabilities</td>
</tr>
<tr>
<td>Return of Assets (Regulatory depreciation)</td>
<td>Ensures the customers that use the asset pay for that portion of the cost of assets used in the provision of services, in line with the principle of intergenerational equity.</td>
</tr>
<tr>
<td>Return on Assets</td>
<td>The opportunity cost of the investment to provide the regulated services. This ensures that the business can continue to make efficient capital investments in the future.</td>
</tr>
<tr>
<td>Operating Costs</td>
<td>Our view of the efficient operating costs needed to provide monopoly services, including labour and contractor costs, energy, materials, plant and equipment and maintenance costs.</td>
</tr>
<tr>
<td>Non-regulated revenue</td>
<td>We subtract a share of income that the utility can earn from non-regulated activities that use the regulated assets. Subtracting this non-regulated income from the NRR establishes the revenue to be collected from customers.</td>
</tr>
</tbody>
</table>

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 Sydney 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 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.\(^7\) 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 Sydney Water’s proposed prices. Box 2.1 outlines our principles in setting prices.

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\(^7\) 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.
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 prudent historical and efficient forecast costs of delivering the monopoly services. Prices for individual services should reflect the efficient costs of delivering the specific service.

- Price structures should match cost structures, whereby:
  - Usage charges reference an appropriate estimate of marginal cost (ie, the additional cost of supplying an additional unit of water or sewerage services), and
  - Fixed service charges recover the remaining costs.

- Customers imposing similar costs on the system pay similar prices.

Through the signals they send, cost-reflective prices promote the efficient use and allocation of resources, which ultimately benefits the whole community. The sum of the fixed and usage prices customers pay reflects the total cost of the services provided. By reflecting the revenue needed to efficiently provide the services, cost-reflective prices also ensure efficient investment in water infrastructure and service provision.

Other factors we generally consider when deciding on price structures include whether prices are transparent, easy for customers to understand and for Sydney Water to administer, and customer preferences.

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 Sydney 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 Hunter Water and Water NSW. These reviews follow a similar framework, but may raise issues that we have not yet identified for Sydney Water.

We periodically review parts of our approach to setting water prices. Related reviews include:

- Prices for Sydney Water’s bulk water:
  - Review of Water NSW Greater Sydney prices (occurring concurrently)
  - Review of Sydney Desalination Plant prices, prices have been set until 30 June 2022 (Review of Sydney Desalination Plant Pty Ltd, June 2019)

- Prices for other related monopoly services that may be provided by Sydney Water:
  - How recycled water services should be funded and priced, including developer charges (Review of pricing arrangements for recycled water and related services, July 2019)
  - How wholesale customers should be charged (Prices for wholesale water and wastewater services, June 2017)

- How we calculate the weighted average cost of capital (Review of our WACC method, February 2018). We are currently reviewing how we estimate the equity beta.

- 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 wastewater charges for metropolitan water agencies, October 2018)

- The conditions in Sydney Water’s operating licence (Review of Sydney Water’s operating licence, April 2019)

For each of these reviews, relevant documents are available on our website.

After this review, we will work with regulated business in NSW, other interested stakeholders and regulators in other jurisdictions to develop productivity benchmarking capabilities and component costing to inform future price reviews. The timing of this allows Sydney Water (and other utilities such as Hunter Water) the capacity to commit to working with IPART to undertake this review.

Wholesale customers are private-sector providers of water and wastewater services to end-use customers who are licenced providers under the Water Industry Competition Act 2006 (the WIC Act).

2.4 What drives Sydney Water’s costs?

We set prices to recover the efficient cost of Sydney Water to deliver its monopoly services. Sydney Water’s costs can be allocated into five broad categories. These categories are 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 development areas (‘growth costs’)

- Of discretionary projects, where Sydney Water shows its customers are willing-to-pay to receive services above its regulated standards

- Of implementing any long-term plans under the Metropolitan Water Plan, and
To comply to Government Directions issued to Sydney Water to complete projects in the public interest.

2.4.1 Regulatory obligations

Sydney Water is a statutory corporation established under the *Sydney Water Act 1994* (the Act). The Act outlines a number of objectives for Sydney Water, including:

- To operate at least as efficiently as any comparable businesses, and maximise the net worth of the State’s investment in Sydney Water.
- To exhibit a sense of social responsibility by having regard to the interests of the community in which it operates.
- To protect public health by supplying safe drinking water.
- To protect the environment by conducting operations in compliance with the principles of ecologically sustainable development.\(^8\)

To meet these objectives, Sydney Water must comply with standards set by a number of regulators. The total cost for Sydney Water to deliver its monopoly services consistent with its regulatory obligations, such as its environmental licences and operating licence (which determines its service standards), accounts for 58% of Sydney Water’s total proposed operating and capital costs.\(^9\)

Sydney Water is regulated by:

- **IPART**, which monitors and reports on Sydney Water’s compliance with its operating licence, which includes Sydney Water’s obligations in relation to customer service, water quality, and system performance. We also periodically review the licence.
  - Tied to the Operating Licence is Sydney Water’s Customer Contract. Under its Customer Contract, Sydney Water may charge its customers a late payment fee for overdue bills and a fee for a dishonoured or declined payment to Sydney Water. IPART regulates these charges under section 12A of the IPART Act.

- **The NSW Environment Protection Authority** (EPA), which issues Environment Protection Licences\(^10\) for Sydney Water’s wastewater network, pumping stations and treatment systems, and monitors and regulates Sydney Water’s environmental performance.

- **NSW Health**, which regulates the quality and safety of Sydney Water’s drinking water.

- **The Department of Planning Industry and Environment (DPIE)**, which regulates Sydney Water’s extractions from the Hawkesbury-Nepean River. These extractions are used by the North Richmond water filtration plant to provide drinking water supply for the Hawkesbury area.

Sydney Water’s regulatory obligations are subject to periodic review by each respective regulator, which results in changes over time. Changes in its regulatory obligations can

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\(^8\) *Sydney Water Act 1994*, section 21(1).

\(^9\) This is the percentage amount proposed by Sydney Water in its pricing proposal for the 4-year period from 2020-21 to 2023-24.

increase (or decrease) the costs Sydney Water incurs to comply with these obligations. Sydney Water’s existing operating licence was reviewed and amended in 2018-2019 and is expected to apply from November 2019. Included in the amended licence is the requirement for Sydney Water to implement an economic level of water conservation. This is not a requirement in its existing licence. The costs to comply with this new requirement are included in Sydney Water’s proposed operating expenditure and is discussed in more detail in Chapter 5 of this Issues Paper.

2.4.2 Discretionary spending

Discretionary expenditure is expenditure to deliver service levels or outcomes above those mandated by regulatory requirements.

Sydney Water’s proposal includes about $105 million of capital costs over the four year period (2020-21 to 2023-24) for discretionary expenditure justified by customers’ willingness-to-pay. This represents about 2% of total capital expenditure, and includes expenditure to:

- Build new infrastructure to divert wastewater at the Vaucluse-Diamond Bay cliff-face outfalls to the Bondi treatment plant before being released into the ocean. This is to stop the release of untreated wastewater from the three cliff-face outfalls during dry weather.
- Implement a waterway health stormwater improvement program, which includes native vegetation planting, increasing recreational facilities and removing garbage in and along waterways.
- Reduce illegal stormwater connections to Sydney Water’s wastewater system by fixing privately owned plumbing in areas where there is a high level of inflow and infiltration into Sydney Water’s wastewater systems (‘source control’).

Our position is that discretionary expenditure should only be recovered via regulated prices if the utility provides sufficient evidence that its customer base is willing-to-pay.

We will assess Sydney Water’s proposed discretionary expenditure and its evidence of its customers’ willingness-to-pay for this expenditure over the course of the review. This is discussed further in Chapter 3, which considers Sydney Water’s customer engagement program.

2.4.3 Investments to service growth

Sydney Water is Australia’s largest water utility, currently servicing 5.1 million customers in Sydney, the Illawarra and Blue Mountains. As the population grows, Sydney Water’s area of operations continues to expand as development spreads into greenfield areas. This requires

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12 This includes:
- $64 million for the Vaucluse-Diamond Bay project (Sydney Water, Pricing Proposal to IPART, July 2019, Attachment 9, p 102).
- $16 million for the waterway health program (Sydney Water, Pricing Proposal to IPART, June 2019, Attachment 9, p 82).
- $25 million for ‘source control’ (Sydney Water, Pricing Proposal to IPART, June 2019, Attachment 9, p 100).
13 Sydney Water, Pricing Proposal to IPART, July 2019, Attachment 1, p 5.
Sydney Water to build and operate new water, wastewater and stormwater infrastructure. It will also incur additional costs as it augments its existing network to cope with increased density in established areas.

Across many water utilities, a ‘developer charge’ is levied on a developer to recover the additional costs the utility incurs to provide water, wastewater and stormwater services to new properties. This provides a signal to the developer about the costs of servicing new properties. However, in 2008 the NSW Government set water, wastewater and stormwater developer charges for Sydney Water to zero (see Box 2.3).

Since Sydney Water cannot charge a levy to developers, the costs of servicing new development are borne by Sydney Water’s existing customer base. In its pricing proposal, Sydney Water proposes to include $1.6 billion of capital expenditure to service new development (growth), which represents 36% of its total capital expenditure over the 2020-21 to 2023-24 period (this is discussed in more detail in Chapter 4). However, Sydney Water actually anticipates that it will spend $2.3 billion of capital expenditure to service growth over this four year period. This means that there is a $700 million difference between anticipated and allowed expenditure. It proposes to absorb the costs of funding the difference over the 2020 period, before including the full capital expenditure in future prices.

**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 cost (capital and operating) of servicing new developments. The charge is designed to recover the difference between the system-wide average costs and the costs of servicing the specific development area.

Levying a developer charge ensures 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 A). 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 and Hunter Water’s notional revenue requirements and has been recovered through their respective prices to customers.

**Source:** For more information see: IPART, *Maximum prices for connecting, or upgrading a connection, to a water supply, sewerage, or drainage system – Final Determination for Sydney Water, Hunter Water and Central Coast Council, October 2018.*

Under our building block framework, efficient capital costs are added to Sydney Water’s ‘Regulated Asset Base’ (RAB) and recovered gradually from customers over the economic life of assets. This means that, over time, additional capital costs of servicing new development are added to the RAB as property growth occurs, and the costs of funding growth accumulate.

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14 In addition to this, one third of Sydney Water’s $1.05 billion capital expenditure for 2016-2020 was driven by growth. This is about 50% more than the allowance we set in the 2016 Determination period.
Figure 2.3 estimates the additional costs that an average customer could be charged if prices continue to include the cost of growth incurred by Sydney Water (ie, if the zero developer charge policy applies into the future). The figure shows that, 10 years from now, based on assumptions of forecast population growth and the costs required to service that population, an average customer would be paying an additional $140 per year for their water, wastewater and stormwater services.

For simplicity, we have defined the average Sydney Water customer as a residential customer (where all residential customers are charged based on a 20mm water meter size). The forecast cost of growth is based on the capital costs that Sydney Water expects to incur to service the new development over the 2020 determination period, assuming that this capital has an asset life of 75 years. It then extrapolates this ‘per property’ cost forward to meet the Government’s 8 million population target by 2050.\(^\text{15}\)

**Figure 2.3** The costs of funding growth capital expenditure over time

![Chart showing the costs of servicing growth over time](chart)

**Note:** This does not calculate the forgone revenue from setting developer charges to zero. It calculates the cost of funding growth capex to service new development, which is a major component of the developer charge formula. The developer charge formula also takes into account the net revenue generated from future customer tariffs above future operating and capital expenditure.

**Data source:** IPART analysis.

With the expected growth in Sydney over the next 30 years, Figure 2.3 highlights that setting developer charges to zero will place upward pressure on prices over time. In its pricing proposal, a large reduction in interest rates has allowed Sydney Water to service additional growth without increasing customer bills. However, as the costs of servicing new development accumulates, even if interest rates remain at low levels, there will be upwards pressure on water prices, which will impact on customer affordability over time.

In addition, a “line-in-the-sand” valuation of Sydney Water’s assets could also place upward pressure on future water prices. In 2000, the depreciated replacement cost (DRC) of Sydney Water’s assets was $12.5 billion, but at that time IPART calculated the RAB value of these assets to be $5.3 billion. That is, the RAB value of pre-2000 assets is 42% of their book value. Over time, as these assets are replaced, the full efficient costs of replacing these assets (rather than 42% of the value of the asset) is added to the cost base, which could place upward pressure on prices.

\(^{\text{15}}\) NSW Parliament, 2019, Trends in NSW population growth, p 1. 

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**Prices for Sydney Water from 1 July 2020 – Issues Paper** 

**IPART**
2.4.4 The Metropolitan Water Plan

The NSW Government’s Metropolitan Water Plan (MWP) is the Government’s long-term water plan for Sydney.\textsuperscript{16} It outlines the mix of supply augmentation and demand management measures that ensure Sydney, the Illawarra and the Blue Mountains meet water needs now and into the future.

The elements in the MWP that can impact on Sydney Water’s costs and prices are:

- Water demand and supply projections and the identification of options for future supply augmentation, which can impact on estimates of the Long Run Marginal Cost (LRMC) of water supply (ie, our benchmark for setting water usage prices in past water price reviews).

- The Drought Response Strategy, which includes:
  - transfers of bulk water from Shoalhaven to Sydney when total dam storages fall below 75%.
  - the imposition of water restrictions at specified dam storage levels, which impacts water sales volumes
  - the operation of the Sydney Desalination Plant (SDP) to deliver bulk water to Sydney Water when total dam storages fall below 60%, and
  - the expansion of SDP when total dam storages fall below 35%.

- Any costs for WaterNSW in terms of general supply augmentation and drought response, which would flow through to Sydney Water’s bulk water costs.\textsuperscript{17}

The MWP is reviewed periodically. It was first developed in 2004 in response to severe drought, and revised in 2006 and 2010. The most recent MWP, released in 2017, is currently being reviewed by the NSW Government to take into account changes in water demand and supply and new data and research. It is due to be released in 2020.\textsuperscript{18}

2.4.5 Government Directions under S16A of the IPART Act

The Government can issue directions for Sydney Water to complete projects in the public interest, which may not be in the shareholders’ interest.\textsuperscript{19} At the same time, it can direct IPART (with the Minister’s approval) under section 16A of the IPART Act to include the efficient costs of complying with specified requirements in Sydney Water’s prices.\textsuperscript{20} This can take the form of either:

- A ‘standing direction’ (which applies whenever IPART makes a determination in relation to a particular government monopoly service), or

- A ‘one-off direction’ (which applies when IPART makes a particular pricing determination).

\textsuperscript{17} NSW Government, 2017 Metropolitan Water Plan, March 2017, p 28.
\textsuperscript{19} Typically through a direction given under section 20P of the SOC Act.
\textsuperscript{20} Under Section 16A(3) of the IPART Act a specified requirement may only be: a requirement imposed by or under a licence or authorisation; a requirement imposed by a ministerial direction under an Act; or some other requirement imposed by or under an Act or statutory instrument.
Ministerial directions pursuant to section 16A of the IPART Act (section 16A directions) that apply to this review are:

- **The Rosehill (Camellia) Recycled Water Project.** This was issued to IPART in March 2008. It directs IPART to pass through in prices the difference between the charges paid by Sydney Water to the owner of the Rosehill (Camellia) Recycled Water infrastructure and distribution pipelines, and the revenue received by Sydney Water for the sale of recycled water to customers.

- **The Replacement Flows Project.** This was issued to IPART in August 2007. It directs IPART to pass through in prices Sydney Water’s efficient costs of construction and ongoing operation of the St Mary’s Advanced Water Recycling Plant.

Appendix B includes more information on these directions.
3 Customer engagement

Sydney Water undertook an extensive customer engagement program during 2018 to inform parts of its pricing proposal. It also consulted with customers on the level of some of its service standards to inform its 2018 operating licence review. This chapter summarises Sydney Water’s overall customer engagement process and discusses in more detail two areas where it has used customer engagement results to inform its pricing proposal. At the end of each section we discuss how we propose to assess Sydney Water’s proposal and ask for stakeholder feedback.

3.1 Summary of Sydney Water’s customer engagement

Prior to submitting its pricing proposal to IPART, Sydney Water conducted a customer engagement program to understand the preferences of its customers. The customer engagement program identified six customer priorities and included detailed consultation on three specific topics, which informed its pricing proposal and operating licence. This is discussed at a high level below and in more detail throughout this Chapter.

Customer priorities

Sydney Water asked customers what priorities and outcomes should an ideal water and wastewater utility have. From this, Sydney Water identified six priorities for customers. In order of priority, these were:

1. quality drinking water
2. fair and affordable prices
3. reliable services
4. water security
5. environmental protection, and
6. responsive customer services.

Price structures

To inform its pricing proposal, Sydney Water asked customers about their preferences for price structures. It focused on what the water usage price should be in the 2020 determination period (ie, should it be greater, equal to, or less than the current water usage charge). Note that a change to the water usage charge will result in an offsetting change to the water service charge – ie, all else equal, a higher water usage price will result in a lower service price (and vice versa).

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Sydney Water also consulted with its non-residential customers on their preferred wastewater usage price and with residential customers on whether apartments and houses should face different wastewater service prices.

**Discretionary projects**

In its pricing proposal, Sydney Water proposed three projects that are outside its monopoly services and regulatory obligations. Sydney Water’s customer engagement program, including willingness-to-pay surveys, was used by Sydney Water to justify funding these projects from its customers via regulated prices.

We discuss the projects proposed by Sydney Water and our process for assessing discretionary expenditure below. In general, if a utility proposes any discretionary spending to be included in customer prices, we ask for the utility to provide adequate evidence of customers’ willingness to pay.

**Level of service standards**

Sydney Water’s amended operating licence, which we expect to apply from November 2019, reflects some changes that were informed by its customer engagement program.22

Prior to submitting its pricing proposal, Sydney Water asked its customers for their preferences on the level of certain service standards under its operating licence. Its consultation included the price impact of meeting any changes to the level of these service standards.23 This information was used to propose changes to its operating licence during the 2018 Sydney Water operating licence review (undertaken by IPART).

In this pricing review, we will assess the efficient costs of meeting these new obligations under Sydney Water’s amended operating licence. However, we will not re-assess Sydney Water’s customer consultation in this area.

Box 3.1 summarises Sydney Water’s overarching customer engagement process.

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23 Sydney Water, Pricing Proposal to IPART, Attachment 3, July 2019, pp 5, 12.
Box 3.1 How did Sydney Water consult with customers?

Sydney Water conducted its customer engagement program over three phases.

- Phase 1 was around service standards and reliability. This consultation informed the 2018 Sydney Water Operating Licence Review.
- Phase 2 focused on consulting with customers on price structures and discretionary projects, which informed elements of its pricing proposal for this review.
- Phase 3 tested the validity of the preferences and willingness to pay results obtained in Phases 1 & 2 of the program and amalgamated the topics to show the overall impact on customer bills.

Sydney Water undertook a range of different customer engagement techniques such as willingness-to-pay surveys, online choice surveys, discussion and forum groups to determine the willingness to pay and preferences of customers.

Who did Sydney Water engage?

Sydney Water targeted customers from diverse backgrounds including specific quotas and discussion groups for non-English speakers, financially vulnerable customers, and small to medium and large businesses.

Sample sizes for each phase of engagement were calibrated to broadly match the wider customer base.

The location of those participating was also taken into account. Deliberative forums were held across Sydney Water’s area of operation in Hornsby, Penrith, Wollongong, Parramatta, CBD, Campbelltown and Hurstville. Additionally, participants of online surveys were subject to quotas based on their location to match the customer density of each area.


3.1.1 IPART’s response

Overall, our preliminary view is that the customer engagement process undertaken by Sydney Water is a significant improvement compared with its 2015 pricing proposal.

In 2015, Sydney Water surveyed 1,700 customers online to determine customer preferences for overall bill certainty (the proportion of fixed versus variable charges). This was used to inform its 2015 pricing proposal and the final price structures IPART determined for the 2016-17 to 2019-20 period.24

In comparison, the 2018 engagement program included more than 10,000 interactions with customers across multiple platforms, including both online surveys and face-to-face discussions and forums. The scope of its engagement program increased from price structures to also include discretionary spending and to inform changes to its operating licence.25

Although our preliminary view is generally positive, we note that there does not appear to be a clear link between the six customer priorities Sydney Water identified and the specific priorities it chose to focus in the majority of its customer engagement program; that is, its

rationale for consulting on price structures and discretionary expenditure only, rather than on other priorities.

In future, there may be scope for Sydney Water to continue to consult with customers on other topics from the six identified customer priorities. One example is that Sydney Water could engage with customers on issues such as the social cost of water restrictions and the value of water conservation measures in light of its amended operating licence, recent water restrictions and drought conditions.

Through this review we will assess the robustness and validity of Sydney Water’s customer engagement program to inform our future regulatory approach. We view that this would enhance our regulatory framework and facilitate a move to a more valued-focused regulatory framework in addition to our existing cost-based framework.

**Increased customer engagement could be used to inform Sydney Water’s existing obligations**

Sydney Water’s customer engagement revealed that a key customer priority is environmental protection.\(^26\) At the same time, Sydney Water has reported an increase in non-compliances of a number of its Environmental Protection Licences (EPLs), which are regulated by the Environmental Protection Authority (EPA). In 2017-18 Sydney Water reported 227 EPL non-compliances to the EPA, the majority of which related to wastewater overflows to the environment.\(^27\)

Sydney Water could consult with customers to improve their awareness of the environmental and health impacts of wet weather and dry weather overflow events and ascertain customers’ willingness to pay for overflow abatement.

**Our customer consultation principles**

In our pricing submission guidelines (to guide utilities when making their pricing proposal) we include our customer consultation principles, which are shown in Box 3.2. Sydney Water’s proposal includes how it has adequately addressed each principle.\(^28\)

In addition to our customer engagement principles, utilities should demonstrate an overall customer engagement strategy, which guides any customer engagement program. Ongoing customer engagement should be imbedded into Sydney Water’s normal business operations.

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\(^{26}\) Sydney Water, Pricing proposal to IPART, Attachment 3, July 2019, p 9.

\(^{27}\) Sydney Water, Pricing proposal to IPART, Attachment 2, July 2019, p 25

\(^{28}\) Sydney Water, Pricing proposal to IPART, Appendix 3E, July 2019, pp 4-5
Box 3.2  IPART’s customer consultation principles

IPART’s Guidelines for Water Agency Pricing Submissions include the following 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 its customers’ 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.


IPART seeks comments on the following

1. Do you agree that Sydney Water has improved on its customer engagement since the 2016 Determination? In what ways could Sydney Water’s customer engagement be improved to inform future pricing proposals?

2. In future, should Sydney Water’s customer engagement program focus more on environmental outcomes and performance?

3.2 Customer engagement on price structures for water and wastewater

Currently, water and wastewater prices consist of a fixed service charge ($ per property). All water prices also include a usage charge ($ per kL), while only non-residential wastewater prices also include a usage charge.

In general, a water usage price is set to reflect the costs associated with supplying an additional unit of water. This provides a price signal to customers that is designed to incentivise an efficient level of consumption. The fixed service charge can then be set to recover the remaining costs of providing the service which do not vary with water consumption (ie, the fixed costs of the business).

However, customers also have preferences for the balance of fixed and variable prices. A higher fixed service charge relative to a variable usage charge increases the predictability and stability of bills, alternatively, a higher variable usage charge relative to a fixed service charge
gives customers more control over their bills. Chapter 7 of this Issues Paper discusses price structures for water and wastewater prices in more detail.

To inform its pricing proposal, Sydney Water consulted with customers on their preferences for price structures for both water and wastewater prices. Specifically, customers were consulted on:

- Their preferences for service and usage water charges.
- Whether to charge different wastewater service charges for houses and apartments.
- Whether to introduce a wastewater usage charge for residential customers.
- The level of the wastewater usage charge for non-residential customers (Sydney Water’s proposed wastewater usage charge is discussed further in Chapter 7).29

Table 3.1 summarises the outcomes from this engagement. We discuss each outcome in more detail below.

### Table 3.1 Sydney Water’s customer engagement for water price structures

<table>
<thead>
<tr>
<th>Project</th>
<th>Technique</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water pricing structures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water usage charge</td>
<td>Bill calculator survey – usage</td>
<td>Sydney Water’s proposed water usage charges are unchanged in real terms</td>
</tr>
<tr>
<td></td>
<td>charge slider</td>
<td>from current prices, at $2.13/KL ($2019-20). This is towards the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>higher end of Sydney Water’s LRMC estimate.</td>
</tr>
<tr>
<td>Wastewater pricing structures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wastewater fixed charges</td>
<td>Survey presenting alternative</td>
<td>Maintain the current approach of the same fixed charge for house and</td>
</tr>
<tr>
<td>(houses and apartments)</td>
<td>options</td>
<td>apartments.</td>
</tr>
<tr>
<td>Price structures for residential</td>
<td>Survey presenting alternative</td>
<td>Maintain the current approach of a single fixed charge for residential</td>
</tr>
<tr>
<td>customers</td>
<td>options</td>
<td>customers and not introduce a usage charge.</td>
</tr>
<tr>
<td>Wastewater usage charges</td>
<td>Bill calculator survey – usage</td>
<td>Decrease in the wastewater usage charge from $1.18/kL to $0.61 per</td>
</tr>
<tr>
<td></td>
<td>charge slider</td>
<td>KL ($2019-20)</td>
</tr>
</tbody>
</table>

Source: Sydney Water, Pricing proposal to IPART, Attachment 3, July 2019.

### 3.2.1 Sydney Water’s customer engagement for water price structures

Sydney Water’s customer engagement program included obtaining customer preferences on the water usage price. Customers were asked which water usage price they preferred based on four different usage charges with corresponding hypothetical bills. The water usage price scenarios ranged from $1.40/kL to $2.20/kL. One price scenario was the current water usage price.30

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29 Sydney Water, Pricing proposal to IPART, Attachment 3, July 2019, pp 10-23.
30 Sydney Water, Pricing proposal to IPART, Attachment 3, July 2019, p 12.
Sydney Water explains that the scenarios were based on its analysis of its LRMC and that a usage charge greater than $2.20/kL would result in a service charge that would be too low (or potentially negative), outside the risk appetite of the business.

Sydney Water found the majority of residential customers preferred either the current or a higher usage charge, and that about three quarters of customers surveyed agreed with Sydney Water’s proposed usage price of $2.13/kL (which is the current usage price adjusted for inflation).^31

3.2.2 Sydney Water’s customer engagement for wastewater price structures

The current structure of wastewater prices varies by customer category. Residential customers pay a fixed wastewater service charge ($ per year), which includes the cost of 150kL of deemed wastewater discharge to the wastewater network (i.e., 150kL multiplied by the wastewater usage charge). Non-residential customers pay a fixed wastewater service charge ($ per year), which includes the cost of 150kL of deemed wastewater discharge, and a wastewater usage price ($ per kL) for estimated wastewater usage above 150kL per annum.

Sydney Water split its engagement into residential customers and non-residential customers. For residential customers it consulted on:

- Maintaining the current price structure of one wastewater service charge (effectively consisting of both a base service charge and a deemed usage charge), or introducing a wastewater usage charge that would vary with water usage.
- Charging different service charges for apartments and houses. ^32

For non-residential customers it consulted on:

- The level of the wastewater usage charge.

Residential price structures

Across different engagement platforms (discussion forums and online surveys), the majority of residential customers preferred to maintain the current wastewater price structure. Sydney Water’s proposed service charge for residential customers was preferred by 78% of forum participants. ^33

Additionally, customers did not support charging a different service charge for houses and apartments. Sydney Water reported that customers viewed different service charges for houses and apartment could be unfair, because wastewater usage is a function of household size (rather than the type of dwelling). ^34

Non-residential wastewater usage charge

Sydney Water consulted non-residential customers only on the wastewater usage price. It did not consult with residential customers on the wastewater usage price. Initially, small to

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^31 Sydney Water, Pricing proposal to IPART, Attachment 3, July 2019, p 15.
^33 Sydney Water, Pricing proposal to IPART, Attachment 3, July 2019, p 20.
^34 Sydney Water, Pricing proposal to IPART, Attachment 3, July 2019, p 19.
medium businesses preferred (~70%) the current wastewater usage charge of $1.16/kL ($2018-19), however, large businesses preferred a lower wastewater usage charge and a higher service charge.

In Phase 3 of its customer engagement program, after informing small to medium businesses that reducing the wastewater usage charge would tend to reduce wastewater bills for most businesses, small to medium businesses then supported the reduction in the usage price.35

### 3.2.3 IPART’s response

We consider a number of different factors when determining price structures for water and wastewater prices. At a high level, these are:

- The long-run-marginal-cost and the short-run-marginal-cost of supply of both water and wastewater services.
- Customer preferences and equity between customer groups.
- Providing incentives for the efficient level of consumption of water and wastewater services.

Customer preferences should be considered along with other economic principles when determining Sydney Water’s price structures. Customer engagement should not be used as a primary justification for reducing the wastewater usage price. We also expect that the engagement used to obtain customer preferences should be robust and consistent with our customer consultation principles (outlined above in Box 3.2).

Our preliminary view is that as Sydney Water did not consult with residential customers to inform them that reducing the wastewater usage price would increase their bills. This relationship occurs because the fixed wastewater service price (paid by both residential and non-residential customers) is calculated to recover the residual costs Sydney Water incurs from delivering wastewater services that are not recovered through the revenue generated from the wastewater usage price. As the wastewater usage price is reduced, the total revenue generated from the wastewater usage price will also fall; thus remaining costs will need to be recovered through the wastewater service price.

**IPART seeks comments on the following**

3 How should customer preferences be considered, alongside economic principles, when deciding Sydney Water’s price structures? What other factors should we consider?

### 3.3 Sydney Water’s proposal includes discretionary expenditure

Sydney Water consulted its customers on whether it should undertake four discretionary projects, and has included three of these projects in its pricing proposal. Discretionary expenditure is expenditure to provide service levels or achieve outcomes above those mandated by the utility’s regulatory requirements (such as those in its Operating Licence or Environment Protection Licences).

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35 Sydney Water, Pricing proposal to IPART, Attachment 3, July 2019, pp 22-23.
As discussed below, we have developed a high-level framework to assess discretionary expenditure. A key element within this framework is that utilities need to supply additional justification, including sufficient evidence of customers’ willingness to pay, for IPART to set prices to recover the cost of discretionary expenditure.

### 3.3.1 Sydney Water’s engagement on discretionary projects

Sydney Water consulted on four discretionary projects:

- To build new infrastructure to divert untreated wastewater from the Vaucluse-Diamond Bay cliff-face outfalls, and instead treat it at the Bondi treatment plant, before releasing it into the ocean.
- Implementing a waterway health improvement program for its stormwater assets, which includes native vegetation planting, increasing recreational facilities and removing garbage.
- Reducing illegal stormwater connections, and reducing stormwater inflow from privately owned wastewater pipes, to Sydney Water’s wastewater system by fixing privately owned plumbing in areas where there is a high level of inflow and infiltration into Sydney Water’s systems (‘source control’).
- A broad roll out of digital meters to all customers.

Sydney Water undertook willingness to pay studies for each of these projects. It then sought to confirm these initial results that customers were willing to pay up to a certain price level for a specific project, and presented its actual proposed bill increases required to undertake each project.

Table 3.2 below shows the results of Sydney Water’s engagement and impact on prices. The following sections summarise Sydney Water’s engagement on the four projects.
### Discretionary projects from Sydney Water’s customer engagement program

<table>
<thead>
<tr>
<th>Project</th>
<th>Proposed expenditure</th>
<th>Total capital cost over the proposal period ($2019-20)</th>
<th>Price impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated wastewater cliff-face outfalls</td>
<td>To build infrastructure to divert wastewater to the Bondi wastewater treatment plant</td>
<td>$64 million</td>
<td>Extra $2.30 a year per customer</td>
</tr>
<tr>
<td>Source control of rainwater in the wastewater system</td>
<td>To undertake source control to reduce rainwater in the wastewater system and spread the cost over the general customer base</td>
<td>$25 million</td>
<td>Bill saving of $3.00 a year per customer</td>
</tr>
<tr>
<td>Stormwater management activities to improve waterway health</td>
<td>To implement the Waterway health improvement program</td>
<td>$16 million</td>
<td>Extra $2.90 per year per customer</td>
</tr>
<tr>
<td>Roll out of digital meters</td>
<td>Delay rolling out digital meters</td>
<td>N/A</td>
<td>No change to bills</td>
</tr>
</tbody>
</table>

*Note:* Saving is based on the alternative option of augmenting wastewater pipes and storages to manage rainwater in the wastewater system.

**Sources:** Sydney Water, July 2019, Pricing Proposal to IPART, Attachment 3, p 102; Sydney Water, June 2019, Pricing Proposal to IPART, Attachment 3, p 82; Sydney Water, June 2019, Pricing Proposal to IPART, Attachment 3, p 101; Sydney Water, June 2019, Pricing Proposal to IPART, Attachment 3, p 39.

### Untreated wastewater cliff-face outfalls and digital metering

Sydney Water conducted contingent valuation surveys to establish customers’ willingness to pay to improve the wastewater cliff-face outfalls and roll out digital meters. With a contingent valuation survey, customers are asked whether they are willing to pay for a project at different price levels, but the actual cost of the project is not revealed. Then, Sydney Water determined customers’ overall willingness to pay by assessing at which price level the majority of customers strongly supported the project proceeding.

From these surveys, Sydney Water assessed that customers would be willing to pay a one-off payment of:

- $18 to improve the wastewater cliff-face outfalls, and
- $3 per quarter for a broad roll-out of digital meters.

Sydney Water then sought customer preferences on the actual proposed bill increases required to undertake each project:

- 65% of online survey participants and 87% of forum participants state that they were willing to pay $2.30 a year to fund the improvement of the wastewater cliff-face outfalls compared with no change and no bill increase.
- 72% of forum participants and 61% of online participants were not willing to pay for Sydney Water’s estimated actual costs to roll out digital meters, which Sydney Water estimated as $14.30 each year.

### Source control of rainwater in the wastewater system

During wet weather, the volume of wastewater in Sydney Water’s wastewater system can exceed its capacity as rainwater and groundwater enters through broken or cracked pipes and
illegal stormwater connections (connections to the wastewater system instead of the stormwater system). Traditionally, Sydney Water would solve this problem by building larger pipes, additional storages or installing wet-weather overflow points (known as emergency relief structures). This is a relatively capital intensive and costly solution. Sydney Water considers that a lower cost solution would be for Sydney Water to fix illegal stormwater connections, and broken or cracked pipes, on private property in areas where there is a high level of infiltration into its wastewater system.

Sydney Water’s customer engagement program asked customers whether they would accept Sydney Water paying to address illegal stormwater connections to its wastewater network where the cost savings to Sydney Water’s wastewater system exceed the costs incurred by Sydney Water (if it were to undertake the traditional solution of augmenting its pipes and storages).

Customers were asked to choose between the following options:

- Option 1: to maintain the current approach to address the illegal stormwater connections, which is to augment capacity of the wastewater system for additional rainwater inflow, at no change to customer bills.

- Option 2: fixing the problem at the source; that is, fixing private properties with illegal connections. This would result in a bill saving of $3 each year, if the costs incurred by Sydney Water for source control were spread across the broad customer base. Alternatively, there would be a bill saving of $4.60 each year, if the costs incurred by Sydney Water for source control were paid by the private property owners who had the illegal connections. This would cost private property owners a one-off cost of $13,000 (on average).

As a result, 72% of survey participants and 82% of forum participants voted to fix the problem at the source and to spread the cost across the broad customer base, resulting in a bill saving of $3 each year.

**Surface water drainage solutions in the United Kingdom**

Rainwater in the wastewater system is an issue many water and wastewater utilities face. IPART notes that, in England and Wales, if a customer is able to demonstrate that no water from their property enters the wastewater system, the customer can apply to their utility for a ‘surface water drainage’ rebate. This is another option for managing source control for rainwater into the wastewater system.

