Review of prices for Sydney Water Corporation

From 1 July 2016 to 30 June 2020

Water — Final Report
June 2016
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Sydney Water Corporation
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1 Executive summary

The Independent Pricing and Regulatory Tribunal of NSW (IPART) is determining the maximum prices Sydney Water Corporation (Sydney Water) can charge its customers for water, wastewater\(^1\) and stormwater drainage services.\(^2\) As part of this review, we are also determining the maximum prices for Sydney Water’s trade waste services, a range of ancillary and miscellaneous services, and the Rouse Hill recycled water scheme.\(^3\)

This Report sets out our decisions on Sydney Water’s maximum prices over the 4-year period from 1 July 2016 to 30 June 2020 (the 2016 determination period) and how these will affect residential and non-residential customers. It also explains how we reached these decisions and how our prices compare to Sydney Water’s proposed prices.

We have considered all submissions from interested parties in finalising our decisions. The new prices will apply from 1 July 2016.

Concurrent to this determination of Sydney Water’s maximum prices, we have also specified a late payment and dishonoured or declined payment fees to be charged by Sydney Water. We received a referral to undertake this review from the Premier under section 12A of the IPART Act.\(^4\) A late payment fee\(^5\) and a dishonoured or declined payment fee\(^6\) are not fees for the provision of a monopoly service.

---

1 We have used the term wastewater in this Final Report to refer to sewerage services. This is in line with Sydney Water’s pricing proposal and terminology it uses with its customers. The Determination, however, uses the term sewerage given that sewerage supply services are the declared monopoly service under the Independent Pricing and Regulatory Tribunal (Water, Sewerage and Drainage Services) Order 1997.

2 This review is conducted under section 11 of the Independent Pricing and Regulatory Tribunal Act 1992 (the IPART Act).

3 We are deferring regulation of the prices for other recycled water schemes until we have completed a broader review of our approach to regulating recycled water prices. This is discussed in more detail in Chapter 13.

4 We received the referral under section 12A and the terms of reference for review of both fees on 7 December 2015 (see Appendix C).

5 Under clause 4.4.5 of its customer contract, Sydney Water may charge a late payment fee, but only if IPART has specified the maximum late payment fee as part of a review conducted under the IPART Act. Any late payment fee charged by Sydney Water must not exceed the maximum late payment fee specified by IPART (clause 4.4.5).

6 Under clause 4.11.1 of its customer contract, Sydney Water may charge a dishonoured or declined payment fee in an amount not exceeding the amount specified on its website, as amended from time to time.
We are also conducting a separate review of prices for wholesale water and sewerage services supplied by Hunter Water and Sydney Water. We released a Discussion Paper on 26 April 2016 for this review. We are undertaking this as a separate review primarily because:
- this is a new area of water price regulation for IPART and stakeholders, and a separate review will provide more time to consult with stakeholders; and
- a separate review will allow us to set an appropriate determination period for wholesale prices, rather than necessarily linking it to the retail price determination period.

The 2016 Draft Determinations for Hunter Water and Sydney Water defined wholesale customers and services and expressly provided that determined maximum prices would not apply to those customers and services.

The 2016 Final Determinations for Hunter Water and Sydney Water do not define wholesale customers and services. We intend that the wholesale pricing determination(s) will:
- define wholesale customers and services;
- set maximum prices for wholesale services supplied by Hunter Water and Sydney Water to wholesale customers; and
- expressly provide that maximum prices in the 2016 Final Determinations of retail prices do not apply to wholesale services supplied by Hunter Water and Sydney Water to wholesale customers.

The approach that we have adopted will provide us with greater opportunity to consult on, and consider, stakeholder submissions in response to the wholesale pricing Discussion Paper, which was released in April 2016. Appendix D provides an overview of our review of wholesale prices.

1.1 Our prices for Sydney Water result in bill decreases for customers

A Sydney Water bill includes amounts for water consumption, water and wastewater connection and in some areas stormwater. Wastewater usage charges also apply to non-residential customers who are deemed to have discharged more than the discharge allowance.

All dollar figures quoted in this report are in $2015-16, unless stated otherwise.

---

8 We may release a separate wholesale pricing determination for each of Sydney Water and Hunter Water, rather than having one determination covering both utilities.
1.1.1 Our water and wastewater prices

Most prices under our decisions will either remain unchanged or decrease in 2016-17. Thereafter, they will remain constant in real terms (ie, they will rise in line with the rate of inflation from 2017-18 to 2019-20, which we estimate as 2.5% per year).

We have accepted Sydney Water’s proposed water usage charge of $1.97 per kL over the 2016 determination period. This represents a decrease of $0.31 per kL (or 13.5%) compared with the current usage charge. Our decision to accept Sydney Water’s proposed water usage charge balances a number of competing considerations, including customers having greater control over bills and a move towards our best estimate of the long-term costs of water supply.

Most water and wastewater service charges will also decrease in 2016-17, and remain flat in real terms over the 4-year determination period. Our prices are outlined in Table 1.1.

---

9 This differs from the changes stated in Sydney Water’s pricing proposal to IPART, June 2015, p 100. This is because 2015-16 prices were not available when Sydney Water finalised its proposal so changes stated in Sydney Water’s pricing proposal were based on forecast prices.
We have made changes across Sydney Water’s price structures to ensure that wastewater charges are more cost reflective so that customers groups imposing similar costs on the system are treated consistently (see Box 1.1).

Standalone small businesses (ie, 20mm meter standalone customers) with discharge factors of 75% will face the same wastewater charges and reductions as residential customers. However, those standalone small businesses with discharge factors greater than 75% will face higher wastewater service charges than residential customers (see Table 1.1).

Small businesses with common 20mm meters will face large reductions in wastewater service charges. This is because they now pay the same metered connection charges (ie, as presented in Table 1.1) as standalone non-residential customers with 20mm meters.

---

**Table 1.1  Prices for water and wastewater from 1 July 2016 ($2015-16) – without inflation**

<table>
<thead>
<tr>
<th></th>
<th>2015-16&lt;sup&gt;a&lt;/sup&gt;</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usage charge ($/kL)</td>
<td>2.28</td>
<td>1.97</td>
<td>1.97</td>
<td>1.97</td>
<td>1.97</td>
<td>-13.5%</td>
</tr>
<tr>
<td>Service charge ($/year)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>102.53</td>
<td>88.80</td>
<td>88.80</td>
<td>88.80</td>
<td>88.80</td>
<td>-13.4%</td>
</tr>
<tr>
<td>Non-residential service charge 20mm</td>
<td>129.83&lt;sup&gt;b&lt;/sup&gt;</td>
<td>88.80</td>
<td>88.80</td>
<td>88.80</td>
<td>88.80</td>
<td>-31.6%</td>
</tr>
<tr>
<td><strong>Wastewater</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usage charge ($/kL)</td>
<td>1.10</td>
<td>1.10</td>
<td>1.10</td>
<td>1.10</td>
<td>1.10</td>
<td>0.0%</td>
</tr>
<tr>
<td>Service charge ($/year)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential&lt;sup&gt;c&lt;/sup&gt;</td>
<td>609.14</td>
<td>576.10</td>
<td>576.10</td>
<td>576.10</td>
<td>576.10</td>
<td>-5.4%</td>
</tr>
<tr>
<td>Non-residential (stand-alone 20mm meter) 75% discharge factor&lt;sup&gt;d&lt;/sup&gt;</td>
<td>609.14</td>
<td>576.10</td>
<td>576.10</td>
<td>576.10</td>
<td>576.10</td>
<td>-5.4%</td>
</tr>
<tr>
<td>Non-residential (stand-alone 20mm meter) 81% discharge factor&lt;sup&gt;d&lt;/sup&gt;</td>
<td>609.14</td>
<td>609.14</td>
<td>609.14</td>
<td>609.14</td>
<td>609.14</td>
<td>0.0%</td>
</tr>
<tr>
<td>Non-residential (common 20mm meter) 81% discharge factor&lt;sup&gt;d&lt;/sup&gt;</td>
<td>1,042.67&lt;sup&gt;b&lt;/sup&gt;</td>
<td>609.14</td>
<td>609.14</td>
<td>609.14</td>
<td>609.14</td>
<td>-41.6%</td>
</tr>
</tbody>
</table>

<sup>a</sup> 2015-16 prices were not available when Sydney Water finalised its pricing proposal. The prices for 2015-16 have been updated to reflect actual inflation and prices.

<sup>b</sup> This service charge applied to non-residential customers on a shared meter or with multiple 20mm meters. Under the 2012 Determination, 20mm standalone non-residential customers paid the residential service charges instead, which was $609.14 in 2015-16. From 2016-17, these customers will be charged the same as other non-residential customers with 20mm meters.

<sup>c</sup> Residential wastewater service charge is the sum of the 20mm equivalent meter charge of $548.13 multiplied by the residential discharge factor of 75%, and the 150 kL of deemed wastewater usage of $165.

<sup>d</sup> The 20mm non-residential wastewater service charges include 150 kL of deemed usage of $165.

Source: Annual Information Return, June 2015 and IPART analysis.
Box 1.1  Our changes to price structures mean cost reflective treatment of Sydney Water’s customers

Wastewater service charges

Wastewater service charges predominantly recover fixed costs, reflecting a customer’s ability to access the system (ie, that they are connected to the system). Estimating a customer’s draw on the wastewater system is problematic because, unlike water, wastewater is not metered. Wastewater charges are, therefore, based on a customer’s water meter size multiplied by a discharge factor. The discharge factor is the percentage of metered water consumption that is estimated to be discharged to the wastewater system.

For the 2016 Determination, we have applied a 75% discharge factor to the wastewater service charge for residential customers (ie, residential customers pay 75% of the base 20mm meter service charge). For non-residential customers, Sydney Water has specific discharge factors that it determines based on the nature of the business and the amount of wastewater that it is likely to discharge.

Discharge factors have previously applied to all non-residential customers, except 20mm standalone customers who were charged the same as residential customers. Where a discharge factor has not been previously assigned to a non-residential customer (ie, 20mm meter standalone customers), Sydney Water states it will apply a default discharge factor of 78% in its policies.

We consider it important that Sydney Water clearly communicates where the discharge factor is greater than 75% for non-residential customers with a 20mm connection (ie, small businesses).

Wastewater usage charges

Non-residential customers that discharge more than the discharge allowance pay a wastewater usage charge. Currently, the discharge allowance is set at 300 kL.

We consider it appropriate that the discharge allowances for residential and non-residential customers are the same. Going forward, all wastewater service charges would include the cost of a fixed discharge allowance of 150 kL (ie, a deemed wastewater usage component of $165 is included in the wastewater service charge). This reflects a residential customer’s average annual wastewater discharge.

We have therefore reduced the non-residential discharge allowance from 300 kL to 150 kL by 2018-19 (ie, by 50 kL increments per year), after which it would remain at this level.

We have also decided to separate the connection and usage components of the wastewater service charges for residential and non-residential customers. Under our decision, the costs associated with 150 kL of deemed wastewater usage will be explicitly added to the meter based wastewater service charges. Figure 1.1 shows the typical bill components for residential customers, given this price structure change.
This removes the anomaly in usage charging where non-residential customers with large meters pay too much for wastewater discharge, as a result of the multiplication of the wastewater service charge per meter.\(^\text{10}\)

**Figure 1.1 Typical 2016-17 bill components for residential customers**

![Diagram showing typical bill components for a house and apartment](image)

We have decided to charge dual occupancies based on the number of meters connected to Sydney Water’s network. This means that dual occupancies with a single meter will no longer pay two service charges.

### 1.1.2 Our stormwater prices

Stormwater drainage charges will not increase under our decisions. We have decided to continue the transition toward area-based stormwater drainage charges by allocating cost reductions to residential and small non-residential customers, and maintaining prices at current levels (in real terms) for large non-residential customers.

We have also decided to set a low-impact customer category for residential stormwater customers equal to the charge for apartments. To allow Sydney Water sufficient time to determine the circumstances under which a residential customer should qualify for the low impact discount, we have decided that the charge will apply from 1 July 2017.

\(^{10}\) This anomaly will only be removed in 2018-19 when the discharge allowance is reduced to 150 kL, matching the 150 kL implicit wastewater usage in the service charge. Prior to this point, the discharge allowance will be 250 kL in 2016-17 and 200 kL in 2017-18. As a result, there will be a difference between the implicit wastewater usage in the service charge and the actual discharge allowance of 100 kL in 2016-17 and 50 kL in 2017-18. This will continue to result in non-residential customers with large meters paying too much for wastewater discharge for this 2-year period.
The low impact discount could accommodate, for example, a situation where a customer invests in significant on-site water retention facilities. 11 Sydney Water may wish to consult with its Customer Council in developing its process for implementing the low-impact discount. For instance, one option might be for Sydney Water to establish a process for residential stormwater customers to seek assessment from a Sydney Water accredited assessor.

Our stormwater drainage charges are outlined in Table 1.2.