**Stormwater management activities to improve waterway health**

Sydney Water also engaged with customers to identify customers’ willingness to pay to:

- increase the length of waterways in good health
- increase the area of planted native vegetation
- increase the number of recreational facilities, and
- remove more rubbish and litter from Sydney waterways each year.
Because stormwater prices are only levied in declared drainage areas, Sydney Water only consulted with this subset of customers on this discretionary project. Customers were consulted online, and were presented with two options:

- Option A: A continuation of the current approach with no bill impact.
- Option B: Implement a waterway health program, which would increase stormwater customer bills by $2.90 per year (ongoing).

Option B was preferred by 67% of customers.

### 3.3.2 IPART’s response

We have not formed a preliminary view on Sydney Water’s proposed discretionary projects.

In previous reviews we have set out:

- how we would consider any discretionary expenditure proposed by the utility, and
- best practice principles for demonstrating willingness to pay analysis to justify broader customer base funding for recycled water schemes with external benefits.

Our principles are discussed below, and we propose applying these principles to assess discretionary expenditure in this review.

**How we propose to consider Sydney Water’s proposed discretionary expenditure**

In our 2016 Sydney Water price review, a number of stakeholders advocated for Sydney Water to deliver environmental outcomes that were above existing regulatory obligations, and to pass these costs onto the broader customer base through water and wastewater prices, to promote a more ‘liveable’ Sydney.

In response, we established our preliminary views on recovering discretionary expenditure which includes expenditure to deliver a level of service above existing regulatory obligations through prices to the broader customer base.

We noted we would consider the following when assessing Sydney Water’s proposed discretionary expenditure:

- Has the issue (or project) been considered by Parliament and/or government when setting the existing standard or regulatory requirements, and whether the circumstances around the issue (or project) have changed since that time?
- Does the proposal fit best with Sydney Water’s responsibilities or another party or parties’ responsibilities (eg, another arm of government or local government)?
- Is it demonstrated that Sydney Water’s customers have both the capacity and willingness to pay more to realise the higher standard or external benefits that exceed any mandatory regulation?
  - Proponents would need to provide evidence for IPART to consider in forming a judgement on whether Sydney Water’s customers have the capacity and willingness to pay the higher prices required to meet the higher standard.
Best practice principles for demonstrating willingness-to-pay

Our preliminary view is that we would only include discretionary expenditure in the overall utility cost base if there is sufficient evidence that customers are willing to pay for this expenditure. In Box 3.3 below, we set out a number of best practice principles on conducting willingness-to-pay surveys.

The criteria in Box 3.3 is consistent with the principles we established for recycled water services in our 2019 Review of pricing arrangements for recycled water and related services. In this review, we decided that any external benefits (of the recycled water scheme) beyond regulated outcomes could be funded by prices to the broader customer base where these customers indicate a willingness to pay for these benefits.

We note that we will assess Sydney Water’s overall customer engagement program against our customer consultation principles discussed in Section 3.1.1 above and detailed in Box 3.2. These principles have also been provided to Sydney Water in our Guidelines for Water Agency Pricing Submissions.
Box 3.3  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 who 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.


**Benefits to third parties from discretionary spending**

Willingness-to-pay surveys should quantify the benefits that customers would receive from discretionary expenditure. We recognise that there may be third parties who could also
benefit. Our preliminary view is that these benefits provide an opportunity for Sydney Water to access funding from these third parties, or Government, to fund or partially fund discretionary projects. Our view is that the customer base should not be asked to bear any costs for a project above and beyond their willingness to pay.

Should Sydney Water receive any third party funding for a project, our standard approach is to subtract this amount from Sydney Water’s total efficient costs, to ensure that Sydney Water does not recover more than its efficient costs for a project.

**Efficient cost principles still apply to discretionary projects**

Our efficiency test of Sydney Water’s historical and forecast capital and operating expenditure includes discretionary expenditure: that is, we would 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 4.1 in Chapter 4. Our expenditure consultants will determine whether the costs Sydney Water is proposing for its discretionary expenditure are efficient costs.

**Promoting efficiency, equity and transparency when setting prices**

If we accept any of Sydney Water’s proposed discretionary expenditure, we will also consider how best to recover these costs from the broader customer base. One option is to include this expenditure with all other costs, and recover the additional costs from water, wastewater and stormwater prices.

Another option is to recover the costs of discretionary expenditure through a separate, single charge on each customer’s 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 could also allow Sydney Water to bill only those customer groups with demonstrated willingness to pay (eg, residential or non-residential customers only) and ensure each customer makes a contribution that is no more than the amount demonstrated by a willingness-to-pay survey. A separate charge could aid the transparency around the costs of discretionary expenditure.

**IPART seeks comments on the following**

4. Are there any other factors we should consider in deciding whether to accept Sydney Water’s proposed discretionary expenditure?

5. Do you have any comments on Sydney Water’s proposed discretionary projects?

6. How should the costs of discretionary expenditure be recovered from customer bills? Should it be identified as a separate charge on the bill?
4 Efficient capital expenditure

In this price review, we will set a capital expenditure allowance which reflects our view of the efficient level of capital costs Sydney Water will incur in providing its services. Efficient capital expenditure is then added to the Regulatory Asset Base (RAB) and recovered gradually through customer prices over the life of the assets. We consider the efficiency of Sydney Water’s historical capital expenditure over both the 2016 determination period and its forecast capital needs over the 2020 determination period. We then recover the efficient costs by setting allowances for a return on assets and regulatory depreciation.

This chapter first outlines how we propose to establish efficient capital expenditure. It then discusses:

- The key drivers of Sydney Water’s capital expenditure proposal.
- Sydney Water’s expected capital expenditure during the 2016 determination period.
- Sydney Water’s proposed capital expenditure for the 2020 determination period including trends in Sydney Water’s long term capital expenditure.
- How Sydney Water’s capital expenditure is recovered from customers (the return on, and return of assets).
- Sydney Water’s performance against the output measures for the 2016 determination period and its proposed output measures for the 2020 determination period.

Our preliminary responses to Sydney Water’s proposals and issues we seek comment on are also discussed. Further detail on how we establish the RAB, and recover these costs from customers, is contained within Appendix D.

4.1 Our approach for establishing prudent and efficient capital expenditure

To decide how much capital expenditure is added to the RAB, we will review Sydney Water’s proposal and apply our efficiency test, explained in Box 4.1. We will then incorporate forecast efficient capital expenditure into the value of the RAB over the 2020 determination period, and use the RAB value to calculate the allowances for a return on assets and regulatory depreciation (see Box 4.2 for how the RAB affects prices).

We will review:

- **Actual expenditure**, and adjust the RAB allowances that we included in the 2016 determination to only include efficient expenditure that actually occurred, and
- **Proposed expenditure**, to be included in the RAB for the 2020 determination. This will then be reviewed and adjusted at the next price review.

We have engaged an expert consultant firm, Atkins Cardno (Atkins), to review Sydney Water’s proposal. We will also consider the views of stakeholders, who will have an opportunity to respond to Sydney Water’s pricing proposal as well as to our Issues Paper. Chapter 2 outlines the timeframes for stakeholder responses.
Box 4.1  Our efficiency test

The efficiency test examines whether a utility’s capital and operating expenditure represents the best and most cost effective way of delivering 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, among 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).

Box 4.2  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 this to the value of the Regulatory Asset Base (RAB) and it feeds into prices via an:

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.

   We note that we are in an environment of a particularly low WACC, which dampens the impact that capital expenditure has on prices. However, capital expenditure remains in the RAB for the life of the asset, and a future rise in the WACC could significantly impact prices over time (see Appendix D for further detail).

2. Allowance for regulatory depreciation, whereby the total cost of an asset is paid off over the life of the asset.
4.2 The key drivers of Sydney Water’s capital expenditure proposal

Sydney Water is expecting to overspend the capital expenditure allowance we set for the 2016 period by 18%, and is proposing a further 42% increase for the 2020 period. Sydney Water’s proposed capital expenditure for the 2020 determination period is significantly higher than its historical 30-year average, as shown in Figure 4.1.

Figure 4.1 Sydney Water’s capital investment from 1990 to 2024 ($2019–20, $ million)

The key drivers of Sydney Water’s proposed revenue requirement are:

▶ The cost to the broader customer base of servicing growth. The increased costs of servicing new development (growth) represent 54% ($702 million) of the total increase in capital expenditure. As outlined in Chapter 2, this cost is recovered from the broader customer base, in the absence of water, wastewater and stormwater developer charges.

▶ The cost of proactive asset management. Sydney Water intends to implement a more proactive asset management strategy to respond to recent deterioration in performance, particularly the environmental performance of its wastewater network. This represents 42% ($570 million) of the total capital expenditure increase proposed for the 2020 determination period, compared with the forecast expenditure for the 2016 determination period. We will assess the appropriateness of Sydney Water’s current asset management approach and the implications on maintenance schedules and asset renewal expenditure.

▶ Lower interest rates. Sydney Water’s increased capital expenditure is offset in this pricing period by a reduction in the WACC. Sydney Water is proposing a WACC of 4.1%, compared to a WACC of 4.9% which we set in the 2016 review. If Sydney Water’s proposed level of capital expenditure is sustained, there will be upwards pressure on bills in the future, even if interest rates remain at low levels.
4.3 Sydney Water’s expected total capital expenditure for the 2016 period

Sydney Water forecasts\(^{36}\) that it will spend $3.2 billion on capital expenditure over the 2016 determination period (2016 period), which is $498 million (or 18\%) higher than the forecast efficient capital expenditure used to set prices in our 2016 determination (see Table 4.1).

While capital expenditure did not exceed our allowance in 2016-17, it exceeded our allowance in 2017-18 and is forecast to be significantly higher in 2018-19 and 2019-20.

Table 4.1 Sydney Water’s capital expenditure, by service, compared with IPART determination over the 2016 period ($2019-20, $ million)

<table>
<thead>
<tr>
<th>Service</th>
<th>Sydney Water Actual/forecast(^{a})</th>
<th>2016 IPART Determination</th>
<th>Difference</th>
<th>Difference %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>660</td>
<td>712</td>
<td>-52</td>
<td>-7%</td>
</tr>
<tr>
<td>Wastewater</td>
<td>1,931</td>
<td>1,455</td>
<td>476</td>
<td>33%</td>
</tr>
<tr>
<td>Corporate</td>
<td>495</td>
<td>380</td>
<td>115</td>
<td>30%</td>
</tr>
<tr>
<td>Stormwater</td>
<td>106</td>
<td>149</td>
<td>-43</td>
<td>-29%</td>
</tr>
<tr>
<td>Recycled</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,194</strong></td>
<td><strong>2,696</strong></td>
<td><strong>498</strong></td>
<td><strong>18%</strong></td>
</tr>
</tbody>
</table>

\(^{a}\) Includes forecast for 2018-19 and 2019-20.

Source: Sydney Water Price proposal 2020-24, July 2019, Attachment 9 Capital expenditure, Table 1-2, p 12.

Sydney Water’s capital expenditure overspend over the 2016 determination period was driven by:

- **Wastewater assets (overspend of $476 million).** Additional expenditure was incurred on major renewals of wastewater treatment plant assets, because these assets were assessed to be in poorer condition than previously expected.

- **Corporate assets (overspend of $115 million).** Additional expenditure was due to an overspend in digital projects including the Customer experience platform (CxP) and moving to the Government data centre (GovDC)\(^{37}\), which was not initially proposed for 2016-20.

This was partially offset by an underspend in the following services:

- **Water assets (underspend of $52 million).** A more cost-effective option for the reticulation water main program expenditure was identified, and expenditure related to system reliability and the reservoirs renewal program of works was deferred.

- **Stormwater assets (underspend of $43 million).** A reprioritisation of projects was undertaken, with funds identified for redirection to priority renewal works.

A summary of Sydney Water’s expenditure over the 2016 determination period, by service, is provided in the following chart.

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\(^{36}\) Sydney Water’s price proposal includes actual and forecast expenditure for year 2018-19 and forecasts for year 2019-20.

\(^{37}\) This resulted in an unanticipated spend of $21.5 million. GovDC is a cyber security initiative project and involves the transition of data storage from Sydney Water’s current data centre to GovDC. Sydney Water’s pricing proposal 2020-24, July 2019, Attachment 9 Capital expenditure, p 112.
Figure 4.2 Sydney Water’s forecast capital expenditure, by service, over the 2016 period ($2019-20, $ million)

Drivers of Sydney Water’s expected capital expenditure over the 2016 determination period

Sydney Water’s pricing proposal disaggregates its capital expenditure into six drivers:

1. **Existing mandatory standards (56% of expenditure over the 2016 period).** This is expenditure to deliver services to a standard consistent with mandatory regulatory and statutory obligations. It includes asset renewals which maintain service performance in line with an existing obligation. There was an overspend of $191 million compared with original forecasts, which Sydney Water states was driven by extremely dry soil conditions which resulted in an increase in sewer chokes caused by tree roots.

2. **Growth (33% of total).** Expenditure to service new customers or increased requirements of existing customers in accordance with mandatory standards. Capital expenditure related to growth was 53% (or $323 million) higher than originally forecast. Sydney Water states that its 2015 growth forecast was intentionally conservative, reflecting a risk sharing approach, so that customers did not ‘pre-pay’ for less certain growth investments.

3. **New mandatory standards (5%).** Expenditure driven by a new enforceable obligation.

4. **Business efficiency (4%).** Expenditure funded by reductions in expenditure of other business activities due to efficiencies.

5. **Government programs.** Expenditure to meet specific government requirements.

6. **Discretionary standards.** Expenditure incurred in the provision of service performance above a mandatory level, which is justified based on community willingness-to-pay.  

A breakdown of Sydney Water’s forecast capital expenditure for the 2016 period by key driver is provided in Table 4.2.

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38 Further detail on how Sydney Water tested market ‘willingness-to-pay’ is discussed in Chapter 3.
Table 4.2  
Sydney Water’s capital expenditure, by key driver, over the 2016 period  
($2019-20, $ million)

<table>
<thead>
<tr>
<th>Driver</th>
<th>2016–17</th>
<th>2017–18</th>
<th>2018–19 a</th>
<th>2019–20 a</th>
<th>Total</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Mandatory Standards</td>
<td>392</td>
<td>456</td>
<td>532</td>
<td>467</td>
<td>1,847</td>
<td>58%</td>
</tr>
<tr>
<td>New Mandatory Standards</td>
<td>16</td>
<td>58</td>
<td>49</td>
<td>48</td>
<td>171</td>
<td>5%</td>
</tr>
<tr>
<td>Discretionary Standards</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>Growth</td>
<td>195</td>
<td>267</td>
<td>277</td>
<td>313</td>
<td>1,052</td>
<td>33%</td>
</tr>
<tr>
<td>Business Efficiency</td>
<td>30</td>
<td>44</td>
<td>30</td>
<td>9</td>
<td>113</td>
<td>4%</td>
</tr>
<tr>
<td>Government Programs</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>640</strong></td>
<td><strong>826</strong></td>
<td><strong>889</strong></td>
<td><strong>837</strong></td>
<td><strong>3,192</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

a  Forecast for part of 2018-19 and 2019-20  
Source: Sydney Water Price proposal 2020-24, July 2019, Attachment 9 Capital expenditure, Table 1-3, p 12.

IPART’s response

We have not formed a preliminary view on Sydney Water’s proposed capital expenditure for the 2016 period. Our expert consultants will conduct a detailed review of Sydney Water’s past capital expenditure.

To make our draft decision, we will review the proposal, consider recommendations made by our consultants, and consider the responses of Sydney Water and other stakeholders to this Issues Paper and our consultant’s report.

IPART seeks comment on the following:

7 Is Sydney Water’s expected capital expenditure over the 2016 determination period efficient?

8 Has Sydney Water’s capital expenditure over the 2016 period delivered appropriate levels of service?

4.4 Sydney Water’s proposed capital expenditure for the 2020 period

Sydney Water has proposed total capital expenditure of $4.5 billion for the proposed 2020 determination period (2020 period). This represents an increase of $1.3 billion (42%) compared with its forecast spend for the 2016 period and an increase of $1.8 billion (68%) compared with the total capital expenditure we used to set prices for the 2016 period.

Expenditure on wastewater services accounts for the largest proportion of proposed total capital expenditure for the 2020 period ($3 billion of a total $4.5 billion) and represents a 58% increase compared with forecast expenditure for the 2016 period. Sydney Water states that over half of the expenditure on wastewater services relates to meeting existing mandatory standards required under Sydney Water’s Operating Licence and Environment Protection

39 There is a large spike in wastewater capital expenditure (of around $250m) between Year 2 and Year 3 of the 2020 determination period. This is largely driven by Sydney Water’s capital forecast profile in the critical sewers program and deep ocean outfall plant work. Sydney Water has advised that this forecast will be re-profiled in its submission to IPART’s draft report and expects that it would be more evenly spread.
Licences (EPL). Sydney Water’s proposal details a program of works to meet EPL standards including:

- $572 million on the rehabilitation and condition assessment of major sewers, and
- $305 million on the replacement and renewal of wastewater treatment plants, partly driven by servicing new growth.

Sydney Water states that the current prolonged dry weather and an increase in urban density around existing wastewater pipes has resulted in an increase in blockages of pipes (‘chokes’) and the number of wastewater overflow incidents, reducing the resilience of Sydney Water’s wastewater network and creating a growing backlog of reactive works.

Table 4.3 provides a summary of Sydney Water’s proposed capital expenditure, by service, over the 2020 determination period.

### Table 4.3  Sydney Water’s proposed capital expenditure, by service, over the 2020 period ($2019-20, $ million)

<table>
<thead>
<tr>
<th>Service</th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
<th>Total</th>
<th>IPART 2016 Determination Total</th>
<th>SWC 2016 Actual/Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>204</td>
<td>227</td>
<td>231</td>
<td>213</td>
<td>874</td>
<td>712</td>
<td>660</td>
</tr>
<tr>
<td>Wastewater</td>
<td>623</td>
<td>627</td>
<td>884</td>
<td>917</td>
<td>3,051</td>
<td>1,455</td>
<td>1,931</td>
</tr>
<tr>
<td>Corporate</td>
<td>137</td>
<td>117</td>
<td>90</td>
<td>82</td>
<td>427</td>
<td>380</td>
<td>495</td>
</tr>
<tr>
<td>Stormwater</td>
<td>40</td>
<td>54</td>
<td>43</td>
<td>48</td>
<td>185</td>
<td>149</td>
<td>106</td>
</tr>
<tr>
<td>Recycled Water</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,004</td>
<td>1,024</td>
<td>1,249</td>
<td>1,260</td>
<td>4,537</td>
<td>2,696</td>
<td>3,194</td>
</tr>
</tbody>
</table>

**Note:** Totals may not add up due to rounding.

**Source:** Sydney Water Price proposal 2020-24, July 2019, Attachment 9 Capital expenditure, Table 1-2, Table 1-3, Table 2-4, pp 12 and 61.

**Drivers of Sydney Water’s proposed capital expenditure over the 2020 period**

Sydney Water has also disaggregated its proposed capital expenditure for the 2020 period into six drivers. The following drivers account for the majority of the proposed increase:

- **Existing mandatory standards.** Sydney Water has proposed $2.5 billion (or 56% of total capital expenditure) to meet existing standards. It has stated that increased dwelling growth and a higher failure and reduced performance of assets which are in worse condition than previously assessed, has resulted in requirement for higher asset renewal investment to meet existing mandatory standards.

  Further, Sydney Water has outlined its intention to move to a more proactive asset management strategy, resulting in additional investment to renew or remediate failed or high-risk sewers, pumping stations and treatment plant equipment. This also includes expenditure to reduce wet weather overflows to the environment and wet weather surcharges into homes.
Growth. Sydney Water has stated that the costs of servicing new development are a key driver of the proposed capital expenditure increase and represent 36% ($1.6 billion) of the total expenditure. This is largely a result of higher wastewater treatment expenditure to service growth areas.

New mandatory standards. Sydney Water has proposed 4% ($179 million) of total capital expenditure for the 2020 period to meet new standards. The majority of this expenditure ($172 million) is to meet new requirements imposed by the NSW Environment Protection Authority (EPA) to reduce the impact of wet weather overflows (see Box 4.3). To help meet these requirements, Sydney Water has proposed to implement source control to reduce rainwater flows into the wastewater system from private properties, after engaging with customers (see Chapter 3 for more details).

Discretionary standards. Sydney Water is forecasting $64 million (1%) in expenditure to divert untreated wastewater from the ocean outfalls at Vaucluse and Diamond Bay to the Bondi Wastewater Treatment Plant. This is also discussed further in Chapter 3.

Box 4.3 The NSW EPA and Sydney Water are developing a new framework to address wet weather overflows

The EPA is developing a new framework for wet weather overflow (WWO) abatements to implement as part of Sydney Water’s 2020 licences. The new framework aims to reduce the impact on the environment, and the potential health risks, from wet weather overflows across four large coastal wastewater systems in Sydney Water’s network.

Sydney Water is required to make investments to reduce the frequency, or likelihood of wet weather overflows across these systems. The new framework is a risk-based framework. That is, Sydney Water will earn ‘credits’ if it addresses overflows in ‘high-risk’ areas, with the EPA setting an overall credit point target that Sydney Water needs to meet over the next four years.

Source: Email from EPA, August 2019.

A breakdown of Sydney Water’s forecast capital expenditure for the 2020 period by key driver is provided in Table 4.4.
Table 4.4  Sydney Water’s capital expenditure, by key driver, over the 2020 period ($2019-20, $ million)

<table>
<thead>
<tr>
<th>Driver</th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
<th>Total</th>
<th>% of Total</th>
<th>% change from 2016 forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Mandatory Standards</td>
<td>581</td>
<td>549</td>
<td>703</td>
<td>718</td>
<td>2,551</td>
<td>56%</td>
<td>38%</td>
</tr>
<tr>
<td>New Mandatory Standards</td>
<td>38</td>
<td>32</td>
<td>54</td>
<td>55</td>
<td>179</td>
<td>4%</td>
<td>5%</td>
</tr>
<tr>
<td>Discretionary Standards</td>
<td>12</td>
<td>16</td>
<td>20</td>
<td>16</td>
<td>64</td>
<td>1%</td>
<td>N/A</td>
</tr>
<tr>
<td>Growth</td>
<td>342</td>
<td>396</td>
<td>439</td>
<td>445</td>
<td>1,621</td>
<td>36%</td>
<td>54%</td>
</tr>
<tr>
<td>Business Efficiency</td>
<td>31</td>
<td>31</td>
<td>33</td>
<td>27</td>
<td>122</td>
<td>3%</td>
<td>8%</td>
</tr>
<tr>
<td>Government Programs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
<td>-100%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,004</strong></td>
<td><strong>1,024</strong></td>
<td><strong>1,249</strong></td>
<td><strong>1,260</strong></td>
<td><strong>4,537</strong></td>
<td><strong>100%</strong></td>
<td><strong>42%</strong></td>
</tr>
</tbody>
</table>

**Note:** For the 2020 period, Sydney Water has proposed discretionary projects following its customer engagement program. Totals may not add up due to rounding.

**Source:** Sydney Water Price proposal 2020-24, July 2019, Attachment 9 Capital expenditure, Table 2-5, p 62.

Sydney Water’s capital projections include built in efficiency adjustments

Sydney Water states that it has included $1.6 billion of efficiencies in its proposed capital expenditure for the 2020 period of $4.5 billion. It also states that these efficiencies are not due to scope reduction, but rather an intention to deliver the same outcomes for a reduced cost. Sydney Water’s pricing proposal indicates that the majority of identified efficiencies relate to a reduction in expenditure on renewal programs (around $600 million) and a reprioritisation of growth programs (around $700 million).

We have asked our consultant Atkins Cardno to review the estimated efficiencies in expenditure arising from Sydney Water’s review of its program of works.

**IPART’s response**

We have not formed a preliminary view on Sydney Water’s proposed capital expenditure for the 2020 period. We note that Sydney Water has proposed a large increase in expenditure, and we will decide whether an increase of this magnitude is required and sufficiently justified.

Our expert consultants will conduct a detailed review of Sydney Water’s proposed capital expenditure. As part of this, they will also provide advice on whether Sydney Water’s longer-term capital investment strategy is the most efficient. This includes assessing whether the processes supporting their strategy including options analysis, procurement processes, customer engagement practices, whole of life cycle planning and assessment of capital and operating expenditure trade-offs, are best practice and therefore likely to result in efficient investment decisions.

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Our consultants will also investigate whether, in proposing significant capital investment, Sydney Water has considered all credible options, including recycled water solutions where appropriate. This has always been IPART’s standard to meet efficiency tests.41

We will consider the reasons Sydney Water has put forward to justify its forecast capital expenditure for the 2020 determination period, and the efficiency of its forecast expenditure, taking into account the findings of our consultants, as well as the information we receive from Sydney Water and stakeholder feedback.

IPART seeks comment on the following:

9. Is Sydney Water’s proposed capital expenditure including expenditure related to growth and existing mandatory standards over the 2020 determination period efficient?

10. Do you have any comments on Sydney Water’s approach to planning and forecasting costs associated with growth?

4.5 How capital expenditure is recovered from prices

Once we establish the efficient level of historical and proposed capital expenditure, we then add this expenditure into a Regulatory Asset Base (RAB). The RAB feeds into prices through an allowance for a return on assets – the RAB value multiplied by the WACC, and an allowance for regulatory depreciation – which is driven by the life of assets.

In this section, we briefly discuss Sydney Water’s proposals on WACC and asset lives, and our preliminary responses. Further details on our WACC methodology are available in Appendix D. We also discuss Sydney Water’s concerns that the low interest rate environment could impact its future cashflow.

4.5.1 Sydney Water’s proposals on the WACC

Sydney Water has proposed a WACC of 4.1%, applying IPART’s 2018 WACC methodology with the financial market data available at the time of its pricing proposal.

In our 2018 WACC review, we decided to transition to a trailing average cost of debt to allow the utilities we regulate to better manage their refinancing risk. As discussed in further detail in Appendix D, this means that we need to account for changes in the cost of debt. Sydney Water has also proposed to account for annual changes in the cost of debt through a regulatory true-up in the following determination period.

IPART’s response

We support Sydney Water’s approach because it is consistent with our methodology, and we will update the WACC parameters using the most up-to-date financial information available when making our draft and final decisions.

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41 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.
Our preliminary view on the true-up for the cost of debt is also to accept Sydney Water’s proposal. This is consistent with our recent decision in our 2019 reviews of the Central Coast Council’s Water prices, and Broken Hill water prices, and consistent with the guidance we provided in our 2018 WACC review.

IPART seeks comment on the following:

11 Do you agree that we should adopt our 2018 WACC methodology when setting the WACC in the 2020 Sydney Water price review?

12 Do you agree that we should account for annual changes in the cost of debt with a regulatory true-up in the following pricing period?

4.5.2 Sydney Water’s proposal on regulatory depreciation

To calculate regulatory depreciation, we need to determine the appropriate depreciation method to use and the appropriate lives for Sydney Water’s new and existing assets.

Sydney Water proposed to depreciate its water and wastewater assets using a straight-line methodology, consistent with previous reviews and in-line with our usual approach across the water utilities we regulate.

To decide on the economic lives of its assets, Sydney Water has used its CEMELND asset classes for Water, Wastewater and Stormwater assets, consistent with the classification that IPART has adopted in previous reviews. It has also created separate CEMELND asset classes for water and wastewater assets that are funded via a finance lease.

Broadly speaking, for most of its asset categories, Sydney Water has proposed to adopt asset lives that are consistent with previous reviews. One exception is its proposed asset lives for some finance lease assets, where Sydney Water has proposed shorter asset lives than we adopted in 2016. These comprise less than 1% of all assets.

IPART’s response

Our preliminary view is to accept Sydney Water’s proposed CEMELND asset categories, as they are consistent with previous views. We have not formed a position on the appropriate asset lives for these categories, and our expert consultants will review and advise on appropriate asset lives for this review.

4.5.3 Sydney Water’s comments on the low interest rate environment

Sydney Water’s proposed price decreases largely reflect low interest rates. Sydney Water also anticipates that the WACC may decrease further by the time we finalise final decisions, and raised concerns that the current low interest rate environment “may have implications for our financeability and our ability to provide a reasonable return to our shareholders”.43

42 Under a CEMELND classification, assets are categorised into civil, electrical, mechanical, electronic, and non-depreciating components to calculate the allowance regulatory depreciation.

The pricing submission focussed on the ‘extraordinarily low’ risk-free rates currently observed, implying that this might lead to our midpoint WACC underestimating market expectations.

Sydney Water also requested IPART to develop “more sophisticated” cost of equity models during this price review “due to the dramatic market conditions at play”. As part of our 2018 WACC review, we committed to develop and monitor these models before our next WACC review.

**IPART’s response**

We will select a WACC estimate that allows a benchmark efficient business to remain financeable. Our WACC estimates are transparent and market-based, and use publicly available information. In particular, our estimates of the cost of debt are based on the financing costs of similarly risky businesses in the private sector.

Instead, our view is that the NSW Government’s policy of zero developer charges together with Sydney Water’s proposal to underfund its growth capital expenditure program could have a larger impact on its financeability and the return it delivers to its shareholder (Treasury). Sydney Water’s proposal implies that around $700 million in growth capital expenditure has not been factored into its four-year pricing period as the business is not certain it will be required.\(^{44}\) If this growth expenditure is required, it would be unfunded over the next four-year pricing period, which could have a large impact on its cash flow and returns to its shareholder.

We do not propose developing alternative cost of equity models at this stage. We would not intend to use the results of these untested models in a pricing review, particularly without adequate stakeholder consultation, given that our 2018 WACC method, which does not use these models, would still apply.

We will consider the impact of Sydney Water’s proposed capital expenditure over the 2020 determination period, and its longer term augmentation investment plan, on current and future prices. In particular, there may be a trade-off between price decreases in the short term (2020 determination period) and longer term structural price increases (over the next 30 years) if the current rate of capital expenditure is maintained. To that end, we will consider Sydney Water’s long term investment planning and evaluate the impact on future price trajectories.

**4.6 Sydney Water’s performance against output measures for the 2016 period**

We set output measures to assess whether the utility is delivering on its planned capital expenditure. This is important because we set prices to enable it to recover the forecast costs of those plans.

In Sydney Water’s 2016 Determination, we set 11 output measures and 20 corresponding targets or indicators across water, wastewater and stormwater services. In its pricing proposal for the 2020 Determination, Sydney Water has reported against these output measures.\(^{45}\)

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\(^{44}\) Sydney Water Price proposal 2020-24, July 2019, Attachment 9, p 53.

\(^{45}\) Sydney Water Price proposal 2020-24, July 2019, Appendix 9A, Capex Tables.
We will review Sydney Water’s performance against the 2016 output measures and consider whether the output measures could be improved for the 2020 determination period to facilitate an increasingly outcomes based regulatory framework. We have also asked our expert consult, Atkins Cardno, to review Sydney Water’s performance against the 2016 output measures in assessing the efficiency of Sydney Water’s actual expenditure over the 2016 determination period.

**IPART seeks comment on the following:**

13 Do you have any comments about Sydney Water’s performance against the output measures in Appendix E?

14 Do you have any comments on what output measures we should use for the 2020 determination period?
5 Efficient operating expenditure

In this price review, we will set an operating expenditure allowance which reflects our view of the efficient level of operating costs Sydney Water will incur in providing its services over the 2020 determination period.

Sydney Water’s total operating expenditure is made up of two main components:

- Core operating expenditure, which represents about 70% of operating costs. This includes the cost of labour, service contractors, energy, materials, and plant and equipment.
- Non-core operating expenditure, which represents the remaining 30%. This consists of Sydney Water’s bulk water purchases from WaterNSW and SDP.\(^{46}\)

This chapter first outlines how we propose to establish the efficient operating expenditure. It then discusses:

- The key drivers of Sydney Water’s operating expenditure proposal.
- Sydney Water’s actual and forecast\(^{47}\) operating expenditure during the 2016 determination period.
- Sydney Water’s proposed operating expenditure for the 2020 determination period.

We also present our preliminary responses to Sydney Water’s proposals and issues we seek comment on.

5.1 Our approach for establishing efficient operating expenditure

Similar to our approach for establishing efficient capital expenditure (outlined in section 4.1), we will apply our efficiency test to examine whether Sydney Water’s proposed operating expenditure for the 2020 determination period represents the most efficient way of delivering its services to customers.

There is also an Efficiency Carryover Mechanism (ECM) that allows Sydney Water to ‘claim’ permanent efficiency savings from its core operating expenditure (ie, excluding bulk water) and carry these savings for a portion of the next determination period. However, given Sydney Water overspent its operating expenditure allowance in the 2016 determination period, it has not applied for an operating efficiency carryover in the 2020 determination period. The efficiency carryover mechanism is discussed further in Chapter 9 and Appendix J.

Although we are not considering an efficiency carryover from the 2016 determination period in setting the allowance for the 2020 Determination, we will still consider Sydney Water’s operating expenditure in the 2016 determination period as part of establishing its efficient

\(^{46}\) Bulk water is comprised of the costs from 1) WaterNSW supplying raw water to Sydney Water; and 2) SDP, which has a specific set of regulated charging arrangements based on its operating status and volumes purchased. Both WaterNSW and SDP prices are determined by IPART.

operating expenditure for the 2020 determination period. We have engaged expert consultants (Atkins) to review Sydney Water’s proposal. We will also consider the views of stakeholders, who will have an opportunity to respond to Sydney Water’s pricing proposal as well as to our Issues Paper. Chapter 2 outlines the timeframes for stakeholder responses.

5.2 **The key drivers of Sydney Water’s operating expenditure**

Sydney Water expects to overspend the operating expenditure allowance we set for the 2016 determination period by $254 million (or 4.8%). It is proposing a further $123 million (or 2.3%) increase for the 2020 determination period.

Figure 5.1 compares Sydney Water’s core and non-core operating expenditure across the 2016 and 2020 determination periods against our allowance for the 2016 determination period.

**Figure 5.1** Sydney Water’s total operating expenditure over years 2016 to 2024 ($2019-20, $ million)

*2018-19 and 2019-20 are forecasts

**Source:** Sydney Water pricing proposal 2020-24, July 2019, Attachment 10 Operating expenditure, Table 1-1, p 10.
The key drivers of Sydney Water’s proposed operating expenditure are:

- **A more conservative asset management strategy.** As highlighted in Chapter 4, over the 2016 determination period, there was a deterioration in performance (particularly the environmental performance of wastewater assets). Sydney Water is increasing its reactive expenditure to address the backlog of maintenance works on water and wastewater assets. Going forward in the 2020 determination period, Sydney Water is intending to implement a more proactive asset management strategy and proposes to spend additional operating expenditure on preventative measures.

- **Drought conditions.** Over the 2016 determination period, Sydney Water has forecast an increase in operating expenditure as a result of drought conditions, including expenditure on weather related network repairs and maintenance, and media to encourage customers to conserve water. If drought continues, Sydney Water anticipates a further increase in operating expenditure in 2019-20. However, Sydney Water’s proposed operating expenditure over the 2020 determination period assumes average weather conditions. We will consider whether using ‘average weather’ conditions is appropriate and assess whether Sydney Water’s forecast accurately represents average weather conditions.

### 5.3 Sydney Water’s forecast total operating expenditure from 2016 to 2020

Sydney Water forecasts that its operating expenditure for the 2016 determination period will be about 4.8% (or $254 million) higher than the allowance we set. It forecasts that the majority of this overspend will incur in the final two years of the 2016 determination period, and consists of an overspend in:

- Core operating expenditure of $140 million (or 3.8%), and
- Non-core operating costs of $114 million (or 7.1%).