<table>
<thead>
<tr>
<th>Table 1.2</th>
<th>Charges for stormwater drainage services ($/year, $2015-16)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015-16$^a$</td>
</tr>
<tr>
<td><strong>Residential</strong></td>
<td></td>
</tr>
<tr>
<td>Multi-premises and low impact</td>
<td>31.55</td>
</tr>
<tr>
<td>Standalone</td>
<td>86.02</td>
</tr>
<tr>
<td><strong>Non-residential</strong></td>
<td></td>
</tr>
<tr>
<td>Small (0-200m$^2$) and multi-premises</td>
<td>31.55</td>
</tr>
<tr>
<td>Medium (201-1,000m$^2$) and low impact</td>
<td>86.02</td>
</tr>
<tr>
<td>Large (1,001-10,000m$^2$)</td>
<td>430.12</td>
</tr>
<tr>
<td>Very Large (10,001-45,000m$^2$)</td>
<td>1,911.67</td>
</tr>
<tr>
<td>Largest (&gt;45,000m$^2$)</td>
<td>4,779.19</td>
</tr>
</tbody>
</table>

$^a$ 2015-16 prices were not available when Sydney Water finalised its pricing proposal. The prices for 2015-16 have been updated to reflect actual inflation and prices.

$^b$ The low-impact category charge for residential customers will apply from 1 July 2017.

1.1.3 Customer bills

Bills for houses and apartments will fall over the 2016 determination period

All residential customers’ water and wastewater bills will fall under our prices in 2016-17 and then increase at the rate of inflation thereafter (estimated to be about 2.5% per year). Had we adopted Sydney Water’s proposal most households would have experienced a nominal increase in their annual water and wastewater bill by the end of the 4-year period.

---

11 Sydney Water currently requires non-residential customers to apply for the low impact discount: there is a simple 2-page form, which is followed by Sydney Water’s assessment.
Under our prices:

- **A typical household** consuming 220 kL per year would see its annual bill decrease by $100 or 8.2% in 2016-17 (with inflation). This is $29 lower than under Sydney Water’s proposed bills.\(^{12}\)

- **A typical apartment** consuming 160 kL per year would see its annual bill decrease by $83 or 7.7% in 2016-17 (with inflation). This is $28 lower than under Sydney Water’s proposed bills.

Following 2016-17, bills will increase by inflation to 2019-20:

- A total bill decrease for a typical household of 1.2% (or $14).
- A total bill decrease for a typical apartment of 0.6% (or $7).

Figure 1.2 shows typical residential bills for houses and apartments over the 2016 determination period.

**Figure 1.2  Water and wastewater bills for apartments and houses - with inflation**

\begin{center}
\begin{tikzpicture}
\begin{axis}[
    ybar,\]
    
    \addplot coordinates{
        (2015-16, 1400)
        (2016-17, 1200)
        (2017-18, 1000)
        (2018-19, 800)
        (2019-20, 600)
    };

    \addplot coordinates{
        (2015-16, 1600)
        (2016-17, 1400)
        (2017-18, 1200)
        (2018-19, 1000)
        (2019-20, 800)
    };

    \addplot coordinates{
        (2015-16, 1800)
        (2016-17, 1600)
        (2017-18, 1400)
        (2018-19, 1200)
        (2019-20, 1000)
    };

    \addplot coordinates{
        (2015-16, 2000)
        (2016-17, 1800)
        (2017-18, 1600)
        (2018-19, 1400)
        (2019-20, 1200)
    };

    \legend{Apartments (160kL/year), Houses (220kL/year)}
\end{axis}
\end{tikzpicture}
\end{center}

**Note:** Inflation is estimated to be 2.5% per annum over the 2016 period, except for 2016-17 where it is set as 1.3%. 160kL/year is average usage for apartments, 220kL/year is average for a house (and 200kL/year is average for residential).

**Data source:** IPART analysis.

---

\(^{12}\) Excluding inflation, our typical residential annual bill in 2016-17 would be $16 lower than under Sydney Water’s proposed bills (this reflects our adjustments to Sydney Water’s notional revenue requirement). Including inflation, the difference between our 2016-17 bill and Sydney Water’s is greater than $16 due to different inflation assumptions. In its pricing proposal, Sydney Water assumed an inflation rate of 2.5% for 2016-17. We have since updated inflation for 2016-17 to reflect the actual change in CPI of 1.3%.
Customers who pay stormwater drainage charges will also see a reduction in their bills. For households, annual stormwater service charges would decrease from $86.02 in 2015-16 to $73.81 in 2016-17. For residents in apartments, annual stormwater service charges would decrease from $31.55 in 2015-16 to $23.04 in 2016-17.

Table 1.3 shows the residential bills under our prices and Sydney Water’s proposed prices.

### Table 1.3 Residential bill impacts ($nominal) - with inflation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IPART</td>
</tr>
<tr>
<td>Without stormwater</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>160 kL/year (Apartment)</td>
<td>1,076</td>
<td>993</td>
<td>1,018</td>
<td>1,043</td>
<td>1,069</td>
<td>-7</td>
</tr>
<tr>
<td><strong>Annual change</strong></td>
<td>-7.7%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-0.6%</td>
<td>2.1%</td>
</tr>
<tr>
<td>200 kL/year</td>
<td>1,167</td>
<td>1,073</td>
<td>1,099</td>
<td>1,127</td>
<td>1,155</td>
<td>-12</td>
</tr>
<tr>
<td><strong>Annual change</strong></td>
<td>-8.1%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-1.0%</td>
<td>1.7%</td>
</tr>
<tr>
<td>220 kL/year (House)</td>
<td>1,213</td>
<td>1,113</td>
<td>1,140</td>
<td>1,169</td>
<td>1,198</td>
<td>-14</td>
</tr>
<tr>
<td><strong>Annual change</strong></td>
<td>-8.2%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-1.2%</td>
<td>1.4%</td>
</tr>
<tr>
<td>With stormwater</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>160 kL/year (Apartment)</td>
<td>1,108</td>
<td>1,016</td>
<td>1,042</td>
<td>1,068</td>
<td>1,094</td>
<td>-13</td>
</tr>
<tr>
<td><strong>Annual change</strong></td>
<td>-8.2%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-1.2%</td>
<td>2.1%</td>
</tr>
<tr>
<td>220 kL/year (House)</td>
<td>1,299</td>
<td>1,187</td>
<td>1,217</td>
<td>1,247</td>
<td>1,279</td>
<td>-20</td>
</tr>
<tr>
<td><strong>Annual change</strong></td>
<td>-8.6%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-1.5%</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

---

13 Residential dwellings in Sydney Water’s stormwater catchments pay Sydney Water stormwater charges in addition to wastewater and water charges. Customers in other areas pay these fees to local councils.

14 Including 1.3% inflation.
Non-residential customers

Under our prices, almost all non-residential customers will experience decreases in their water and wastewater bill from 2016-17 onwards. Non-residential customers’ bill impacts depend on their meter size and discharge factors, as well as their water and wastewater usage.

Small business bills vary depending on discharge factor and water use

Small businesses with a discharge factor of 75% will face the same bill reductions as a residential customer (compared to Table 1.3 above). These customers have the same usage and discharge as residential customers: 200 kL water use and 150 kL wastewater (sewage) discharge.

Small businesses that discharge more than residential customers (ie, discharge factors above 75%), will face bill increases over the 4-year period. In particular, small businesses:

- With a discharge factor of 78% (Sydney Water’s default discharge factor), will face nominal bill increases of about $13 (or 1.1%) over the 4-year period.
- With a discharge factor of 83% (example of a different discharge factor), will face nominal bill increases of about $55 (or 4.7%) over the 4-year period.

Table 1.4 shows the bills under our prices for small businesses (assuming that these customers are on a standalone 20mm meter) using different discharge factors.

<table>
<thead>
<tr>
<th>Table 1.4</th>
<th>Small business water and wastewater bills – with inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td>stand-alone 20mm</td>
<td></td>
</tr>
<tr>
<td>meter</td>
<td></td>
</tr>
<tr>
<td>200kL pa water usage</td>
<td></td>
</tr>
<tr>
<td>75% discharge factor</td>
<td>1,167</td>
</tr>
<tr>
<td>Annual change</td>
<td>–8.1%</td>
</tr>
<tr>
<td>78% discharge factor</td>
<td>1,167</td>
</tr>
<tr>
<td>Annual change</td>
<td>–6.7%</td>
</tr>
<tr>
<td>83% discharge factor</td>
<td>1,167</td>
</tr>
<tr>
<td>Annual change</td>
<td>–4.3%</td>
</tr>
<tr>
<td>310kL pa water usage</td>
<td></td>
</tr>
<tr>
<td>83% discharge factor</td>
<td>1,418</td>
</tr>
<tr>
<td>Annual change</td>
<td>–5.1%</td>
</tr>
</tbody>
</table>

Note: Inflation is estimated to be 2.5% per annum over the 2016 period, except for 2016-17 where it is set as 1.3%.

Source: IPART analysis.
Notably, small businesses with discharge factors above 75% will face slightly higher bills in each year because these customers will now pay wastewater usage charges within the 2016 determination period. This is shown in Figure 1.3 below.

As noted, our price structure changes have been implemented to remove existing cross-subsidies. Before we reduced the non-residential discharge allowance from 300 kL to 150 kL, small non-residential customers discharging up to 150 kL were paying too much.

Figure 1.3 Discharge factors and discharge allowance for non-residential properties (20mm standalone meter using 200 kL per year)

Most other non-residential customers will see bill decreases

Broadly, bills will fall for all non-residential customers in 2016-17 ranging from 4.8% to 31.0%, and then increase with inflation (estimated to be about 2.5% per year).

As medium and large users of water, many non-residential customers benefit most from the lower water usage charge. Also, these customers benefit from our changes to calculating wastewater discharge and to rebasing service charges.

1.1.4 Charges for the Rouse Hill Stormwater Catchment Area

There are currently two charges for the Rouse Hill Area:

- **Rouse Hill stormwater drainage charge**, which recovers the operating costs of the drainage system, including for activities such as bush regeneration and weed and ground management.

- **Rouse Hill land charge**, which recovers a portion of Sydney Water’s capital expenses for the same system.
### Executive summary

We have accepted Sydney Water’s proposal to maintain the **Rouse Hill stormwater drainage charge** in real terms at $139.65 per year for residential and non-residential properties less than or equal to 1,000m².\(^{15}\)

We have not accepted Sydney Water’s proposal for the **Rouse Hill land charge** to remain at $248.85 per year in real terms over the 2016 determination period.\(^{16}\) To maintain the current charge, Sydney Water argued that the additional land purchase costs in the Rouse Hill stormwater catchment area should be recovered entirely from its broader wastewater customer base (through wastewater charges).

We consider that the cost reflective level of the Rouse Hill land charge is $433.37.\(^{17}\) This would share the capital costs (both land and civil works) for Rouse Hill equally between residents in Rouse Hill and Sydney Water’s broader customer base. This reflects the integrated water management system in Rouse Hill, which performs dual stormwater (specific to Rouse Hill) and wastewater functions (costs to be shared across Sydney).

However, to limit bill impacts, we have decided to transition the Rouse Hill land charge towards cost reflective levels by increasing the current charge by 10% per year over the 2016 determination period, so that it increases from its current level of $248.85 to $364.34 by 2019-20 (as detailed in Table 1.5).

The Rouse Hill land charge will not apply retrospectively but will affect existing Rouse Hill customers who currently pay the Rouse Hill land charge, as well as new Rouse Hill customers. Any Rouse Hill customers currently paying the Rouse Hill land charge will see their fees increase by 10% in 1 July 2016. New Rouse Hill customers who will start paying the land charge in July 2016 will also pay this fee.

---

\(^{15}\) In its June submission, Sydney Water forecasted the 2015-16 prices as $140.33, based on a CPI of 2.5%. The subsequent actual price was $139.65, based on actual inflation.

\(^{16}\) In its June submission, Sydney Water forecast the 2015-16 prices as $249.97, based on a CPI of 2.5%. The actual price for customers in 2015-16 is $248.85, based on actual inflation.

\(^{17}\) This charge differs slightly from that outlined in the Draft Report ($432.89) due to updates in the WACC (increase from 4.8% to 4.9%) and CPI (downward revision of forecasts).
We note that the NSW Government retains the discretion to reduce the Rouse Hill land charge from the price we set.18

We have also corrected the discrepancy between the map supplied by Sydney Water and published in the 2012 Determination and the actual stormwater catchment in Rouse Hill. The revision of the map means that around 2,000 additional customers will be charged by Sydney Water.19

Kellyville Village properties will continue to pay standard stormwater drainage charges until they are redeveloped.20 We will consider whether existing properties in Kellyville Village should pay Rouse Hill stormwater drainage charges in the next review.

Unlike in other areas, stormwater in Rouse Hill is part of an integrated water management system, which processes wastewater (sewage) and stormwater together. As a result, stormwater services in Rouse Hill cost more than in other stormwater drainage areas, reflecting the difference in costs to build, operate and maintain the Rouse Hill system.21

Customers in Rouse Hill may also pay stormwater charges to their local councils. There is no overlap between the responsibility of Sydney Water and local councils for stormwater assets in Rouse Hill.22

1.1.5 Dishonoured or declined payment and late payment fees

We have accepted Sydney Water’s proposed late payment and dishonoured or declined payment fees, however with an upward adjustment for corporate costs. Our specified fees are as set out in Table 1.6.

| Table 1.6 Dishonoured or declined and late payment fees ($2015-16) |
| Dishonoured or declined payment fee | 12.27 | 12.50 | 12.74 | 12.98 | 13.23 |
| Late payment fee | N/A | 4.16 | 4.24 | 4.32 | 4.40 |

18 On 8 August 2013, the Treasurer directed Sydney Water to reduce the charge from $969 per annum to $237 per annum pursuant to section 18(2) of the IPART Act following a reconsideration, and reduction, of the amount of land needed in Rouse Hill. The charge was reduced to $237 per year to ensure the savings from the reduction in land acquisition were passed on in full to customers.