The following table summarises Sydney Water’s forecast operating expenditure over the 2016 determination period. The following sections discuss the overspend on core and non-core operating expenditure in more detail.
### Table 5.1 Sydney Water’s total operating expenditure, compared with IPART determination over the 2016 determination period ($2019-20, $ million)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2016 IPART Determination</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core operating expenditure</td>
<td>938</td>
<td>933</td>
<td>914</td>
<td>907</td>
<td>3,693</td>
</tr>
<tr>
<td>Bulk water</td>
<td>415</td>
<td>392</td>
<td>395</td>
<td>396</td>
<td>1,598</td>
</tr>
<tr>
<td>Total operating expenditure</td>
<td>1,354</td>
<td>1,325</td>
<td>1,310</td>
<td>1,303</td>
<td>5,291</td>
</tr>
<tr>
<td><strong>Sydney Water’s Forecast</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core operating expenditure</td>
<td>939</td>
<td>937</td>
<td>981</td>
<td>975</td>
<td>3,832</td>
</tr>
<tr>
<td>Bulk water</td>
<td>417</td>
<td>397</td>
<td>437</td>
<td>461</td>
<td>1,713</td>
</tr>
<tr>
<td>Total operating expenditure</td>
<td>1,356</td>
<td>1,333</td>
<td>1,419</td>
<td>1,437</td>
<td>5,545</td>
</tr>
<tr>
<td><strong>Difference ($)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core operating expenditure</td>
<td>1</td>
<td>4</td>
<td>67</td>
<td>69</td>
<td>140</td>
</tr>
<tr>
<td>Bulk water</td>
<td>2</td>
<td>5</td>
<td>42</td>
<td>66</td>
<td>114</td>
</tr>
<tr>
<td>Total operating expenditure</td>
<td>2</td>
<td>9</td>
<td>109</td>
<td>134</td>
<td>254</td>
</tr>
<tr>
<td><strong>Difference (%)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core operating expenditure</td>
<td>0.1%</td>
<td>0.4%</td>
<td>7.3%</td>
<td>7.6%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Bulk water</td>
<td>0.4%</td>
<td>1.3%</td>
<td>10.7%</td>
<td>16.5%</td>
<td>7.1%</td>
</tr>
<tr>
<td>Total operating expenditure</td>
<td>0.2%</td>
<td>0.6%</td>
<td>8.3%</td>
<td>10.3%</td>
<td>4.8%</td>
</tr>
</tbody>
</table>

*2018-19 and 2019-20 are forecasts*

**Source:** Sydney Water Price proposal 2020-24, July 2019, Attachment 10 Operating expenditure, Table 2-3, p 18.

#### 5.3.1 Core operating expenditure over the 2016 determination period

Sydney Water outlines that the key drivers of the increase in core operating expenditure are drought conditions, and increased maintenance costs for its wastewater and water assets.

**Drought conditions**

Prolonged dry weather and higher than anticipated growth has resulted in greater demand and declining service performance. This has resulted in:

- An overspend of $27 million to address performance issues through reactive weather related network repairs and maintenance, and
- An overspend of $19 million on proactive water efficiency programs and communications to reduce water consumption levels.

If the drought continues in 2019-20, Sydney Water forecasts an additional operating expenditure of $78 million.

Sydney Water has also implemented additional water conservation expenditure. As mentioned in Chapter 2, under upcoming changes to Sydney Water’s operating licence, it is required to implement water conservation activities – such as water efficiency, leakage management and water recycling projects – which meet the ‘Economic Level of Water Conservation’ (ELWC).

To meet these new ELWC requirements, Sydney Water’s forecasts to spend $8 million in 2019-20 on water conservation activities.
Increased preventative and reactive maintenance works on wastewater and water assets

Sydney Water has forecast an overspend of $13 million on reactive wastewater environmental improvements works in 2019-20 and an additional $28 million on increased preventative maintenance works on water and wastewater assets.

Other cost increases were largely offset

Sydney Water’s expected operating expenditure over the 2016 determination period also includes overspends as a result of higher electricity prices ($46 million), higher-than-expected IT expenditure ($30 million), costs related to city planning ($10 million), unanticipated land tax costs ($14 million) and unbudgeted defined benefit funding ($6 million).

These overspends were partially offset by savings from BOO (Build Own Operate) water filtration costs (saving of $19 million) and efficiency gains ($42 million).48

5.3.2 Non-core operating expenditure over the 2016 determination period

The key drivers of the increase in non-core operating expenditure are:

Sydney Desalination Plan

An additional $42 million is expected to be incurred in 2018-19, as well as an additional $78 million in 2019-20, as a result of the unbudgeted start-up of the Sydney Desalination Plant (SDP).

WaterNSW

Sydney Water expects to overspend our allowance for WaterNSW bulk water costs by $14 million (or 1.6%). Sydney Water attributes this to the higher demand for water from a combination of drought and higher than expected growth in its customer base, leading to higher bulk water purchase volumes.

Sydney Water’s proposal also highlights that higher-than-expected growth in property numbers and water demand have increased operating expenditure on chemicals (to treat water and wastewater), electricity costs, repairs and maintenance in response to increased wear in the network and other operating expenditure costs (such as biosolids, grit and screenings).49

5.3.3 IPART’s response

We will not be assessing the efficiency of Sydney Water’s operating expenditure over the 2016 determination period, however its historical operating expenditure will inform our review of operating expenditure over the 2020 determination period.

48 Sydney Water has advised total business efficiency savings of $47m, however in its explanation of the $140m variance in core operating expenditure, they have applied $42m.
49 Sydney Water pricing proposal 2020-24, July 2019, Attachment 10 Operating expenditure, p 51.
5.4 Sydney Water’s proposed operating expenditure from 2020 to 2024

Sydney Water has proposed operating expenditure of $5.4 billion over the 2020 determination period. This represents a decrease of $131 million (2.4%) compared with its forecast spend for the 2016 determination period, but an increase of $123 million (2.3%) compared with the total operating expenditure we used to set prices for the 2016 determination period.

Sydney Water’s proposed operating expenditure over the 2020 determination period is comprised of two main components:

- **Core operating expenditure.** This accounts for $3.9 billion and represents a 2.1% increase compared with Sydney Water’s forecast spend for the 2016 determination period, and
- **Bulk water (non-core operating expenditure).** This accounts for $1.5 billion, and represents a 12.2% reduction compared with Sydney Water’s forecast spend for the 2016 determination period. This amount is inconsistent with WaterNSW’s proposed revenue requirement and will be discussed further below.

The following table and chart provides a summary of Sydney Water’s proposed operating expenditure over the 2020 determination period.

<table>
<thead>
<tr>
<th></th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
<th>Total 2020</th>
<th>Total 2016</th>
<th>Difference</th>
<th>Difference %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core operating expenditure</td>
<td>972</td>
<td>976</td>
<td>980</td>
<td>983</td>
<td>3,911</td>
<td>3,832</td>
<td>79</td>
<td>2.1%</td>
</tr>
<tr>
<td>Bulk water</td>
<td>370</td>
<td>373</td>
<td>378</td>
<td>382</td>
<td>1,503</td>
<td>1,713</td>
<td>-210</td>
<td>-12.2%</td>
</tr>
<tr>
<td>Total operating expenditure</td>
<td>1,342</td>
<td>1,349</td>
<td>1,358</td>
<td>1,365</td>
<td>5,414</td>
<td>5,545</td>
<td>-131</td>
<td>-2.4%</td>
</tr>
</tbody>
</table>

**Source:** Sydney Water Price proposal 2020-24, July 2019, Attachment 10 Operating expenditure, Table 1-1, p 11; IPART analysis.

Sydney Water’s forecast core operating expenditure per property is expected to decrease over the 2020 determination period, by 1.3% per year, as a result of annual customer growth of 1.7% (see Figure 5.2).
5.4.1 Proposed core operating expenditure over the 2020 determination period

Increasing preventative maintenance works for wastewater and water assets

As mentioned in section 5.2, Sydney Water increased its expenditure on reactive maintenance over the 2016 determination period, owing in part to drier weather conditions. In addition, there has been a deterioration in, and poorer performance of, its water and wastewater assets. Sydney Water has seen an increased backlog of preventative maintenance works, which it intends to address over the 2020 determination period to catch up to a sustainable balance of reactive and preventative maintenance works. It has proposed an additional $20 million each year on preventative maintenance works on water and wastewater assets and an additional $12 million per year on environmental improvement works on wastewater assets.

Water conservation measures

Sydney Water proposes an additional $10 million each year for water conservation. Sydney Water states that this is the baseline amount based on ‘average weather’ conditions. Under drought conditions and decreasing dam levels, Sydney Water anticipates to incur additional expenditure on water conservation. It did not outline what this expenditure would be in its proposal, because it proposed to absorb this additional expenditure in the case of drought.50

Environmental requirements - Hawkesbury Nepean Offset Scheme (HNOS)

The HNOS is part of the EPA’s proposed Hawkesbury Nepean Nutrient Management Framework and its purpose is to manage the level of nutrient discharge from treated wastewater into the Hawkesbury Nepean River, as population growth occurs in surrounding areas. Our understanding of how the HNOS will work is in Box 5.1.

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50 Sydney Water pricing proposal 2020-24, July 2019, Attachment 10 Operating expenditure, pp 33 and 53.
Box 5.1 The Hawkesbury Nepean Offset Scheme (HNOS)

The objective of the EPA’s proposed Hawkesbury Nepean Nutrient Management Framework is to manage the nutrients discharged to the Hawkesbury Nepean (HN) River from Sewerage Treatment Plants (STPs), to balance the community’s environmental values for the river while providing STP operators with alternative and potentially cost-effective options for meeting discharge limits.

The proposed framework, due to commence at the end of the 2020 pricing period, has three main elements:

1. It limits nutrient concentrations from STPs to reflect ‘good practice’ treatment levels for current STPs and ‘best practice’ levels for new STPs.

2. It places an interim cap on total nutrient loads from STPs, to avoid any increase in the risk of algal blooms and aquatic weed outbreaks. The EPA proposes to cap total nitrogen (TN) loads and total phosphorus (TP) loads to the HN River at Yarramundi, Sackville and Berowra Creek, at ‘current’ levels, less the load reduction to be achieved by the proposed upgrade of Sydney Water’s Winmalee STP.51

3. To allow the trading of nutrient loads between STPs, and to allow STP operators to offset their discharges with other nutrient load reductions (eg, by negotiating with property owners to reduce the nutrient discharge from private property into the HN River, or to invest in environmental projects that absorb these nutrients).

Under the HNOS, the EPA proposes to allow STP operators to ‘trade’ load allocations between STPs within a defined area (sub-zones), similar to the current South Creek bubble licensing scheme. The EPA proposes to develop a trading protocol, to ensure that any nutrient load trading is ‘like for like’ with respect to environmental impacts and that the load trading arrangements are transparent and accountable. Elements of the protocol are likely to include:

- Trading being based on loads of biologically available forms of nitrogen and phosphorus, rather than TN and TP.

- Trading ratios, where trading is proposed with a downstream STP and streamflows provide relatively low dilution of the upstream STP’s effluent. This would mean, for example, a downstream STP would need to reduce its nitrogen or phosphorus output by two kilograms for every kilogram discharged at an upstream plant.

This will enable the operators to decide on the most cost-effective means of meeting its load obligations within a zone. Each STP will also need to comply with the applicable concentration limits. These trades will need to be arranged privately between STP operators, with appropriate contractual requirements in place to ensure that each party can demonstrate to the EPA that they have met their licence conditions. Combined load limits across multiple STPs will be reflected in licence conditions.

Source: Email from EPA, August 2019.

Most of the wastewater treatment plants under the HNOS are owned by Sydney Water. To prepare for this scheme and future reduced load limits, Sydney Water’s proposed operating expenditure includes $13 million on research and development tied to the HNOS.

Sydney Water’s proposed expenditure also includes capital expenditure to upgrade several of its wastewater treatment plants in anticipation of lower nutrient limits in 2024. However, given the early stages of the HNOS, potential projects will have high cost, delivery and

51 The upgrade of the Winmalee STP is projected to see TP loads from STPs to the HN River drop to levels lower than current levels by 2030.
regulatory risk associated with them. We have requested for further detail on the proposed expenditure related to the HNOS.

Finally, Sydney Water proposes five principles for IPART to consider in the cost recovery of offset activities:

- **Principle 1:** Sydney Water should recover the efficient cost of water quality management activities for the Hawkesbury Nepean River that have the support (explicit or tacit) of the EPA.
- **Principle 2:** Sydney Water should be incentivised to seek financial contribution from other beneficiaries of nutrient management activities.
- **Principle 3:** Sydney Water should not be unfairly penalised for efficient risk taking (including R&D pilot programs that are necessary to efficiently discharge our obligations).
- **Principle 4:** Hawkesbury Nepean nutrient management costs should be recovered via regulated wastewater charges (net any contributions made by beneficiaries).
- **Principle 5:** Hawkesbury Nepean costs should be recovered from customers based on contributions to discharge.\(^{52}\)

As discussed further in Chapter 7, the HNOS could be used to establish the costs of managing increased sewerage discharges into specific wastewater treatment plants, and used to estimate a location-based price for these catchment areas.

**Digital expenditure**

Sydney Water is proposing an additional $30 million each year for digital operating expenditure, which comprises:

- Increased cyber security expenditure (additional $6 million per year) to protect customer data and improve IT resilience.
- Relocating its data centres (additional $8 million per year) at Homebush and Parramatta to theGovDC data centre, which will house all NSW government department services.
- Ongoing expenditure to maintain its customer engagement platform (CxP; additional $9 million per year).
- GovDC lease costs (additional $7 million per year) for the introduction of the new CxP (billing and customer management systems) and followed by other applications.

**Other cost increases and reductions**

Sydney Water’s proposal includes additional expenditure related to city planning costs (an additional $8 million each year), land tax (an additional $10 million each year) and defined benefit funding (an additional $5.5 million each year).

Sydney Water’s proposal indicates that these key cost drivers will be offset by some reductions in other cost categories, including reduced electricity costs and operating efficiencies (a reduction of $83 million over the 2020 determination period).

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\(^{52}\) Sydney Water Pricing proposal 2020-24, July 2019, Attachment 7, p 13.
Drought conditions are not factored in

Sydney Water’s proposed operating expenditure does not factor in the costs of drought conditions based on its ‘average weather conditions’ assumption.

5.4.2 Proposed non-core operating expenditure over the 2020 determination period

Bulk water purchases from WaterNSW

Sydney Water’s proposed bulk water purchases from WaterNSW are $785 million over the 2020 determination period. However, WaterNSW’s proposed bulk water sales to Sydney Water are $95 million higher at $880 million.

Ostensibly, both forecasts assume that SDP is not operational. However, the WaterNSW projection is around 12% higher than Sydney Water’s. Furthermore, we assume that Sydney Water’s operating expenditure should also include a corporate overhead allocation (as outlined below), which would suggest on a ‘like-for-like’ basis that Sydney Water’s proposed costs are about 25% lower than WaterNSW’s.

The following table provides a summary of bulk water costs over the 2020 determination period, as proposed by Sydney Water and WaterNSW.

Table 5.3 Total bulk water purchase costs 2020 determination period ($2019-20, $ millions.)

<table>
<thead>
<tr>
<th>Service</th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Water: WaterNSW bulk water costs</td>
<td>189</td>
<td>194</td>
<td>200</td>
<td>203</td>
<td>785</td>
</tr>
<tr>
<td>WaterNSW:</td>
<td>219</td>
<td>220</td>
<td>220</td>
<td>221</td>
<td>880</td>
</tr>
</tbody>
</table>

Source: Sydney Water Price proposal 2020-24, July 2019, Attachment 10 Operating expenditure, Table 4-3, p.55; WaterNSW Price proposal 2020-24, July 2019, page 18, Table 3.

We will review the assumptions informing these cost estimates with Sydney Water and WaterNSW. Our initial understanding of this discrepancy reflects timing differences of when the respective estimates were put together. We will set a consistent allowance in the two reviews.

Bulk water purchases from SDP

Sydney Water has assumed that SDP will be in water security shutdown mode throughout the 2020 determination period, based on its assumption of ‘average’ weather conditions. Thus, the proposed SDP costs only reflect fixed charges.

Sydney Water states that if SDP continues operating beyond July 2020, any costs associated with operating the plant will be passed onto customers under the established cost pass-through mechanism.
Sydney Water has proposed an allocation of corporate costs to bulk water

In the past, Sydney Water’s business support and corporate costs have not been allocated to bulk water costs as they incur relatively small administrative costs associated with managing the contracts.

Sydney Water states that to comply with IPART’s cost allocation principles, it has allocated the pooled business support and corporate costs to all products and services on the basis of their direct costs, including bulk water costs (with the exception of unregulated commercial services).53

5.5 IPART’s response and other issues

In our review we will be working with our consultants, Atkins, to assess Sydney Water’s proposal.

Core operating expenditure

We will review the:

- Appropriateness of Sydney Water’s assumed ‘average weather conditions’ in its proposed costs. This includes assessing whether Sydney Water’s forecasts truly represent an ‘average’ forecast.
- Appropriateness of the proposed balance of reactive and preventative expenditure on its water and wastewater assets.
- Robustness of the proposed expenditure in meeting environmental requirements, such as the HNOS. In doing so, we will also decide how these costs should be recovered through prices, and consider the impactors and beneficiaries of the expenditure Sydney Water incurs to comply with environmental regulation obligations.
- Robustness of Sydney Water’s proposed expenditure in meeting ELWC requirements based on ‘average weather conditions’ and potential expenditure if dam levels fall. This includes considering the impact and treatment of contingent projects that Sydney Water plans to implement if dam levels fall.

Non-core operating expenditure (bulk water costs)

We will review WaterNSW’s and Sydney Water’s proposals on bulk water costs, and set a consistent allowance in both reviews. Our concurrent review of WaterNSW’s prices in the Greater Sydney region will establish the costs Sydney Water will incur to purchase bulk water from WaterNSW.

We will also decide on Sydney Water’s proposal to allocate corporate costs to bulk water services. Our initial thoughts are that:

- The corporate costs incurred by Sydney Water in relation to bulk water would be relatively small, and relate mainly to managing their contracts with WaterNSW and SDP.

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We will need to consider the potential impacts of Sydney Water’s proposal on competition in the provision of water and/or wastewater services.

IPART seeks comments on the following:

15 Is Sydney Water’s proposed operating expenditure over the 2020 determination period efficient?

16 How should our review account for the risks of drought and support water conservation?

17 Are Sydney Water’s proposed bulk water costs reasonable? Do you agree with Sydney Water’s allocation of corporate costs to bulk water?

18 Are Sydney Water’s proposed pricing principles for the Hawkesbury Nepean offset scheme appropriate? For example, should the cost risks for R&D projects be passed on fully to customers, or appropriately shared between customers and Sydney Water?
6 Demand and customer numbers

Once we have determined the revenue requirement for the 2020 determination period, the next step in our approach is to decide on Sydney Water’s forecast water sales and customer numbers, and its forecast chargeable wastewater volumes. These forecasts are used to calculate the water and wastewater prices that would recover the revenue requirement.

It is important that these forecasts are robust. If they are higher than actual sales, Sydney Water may not earn sufficient revenue to recover its efficient costs. If the forecasts are lower than actual sales, customers will pay too much.

This chapter outlines Sydney Water’s expected water sales over the 2016 determination period, then discusses its proposals on forecast water sales, customer numbers and chargeable wastewater volumes for the 2020 determination period, and our preliminary analysis of these proposals.

6.1 Sydney Water’s expected water sales for the 2016 determination period

Table 6.1 compares actual and expected water sales over the 2016 determination period, with IPART and Sydney Water’s forecasts in 2016. The table shows the water sales forecasts we adopted were higher than Sydney Water’s proposal. However, actual water sales over the first three years of the determination period are expected to be 6.7% higher than IPART’s forecast. Over the four years, Sydney Water expects it will exceed IPART’s forecast by 129 GL, or 6.54%

We estimate the difference between actual water sales and our forecasts led to Sydney Water exceeding its revenue requirement by more than $200 million over the first three years of the 2016 determination period. While Sydney Water’s price proposal for the 2020 determination period does not include an adjustment for this over-recovery, they have separately proposed that IPART could return $30 million to customers through lower prices during the 2020 determination period (we discuss this further in section 6.3.1).55

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54 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 8, Table 2-1, p 7.
55 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 7, p 7-8.
### Table 6.1  
**Sydney Water’s expected water sales and IPART’s forecast water sales, over the 2016 determination period**

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Water forecast, as at 2016 (GL)</td>
<td>528</td>
<td>533</td>
<td>538</td>
<td>544</td>
</tr>
<tr>
<td>IPART forecast, as at 2016 (GL)</td>
<td>532</td>
<td>539</td>
<td>544</td>
<td>550</td>
</tr>
<tr>
<td>Sydney Water expected water sales (GL)</td>
<td>558</td>
<td>601</td>
<td>565&lt;sup&gt;a&lt;/sup&gt;</td>
<td>570&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Difference (%)</td>
<td>4.9</td>
<td>11.5</td>
<td>3.9</td>
<td>3.6</td>
</tr>
</tbody>
</table>

<sup>a</sup> Expected water sales for 2018-19 and 2019-20. The 2018-19 figure includes actual water sales up until January 2019 and a forecast for the remainder of the year.

**Data sources:** IPART, Prices for Sydney Water Corporation from 1 July 2016-Final report, May 2016 p. 143, Sydney Water, Pricing proposal to IPART, July 2019, Attachment 8, p 7.

Sydney Water’s proposal details the key drivers of higher than forecast water sales over the 2016 determination period. These include:

- **Unusually hot and dry weather.** Residential water demand increases in response to dry conditions as customers increase discretionary water use to maintain gardens experiencing high evaporation and low surface moisture. Both 2016-17 and 2017-18 were exceptionally hot and dry years in Sydney. Sydney Water attributed 38% of the un-forecast demand increase in 2016-17 and 55% in 2017-18 to weather.<sup>56</sup> Sydney Water predicts weather to be a less significant demand driver in 2018-19 and 2019-20; their forecasts assume a return to more normal rainfall patterns and average weather conditions in 2019.<sup>57</sup>

- **Higher than forecast dwelling growth.** The 2016 determination period coincided with an increase in dwelling construction. This led to a larger than expected growth in Sydney Water’s residential customer numbers. In its proposal Sydney Water stated the number of dwellings served with water in June 2017 and 2018 was, respectively, 1.6% and 2.6% higher than forecast (refer to Figure 6.1 for the increase in customer numbers over the 2016 and 2020 determination periods). By June 2020, it forecasts the number of dwellings served to be about 4% higher than the original forecast.<sup>58</sup> Sydney Water attributed 18% of the un-forecast demand in 2016-17 and 13% in 2017-18 to dwelling growth.<sup>59</sup>

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<sup>56</sup> Sydney Water, Pricing proposal to IPART, July 2019, Attachment 8, pp 11-12.  
<sup>57</sup> Sydney Water, Pricing proposal to IPART, July 2019, Attachment 8, p 15.  
<sup>58</sup> Sydney Water, Pricing proposal to IPART, July 2019, Attachment 8, p 10.  
<sup>59</sup> Sydney Water, Pricing proposal to IPART, July 2019, Attachment 8, pp 11-12.
Customers’ larger than anticipated reaction to price changes All else being equal, a decrease in water usage prices should lead to an increase in demand. In 2016, IPART reduced Sydney Water’s water usage price by 14%. Sydney Water forecast this price decrease would increase demand by 1.1%, while we forecast it would increase demand by 1.7%. However, Sydney Water’s updated modelling indicated the lowering of the water usage price in 2016 led to a larger than predicted increase in water consumption. Sydney Water attributed 8% of the un-forecast demand in 2016-17 and 4% in 2017-18 to a stronger-than-anticipated increase in demand from the reduction of the water usage price.

In developing forecasts for the 2020 period, we will consider to what extent these trends and key drivers are likely to persist, and whether they are sufficiently reflected in Sydney Water’s forecast for the period.

Box 6.1 Sydney Water’s new estimates of the impact of price changes on demand

Using its water demand model, Sydney Water estimated new price elasticities for single and multi-dwellings, based on observed usage patterns. The results were broadly consistent with the residential elasticities included in the 2016 price review, though the difference between the impact of price increases and decreases appeared to be smaller than anticipated. This was not a factor in Sydney Water’s demand forecast, as it proposed keeping the water usage price constant in real terms.

Table 6.2 Sydney Water price elasticities 2016 and 2019 estimates

<table>
<thead>
<tr>
<th></th>
<th>Single Dwellings</th>
<th>Multi-dwellings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IPART 2016</td>
<td>SWC 2019</td>
</tr>
<tr>
<td>Price decrease</td>
<td>-0.186</td>
<td>-0.212</td>
</tr>
<tr>
<td>Price increase</td>
<td>-0.249</td>
<td>-0.218</td>
</tr>
</tbody>
</table>


6.2 Sydney Water’s forecast water sales for the 2020 determination period

Sydney Water has developed forecasts of future water sales using an econometric model originally developed in 2011 and updated for the 2016 and 2020 price reviews (see Box 6.2). As shown in the first row of Table 6.3, Sydney Water predicts water sales to increase by around 5,000 ML (1.0%) between 2019-20 and 2020-21 and then to grow by around 6,000 ML (1.2%) a year on average between 2020-21 and 2020-24.

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60 IPART, Prices for Sydney Water Corporation from 1 July 2016-Final report, June 2016, p 143.
61 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 8, pp 11-12.
Table 6.3  Sydney Water’s forecast water sales and customer numbers

<table>
<thead>
<tr>
<th></th>
<th>2019-20</th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Sales (ML)</td>
<td>569,368</td>
<td>574,945</td>
<td>582,105</td>
<td>588,873</td>
<td>597,399</td>
</tr>
<tr>
<td>Residential</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customers (000s)</td>
<td>1,889</td>
<td>1,927</td>
<td>1,964</td>
<td>2,002</td>
<td>2,038</td>
</tr>
<tr>
<td>Non-residential</td>
<td>134</td>
<td>135</td>
<td>136</td>
<td>137</td>
<td>138</td>
</tr>
<tr>
<td>Customers (000s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Billable Wastewater Volumes (ML)*</td>
<td>80,110</td>
<td>80,117</td>
<td>80,287</td>
<td>80,430</td>
<td>80,578</td>
</tr>
</tbody>
</table>

* Billable sewerage volumes are determined on a daily basis, annual calculation ignores leap years.


Box 6.2  Sydney Water’s demand model

Sydney Water’s water demand forecasting method has three parts:

1. Historical information is used to determine what factors influence water consumption. To do this, Sydney Water divided its customer base into 34 segments based on factors such as dwellings, lot size and whether the property was built under the BASIX system.

2. An econometric model is estimated for each segment based on historical customer usage. The parameters of this model quantify the impact on demand of the factors that influence water consumption within each group, such as price elasticity, weather and seasonality.

3. Climate projections, estimates of system water losses and price elasticity are applied to the econometric model for each customer segment to generate average demand levels. This is then multiplied by the forecast number of customers for each segment to generate demand forecasts for the 2020 determination period.

The model was tested using “hind casting”—forecasting demand from 2009 to 2017 with historical inputs and comparing the output to actual water sales. The model was able to estimate historical demand over the 2016 period to less than 1% average (absolute) error.

Source: Sydney Water pricing proposal, July 2019, Appendix 8A.

6.2.1 Residential water sales and customer numbers

As shown in Table 6.4, Sydney Water has forecast residential water sales to increase by 5.1% between 2018-19 and 2019-20. This forecast adjusts for the impact of climate change on rainfall and temperatures, but assumes climate-change-adjusted average weather conditions. Demand is then forecast to increase by an average of 1.6% a year over the 2020 determination period. This ongoing increase is driven by an increase in residential dwellings, which are forecast to increase by around 37,000 or 1.7% a year, based on the NSW Department of Planning, Industry and Environment’s (DPIE) updated growth projections (as shown in Figure 6.1).

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62 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 8, Table 3-5, p 28.
63 DPIE projects dwellings in the Sydney region to increase by 1.8% a year between 2016 and 2021 and 1.4% a year between 2021 and 2026. These forecasts can be found on the DPIE website at: https://www.planning.nsw.gov.au/Research-and-Demography/Demography/Population-projections.
Table 6.4  Sydney Water’s forecast residential water sales

<table>
<thead>
<tr>
<th></th>
<th>2018-19&lt;sup&gt;a&lt;/sup&gt;</th>
<th>2019-20</th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water sales (GL)</td>
<td>363</td>
<td>382</td>
<td>387</td>
<td>394</td>
<td>400</td>
<td>407</td>
</tr>
<tr>
<td>Change from previous year (%)</td>
<td>5.1</td>
<td>1.4</td>
<td>1.7</td>
<td>1.6</td>
<td>1.8</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> 2018-19 figure includes actual water sales up until January 2019 and a forecast for the remainder of the year.


Sydney Water estimates residential consumption per dwelling will decrease from 200.3 kL in 2020–21 to 199.5 kL in 2023–24. Sydney Water attributes this per dwelling reduction to the expectation that most new dwellings will be units, which typically have lower water consumption than detached houses, and that new dwellings are more water efficient, in part due to the NSW Government’s BASIX scheme.

Figure 6.1  Sydney Water’s residential customer numbers


6.2.2  Non-residential water sales, customer numbers and billable wastewater volumes

As shown in Figure 6.2, Sydney Water has forecast non-residential customer numbers to increase by 0.7% per year over the 2020 determination period. Water sales are forecast to increase by 0.2% per year (on average) over the 2020 determination period, after a forecast 8.1% increase between 2018-19 and 2019-20, based on a predicted return to climate change adjusted weather conditions.

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<sup>64</sup> All new and significantly renovated dwellings in NSW require a certificate to comply with the government’s Building Sustainability Index (BASIX), which includes mandated water efficiency standards. Sydney Water, Pricing proposal to IPART, July 2019, Attachment 8, p 16.
Figure 6.2  Sydney Water’s actual and forecast non-residential water sales and demand


In its proposal, Sydney Water stated that in recent years the growth in non-residential customers has been slower than population growth. It attributes this difference to a trend towards higher density non-residential development, such as commercial strata buildings replacing stand-alone businesses. As a result, Sydney’s growing workforce is utilising a proportionally smaller number of workplaces. Because of this change, there is now a divergence between non-residential water sales—which continue to grow with population—and non-residential customer numbers. To account for this, Sydney Water added a "densification factor" to its non-residential demand models.

Sydney Water forecasts billable wastewater volumes to increase by 4% between 2018-19 and 2019-20 and then remain relatively flat over the 2020 determination period. Sydney Water did not provide an explanation for this increase. Billable wastewater volumes could change significantly if we decide to make changes to the non-residential discharge allowance as discussed in Chapter 7.

6.2.3  Forecast water sales include a 1.4% climate change adjustment

Climate change has the potential to impact water demand through changes in rainfall patterns and higher temperatures. To address this, Sydney Water considered the impact of 12 climate

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65 The densification factor is the ratio of the most recent population forecast and the forecast population as available when the model was updated in 2013, when average non-residential demand was stabilising:

$$d = \frac{pop_t}{pop_{2013}}$$

where $pop_t$ is the most recent population forecast for time $t$ (or actual if available) and $pop_{2013}$ is the population forecast for time $t$ as was available at the time the model was updated in 2013. Effectively, this factor corrects for the acceleration in the population growth rate since 2013, which can be seen as a proxy for the acceleration in the size of the workforce, which was not accompanied by an acceleration in the growth of the number of non-residential properties.


change scenarios across four climate models for the period 2020-40.\textsuperscript{68,69} As shown in Figure 6.3, the difference between the highest and lowest forecast was about 10 GL per year; mainly caused by forecasting uncertainty about future rainfall patterns.

Sydney Water adjusted its water sales forecast based on the median of 12 forecasts. This is about 8 GL/year or 1.4\% higher than its original forecast based on average rainfall patterns observed over the last 30 years.\textsuperscript{70}

**Figure 6.3  Range of forecasts produced for different climate change projections**

![Graph showing range of forecasts](image)

**Source:** Sydney Water pricing proposal-Appendix 8A, July 2019, p 10.

### 6.2.4 IPART analysis of Sydney Water’s forecast

We consider the quality of Sydney Water’s demand forecast rests on three issues:

- The statistical robustness of the econometric model used to estimate baseline demand for each property
- The accuracy of forecasting inputs, including dwelling forecasts, used to extrapolate demand over the 2020 period, and
- Whether the historical period used to model demand and yield will be stable over the 2020 period.

We will request additional information from Sydney Water regarding some aspects of the model including the forecast inputs and the suitability of the “densification factor” that was

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\textsuperscript{68} Sydney Water used modelling prepared as part of the NSW and ACT Regional Climate Modelling Project (NARCLiM). For more information see [https://climatechange.environment.nsw.gov.au/Climate-projections-for-NSW/About-NARCLiM](https://climatechange.environment.nsw.gov.au/Climate-projections-for-NSW/About-NARCLiM).

\textsuperscript{69} Sydney Water, Pricing proposal to IPART, July 2019, Appendix 8A, p 10.

\textsuperscript{70} Sydney Water, Pricing proposal to IPART, July 2019, Appendix 8A, p 11.
applied to the non-residential demand. We will also consider whether Sydney Water has considered the impact of its ELWC measures on these forecasts.

Sydney Water did not discuss how it forecasted billable wastewater volumes. We will consider this as part of this review, especially the large increase in billable volumes between 2018-19 and 2019-20. However, it should be noted that billable wastewater volumes will increase significantly if IPART decides to make changes to the non-residential wastewater discharge allowance (see Chapter 7).

Our expenditure consultants, Atkins, will also consider Sydney Water’s forecasts, especially where they relate to capital and operating expenditure for growth. We also welcome input from stakeholders on Sydney Water’s demand forecasting methodology and inputs.

**IPART seeks comments on the following**

19 Are Sydney Water’s forecast water sales, customer numbers and billable wastewater volumes for the 2020 determination period reasonable?

20 Is Sydney Water’s demand forecasting model, and the inputs used to estimate the model, appropriate?

21 Is Sydney Water’s adjustment to its demand forecasts to account for climate change appropriate?

### 6.3 Demand volatility adjustment mechanism

In the 2016 Sydney Water and Hunter Water price reviews, we decided to consider “an adjustment to the revenue requirement and prices” in this review, to address any over- or under-recovery of revenue over the 2016 determination period due to material variation between forecast and actual water sales. A material variation was defined as “more than 5% (+ or -) over the whole determination period”.

As discussed above, Sydney Water’s water sales for the first three years of the 2016 determination period are expected to exceed IPART’s demand forecast by 6.7%. Over the four years, Sydney Water forecasts it will exceed its sales forecast by 129 GL, or 6%.

As this is a “material variation” under the definition in the 2016 Determination, we will consider if a demand volatility adjustment is appropriate for the 2016 determination period and how we should implement the adjustment. We will also decide whether to retain the demand volatility adjustment in future periods, and if we do, whether to refine the adjustment mechanism.

This will be the first time the materiality threshold for the demand volatility adjustment has been reached since it was introduced in the 2012 price review. Although Sydney Water proposed triggering the mechanism, the Tribunal has discretion on whether and how to apply the mechanism, as our previous determinations did not specify these points.

Sydney Water has also suggested structural changes to how the demand volatility mechanism should be applied in future determination periods, so revenue adjustments can better reflect actual water sales.
IPART is interested in stakeholders’ views on how to address demand volatility over the 2016 determination period. We are also seeking comment on whether we include a demand volatility adjustment for the 2020 determination period.

6.3.1 Over-recovery of revenue over the 2016 determination period

Sydney Water proposed that IPART return about $30 million to customers in the 2020 determination period for higher-than-anticipated water sales. This adjustment is based on the variation between forecast and actual water sales over the first three years of the 2016 determination period. Sydney Water proposed excluding the final year (2019-20), because actual water demand for 2019-20 will not be available until after the price review.

Sydney Water also proposed implementing a demand volatility adjustment by lagging the calculation by one year in future price periods so any future revenue adjustment will be based on actual usage rather than a mix of actual and forecast usage. For example in the 2024 price period, any adjustment would be based on 2019-20 plus the first three years of the 2020 determination period.