19 Email from Sydney Water, 29 April 2016.

20 Redeveloped means subdivision, construction of strata titles on existing dwellings or a change in property type. Since 1993, 10 Kellyville Village properties have been charged Rouse Hill stormwater drainage charges. No Kellyville Village properties have attracted the Rouse Hill land charge, as the properties were redeveloped prior to the introduction of the land charge.

21 Sydney Water pricing proposal to IPART, June 2015, p 289.

22 We received a submission that raised concerns about the various stormwater charges Rouse Hill residents pay and whether there is any overlap in these charges. A. Syme submission to IPART Draft Report, 5 April 2016.
Sydney Water has the provision to charge both these fees under its Customer Contract. We consider that Sydney Water’s proposed fees are reasonable, simple to understand, and below that charged by other service providers.\(^2^\)

With respect to the late payment fee, we consider that it is appropriate to recover the efficient costs of late payment in this fee, given that there are protections for financially vulnerable customers. Customers who impose additional costs should pay for them, rather than all customers (including vulnerable customers) bearing additional costs.

Sydney Water’s proposed terms and conditions for its late payment fee mostly mirror exemptions available in NSW under the National Energy Consumer Framework (NECF)\(^2^\) and were generally supported by stakeholders.\(^2^\) At a minimum, Sydney Water cannot charge a late payment fee if it has already agreed to a deferred payment date or another payment arrangement with a customer.\(^2^\) Customers identified as being in hardship are also exempt from late payment fees. The full list of terms and conditions is outlined in Box 1.2.

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\(^2^\) However, we have recommended an upward adjustment to the fees for corporate costs. We consider it important to allocate costs consistently across the business.

\(^2^\) See Rule 73(2) of the National Energy Retail Rules, and clause 10 of the National Energy Retail Law (Adoption) Regulation 2013.

\(^2^\) The Energy Water Ombudsman NSW (EWON) was supportive of this fee and the exemptions, noting they could be extended to pensioners: EWON submission to IPART Issues Paper, October 2015, pp 6-7. The Public Interest Advocacy Centre (PIAC) was supportive of the proposed fee and its conditions as long as it does not negatively impact those who are facing hardship: PIAC submission to IPART Issues Paper, October 2015, p 9.

\(^2^\) Sydney Water’s Operating Licence provides that, at a minimum, Sydney Water must not charge a late payment fee if it has already agreed with a customer a deferred payment date, or an arrangement to pay by instalments with respect to the overdue account balance, or it has entered into a payment assistance arrangement with the customer. IPART, Sydney Water Corporation Operating Licence 2015-20, Schedule 4 - Customer Contract, July 2015, p 14.
Box 1.2  Sydney Water late payment fee terms and conditions

Sydney Water will not charge a late payment fee where:

- there is a billing matter being considered by the Energy and Water Ombudsman NSW (EWON)
- the customer has made an arrangement with Sydney Water to pay by instalments or another payment plan
- part of the bill is being paid using Sydney Water’s payment assistance scheme
- Sydney Water is aware that the customer has sought assistance from a community welfare organisation that is part of the payment assistance scheme
- the customer is registered with Sydney Water’s BillAssist program
- the customer has been identified as being in hardship
- the customer pays by Direct debit, or
- EWON has asked Sydney Water to waive the fee.

The fee will only be levied:

- if the customer has been notified in advance of the late payment fee and the circumstances in which it may be levied, and
- at least 7 days after the due date.

1.2  We are encouraging Sydney Water to be more efficient and responsive to its customers

1.2.1  We are reducing Sydney Water’s allowance for capital and operating expenditure

We have decided to reduce Sydney Water’s allowance for capital and operating expenditure over the 2016 determination period to ensure efficient and prudent expenditure. We are satisfied our approach will not adversely affect the ability of Sydney Water to operate, maintain, renew and develop the assets required to deliver its regulated services over the 2016 determination period. Further, we are satisfied our decisions will enable Sydney Water to earn a reasonable rate of return on its assets.

We have set Sydney Water’s allowance for operating expenditure at $4,948 million over the 2016 determination period. In doing so, we have reduced Sydney Water’s proposed operating expenditure by 1.1%, which included the following adjustments:

- core operating expenditure $46 million (1.3%) lower than Sydney Water’s proposal
- bulk water costs $8 million (0.5%) lower than Sydney Water’s proposal.
A large part of the reductions to Sydney Water’s proposed operating expenditure comprise continuing and catch-up efficiency targets ($29 million).

We have set Sydney Water’s allowance for capital expenditure at $2,473 million in capital expenditure over the 2016 determination period. In doing so, we reduced Sydney Water’s proposed capital expenditure by $300 million (10.8%), which included the following adjustments:

- $172 million (or 6.2%) of reductions to specific capital programs, and
- $128 million (or 4.6%) in efficiency savings.

Most of the reductions to specific capital programs ($140 million) relate to Sydney Water’s proposed capital expenditure on renewing existing assets. We have also factored in an additional $128 million in efficiency savings we consider Sydney Water should be able achieve over the next four years.

As part of its capital program, Sydney Water proposed $328 million on information technology (IT) programs over the 2016 determination period. This significant increase in IT capital expenditure includes a new customer billing system and an Enterprise Resource Planning (ERP) platform.

Our consultant found this expenditure to be prudent and efficient, given Sydney Water’s current customer billing system is 28 years old and broad consensus in the world’s leading corporations that an ERP is a vital organisational tool. However, we have removed $24.8 million from the RAB in 2017-18 for stranded IT assets superseded by the ERP platform.

We applied a real post-tax WACC of 4.9% for the purposes of calculating an appropriate rate of return on Sydney Water’s assets. We have used our standard methodology for all parameters. Sydney Water’s initial proposal was for a WACC of 4.6%. It updated its proposed WACC to 4.97% in its response to our Issues Paper to reflect changes in market parameters.

### 1.2.2 We are introducing pricing flexibility

We have decided to introduce greater pricing flexibility by allowing Sydney Water and large non-residential customers to enter into unregulated pricing agreements for water and wastewater services.

The default is for the prices set by IPART to apply to Sydney Water’s customers. Unregulated pricing agreements will only apply where Sydney Water and a customer have agreed to opt-out of the prices set by IPART. If Sydney Water and a large non-residential customer enter into such an agreement, Sydney Water and that customer will not be subject to IPART’s determined prices for water and wastewater services to the extent that such prices are set in the pricing agreement.

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27 Sydney Water pricing proposal to IPART, June 2015, p 218.
28 Sydney Water, Response to IPART Issues Paper, October 2015, p 44.
Unregulated pricing agreements can be entered into by large non-residential customers defined as stand-alone non-residential customers that have annualised water consumption greater than 7.3 ML. This definition covers a small portion of Sydney Water’s non-residential customers but applies to a large portion of non-residential water usage and wastewater volumes. This is shown in Figure 1.4.

### Figure 1.4 Large non-residential customers as a share of total non-residential customers (2014-15)

<table>
<thead>
<tr>
<th></th>
<th>Water customer numbers</th>
<th>Water usage (kL)</th>
<th>Wastewater customer numbers</th>
<th>Wastewater volume (kL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large non-residential</td>
<td>125,586</td>
<td>67,137,820</td>
<td>110,270</td>
<td>48,112,341</td>
</tr>
<tr>
<td>Other non-residential</td>
<td>2,606</td>
<td>48,578,508</td>
<td>2,321</td>
<td>22,516,269</td>
</tr>
</tbody>
</table>

**Note:** The disparity between water and wastewater customer numbers is because not all water customers are wastewater customers.

**Data source:** Sydney Water, email received by IPART on 5 February 2016.

The rationale for unregulated pricing agreements is that 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.

Therefore, this form of pricing flexibility will allow Sydney Water to search for opportunities to uncover value for its customers by tailoring prices and potentially services to better meet their customers’ individual preferences, as would occur in a competitive setting. It provides a strong incentive for Sydney Water to engage with customers to learn more about their preferences in order to develop mutually beneficial price offers specifically targeted to each customer’s preferences. This was one of Sydney Water’s primary objectives for pricing flexibility.

Importantly, we have identified and discussed some key features and implications of unregulated pricing agreements that should be considered by both parties before entering into an agreement (see Chapter 3).
1.2.3 We are introducing an efficiency carryover mechanism for Sydney Water

We have decided to establish an efficiency carryover mechanism (ECM). Our ECM allows Sydney Water to keep an efficiency saving for four years regardless of when the saving is made. We consider this approach will remove incentives to delay permanent cost savings from the end of one regulatory period to the beginning of the next, which means customers can benefit, through lower prices, sooner.

Our ECM:

- applies to Sydney Water’s controllable operating expenditure from 2016-17 to 2018-19
- ensures Sydney Water is able to retain permanent cost reductions for four years before they are passed on to customers through lower prices, and
- maintains the existing incentive for the business to manage temporary fluctuations in expenditure.

Our expectation is that by removing the incentive to delay savings and providing a tool for Sydney Water to demonstrate its performance over the regulatory period, the ECM will improve the amount and quality of information available to us at the next round of expenditure reviews.

Table 1.7 compares Sydney Water’s proposed EBSS and IPART’s ECM to the current form of regulation. We have highlighted in blue where the EBSS and ECM differ from the current form of regulation.
Table 1.7  Comparison of IPART’s ECM to the current form of regulation

<table>
<thead>
<tr>
<th>Change in actual expenditure relative to the allowance</th>
<th>Current form of regulation</th>
<th>Sydney Water’s EBSS</th>
<th>IPART’s ECM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Permanent increase in costs</td>
<td>Retained by the business until IPART can assess at next price review.</td>
<td>Retained for 5 years – then passed on to customers.</td>
<td>Retained by the business until IPART can assess at next price review.</td>
</tr>
<tr>
<td>2. Temporary increase in costs</td>
<td>Retained by the business.</td>
<td>Passed on to customers after 5-year lag.</td>
<td>Retained by the business.</td>
</tr>
<tr>
<td>3. Temporary reduction in costs</td>
<td>Retained by the business.</td>
<td>Passed on to customers after 5-year lag.</td>
<td>Retained by the business.</td>
</tr>
<tr>
<td>4. Permanent decrease in costs</td>
<td>Retained by the business until IPART can assess at next price review.(^a)</td>
<td>Retained for 5 years – then passed on to customers.</td>
<td>Retained for 4 years – then passed on to customers.</td>
</tr>
</tbody>
</table>

\(^a\) That is, if the saving is made in year 1 it can be held for four years. If it is made in year 4, it can be held for one year. Note this assumes we know the actual year 4 expenditure when we reset the allowance for the next regulatory period. In reality, the business could make an unexpected saving in year 4 and retain it for five years, given the timing of our price reviews.

Source: IPART analysis.

1.2.4  We are encouraging greater use of performance benchmarking

We have decided to work with regulated businesses, other interested stakeholders, and regulators in other jurisdictions to develop a performance benchmarking capability to inform future price reviews. While our current form of regulation makes some use of benchmarking in assessing performance during the expenditure review, we intend to make greater use of benchmarking in future price reviews.

We consider that greater use of performance benchmarking would help Sydney Water demonstrate its performance gains to stakeholders and would help to drive further performance gains in the future.
1 Executive summary

1.3 We are including explicit charges for bulk water costs to send scarcity signals to customers

1.3.1 Pass through of Sydney Desalination Plant costs

In a shutdown mode (ie, not supplying desalinated water to Sydney Water), Sydney Desalination Plant Pty Limited’s (SDP) fixed costs represent about $94 (8%) of a typical annual residential bill.

If SDP moves into operation mode (ie, supplying desalinated water to Sydney Water), then Sydney Water faces additional variable costs from purchasing desalinated water. We have accepted Sydney Water’s proposal to make these drought-response costs more transparent to customers in times of relative scarcity. As a result, we have decided to vary water usage charges to reflect the per kL cost of desalinated water if SDP is activated.

Our decision is to increase the water usage charge by $0.12 per kL ($2015-16) over the 2016 determination period if SDP is operating. This will recover the additional variable costs associated with it supplying desalinated water.

For a typical household consuming 220 kL per year, this would add about $26.40 to their annual bill (ie, in addition to the $94 in their annual bill covering SDP’s fixed costs). For a typical apartment consuming 160 kL per year, this would add about $19.20 to their annual bill. Large users of water (ie, large non-residential customers) would pay proportionately more.

The challenge to varying Sydney Water’s usage price to reflect the variable cost of desalinated water is that we do not have determined prices for SDP from 2017-18 onwards. To simplify prices, we have therefore decided to apply a constant uplift of $0.12 per kL over the 2016 determination period based on SDP’s determined charges for 2016-17 only. The service charge pass-through mechanism will account for any forecast error in our estimate of the water usage charge adjustment.29

1.3.2 Pass through of Shoalhaven transfer costs

We are introducing a service charge cost pass-through mechanism to compensate Sydney Water for actual bulk water costs incurred from WaterNSW for transfers from the Shoalhaven.30

29 The usage charge pass-through is revenue neutral. Under current arrangements, the additional costs to Sydney Water of purchasing desalinated water if SDP is required to operate would be passed through to water consumer’s fixed service charges at a 1-year lag.