We note that Sydney Water did not adjust its proposed revenue or prices in the 2020 determination period, despite exceeding the trigger for the demand volatility adjustment.
Box 6.3  Why include a demand volatility adjustment mechanism?

We estimate the amount of revenue a regulated utility will recover from water usage prices based on an empirical estimate of water sales. If it sells more than this forecast its revenue will be higher than its allowance and vice versa.

As shown in Figure 6.4, our annual water sales forecasts, which we decide on in the year before a determination period, are typically only accurate to within 5-10%. This is in part due to difficulty in predicting short-term fluctuations in factors such as wet/dry weather cycles and population growth. Forecasting errors also tend to be of consistent sign and magnitude across a determination period, which tends to compound the over-recovery or under-recovery of revenue over the determination period.

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

1. 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 over time.

2. Provides protection to customers, given the utility has a financial incentive to under-forecast demand (and in doing so exceed its notional revenue requirement).

Figure 6.4  Variance of actual water sales from IPART and Sydney Water’s forecasts

Note: Water sales forecasts were made in the financial year immediately prior to the determination period. A positive variance means actual sales exceeded forecast sales (and vice versa). The 2018-19 actual water sales are based on Sydney Water estimates. 2019-20 actual water sales are based on Sydney Water forecasts.


6.3.2  Sydney Water proposes a staggered four-year adjustment period in future

Our 2016 Determination did not define a methodology for the demand volatility adjustment mechanism. Sydney Water has proposed how it would like IPART to apply an adjustment
both in the 2020 determination and moving forward (should IPART consider an adjustment necessary).

Sydney Water proposed applying a true up to refund its over-recovery of revenue from the first three years of the 2016 determination period through prices during the 2020 determination period. In future, this would move to four-year true-ups, off-set from the price review by one year (assuming four-year determinations, see Figure 6.5). An under or over recovery of revenue for the last year of one review period and the first three years of the next period could be recovered in the period after that. Sydney Water considers any under or over recovery should be returned in NPV-neutral terms.  

**Figure 6.5** Sydney Water’s proposed demand volatility true-up periods

<table>
<thead>
<tr>
<th>Year</th>
<th>Determination Period</th>
<th>True up period 1</th>
<th>True up period 2</th>
<th>True up period 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 2 3</td>
<td>4 1 2 3</td>
<td>4 1 2 3</td>
</tr>
<tr>
<td>2016-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2020-24*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2024-2028*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Indicative determination periods


It proposes that this method is preferable because it would be based on actual, rather than forecast, water sales. Sydney Water also considers that its proposed approach is broadly consistent with how we apply the efficiency carry-over mechanism and the true-up for the cost of debt.

6.3.3 IPART response

Our preliminary position is to accept Sydney Water’s proposal, subject to further analysis. That is, to return about $30 million to customers over the 2020 determination period for an over-recovery of revenue over the first three years of the 2016 determination period.

We note that the variation between forecast and actual water sales led to Sydney Water over-recovering about $200 million of revenue, compared to the $30 million it has proposed to return to customers. The $30 million adjustment is Sydney Water’s actual revenue from water sales, less the revenue it would have received if demand was only 5% higher than forecast – that is, it is the net over-recovery above the +5% threshold.

However, Sydney Water has incurred some additional costs to meet this additional demand. These include operating costs – higher bulk water costs, and increased treatment and pumping costs – to produce additional water. They also include capital expenditure to meet the higher-than-expected growth in new customers over the period.

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72 For more information on the efficiency carry-over mechanism see Appendix J. For more information on the true-up for the cost of debt, please see Appendix D.
In deciding whether and how to adjust for higher-than-forecast water demand, we will consider the extent to which higher demand could be considered ‘unpredictable’, and the extent to which the utility has incurred efficient expenditure to meet this increased demand.

We also agree with Sydney Water’s proposal to effectively ‘lag’ the implementation of the demand volatility adjustment by one year, so that any adjustment is based on the difference between forecast and actual sales.

**Retain a demand volatility adjustment mechanism for the 2020 period**

Our preliminary view is to retain a demand volatility adjustment mechanism for the 2020 period, and retain a 5% (+ or -) threshold. We also propose a minor adjustment such that the trigger for the mechanism is a 5% variation in revenue from water sales, rather than sales varying by more than 5%.

We welcome stakeholders’ views on Sydney Water’s proposed changes to the demand volatility adjustment mechanism, its design, and how it should be applied. We are also interested in stakeholders’ views on whether we should maintain the demand volatility mechanism to address variations between our demand forecasts and actual water sales over the 2020 determination period, as well as if the 5% materiality threshold remains appropriate.

**IPART seeks comments on the following**

22 Is Sydney Water’s proposal to return about $30 million of revenue to customers over the 2020 period, for higher-than-forecast water sales, reasonable?

23 Is Sydney Water’s proposal for the application of a volatility adjustment to be lagged by one year reasonable?

24 What factors should we consider in deciding whether to implement the demand volatility adjustment?

25 Should we maintain the demand volatility adjustment mechanism to address over or under recovery of revenue in the 2020 determination? Does a ±5% materiality threshold remain appropriate?
7 Water, wastewater and stormwater prices

This chapter outlines Sydney Water’s proposed water, wastewater and stormwater prices for the 2020 determination period. These are the core services Sydney Water provides and they account for over 95% of Sydney Water’s revenue and costs. We discuss other prices, including recycled water, trade waste and miscellaneous charges in Chapter 8.

The following sections outline Sydney Water’s proposed prices and our preliminary response to each of these prices in detail. Figure 7.1 illustrates how water, wastewater and stormwater prices are currently set.

7.1 Summary of Sydney Water’s key prices

As Table 7.1 outlines, Sydney Water has proposed to increase some of its key prices and others to remain constant or fall compared to 2019-20 prices. Excluding the effect of inflation, Sydney Water has proposed to:

- Reduce water service prices by 12% and maintain the 2019-20 water usage price
- Increase the wastewater service charge by 12% and reduce the wastewater usage charge by 48%
- Increase stormwater service charges by 8% for all property types

A detailed list of Sydney Water’s proposed prices can be found in Appendix F.

Sydney Water proposed maintaining its water usage price based on its customer engagement and its estimates of the long-run marginal cost (LRMC) of water supply. In contrast, it proposed reducing the wastewater usage charge by 48% (and increasing the wastewater service charge) based on estimates of the short-run marginal cost (SRMC) of wastewater supply. As discussed below, we consider there is merit in setting water and wastewater usage prices consistently based on the LRMC.

Note that 2019-20 prices were not available when Sydney Water finalised its pricing proposal in February 2019. The prices for 2019-20 are based on Sydney Water’s forecast of inflation, and some costs. Most final prices for 2019-20 are similar to Sydney Water’s forecasts.

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73 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, Figure 1-1, p 6.
74 We calculate this reduction is actually 24% based on Sydney Water’s final 2019-20 prices. Sydney Water’s pricing proposal assumed a 20mm water service charge of $82.96 for 2019-20, whereas the actual charge is $96.69. This difference is because under the 2016 Determination, Sydney Water’s water service charge includes cost pass throughs to account for variance between Sydney Water’s expected payments to the Sydney Desalination Plant (SDP) and WaterNSW and the actual amounts paid. Sydney Water’s actual payments to SDP were higher than Sydney Water forecast in February 2019. The pass-through mechanisms are discussed further in Appendix K.
75 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, Table 2-2, p 7.
Figure 7.1  How water, wastewater and stormwater prices are set
### Table 7.1 Key prices in Sydney Water’s price proposal ($2019-20)

<table>
<thead>
<tr>
<th></th>
<th>2019-20</th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential service price $/year</td>
<td>83</td>
<td>73a</td>
<td>73a</td>
<td>73a</td>
<td>73a</td>
</tr>
<tr>
<td>Water usage priceb $/kL</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
</tr>
<tr>
<td>20mm non-residential service chargec $/year</td>
<td>83</td>
<td>73</td>
<td>73</td>
<td>73</td>
<td>73</td>
</tr>
<tr>
<td><strong>Wastewater</strong>d</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential service price $/year</td>
<td>590</td>
<td>658</td>
<td>658</td>
<td>658</td>
<td>658</td>
</tr>
<tr>
<td>Deemed wastewater usage charge $/year(residential and non-residential)</td>
<td>178</td>
<td>92</td>
<td>92</td>
<td>92</td>
<td>92</td>
</tr>
<tr>
<td>20 mm non-residential service chargec, d $/year</td>
<td>590</td>
<td>658</td>
<td>658</td>
<td>658</td>
<td>658</td>
</tr>
<tr>
<td>Wastewater usage price $/kL</td>
<td>1.18</td>
<td>0.61</td>
<td>0.61</td>
<td>0.61</td>
<td>0.61</td>
</tr>
<tr>
<td><strong>Stormwater</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units, small (&lt;200 sq m) non-residential $/year</td>
<td>25</td>
<td>27</td>
<td>27</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>Houses, medium (201-1,000 sq m) non-residential $/year</td>
<td>80</td>
<td>86</td>
<td>86</td>
<td>86</td>
<td>86</td>
</tr>
<tr>
<td>Large (1,001 - 10,000 sqm) non-residential $/year</td>
<td>463</td>
<td>502</td>
<td>502</td>
<td>502</td>
<td>502</td>
</tr>
</tbody>
</table>

**Note:** 2019-20 prices were not available when Sydney Water finalised its pricing proposal. The prices for 2019-20 are based on Sydney Water’s forecast of inflation, and some costs.

a Does not include cost pass-throughs for SDP or WaterNSW.
b Water usage price excludes service price uplift from the Sydney Desalination Plant.
c Non-residential service charges for larger water meter sizes are calculated as: (meter size in mm)²×(20 mm meter price)/400.
d All wastewater prices assume a 100% sewerage discharge factor (SDF). Sydney Water’s default SDF is 78%.

**Source:** Sydney Water Annual Information Return to IPART, July 2019.

### Most customers would see a small bill reduction

Overall, most residential customers will have lower bills under Sydney Water’s proposed prices, with a proposed bill reduction for a typical residential bill of about 4% in 2020-21. The magnitude of the proposed price reduction for non-residential customers would vary based on a number of factors, but would typically be larger than the reduction for residential customers.

We also requested that Sydney Water, in preparing its price submission, consider a number of changes to the structure of its wastewater prices. However, Sydney Water has decided not to include any of these changes in its pricing submission and has not proposed any other price structure changes. In the following sections we discuss the changes we requested Sydney Water to consider, as well as Sydney Water’s reasons for not including them.

### 7.2 Water prices

There are two components of Sydney Water’s water prices. These are:

- A variable usage price per kilolitre (kL) of water consumed

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76 IPART, Submission Information Package to Sydney Water, December 2018, Attachments D&E.
A fixed service charge set to recover the difference between Sydney Water’s expected revenue from variable changes and its efficient cost for providing water services.

This price structure is the same for residential and non-residential customers, except that all residential customers pay the same service charge based on the charge for a 20mm meter, while non-residential customers pay service charges based on the actual size of their meter.

More generally, Sydney Water has proposed maintaining current price structures for treated water customers. We discuss some of these decisions in more detail below. Specifically, Sydney Water has proposed to:

- Maintain water usage prices of $2.13/kL, in real terms, based on customer preferences and its estimate of the LRMC of water supply
- Maintain the current uplift to water usage prices, of $0.13/kL, when the Sydney Desalination Plant (SDP) is operational, to reflect the additional operating costs to produce desalinated water
- Continue to set water service charges based on a 20mm meter for residential customers, and actual meter size for non-residential customers
- Maintain a $0.30/kL discount for unfiltered water
- Retain a deemed usage of 180kL/year for unmetered customers.

7.2.1 Sydney Water proposed maintaining the current water usage price

Sydney Water proposed to maintain the water usage price at 2019-20 levels of $2.13/kL, excluding inflation. This is based on:

- Results of Sydney Water’s engagement with customers
- The current water usage price being within the range of plausible estimates from Sydney Water’s modelling of the LRMC of water supply.

Customers supported the current water usage price

As discussed in Chapter 3, through its engagement with customers, Sydney Water found the majority of residential customers preferred either the current or a higher water usage charge. About three quarters of customers surveyed agreed with Sydney Water’s proposed water usage price of $2.13/kL.

Sydney Water updated its LRMC estimates

In previous reviews, we set the water usage price with reference to the LRMC of water supply. The LRMC of water supply included an estimate of the costs of the next efficient augmentation to Sydney’s water supply network; typically this is a new or expanded bulk water source, in addition to the short-run operational costs required to produce an additional kilolitre of water. The aim of setting water usage charges at LRMC is to encourage the efficient use of, and investment in water, by signalling to customers the cost of consuming an extra

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77 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, p 8.
unit of water. It also provides a price signal to conserve water and encourage the development of substitutes such as recycled water.

For this price review, Sydney Water has refined how it has estimated the LRMC for water supply compared to the 2016 price review. Its updated estimate of the LRMC for water is $2.33/kL, with a sensitivity of between $0.72/kL and $3.08/kL. This is significantly higher than IPART’s estimate in the 2016 price review of between $1.11/kL and $1.30/kL. Box 7.1 provides a summary of Sydney Water’s LRMC modelling.

**Box 7.1 Sydney Water’s LRMC modelling approach**

Sydney Water’s estimate of the LRMC of water supply estimates how much it would cost to meet forecast water demand over the next fifty years. This includes:

- Operating costs (such as labour and electricity)
- Supply augmentation costs (such as new dams or desalination capacity)
- Other augmentation costs (such as new pipelines and treatment plants).

The LRMC models firstly consider current levels of demand and WaterNSW’s estimate of supply capacity (referred to as supply/system yield). Then, based on its forecast of water demand, the models calculate the amount of time that it takes to utilise the spare capacity imbedded in the supply system and the subsequent timing of augmentations.

Future capital and operating costs, as well as water demand, are estimated on a present value basis. This accounts for the opportunity cost of Sydney Water delaying or moving forward augmentations.

The model is ‘deterministic’ in that it assumes a simple estimate of the demand profile and supply/system yield over the forecast horizon. It does not take into account how year-to-year fluctuations in demand, and the different reliability of water supply options, affect the timing and relative value of supply augmentations.

Sydney Water’s model utilises two estimation methods: an average incremental cost method (AIC) and a marginal incremental cost, or Turvey, method. Sydney Water modelled 82 combinations of input parameters using the two methods to give 164 results. This provided a broad range of estimates from $0.72/kL to $3.08/kL.


b Input parameters included capital costs, construction lead times, system yields, demand profiles, and different discount rates (based on the short-term and long-term estimates of Sydney Water’s WACC).

**Source:** Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, p 20.

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79 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, p 20.
Sydney Water has made a number of key changes to its LRMC model for water supply since the 2016 price review, these include:

- **Incorporating transportation and treatment costs.** Previously, Sydney Water only considered bulk water augmentation costs in its LRMC estimates. This underestimated Sydney Water’s full incremental costs for supplying additional water, as it ignored other capacity constraints such as pipes and treatment plants which require expansion as demand grows. In this review Sydney Water prepared a method for estimating non-bulk water costs, which was reviewed by consultants Sapere. Using this method, it estimated the LRMC of transportation and treatment costs to be between $0.15/kL and $0.30/kL.  

- **Updated supply yield.** WaterNSW has revised down its estimate of the amount of water it can supply to Sydney Water to 570 GL a year from 615 GL a year.

- **Updated augmentation options.** Sydney Water’s model includes an updated hierarchy of supply augmentation options based on WaterNSW’s advice. We note Sydney Water has assumed two augmentation projects will be undertaken prior to the expansion of the existing Sydney Desalination Plant.

- **Testing the impact of a change in demand.** The LRMC of water supply is sensitive to changes in demand which could slow or accelerate the need for new capital expenditure. To address this Sydney Water has included the sensitivity of a sudden 10% increase or decrease in demand using a marginal incremental cost (MIC) approach.

**IPART’s response**

We consider a number of factors in setting the water usage price. The main factor we consider are the costs of supplying water, but we also take into account customer feedback, and the balance of fixed and variable charges.

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 LRMC signals the cost of water supply augmentation to consumers and promotes efficient water consumption. As LRMC pricing considers the future capital costs associated with growing water demand, it also provides an efficient price signal to encourage potential competitors into the market.

**IPART will undertake LRMC modelling as part of this price review**

We support Sydney Water’s inclusion of treatment and transportation capital costs in its estimates of the LRMC of water supply. Our view is that these costs should be included in the long-run costs of water, because they are costs associated with demand growth.

IPART will undertake LRMC modelling as part of this price review, building on the approach that we applied in 2016, and the modelling that Sydney Water has undertaken. Box 7.1 summarises IPART’s approach to estimate LRMC in the 2016 period. As discussed in the

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81 Sydney Water, Pricing proposal to IPART, July 2019, Appendix 4C-LRMC, p 5.
82 WaterNSW, Greater Sydney’s water supply system yield, May 2018, pp 2 and 10.
83 Sydney Water, Pricing proposal to IPART, July 2019, Appendix 4C, Table 4C-2, p 7.
84 Sydney Water, Pricing proposal to IPART, July 2019, Appendix 4C, p 4.
section below, we are also exploring how we could estimate the LRMC for wastewater treatment and transport costs.

We would like to engage with stakeholders to understand and reconcile the differences between Sydney Water’s LRMC model, our LRMC estimates, and other published LRMC estimates. This includes any differences in underlying demand and cost assumptions, modelling approaches and forecasts.

When we estimate the LRMC of water supply we will consider how we account for a number of uncertainties which are inherently difficult to predict. The uncertainties we have identified are future costs, water demand, and rainfall (which affects the reliability of dams more than other types of water supply).

These factors are important because they affect the timing and the size of future investments required to increase the capacity of water supply. This in turn, affects the estimates of the present value of any future investment costs.

We will also consider the merits of conducting a stand-alone review of LRMC estimates after the Sydney Water price review. In particular we note the recommendation by Frontier Economics, in its Review of the Economic Barriers to Effective Water Recycling, that IPART consider publishing market guidance on LRMC estimates for water and wastewater.85

<table>
<thead>
<tr>
<th>Box 7.2 IPART’s LRMC model</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Feature</strong></td>
</tr>
<tr>
<td>Estimate LRMC using both the Average Incremental Cost (AIC) and Perturbation (Turvey) approaches.</td>
</tr>
<tr>
<td>Bulk water system operation based on the decision points in the Metropolitan Water Plan (MWP).</td>
</tr>
</tbody>
</table>

85 Frontier Economics, Economic regulatory barriers to cost-effective water recycling, July 2018 pp 74-77.
We included a range of future costs

In our 2016 model we included existing bulk water, treatment, distribution and retail costs, bulk water augmentation costs, supplementary supplies and water restrictions. We note that in its 2020 model Sydney Water has included an estimate of the LRMC which includes non-bulk water augmentation costs, such as new water transport and treatment capacity.

The timing and ordering of bulk water system augmentations.

There is uncertainty in the staging of future bulk water supply augmentations and this will impact the LRMC significantly. Under the MWP, construction of the second stage of the SDP should begin if water storage levels drop below 35%, as a drought response measure.

In our 2016 model we assumed the lowest cost augmentations (on a present value basis) would be sequenced first.

How to account for rainfall uncertainty.

We note there are difficulties in estimating the yield from future bulk water augmentations based on rainfall variability. In this review, we are considering a number of approaches to this issue including traditional deterministic approaches, Monte-Carlo modelling and algebraic estimation.

Modelling timeframe

In our 2016 model we estimated LRMC over 20,30,40 and 50 year time frames. Sydney Water has proposed to use a 50 year time frame only.

Discount rate

Given the long-time frame for these simulations, the choice of discount rate can significantly impact LRMC estimates. In our 2016 model we discounted future costs using our mid-point WACC estimate which we used for estimating Sydney Water’s return on capital. In its 2020 model Sydney Water made estimates using both our mid-point WACC and a somewhat higher long-term average WACC.

Sources: IPART, Prices for Sydney Water Corporation from 1 July 2016-Final Report, May 2016, Appendix I. Sydney Water Pricing Proposal, July 2019, Appendices 4C and 4C(i).

IPART seeks comments on the following

26 Is Sydney Water’s proposal to maintain the 2019-20 water usage charge reasonable?

27 Is the method that Sydney Water has used to estimate the long-run marginal cost (LRMC) of water reasonable?

7.2.2 Sydney Water proposed maintaining the Sydney Desalination Plant usage price uplift

As outlined in Chapter 5, when SDP is in shutdown mode, and not supplying desalinated water, Sydney Water pays SDP a fixed amount that it recovers from customers through water service charges. When SDP is operational, Sydney Water pays an additional variable charge per ML of desalinated water it receives from SDP to cover its operating costs.

In the 2016 Determination, IPART decided to recover part of Sydney Water’s variable costs from SDP by including a $0.12/kL uplift in the treated water price when SDP is operational. The uplift is calculated by dividing SDP’s regulated operating costs at full production by the total amount of water supplied by Sydney Water from all sources.86

86 IPART, Prices for Sydney Water Corporation from 1 July 2016 - Final Report, p 158.
Given that SDP supplies about 20% of Sydney Water’s total treated water sales when fully operational, this uplift reflects the average increase in costs per kL across all water sold by Sydney Water.\(^{87}\)

In the 2016 review we also noted that SDP’s charges to Sydney Water may fluctuate within a year, especially if the plant moves from standby to operational part way through a year. We therefore allowed Sydney Water to pass-through to customers the residual SDP operating costs (ie, costs not recovered by the usage price uplift) through an increase in the water service charge in the following year.\(^{88}\)

Sydney Water has proposed maintaining the SDP usage charge uplift over the 2020 determination period at the 2019-20 level of $0.13/kL.\(^{89}\)

**IPART’s response**

We will review how the SDP usage price uplift is reflected in the water usage price charged by Sydney Water to its customers. As outlined above, we set the water usage price to reflect the marginal cost of water supply.

Given SDP is only operational during periods of water scarcity, it could be argued that desalinated water is the marginal unit of water produced.

Therefore, the usage price uplift to customers could be based on the marginal operating costs of producing a litre of desalinated water, and not the average costs of producing water. That is, the water usage price could include the full additional bulk water cost incurred by Sydney Water when SDP is operational. To ensure that customer prices are revenue-neutral for Sydney Water, we could reduce the water service charge, with an adjustment to reflect the price elasticity of demand.

Increasing the SDP usage charge uplift would create a stronger price signal to Sydney Water’s customer base of the additional costs of consuming a marginal unit of water in drought conditions and encourage water efficiency.

**IPART seeks comments on the following**

28 Should we make changes to the SDP usage charge uplift to more closely reflect the marginal cost of producing water?

### 7.2.3 Sydney Water proposed reducing water service charges by 12%

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 charge.

Sydney Water has proposed retaining the method we used to set water service prices in the 2016 Determination. That is:

- All residential customers are charged a single dwelling-based fixed service charge for water, based on the charge for a small (20mm) meter

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\(^{87}\) Ibid p 158.  
\(^{88}\) Ibid p 278.  
\(^{89}\) Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, p 15.
Non-residential customers are charged based on their actual meter size, and the price increases proportionately as the meter size increases.\(^{90}\)

The residential charge equals the 20mm meter charge for non-residential customers.

If multiple non-residential customers are served by a common meter, each customer pays a share of the meter-based service charge.

Based on its proposed revenue requirement for water services, Sydney Water has proposed lowering water service prices by 12% for all residential and non-residential water customers, excluding inflation. This would lead to a $10 a year bill saving for residential customers.\(^{92}\)

**Sydney Water opposed meter based charges for residential customers**

We also asked Sydney Water to consider setting residential service charges using pure meter-based prices (similar to the current approach for non-residential customers). Under this approach, residential customers would pay a service charge based on the size of their actual meter (or share of a common meter for apartments), rather than being deemed to have a 20mm meter. If there is one common meter used for an apartment block, the service charge would be based on the size of the common meter divided by the number of units. This would likely result in a reduction in fixed charges for most apartments and a slight increase in fixed charges for houses.

Sydney Water proposed to retain the current pricing structure, that is to deem all residential dwellings to have a 20 mm meter, even if they share a meter with other customers. Sydney Water considers this is equitable because:

- The costs to serve and provide capacity for drinking water does not vary materially between different residential property types and/or volume because costs are largely fixed. Charging the same water service price for apartments and houses is therefore cost reflective.

- The size of housing blocks for detached houses is reducing, resulting in smaller gardens and significant reductions in outdoor water use. Conversely, flats and apartments, townhouses or terraced houses are trending towards having larger open spaces, particularly larger open common spaces, and increased occupancy rates; increasing average levels of water use for these dwelling types.

- Approximately 35% of residential customers are subject to common meter arrangements. Changing the basis of residential service charges will lead to a significant re-distribution of costs across customers.\(^{93}\)

- The current approach of aligning residential and non-residential service charges to a common cost driver of a 20mm meter size is a simple price structure that is relatively easy for customers to understand and as a result has relatively low administration costs compared with other options.\(^{94}\)

\(^{90}\) 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.

\(^{91}\) We calculate this reduction is actually 24% based Sydney Water’s final 2019-20 prices.

\(^{92}\) Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, Table 2-2, p 7.

\(^{93}\) Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, pp 26-27.

\(^{94}\) Sydney Water, Pricing proposal to IPART, July 2019, p 27.
IPART’s response

Our preliminary view is that retaining the current method of setting water service charges is appropriate, at this point in time. Our decisions on water service charges will reflect the efficient cost to provide water services, and will be informed, among other things, by our assessment of the efficient operating and capital costs that Sydney Water would need to incur to service its customers.

IPART seeks comments on the following

29 Are Sydney Water’s proposed water service charges reasonable?

7.2.4 Sydney Water proposed maintaining the deemed usage amount for unmetered customers

Sydney Water has proposed maintaining its current price for customers without a water meter: that is, a 20 mm service charge plus the water usage charge based on a deemed allowance of 180kL a year. Sydney Water did not provide a justification for this price structure.

This deemed allowance is less than the average usage for a residential property, which is forecast to be around 200kL a year over the 2020 determination period. We understand unmetered customers make up less than 1% of Sydney Water’s water sales and includes some temporary customers such as construction standpipes.

IPART’s response

We consider there may be scope to increase the deemed allowance of 180kL for unmetered customers, given this is below the average usage for a residential property.

Sydney Water should provide a price signal to encourage unmetered customers to install meters where it is efficient to do so; otherwise, there would be an incentive for unmetered customers to exceed their deemed usage.

We are interested in stakeholders’ views on increasing the deemed water usage for unmetered customers.

IPART seeks comments on the following

30 Should we increase the deemed usage for unmetered customers, and if so, by how much?

7.2.5 Sydney Water proposed slightly increasing the price for unfiltered water

Unfiltered water is water that has been chemically treated, but not treated at a water filtration plant. Sydney Water currently sells a small amount of unfiltered water to BlueScope Steel in Wollongong.

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95 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 8, p 16.
97 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, p 14.
In the 2016 Determination, we approved an unfiltered water usage charge based on applying a discount on the treated water usage price to reflect the reduced water treatment costs Sydney Water incurs in providing unfiltered water; in 2019-20 this discount is $0.33/kL.\(^98\)

Sydney Water estimates its average water filtration costs for 2020-24 at $0.30/kL (in $2019-20). To better reflect its avoided costs, Sydney Water proposed reducing the unfiltered water discount for the 2020 determination period from $0.33/kL to $0.30/kL (a 9% reduction, excluding inflation).\(^99\)

**IPART’s response**

Our preliminary view is to accept Sydney Water’s proposal, as we agree that the price difference between unfiltered and treated water should reflect treatment costs.

**IPART seeks comments on the following**

31 Is Sydney Water’s proposed unfiltered water usage price reasonable?

### 7.3 Wastewater prices

Sydney Water has proposed maintaining wastewater price structures for residential and non-residential customers for the 2020 determination period, where:

- **Residential customers** pay a wastewater service charge consisting of:
  - A single fixed charge, plus
  - A deemed usage charge, based on a discharge allowance of 150kL a year (reflecting the sewerage discharge for an average residential property).\(^100\)

- **Non-residential customers** pay:
  - A wastewater service charge based on the size of their water meter and a sewerage discharge factor (SDF), plus
  - A deemed usage charge based on a discharge allowance of 150kL a year,\(^101\) plus
  - A wastewater usage charge for any deemed sewerage usage in excess of 150kL a year,\(^102\) plus
  - Any relevant trade waste charges (see Chapter 8).

While Sydney Water did not propose any price structure changes for residential and non-residential wastewater service prices, it has proposed significantly reducing the amount of revenue it receives from wastewater usage charges and increasing its revenue from fixed service charges. Specifically, it has proposed increasing wastewater service charges by 12% and reducing the wastewater usage charge by 48%.

We also requested Sydney Water, in preparing its price submission, to consider a number of possible changes to its wastewater price structures including:

98 Sydney Water, Supplementary Information Return to IPART, July 2019.
100 Sydney Water, Pricing proposal to IPART, July 2019, p 22.
101 The non-residential wastewater service charge must be equal to or greater than the residential charge.
102 Deemed discharge is calculated as metered water usage multiplied by the customer’s SDF.
Setting wastewater usage prices with regard to LRMC

- Removing the discharge allowance from non-residential service charges
- Setting different discharge allowances for stand-alone residential properties and units.\(^{103}\)

The following sections outline Sydney Water’s proposed wastewater prices in more detail, including Sydney Water’s consideration of the changes we asked it to consider, and our preliminary responses.

### 7.3.1 Sydney Water proposed reducing its wastewater usage price to better reflect SRMC

Prior to the 2016 determination, we set Sydney Water’s wastewater usage price with regard to the short-run marginal cost (SRMC) of treating wastewater. However, in the 2016 price review we agreed with Sydney Water that LRMC is also an important factor, given the uncertainty around additional investments in wastewater services required to service growth and meet potentially more stringent environmental compliance standards. We acknowledged there were various arguments for and against SRMC and LRMC pricing and therefore decided to maintain the wastewater usage price at 2015-16 levels as an interim position.\(^{104}\)

Sydney Water has proposed reducing its wastewater usage charge by 48%, from $1.18/kL to $0.61/kL ($2019-20), based on its updated estimates of SRMC which ranged between $0.20/kL and $1.00/kL.\(^{105}\) In summary, Sydney Water did not consider a reliable and appropriate LRMC methodology was currently possible for a number of reasons (discussed below), and there was limited scope for a more efficient price signal to significantly impact consumption decisions. Sydney Water’s proposal did not canvass the impact of the usage price on providing a signal to potential competitors about Sydney Water’s supply constraints and augmentation costs.

To recover its proposed costs for wastewater, the 48% reduction in revenue from wastewater usage charges results in a 12% increase in service charges. Consequently, the major beneficiaries of this change are large non-residential wastewater dischargers and customers exempt from service charges.\(^{106}\) Residential customers and small non-residential customers would receive some benefit from a lower usage charge on their deemed allowance, however this would be more than offset by higher service charges. We estimate this change would:

- Reduce a typical non-residential customer’s wastewater bill by about $100 per year\(^{107}\), but
- Increase a residential customer’s wastewater bill by $15-20 per year.

Sydney Water reported that non-residential customers were generally supportive of a lower usage charge, given it would result in lower bills for around half of its wastewater customers.

\(^{103}\) IPART, Submission Information Package to Sydney Water, December 2018, Attachments D&E.

\(^{104}\) IPART, Prices for Sydney Water Corporation from 1 July 2016 - Final Report, May 2016, pp 160-1.


\(^{106}\) Properties exempt from service charges include government buildings, charity and religious buildings, hospitals, child care centres and aged care facilities.

\(^{107}\) Based on typical usage, SDF and meter size for a medium sized commercial strata unit.
It did not specifically consult with residential customers that the reduction in the wastewater usage charge would increase residential bills.108

**IPART’s response**

Our preliminary position is not to accept Sydney Water’s proposal to reduce its wastewater usage price by 48%, based on its estimate of SRMC. This is a significant change in Sydney Water’s price structure, which will lower bills for some non-residential customers, increase bills for residential customers, and slightly reduce Sydney Water’s demand risk.

In Box 5 below, we outline Sydney Water’s arguments in favour of an SRMC approach, and our preliminary responses. Acknowledging the issues raised, we do not consider they preclude investigating LRMC, let alone justify a move towards an SRMC approach, especially considering:

- Customers’ strong preference for price stability
- The potential benefits of an LRMC in sending a more efficient price signal to customers and potential market entrants
- Sydney Water’s stated willingness to consider an LRMC approach in future
- It is unclear whether the price change is equitable, given the benefits of these changes will accrue to a relatively small number of large non-residential customers.

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### Table 7.2  Sydney Water’s reasons for not estimating the LRMC for sewerage

<table>
<thead>
<tr>
<th>Barriers identified by Sydney Water</th>
<th>IPART preliminary response</th>
</tr>
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<tbody>
<tr>
<td>A lack of wastewater metering data makes it complex to determine the contribution of customers’ usage to wastewater costs. Using a discharge factor as a proxy is not ideal given property specific characteristics such as gardens, pools and water tanks.</td>
<td>Even without customer level metering, Sydney Water should understand wastewater flows in its network, including where constraints are to guide its growth and renewal programs.</td>
</tr>
<tr>
<td>The wastewater transportation system is sized to manage peak flows during wet weather, which includes stormwater from groundwater infiltration and illegal connections and are much larger than dry weather flows. In addition—because of geometry—a doubling in pipe size leads to much more than doubling in system capacity, creating long-term economies of scale. These factors make the impact of incremental growth in wastewater discharge difficult to calculate.</td>
<td>Even if infrastructure is sized to manage wet weather flows, customers still make a marginal contribution to peak usage, given wastewater discharge is not correlated with rainfall. Economies of scale in wastewater transport assets should be estimable and form part of normal planning. Even if estimating LRMC for wastewater transport assets is difficult, it should still be possible to estimate LRMC for wastewater treatment assets separately. If the marginal contribution of wastewater flows to future capital costs is sufficiently small relative to other factors, then the estimates of SRMC and LRMC should converge; however, this does not mean that an LRMC approach is not valid.</td>
</tr>
<tr>
<td>Sydney Water’s wastewater systems are smaller and less interconnected than its water network. This dilutes the LRMC price signal as reduced usage in one catchment does not necessarily delay future augmentation of the network as a whole, if capacity constraints are in a different catchment. Therefore, in a postage stamp environment, SRMC is more appropriate because it is more consistent across catchments.</td>
<td>Frontier Economics considered it was likely that the losses in economic efficiency of charging too much for customers in wastewater catchments where the LRMC is low are likely to be outweighed by the efficiency costs of charging too little for those catchments that are becoming increasingly constrained. The fact that SRMC may vary less across catchments than LRMC is not a reason to justify an SRMC approach. There is no reason to expect that adopting a price that is biased too low (SRMC), is more efficient than adopting a price that is more cost-reflective on average (LRMC), even if LRMC estimates vary by more across the network.</td>
</tr>
<tr>
<td>A move to LRMC pricing would lead to significant changes in usage prices, which benefit some customers and impact others. Customers often have difficulty understanding marginal cost pricing, especially when their wastewater usage isn’t metered. Sydney Water also anticipates additional administrative cost in explaining prices to its customers.</td>
<td>Changing the basis for setting prices is not the same as changing the price structure itself. Even if we were to change the wastewater usage charge, service charges would also be adjusted so most customers’ bills would not be significantly affected.</td>
</tr>
</tbody>
</table>

**Source:** Sydney Water, Pricing proposal to IPART, Attachment 4, July 2019, pp 22-24; IPART analysis.

### LRMC pricing has potential benefits

In IPART’s 2019 Central Coast Council price review, we saw merit in estimating LRMC for individual wastewater catchments to support more efficient consumption and investment decisions, and potentially encourage competition. Accurate estimates of the LRMC of wastewater supply, preferably by supply catchment, would also inform Sydney Water’s expenditure planning, the 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.

Setting wastewater prices on a catchment basis is consistent with a recommendation by Frontier Economics (in a report prepared for Infrastructure NSW) that IPART should evaluate the merits of publishing annual market guidance on the range of LRMC estimates for each of Sydney Water’s wastewater supply areas. Where an incumbent provider’s costs vary by location, publishing information on the costs of expanding capacity in different wastewater catchment areas could encourage efficient entry and potentially drive down costs in areas where the incumbent’s costs of supply are high. And importantly, it could also discourage inefficient entry and keep costs low in areas where its current and future costs are low.

**We will consider how to estimate the LRMC for wastewater**

Through this review we propose to work with Sydney Water to collect data and estimate the LRMC for wastewater. Like water services, transportation assets (pipelines) and treatment assets (wastewater treatment plants) are required to manage wastewater discharges. Ideally, we could set prices with reference to the LRMC, estimated on a catchment basis for both treatment and transport assets.

The Hawkesbury-Nepean Offset Scheme provides a case study for the costs of increased sewerage discharges into wastewater treatment plants. This offset scheme requires Sydney Water to effectively offset the increased discharges from future growth in the Hawkesbury-Nepean basin. The additional growth in wastewater discharges, and costs of offsetting these discharges (including the costs to the environment), could be used to inform our LRMC estimates.

We will also take into account the postage stamp pricing environment when setting prices, and will consider:

1. **A system wide LRMC approach** which considers the costs of future demand and capacity constraints across all catchments. This approach will likely produce an estimate that more closely reflects Sydney Water’s long-run costs, but may vary considerably from the marginal cost of individual catchments with different capacity constraints.

2. **A system wide SRMC approach** based on Sydney Water’s variable costs only, such as chemicals and electricity. This will produce a more consistent estimate of marginal costs across all catchments, but might be materially too low to signal the cost of future augmentations.

3. **Maintaining the status quo** if our other estimates of marginal cost are close to Sydney Water’s current price, or there is insufficient evidence to justify a change. This would ensure price certainty for customers.

We recognise that if the marginal contribution of wastewater flows to future capital expenditure across the wastewater network is sufficiently small relative to other factors, then

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109 Frontier Economics, Economic regulatory barriers to cost-effective water recycling, July 2018 pp 74-78.
110 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 7, p 11.
the estimates of SRMC and LRMC should converge. However, this does not mean that an LRMC approach is not valid.

**IPART seeks comments on the following**

32 Is LRMC a more appropriate basis for setting wastewater usage prices than SRMC?

33 To what extent does the 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?

34 Is Sydney Water’s proposed wastewater usage charge reasonable?

### 7.3.2 Sydney Water proposed maintaining non-residential wastewater discharge allowance

Sydney Water currently includes a deemed wastewater discharge allowance of 150kL a year as part of its wastewater charges for both residential and non-residential customers. Non-residential customers pay explicit wastewater usage charges for discharges above this level. Sydney Water estimates approximately 55% of its non-residential wastewater customers discharge less than 150kL a year.\(^{111}\)

In the 2016 Determination we reduced the non-residential wastewater discharge allowance from 300kL a year to 150kL a year, to reflect the average discharge from a residential property.\(^{112}\)

For this review, we asked Sydney Water to consider whether we should remove the discharge allowance entirely for non-residential customers. This would mean that prices for all non-residential customers would be based on an estimate of their actual usage.

Sydney Water has proposed retaining the current deemed wastewater discharge allowance because removing the discharge allowance from non-residential customers would have significant customer impacts, including:

- Around 38,000 non-residential customers would see a usage charge on their bill for the first time
- It will create a revenue shortfall of $4.7 million, which will need to be recovered from the entire customer base
- Individually metered non-residential customers with discharge volumes lower than 150kL a year will pay less than an equivalent non-residential customer in a mixed multi-premises (who pay residential wastewater charges)
- Individually metered non-residential customers with discharge volumes lower than 150kL a year would pay less than residential customers.\(^{113}\)

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\(^{111}\) Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, p 31.

\(^{112}\) IPART, Prices for Sydney Water Corporation from 1 July 2016 - Final Report, May 2016, p 161.

\(^{113}\) Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, pp 31-32.
**IPART’s response**

We consider there is an argument for eliminating the discharge allowance for Sydney Water’s non-residential customers and instead charging an explicit usage charge based on their actual deemed discharge volume. This would make prices more cost reflective and potentially reduce bills for the majority of Sydney Water’s non-residential customers which have discharges lower than 150kL a year. By eliminating the discharge allowance, the non-residential customers who would see a usage charge on their bill for the first time would be receiving an overall bill reduction, as a result of this change.

We also note that under the current pricing structure, customers in a non-residential building with a small shared meter may already be charged less than an equivalent residential customer, because they only pay part of the meter charge.

**IPART seeks comments on the following**

35 Should we remove the deemed wastewater allowance for non-residential customers?

### 7.3.3 Sydney Water proposed no changes to residential wastewater service prices

In the 2016 Determination we included a deemed wastewater discharge allowance of 150kL a year as part of the wastewater service charge for residential customers.\(^\text{114}\)

The 150kL allowance is set by multiplying average residential water usage by a 75% wastewater discharge factor. The discharge allowance is the same for houses and apartments, while average annual water use for a house is 220kL and 160kL for an apartment.

In the 2019 Central Coast Council price review we noted that apartments consume significantly less water than a house on average. Therefore in that review, we decided to apply a 75% discharge factor to average water usage for houses and apartments and therefore set a different discharge allowance for both types of properties. We considered that applying a separate deemed discharge allowance improves the cost-reflectivity of wastewater prices.\(^\text{115}\)

For this review, we asked Sydney Water to consider two potential changes to residential wastewater charges:

4. Removing the discharge allowance and charging residential customers a deemed wastewater usage charge based on their metered water usage
5. Implementing different discharge allowances for houses and apartments.

**Sydney Water opposed introducing explicit residential wastewater usage charges**

Sydney Water did not support introducing an explicit wastewater charge. It identified a number of significant barriers to implementing residential wastewater usage charges. In summary, these included:

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\(^\text{114}\) This includes non-residential customers in a mixed multi-property. This change better aligned the pricing of wastewater for residential and non-residential customers and allowed us to address an anomaly in how we set wastewater charges prior to 2016 which meant non-residential customers with large meters were charged too much for wastewater discharge. See IPART, Prices for Sydney Water Corporation from 1 July 2016 - Final Report, May 2016, p 165.

\(^\text{115}\) IPART, Prices for Central Coast Council from 1 July 2019 - Final Report, May 2019, pp 102-3.
Prices would not be cost reflective, given wastewater costs are mostly fixed

- Residential wastewater metering is not common and unlikely to be economical
- It would not send clear price signals given there is little flexibility in the capacity of the wastewater system.\textsuperscript{116}

Sydney Water opposed different discharge allowances for houses and apartments

Based on the current discharge allowance, a typical house would have an effective discharge factor of 68\% and an apartment would be 94\%.\textsuperscript{117} Sydney Water believes this is reasonable given the different water use characteristics of houses and apartments.

\textbf{IPART’s response}

Our preliminary view is that replacing a deemed wastewater discharge amount with a wastewater usage charge based water usage may not be equitable or efficient. In particular, we agree that household wastewater discharge would likely be more closely correlated with household composition than water usage. This makes water usage a poor proxy, especially as higher water use is normally due to discretionary use such as garden watering and topping up swimming pools, which does not impact a property’s wastewater discharge.

We will further consider whether a single discharge allowance for houses and apartments is appropriate. We will analyse the available information, including from IPARTs household survey,\textsuperscript{118} on the usage patterns of houses and apartments.

In this review, we will also evaluate the merits of removing the discharge factor applied to residential and non-residential wastewater service charges.\textsuperscript{119} In doing so, we will consider a number of factors, including the potential price impacts on customers. We seek stakeholder views on this issue.

\textbf{IPART seeks comments on the following}

36 Should we introduce explicit residential wastewater usage charges?

37 Should we use different discharge allowances for houses and apartments when setting wastewater service charges?

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

\subsection*{7.4 Stormwater drainage services (except Rouse Hill)}

Most stormwater channels and drains within Sydney Water’s area of operations are the responsibility of local councils. However, Sydney Water supplies trunk stormwater drainage

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\textsuperscript{116} Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, p 29.

\textsuperscript{117} The discharge factor is the deemed ratio of wastewater discharge to water usage for a property. For comparison, Sydney Water’s default discharge factor for calculating non-residential wastewater usage charges is 78\%. See Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, p 31.


\textsuperscript{119} 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.
services in declared stormwater catchment areas, which service about 520,000 customers. These customers pay stormwater charges. We also set separate stormwater charges for customers in the Rouse Hill stormwater catchment, which are discussed in Chapter 8.

Currently, customers within a declared Sydney Water stormwater catchment pay a fixed stormwater drainage charge.  

- **Residential customers** pay a fixed charge which is higher for houses than apartments.
- **Non-residential customers** are allocated into one of five price bands based on the land area of their property, except for customers in a multi-premises who pay the same rate as residential units.
- There is also a **low impact** rate for customers which make a small contribution to stormwater loads, for example, by storing or reusing stormwater collected on their property. The residential low impact price is set at the lower apartment price. The non-residential low impact rate is set to a medium sized non-residential property.

Sydney Water has proposed retaining the current structure for stormwater prices. However, because it has proposed increased stormwater expenditure, it has proposed increasing stormwater drainage charges for all customers by approximately 8% in 2020-21, and then holding prices constant in real terms over the 2020 determination period. The increase in stormwater expenditure is discussed further in Chapters 4 and 5, and is driven by a proposed increase in capital expenditure on stormwater, as well as new expenditure to improve waterway health.

### Table 7.3  Sydney Water’s proposed stormwater drainage charges ($2019-20)

<table>
<thead>
<tr>
<th></th>
<th>$ per annum</th>
<th>2019-20</th>
<th>2020-21</th>
<th>2022-23</th>
<th>2022-23</th>
<th>2023-24</th>
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<tbody>
<tr>
<td>Residential</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit/Low impact</td>
<td>25</td>
<td>27</td>
<td>27</td>
<td>27</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Stand-alone house</td>
<td>80</td>
<td>86</td>
<td>86</td>
<td>86</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>Non-Residential</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-premise/Small (&lt;200 m²)</td>
<td>25</td>
<td>27</td>
<td>27</td>
<td>27</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Low impact/ Medium (201-1,000 m²)</td>
<td>80</td>
<td>86</td>
<td>86</td>
<td>86</td>
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<tr>
<td>Large (1,001 - 10,000 m²)</td>
<td>464</td>
<td>502</td>
<td>502</td>
<td>502</td>
<td>502</td>
<td></td>
</tr>
<tr>
<td>Very Large (10,001 - 45,000 m²)</td>
<td>2,060</td>
<td>2,230</td>
<td>2,230</td>
<td>2,230</td>
<td>2,230</td>
<td></td>
</tr>
<tr>
<td>Largest (&gt;45,000 m²)</td>
<td>5,151</td>
<td>5,576</td>
<td>5,576</td>
<td>5,576</td>
<td>5,576</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Sydney Water pricing proposal, July 2019, Attachment 4, p 33.

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121 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, p 33.

122 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, Table 5-2, p 33.


7.4.1 Sydney Water proposes maintaining the current constrained area prices

Stormwater prices are based on land area. However, they are set so that properties which larger land area pay proportionally less on a per m² basis than smaller properties. We refer to this as ‘constrained’ area pricing.

In the 2016 determination we decided to maintain constrained area pricing (which we introduced when we first set area based stormwater prices in the 2012 determination). However, our analysis at the time suggested residential and small non-residential customers were paying too high a share. Therefore, we decided to reduce prices for these customers, while maintaining prices for large non-residential customers.125

In its 2020 pricing proposal, Sydney Water modelled the impact of its proposed price increase under the current constrained area based charging method and compared this to prices under a “pure” area based method, where all customers pay the same amount per m². As shown in Table 7.4, under the constrained area method, small non-residential customers pay around five times more per m² than large non-residential customers. It also shows that a move to pure area based charging would increase prices for houses by around 5% and increase prices for most non-residential price bands by 5%-196%. However, prices for apartments and small non-residential customers would be around 40% lower.126

Table 7.4 Comparing Sydney Water’s proposed 2020-21 stormwater charges under constrained and pure area pricing ($2019-20)

<table>
<thead>
<tr>
<th></th>
<th>Constrained area pricing</th>
<th>Pure area pricing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Charge ($/a)</td>
<td>Area price ($/100m²)</td>
</tr>
<tr>
<td>Residential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unit/Low impact</td>
<td>27</td>
<td>32.3</td>
</tr>
<tr>
<td>Stand-alone house</td>
<td>86</td>
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<td>Non-Residential</td>
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<td></td>
</tr>
<tr>
<td>Multi-premise/Small (&lt;200 m²)</td>
<td>27</td>
<td>32.3</td>
</tr>
<tr>
<td>Low impact/ Medium (201-1,000 m²)</td>
<td>86</td>
<td>19.0</td>
</tr>
<tr>
<td>Large (1,001 - 10,000 m²)</td>
<td>502</td>
<td>17.5</td>
</tr>
<tr>
<td>Very Large (10,001 - 45,000 m²)</td>
<td>2,230</td>
<td>11.4</td>
</tr>
<tr>
<td>Largest (&gt;45,000 m²)</td>
<td>5,576</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Source: Sydney Water pricing proposal, July 2019 – Attachment 4, Table 5-2 and Table 5-3.

Sydney Water opposed moving to pure area based pricing because of the substantial price increases for some non-residential customers. It also argued that while property size is a factor in demand for stormwater services, it is not the sole determinant. There are many drivers of stormwater drainage costs and some are largely fixed such as desilting costs. Similarly, differences in topography and land use mean stormwater run-off may not scale as a linear function of property area.127

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126 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, p 34; IPART analysis.
127 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, p 34.
Accordingly, Sydney Water argued that adopting pure area-based charging would not necessarily increase the cost reflectivity of these charges and large customers would have limited scope to reduce their costs, other than to apply for a low impact status which could involve incurring costs greater than savings realised from a lower stormwater drainage charge.128

**IPART’s response**

We have not formed a preliminary view on stormwater charges. To inform our view, we have sought more information from Sydney Water on the relationship between property size and the costs of providing stormwater services.

**IPART seeks comments on the following**

39 Are Sydney Water’s proposed stormwater prices reasonable? Is the current constrained area based charging method appropriate?

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128 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, p 34.
8 Prices for other minor services

In addition to water, wastewater and stormwater, IPART also sets prices for a number of other services, fees and charges, which either generate a small amount of revenue or only impact a small number of customers. These minor services make up around 2% of Sydney Water’s revenue.  

In this chapter we outline Sydney Water’s proposed prices for minor services including:

- Recycled water
- Trade waste services
- Miscellaneous and ancillary charges
- Rouse Hill stormwater and land drainage charges, and
- Late payment and declined payment fees.

We also decide as part of this review if it is necessary to set prices for Sydney Water Developer Direct (SWDD). SWDD competes with private sector Water Servicing Co-ordinators (WSCs) to provide application and construction services for some smaller customers, to ensure that new development is adequately serviced with water, wastewater and stormwater services.

8.1 Recycled Water

Sydney Water operates 23 recycled water schemes, which supply around 43 GL a year of treated wastewater to local governments, businesses and residential customers through dual reticulation systems. These schemes include:

- Section 16A schemes – Projects the NSW Government has issued directions to Sydney Water to complete in the public interest, and where IPART has been directed to include the efficient cost of these projects in the prices paid by all customers.

- Mandatory schemes – These are schemes to service new development in growth areas. They are primarily funded through a combination of contributions from developers (developer charges) and customer usage charges. Some schemes are also partly funded from a contribution from the general customer base, where IPART has determined the scheme results in an avoided cost that benefits the broader customer base.

- Voluntary schemes – These are schemes funded directly by the scheme customers under negotiated contracts, and are generally for agricultural, commercial or industrial use.

Sydney Water has proposed maintaining its current pricing for mandatory recycled water scheme customers, being:

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129 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, Figure 1-1 p 6.
130 Late payment fees and declined payment fees are not fees for the provision of a monopoly services, and as such is not within IPART’s scope of review under section 11 of the IPART Act. In the 2016 determination, pursuant to Section 12A of the IPART Act, the NSW Government has referred IPART to carry out periodic investigation and report on the fees at each pricing review.
131 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 14, p 2.
A usage charge set at 90% of the treated water usage charge, and

No service charge.132

We are considering deferring regulation of recycled water prices

In 2019, IPART reviewed the pricing arrangements for recycled water services provided by the utilities we regulate, including Sydney Water. In that review, we decided to defer determining maximum prices for Sydney Water’s recycled water services, and only step in and determine maximum prices to customers receiving these services when there is a need to do so.133

We decided on a less intrusive approach that retained sufficient protection for customers, by adopting a set of pricing principles that the public water utilities must abide by (see Box 8.1). We also decided to maintain the option of setting prices under a scheme-specific review. Specifically we decided that:

- For mandatory recycled water services, we will monitor prices and set a scheme-specific price during the course of a broader price review, where we deem that a public water utility’s pricing approach is inconsistent with our pricing principles.

- For voluntary recycled water services, we encourage unregulated pricing agreements and would step in when warranted to set prices under scheme-specific reviews, if requested to do so by either customers or the public water utility.

Our preliminary view is that Sydney Water’s proposal to maintain its recycled water usage prices at 90% of the treated water price is consistent with our recycled water pricing principles and it is reasonable to defer setting recycled water prices for mandatory recycled water schemes.

**Box 8.1 Pricing principles for mandatory recycled water services**

The structure and level of recycled water prices:

1. Should ensure that appropriate price signals are sent to recycled water users with the aim of balancing supply and demand, and should entail an appropriate allocation of risk.

2. Should include a usage charge, which must have regard to the price of substitutes (such as potable water and raw water). Where the usage charge exceeds the substitute price, water utilities must demonstrate willingness-to-pay by the recycled water customer.

3. May include a fixed service charge, which should have regard to customer impacts, willingness to-pay and not act as a material incentive for customers to disconnect from the recycled water scheme.

4. Should have regard to an efficient distribution of costs between recycled water customers and developers, in line with our funding framework for mandatory recycled water services.

5. Should be simple and understandable.

Source: IPART, Review of pricing arrangements for recycled water and related services, Final Report, July 2019, p 68.

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132 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 14, p 3.
133 IPART, Review of pricing arrangements for recycled water and related services, July 2019, p 11.
IPART seeks comments on the following

40 Is it reasonable for IPART to defer setting prices for Sydney Water’s recycled water schemes over the 2020 determination period?

8.2 Trade Waste Services

Trade waste is defined as wastewater from commercial and industrial customers in which the concentrations of pollutants exceed a domestic equivalent.134 Sydney Water currently levies three types of trade waste charges:

- **Pollutant charges**, which recover the costs of the transport, treatment and disposal of trade waste, as well as the corrosion caused by high strength waste.
- **Ancillary and agreement charges**, which recover the cost of administering trade waste agreements and conducting inspections.
- **Wastesafe charges**, which recover the cost of monitoring liquid waste pits.

Sydney Water currently levies 34 trade waste charges. It proposes to reduce the number of charges to 31 from 2020-21. Sydney Water’s estimated trade waste revenue for 2019-20 is around $33.0 million ($2019-20), but this is forecast to decrease to an average of $24.6 million a year ($2019-20) over the 2020 determination period.135 A full list of Sydney Water’s proposed trade waste prices is at Appendix G.

After reviewing its trade waste cost models, Sydney Water has proposed lower prices for most trade waste customers over the 2020 determination period. We calculate most industrial and commercial pollutant charges have been reduced by between 27% and 81%,136 (inclusive of a small uplift from a reallocation of corporate costs, see Box 8.2), which would lead to significantly lower trade waste bills for most customers. Sydney Water also proposes reducing the Wastesafe fixed charge for all waste trap customers by 65%.137

Sydney Water has proposed to increase annual trade waste fees for industrial customers by 14% in 2020-21 (excluding the effects of inflation) based on modelled increases in labour and sampling costs.138 It has also proposed increasing pollutant charges for equipment hire businesses by 13% and non-compliant waste trap users by 4% respectively in 2020-21.139 All these prices would then increase by 1.4% a year between 2020-21 and 2023-24 from the corporate common cost uplift.

IPART seeks comments on the following

41 Are Sydney Water’s proposed trade waste prices (listed in Appendix G) reasonable?

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134 A domestic equivalent is a concentration or level that is the same as would be found in household wastewater.
135 Sydney Water, Pricing proposal to IPART, July 2019, Schedule 6, p 3.
136 Sydney Water, Pricing proposal to IPART, July 2019, Schedule 6, Table A6.2, Table A6.5 and IPART calculations.
137 Sydney Water, Pricing proposal to IPART, July 2019, Schedule 6, Table A6.11.
138 Sydney Water, Pricing proposal to IPART, July 2019, Schedule 6, p 11.
139 Sydney Water, Pricing proposal to IPART, July 2019, Schedule 6, Table A6.5.
Box 8.2 Corporate cost uplift to trade waste, miscellaneous and ancillary services

Prior to our 2016 determination, Sydney Water had not allocated a share of its corporate costs to trade waste and miscellaneous charges. In that determination we considered it important to allocate costs consistently across the business to encourage the benefits from any economies of scope to be shared with all regulated customers. In addition, when common costs are not allocated to potentially contestable services, the price of these services can be below the market-clearing price (thus preventing competition from emerging).

To address this, IPART applied an upward real adjustment of 1.9% each year over the 2016–2020 determination period to account for corporate common costs, that is, a 7.8% cumulative increase by 2020. This accounted for half of the corporate overhead costs of 15.6%, as determined by IPART. The corporate costs uplift was planned to occur over two consecutive determinations.

For this price review, Sydney Water has calculated its corporate overhead costs to be 14%. Applying the same approach that was included in 2016–20 determination, Sydney Water applied an upward real adjustment of 1.4% each year to all trade waste and ancillary and miscellaneous service charges. This results in a 14% cumulative increase over the 2016 and 2020 determination periods.


Sydney Water has proposed a new approach to non-compliant Wastesafe customers

Sydney Water’s Wastesafe customers are required to install and maintain a compliant waste trap to prevent grease and other waste from entering the wastewater system. Sydney Water considers its current pricing approach for Wastesafe does not incentivise customers to fix non-compliant waste traps in a timely manner.140

Currently, where a customer misses a service of their trap, Sydney Water contacts them to organise a pump-out at a cost of $322 for small traps and $645 for larger traps. To improve compliance Sydney Water has proposed a new approach. It proposes eliminating its two pump out charges and instead where a waste trap customer misses a service they would be charged the non-compliant trade waste discharge price until their trap was made compliant. Sydney Water proposes to set this charge at $13.28/kL, or 785% of its base trade waste charge for a low strength food waste customer.141

This change would provide a strong incentive for non-compliant customers to fix their traps quickly. However, it may be unnecessarily punitive and we are interested in better understanding the likely bill impact of this change, especially if there are customers who are not deliberately non-compliant. We are also interested in better understanding the costs Sydney Water faces from non-compliant waste traps.

IPART seeks comments on the following

42 Are Sydney Water’s proposed changes to how it manages non-compliant Wastesafe customers appropriate?

141 Sydney Water, Pricing proposal to IPART, July 2019, Schedule 6, p 13.
8.3 Miscellaneous and ancillary services prices

Sydney Water levies miscellaneous and ancillary service prices for a number of discrete monopoly services related to water, wastewater, stormwater drainage and trade waste. These are typically one-off activities used by a small number of customers. Broadly these services are:

- Development fees, for the administrative cost in processing and approving new developments; eg, advice on servicing requirements and complex work design, or reviews and inspections of new developments.
- Customer service fees related to individual properties - eg, damaged meter replacement and provision of wastewater location diagrams.

Sydney Water currently has 34 different miscellaneous and ancillary prices which cover 24 different services (in total, Sydney Water offers 41 ancillary and miscellaneous customer services but not all attract a price). The forecast revenue from these prices accounts for a small proportion of Sydney Water’s total revenue – approximately 0.5% of the total revenue Sydney Water is seeking to recover from prices over the 2020 determination period.

A full list of Sydney Water’s proposed miscellaneous and ancillary services prices is at Appendix H.

Sydney Water has proposed some changes to ancillary services prices

Sydney Water has reviewed the majority of its miscellaneous and ancillary services prices, and has proposed to:

- Reduce 13 ancillary service prices. This is due to changes in contractor costs and the efficiencies from its new online customer service portal.
- Increase 8 ancillary service prices. This reflects an increase in meter contract costs and changes in its overall business and operating environment.
- Introduce a price for one new ancillary service (discussed below).

The revised prices also include a small uplift from a reallocation of corporate costs, of 1.4% each year (Box 8.2).

Sydney Water has proposed one new ancillary charge

Sydney Water proposed to include one new ancillary charge to recover the cost of carrying out an annual test of backflow prevention devices (where a property owner has not done so themselves). A backflow can deteriorate the quality of drinking water customers receive, as it potentially carries contaminants into the water supply system. All connections to Sydney Water’s water mains must have a suitable backflow containment, and an annual testing of

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142 Sydney Water, Pricing proposal to IPART, July 2019, Schedule 7, p 3.
backflow devices is mandatory to ensure functionality. The property owner must submit to Sydney Water a copy of the annual test report.144

Sydney Water maintains a register of testable backflow containment devices and have reported that a number of devices are non-compliant. They have proposed to charge a fee of $229.44 ($2019-20) to non-compliant customers, starting in 2020-21. This fee will cover the cost of a Sydney Water contracted backflow plumber to visit the non-compliant property and conduct an annual test of the device.145

**IPART’s response**

We have not formed a preliminary view on Sydney Water’s proposed prices at this stage.

**IPART seeks comments on the following**

43 Are Sydney Water’s proposed prices for miscellaneous and ancillary services (listed in Appendix H) reasonable?

### 8.4 Rouse Hill drainage charges

Sydney Water owns and manages trunk drainage services in the Rouse Hill area as well as a large amount of flood-prone land. The stormwater drainage system in Rouse Hill consists of large areas of open space to accommodate flood flows, natural creeks and grass lined channels, and artificial wetlands.

There are currently two charges that are levied on properties within the Rouse Hill Area:

- **A Rouse Hill stormwater drainage charge**, which recovers the operating costs of the drainage system, including for activities such as cleaning out trash racks, regenerating bushland and weed and ground management.

- **A Rouse Hill land charge**, which recovers a portion of Sydney Water’s capital expenses for the same system. It is charged to new properties that connect (or have connected) to Sydney’s water system in the Rouse Hill stormwater catchment area between 1 July 2012 to 30 June 2026.146

**Sydney Water proposes to gradually reduce Rouse Hill charges**

Sydney Water has proposed reducing both prices levied on customers in Rouse Hill. It has proposed to:

144 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, p 13.
146 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, pp 9-10.
Gradually reduce the stormwater drainage charge, from $151 per year in 2019-20 to $114 per year in 2023-24 (excluding the effect of inflation). Prior to 2016, Sydney Water’s prices were set at levels that were less than the efficient costs. In our 2016 Determination we increased the stormwater drainage charge to cover both the ongoing operating costs Sydney Water incurs and the cumulative operating cost deficit Sydney Water had accrued from setting prices too low in previous periods. Sydney Water states that the operating cost deficit will diminish by 2023-24 and from then on, prices can be set to recover the ongoing operating costs only.\textsuperscript{147}

Reduce the Rouse Hill land charge by 14% to $336 per year in 2020-21 from $392 per year in 2019-20 (excluding the effect of inflation). This decrease in price is due to Sydney Water anticipating an increase in property growth, over the next determination period. The increase in growth is driven by an increase in density in greenfield areas such as Box Hill.\textsuperscript{148}

**IPART’s response**

We will review these prices and ensure that they recover the efficient cost of delivering services to the Rouse Hill area. Our expenditure consultants are reviewing the efficiency of Sydney Water’s proposed operating and capital expenditure, which will inform our draft decisions.

**IPART seeks comments on the following**

44 Are Sydney Water’s proposed changes the Rouse Hill drainage charges reasonable?

### 8.5 Late and declined payment fees

Sydney Water’s Customer Contract, the terms of which are set out in its Operating Licence, states that it may charge its customers:

- Interest on their overdue account balance
- A late payment fee
- A dishonoured or declined payment fee.

A late payment fee may be levied on a customer if their bill is over 7 days overdue, and Sydney Water has notified the customer in advance of any late fee including the circumstance under which the fee will be charged.

The late payment fee compensates Sydney Water for additional administration and funding costs that arise from an overdue account. If the interest accrued on the overdue account balance is greater than the determined late payment fee, Sydney Water can charge the amount of interest accrued instead of the late payment fee.

Declined and dishonoured payment fees are charged to customers when credit card and direct debit payments are declined, or banking authorities return cheques. These fees are in addition to any bank or Australia Post fees which are passed directly to the customer.

\textsuperscript{147} Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, p 9.

\textsuperscript{148} Sydney Water, Pricing proposal to IPART, July 2019, Attachment 4, pp 10-11.
Sydney Water proposes to apply a common cost uplift to late and declined payment fees

Sydney Water has proposed to increase its late payment fee and declined payment fee by 1.4% per year (Table 8.1). This is so that these fees include an allocation for corporate costs (Box 8.2).

| Table 8.1 Sydney Water’s proposed late and declined payment fees ($2019-20) |
|--------------------------------------------------|------------------|------------------|------------------|------------------|------------------|
|                                                   | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 |
| Late payment fee ($)                              | 4.74    | 4.81    | 4.88    | 4.95    | 5.02    |
| Dishonoured or declined payment fee ($)           | 14.26   | 14.46   | 14.66   | 14.87   | 15.08   |

Source: Sydney Water’s pricing proposal, Appendix 4B, pp 3-4.

IPART’s response

We will review these fees, in line with our standing order for a periodic review of these fees under section 12A of the IPART Act (see Appendix I).

IPART seeks comments on the following

45 Are Sydney Water’s proposed late and declined payment fees reasonable?

8.6 Sydney Water Developer Direct

In early 2017, Sydney Water launched a new service known as Sydney Water Developer Direct (SWDD). Under this service, Sydney Water offers developers of small to medium developments the choice to use SWDD, or engage a private-sector Water Service Coordinator (WSC), to obtain their Section 73 Compliance Certificate (Section 73 certificate).

- A WSC (or SWDD) is responsible for liaising between developers, design companies and Sydney Water to obtain a Section 73 Certificate. Developers cannot apply for a Section 73 certificate on their own.

- A Section 73 certificate confirms that a development meets Sydney Water’s requirements to adequately service a new subdivision or development with water, wastewater and stormwater services.

Sydney Water ‘Developer Direct’ program (SWDD) provides two services to customers undertaking small to medium development:

- Application services, and

- Construction services that relate to connecting a property to the water and wastewater network.

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149 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 7, p 19.
Application services

According to Sydney Water’s website, an application service fee through SWDD is $713.10. This has increased from $495.03 in 2018. It includes the following application services:

- An assessment of an applicant’s building plans and development application
- A design sketch
- A Notice of Requirements if the development requires additional construction work to obtain a certificate
- A fixed price quote for any construction work outlined in the Notice of Requirements, and
- A Section 73 certificate and full Building Plan Approval once all requirements have been met.

Charges for some of the above-mentioned application services are currently regulated under Sydney Water’s 2016 Determination (as ancillary and miscellaneous charges), while others are unregulated services.

Construction services

If construction work is required, a developer may organise construction services separately or accept Sydney Water’s quote. These are currently not regulated by IPART. There are over 30 WSCs, and developers can choose any WSC for their development. Regardless of the choice of using a WSC or SWDD, Sydney Water remains solely responsible for providing certification services.

Sydney Water’s proposed approach

Sydney Water’s proposal is that IPART should not regulate the construction market or the application services that are currently not subject to regulated charges. It suggests a ‘light-handed’ approach to regulation that focuses on information disclosure for customers and the continuation of a contestable market. Sydney Water states that:

Should IPART set a maximum price, we consider that this will likely lead to inefficient pricing and an uneven playing field in our favour. This is due to the cross-subsidies that would be forced into pricing from postage stamp pricing, given the large heterogeneous nature of construction service costs.

Sydney Water has proposed that we continue to set maximum prices for the application services that are currently subject to regulated charges (as part of our review of its miscellaneous and ancillary charges).

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151 These are the building plan approval applications and the development Notice of Requirements applications.
152 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 7, p 20.
155 Sydney Water, Pricing proposal to IPART, July 2019, Attachment 7, pp 24-25.
**IPART’s response**

As SWDD is only currently providing services to developers of small- and medium-sized developments, the nature of these services results in a market which is not typically made up of repeat customers.

Some of SWDD’s application services fall within regulated services for which we set maximum prices at our 2016 Determination of Sydney Water’s periodic prices. In this review of Sydney Water’s periodic prices, we will review all SWDD application services including:

- Which SWDD application services are government monopoly services and therefore subject to IPART regulation
- The efficient costs of delivering those application services.

We will need to ensure that any SWDD application services that are not monopoly services are ring-fenced. We will also review construction services provided as part of SWDD.¹⁵⁶

Our review will seek to answer the following questions:

- Are there any market failures, or information asymmetries, for small to medium developments needing to obtain a Section 73 Compliance Certificate?
- What was the level of competition in the market prior to SWDD and since SWDD was launched? Does SWDD have an unfair advantage in the market?
- What impact does Sydney Water’s vertical integration of the developer direct program have on WSCs competing in the market for the supply to customers for the management of the process (which includes minor construction services)?
- Are there any other benefits or costs from SWDD providing these services?
- How should we approach whether and how to price regulated SWDD construction services?

We will liaise with industry, including WSCs, and seek stakeholder feedback to answer these questions as part of our review process.

**IPART seeks comments on the following**

46  Do you have any comments about Sydney Water’s Developer Direct application and construction services in terms of price and service?

47  Should the construction services provided by Sydney Water Developer Direct be price regulated, or is price monitoring by IPART more appropriate?

48  If we were to regulate the price of construction services provided by Sydney Water Developer Direct, how should these prices be determined?

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¹⁵⁶ In our 2018 review of developer charges (IPART, Maximum prices to connect, extend or upgrade a service for metropolitan water agencies - Final Report, October 2018) we decided to defer regulating construction services provided under SWDD to the 2019-20 Sydney Water periodic price review.
9 Form of regulation

This chapter discusses the ‘form of regulation’, or the set of methods, we use to regulate prices for monopoly services. These methods aim to:

- Minimise and balance cost and revenue risks between the regulated utility, its customers and taxpayers, and
- Encourage the utility to be efficient while ensuring the benefits are shared with customers.

We discuss, in turn, Sydney Water’s proposal and our preliminary views on:

- Setting prices for 4-years
- Maintaining price-caps as the form of price control
- Maintaining the option of unregulated pricing agreements between Sydney Water and large customers
- How non-regulated revenue, from regulated assets, is shared between customers and the utility
- The efficiency carry over mechanism, and
- Adjustments to address sources of uncontrollable cost risks for the utility.

9.1 Length of determination period

An important step in a price review is to decide how long to set prices for (length of determination period). In general, IPART sets determination periods of between one and five years.

In recent Sydney Water reviews, we have favoured 4-year determinations as we considered that a 4-year price path struck an appropriate balance between providing certainty to the regulated business and limiting delays in customers benefitting from efficiency gains.\(^{157}\)

We consider a number of factors when deciding on the length of the determination period (Box 9.1).

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Box 9.1  Factors we consider in deciding length of 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
- The risk of structural changes in the industry
- The need for price flexibility and incentives to increase efficiency
- The need for regulatory certainty and financial stability
- The timing of other relevant reviews, and
- Stakeholder views.

Longer determination periods have several advantages over shorter periods. For example, a longer period: provides greater stability and predictability (which may lower a utility’s business risk and assist investment decision making); creates strong incentives for a utility to increase efficiency; and reduces regulatory costs.

However, longer determination periods also have disadvantages. These include: increased risk associated with using out-of-date 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.