30 This differs from the 2012 Determination, where we decided to allow for the cost recovery of Shoalhaven pumping on expected costs basis (rather than through a cost pass-through mechanism).
The size of these costs and their impact on customers will depend on the transfers from the Shoalhaven. Under the 2010 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%.31

1.4 IPART’s review process

In making our decisions, we have considered all submissions received through the review. We have also considered the matters we are required to under section 15 of the IPART Act (see Appendix A).

As part of our review process, we have undertaken an extensive investigation and public consultation, including:

- invited Sydney Water to make a pricing proposal in June 2015 detailing its prices, financial and performance data on the future capital and operating expenditure necessary to maintain service levels and respond to regulatory demands
- released an Issues Paper in September 2015 to respond to Sydney Water’s pricing proposal and assist stakeholders identify and understand the key issues for review
- invited stakeholders to make submissions on the Issues Paper and Sydney Water’s proposal by October 201532
- held a public hearing in November 2015 to discuss a wide range of issues raised by Sydney Water and other stakeholders
- engaged independent consultants to review Sydney Water’s:
  - proposed efficiency carryover mechanism and a modified efficiency carryover mechanism that we proposed in our Issues Paper - Cambridge Economic Policy Associates Pty Ltd (CEPA)33
  - capital expenditure, asset planning and operating expenditure proposals - WS Atkins International (Australia) Limited, in association with Cardno (Queensland) Pty (Atkins Cardno)34
  - forecast water demand and customer numbers - Jacobs Australia Pty Limited (Jacobs)35

31 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. NSW Government, 2010 Metropolitan Water Plan, August 2010, p 24.
32 A total of 50 written submissions were received from other interested parties.
33 CEPA’s final report was received in February 2016 and published on our website in March 2016.
34 Atkins Cardno’s final report was received in December 2015 and published on our website in February 2016.
35 Jacobs’ final report was received in January 2016. Much of the supplementary information on demand used in its analysis was provided to us by Sydney Water on a commercial-in-confidence basis. Therefore, we have not published this report on our website.
Executive summary

- proposed prices for its trade waste services and range of ancillary and miscellaneous services - Synergies Economic Consulting (Synergies)\(^{36}\)

\(^{\text{\textcopyright}}\) released a Draft Report and Draft Determination in March 2016 and invited stakeholders to make submissions in response to the drafts by April 2016.

Our reports, stakeholder submissions, the transcript from the public hearing, and consultants’ reports are available on our website (www.ipart.nsw.gov.au).

1.5 Structure of this Report

The rest of this Report provides more information about our decisions, and Sydney Water’s pricing proposal:

- Chapter 2 provides context for this review, including our role as the principal economic regulator in NSW and response to liveability, which emerged as a common theme during this review.
- Chapter 3 outlines the changes we are making to how we regulate Sydney Water to encourage it to become more efficient and give Sydney Water greater pricing flexibility to respond to their customers’ preferences.
- Chapters 4 to 13 discuss the issues related to the steps in our approach for setting water, wastewater, stormwater and other prices:
  - Chapter 4 covers the length of the determination period and the Sydney Water’s notional annual revenue requirement
  - Chapters 5 to 7 focus on the key inputs for applying this approach, including the allowance for operating expenditure, prudent and efficient capital expenditure, and the allowances for a return on capital, regulatory depreciation and tax
  - Chapter 8 covers the forecast sales volumes and customer numbers
  - Chapters 9 to 11 explain the decisions on price structures and set out price levels
  - Chapter 12 presents our decisions on late payment and dishonoured or declined payment fees
  - Chapter 13 outlines our discussion of recycled water.
- Chapter 14 assesses the implications of our pricing decisions on customers, Sydney Water, general inflation and the environment.

\(^{36}\) Synergies’ final report was received in December 2015. Much of the supplementary information on costs used in its analysis was provided to us by Sydney Water on a commercial-in-confidence basis. Therefore, we have not published this report on our website.
1.6 List of decisions and recommendations

Our decisions and recommendations are outlined in the chapters of this Report. For convenience, they are also listed below.

Form of regulation

1 We have decided to:
   – allow Sydney Water and large non-residential customers to opt-out of IPART's determined water and wastewater prices by voluntarily entering into unregulated pricing agreements, and
   – define large non-residential customers as stand-alone non-residential customers that have annualised water consumption greater than 7.3 ML.

2 We have decided not to introduce a weighted average price cap at this time.

3 We have decided to establish an efficiency carryover mechanism for Sydney Water. This mechanism:
   – applies to controllable operating expenditure (defined as total operating expenditure less bulk water costs)
   – is designed to apply to four years of historical expenditure but, in the first instance when applied at the next price review in 2019-20, will apply to three years of historical expenditure: 2016-17, 2017-18, and 2018-19
   – ensures the business is able to retain permanent reductions in controllable operating expenditure for four years before they are passed on to customers through lower prices, and
   – allows the business to retain temporary over and under spends in controllable operating expenditure.

4 We have decided not to broaden our approach to cost pass-through mechanisms at this time (noting that we have extended the application of our cost pass-through approach to include Shoalhaven transfers in addition to Sydney Desalination Plant’s additional costs when it operates).

5 We have decided to work with regulated businesses in NSW, other interested stakeholders, and regulators in other jurisdictions to develop a performance benchmarking capability to inform future price reviews.

Length of determination

6 We have decided to adopt a 4-year determination period from 1 July 2016 to 30 June 2020.
Executive summary

Sydney Water’s revenue requirement

7 We have decided to set Sydney Water’s notional revenue requirement and target revenue as set out in Table 4.1.  

8 We have decided to set the components of the target revenue as set out in Table 4.6.  

Operating costs

9 We have decided to set the efficient level of Sydney Water’s operating expenditure as set out in Table 5.1.  

Bulk water cost pass-throughs

10 We have decided to:  

– continue to enable Sydney Water to pass through into water service charges (after a 1-year lag) the difference between its actual and forecast SDP-related bulk water costs over the 2016 determination period  

– apply the current cost pass-through mechanism in the first year of the 2016 Determination period and pass through $0.43 million into 2016-17 water service charges, being the actual 2015-16 SDP costs incurred by Sydney Water above those included in 2015-16 prices, and  

– introduce a pass through of the annual actual Shoalhaven transfer costs that Sydney Water incurs into the water service charges at a 1-year lag.  

Capital expenditure

11 We have decided to set the prudent and efficient level of Sydney Water’s capital expenditure to be included in the RAB as set out in Table 6.1 and Table 6.2.  

Regulatory asset base

12 We have decided to:  

– set the opening RAB at 1 July 2016 by rolling the RAB forward from 2011-12 to 2015-16 as set out in Table 7.1  

– adopt the value of the RAB in each year of the 2016 Determination as set out in Table 7.2.
Asset disposals

13 We have decided to:

– deduct the regulatory value of actual and forecast asset disposals from the RAB, where the regulatory value is determined as:

a. for significant sales of assets purchased before the RAB line-in-the-sand: Asset sales revenue x RAB/DRC at the time the RAB was established

b. for significant sales of assets purchased post RAB line-in-the-sand: purchase price + capital expenditure – depreciation + indexation

c. for significant asset write-offs: Determined on a case-by-case basis

d. for non-significant write-offs: Zero unless determined by exception on a case-by-case basis

e. for non-significant asset sales: Receipts from asset sales.

– not to deduct the sale of the Central Workshops land parcel from Sydney Water’s RAB.

Finance leases

14 We have decided to value Sydney Water’s finance leased assets by:

– discounting all future principal and interest payments associated with each lease over the life of the lease agreement

– using the implied interest rate in each lease agreement as the discount rate

– adding $587.1 million to the RAB as the value of Sydney Water’s assets subject to finance leases (instead of passing through finance lease payments as operating expenditure), and

– adding a further $18.7 million to the RAB as the capitalised value of Sydney Water’s risk premium.

WACC

15 We have decided to:

– apply a real post-tax WACC of 4.9% for the purposes of calculating an appropriate rate of return on Sydney Water’s assets, and

– set an allowance for return on capital as set out in Table 7.5.

Regulatory depreciation

16 We have decided to adopt:
1 Executive summary

- a straight-line depreciation method for the 2016 determination period 127
- new and existing asset lives as set out in Table 7.6, and 127
- asset lives for assets subject to finance leases as set out in Table 7.7. 127

Tax allowance

17 We have decided to: 130
- make no adjustment to the regulatory tax allowance for capital gains tax on land sales 130
- make no adjustment to the regulatory tax allowance for revenue from grants and cash capital contributions 130
- adopt Sydney Water’s 4-year historical average assets free of charge (for the period between 2011-12 and 2014-15), and 131
  a. pass through the holding costs over the 2016 determination period of differences between actual and forecast assets free of charge at the next determination period. 131
- adopt the regulatory tax allowance as set out in Table 7.9. 131

Water sales and customer numbers

19 We have decided to adopt for the purpose of setting Sydney Water’s maximum prices: 145
- the forecast residential customer numbers as set out in Table 8.5, and 145
- the forecast non-residential customer numbers as set out in Table 8.6. 145

20 We have decided to adopt the forecasts for wastewater chargeable volumes as set out in Table 8.7. 149

Demand volatility mechanism

21 We have decided to consider at the next determination of Sydney Water’s prices: 151
- an adjustment to the revenue requirement and prices to address any over- or under-recovery of revenue over the 2016 determination period due to material variation between the level of actual water sales over the 2016 determination period and the forecast water sales used in making this determination, where: 151
  a. a material variation is defined as more than 5% (+ or -) over the whole determination period, 151
  b. we would only consider adjusting for variation greater than 5% (+ or -), and 151
c. we will consult as part of the next price review on how the volatility mechanism could be applied, if a material variation occurs.

Water usage charges

22 We have decided to:

- set Sydney Water’s maximum water usage charge at $1.97 per kL in real terms over the 2016 determination period
- pass through the per kL cost of desalinated water into Sydney Water’s water usage charges if the Sydney Desalination Plant (SDP) is operating and supplying water to Sydney Water:
  a. the water usage charge is increased by $0.12 per kL in real terms over the 2016 determination period if SDP is operating
  b. this uplift to the water usage charge is triggered if SDP is required to operate the plant under the conditions of its licence or operational approval (as in force at the relevant time) granted under the Water Industry Competition Act 2006.

Wastewater usage charges

23 We have decided to:

- set a maximum non-residential wastewater usage charge of $1.10 per kL in real terms over the 2016 determination period
- reduce the non-residential discharge allowance from 300 kL to 150 kL per year, with a 50 kL per year transition from 2016-17 onwards, and
- not introduce an explicit residential wastewater usage charge.

Water and wastewater service charges

24 We have decided to:

- set water and wastewater service charges for residential and non-residential customers on a 20mm meter equivalent basis, where residential dwellings are deemed to each be one 20mm meter equivalent customer
- separate the implicit connection and usage components of the wastewater service charge, and
- apply a 75% discharge factor to the connection component of the residential wastewater service charge.

25 We have decided to

- set the maximum water service charges as set out in Table 9.4, and
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- set the maximum wastewater service charges for:
  a. residential customers as set out in Table 9.7, and
  b. non-residential customers as set out in Table 9.9 (subject to discharge factors for the customer)

Joint service arrangements

26 We have decided to:
  - maintain Sydney Water’s current charging regime for joint service customers, and
  - codify Sydney Water’s current joint services charging approach in the 2016 Determination to increase transparency.

Dual occupancies

27 We have decided to charge dual occupancies based on the number of meters connected to Sydney Water’s network.

Unfiltered and unmetered water charges

28 We have decided to set the maximum unfiltered usage charge at the potable water usage charge less $0.30 per kL.

29 We have decided to maintain the current approach to charging unmetered properties, which includes:
  - a water service charge equal to the residential service charge, and
  - 180 kL of deemed water usage per year (ie, 180 kL x the water usage price).

Minor service extensions

30 We have decided to maintain the existing methodology for setting minor service extension charges, with the exception of:
  - updating the discount rate to be based on Sydney Water’s pre-tax weighted average cost of capital.

Stormwater drainage charges

31 We have decided to set stormwater drainage charges on a constrained area basis, as set out in Table 10.1.

32 We have decided to introduce a low-impact customer category for residential customers equal to the charge for apartments from 1 July 2017.
33 We have decided to set maximum prices for stormwater drainage services supplied to residential dual occupancy properties based on the number of connections/meters to the water network. That is:

- where each dual occupancy property is serviced by an individual meter (and are therefore identifiable), each of those properties is charged as an apartment;
- where the dual occupancy properties are serviced by one common meter only (and are therefore not identifiable), they are together charged as one standalone house; and
- where the dual occupancy properties are serviced by more than one common meter (and are therefore identifiable), each of those properties is charged as an apartment.

34 We have decided to set the maximum stormwater drainage charges as set out in Table 10.2.

**Trade waste charges**

35 We have decided to:

- set the maximum trade waste prices as set out in Appendix J, which include an allowance for corporate overheads;
- amend the trade waste pricing principles to clarify that charges should recover efficient costs, including corporate overheads;
- deduct the trade waste revenue as set out in Table 11.1 from the notional revenue requirement;
- change the trade waste price structure as proposed by Sydney Water as follows:
  a. reclassify shopping centres with centralised onsite pre-treatment as industrial customers (under Risk Index 6), and
  b. include "pre-treatment not maintained in accordance with requirements" as an explicit commercial activity code.

**Miscellaneous and ancillary charges**

36 We have decided to:

- set the maximum prices for miscellaneous and ancillary services to apply from 1 July 2016 as set out in Appendix K;
- not set maximum prices for hot water metering services at this stage;
- not set maximum prices for ‘premium’ sewerage service diagrams (ie, a sewerage service diagram with additional information added), and
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- deduct the revenue from miscellaneous and ancillary services from the notional revenue requirement as set out in Table 11.3.

Rouse Hill charges

37 We have decided to:
- increase the Rouse Hill land charge by 10% per year in real terms over the 2016 determination period as set out in Table 11.4
- apply the land charge, for a period of five years, to new properties that connect (or have connected) to Sydney Water’s water system between 1 July 2012 and 30 June 2026
- maintain the Rouse Hill stormwater drainage charge at:
  a. $139.65 per year in real terms for residential properties and non-residential properties less than or equal to 1000m²
  b. $139.65 per year x land area in m²/1000 in real terms for non-residential properties greater than 1000m²
- include the Rouse Hill Stormwater Catchment Area map (excluding Kellyville Village until such time as the relevant property is redeveloped to form part of the Rouse Hill Stormwater Catchment Area) in the 2016 Determination.

Recycled water charges

38 We have decided to:
- defer regulation of recycled water prices for all schemes apart from Rouse Hill until we have completed a broader review of our approach to regulating recycled water prices
- set a maximum usage charge of $1.77 per kL in real terms over the 2016 determination period for recycled water supplied as part of the Rouse Hill recycled water scheme, and
- reallocate a proportional share of Sydney Water’s corporate costs from its water and wastewater business to its recycled water business.

Late payment and dishonoured or declined payment fees – Section 12A Review

1 In accordance with the section 12A referral received on 7 December 2015, we:
- specify the maximum price for the existing dishonoured or declined payment fee as set out in Table 12.1

2 In accordance with the section 12A referral received on 7 December 2015, we:
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Review of prices for Sydney Water Corporation

Credit card payment fees – Section 12A Review

3 We have decided not to regulate the credit card payment fee.

Rosehill (Camellia) recycled water scheme – recommendation

1 We recommend that, in light of the changes since the scheme was established, the ongoing economic case for the Rosehill (Camellia) recycled water scheme be reassessed.
2  Context for the review

This chapter describes Sydney Water’s regulatory framework and explains IPART’s price setting role within that framework. It also describes how we take ‘liveability’ into account when setting prices. Liveability issues (including environmental protection, water security and affordability) were frequently raised by stakeholders during our review. These issues relate to Sydney Water’s regulatory obligations and therefore are relevant to the prices we set.

2.1 Sydney Water’s regulatory framework

Sydney Water operates within a comprehensive regulatory framework. In general terms, this includes regulatory requirements relating to:

▼ Public health:
- NSW Health and relevant legislation such as the Sydney Water Act 1994 (NSW) and the Public Health Act 2010 (NSW) regulates Sydney Water’s water quality.
- IPART has a role in recommending, administering, and auditing water quality provisions in Sydney Water’s Operating Licence.

▼ Environment protection:
- The Environment Protection Authority (EPA) and relevant legislation such as the Protection of the Environment Operations Act 1997 (NSW) regulates Sydney Water’s wastewater (and other pollution) discharges to the natural environment.
- DPI Water regulates Sydney Water’s extractions of water from the natural environment (although most of these extractions occur by WaterNSW, from sources upstream of Sydney Water’s infrastructure).

▼ Planning:
- The Department of Planning and Environment, and local councils enforce planning legislation and requirements that apply to Sydney Water and the developments it services. This can include requirements relating to the environmental impact of Sydney Water’s construction activities, the operation of its assets and/or the provision of its services.
Licensing:
- Sydney Water’s primary regulatory instrument is its Operating Licence. The licence enables and requires Sydney Water to provide services within its area of operations except for services provided by Water Industry Competition Act licensees.
- The Minister for Water (after considering advice from IPART) imposes a range of regulatory requirements on Sydney Water through its Operating Licence. These requirements include obligations for Sydney Water to comply with quality and performance standards, to recognise the rights of its customers, and to be subject to operational audits. The Operating Licence also includes provisions relating to Sydney Water’s economic level of water conservation.
- IPART monitors and reports on Sydney Water’s compliance with its Operating Licence.

Pricing:
- IPART is responsible for setting maximum prices for Sydney Water’s regulated monopoly services and for bulk water services supplied to Sydney Water by WaterNSW and the Sydney Desalination Plant (SDP).

See Appendix D for additional context on Sydney Water’s regulatory framework.

2.2 IPART’s price setting role

IPART is the principal economic regulator in NSW. Our main functions are set out in the Independent Pricing and Regulatory Tribunal Act 1992 (NSW) (the IPART Act). Among other responsibilities, we determine the maximum prices to be charged for declared government monopoly services provided by water utilities, such as Sydney Water.38

In setting prices, we are required to consider and balance a broad range of matters (see the full list of matters listed in Section 15(1) of the IPART Act at Appendix A) including:
- Customers: safety, quality and affordability.
- Businesses: efficiency and financial sustainability.
- The environment: ecologically sustainable development and operations.
- Society: economic efficiency, planning and social impact.

38 The Tribunal has the function in s 11(1) of the IPART Act of investigating and reporting in relation to each declared monopoly service provided by Sydney Water that fall within the scope of the Independent Pricing and Regulatory Tribunal (Water Sewerage and Drainage Services) Order 1997 (NSW).
2.3 How we considered liveability in this review

Liveability emerged as a key theme throughout consultation in this Sydney Water price review. While environmental protection, water security and customer affordability issues have been raised in previous reviews, there was a stronger focus on drawing these elements together under a broad theme of liveability in this review. We have considered the issues raised by stakeholders. This section explains how we considered liveability issues in this review.

2.3.1 What is liveability?

Liveability is a broad concept that refers to the quality of life enjoyed by a city’s populace. According to the Water Services Association of Australia:

Liveability is all of those things that make a place somewhere people want to live, communities flourish and businesses choose to invest.39

Based on comments made at the public hearing and submissions made to this review, stakeholders mainly focused on environmental protection, water security, and affordability aspects of liveability.

2.3.2 Stakeholder comments on liveability

A number of stakeholders asked questions about how liveability had informed Sydney Water’s pricing proposal and how it was being considered by IPART in this price review.

Most of the stakeholder input on liveability asked whether an alternative to Sydney Water’s proposed price and bill reductions would instead be for Sydney Water to maintain current prices and use the additional surplus to increase expenditure on the environment and recycled water in order to achieve better liveability outcomes.

Stakeholder submissions on liveability included:

- The Cooks River Alliance said that the current Sydney Water price review presents an opportunity to deliver liveability outcomes.40 Further, this stakeholder commented that it “advance(s) the intrinsic value of water for liveability but especially in the context of catchment coastal ecosystems”.41 It also submitted that it is looking for Sydney Water to exercise leadership, champion liveability, and maximise environmental outcomes.42

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40 Public Hearing transcript, 10 November 2015, p 12.
41 Public Hearing transcript, 10 November 2015, p 20.
42 Public Hearing transcript, 10 November 2015, p 25.
The Parramatta River Catchment Group discussed its vision of making the Parramatta River swimmable again and how we could invest today to transition towards a liveable water-sensitive city that stakeholders aspire to.\textsuperscript{43}

The Institute for Sustainable Futures (ISF) said that the community engagement under the metropolitan water planning process demonstrates that the people of Sydney want more liveability and are willing to pay for it. It questioned what it would take for liveability to be included within the concept of prudence and efficiency.\textsuperscript{44}

Sydney Water explained its work to date enhancing liveability and indicated its willingness to engage in discussions and work with stakeholders to further enhance liveability in Sydney going forward.\textsuperscript{45}

DPI Water explained how it incorporated liveability into the Metropolitan Water Plan and how the plan will look at economically efficient approaches or strategies for water recycling and conservation. DPI Water also highlighted the link between the concept of liveability and the provision in Sydney Water’s Operating Licence requiring Sydney Water to consider the economic level of water conservation.\textsuperscript{46}

Mr Michael Mobbs submitted that the current pricing regime for stormwater does not recognise and reward individuals who reduce their stormwater impact. He also discussed other issues including pollution of water ways.\textsuperscript{47}

The Public Interest and Advocacy Centre (PIAC) supported the broader discussions around liveability and pointed out that part of liveability is affordability. PIAC noted that there are segments of the community that struggle with their bills and might not have the same willingness to pay for liveability that others might have.\textsuperscript{48}

In submissions to our Draft Report, some stakeholders expressed disappointment that we did not directly respond to their questions and comments in relation to liveability and asked us to clarify how our decisions had regard to liveability concerns.\textsuperscript{49} PIAC noted that it would be useful for IPART to acknowledge the context of its work, and to be involved in these discussions.\textsuperscript{50} In response, this chapter sets out our role within Sydney Water’s broader regulatory framework and how it relates to the liveability issues raised by stakeholders throughout our process.

\textsuperscript{43} Public Hearing transcript, 10 November 2015, p 19.
\textsuperscript{44} Public Hearing transcript, 10 November 2015, pp 15-16.
\textsuperscript{45} Public Hearing transcript, 10 November 2015, pp 16-17.
\textsuperscript{46} Public Hearing transcript, 10 November 2015, p 19.
\textsuperscript{47} Mr Michael Mobbs submission to Draft Report, April 2016.
\textsuperscript{48} Public Hearing transcript, 10 November 2015, p 29.
\textsuperscript{49} Cooks River Alliance submission to Draft Report, April 2016, pp 1-2; City of Sydney submission to Draft Report, April 2016; Mr Michael Mobbs submission to Draft Report, April 2016.
\textsuperscript{50} PIAC submission to Draft Report, April 2016, p 6.
2.3.3 How relevant factors are reflected in Sydney Water’s prices: the process

Relevant liveability considerations, such as environmental sustainability, affordability and water security, are factored into Sydney Water’s prices through the following process:

1. Parliament passes legislation and government (including through agencies such as the EPA, DPI Water and the Department of Planning and Environment) sets policy and regulatory requirements to reflect the relevant legislative requirements. This includes requirements imposed on Sydney Water, amongst other entities.

2. Sydney Water develops a plan and estimates the level of expenditure required to deliver its services and meet its obligations. Sydney Water then makes a pricing proposal to IPART.

3. We review Sydney Water’s pricing proposal to ensure that Sydney Water’s prices reflect the prudent and efficient costs of delivering its services and meeting its mandated obligations as set out in point 1 above.

2.3.4 How relevant factors are reflected in Sydney Water’s prices: IPART’s role

In setting maximum prices, we have regard to all matters set out in s15(1) of the IPART Act. In doing so, our standard approach is to allow Sydney Water to earn sufficient revenue to recover the prudent and efficient costs of supplying its services and meeting requirements mandated by Parliament and government.

For example, under s15(1) of the IPART Act, we are required to have regard to environmental protection, amongst other matters. Under our standard approach:

▼ The EPA sets an environmental standard at a level that is consistent with the Parliament and government’s requirements, and imposes this standard on Sydney Water through its regulatory instruments.

▼ We then set prices at a level to allow Sydney Water to recover the prudent and efficient cost of meeting the specific environmental standard.

Therefore, in response to ISF’s query mentioned above (ie, “what it would take for liveability to be included within the concept of prudence and efficiency”), the answer is:

▼ liveability is included in our concept of prudence and efficiency to the extent that the objectives of liveability are reflected in the broader social and environmental regulatory framework created by Parliament, the government, and its expert environmental and social regulators (eg, EPA, Department of Planning and Environment, DPI Water), on behalf of the community.
IPART would consider, and could allow, expenditure proposals to achieve standards higher than those mandated by Parliament and/or government. In such a case, IPART would require clear evidence that it would be prudent and efficient for customers to pay to exceed the mandated standards. For instance, IPART would consider:

- Whether the proposal would fit best with Sydney Water’s responsibilities or whether it would fit best with another party or parties’ responsibilities such as another arm of government or local government.
  - Whether the issue has been considered by government and/or Parliament when setting the existing standard or regulatory requirements and whether the facts around the issue have changed since that time.

- Whether Sydney Water’s customers have both the capacity and willingness to pay more to realise the higher standard.
  - Proponents would need to provide evidence for IPART to consider in forming a judgement on whether Sydney Water’s customers have the capacity and willingness to pay the higher prices required to meet the higher standard.

For this review, we have considered all stakeholder submissions and, balancing all the matters set out in s15(1) of the IPART Act, we have decided there is no case, at present, for us to deviate from our standard approach.

As mentioned above, some stakeholders’ submissions suggested customers are willing to pay for higher standards for liveability. We were not provided with evidence of Sydney Water’s customers’ capacity and willingness to pay for higher liveability standards during this price review.

Stakeholders will continue to have opportunities to express their views and provide supporting evidence on liveability issues with the relevant agencies and for Parliament and/or government to consider whether the relevant regulatory standards need to be adjusted. If the relevant standards are adjusted, we would then reflect the prudent and efficient expenditure of meeting the new standard in setting maximum prices at the next price review.

2.3.5 Examples of how we considered liveability during this review

Environment obligations

In Chapter 14 we consider how the prices we set for Sydney Water impact a range of matters including Sydney Water’s environmental obligations. This is particularly with respect to Sydney Water’s Environment Protection Licences (EPLs) issued by the EPA.
In section 6.1, we consider how much capital expenditure is required to meet EPA-mandated standards, particularly with respect to wastewater (sewerage). For example, our consultant Atkins Cardno initially recommended a reduction in Wastewater Treatment Plant renewals of $101.5 million, which we incorporated into our Draft Report. However, Sydney Water argued this adjustment should be fully reversed, as the asset condition was worse than previously thought. Atkins Cardno reviewed Sydney Water’s submission in response to our Draft Report. In its supplementary report, Atkins Cardno recommended that around $40 million in capital expenditure for this program be reinstated when setting prices in our Final Report and Determination. We have taken these recommendations on board in making our final decisions. We consider our decisions provide Sydney Water the funding necessary to efficiently meet the conditions of its EPLs as issued by the EPA.