9.1.1  Sydney Water proposed a 4-year determination period

Sydney Water proposed a 4-year determination period, from 1 July 2020 to 30 June 2024. We note that during the recent Sydney Water Operating Licence review, Sydney Water indicated that it would propose a 5-year determination. However, Sydney Water have stated that a 4-year determination period is appropriate for the 2020 period, as it adequately addresses our criteria in Box 9.1:

- **Confidence in forecasts**: Sydney Water considers that its forecasting capabilities have progressively improved at each price review. Nevertheless, there has been a significant deviation in forecast demand compared to actual demand in the 2016-20 price period. In particular, the risk of drought continuing over the 2020 period creates increased forecast uncertainty.

- **Risk of structural change in the industry**: There has been no new WICA licences since 2017 and Sydney Water is not aware of any significant new WICA schemes expected during the 2020-24 period.

- **The need for price flexibility and incentives to increase efficiency**: Sydney Water considers that a 4-year determination period strikes an appropriate balance between the need for price consistency for customers and to provide a sufficient incentive for the utility to achieve efficiencies.

- **The need for regulatory certainty and financial stability**: The 2020-24 determination period will be the third determination that customers have had a four-year price path.

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158 Sydney Water, Pricing proposal to IPART, Attachment 7, July 2019, pp 6-7.
Timing of other relevant reviews: Sydney Water states that staggering the operating licence and the pricing review by two years would be ideal to ensure appropriate resourcing and to allow Sydney Water to propose any price changes which may result from changes in the operating licence. This was the key justification for initially preparing for a 5-year determination which Sydney Water had indicated during their operating licence review. However, Sydney Water have proposed that on balance, given the factors above, a 4-year price path is more appropriate.\footnote{Sydney Water, Pricing proposal to IPART, Attachment 7, July 2019, p 5.}

9.1.2 IPART’s response

Our preliminary view is that a 4-year determination period is appropriate in the context of the current drought conditions, which increase the uncertainty of forecasting capital and operating expenditure, and water demand. It also aligns with the determination period proposed by WaterNSW in the concurrent Review of prices of WaterNSW Greater Sydney’s bulk water services. We are also undertaking a review of water, wastewater and stormwater services provided by Hunter Water. We will consider the costs and benefits of aligning the length of determination period of Sydney Water with Hunter Water.\footnote{IPART, Review of prices for Hunter Water Corporation Issues Paper, September 2019, p 106.}

We seek stakeholder views on an appropriate determination period before making our decision.

IPART seeks comments on the following

49 How long should we set prices for in the 2020 determination?

50 Should the length of Hunter Water’s determination period factor into our consideration for Sydney Water’s determination period?

9.2 Form of price control

The form of price control can determine how much discretion the regulated entity has to adjust its prices within a regulatory period, and how frequently the regulator reviews or adjusts prices, and how risks and rewards are shared between the regulated business and its customers.

There are several forms of price control which each provide different incentives to the regulated entity to deliver its services more efficiently, and/or different distributions of risk between the regulated entity and its customers. Some of the most common forms are summarised in Box 9.2.
**Box 9.2   Different forms of price controls**

The different forms of price control include the following:

- **Price cap** – maximum prices are determined at the start of the determination period and adjusted each year for inflation. This approach provides predictable prices for customers, but the regulated entity bears volume-related risk to the extent that price structures do not perfectly match the utility’s cost structures. (The utility will not face volume-related risk if its fixed price is set to recover its fixed costs, and its usage price is set to recover its variable or marginal costs).

- **Revenue cap** – a regulated entity receives its total revenue allowance for a regulatory period, irrespective of the volume of regulated services provided. Customers bear any volume-related risk through price increases or decreases over the regulatory period.

- **Weighted average price cap** – a maximum average price is set for each group of the utility’s prices for the first year of the determination. A formula can also be determined for adjusting this average price in each subsequent year of the regulatory period. The regulator can also set limitations on the amount by which some or all individual prices within the groups can increase during the determination. Utilities then have the freedom to rebalance prices (increase or decrease individual prices), so long as the weighted average of the prices is less than or equal to the maximum average price, and they comply with any limitations imposed. The accuracy of volume forecasts will significantly affect the overall revenue that the utility is able to earn while keeping within the weighted average price cap.\(^a\)

- **Hybrid** of the revenue and price cap controls – a price control is in place but additional measures to mitigate the risk of the utility under or over-recovering its revenue requirement are also used.


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### 9.2.1 Sydney Water proposed maintaining price caps

Currently, we control Sydney Water’s prices directly by setting maximum prices for each service for each year of the determination period (ie, a price cap). Sydney Water proposes that we retain the price cap over upcoming determination period.

### 9.2.2 IPART’s response

Our preliminary view is that the current form of price control is appropriate, particularly as it provides certainty and stability for both customers and Sydney Water.

However, other stakeholders may propose to change the form of price control. We will consider these proposals based on whether the potential benefits are likely to outweigh potential costs, or risks.

*IPART* seeks comments on the following

51 Do you support the ongoing use of a price cap as an appropriate form of price control for Sydney Water?
9.3 Unregulated pricing agreements

Our standard form of regulation (setting price caps) involves setting maximum prices for regulated services that apply to all customers for each year of the determination period. However, we support introducing price flexibility where it is likely to lead to more efficient prices and/or deliver value to customers. In our 2016 review of Sydney Water’s prices, we decided to allow Sydney Water to enter into unregulated pricing agreements (UPAs) with large non-residential customers. We defined large non-residential customers as those who consume more than 7.3 ML of water per year.

9.3.1 Unregulated pricing agreements are optional and only entered into if both parties agree

An unregulated pricing agreement is an agreement that allows the parties to charge/pay a price that is different to the price determined by IPART, over the determination period, and which is entered into after a Determination commences. If the parties do not enter into an unregulated agreement then the maximum prices specified in the current Determination will apply. Sydney Water proposed maintaining the flexibility of unregulated pricing agreements

Sydney Water proposed retaining the ability to enter into unregulated pricing agreements over the upcoming determination period. Sydney Water states that there has only been a small number of customers who have expressed interest in UPA’s and none have sought to enter into an agreement. However, the mechanism is still relatively new and there may be future uptake.

9.3.2 IPART’s response

We consider that there is value in maintaining the option for large non-residential customers to enter into an UPA with Sydney Water. If both Sydney Water and a large non-residential customer are able to negotiate an arrangement that makes both parties better off, the regulatory framework should not prevent these ‘win-win’ agreements from occurring. Additionally, it incentivises Sydney Water to engage with customers in order to develop mutually beneficial arrangements specifically targeted to better match customer preferences.

We consider the incentives that UPA’s generate should be maintained over time, and therefore, we allow of any gains generated through UPA’s to be retained by the parties involved. These gains may be increases in revenue or decreases in costs. In practice, this is relatively straightforward for changes in revenue (we allow any additional revenue to be retained by the business), but it can present challenges for changes in costs (where it may be difficult to go back and isolate cost changes from the utility’s wider cost base).

Sydney Water would be required to ‘ring-fence’ any changes in costs resulting from unregulated pricing agreements. This is to ensure that the regulated cost base and regulated prices continue to reflect the efficient costs of providing the regulated service in the future. This information would be assessed and factored into resetting expenditure allowances at the next price review.

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Restricting UPA’s to large non-residential customers who have an annualised metered water consumption greater than 7.3 ML protects smaller, potentially vulnerable, customers from entering into an agreement that may not be in their best interest.

IPART seeks comments on the following

52  Do you support maintaining the option of unregulated pricing agreements between Sydney Water and large customers?

53  Are there any barriers preventing the uptake of unregulated pricing agreements? Can the framework be changed to encourage greater uptake without disadvantaging other customers?

9.4  Non-regulated revenue

Sydney Water may derive non-regulated revenue from regulated assets. That is, Sydney Water may use regulated assets (which are used to provide its regulated monopoly services) for other activities which are not regulated but earn revenue.

Historically, we have deducted 50% of non-regulated revenue from the NRR before we set prices. This is because it provides Sydney Water with a financial incentive to pursue non-regulated revenue sources, while ensuring that customers also benefit from these arrangements by returning 50% of the revenue to customers through lower prices.

9.4.1  Sydney Water’s proposed revenue sharing for non-regulated revenue

Sydney Water has proposed to share 10% of its non-regulated income with customers. It includes non-regulated revenue from:

- Its participation in the NSW biodiversity offset scheme (which is summarised in Box 9.3), and
- Rental income.

The table below shows Sydney Water’s proposed non-regulated revenue.

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162 This is different to unregulated revenue, which is revenue that is received from a utility’s unregulated business.
Table 9.1  Sydney Water’s pricing proposal for non-regulated revenue ($2019-20, million)

<table>
<thead>
<tr>
<th></th>
<th>Revenue sharing (%)</th>
<th>Total forecast revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sydney Water</td>
<td>Customer</td>
</tr>
<tr>
<td>Biodiversity offset scheme income</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>Rental income</td>
<td>90%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Source: Sydney Water pricing proposal, Attachment 11, July 2019, p 30

Sydney Water proposed sharing 10% of its gross revenue from biodiversity offsets with customers. This is because the risk of participating in this scheme is greater than for other non-regulated revenue streams, such as rental income. The scheme also generates ongoing costs for Sydney Water. Firstly, it requires analysis and costs to evaluate and setup a biodiversity offset. Secondly, the scheme also creates a perpetual agreement with ongoing costs and responsibilities for Sydney Water to manage.

However, Sydney Water also proposes to share 10% of its non-regulated revenue from rental income with customers even though the risk profile of non-regulated revenue from rental income is different to the income generated through the Biodiversity offset scheme. It is also a deviation from the sharing ratio of 50:50 which we adopted for rental income since 2008. Sydney Water states that this creates a ‘consistent’ treatment across its non-regulated revenue income.

Box 9.3  How does the biodiversity offset scheme work?

The Biodiversity Offset Scheme (the Scheme) is a NSW Government scheme to offset the impacts of development and land clearing by securing and managing offsetting sites.

The Scheme is a market-based instrument, which brings together owners of land with (potentially) high biodiversity value and developers or land clearers that are required to offset the negative biodiversity impacts from new development. Landowners enter sites into the Scheme and agree to particular land management activities in perpetuity (such as pest control and weed removal), as set out in a Biodiversity Stewardship Agreement (BSA). As a result, landowners generate biodiversity credits, which can be sold. Developers and land clearers can then offset their biodiversity impacts by purchasing credits from landowners that have established biodiversity sites.


9.4.2  IPART’s response

As discussed above, our standard revenue sharing ratio for non-regulated income is 50:50. However, Sydney Water’s proposal to share 10% of revenue from its participation in the biodiversity offset scheme is consistent with our advice to Sydney Water. In March 2018, Sydney Water emailed IPART regarding its participation in the Government’s Biodiversity Offset Scheme. It requested guidance from the Tribunal on the likely regulatory treatment of scheme-specific cash flows at Sydney Water’s next price review.
In response to Sydney Water’s guidance request in March 2018, we agreed with Sydney Water that in the specific case of the Biodiversity Offset Scheme we would consider moving away from the 50:50 sharing approach because the scheme is substantially different from existing non-regulated revenue sources, such as rental income. This is because scheme participation requires additional setup costs, as well as requiring the business to enter into a perpetual agreement with ongoing costs and responsibilities. This creates increased risks on the utility as a result of scheme participation.

However, Sydney Water’s proposal to share 10% of non-regulated rental revenue with customers is inconsistent with our standard approach of adopting a 50:50 sharing ratio. IPART has historically deducted 50% of rental income earned from Sydney Water’s NRR. Our preliminary view is to continue sharing 50% of unregulated rental revenue with customers.

In summary, our preliminary views are to:

- Accept Sydney Water’s proposal to share 10% of its non-regulated revenue from its participation in the Biodiversity offset scheme with customers, and
- Not accept Sydney Water’s proposal to share 10% of non-regulated revenue from rental income with its customers and instead share 50% consistent with our standard approach.

IPART seeks comments on the following

54 How should we share Sydney Water’s non-regulated revenue with customers?

9.5 Promoting future efficiency savings

We set maximum prices that reflect our best estimate of the efficient costs required to deliver regulated services over the determination period. In general, if the business makes further cost savings during the determination period, the business would retain the profits from cost savings made during the determination period. If these cost savings are permanent, they are then passed onto customers through lower prices (reflecting lower costs) at the next price determination.

This is referred to as ‘incentive regulation’, because the business has a financial incentive to achieve cost savings during the determination period.

9.5.1 The efficiency carryover mechanism

A small shortcoming of this approach is that the financial reward for achieving savings reduces as we get closer to the next price determination (when costs are re-assessed and prices are set to reflect the latest estimate of efficient costs). This means Sydney Water has an incentive to delay savings it identifies in the latter years of a determination period to the beginning of the next.

To address this shortcoming, we introduced an Efficiency Carryover Mechanism (ECM) for operating expenditure. This mechanism allows permanent efficiency gains (ie, cost decreases) to be retained by Sydney Water for a specified period (eg, four years) before they are passed on to customers, regardless of when they are achieved within a determination period. This
equalises the incentive to make permanent efficiency savings over a determination period. As a result, this removes the incentive to defer identifying cost savings to the beginning of the following regulatory period.

Our ECM is limited to controllable operating expenditure, that is, total operating expenditure minus bulk water costs. This makes up approximately 70% of Sydney Water’s total operating expenditure for regulated services. We currently do not have a capital expenditure ECM. Further information on our ECM is available in Appendix J.

9.5.2 Sydney Water’s proposal

Sydney Water is not claiming an efficiency carry-over as part of the operating expenditure ECM we introduced in 2016. However, it proposes to maintain the option to claim for an operating expenditure carry-over as it provides Sydney Water a more balanced incentive to find efficiencies in its controllable operating costs.

Sydney Water sees merit in exploring an ECM for capital expenditure

Sydney Water did not propose an ECM for capital expenditure. However, it considers that an ECM for operating expenditure only may introduce capital expenditure bias, and does not promote efficient trade-offs between operating and capital expenditure.

Although Sydney Water does not propose a capital expenditure ECM for this upcoming determination period, it would like to work with IPART to consider one in the future.

9.5.3 IPART’s response

Our preliminary view is to retain the existing operating expenditure ECM but not to introduce a capital expenditure ECM at this time. However, Sydney Water’s pricing proposal highlights that operating costs can be highly cyclical, depending on climatic trends, which potentially makes it difficult to disentangle permanent efficiencies from temporary cost reductions on a year-by-year basis. We will further explore the operating expenditure ECM and how it promotes incentives for Sydney Water to reduce its costs over time.

Sydney Water’s proposal reiterated our reasoning for not introducing a capital expenditure ECM in the 2016 Sydney Water price review. These are:

- The risks of unintended consequences associated with strengthening capital expenditure incentives (such as to over-forecast and inefficiently defer capital expenditure)
- The additional complexity, such as the practicality of undertaking an ex-post assessment of capital expenditure, and the nuances of achieving equalised incentives across operating and capital expenditure.

We view that these reasons are still valid for this 2020 price review. We propose to work with Sydney Water after this price review to explore ways in which our future form of regulation

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163 See Chapter 5 of this Issues Paper for detailed information on Sydney Water’s proposed and historical operating expenditure.

164 Sydney Water’s, Pricing proposal, July 2019, Attachment 7, p 4.
could improve the incentive for Sydney Water to deliver capital expenditure as efficiently as possible.

**IPART seeks comments on the following**

55 Should we continue to apply an efficiency carryover mechanism (ECM) to Sydney Water’s operating expenditure?

### 9.6 Considering costs risks through cost pass-throughs

Under the current form of regulation, we set efficient operating and capital expenditure allowances for the regulatory period with an expectation that costs can fluctuate up and down, some new costs will arise, and some expected costs will not occur. If there is no bias in the forecasts, we would expect the gains from under spends to offset the losses from overspends over the long term.

There are some exceptions to this. Where there is a significant cost that may or may not occur during the regulatory period, and if the business has no meaningful influence over whether the cost is incurred or how big the cost will be, there can be a case to provide a cost pass-through for these costs.

Cost pass-through mechanisms allow uncertain and unknown costs that arise during the regulatory period to be passed-through to customers within the regulatory period. They address the risk that actual costs may vary from forecast costs due to uncertain or uncontrollable events.

Sydney Water currently has two cost pass-throughs for its bulk water costs. These are, when Sydney Water purchases bulk water from:

- The Sydney Desalination Plant (SDP), and
- WaterNSW for transfers from the Tallowa Dam on the Shoalhaven River (Shoalhaven transfers).

#### The Sydney Desalination Plant

Sydney Water purchases most of the bulk water it needs to supply to customers from WaterNSW. Sydney Water also purchases bulk water from the Sydney Desalination Plant (SDP) which operates under a regime set out in the Government’s Metropolitan Water Plan. The Plan states that SDP will operate at full capacity and supply desalinated water to Sydney Water’s area of operations when the total dam storage level is below 60% and will continue to do so until dam storages reach 70%.

We set the maximum prices that SDP can charge Sydney Water in each of its mode of operations. The current cost pass-through allows Sydney Water to pass-through into water charges the difference between its actual and forecast SDP-related bulk water costs, with a one-year lag. Appendix K provides a detailed explanation of how the cost pass-through

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165 We are concurrently conducting a review to determine WaterNSW’s maximum prices from 1 July 2020. We will use the final decisions on these prices in determining Sydney Water’s bulk water costs.

166 SDP can supply up to 15% of Sydney’s current water needs.

167 This is explained in more detail in Chapter 7.
mechanism for SDP prices were included in Sydney Water’s prices over the 2016 Determination period.

**Shoalhaven Transfer costs**

In the 2016 Sydney Water price review, we introduced a service charge cost pass-through mechanism to compensate Sydney Water for actual bulk water costs, charged by WaterNSW for transfers from Tallowa Dam on the Shoalhaven River (Shoalhaven Transfers). The Tallowa Dam stores inflows from the Shoalhaven River which can be transferred to Warragamba Dam when required to boost water supply to both Sydney and the Illawarra. Under the 2017 Metropolitan Water Plan, WaterNSW must start pumping from the Shoalhaven system when Sydney’s dam levels fall to 75% and continue until dam levels rise above 80%.

This size of these costs and their impact on customers will depend on the transfers from the Shoalhaven. This pass-through also allows Sydney Water to pass through the difference between actual and forecast costs, with a one-year lag. Appendix K provides a detailed explanation on how the cost pass-through mechanisms for Shoalhaven Transfer costs were included in Sydney Water prices over the 2016 Determination period.

9.6.2 Sydney Water’s and WaterNSW Greater Sydney’s proposal

Sydney Water has proposed to maintain its two existing cost pass through mechanisms but did not propose any additional cost-pass through mechanisms for the 2020 determination period. However, in the concurrent WaterNSW Greater Sydney price review, WaterNSW did propose material cost-pass mechanisms for drought related contingency projects which may occur during its upcoming determination period. These are discussed in more detail in the Issues Paper for that review.

9.6.3 IPART’s response

Sydney Water is WaterNSW’s largest customer and any cost pass-throughs attached to WaterNSW Greater Sydney’s bulk water prices will impact Sydney Water’s costs.

In deciding whether to accept any cost pass-throughs as part of WaterNSW’s Greater Sydney’s maximum prices, we will consider whether Sydney Water’s determined prices should include these cost pass-throughs to customers.

Box 9.4 outlines our proposed criteria to determine if any costs merit a cost pass-through. We will apply these criteria to assess both WaterNSW’s cost pass-through proposals and any subsequent cost pass-throughs for Sydney Water.

Our preliminary position, regarding Sydney Water’s existing cost pass-throughs for SDP and Shoalhaven transfers, is that they remain appropriate and should be maintained in the 2020 period.

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168 There are also other constraints; for example, the water level in Tallowa Dam has to be within 1 metre of the top water level of the dam.

Box 9.4 Criteria for cost pass-through mechanisms

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 associated with the trigger event 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 cost increases and cost decreases (in cases where the risk can result in both cost increases and cost decreases).
- It is clear the cost pass-through will result in prices that better reflect the efficient cost of service both before and after the trigger event occurs.

IPART seeks comments on the following

56 If we implement a cost pass-through mechanism for drought related costs in the concurrent WaterNSW price review, should we include a subsequent cost pass-through mechanism for Sydney Water to pass through costs to customers?

57 Do you agree that we should maintain the current cost pass-through for SDP-related bulk water costs and Shoalhaven transfer costs?

9.7 Cost allocation Manual (CAM)

The Water Industry Competition Act 2006 (WIC Act) provides for price sector participation and competition in the NSW water and wastewater industry. To facilitate this, infrastructure services can be ‘declared’ under the WIC Act. This means that a third party must be granted access to these services, subject to certain criteria and the establishment of an access agreement or determination. Such ‘third-party access’ can allow new entrants to compete with incumbent supplies in the provision of water and/or wastewater services to end use customers.

Under the WIC Act, the provider of a declared service must develop a cost allocation manual, which sets out the basis on which the service provider will establish and maintain separate cost accounts for each of its declared services.

Sydney Water is a provider of declared services, and has submitted its cost allocation manual to IPART to consider for approval. We sought stakeholder views on both Sydney Water’s draft and revised cost allocation manual.\(^\text{170}\) We plan to publish Sydney Water’s final cost allocation manual later in September 2019.

The cost allocation manual:

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\(^{170}\) Stakeholder submissions on Sydney Water’s revised CAM closed on the 23 August 2019.
\[ \text{Improves transparency and helps overcome information asymmetry between the service provider and potential access seekers, in order to facilitate the commencement of negotiations on access terms.} \]

\[ \text{Supports access prices that would lead to appropriate incentives for entry in services potentially open to competition, and be in the long-term interest of end users.} \]

\[ \text{Assist an arbitrator (eg, IPART) if requested to arbitrate a dispute over access terms.} \]

More information is available on our website.\textsuperscript{171}

Appendices
A  Matters to be considered by IPART under Section 15 of the IPART Act

In making determinations, IPART is required, under Section 15 of the IPART Act, to have regard to the following matters (in addition to any other matters IPART considers relevant):

a) The cost of providing the services concerned
b) The protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services
c) The appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales
d) The effect on general price inflation over the medium term
e) The need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers
f) The need to maintain ecologically sustainable development (within the meaning of section 6 of the Protection of the Environment Administration Act 1991) by appropriate pricing policies that take account of all the feasible options available to protect the environment
g) The impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets
h) The impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body
i) The need to promote competition in the supply of the services concerned
j) Considerations of demand management (including levels of demand) and least cost planning
k) The social impact of the determinations and recommendations
l) Standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).
B NSW Government directions to IPART

Dr Michael Keating AC  
Chairman  
Independent Pricing and Regulatory Tribunal  
PO Box Q290  
QVB POST OFFICE NSW 1230  

Dear Dr Keating  

My letter to the Tribunal directing it to include the efficient costs of the desalination plant in Sydney Water’s prices foreshadowed a similar direction in relation to the Rosehill (Camellia) Recycled Water Project.  

The Government’s intention is that potable water prices should include some of the costs incurred by Sydney Water in undertaking the Rosehill (Camellia) Recycled Water Project. The costs to be included in potable water charges represent the difference between the charges paid by Sydney Water to the owner of the Rosehill (Camellia) Recycled Water infrastructure and distribution pipelines, and the revenue received by Sydney Water from the sale of recycled water to customers.  

I have directed Sydney Water, under section 20P of the State Owned Corporations Act 1989, to undertake the Rosehill (Camellia) Recycled Water Project. Pursuant to section 16A of the Independent Pricing and Regulatory Tribunal Act 1992, I direct the Tribunal, when it determines the maximum price for government monopoly services provided by Sydney Water, to include in that price an amount representing the efficient cost of complying with the requirements imposed on Sydney Water to undertake the Rosehill (Camellia) Recycled Water Project, which includes:  

- entering into agreements for the supply of recycled water to foundation customers;  
- purchasing recycled water from a private recycled water supplier for supply to customers; and  
- arranging for the private recycled water supplier to finance, construct, operate and maintain recycled water infrastructure, initially capable of supplying around 4.3 billion litres of recycled water per year, and the necessary distribution pipelines  

Yours sincerely  

Nathan Rees MP  
Minister for Water Utilities  
Minister for Emergency Services  

Level 25, 9 Castlereagh Street, Sydney NSW 2000  
Telephone (02) 9228 5099  
Facsimile (02) 9228 5099  
Email: reception@ewa.minister.new.gov.au
Dear Dr Keating,

I refer to the Premier’s request under section 12 of the Independent Pricing and Regulatory Tribunal Act 1992 (IPART Act) that the Tribunal make a new pricing determination for Sydney Water Corporation.

As you are aware, the Government’s intention is that the new determination will consider a range of projects that Sydney Water is undertaking to address the ongoing drought conditions and to secure Sydney’s long term water supply.

I have directed Sydney Water, under section 20P of the State Owned Corporations Act 1989, to construct, operate and undertake the Western Sydney Recycled Water Initiative Replacement Flow Project. The project consists of:

- an Advanced Water Treatment Plant with interconnecting systems from Penrith, St Marys and Quakers Hill Sewage Treatment Plants;
- associated infrastructure and a pipeline from the treatment plant; and
- a pilot plant at St Mary’s Sewage Treatment Plant and associated infrastructure.

Pursuant to section 16A of the IPART Act, I direct the Tribunal, when it determines the maximum price for Government monopoly services provided by Sydney Water, to include in that price an amount representing the efficient cost of complying with the Direction, including the ongoing operating costs of the project.

As you are aware, it is also the Government’s intention for costs relating to the Camellia Recycled Water scheme be included in the Tribunal’s determination. Sydney Water is finalising the tenders for this project and once this process has concluded I intend to issue a direction to Sydney Water under section 20P of the SOC Act and to the Tribunal under section 16A of the IPART Act.

Yours sincerely,

Nathan Rees MP
Minister for Water Utilities
Minister for Emergency Services
INDEPENDENT PRICING AND REGULATORY TRIBUNAL ACT 1992

DIRECTION UNDER SECTION 16A

TO:  Dr Peter J Boxall AO
      Chairman
      Independent Pricing and Regulatory Tribunal
      PO BOX 290
      QVB POST OFFICE NSW 1230

Dear Dr Boxall,

Following the Treasurer’s approval, I have directed Sydney Water Corporation under section 20N of the State Owned Corporations Act 1999 to undertake stormwater amplification works of Sydney Water Corporation’s existing Victoria Park branch of the Sheas Creek stormwater system and the construction of interconnected stormwater infrastructure (and associated infrastructure, and including stormwater infrastructure constructed by Sydney Water on behalf of the City of Sydney) to provide a drainage system to accommodate the Green Square development. A copy of the Treasurer’s approval and my Direction to Sydney Water Corporation are attached.

Given that, pursuant to section 16A of the Independent Pricing and Regulatory Tribunal Act 1992, I, with the approval of the Premier, hereby direct the Tribunal, when it next determines the maximum price for Government monopoly services provided by Sydney Water Corporation, to include in that price an amount representing the efficient costs of complying with the requirements imposed on Sydney Water Corporation to undertake stormwater amplification works and construct interconnected stormwater infrastructure in connection with the Green Square development. A copy of the Premier’s approval is attached.

It is the Government’s intention that Sydney Water Corporation’s prices for stormwater services should include the efficient costs incurred by Sydney Water Corporation in undertaking the amplification works and construction of interconnected stormwater infrastructure for the Green Square development. The amount of the efficient costs to be passed through to maximum prices is to exclude any costs that Sydney Water is entitled to recover from the Housing Acceleration Fund (Round 2) or the City of Sydney Council in respect of the stormwater works.

Yours sincerely,

The Hon. Andrew James Constance, MP
Minister for Finance and Services

Dated:
C Terms of reference for late payment, dishonoured or declined payment fees
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.
D Notional revenue requirement

The notional revenue requirement (NRR) represents our view of the total efficient costs of providing Sydney Water’s regulated services in each year of the determination period. In general, we set prices to recover this amount of revenue.

We apply a building block model to generate the NRR for Sydney Water. This method involves determining, for each year of the determination period, an allowance for:

- **Operating expenditure**, which represents our estimate of the efficient level of Sydney Water’s forecast operating, maintenance and administration costs. This is discussed further in Chapter 5.

- A **return on assets** that Sydney Water uses to provide its monopoly services. This amount represents our assessment of the opportunity cost of the capital invested in Sydney Water, and ensures that it can continue to make efficient capital investments in the future. To calculate this amount, we need to decide on the efficient levels of Sydney Water’s past and forecast capital expenditure, the value of Sydney Water’s regulatory asset base (RAB), and the appropriate weighted average cost of capital (WACC).

- A **return of assets (regulatory depreciation)**. This allowance recognises that through the provision of services to customers, a utility’s capital infrastructure will wear out over time, and therefore revenue must recover the cost of maintaining the RAB. To calculate this allowance, we need to decide on the appropriate asset lives and depreciation method.

- An **allowance for meeting tax obligation**. This allowance applies a real post-tax WACC to estimate the tax liability.

- An **allowance for working capital**, which represents the holding cost of net current assets.

This appendix details our approach to each component of the building block model and Sydney Water’s proposals for the:

1. Revenue requirement over the 2020 determination period, including a comparison of its proposed average annual revenue requirement over the 2020 determination period against the 2016 determination,
2. Regulatory asset base (RAB),
3. Return on assets and WACC,
4. Return of assets, including proposed asset lives and depreciation method,
5. Return on working capital,
6. Tax allowance, and
7. Any other ‘post building block’ adjustments.
D.1 Sydney Water’s proposed revenue requirement over the 2020 determination period

Sydney Water’s proposed NRR is $10.7 billion over a 4-year determination period from 2020-21 to 2023-24. After adjusting for inflation, this is $0.2 billion (or 2%) higher than the revenue allowed for in the 2016 determination ($10.5 billion)\(^{172}\) and $0.1 billion lower than Sydney Water’s forecast revenue over the 2016 determination ($10.8 billion)\(^{173}\).

The following table shows Sydney Water’s proposed NRR for the 2020 determination period.

### Table D.1 Sydney Water’s proposed NRR for the 2020 determination period ($2019-20, $ million)

<table>
<thead>
<tr>
<th></th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating expenditure</td>
<td>1,315</td>
<td>1,347</td>
<td>1,356</td>
<td>1,363</td>
<td>5,380</td>
</tr>
<tr>
<td>Return on assets</td>
<td>791</td>
<td>818</td>
<td>850</td>
<td>884</td>
<td>3,342</td>
</tr>
<tr>
<td>Return of assets</td>
<td>371</td>
<td>402</td>
<td>432</td>
<td>460</td>
<td>1,665</td>
</tr>
<tr>
<td>Return on working capital</td>
<td>11</td>
<td>12</td>
<td>11</td>
<td>11</td>
<td>45</td>
</tr>
<tr>
<td>Tax allowance</td>
<td>74</td>
<td>63</td>
<td>64</td>
<td>78</td>
<td>278</td>
</tr>
<tr>
<td><strong>Total NRR</strong></td>
<td><strong>2,562</strong></td>
<td><strong>2,641</strong></td>
<td><strong>2,712</strong></td>
<td><strong>2,795</strong></td>
<td><strong>10,709</strong></td>
</tr>
<tr>
<td><strong>Total target revenue</strong></td>
<td><strong>2,616</strong></td>
<td><strong>2,654</strong></td>
<td><strong>2,692</strong></td>
<td><strong>2,738</strong></td>
<td><strong>10,700</strong></td>
</tr>
</tbody>
</table>

Source: Sydney Water's Price proposal, 2020-24, July 2019, Attachment 11 Proposed revenue requirement, Table 2-2, p 10.

The following table compares Sydney Water’s proposed NRR for the 2020 determination period with the NRR we set for the 2016 determination period.

### Table D.2 Comparison of Sydney Water’s proposed NRR against 2016 IPART Determination ($2019-20, $ million)

<table>
<thead>
<tr>
<th></th>
<th>NRR – 2016 Determination(^{a})</th>
<th>Proposed NRR – 2020 determination period</th>
<th>Difference between 2020 proposed and 2016 Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Share of total</td>
<td>Total</td>
</tr>
<tr>
<td>Operating expenditure</td>
<td>5,392</td>
<td>51.3%</td>
<td>5,380</td>
</tr>
<tr>
<td>Return on assets</td>
<td>3,510</td>
<td>33.4%</td>
<td>3,342</td>
</tr>
<tr>
<td>Return of assets</td>
<td>1,340</td>
<td>12.7%</td>
<td>1,665</td>
</tr>
<tr>
<td>Return on working capital</td>
<td>29</td>
<td>0.28%</td>
<td>45</td>
</tr>
<tr>
<td>Tax allowance</td>
<td>241</td>
<td>2.3%</td>
<td>278</td>
</tr>
<tr>
<td><strong>Total NRR</strong></td>
<td><strong>10,512</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>10,709</strong></td>
</tr>
</tbody>
</table>

\(^{a}\) 2016 Determination values in $2019-20 estimated based on IPART 2016 Final Report values and latest inflation figures (indexed at factor of 1.09). This differs from Sydney Water’s estimate of NRR of $10.4 billion, which is based on indexation factor of 1.08.

Source: Sydney Water’s Price proposal, 2020-24, July 2019, Attachment 11 Proposed revenue requirement, Table 2-2, p 10; IPART; Review of Prices for Sydney Water Corporation from 1 July 2016 to 30 June 2020 - Final Report, June 2016, Table 4.5, p 75; IPART analysis.

\(^{172}\) The 2016 determination period was a four year period from 2016-17 to 2019-20.

\(^{173}\) Sydney Water’s pricing proposal, July 2019, Attachment 11 Proposed revenue requirement, p 4.
The increase in Sydney Water’s proposed NRR over the 2020 determination period is primarily driven by an increase in:

▼ The **return of assets**. An increase of $325 million (or 24.3%), largely due to the growing RAB.

This increase is offset by a decrease in:

▼ The **return on assets**. A decrease of $168 million (or 4.8%), largely due to the lower WACC offsetting the impact on the RAB of Sydney Water’s proposed increase in capital expenditure.

Sydney Water’s proposed allowance for operating expenditure, tax and working capital were not materially different from the allowances we set in the 2016 Determination.

### D.2 Sydney Water’s proposed RAB

#### Starting value of the RAB

To determine the value of Sydney Water’s RAB over the 2020 determination period, our standard method is to:

▼ **Determine the opening RAB for the 2020 determination period.** We take the RAB value we determined at the start of the 2016 period (the opening RAB) and incorporate Sydney Water’s efficient expected capital expenditure over the 2016 period (discussed in Chapter 4), and make adjustments to account for other changes to the RAB over the period (eg, asset disposals, capital contributions and regulatory depreciation).

▼ **Forecast the RAB for each year of the 2020 period.** We then roll forward this opening RAB to the end of the 2020 determination period by including efficient proposed capital expenditure over the period (discussed in Chapter 4), and making adjustments to account for other forecast changes to the RAB.

Sydney Water proposed an opening RAB for 1 July 2020 of $19.16 billion, a $3.27 billion increase on the opening RAB for the 2016 determination period (see Table D.3).
Table D.3  Sydney Water's proposed RAB roll forward for 2016-2020 ($nominal, $ million)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening RAB</td>
<td>15,885</td>
<td>16,496</td>
<td>17,275</td>
<td>18,185</td>
</tr>
<tr>
<td>Capital expenditure</td>
<td>607</td>
<td>782</td>
<td>863</td>
<td>873</td>
</tr>
<tr>
<td>Less: cash capital contribution</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Less: asset disposals</td>
<td>9</td>
<td>39</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Less: regulatory depreciation</td>
<td>294</td>
<td>317</td>
<td>342</td>
<td>368</td>
</tr>
<tr>
<td>Indexation</td>
<td>308</td>
<td>354</td>
<td>390</td>
<td>466</td>
</tr>
<tr>
<td><strong>Closing RAB</strong></td>
<td><strong>16,496</strong></td>
<td><strong>17,275</strong></td>
<td><strong>18,185</strong></td>
<td><strong>19,155</strong></td>
</tr>
</tbody>
</table>

*a 2018-19 and 2019-20 are forecasts.