**Water usage price**

In Chapter 9 we discuss our decision to set the water usage price with reference to the long-run marginal cost (LRMC) of water supply. The LRMC approach is commonly used in regulated industries both in Australia and in other countries. The LRMC represents the cost of the next efficient augmentation (ie, increase in capacity) to the water supply network (ie, source, treatment, and delivery).

The LRMC sends a price signal to customers and encourages them to make efficient decisions about how much water they use. When customers decide whether to use more water, the usage price they face represents the full cost to the system of their decision.

The cost of complying with relevant requirements is reflected in the LRMC and therefore in the water usage price. In the event that regulatory standards are raised through legislation and/or government policy, costs would rise and this would flow through to prices at the next determination. It is not IPART’s standard approach to raise prices above that required to comply with the current regulatory regime (outside the special circumstances outlined above in section 2.3.4).

In this context, some stakeholders submitted that the water usage price should be higher to discourage consumption because too much water is being consumed by Sydney Water customers at the expense of the environment (ie, too much water is being extracted from the natural environment), and/or that too much water or wastewater is being discharged from Sydney Water’s operations to the environment. Both these issues are covered by the current regulatory regime: the former by DPI Water regulating water entitlements and environmental flows, which is reflected in the LRMC; and the latter by the EPA regulating Sydney Water’s outflows to the environment through EPLs.

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For this determination, we have made a decision to move towards our best estimate of the LRMC. As noted in Chapter 9, we consider this achieves the right balance between all the matters we are required to consider under section 15(1) of the IPART Act. This means that from 1 July 2016, the water usage price will fall from $2.28/kL to $1.97/kL (in 2015-16 dollars).

Most stakeholder submissions on liveability focused on maintaining higher prices as a means of generating surplus revenue to fund improved liveability outcomes. Some stakeholders also discussed the role of the water usage price in sending signals to customers to influence how much water they use. Specifically, the higher the water usage price, the stronger the incentive for customers to use less water and invest in alternative water sources. For example, at the public hearing a representative from the Cooks River Alliance commented that Sydney Water’s proposal to reduce the water usage price may result in less incentive to install rainwater tanks, creating downstream impacts such as greater stormwater run-off to the detriment of Sydney’s waterways.\(^{54}\)

In response, we do not consider it appropriate to inflate the water usage price as a means of encouraging investment in alternative water sources.\(^{55}\)

\(\begin{align*}
\text{\textbullet} & \quad \text{Inflating the usage price would not be targeted – it would affect all water customers and may not achieve the intended objective of reducing stormwater run-off or improving the health of the downstream waterway.} \\
\text{\textbullet} & \quad \text{Inflating the usage price would send a signal to water customers to use less than the efficient amount of water. This could lead to reductions in productivity, distort investment decisions, and drive up total system costs to the detriment of water consumers and the broader economy.} \\
\text{\textbullet} & \quad \text{There are existing incentives in place to incentivise the installation of rainwater tanks through the Department of Planning and Environment’s BASIX requirements.}
\end{align*}\)

**Uplift in the water usage price during times of scarcity**

As discussed in Chapter 9, we have also introduced a mechanism that would increase the water usage price if and when the Sydney Desalination Plant (SDP) is turned on. This means the usage price would increase in times of scarcity, sending a price signal to water users to use less water. We consider incorporating this degree of flexibility to the water usage price is consistent with the need for water security and efficient demand management.

\(^{54}\) Public hearing transcript, 10 November 2015, p 28.

\(^{55}\) We note that an increase in the water usage price would be balanced by a reduction in the fixed service charge. Therefore, Sydney Water would still be expected to recover (and customers as a whole would still be expected to pay) the prudent and efficient costs of delivering regulated services and meeting the required standards.
2.3.6 The broader regulatory environment and liveability

When considering how to improve liveability, key questions include: what specific outcomes do stakeholders want to achieve; and who is responsible for regulating that outcome. Answering these questions would help clarify who is responsible for the standard that would need to change in order to achieve a specific outcome and, in doing so, improve liveability. For example:

- Stakeholders that advocate for greater investment in stormwater infrastructure and/or better management of inland waterways could be mainly concerned with the environmental impact of stormwater and wastewater outflows to the environment. The EPA regulates Sydney Water’s outflows to the environment and is therefore the relevant regulator in this regard. The Department Planning and Environment and local councils, as custodians of planning legislation and development approval bodies, can also play a role in regulating the water and wastewater outflows of developments.

- Stakeholders that advocate for greater investment in water recycling projects could be mainly concerned with water security, the environmental impact of extractions of water from the environment and/or the discharge of sewage and wastewater to the natural environment. DPI Water is responsible for water system planning, and regulating WaterNSW’s and Sydney Water’s extractions of water from the environment, the EPA regulates Sydney Water’s discharges to the environment and (as mentioned above) the Department of Planning and Environment and local councils can also regulate the environmental impact of development.

If stakeholders consider current standards should be adjusted, there are a number of processes in place where their views can be heard and considered. For instance:

- Sydney Water’s Operating Licence requires it to develop a methodology to determine the Economic Level of Water Conservation (ELWC) to help inform its approach to water conservation. Sydney Water is currently developing and consulting on the ELWC, which is due for completion by December 2016. The ELWC will help Sydney Water determine the most effective water conservation projects and the right level of investment in water efficiency programs, water recycling, and in leak reduction.

- The EPA conducts periodic reviews of environment protection licences, which involves a public consultation process. For example, in 2015 the EPA reviewed Sydney Water’s 23 environment protection licences (EPLs) for the operation of its sewerage treatment system. The EPA received 48 submissions from a range of stakeholders, including local residents, community and environmental groups, councils/council groups, and government agencies.56

DPI Water develops Water Sharing Plans, which regulate the extraction of water from rivers and the environment and determine environmental flow regimes. The development and review of these plans are subject to a public consultation process.
Form of regulation

Form of regulation refers to the collection of methods used to regulate prices for monopoly services. These methods include how costs are assessed, whether prices are directly or indirectly controlled, how differences between forecast and actual demand are handled, and how performance gains are incentivised.

We are making changes to the form of regulation for Sydney Water (as well as the other metropolitan water utilities we regulate). These changes are aimed at improving the effectiveness of regulation to encourage the regulated agencies to become more efficient and provide them with the flexibility to better respond to customer preferences. We consider these changes will enhance the long term interests of all stakeholders, in particular Sydney Water’s customers.

In this chapter, we begin by setting out the framework and questions we asked when considering options to change the form of regulation. We then report and discuss our decisions on:

- **Introducing pricing flexibility**: this will allow Sydney Water to tailor its prices and services to better meet individual customer preferences.
- **Introducing an efficiency carryover mechanism (ECM)**: this will remove the incentive for Sydney Water to delay cost savings, which means customers benefit, through lower prices, sooner.
- **Maintaining our current approach to cost pass-throughs**: so that Sydney Water continues to accept risks that they are in the best position to manage.
- **Making greater use of performance benchmarking**: this will improve our ability to assess Sydney Water’s costs while encouraging it to improve its performance.

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57 In 2015-16 we have also reviewed prices for Hunter Water Corporation, WaterNSW (Greater Sydney) and DPI Water. In 2016-17, we plan to review prices for Sydney Desalination Plant and WaterNSW (Rural). We are reviewing the form of regulation applying to these other water businesses and making changes where appropriate.
3.1 Assessment framework

Sydney Water proposed changes to the form of regulation under the theme of ‘modernising regulation’.\(^{58}\) In particular, it proposed three specific changes to the form of regulation:

- a **weighted average price cap (WAPC)** to allow Sydney Water to vary the types and levels of tariffs it charges customers during the regulatory period\(^{59}\)
- an **efficiency benefit sharing schemes (EBSS)** to increase and equalise the financial incentive to achieve efficiency savings during the regulatory period, and
- a **more expansive cost pass-through framework** to allow Sydney Water to pass through the cost of significant events and material cost changes to customers during the regulatory period.

In assessing the options, we considered:

- **The potential benefits**: whether the options are likely to promote outcomes that are more consistent with competitive market outcomes including allocative, productive and dynamic efficiency; efficient risk allocation; and responsiveness to customer needs and preferences.
- **The potential costs**: whether they would lead to a simpler, more efficient regulatory environment.
- **The potential risks**: whether the options could avoid limited benefits and/or unintended consequences due to market power, government ownership, and asymmetric information.

\(^{58}\) Sydney Water pricing proposal to IPART, June 2015, pp 56-74.

\(^{59}\) ‘Regulatory period’ means the period of the price determination. It is therefore also referred to as ‘determination period’. The regulatory period (or determination period) for the 2016 Determination is the four years from 2016-17 to 2019-20.
Box 3.1  How we assessed the options

When working through the options, we explored a range of questions including:

1. What is the problem with the current form of regulation that we are trying to address or solve? What are the potential benefits of solving this problem?
2. Does the proposed option solve the problem? Does it do anything else? How does it affect the overall form of regulation?
3. Is the option appropriate given the current circumstances in the sector (i.e., market power, government ownership, and asymmetric information)?
4. What can we learn from experiences in other jurisdictions?
5. What do stakeholders have to say about the options?
6. Are there alternative options that solve the problem and involve lower risks and/or lower costs given the characteristics of the NSW urban water sector?
7. Which option promotes outcomes most in-line with competitive market outcomes and which option supports the ongoing structural reform process?
8. Which option is likely to present the largest net benefit to the sector and is likely to be in the best long term interests of customers?

3.2   Pricing flexibility – unregulated pricing agreements

Our current form of regulation involves us setting price structures and maximum price levels for monopoly services that apply for each year of the determination. In setting prices, we have recently adopted a ‘propose respond’ model for Sydney Water (as well as some of the other metropolitan utilities we regulate). Our approach allows the business to propose its own prices as a starting point. We then review the business’s pricing proposal in making our decisions.

Sydney Water proposed a further move towards greater pricing flexibility in the 2016 determination period through a WAPC. Sydney Water’s proposed WAPC would have allowed it to vary prices for large non-residential customers at specified periods during the regulatory period subject to pricing principles. We have decided not to introduce a WAPC for this regulatory period.

Instead we have made a decision to introduce an alternative form of pricing flexibility by allowing Sydney Water and its large non-residential customers a choice to opt-out of regulated prices and enter into unregulated pricing agreements.

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60 Sydney Water pricing proposal to IPART, June 2015, pp 246-254.
The rationale for unregulated pricing agreements is that 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.

Decision

1 We have decided to:

- allow Sydney Water and large non-residential customers to opt-out of IPART’s determined water and wastewater prices by voluntarily entering into unregulated pricing agreements, and

- define large non-residential customers as stand-alone non-residential customers that have annualised water consumption greater than 7.3 ML.

3.2.1 Reasons for our decision

Value of unregulated pricing agreements

We consider there is value in allowing pricing flexibility during the regulatory period, where it is likely to lead to more efficient prices and/or deliver better value for money to customers. We have therefore decided to allow Sydney Water and large non-residential customers a choice to opt-out of regulated prices and enter unregulated pricing agreements.

Under this approach, the default scenario is that the prices set by IPART apply to all Sydney Water’s customers over the next regulatory period. Unregulated pricing agreements would only apply where Sydney Water and a large non-residential customer agree to opt-out of the prices set by IPART (we discuss the implementation of this approach below).

This form of pricing flexibility would allow Sydney Water to search for opportunities to uncover value for its customers by tailoring prices and potentially services to better meet customers’ individual preferences as would occur in a competitive setting. It provides a strong incentive for Sydney Water to engage with customers in order to develop mutually beneficial (ie, win-win) arrangements specifically targeted to better match customer preferences. This was one of Sydney Water’s primary objectives for pricing flexibility.62

62 For example, Sydney Water’s pricing proposal discusses that in a competitive market, successful businesses must understand what customers value and supply service levels and prices that match these preferences. Sydney Water pricing proposal to IPART, June 2015, p xviii. Sydney Water’s pricing proposal also discusses how pricing flexibility provides the opportunity to develop a suite of tariff options, and gives customers the freedom to choose tariffs that suit them best. Sydney Water pricing proposal to IPART, June 2015, p 247.
This option relies on Sydney Water and its customers making informed decisions in their own self-interest (ie, searching for mutually beneficial win-win situations). Therefore, it carries lower risk of adverse outcomes for customers and does not require regulatory controls on the degree of pricing flexibility such as the level of prices, the rate of price changes, or the size of bill impacts.

We note that there are risks to unregulated pricing agreements. The main risk is that Sydney Water and/or customers may enter agreements that are not in their best interests. If this occurs, there is no express provision in the legislative framework that would allow them to change their mind and opt back in to regulated prices. We have mitigated this risk by limiting the option of unregulated pricing agreements to large non-residential customers on the basis that they are likely to have experience negotiating and assessing commercial agreements (we discuss our definition of large non-residential customers below).

Box 3.2 provides some examples of how large non-residential customers and Sydney Water could mutually benefit from unregulated pricing arrangements.

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**Box 3.2 Examples of situations where an unregulated pricing agreement might be entered into**

The following examples show the types of situations where it might be in both Sydney Water’s and customers’ interests to enter into an unregulated pricing agreement.

1. A seasonal business that would prefer their water bill to better match their level of business activity through the year. This business might be willing to pay a premium for a lower fixed charge and a higher variable charge.

2. A business subject to large fluctuations in its water usage but relatively flat revenue may prefer more bill certainty. This business may be willing to pay a premium for a higher fixed charge and lower variable charge. Alternatively, this business might be willing to pay a smaller premium for a tiered usage charge to partially reduce its bill fluctuations.

3. A business may require a lower or higher level of service than is specified in the customer contract. This customer could negotiate with Sydney Water and agree on an alternative arrangement that is mutually beneficial.

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**Responding to Sydney Water concerns about unregulated pricing agreements**

Sydney Water does not support the introduction of unregulated pricing agreements and has requested that we delay the introduction of pricing flexibility pending more work in this area to feed into the next price review.\(^{63}\) We address each of Sydney Water’s concerns below.

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\(^{63}\) Sydney Water submission to Draft Report, April 2016, p 111.
Sydney Water argues that unregulated pricing agreements would remove regulatory safeguards for some customers, creating risk for Sydney Water, customers, and the credibility of the regulatory regime.64

We consider that we are maintaining regulatory protections for all customers. However, a small number of large non-residential customers will now have an option to negotiate an agreement with Sydney Water that would need to make both parties better off.

We have limited this option to large non-residential customers on the basis that they have experience negotiating and assessing commercial agreements. Given that unregulated pricing agreements are optional for both parties (meaning that both parties would have to choose to give up their regulatory protections) and that both parties are assumed to have commercial experience, we consider the risk to customers, Sydney Water, and the regulatory regime from allowing unregulated pricing agreements is low.

Sydney Water argues that customers will only opt out of regulated prices if it saves them money.65 We consider this is contrary to the idea that some customers may value and be willing to pay for higher or lower levels of service relative to the standard regulated service. More importantly, these agreements are completely optional meaning that Sydney Water is not required to enter any unregulated agreement.

Sydney Water also argues that unregulated pricing agreements offer limited benefit and carry substantial risks for water businesses and customers because there can be no guarantee that an agreement will continue to be valid in subsequent regulatory periods.66 We identified this risk in our Draft Report. We consider that an agreement that mutually benefits Sydney Water and its customers is desirable from a regulator’s perspective. If a future Tribunal decides to remove this option, it could decide to prevent new agreements from being entered while allowing existing agreements to run their course.

Sydney Water argues that IPART’s requirement to ring-fence changes in costs resulting from an unregulated pricing agreement may be difficult for it to comply with.67 We consider that if unregulated pricing agreements result in lower costs for the business, it will have an incentive to record and report this to us (ie, to ensure we do not mistake this for an efficiency saving in the regulated business). Therefore, it will have systems in place to record the required information. Further we will have an opportunity to review any cost allocations as part of our expenditure review.

64 Sydney Water submission to Draft Report, April 2016, pp 112-113.
65 Sydney Water submission to Draft Report, April 2016, p 113.
66 Sydney Water submission to Draft Report, April 2016, p 113.
67 Sydney Water submission to Draft Report, April 2016, p 111.
Finally, Sydney Water argues that unregulated pricing agreements would be costly to administer.68 However, given that unregulated pricing agreements are optional, we would only expect them to be entered if and when the benefits exceed the costs.

3.2.2 Implementing unregulated pricing agreements

Coverage of unregulated pricing agreements

Our decision to allow unregulated pricing agreements means that Sydney Water and its large non-residential customers can agree to opt out of IPART’s regulated prices for water and wastewater services only. We have excluded trade waste, stormwater and miscellaneous charges from unregulated pricing agreements at this stage.

We have limited this option to large non-residential customers because these large businesses are likely to have experience negotiating commercial agreements.

The NSW Council of Social Service (NCOSS) supports our decision to limit pricing flexibility to large non-residential customers at this stage.69 EWON also supported the introduction of flexible pricing for large non-residential customers as it would better match pricing to the usage profile of large businesses, provide customer choice, and offer incentives to encourage efficient usage. It did not support the extension of flexible pricing to residential customers until at least advanced metering technology is in place to facilitate a shift to flexible pricing.70

We have defined large non-residential customers as non-residential customers:
- that are standalone water or water and wastewater customers (ie, not customers that share a connection with other customers), and
- that have annualised metered water consumption greater than 7.3 ML (ie, water consumption greater than 20 kL per day on average).

Large non-residential customers would need to meet this definition in order to enter an unregulated pricing agreement with Sydney Water. We note that this definition covers a small portion of Sydney Water’s non-residential customers but applies to a large portion of non-residential water usage and wastewater volumes. This is shown in Figure 3.1.

68 Sydney Water submission to Draft Report, April 2016, p 113.
69 NCOSS submission to Draft Report, April 2016, p 5.
70 EWON submission to IPART Issues Paper – Sydney Water, October 2015, p 1.
Figure 3.1 Large non-residential customers as a share of total non-residential customers (2014-15)

<table>
<thead>
<tr>
<th>Water customer numbers</th>
<th>Water usage (kL) Water usage (kL)</th>
<th>Wastewater customer numbers</th>
<th>Wastewater volume (kL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large non-residential</td>
<td>125,586</td>
<td>48,578,508</td>
<td>22,516,269</td>
</tr>
<tr>
<td>Other non-residential</td>
<td>2,606</td>
<td>67,137,820</td>
<td>48,112,341</td>
</tr>
<tr>
<td>Large non-residential</td>
<td>110,270</td>
<td>2,321</td>
<td></td>
</tr>
<tr>
<td>Other non-residential</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The disparity between water and wastewater customer numbers is because not all water customers are wastewater customers.

Data source: Sydney Water, email received by IPART on 5 February 2016.

Implications for Sydney Water’s revenue and costs

Pricing flexibility has the potential to benefit both customers and Sydney Water. The potential for mutual gains provides incentives for Sydney Water and customers to engage with each other, uncover value, and agree on unregulated prices that share this value between Sydney Water and customers. We consider these incentives should be maintained over time by allowing any gains generated through unregulated pricing agreements to be retained by the parties involved.

Gains retained by Sydney Water should be retained regardless of whether they are the result of increases in revenue or decreases in costs. While this is relatively straightforward for changes in revenue (additional revenue is automatically retained by the business), it can present challenges for changes in costs (which may be difficult to go back and isolate from the business’s wider cost base).

To ensure that the regulated cost base and regulated prices continue to reflect the efficient costs of providing regulated services in the future, Sydney Water would be required to ‘ring-fence’ any changes in costs resulting from unregulated price agreements. This information would be assessed and factored into resetting expenditure allowances at the next price review.
Implementation of unregulated pricing agreements

Where a large non-residential customer chooses to enter a pricing agreement with Sydney Water, the customer would no longer be subject to our determined prices for the term of that agreement. We have identified some key features and implications of unregulated pricing agreements that should be considered by both parties before entering into an agreement:

1. **The legislative framework does not allow for either party to opt back into regulated prices while the pricing agreement is in place.** For such a right to exist, it would have to be written into the pricing agreement or both parties would have to agree to terminate the pricing agreement.

2. **We do not specify what terms are to be included in a pricing agreement.** The terms of a pricing agreement are negotiated and/or accepted by both parties. This includes the duration of a pricing agreement (i.e., end date) and conditions for terminating and cancelling pricing agreements (e.g., whether Sydney Water’s consent is required to terminate a pricing agreement).

3. **The terms of a pricing agreement apply.** If the pricing agreement contains terms that are inconsistent with any provisions contained in Sydney Water’s customer contract, the provisions in the customer contract would cease to apply to the extent of any inconsistencies.

4. **If an agreement extends beyond a regulatory period, this could have implications for the prices contained within the pricing agreement.**
   
a) Prices contained in pricing agreements will be valid as long as the option to opt-out of determined prices applies in future regulatory periods. If a future IPART Tribunal removes this option from a determination, it could mean that prices contained in unregulated pricing agreements are no longer valid. Specifically, where the pricing agreement price is higher than IPART’s determined maximum price, the pricing agreement price would be unlawful to the extent that it involves Sydney Water fixing a price above the determined maximum price.

   b) Where the pricing agreement price is lower than IPART’s determined maximum price, the parties to the pricing agreement may disagree on which of those prices apply. For example, a party may claim that the pricing agreement price does not apply unless the NSW Treasurer’s approval to fix the price below IPART’s determined price is obtained (in accord with section 18(2) of the IPART Act).

We consider these risks could be mitigated, at least to some extent, by aligning the contract dates with Sydney Water’s price determinations.
3.3 Pricing flexibility – weighted average price cap

On balance, we have decided not to introduce a WAPC at this price determination. Rather, we consider the option of allowing Sydney Water and large non-residential customers to negotiate and enter unregulated pricing agreements is a more appropriate move towards greater pricing flexibility at this time.

Decision

2 We have decided not to introduce a weighted average price cap at this time.

3.3.1 Reasons for our decision

Although Sydney Water’s proposed WAPC would provide greater pricing flexibility during the regulatory period, it would also introduce risks that could impact Sydney Water’s customers. The main risk is that a WAPC could result in inappropriate price changes that are not necessarily cost reflective. Under some circumstances, it may also allow the business to generate excess revenue.71

There are mechanisms available to mitigate the risk of inappropriate price changes (eg, pricing principles and side constraints) and excess revenue (eg, a revenue correction mechanism) that can be introduced alongside a WAPC.

Sydney Water responded to our concerns by proposing a set of pricing principles and indicating that it would seek agreement from 75% of affected customers before proceeding with a price change under the WAPC.72 Sydney Water argued that its proposed pricing principles would assist in mitigating the risk of inappropriate price changes and wealth transfers between customers.73 However, Sydney Water maintained its position that there should be no side constraints on how much prices and customer bills could change each year.

We agree that effective pricing principles could assist in mitigating this risk (as would effective side constraints). However, we note that under Sydney Water’s proposal there would remain 25% of affected customers that could be made worse off under a WAPC.

In our Draft Report we also questioned the extent to which pricing principles alone could effectively mitigate the risk of inappropriate price changes and whether there are any other checks and balances in place to help mitigate this risk (eg, competitive tension). Sydney Water did not provide additional information in response to our Draft Report to allow us to better understand how its proposed pricing principles alone would effectively mitigate this risk in practice.

71 Under a WAPC, excess revenue can be generated by increasing prices for customers whose demand is correctly forecast to increase while reducing prices for customers whose demand is correctly forecast to decrease.

72 Sydney Water proposal for pricing flexibility, January 2016, p 7.

73 Sydney Water submission to Draft Report, April 2016, p 113.
On balance, we do not consider the WAPC proposed by Sydney Water presents the best option for additional pricing flexibility at this price determination. We consider the option of allowing Sydney Water and large non-residential customers to negotiate and enter unregulated pricing agreements balances the interests of Sydney Water and its large non-residential customers and is a more appropriate option at this time.

We consider the development of any proposal for greater pricing flexibility should involve comprehensive customer consultation. In addition, given Sydney Water’s position as a monopoly service provider, there is a case to consider combining a WAPC with a revenue correction mechanism to remove the potential for excess revenue. However, combining a WAPC with a revenue correction mechanism is effectively a move towards a revenue cap, which we note Sydney Water does not currently support.

Sydney Water noted that IPART applied a WAPC when it regulated retail energy prices in the lead up to full retail competition / deregulation. In response, we note that IPART initially set ‘target tariffs’ for retail energy (in our 2004 Determination) and, as competition emerged, adopted a more light-handed approach by introducing a WAPC to promote flexibility, tariff consolidation, and facilitate the move to full competition (in our 2007 Determination).

Sydney Water also noted that other industries characterised by a lack of competition (eg, energy network businesses regulated by the AER in Australia and water businesses regulated by Ofwat in England and Wales) have used WAPCs and that they have not needed other strong regulatory controls to account for the lack of competition. We note Sydney Water’s argument that WAPCs have been used in other industries characterised by a lack of competition. However, we also note that regulators in these other industries have moved away from WAPCs or have complemented them with revenue correction mechanisms. For example:

- The Australian Energy Regulator (AER) moved away from WAPCs and now uses revenue caps to regulate prices for energy network businesses in Australia.

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74 We note that Sydney Water did consult with customers on their preferences in relation to water tariff structure as part of its pricing proposal. However, it did not consult with customers in developing its proposal for greater pricing flexibility (noting that if its proposal was adopted, it would consult with customers during implementation). Sydney Water proposal for a Weighted Average Price Cap, January 2016, pp 23-26.

75 Sydney Water submission to Draft Report, April 2016, p 30. [Sydney Water did suggest reporting actual demand to IPART for monitoring but rejected the need for a revenue correction mechanism. Sydney Water proposal for a Weighted Average Price Cap, January 2016, p 16.]

76 Sydney Water submission to Draft Report, April 2016, p 114.

77 Sydney Water submission to Draft Report, April 2016, p 114.

The water industry regulator in England and Wales, the Office of Water (Ofwat), currently regulates prices for water utilities through a combined WAPC and revenue correction mechanism, which Ofwat considers has moved its price control mechanism from a price cap towards a revenue cap.  

The Essential Services Commission (ESC) in Victoria is currently considering moving to a combined price cap and revenue cap approach to regulate prices for Victorian water utilities.