Source: Sydney Water’s Price proposal, 2020-24, July 2019, Attachment 11 Proposed revenue requirement, Table 3-2, p 15.

Rolling forward the RAB over the 2020 determination

Sydney Water has estimated its closing RAB for each year of the proposed 2020-24 regulatory period by rolling forward its RAB to:

- add its proposed capital expenditure, and
- subtract its proposed depreciation and asset disposals.

This would result in the value of its RAB increasing by $3 billion over the proposed regulatory period (see Table D.4).

Table D.4  Sydney Water’s proposed RAB for the 2020 determination period ($2019-20, $ million)

<table>
<thead>
<tr>
<th></th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening RAB</td>
<td>19,155</td>
<td>19,812</td>
<td>20,488</td>
<td>21,351</td>
</tr>
<tr>
<td>Capital expenditure</td>
<td>1,037</td>
<td>1,089</td>
<td>1,305</td>
<td>1,275</td>
</tr>
<tr>
<td>Less: cash capital contribution</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Less: asset disposals</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Less: regulatory depreciation</td>
<td>379</td>
<td>410</td>
<td>441</td>
<td>469</td>
</tr>
<tr>
<td><strong>Closing RAB</strong></td>
<td><strong>19,812</strong></td>
<td><strong>20,488</strong></td>
<td><strong>21,351</strong></td>
<td><strong>22,155</strong></td>
</tr>
</tbody>
</table>

Source: Sydney Water’s Price proposal, 2020-24, July 2019, Attachment 11 Proposed revenue requirement, Table 3-5, p 18.

We will continue to adopt our standard method to determine the value of the RAB. We will decide what efficient capital expenditure should be included in the RAB, and will receive advice on this from our expenditure review consultant.
D.2.1 Adjustments for cash capital contributions

Cash contributions that Sydney Water receives from third parties towards its capital expenditure are typically deducted from the RAB. This ensures customers do not pay for a return on assets or regulatory depreciation for capital expenditure that Sydney Water has not funded.

Historically, most of Sydney Water’s cash capital contributions revenue came from developer charges, which recovered some of the capital costs associated with serving new development areas. However, as discussed in Chapter 2, in 2008, the NSW Government set developer contributions for water, wastewater and stormwater to zero.

Sydney Water has proposed to deduct $2 million for cash contributions and grants in its RAB roll-forward over the 2016 period, and forecast zero cash contributions and grants in the 2020 period. We will review Sydney Water’s proposed approach to cash contributions.

D.2.2 Adjustments for asset disposals

The value of any regulatory assets Sydney Water disposes of during the 2016 Determination period, and any assets it proposes to dispose of during the 2020 period, are deducted from the RAB. This ensures customers are not charged a return on assets or regulatory depreciation for assets that are no longer used to provide the regulated services.

We will be applying our 2018 Asset Disposal Policy174 to deduct asset disposals from the RAB. Under this policy, we regard disposals as significant if they attract capital gains tax or account for more than 0.5% of the opening RAB value of the relevant service in the year in which the disposal occurred. The key principles of our disposal policy are:

- Significant asset write-offs are considered on a case by case basis.
- The treatment of significant asset sales depends on whether the assets are ‘pre line-in-the-sand’ or ‘post line-in-the-sand’.
  - The regulatory values of ‘pre line-in-the-sand’ assets to be deducted from the RAB are estimated by multiplying the sale values by the depreciated replacement costs (DRC) to RAB ratio at the time the initial RAB value was established. 175
  - The regulatory value of ‘post line-in-the-sand’ assets is estimated as the sales value of the asset, based on the information available to us. For Sydney Water, ‘post line-in-the-sand’ is any period after 30 June 2000.
- For non-significant asset write-offs, we do not deduct any value from the RAB, except as deemed necessary on a case by case basis.
- For non-significant sales, we deduct the sales values from the RAB, net of efficient sales costs.

Sydney Water states they have adopted IPART’s standard methodology in their RAB estimation of:

175 The line-in-the-sand RAB value was established by IPART in 1999-2000, with the value of the asset base effectively written-down to align with Sydney Water’s actual free cash flow in 1998-1999. At the time of the line-in-the-sand, all assets were included in the RAB at 42% of their depreciated replacement cost.
D.3 Return on assets

We include an allowance for a return on assets in the NRR. This represents our assessment of the opportunity cost of the capital invested to provide Sydney Water’s 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. We will determine the rate of return using an estimate of the weighted average cost of capital (WACC) – ie, the weighted average cost of debt and equity.

We propose to use our 2018 WACC method for calculating the WACC (see Box D.1 for a summary). Consistent with our 2016 Determination, this method uses a real post-tax WACC to calculate the allowance for a return on assets. Further information on our 2018 WACC methodology is available in our Review of our WACC Method – Final Report, published on our website in February 2018.177

D.3.1 Sydney Water’s proposed WACC

For the purposes of its proposed prices, Sydney Water has applied a real post-tax WACC of 4.1%. Based on this WACC, Sydney Water has proposed a total allowance for return on assets of $3.3 billion over the 2020 determination period. This is shown in the table below.

Table D.5 Sydney Water’s proposed return on assets over the 2020 determination period ($2019-20, $ million)

<table>
<thead>
<tr>
<th></th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on assets</td>
<td>791</td>
<td>818</td>
<td>850</td>
<td>884</td>
<td>3,342</td>
</tr>
</tbody>
</table>

Box D.1 What is the WACC?

The WACC is our estimate of the efficient cost of capital for Sydney Water. It is a hypothetical benchmark of a business’s efficient cost of debt and equity. It is a weighted average to take account of the relative shares of debt and equity that a firm might have.

We use the WACC to calculate the return on assets that we allow the business, by applying it to the value of Sydney Water’s regulatory asset base (RAB). If we set a WACC that is too high, then customers would pay too much for the services and we risk encouraging too much investment in that business. If we set the WACC too low, then we risk the financial viability of the firm and encourage too little investment. Neither of these outcomes is in the long-term interest of consumers.

To set the WACC, we use our established methodology that involves defining a benchmark entity and applying market-based parameters, including the risk-free rate, debt margin, market premium risk and inflation forecasts.

D.3.2 True-up mechanism to account for annual changes in the cost of debt

Under our 2018 WACC methodology, we developed a true-up mechanism to account for the annual changes in the cost of debt. This method involves cumulating the annual changes in the cost of debt and recovering these through a regulatory true-up mechanism in the subsequent regulatory period. We consider that this approach will allow regulated businesses to better manage their refinancing risk, while maintaining their incentives for efficient investment.

Sydney Water supports this true-up mechanism and states that its customers and shareholders benefit from this mechanism as it removes any windfall gains and losses caused by annual changes in the cost of debt over the determination period.178

To implement this regulatory true-up mechanism, consistent with IPART’s WACC method, Sydney Water proposes the following steps:

1. Calculate the difference between the actual cost of debt and the cost of debt set at the beginning of the regulatory period.
2. Allocate this difference to a separate regulatory account, similar to an ‘unders and overs account’.
3. At the end of the 2020 determination period, the balance of this account would be applied to prices for the following determination period.
4. This balance would be smoothed across the regulatory period (not a lump sum at the start) after adjusting for the time value of money.

178 Sydney Water’s Price proposal 2020-24, Attachment 6 Weighted average cost of capital, p 12.
D.3.3 We are reviewing how we estimate the equity beta

The equity beta for a firm measures the relationship between its returns on equity to that of the market as a whole.\(^\text{179}\)

We are developing a new process for estimating the equity beta, which includes the improvements we made in the 2018 WACC review, as well as automating the extraction of financial market data and calculation of the equity beta.

More information is provided in our fact sheet: *Estimating equity beta* available on our website. We recently consulted with stakeholders on a new method of using market data to estimate equity beta. Several submissions were received in April 2019. We are currently considering these submissions and will continue to consult with stakeholders on beta estimation through our current 2019-20 price reviews for Sydney Water, Hunter Water and WaterNSW-Greater Sydney.\(^\text{180}\)

In the meantime, Sydney Water has proposed an equity beta of 0.7 in its price proposal, which is same as the current standard water industry beta of 0.7. We will be providing further detail on the equity beta in our draft report.

D.4 Return of assets (regulatory depreciation)

The allowance for regulatory depreciation included in the revenue requirement is intended to ensure that the capital the regulated business (or its owner) invests in the regulatory assets is returned over the useful life of each asset. To calculate this allowance, we need to determine the appropriate lives for the assets in Sydney Water’s RAB, and the appropriate depreciation method to use.

For the depreciation method, we will apply a straight-line depreciation method to the remaining life of Sydney Water’s assets. The straight-line method depreciates the value of all assets evenly over their assumed lives and is in line with Sydney Water’s proposal.

Sydney Water has proposed total regulatory depreciation over the 2020 determination period of $1.7 billion (Table D.6), based on a straight-line depreciation method and their proposed existing and new asset lives (Table D.7 and Table D.8).

\(^{179}\) 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.

### Table D.6  
Sydney Water’s proposed allowance for regulatory depreciation by service ($2019-20, $ million)

<table>
<thead>
<tr>
<th></th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>80</td>
<td>82</td>
<td>85</td>
<td>88</td>
<td>334</td>
</tr>
<tr>
<td>Wastewater</td>
<td>197</td>
<td>212</td>
<td>229</td>
<td>248</td>
<td>886</td>
</tr>
<tr>
<td>Stormwater</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Corporate</td>
<td>87</td>
<td>99</td>
<td>108</td>
<td>113</td>
<td>406</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>366</td>
<td>396</td>
<td>426</td>
<td>453</td>
<td>1,641</td>
</tr>
<tr>
<td><strong>Finance leases</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>11</td>
<td>12</td>
<td>14</td>
<td>15</td>
<td>51</td>
</tr>
<tr>
<td>Wastewater</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>58</td>
</tr>
<tr>
<td><strong>Total regulatory depreciation</strong></td>
<td>379</td>
<td>410</td>
<td>441</td>
<td>469</td>
<td>1,699</td>
</tr>
</tbody>
</table>

*Source: Sydney Water’s Price proposal, 2020-24, July 2019, Attachment 11 Proposed revenue requirement, Table 3-7, p 19.*

### Table D.7  
Proposed asset lives for 2020 Determination (years) – assets owned and operated by Sydney Water

<table>
<thead>
<tr>
<th>RAB category</th>
<th>Water</th>
<th>Wastewater</th>
<th>Stormwater</th>
<th>Corporate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing</td>
<td>New</td>
<td>Existing</td>
<td>New</td>
</tr>
<tr>
<td>Civil</td>
<td>94</td>
<td>140</td>
<td>79</td>
<td>90</td>
</tr>
<tr>
<td>Electrical</td>
<td>21</td>
<td>30</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>Mechanical</td>
<td>30</td>
<td>40</td>
<td>16</td>
<td>25</td>
</tr>
<tr>
<td>Electronic</td>
<td>6</td>
<td>15</td>
<td>10</td>
<td>15</td>
</tr>
</tbody>
</table>

*Source: Sydney Water’s Price proposal, 2020-24, July 2019, AIR SIR 010719, Asset lives by RAB.*

### Table D.8  
Proposed asset lives for 2020 Determination (years) – finance leases

<table>
<thead>
<tr>
<th>RAB category</th>
<th>Macarthur</th>
<th>Prospect</th>
<th>Wyuna</th>
<th>Blue Mountains Tunnel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing</td>
<td>New</td>
<td>Existing</td>
<td>New</td>
</tr>
<tr>
<td>Civil</td>
<td>72</td>
<td>40</td>
<td>77</td>
<td>80</td>
</tr>
<tr>
<td>Electrical</td>
<td>16</td>
<td>12</td>
<td>17</td>
<td>21</td>
</tr>
<tr>
<td>Mechanical</td>
<td>15</td>
<td>15</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>Electronic</td>
<td>10</td>
<td>5</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

*Source: Sydney Water’s Price proposal, 2020-24, July 2019, AIR SIR 010719, Asset lives by RAB.*

### D.5  Return on working capital

The working capital allowance ensures Sydney 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 and published\textsuperscript{181} a standard approach to calculate working capital. In summary, we:

1. Calculate the net amount of working capital the business requires, using the formula:
   \[ \text{working capital} = \text{receivables} - \text{payables} + \text{inventory} + \text{prepayments} \]

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

Sydney Water states it used our approach to propose a total return on working capital of $45 million over the four years from 1 July 2020 (see Table D.9).

### Table D.9  
Sydney Water’s proposed return on working capital over the 2020 determination period ($2019-20, $ million)

<table>
<thead>
<tr>
<th></th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed net working capital</td>
<td>172.2</td>
<td>180</td>
<td>169.4</td>
<td>177.3</td>
<td>698.9</td>
</tr>
<tr>
<td>Proposed rate of return</td>
<td>6.6%</td>
<td>6.6%</td>
<td>6.6%</td>
<td>6.6%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Proposed return on working capital</td>
<td>11</td>
<td>11.5</td>
<td>10.8</td>
<td>11.3</td>
<td>44.6</td>
</tr>
</tbody>
</table>

Source: Sydney Water Price Proposal, 2020-24, July 2019, Attachment 11 Proposed revenue requirement, Table 3-14, p 28.

### D.6  
Allowance for tax

We include an explicit allowance for tax in the NRR, which reflects the forecast tax liabilities for a comparable business operating in a competitive market. To calculate the tax liability, taxable income is the NRR (excluding tax allowance) less operating cost allowances, tax depreciation, and interest expenses.

The regulatory tax allowance is not intended to match a utility’s actual tax liability. It is derived using our assessment of efficient expenditure, the regulatory gearing ratio\textsuperscript{182} (60:40 ratio of debt to equity) and the WACC. The actual tax liabilities a utility will incur in a given year will vary from our regulatory tax allowance due to differences such as:

- interest expenses, arising from a different gearing ratio from our regulatory ratio and a different cost of debt
- operating expenditure, and
- sales volumes and customer numbers.

Sydney Water has proposed a total tax allowance of $278 million over the 2020 determination period (Table D.10). This is based on:

- A 30% tax rate and hypothetical franking credit ratio of 0.25 (ie, a gamma of 0.25).
- An estimated tax depreciation instead of regulatory depreciation.
- An adjustment for contributed asset received free of charge.
- A benchmark gearing of a notional capital structure of 60:40 (debt: equity).

\textsuperscript{181}  

\textsuperscript{182}  
A business’ debt to equity ratio.
Table D.10  Sydney Water’s proposed tax allowance over the 2020 determination period ($2019-20, $ million)

<table>
<thead>
<tr>
<th></th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed tax allowance</td>
<td>73.9</td>
<td>62.9</td>
<td>63.5</td>
<td>77.9</td>
<td>278.2</td>
</tr>
</tbody>
</table>

Source: Sydney Water’s Price proposal, 2020-24, July 2019, Attachment 11 Proposed revenue requirement, Table 3-12, p 26.

D.7  Post building block adjustments

Sydney Water has proposed a number of post building block adjustments, including:

- Revenue for ‘other fees and charges’, such as trade waste charges, and ancillary and miscellaneous customer services charges.
- Revenue from the Blue Mountains Septic Pump Out (BMSPO) scheme, where Sydney Water receives revenue from the NSW Government as a community service obligation.
- Other non-regulated revenue, such as forecast rental income and bio-banking income.

Sydney Water has proposed a total revenue adjustment of $155 million over the 2020 determination period (Table D.11).

Table D.11  Sydney Water’s proposed post building block adjustment over the 2020 determination period ($2019-20, $ million)

<table>
<thead>
<tr>
<th></th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancillary services</td>
<td>12</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>51</td>
</tr>
<tr>
<td>Trade waste</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>25</td>
<td>96</td>
</tr>
<tr>
<td>Wastesafe</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Blue Mountains Septic Pump Out Scheme</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rental income</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Biobanking</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total adjustments</strong></td>
<td><strong>39</strong></td>
<td><strong>38</strong></td>
<td><strong>39</strong></td>
<td><strong>40</strong></td>
<td><strong>155</strong></td>
</tr>
</tbody>
</table>

Source: Sydney Water’s Price proposal, 2020-24, July 2019, Attachment 11 Proposed revenue requirement, Table 4-1, p 29.

After accounting for Sydney Water’s post building block adjustments, Sydney Water’s proposed total revenue requirement to be recovered from the customer base from tariffs is $10.6 billion, a reduction of $155 million from the pre-adjusted NRR of $10.7 billion over the 2020 determination period (Table D.12).
Table D.12 Sydney Water’s proposed total notional revenue (post building block adjustments) from tariffs over the 2020 determination period ($2019-20, $ million)

<table>
<thead>
<tr>
<th></th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>2023-24</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total NRR (pre adjustment)</td>
<td>2,562</td>
<td>2,641</td>
<td>2,712</td>
<td>2,795</td>
<td>10,709</td>
</tr>
<tr>
<td>Total adjustments</td>
<td>39</td>
<td>38</td>
<td>39</td>
<td>40</td>
<td>155</td>
</tr>
<tr>
<td>Total notional revenue from tariffs</td>
<td>2,523</td>
<td>2,603</td>
<td>2,673</td>
<td>2,756</td>
<td>10,554</td>
</tr>
</tbody>
</table>

Source: Sydney Water’s Price proposal, 2020-24, July 2019, Attachment 11 Proposed revenue requirement, Table 4-1, p 29.
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 Sydney Water’s performance against output measures we set in our 2016 determination, as reported for the 1 July 2016 – 30 June 2020 period.

In its pricing proposal, Sydney Water reported their performance against output targets which differ from the indicators we set in the 2016 Determination. We have compared Sydney Water’s output forecasts provided in their pricing proposal with the targets that we set. These measures are presented in Table E.1.
## Table E.1  Sydney Water’s activity against output measures, 2016-20

<table>
<thead>
<tr>
<th>Output or activity measure</th>
<th>Output measure target</th>
<th>Output achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(as detailed in 2016</td>
<td>(Sydney Water’s forecast</td>
</tr>
<tr>
<td></td>
<td>Determination over 2016-20)</td>
<td>over 2016-20)</td>
</tr>
<tr>
<td><strong>Water services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renewal of critical water mains</td>
<td>47 km</td>
<td>31.3 km</td>
</tr>
<tr>
<td>Renewal of large valves</td>
<td>120</td>
<td>76</td>
</tr>
<tr>
<td>Reticulation water mains</td>
<td>180 km</td>
<td>96.1 km</td>
</tr>
<tr>
<td>Reservoir reliability program</td>
<td>33 reservoirs renewed</td>
<td>20 reservoirs renewed</td>
</tr>
<tr>
<td>System reliability</td>
<td>15 renewals</td>
<td>8 renewals</td>
</tr>
<tr>
<td></td>
<td>16 HV upgrades</td>
<td>11 HV upgrades</td>
</tr>
<tr>
<td>Renewal of customer water meters</td>
<td>471,500 meters</td>
<td>94,000 meters&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Wastewater services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renew large wastewater mains</td>
<td>34 km</td>
<td>17.7 km</td>
</tr>
<tr>
<td></td>
<td>80 manholes</td>
<td>57 manholes</td>
</tr>
<tr>
<td></td>
<td>4 km pressure mains</td>
<td>0.1 km pressure mains</td>
</tr>
<tr>
<td>Rehabilitate sewers subject to dry weather overflows</td>
<td>112 km</td>
<td>76.1 km</td>
</tr>
<tr>
<td>Wastewater treatment plants renewals</td>
<td>163 project renewals</td>
<td>168 project renewals</td>
</tr>
<tr>
<td></td>
<td>41 chemical system renewals</td>
<td>22 chemical system renewals</td>
</tr>
<tr>
<td></td>
<td>11 odour control renewals</td>
<td>10 odour control renewals</td>
</tr>
<tr>
<td></td>
<td>82 solids treatment renewals</td>
<td>80 solids treatment renewals</td>
</tr>
<tr>
<td>Wastewater pumping station renewals</td>
<td>19 major renewals</td>
<td>23 major renewals</td>
</tr>
<tr>
<td></td>
<td>37 pump renewals</td>
<td>19 pump renewals</td>
</tr>
<tr>
<td><strong>Stormwater services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conduit and Open Channel Renewal and Rehabilitation</td>
<td>7 km conduit renewal</td>
<td>2.1 km conduit renewal</td>
</tr>
<tr>
<td></td>
<td>3 km open channel renewal</td>
<td>2.8 km open channel renewal</td>
</tr>
<tr>
<td>Stormwater Condition Assessment</td>
<td>160 km condition assessment</td>
<td>151.2 km condition assessment</td>
</tr>
</tbody>
</table>

<sup>a</sup> Output achieved for this measure has only been reported for the year 2018-19 by Sydney Water. For comparative purposes, the output measure target averaged over four years would be equivalent to 117,875 customer water renewals per year.

**Note:** Variance between target indicators and output forecast will be discussed with Sydney Water.

**Source:** Sydney Water’s pricing proposal, July 2019, Attachment 9A Capital expenditure, Table 1.2, p 7-12; Sydney Water’s pricing proposal, July 2019, Output measures – Sydney Water 2018-19, p 1; IPART, Review of prices for Sydney Water Corporation’s water, wastewater, stormwater drainage and other services – From 1 July 2016 to 30 June 2016 – Final Report, June 2016, p 282.
Sydney Water’s proposed prices for water, recycled water, wastewater and stormwater (including Rouse Hill)

Table F.1  Water service charges by meter size ($2019-20)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>20mm(^a)</td>
<td>82.96</td>
<td>73.46</td>
<td>73.46</td>
<td>73.46</td>
<td>73.46</td>
</tr>
<tr>
<td>25mm</td>
<td>129.63</td>
<td>114.79</td>
<td>114.79</td>
<td>114.79</td>
<td>114.79</td>
</tr>
<tr>
<td>30mm</td>
<td>186.67</td>
<td>165.29</td>
<td>165.29</td>
<td>165.29</td>
<td>165.29</td>
</tr>
<tr>
<td>32mm</td>
<td>212.38</td>
<td>188.07</td>
<td>188.07</td>
<td>188.07</td>
<td>188.07</td>
</tr>
<tr>
<td>40mm</td>
<td>331.86</td>
<td>293.85</td>
<td>293.85</td>
<td>293.85</td>
<td>293.85</td>
</tr>
<tr>
<td>50mm</td>
<td>518.54</td>
<td>459.15</td>
<td>459.15</td>
<td>459.15</td>
<td>459.15</td>
</tr>
<tr>
<td>65mm</td>
<td>876.28</td>
<td>775.92</td>
<td>775.92</td>
<td>775.92</td>
<td>775.92</td>
</tr>
<tr>
<td>80mm</td>
<td>1,327.45</td>
<td>1,175.42</td>
<td>1,175.42</td>
<td>1,175.42</td>
<td>1,175.42</td>
</tr>
<tr>
<td>100mm</td>
<td>2,074.15</td>
<td>1,836.59</td>
<td>1,836.59</td>
<td>1,836.59</td>
<td>1,836.59</td>
</tr>
<tr>
<td>150mm</td>
<td>4,666.82</td>
<td>4,132.32</td>
<td>4,132.32</td>
<td>4,132.32</td>
<td>4,132.32</td>
</tr>
<tr>
<td>200mm</td>
<td>8,296.57</td>
<td>7,346.35</td>
<td>7,346.35</td>
<td>7,346.35</td>
<td>7,346.35</td>
</tr>
</tbody>
</table>

\(^a\) All residential customers are deemed to have a 20mm meter.

Source: Sydney Water Supplementary Information Return, July 2019.

Table F.2  Water usage charges ($2019-20)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated water</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
<td>2.13</td>
</tr>
<tr>
<td>Unfiltered water</td>
<td>1.80</td>
<td>1.83</td>
<td>1.83</td>
<td>1.83</td>
<td>1.83</td>
</tr>
<tr>
<td>Recycled Water</td>
<td>1.92</td>
<td>1.92</td>
<td>1.92</td>
<td>1.92</td>
<td>1.92</td>
</tr>
</tbody>
</table>

Source: Sydney Water Supplementary Information Return, July 2019; Sydney Water pricing proposal, July 2019, Attachment 4 Proposed prices, Table 2.7, p 15.
### Table F.3  Wastewater service ($2019-20)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>20mm</td>
<td>590.40</td>
<td>658.13</td>
<td>658.13</td>
<td>658.13</td>
<td>658.13</td>
</tr>
<tr>
<td>25mm</td>
<td>922.50</td>
<td>1,028.33</td>
<td>1,028.33</td>
<td>1,028.33</td>
<td>1,028.33</td>
</tr>
<tr>
<td>30mm</td>
<td>1,328.41</td>
<td>1,480.79</td>
<td>1,480.79</td>
<td>1,480.79</td>
<td>1,480.79</td>
</tr>
<tr>
<td>32mm</td>
<td>1,511.41</td>
<td>1,684.82</td>
<td>1,684.82</td>
<td>1,684.82</td>
<td>1,684.82</td>
</tr>
<tr>
<td>40mm</td>
<td>2,361.58</td>
<td>2,632.53</td>
<td>2,632.53</td>
<td>2,632.53</td>
<td>2,632.53</td>
</tr>
<tr>
<td>50mm</td>
<td>3,689.98</td>
<td>4,113.33</td>
<td>4,113.33</td>
<td>4,113.33</td>
<td>4,113.33</td>
</tr>
<tr>
<td>65mm</td>
<td>6,236.11</td>
<td>6,951.50</td>
<td>6,951.50</td>
<td>6,951.50</td>
<td>6,951.50</td>
</tr>
<tr>
<td>80mm</td>
<td>9,446.34</td>
<td>10,530.13</td>
<td>10,530.13</td>
<td>10,530.13</td>
<td>10,530.13</td>
</tr>
<tr>
<td>100mm</td>
<td>14,759.91</td>
<td>16,453.33</td>
<td>16,453.33</td>
<td>16,453.33</td>
<td>16,453.33</td>
</tr>
<tr>
<td>150mm</td>
<td>33,209.81</td>
<td>37,020.00</td>
<td>37,020.00</td>
<td>37,020.00</td>
<td>37,020.00</td>
</tr>
<tr>
<td>200mm</td>
<td>59,039.66</td>
<td>65,813.33</td>
<td>65,813.33</td>
<td>65,813.33</td>
<td>65,813.33</td>
</tr>
</tbody>
</table>

*All residential customers are deemed to have a 20mm meter.*

**Note:** Assumes a 100% discharge factor. Excludes deemed wastewater usage charge.

**Source:** Sydney Water Supplementary Information Return, July 2019.

### Table F.4  Deemed wastewater usage charge ($2019-20)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated water</td>
<td>177.72</td>
<td>91.51</td>
<td>91.51</td>
<td>91.51</td>
<td>91.51</td>
</tr>
</tbody>
</table>

**Note:** For residential customers.

**Source:** Sydney Water Supplementary Information Return, July 2019.

### Table F.5  Wastewater usage charges ($2019-20)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated water</td>
<td>1.18</td>
<td>0.61</td>
<td>0.61</td>
<td>0.61</td>
<td>0.61</td>
</tr>
</tbody>
</table>

**Note:** For non-residential customers.

**Source:** Sydney Water Supplementary Information Return, July 2019.
Table F.6  Stormwater service charges ($2019-20)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Houses</td>
<td>79.50</td>
<td>86.12</td>
<td>86.12</td>
<td>86.12</td>
<td>86.12</td>
</tr>
<tr>
<td>Non-residential</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small (&lt;200 m(^2))</td>
<td>24.82</td>
<td>26.88</td>
<td>26.88</td>
<td>26.88</td>
<td>26.88</td>
</tr>
<tr>
<td>Medium (201 - 1,000 m(^2))</td>
<td>79.50</td>
<td>86.12</td>
<td>86.12</td>
<td>86.12</td>
<td>86.12</td>
</tr>
<tr>
<td>Large (1,001 - 10,000 m(^2))</td>
<td>463.29</td>
<td>501.82</td>
<td>501.82</td>
<td>501.82</td>
<td>501.82</td>
</tr>
<tr>
<td>Very Large (10,001 - 45,000 m(^2))</td>
<td>2,059.08</td>
<td>2,230.34</td>
<td>2,230.34</td>
<td>2,230.34</td>
<td>2,230.34</td>
</tr>
<tr>
<td>Largest (&gt;45,000 m(^2))</td>
<td>5,147.72</td>
<td>5,575.87</td>
<td>5,575.87</td>
<td>5,575.87</td>
<td>5,575.87</td>
</tr>
</tbody>
</table>

Source: Sydney Water Supplementary Information Return, July 2019.

Table F.7  Rouse Hill stormwater drainage charge ($2019-20)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential properties, vacant land and non-residential properties with land size ≤ 1,000m(^2)</td>
<td>150.51</td>
<td>141.38</td>
<td>132.26</td>
<td>123.13</td>
<td>114.00</td>
</tr>
<tr>
<td>Non-residential properties with land size &gt; 1,000m(^2)</td>
<td>150.51×((land area in m(^2))/1,000)</td>
<td>141.38×((land area in m(^2))/1,000)</td>
<td>132.26×((land area in m(^2))/1,000)</td>
<td>123.13×((land area in m(^2))/1,000)</td>
<td>114.00×((land area in m(^2))/1,000)</td>
</tr>
</tbody>
</table>

Source: Sydney Water pricing proposal to IPART – Attachment 4, July 2019, p 9.

Table F.8  Rouse Hill land drainage charge ($2019-20)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rouse Hill land drainage charge</td>
<td>392.43</td>
<td>335.75</td>
<td>335.75</td>
<td>335.75</td>
<td>335.75</td>
</tr>
</tbody>
</table>

Source: Sydney Water pricing proposal to IPART – Attachment 4, July 2019, p 11.

Table F.9  Water supply service charge for unmetered properties ($2019-20)

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unmetered properties</td>
<td>466.42</td>
<td>456.75</td>
<td>456.75</td>
<td>456.75</td>
<td>456.75</td>
</tr>
</tbody>
</table>

Source: Sydney Water pricing proposal to IPART – Appendix 4A Schedule 1, July 2019; and IPART calculations.
### Table G.1 Actual and proposed pollutant charges for Industrial Customers ($2019-20)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Acceptance standard (mg/L)</th>
<th>Domestic equivalent</th>
<th>Current 2019-20 ($/kg)</th>
<th>Proposed 2020-21 ($/kg)</th>
<th>Proposed 2021-22 ($/kg)</th>
<th>Proposed 2022-23 ($/kg)</th>
<th>Proposed 2023-24 ($/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD – primary WWTPs</td>
<td>See note</td>
<td>230</td>
<td>0.321+ [0.139 x (BOD mg/L)/600]</td>
<td>0.292+ [0.155 x (BOD mg/L)/600]</td>
<td>0.296+ [0.157 x (BOD mg/L)/600]</td>
<td>0.300+ [0.159 x (BOD mg/L)/600]</td>
<td>0.304+ [0.161 x (BOD mg/L)/600]</td>
</tr>
<tr>
<td>BOD – secondary and tertiary WWTPs</td>
<td>See note</td>
<td>230</td>
<td>2.089+ [0.139 x (BOD mg/L)/600]</td>
<td>1.349+ [0.155 x (BOD mg/L)/600]</td>
<td>1.368+ [0.157 x (BOD mg/L)/600]</td>
<td>1.387+ [0.159 x (BOD mg/L)/600]</td>
<td>1.407+ [0.161 x (BOD mg/L)/600]</td>
</tr>
<tr>
<td>Suspended solids – primary WWTPs</td>
<td>600</td>
<td>200</td>
<td>0.584</td>
<td>0.423</td>
<td>0.429</td>
<td>0.435</td>
<td>0.441</td>
</tr>
<tr>
<td>Suspended solids – secondary and tertiary WWTPs</td>
<td>600</td>
<td>200</td>
<td>1.691</td>
<td>0.915</td>
<td>0.928</td>
<td>0.941</td>
<td>0.954</td>
</tr>
<tr>
<td>Grease – primary WWTPs</td>
<td>110</td>
<td>50</td>
<td>0.527</td>
<td>0.382</td>
<td>0.387</td>
<td>0.392</td>
<td>0.398</td>
</tr>
<tr>
<td>Grease – secondary and tertiary WWTPs</td>
<td>200</td>
<td>50</td>
<td>1.615</td>
<td>0.950</td>
<td>0.963</td>
<td>0.977</td>
<td>0.991</td>
</tr>
<tr>
<td>Nitrogen – secondary/tertiary inland WWTPs</td>
<td>150</td>
<td>50</td>
<td>1.915</td>
<td>1.066</td>
<td>1.081</td>
<td>1.096</td>
<td>1.111</td>
</tr>
<tr>
<td>Phosphorus – secondary/tertiary inland WWTPs</td>
<td>50</td>
<td>10</td>
<td>6.869</td>
<td>1.247</td>
<td>1.265</td>
<td>1.283</td>
<td>1.301</td>
</tr>
</tbody>
</table>

**Notes:**

- **a** The charges for all other pollutants (including ammonia, sulphate (SO4), total dissolved solids and non-domestic pollutants) are nil.
- **b** The mass of any substance discharged at a concentration which exceeds the nominated acceptance standard (as determined under the Trade Waste Policy) will be charged at double the rate for the mass in excess of the domestic equivalent. Concentration is determined by daily composite sampling by either the customer or Sydney Water.
- **c** Per kg of mass above domestic equivalent.
- **d** Nitrogen and phosphorus limits do not apply where a sewage treatment plant (to which the customer’s wastewater system is connected) discharges directly to the ocean.

**Source:** Sydney Water pricing proposal to IPART – Trade waste model, July 2019.
Table G.2  Actual and proposed corrosive substance charges for Industrial Customers – corrosion impacted catchment ($2019-20)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>Per ML of wastewater</td>
<td>72.775</td>
<td>79.520</td>
<td>80.634</td>
<td>81.762</td>
<td>82.907</td>
</tr>
<tr>
<td></td>
<td>of pH &lt;7.0(^a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>Per ML of wastewater</td>
<td>8.057</td>
<td>8.804</td>
<td>8.928</td>
<td>9.052</td>
<td>9.179</td>
</tr>
<tr>
<td></td>
<td>with temperature &gt;25°C(^b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) The charge is applied for each pH1 by which the pH per ML of wastewater is less than pH7, e.g. if the pH per ML is pH5 then the charge will be multiplied by 2. Where the pH is a number that includes a decimal number then, for charging purposes, the pH will be rounded up where the decimal number is 0.5 or more and rounded down where the decimal number is less than 0.5, e.g. a pH6.5 will be rounded up to pH7 and a pH6.3 will be rounded down to pH6.

\(^b\) The charge is applied for each 1°C by which the temperature per ML of wastewater is greater than 25°C, e.g. if the temperature per ML is 27°C then the charge will be multiplied by 2. Where the temperature is a number that includes a decimal number then, for charging purposes, the temperature will be rounded up where the decimal number is more than 0.5 and rounded down where the decimal number is 0.5 or less, e.g. a temperature of 25.7°C will be rounded up to 26°C and a temperature of 25.5°C will be rounded down to 25°C.

Notes:
- Where Sydney Water declares a wastewater system to be affected by accelerated odour and corrosion, the temperature and pH charge will only apply if the customer is not committed to or not complying with an effluent improvement program.
- Where Sydney Water declares a wastewater system to be affected by accelerated odour and corrosion, the temperature and pH charge will only apply if the customer is not committed to or not complying with an effluent improvement program.


Table G.3  Current and proposed trade waste industrial agreement charges for Industrial Customers by risk index ($2019-20)

<table>
<thead>
<tr>
<th>Risk level</th>
<th>Current inspections per year</th>
<th>Proposed inspections per year</th>
<th>Current 2019-20</th>
<th>Proposed 2020-21</th>
<th>Proposed 2021-22</th>
<th>Proposed 2022-23</th>
<th>Proposed 2023-24</th>
<th>Change in prices (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13</td>
<td>13</td>
<td>2,285.65</td>
<td>2,629.38</td>
<td>2,666.19</td>
<td>2,703.52</td>
<td>2,741.36</td>
<td>20%</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>13</td>
<td>2,285.65</td>
<td>2,629.38</td>
<td>2,666.19</td>
<td>2,703.52</td>
<td>2,741.36</td>
<td>20%</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
<td>13</td>
<td>2,285.65</td>
<td>2,629.38</td>
<td>2,666.19</td>
<td>2,703.52</td>
<td>2,741.36</td>
<td>20%</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>6</td>
<td>1,055.02</td>
<td>1,213.56</td>
<td>1,230.55</td>
<td>1,247.78</td>
<td>1,265.24</td>
<td>20%</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>4</td>
<td>703.75</td>
<td>809.04</td>
<td>820.37</td>
<td>831.85</td>
<td>843.50</td>
<td>20%</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>2</td>
<td>351.88</td>
<td>404.52</td>
<td>410.18</td>
<td>415.92</td>
<td>421.75</td>
<td>20%</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>1</td>
<td>175.94</td>
<td>202.26</td>
<td>205.09</td>
<td>207.96</td>
<td>210.88</td>
<td>20%</td>
</tr>
</tbody>
</table>

### Table G.4  Current and proposed substance charges for Commercial Customers ($2019-20)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Low strength BOD food</td>
<td>Per kL</td>
<td>2.48</td>
<td>1.69</td>
<td>1.72</td>
<td>1.74</td>
<td>1.76</td>
</tr>
<tr>
<td>Higher strength BOD food</td>
<td>Per kL</td>
<td>4.08</td>
<td>2.33</td>
<td>2.36</td>
<td>2.39</td>
<td>2.43</td>
</tr>
<tr>
<td>Automotive</td>
<td>Per kL</td>
<td>0.81</td>
<td>0.48</td>
<td>0.49</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td>Laundry</td>
<td>Per kL</td>
<td>0.51</td>
<td>0.40</td>
<td>0.41</td>
<td>0.42</td>
<td>0.42</td>
</tr>
<tr>
<td>Lithographic</td>
<td>Per kL</td>
<td>0.39</td>
<td>0.28</td>
<td>0.28</td>
<td>0.28</td>
<td>0.29</td>
</tr>
<tr>
<td>Photographic</td>
<td>Per kL</td>
<td>0.00</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Equipment hire wash</td>
<td>Per kL</td>
<td>3.70</td>
<td>4.15</td>
<td>4.21</td>
<td>4.27</td>
<td>4.33</td>
</tr>
<tr>
<td>Ship to shore</td>
<td>Per kL</td>
<td>0.00</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>Per kL</td>
<td>0.00</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Other</td>
<td>Per kL</td>
<td>0.00</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Pre-treatment not maintained in accordance with requirements</td>
<td>Per kL</td>
<td>12.72</td>
<td>13.28</td>
<td>13.47</td>
<td>13.66</td>
<td>13.85</td>
</tr>
</tbody>
</table>

---

\(a\) Per kL of trade waste discharged into the Wastewater System (as determined by Sydney Water in accordance with its Trade Waste Policy).

\(b\) If the pre-treatment is not maintained in accordance with the Trade Waste Policy, a higher charge applies for low strength BOD food and higher strength BOD food. Sydney Water has proposed a new way of charging non-compliant Wastesafe customers. We discuss this proposed change in Chapter 8.

**Source:** Sydney Water pricing proposal to IPART – Trade waste model, July 2019.

### Table G.5  Current and proposed commercial agreement charges for Commercial Customers ($2019-20)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial agreement charges for Commercial Customers– first process</td>
<td>Per each process</td>
<td>41.28</td>
<td>26.30</td>
<td>26.67</td>
<td>27.04</td>
<td>27.42</td>
</tr>
<tr>
<td>Commercial agreement charges for Commercial Customers – each additional process</td>
<td>Per each additional process</td>
<td>14.17</td>
<td>8.77</td>
<td>8.89</td>
<td>9.01</td>
<td>9.14</td>
</tr>
</tbody>
</table>

**Source:** Sydney Water pricing proposal to IPART – Trade waste model, July 2019.
# Current and proposed Wastesafe charges for Commercial Customers ($2019-20)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed $/liquid waste trap charge</td>
<td>Per liquid waste trap</td>
<td>29.36</td>
<td>9.92</td>
<td>10.05</td>
<td>10.20</td>
<td>10.34</td>
</tr>
<tr>
<td>Missed service (pump-out) inspection charge for liquid waste traps - 2kL or less(^a)</td>
<td>Per event</td>
<td>323.64</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Missed service (pump-out) inspection charge for liquid waste traps – more than 2kL(^a)</td>
<td>Per event</td>
<td>647.30</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

\(^a\) Currently, where a customer misses a service of their trap, Sydney Water contacts them to organise a pump-out. To improve compliance Sydney Water has proposed a new approach of eliminating its two pump out charges and instead applying the higher substance charge for not maintaining pre-treatment as listed in Table G.4.

**Source:** Sydney Water pricing proposal to IPART – Trade waste model, July 2019.

# Current and proposed Trade waste ancillary charges ($2019-20)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Additional inspection charge</td>
<td>Per inspection</td>
<td>220.08</td>
<td>199.12</td>
<td>201.90</td>
<td>204.73</td>
<td>207.60</td>
</tr>
<tr>
<td>Trade waste application fee for Industrial Customers – standard</td>
<td>Per inspection</td>
<td>531.26</td>
<td>787.41</td>
<td>798.43</td>
<td>809.61</td>
<td>820.95</td>
</tr>
<tr>
<td>Trade waste application fee for Industrial Customers – non-standard</td>
<td>Per hour</td>
<td>162.74</td>
<td>108.61</td>
<td>110.13</td>
<td>111.67</td>
<td>113.23</td>
</tr>
<tr>
<td>Trade waste application fee for Industrial Customers - variation</td>
<td>Per inspection</td>
<td>638.74</td>
<td>443.48</td>
<td>449.69</td>
<td>455.99</td>
<td>462.37</td>
</tr>
<tr>
<td>Sale of trade waste data</td>
<td>Per hour</td>
<td>158.60</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

**Source:** Sydney Water pricing proposal to IPART – Trade waste model, July 2019.
### Sydney Water’s proposed prices for miscellaneous and ancillary charges

#### Table H.1  Current and proposed charges for ancillary and miscellaneous customer services ($2019-20)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>1</td>
<td>Conveyancing Certificate - Electronic</td>
<td>$</td>
<td>7.14</td>
<td>7.03</td>
<td>7.13</td>
<td>7.23</td>
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<tr>
<td>2</td>
<td>Property Wastewater Diagram</td>
<td>$</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td></td>
<td>Over the Counter</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>Online</td>
<td>$</td>
<td>29.75</td>
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<td>24.44</td>
<td>24.78</td>
<td>25.13</td>
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<td>Service Location Diagram</td>
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<tr>
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<tr>
<td></td>
<td>Electronic+</td>
<td>$</td>
<td>7.14</td>
<td>7.66</td>
<td>7.76</td>
<td>7.87</td>
<td>7.98</td>
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<td>4</td>
<td>Special Meter Reading Statement</td>
<td>$</td>
<td>30.42</td>
<td>36.58</td>
<td>37.09</td>
<td>37.61</td>
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<td>Billing Record Search Statement</td>
<td>$</td>
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<td>33.89</td>
<td>34.36</td>
<td>34.84</td>
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<td>Building Over/Adjacent to Asset advice</td>
<td>$</td>
<td>51.13</td>
<td>46.15</td>
<td>46.80</td>
<td>47.45</td>
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<td>7</td>
<td>Water reconnection</td>
<td>$</td>
<td>30.42</td>
<td>55.46</td>
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<td>$</td>
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<td>177.63</td>
<td>180.12</td>
<td>182.64</td>
<td>185.20</td>
</tr>
<tr>
<td></td>
<td>20, 25 &amp; 32 mm meters</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td>40 and 50 mm light meters</td>
<td>$</td>
<td>358.45</td>
<td>219.52</td>
<td>222.59</td>
<td>225.71</td>
<td>228.87</td>
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<td></td>
<td>50 mm heavy, 80, 100 &amp; 150 mm meters</td>
<td>$</td>
<td>586.57</td>
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<td>255.19</td>
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<td>$</td>
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<td>Water Service Disconnection Application</td>
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<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
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<td>10</td>
<td>Water Service Connection Installation Application</td>
<td>$</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
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<td>-------------------------------------------------------------------------------------</td>
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<td>11</td>
<td>Water Service Connection Approval Application (32 – 65 mm)</td>
<td>$</td>
<td>257.41</td>
<td>327.96</td>
<td>332.55</td>
<td>337.21</td>
<td>341.93</td>
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<td>12</td>
<td>Water Service Connection Approval Application (80mm or greater)</td>
<td>$</td>
<td>257.41</td>
<td>327.96</td>
<td>332.55</td>
<td>337.21</td>
<td>341.93</td>
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<td>$</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>14</td>
<td>Standpipe Hire – Security bond</td>
<td>$</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>15</td>
<td>Standpipe Hire – Annual Fee</td>
<td>$</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>16</td>
<td>Standpipe Water Usage Fee</td>
<td>$</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>17</td>
<td>Backflow Prevention Device Application and Registration Fee</td>
<td>$</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>18</td>
<td>Backflow Prevention Device Annual Administration Fee</td>
<td>$</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>Major Works Inspection Fee</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>Statement of Available Pressure and Flow</td>
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<td>145.31</td>
<td>135.85</td>
<td>137.75</td>
<td>139.68</td>
<td>141.64</td>
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<td>51.72</td>
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<td>146.92</td>
<td>148.98</td>
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<td>20.14</td>
<td>17.30</td>
<td>17.54</td>
<td>17.79</td>
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<td>283.81</td>
<td>267.21</td>
<td>270.95</td>
<td>274.74</td>
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<td>Water main Fitting Adjustment Application</td>
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<td>Nil</td>
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<td>145.31</td>
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<td>141.64</td>
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<td>Wastewater Connection Installation Application</td>
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<td>Nil</td>
<td>Nil</td>
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<td>Wastewater Vent shaft Relocation Application</td>
<td>$</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
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<td>30</td>
<td>Disuse of Wastewater pipe or structure</td>
<td>$</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
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<td>31</td>
<td>Stormwater Connection Approval Application</td>
<td>$</td>
<td>Nil</td>
<td>Nil</td>
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<td>32</td>
<td>Application for inspection of Stormwater Connection</td>
<td>$</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
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<td>Development Requirements Application</td>
<td>$</td>
<td>195.50</td>
<td>197.66</td>
<td>200.43</td>
<td>203.24</td>
<td>206.09</td>
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<td></td>
<td>Development requirements - complying development</td>
<td>$</td>
<td>516.98</td>
<td>522.70</td>
<td>530.02</td>
<td>537.44</td>
<td>544.96</td>
</tr>
<tr>
<td></td>
<td>Development requirements - other</td>
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<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
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<td>34</td>
<td>Road Closure Application</td>
<td>$</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
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<td>35</td>
<td>Water and Sewer Extension Application</td>
<td>$</td>
<td>516.98</td>
<td>522.70</td>
<td>530.02</td>
<td>537.44</td>
<td>544.96</td>
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<td>36</td>
<td>Monthly Meter Reading Request by Customer</td>
<td>$</td>
<td>11.77</td>
<td>11.90</td>
<td>12.07</td>
<td>12.24</td>
<td>12.41</td>
</tr>
<tr>
<td>37</td>
<td>Replacement of meter damaged by customer/ customers agent (mm)</td>
<td>$</td>
<td>145.98</td>
<td>193.72</td>
<td>196.43</td>
<td>199.18</td>
<td>201.97</td>
</tr>
<tr>
<td></td>
<td>20 mm meter</td>
<td>$</td>
<td>311.82</td>
<td>268.19</td>
<td>271.94</td>
<td>275.75</td>
<td>279.61</td>
</tr>
<tr>
<td></td>
<td>25, 30, &amp; 40 mm meter</td>
<td>$</td>
<td>258.09</td>
<td>260.94</td>
<td>264.59</td>
<td>268.29</td>
<td>272.05</td>
</tr>
<tr>
<td>38</td>
<td>Integrate Service Connection Application</td>
<td>$</td>
<td>147.29</td>
<td>148.92</td>
<td>151.00</td>
<td>153.11</td>
<td>155.25</td>
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<td>39</td>
<td>Sydney Water hourly rate</td>
<td>$</td>
<td>214.64</td>
<td>217.01</td>
<td>220.05</td>
<td>223.13</td>
<td>226.25</td>
</tr>
<tr>
<td></td>
<td>20 mm meter</td>
<td>$</td>
<td>226.15</td>
<td>228.65</td>
<td>231.85</td>
<td>235.10</td>
<td>238.39</td>
</tr>
<tr>
<td></td>
<td>25 mm meter</td>
<td>$</td>
<td>248.21</td>
<td>250.95</td>
<td>254.46</td>
<td>258.02</td>
<td>261.63</td>
</tr>
<tr>
<td></td>
<td>50 mm heavy, 80 &amp; 100 mm meters</td>
<td>$</td>
<td>435.42</td>
<td>440.24</td>
<td>446.40</td>
<td>452.65</td>
<td>458.99</td>
</tr>
<tr>
<td>41</td>
<td>Inaccessible meter fee</td>
<td>$</td>
<td>9.78</td>
<td>9.89</td>
<td>10.03</td>
<td>10.17</td>
<td>10.31</td>
</tr>
<tr>
<td></td>
<td>New Annual test of backflow prevention device</td>
<td>$</td>
<td>N/A</td>
<td>229.44</td>
<td>232.65</td>
<td>235.91</td>
<td>239.21</td>
</tr>
</tbody>
</table>

**Note:** "N/A" means that Sydney Water either does not provide the relevant service or the service has been combined with other services and recovered by one charge.

**Source:** Sydney Water Price proposal – Miscellaneous and Ancillary model, July 2019
Sydney Water’s proposed prices for declined and late payment fees

Sydney Water proposed to:

- maintain a late payment fee for overdue bills, and
- maintain its dishonoured or declined payment fee for payment reversal processing, where a financial institution has declined a payment to Sydney Water.

Sydney Water’s proposed prices include a 1.4% uplift from reallocation of corporate common costs.

### Table I.1 Current and proposed dishonoured or declined payment fees ($2019-20)

<table>
<thead>
<tr>
<th>Year</th>
<th>Dishonoured or declined payment fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-20</td>
<td>$14.26</td>
</tr>
<tr>
<td>2020-21</td>
<td>$14.46</td>
</tr>
<tr>
<td>2021-22</td>
<td>$14.66</td>
</tr>
<tr>
<td>2022-23</td>
<td>$14.87</td>
</tr>
<tr>
<td>2023-24</td>
<td>$15.08</td>
</tr>
</tbody>
</table>

*Source: Sydney Water pricing proposal to IPART, Attachment 4, July 2019, p 16.*

### Table I.2 Current and proposed late payment fees ($2019-20)

<table>
<thead>
<tr>
<th>Year</th>
<th>Late payment fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-20</td>
<td>$4.74</td>
</tr>
<tr>
<td>2020-21</td>
<td>$4.81</td>
</tr>
<tr>
<td>2021-22</td>
<td>$4.88</td>
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<td>2022-23</td>
<td>$4.95</td>
</tr>
<tr>
<td>2023-24</td>
<td>$5.02</td>
</tr>
</tbody>
</table>

*Source: Sydney Water pricing proposal to IPART, Attachment 4, July 2019, p 16.*
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 efficiencies savings for the same amount of time, regardless of when they are implemented by the utility. For example, for a 4-year determination, any permanent efficiency savings would be retained for four years.

Sections J.1 and J.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 ECM, with those profits available under the ECM. Section J.3 explains how the ECM is applied. Section J.4 explains why we implement the ECM with a 1-year lag.

J.1 Regulatory framework without ECM

Figure J.1 shows that the profits that a regulated utility retains after making efficiency improvement decreases the further into a regulatory period that the efficiency is made. The efficiency is then incorporated into the regulatory allowance – in the form of lower prices to customers – in the next determination period and the utility gains no more profit from that efficiency. This creates the incentive for the utility to delay efficiencies to the first year of a new regulatory period.
Figure J.1  How the current framework incentivises delaying efficiencies

<table>
<thead>
<tr>
<th>Permanent saving made in year 1</th>
<th>Regulatory Period 1</th>
<th>Regulatory Period 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>1 2 3 4</td>
<td>5 6 7 8</td>
</tr>
<tr>
<td>Allowance</td>
<td>$ $ $ $</td>
<td>$ $ $ $</td>
</tr>
<tr>
<td>Actual</td>
<td>100 100 100 100</td>
<td>80 80 80 80</td>
</tr>
<tr>
<td>Annual profit</td>
<td>20 20 20 20</td>
<td>- - - -</td>
</tr>
<tr>
<td><strong>Total profit in period</strong></td>
<td>80</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Permanent saving made in year 2</th>
<th>Regulatory Period 1</th>
<th>Regulatory Period 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>1 2 3 4</td>
<td>5 6 7 8</td>
</tr>
<tr>
<td>Allowance</td>
<td>$ $ $ $</td>
<td>$ $ $ $</td>
</tr>
<tr>
<td>Actual</td>
<td>100 100 100 100</td>
<td>80 80 80 80</td>
</tr>
<tr>
<td>Annual profit</td>
<td>- 20 20 20</td>
<td>- - - -</td>
</tr>
<tr>
<td><strong>Total profit in period</strong></td>
<td>60</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Permanent saving made in year 3</th>
<th>Regulatory Period 1</th>
<th>Regulatory Period 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>1 2 3 4</td>
<td>5 6 7 8</td>
</tr>
<tr>
<td>Allowance</td>
<td>$ $ $ $</td>
<td>$ $ $ $</td>
</tr>
<tr>
<td>Actual</td>
<td>100 100 100 100</td>
<td>80 80 80 80</td>
</tr>
<tr>
<td>Annual profit</td>
<td>- - 20 20</td>
<td>- - - -</td>
</tr>
<tr>
<td><strong>Total profit in period</strong></td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Permanent saving made in year 4</th>
<th>Regulatory Period 1</th>
<th>Regulatory Period 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>1 2 3 4</td>
<td>5 6 7 8</td>
</tr>
<tr>
<td>Allowance</td>
<td>$ $ $ $</td>
<td>$ $ $ $</td>
</tr>
<tr>
<td>Actual</td>
<td>100 100 100 100</td>
<td>80 80 80 80</td>
</tr>
<tr>
<td>Annual profit</td>
<td>- - - 20</td>
<td>- - - -</td>
</tr>
<tr>
<td><strong>Total profit in period</strong></td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

Note: Regulatory period 2 does not necessarily have to be the same length as previous regulatory period. We have not made a decision on the length of the subsequent regulatory period. The tables in this figure are illustrative only.

J.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 was made.

Figure J.2 demonstrates the ECM for a 4-year determination. Using the same example as in Figure J.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 J.2  How the ECM removes incentives to delay efficiencies**

<table>
<thead>
<tr>
<th>Permanent saving made in year 1</th>
<th>Regulatory Period 1</th>
<th>Regulatory Period 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>1  2  3  4</td>
<td>5  6  7  8</td>
</tr>
<tr>
<td></td>
<td>$  $  $  $</td>
<td>$  $  $  $</td>
</tr>
<tr>
<td>Base allowance</td>
<td>100 100 100 100</td>
<td>80 80 80 80</td>
</tr>
<tr>
<td>Actual</td>
<td>80  80  80  80</td>
<td>80 80 80 80</td>
</tr>
<tr>
<td>Permanent saving</td>
<td>20  20  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td>Incremental saving</td>
<td>20  20  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td>Carryover calc</td>
<td>N/A  N/A  N/A</td>
<td>N/A  N/A</td>
</tr>
<tr>
<td>Net allowance</td>
<td>100 100 100 100</td>
<td>80 80 80 80</td>
</tr>
<tr>
<td>Annual profit</td>
<td>20  20  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td><strong>Total profit in period</strong></td>
<td><strong>80</strong></td>
<td><strong>80</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Permanent saving made in year 2</th>
<th>Regulatory Period 1</th>
<th>Regulatory Period 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>1  2  3  4</td>
<td>5  6  7  8</td>
</tr>
<tr>
<td></td>
<td>$  $  $  $</td>
<td>$  $  $  $</td>
</tr>
<tr>
<td>Base allowance</td>
<td>100 100 100 100</td>
<td>80 80 80 80</td>
</tr>
<tr>
<td>Actual</td>
<td>80  80  80  80</td>
<td>80 80 80 80</td>
</tr>
<tr>
<td>Permanent saving</td>
<td>-  20  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td>Incremental saving</td>
<td>-  20  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td>Carryover calc</td>
<td>20  20  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td>Net allowance</td>
<td>100 100 100 100</td>
<td>100 100 80 80</td>
</tr>
<tr>
<td>Annual profit</td>
<td>-  20  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td><strong>Total profit in period</strong></td>
<td><strong>60</strong></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Permanent saving made in year 3</th>
<th>Regulatory Period 1</th>
<th>Regulatory Period 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>1  2  3  4</td>
<td>5  6  7  8</td>
</tr>
<tr>
<td></td>
<td>$  $  $  $</td>
<td>$  $  $  $</td>
</tr>
<tr>
<td>Base allowance</td>
<td>100 100 100 100</td>
<td>80 80 80 80</td>
</tr>
<tr>
<td>Actual</td>
<td>100  80  80  80</td>
<td>80 80 80 80</td>
</tr>
<tr>
<td>Permanent saving</td>
<td>-  -  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td>Incremental saving</td>
<td>-  -  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td>Carryover calc</td>
<td>20  20  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td>Net allowance</td>
<td>100 100 100 100</td>
<td>100 100 80 80</td>
</tr>
<tr>
<td>Annual profit</td>
<td>-  20  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td><strong>Total profit in period</strong></td>
<td><strong>40</strong></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Permanent saving made in year 4</th>
<th>Regulatory Period 1</th>
<th>Regulatory Period 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>1  2  3  4</td>
<td>5  6  7  8</td>
</tr>
<tr>
<td></td>
<td>$  $  $  $</td>
<td>$  $  $  $</td>
</tr>
<tr>
<td>Base allowance</td>
<td>100 100 100 100</td>
<td>80 80 80 80</td>
</tr>
<tr>
<td>Actual</td>
<td>100  80  80  80</td>
<td>80 80 80 80</td>
</tr>
<tr>
<td>Permanent saving</td>
<td>-  -  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td>Incremental saving</td>
<td>-  -  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td>Carryover calc</td>
<td>20  20  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td>Net allowance</td>
<td>100 100 100 100</td>
<td>100 100 100 80</td>
</tr>
<tr>
<td>Annual profit</td>
<td>-  -  20  20</td>
<td>-  -  -</td>
</tr>
<tr>
<td><strong>Total profit in period</strong></td>
<td><strong>20</strong></td>
<td><strong>60</strong></td>
</tr>
</tbody>
</table>

**Note:** Regulatory period 2 does not necessarily have to be the same length as previous regulatory period. We have not made a decision on the length of the subsequent regulatory period. The tables in this figure are illustrative only.
J.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.

J.4 Why there is a 1-year lag in implementation

In practice, at the time we undertake our review, we only have a forecast of expenditure in the final year of the determination period.

To address this limitation, we make three adjustments.

First, we lag the implementation of the ECM by one year. For example, with a 4-year determination period, we apply the ECM calculation to the first three years of the current determination period (years 1, 2, and 3), and to the final year of the previous regulatory period (ie, year 0). Efficiency savings in the final year of the current period (year 4) would be included in the ECM calculation for the following determination period.

Second, we assume an efficiency saving made in year 3 is permanent. Therefore, the benefit is held in year 3 and year 4, and the ECM allows the benefit to be carried forward in years 5 and 6.

Figure J.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.
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 J.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 (i.e., year 5). Note that we are inflating this adjustment term by the WACC\textsuperscript{184} in order to ensure incentives are fully equalised in present value terms (because the WACC represents our view of the appropriate discount rate).

\textsuperscript{184} If cash flows are assumed to occur at the end of each year, this should be the WACC used for regulatory period 2.
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.\textsuperscript{185}

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.

\textsuperscript{185} This incentive already exists under the current form of regulation.
K Bulk water cost pass through mechanisms

K.1 SDP cost pass-through mechanism

The 2016 cost pass-through mechanism applies only within the 2016 determination period. That is, our current determination only allows Sydney Water to adjust water service charges up to 30 June 2020 (ie, adjust 2019-20 prices) to reflect actual charges paid to SDP with a year lag (ie, covering actual costs incurred in 2018-19).

In determining Sydney Water’s 2020-21 prices, our preliminary view is to pass through the actual SDP costs incurred by Sydney Water in 2019-20. This effectively ‘honours’ the cost pass through mechanism that we implemented as part of the last price review and are proposing to continue to implement as part of this review (see Chapter 9).

Box K.1 details the cost pass-through formula we set in the 2016 Determination. Our preliminary view is to implement a similar mechanism for this 2020 price review.

Box K.1 Formula for service charge pass-through of SDP costs in the 2016 Determination

The SDP formula for the 2016 determination period is:

$$
\Delta \text{Water service charge}_{t}^{\text{SDP}} = \frac{\alpha_t - \epsilon_t}{\rho_t} - \frac{\beta_t \times (\pi_t \times \sigma_t \times (1 + \theta_t))}{400 \times \pi_t \times (1 + \theta_t)}
$$

Where:

- $t$ = the current financial year
- $\alpha_t$ = total regulated payments from Sydney Water to SDP in year $t$; payments are made in nominal dollars for the current financial year (ie, nominal $t$)
- $\epsilon_t$ = total revenue recovered from the usage charge uplift in year $t$; the revenue recovered is in nominal dollars for the current financial year (ie, nominal $t$). The usage charge uplift is discussed in more detail in Chapter 7.
- $\sigma_t$ = total quantity of water (in ML) Sydney Water purchased from SDP in year $t$
- $\pi_t$ = 20 for residential customers, properties within mixed-multi premises, boarding houses with 10 rooms or fewer and unmetered properties, and for all other customers’ is the size of their actual water meter (in mm)
- $\beta_t$ = base SDP costs included in revenue requirement (ie, SDP costs in water security mode) in year $t$; these costs are in $2016-17$ (in the determination)
\[ \gamma_t = \text{avoided water filtration costs per ML from SDP water production in year } t; \text{ these costs are in } \$2016-17 \text{ (in the determination)} \]

\[ \theta_t = \text{Sydney Water’s real pre-tax weighted average cost of capital in year } t \]

\[ \mu_t = \text{the change in the CPI to be applied to the determination in year } t \]

\[ \Delta \text{CPI}_1 = \frac{\text{CPI}_{\text{March 2017}}}{\text{CPI}_{\text{March 2016}}} - 1 \text{ as defined in the determination} \]

\[ \Delta \text{CPI}_2 = \frac{\text{CPI}_{\text{March 2018}}}{\text{CPI}_{\text{March 2016}}} - 1 \text{ as defined in the determination} \]

\[ \Delta \text{CPI}_3 = \frac{\text{CPI}_{\text{March 2019}}}{\text{CPI}_{\text{March 2016}}} - 1 \text{ as defined in the determination} \]

\[ \rho_t = \text{the number of 20mm equivalent customers in year } t \]

The specific values for some of these variables is shown in Table K.1.

**Table K.1 Variables in SDP service charge pass-through formula ($2015-16$)**

<table>
<thead>
<tr>
<th>Where t =</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \beta_t )</td>
<td>$191,486,496</td>
<td>$191,486,496</td>
<td>$191,486,496</td>
<td>n/a</td>
</tr>
<tr>
<td>( \gamma_t )</td>
<td>$61.88</td>
<td>$62.07</td>
<td>$61.94</td>
<td>n/a</td>
</tr>
<tr>
<td>( \theta_t )</td>
<td>n/a</td>
<td>0.059</td>
<td>0.059</td>
<td>0.059</td>
</tr>
<tr>
<td>( \mu_t )</td>
<td>1</td>
<td>1+( \Delta \text{CPI}_1 )</td>
<td>1+( \Delta \text{CPI}_2 )</td>
<td>1+( \Delta \text{CPI}_3 )</td>
</tr>
<tr>
<td>( \rho_t )</td>
<td>n/a</td>
<td>2,025,784</td>
<td>2,051,057</td>
<td>2,076,809</td>
</tr>
</tbody>
</table>

*Note: \( \beta_t \) is based on the current SDP Determination for 2016-17. These costs do not include electricity network costs, which are passed through to Sydney Water. Electricity network costs are capture at a year lag through \( \alpha_t \). Avoided filtration costs, \( \gamma_t \), are provided by Sydney Water. Customer Numbers, \( \rho_t \), are calculated by IPART based on Sydney Water’s pricing proposal and our analysis.*


**K.2 Shoalhaven transfer service charge pass-through formula**

In the 2016 Determination, we introduced a service charge cost pass-through to compensate Sydney Water for actual bulk water costs incurred from WaterNSW for transfers from Shoalhaven. Shoalhaven transfers represent uncertain bulk water operating costs to Sydney Water in terms of volume and price risk. Under the 2017 Metropolitan Water Plan, WaterNSW must start pumping from the Shoalhaven system when Sydney’s dam levels fall to 75% and continue until they rise above 80%.

Our preliminary view is to maintain this cost pass-through mechanism for the 2020 Determination period. Under this cost pass-through mechanism the difference between Sydney Water’s forecast bulk water costs from WaterNSW and its actual bulk water costs from WaterNSW will be passed through to Sydney Water’s customers with, a one year lag, via the water service charge.
Box K.2  Formula for service charge pass-through of Shoalhaven transfer costs in the 2016 Determination

The formula is:

\[
\Delta \text{Water service charge}_{\text{Shoalhaven}}^t = \frac{\omega_{t-1}}{\rho_t} \times \frac{n^2}{400} \times \frac{\mu_t}{\mu_{t-1}} \times (1+\theta_t)
\]

Where:

\( t \) = the current financial year

\( \omega_t \) = total WaterNSW Shoalhaven Transfer costs from the pass-through mechanism, as defined by the WaterNSW determination in year \( t \) (the formula can be found at: IPART, Review of prices for WaterNSW, Final Report, June 2016, Box 8.2, p 73.)

\( \pi \) = 20 for residential customers, properties within mixed-multi premises, boarding houses with 10 rooms or fewer and unmetered properties, and for all other customers’ is the size of their actual water meter (in mm)

\( \theta_t \) = Sydney Water’s real pre-tax weighted average cost of capital in year \( t \)

\( \mu_t \) = the change in the CPI to be applied to the determination in year \( t \)

\( \Delta \text{CPI}_1 = \frac{\text{CPI}_{\text{March 2017}}}{\text{CPI}_{\text{March 2016}}} - 1 \) as defined in the determination

\( \Delta \text{CPI}_2 = \frac{\text{CPI}_{\text{March 2018}}}{\text{CPI}_{\text{March 2016}}} - 1 \) as defined in the determination

\( \Delta \text{CPI}_3 = \frac{\text{CPI}_{\text{March 2019}}}{\text{CPI}_{\text{March 2016}}} - 1 \) as defined in the determination

\( \rho_t \) = the number of 20mm equivalent customers in year \( t \)

The specific values for some of these variables is shown in Table K.2.

Table K.2  Variables in Shoalhaven transfer service charge pass-through formula

<table>
<thead>
<tr>
<th>Where ( t = )</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \theta_t )</td>
<td>n/a</td>
<td>0.059</td>
<td>0.059</td>
<td>0.059</td>
</tr>
<tr>
<td>( \mu_t )</td>
<td>1</td>
<td>1+\Delta \text{CPI}_1</td>
<td>1+\Delta \text{CPI}_2</td>
<td>1+\Delta \text{CPI}_3</td>
</tr>
<tr>
<td>( \rho_t )</td>
<td>n/a</td>
<td>2,025,634</td>
<td>2,050,906</td>
<td>2,076,659</td>
</tr>
</tbody>
</table>

Note: Customer Numbers, \( \rho_t \), are calculated by IPART based on Sydney Water’s pricing proposal and our analysis.

### Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016 Determination period</td>
<td>The period set by IPART from 1 July 2016 to 30 June 2020</td>
</tr>
<tr>
<td>2020 Determination period</td>
<td>The period commencing 1 July 2020</td>
</tr>
<tr>
<td>Annual revenue requirement</td>
<td>The notional revenue requirement in each year of the determination period</td>
</tr>
<tr>
<td>BASIX</td>
<td>Building and Sustainability Index</td>
</tr>
<tr>
<td>BOO</td>
<td>Build Own Operate</td>
</tr>
<tr>
<td>CPI</td>
<td>Consumer Price Index</td>
</tr>
<tr>
<td>Discharge factor</td>
<td>Percentage of incoming water to a property that is discharged to the wastewater network</td>
</tr>
<tr>
<td>ECM</td>
<td>Efficiency carryover mechanism</td>
</tr>
<tr>
<td>ELWC</td>
<td>Economic Level of Water Conservation</td>
</tr>
<tr>
<td>EPA</td>
<td>Environment Protection Authority</td>
</tr>
<tr>
<td>EPL</td>
<td>Environment Protection Licence</td>
</tr>
<tr>
<td>GL</td>
<td>Gigalitre (one billion litres)</td>
</tr>
<tr>
<td>HNOS</td>
<td>Hawkesbury Nepean offset scheme</td>
</tr>
<tr>
<td>Hunter Water</td>
<td>Hunter Water Corporation</td>
</tr>
<tr>
<td>IPART</td>
<td>Independent Pricing and Regulatory Tribunal of NSW</td>
</tr>
<tr>
<td>IPART Act</td>
<td><em>Independent Pricing and Regulatory Tribunal Act 1992 (NSW)</em></td>
</tr>
<tr>
<td>kL</td>
<td>Kilolitre (one thousand litres)</td>
</tr>
<tr>
<td>LRMC</td>
<td>Long run marginal cost</td>
</tr>
<tr>
<td>ML</td>
<td>Megalitre (one million litres)</td>
</tr>
<tr>
<td>MWP</td>
<td>Metropolitan Water Plan</td>
</tr>
<tr>
<td>Acronym</td>
<td>Definition</td>
</tr>
<tr>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>NRR</td>
<td>Notional revenue requirement. Revenue requirement set by IPART that represent the efficient costs of providing Sydney Water’s monopoly services</td>
</tr>
<tr>
<td>NPV</td>
<td>Net Present Value</td>
</tr>
<tr>
<td>RAB</td>
<td>Regulatory asset base</td>
</tr>
<tr>
<td>Rouse Hill Area</td>
<td>The area to which the Rouse Hill stormwater drainage charges apply</td>
</tr>
<tr>
<td>Section 16A direction</td>
<td>Ministerial direction pursuant to section 16A of the IPART Act</td>
</tr>
<tr>
<td>Section 20P directions</td>
<td>Ministerial directions pursuant to section 20P of the SOC Act</td>
</tr>
<tr>
<td>SDP</td>
<td>Sydney Desalination Plant</td>
</tr>
<tr>
<td>SOC Act</td>
<td><em>State Owned Corporations Act 1989 (NSW)</em></td>
</tr>
<tr>
<td>SRMC</td>
<td>Short run marginal cost</td>
</tr>
<tr>
<td>SWDD</td>
<td>Sydney Water Developer Direct</td>
</tr>
<tr>
<td>Target revenue</td>
<td>The revenue Sydney Water generates from maximum prices set by IPART</td>
</tr>
<tr>
<td>UPA</td>
<td>Unregulated pricing agreement</td>
</tr>
<tr>
<td>WACC</td>
<td>Weighted average cost of capital</td>
</tr>
<tr>
<td>WIC Act</td>
<td><em>Water Industry Competition Act 2006 (NSW)</em></td>
</tr>
<tr>
<td>WSCs</td>
<td>Water Servicing Co-ordinators</td>
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</tbody>
</table>