While supporting our decision to not introduce a WAPC, PIAC requested additional information on how allowing unregulated pricing agreements lowers the risk of inappropriate price changes compared to a WAPC. In response, we note that:

- Depending on the effectiveness of the pricing principles, side constraints, and revenue correction mechanism, there is a risk that price changes under a WAPC could result in inappropriate price changes that benefit one group of customers at the expense of another.

- In contrast, an unregulated pricing agreement requires both the business and customer to agree to a price change. Sydney Water is unlikely to agree to under-charge for the provision of a service and customers are unlikely to agree to overpay to receive a service. Therefore, the bilateral nature of unregulated pricing agreements limits the potential for inappropriate price changes.

### 3.4 Efficiency carryover mechanism

Our current form of regulation allows businesses to keep profits resulting from cost savings made during the regulatory period. This feature of our form of regulation is referred to as ‘incentive regulation’ because it provides a financial reward to incentivise businesses to deliver cost savings. Cost savings are considered a good thing because, if they are permanent, they can be passed on to customers through lower prices in subsequent regulatory periods.

A shortcoming of the current approach is that the financial reward for achieving savings deteriorates over the regulatory period. That is, a saving made in year one of the regulatory period results in four years of additional profit. Whereas a saving made in year three of the regulatory period results in just two years of additional profits.

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80 ESC, A new model for pricing services in Victoria’s water sector - position paper, May 2016, pp 84-85. Under this approach, a price cap would apply when demand is less than or equal to the businesses’ forecast and a revenue cap would apply when demand is greater than the businesses’ forecast.

81 PIAC submission to Draft Report, April 2016, pp 3-4. We note PIAC referred to the ECM but we understand they were referring to unregulated pricing agreements in this section.
The consequence of this feature of our form of regulation is that there is an incentive to delay savings from the latter years of one regulatory period to the beginning of the next regulatory period. Delaying efficiency savings is wasteful and results in customers having to wait before they benefit through lower prices (see Appendix E for an illustration of this problem).

An efficiency carryover mechanism (ECM) allows gains (or losses) to be held for a specified period of time (eg, four years), regardless of when they are achieved. In its pricing proposal, Sydney Water proposed introducing a symmetric efficiency benefit sharing scheme (EBSS) applying to controllable operating expenditure and a portion of capital expenditure. WaterNSW also proposed an EBSS for operating expenditure.

Sydney Water has accepted the ECM and suggested we consider expanding its coverage to include temporary cost changes and capital expenditure. Consumer advocates PIAC and NCOSS support the introduction of the ECM as set out in our Draft Report and consider it strikes an appropriate balance between the interests of the business and customers. Both Sydney Water and consumer advocates request that we review the effectiveness of the ECM at the next price review to ensure it is delivering the intended outcomes.

Decision

3 We have decided to establish an efficiency carryover mechanism for Sydney Water. This mechanism:

– applies to controllable operating expenditure (defined as total operating expenditure less bulk water costs)
– is designed to apply to four years of historical expenditure but, in the first instance when applied at the next price review in 2019-20, will apply to three years of historical expenditure: 2016-17, 2017-18, and 2018-19
– ensures the business is able to retain permanent reductions in controllable operating expenditure for four years before they are passed on to customers through lower prices, and
– allows the business to retain temporary over and under spends in controllable operating expenditure.

82 Sydney Water pricing proposal to IPART, June 2015, pp 254-265.
83 WaterNSW, pricing proposal to IPART, June 2015, p 63.
84 Sydney Water submission to IPART Draft Report, April 2016, p 110.
85 PIAC (NCOSS) submission to Draft Report, April 2016, p 4 (p 5).
3.4.1 Reasons for our decision

We engaged Cambridge Economic Policy Associates Pty Ltd (CEPA) to review both Sydney Water’s proposed EBSS and a modified EBSS that we proposed in our Issues Paper. CEPA reviewed the options in light of experiences in other jurisdictions and the particular circumstances in NSW’s urban water sector.

Our ECM is based on CEPA’s recommendation. It departs from our modified EBSS in that it would allow the business to retain both temporary over and under spends. We agree with Sydney Water that an asymmetric treatment of temporary over and under spends would penalise the business for legitimate year to year fluctuations in expenditure above and below the allowance and could place too much risk on the business.

Our ECM is asymmetric in the sense that while it equalises the incentive to achieve permanent efficiency savings over time, it preserves all other features of the current form regulation, including:

- Permanent cost increases are held by the business until the next price and assessed by the regulator and, if determined to be efficient, passed on to customers (through price increases as a result of an increase in the business’s operating expenditure allowance) – this provides an incentive to the business to avoid inefficient increases in costs because these will not be passed on to customers.

- Temporary over and under spends are retained by the business – this provides an incentive for the business to manage within its budget.

We consider the ECM improves Sydney Water’s form of regulation by removing the current incentive to delay cost savings from the end of one regulatory period to the beginning of the next. Accelerating the delivery of cost savings is in the long term interests of Sydney Water’s customers.

Table 3.1 compares how permanent and temporary over and under spends are treated relative to the current form of regulation for each of the mechanisms considered. We have highlighted in blue where the option differs from the current form of regulation.

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88 Sydney Water, submission to IPART’s Issues Paper, October 2015, pp 10-11.
### Table 3.1 Comparison of proposed efficiency carry over mechanisms relative to the current form of regulation

<table>
<thead>
<tr>
<th>Change in actual expenditure relative to the allowance</th>
<th>1. Current form of regulation</th>
<th>2. Sydney Water Proposed EBSS</th>
<th>3. IPART Modified EBSS (Issues Paper)</th>
<th>4. IPART’s ECM, based on CEPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Permanent increase in costs</td>
<td>Retained by the business until IPART can assess at next price review.</td>
<td>Retained for 5 years – then passed on to customers.</td>
<td>Retained by the business until IPART can assess at next price review.</td>
<td>Retained by the business until IPART can assess at next price review.</td>
</tr>
<tr>
<td>2. Temporary increase in costs</td>
<td>Retained by the business.</td>
<td>Passed on to customers after 5-year lag.</td>
<td>Retained by the business.</td>
<td>Retained by the business.</td>
</tr>
<tr>
<td>3. Temporary reduction in costs</td>
<td>Retained by the business.</td>
<td>Passed on to customers after 5-year lag.</td>
<td>Passed on to customers after 4-year lag.</td>
<td>Retained by the business.</td>
</tr>
<tr>
<td>4. Permanent decrease in costs</td>
<td>Retained by the business until IPART can assess at next price review.a</td>
<td>Retained for 5 years – then passed on to customers.</td>
<td>Retained for 4 years – then passed on to customers.</td>
<td>Retained for 4 years – then passed on to customers.</td>
</tr>
</tbody>
</table>

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*a That is, if the saving is made in year 1 it can be held for four years. If it is made in year 4, it can be held for one year. Note this assumes we know the actual year 4 expenditure when we reset the allowance for the next regulatory period. In reality, the business could make an unexpected saving in year 4 and retain it for five years, given the timing of our price reviews.

**Source:** IPART analysis.

The ECM does not pass on temporary over- and under-spends to customers. In response to our Draft Report, Sydney Water argued that it would prefer temporary over- and under-spends to be included in the ECM because temporary increases in operating expenditure may be required to:

- realise permanent decreases in operating expenditure, and
- to efficiently defer capex.89

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89 Sydney Water submission to Draft Report, April 2016, p 116.
We maintain our view that the sole objective of the ECM is to equalise the existing incentive to achieve permanent cost savings over time as this is expected to be in the long term interests of customers.

We do not agree that the ECM prevents temporary overspends to achieve permanent efficiency savings. That is, under the ECM a profit maximising business should in theory be willing to invest up to the present value of the efficiency saving that it is able to retain for four years under the ECM.

We also do not agree that the ECM prevents Sydney Water from making temporary overspends in operating expenditure in order to efficiently defer capital expenditure. As is already the case, the increase in operating expenditure will be partially or fully offset by capital expenditure saving.

We maintain that allowing temporary over-spends to be passed through to customers as proposed by Sydney Water is not part of the current form of regulation and will diminish Sydney Water’s incentive to manage costs within its budget. That is, passing all temporary overspends on to customers means that both efficient and inefficient overspends will be passed on to customers. This is contrary to the sole objective of the ECM and is not in customers’ long term interests.

**Controllable operating expenditure**

The ECM applies to Sydney Water’s controllable operating expenditure. In response to our Draft Report, Sydney Water submitted that it is important that the definition of ‘controllable costs’ be agreed up front.\(^{90}\) We agree and have decided to maintain our definition of controllable operating expenditure as total operating expenditure minus bulk water costs. This definition covers approximately 70% of Sydney Water’s total operating expenditure for regulated services.\(^{91}\)

The ECM does not apply to capital expenditure (as was proposed under Sydney Water’s EBSS). Sydney Water does not support this decision and considers it will limit the effectiveness of the ECM.\(^{92}\)

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\(^{90}\) Sydney Water submission to Draft Report, April 2016, p 118.

\(^{91}\) Bulk water costs exclude BOO water filtration costs. That is, we have included BOO water filtration costs as part of the ECM. Sydney Water calculated its controllable costs to be about 60% of total operating costs, because BOO water filtration costs are included as part of its definition of bulk water costs. Sydney Water, pricing proposal to IPART, June 2015, p 257.

\(^{92}\) Sydney Water submission to Draft Report, April 2016, pp 116-117.
We note CEPA’s finding that although it supports an ECM for capital expenditure in principle, Sydney Water’s proposed application of the capex EBSS to just 9.5% of capex will involve significant complexity and provides limited opportunities for efficient substitutes between operating and capital expenditure. Given the additional complexity associated with introducing an ECM for capital expenditure, the additional risk of unintended consequences (ie, incentivising the business to over forecast and to inefficiently defer capital expenditure), and the limited opportunities for efficient trade-offs between operating and capital expenditure, we have decided not to introduce a capex ECM at this time.

However, we acknowledge the potential value in encouraging efficient trade-offs between operating and capital expenditure. We consider this to be a complex issue that requires a carefully considered response. We do not accept that operating and capital expenditure incentives are necessarily balanced under the current form of regulation. Therefore, we do not accept that applying the same ECM to both operating and capital expenditure will necessarily achieve the intended outcome of balancing incentives to make efficient trade-offs between operating and capital expenditure. We note that Sydney Water did not acknowledge this point in its response to our Draft Report. We consider this issue could be explored further in the future as noted by CEPA.

Application period

The ECM is designed to apply to the four years preceding its application (ie, to match the length of the determination). When the ECM is applied initially in 2019-20 as part of the next price review, the four years preceding this will be 2015-16 to 2018-19.

Sydney Water submitted that it understands the practical benefit of consistently applying the ECM to four years of expenditure over time, however the ECM should not be applied to expenditure that has already taken place (ie, the ECM should only include three years of expenditure from 2016-17 to 2018-19 when it is initially applied in 2019-20).

94 Sydney Water’s proposal limited the capex EBSS to around 9.5% of capital expenditure which it considers to be more recurrent and where there are clear opportunities for substitution between operating and capital expenditure solutions. Sydney Water submission to IPART’s Issues Paper, October 2015, pp 12-13.
95 That is, if an operating expenditure solution costs less than a capital expenditure solution, the business should have an incentive to choose the lowest cost option.
96 A key reason Ofwat moved away from separate operating and capital allowances (with separate ECMs in place) was that this approach was not resulting in efficient trade-offs between operating and capital expenditure. Ofwat, Setting price controls for 2015-20 – Final methodology and expectations for companies’ business plans, July 2013, pp 18-19.
98 Sydney Water submission to Draft Report, April 2016, p 118.
We agree in principle that there is little point applying an incentive mechanism retrospectively to expenditure that has already taken place. We also consider that excluding 2015-16 expenditure from the initial application of the ECM will avoid the potential of double counting efficiency savings made during the 2012 determination period (before 2015-16). On the other hand, any incremental efficiency saving made in 2015-16 would not be identified by the ECM until 2016-17 meaning that Sydney Water would be able to retain savings made in 2015-16 for five years.

On balance, we have decided to exclude 2015-16 expenditure from the initial application of the ECM. This means the initial application of the ECM will apply to three years of expenditure from 2016-17 to 2018-19. All subsequent applications of the ECM would apply to four years of expenditure (assuming a 4-year regulatory period). This is explained in detail in Appendix E.

**Implementing the ECM at future price reviews and the role of the expenditure review**

The process for implementing the ECM at the next price review can be described in four steps:

1. Did Sydney Water **permanently** reduce total controllable operating costs below the allowance ($X)?
2. In which year was this saving achieved (n)?
3. Ensure the allowance in the next regulatory period is reduced to reflect the saving = $X.
4. Carryover an efficiency benefit to the next regulatory period equal to $X*(n-1) to ensure Sydney Water retains the benefit for four years.99

Our expression of intent to adopt an ECM as outlined above does not bind a future Tribunal to adopt such a mechanism. Therefore, we cannot prevent a future Tribunal deciding not to adopt, remove, amend, or replace the ECM. We acknowledge that the effectiveness of incentive mechanisms rests on the confidence businesses have in them. However, we consider this is the businesses’ opportunity to respond to the improved incentives, demonstrate the value of the ECM and make a case for its continued use in the future.

A key feature of our ECM is that we retain discretion in resetting expenditure allowances at the start of each regulatory period. The role of the expenditure review is therefore maintained and we can continue to set expenditure allowances to reflect the best available information on efficient costs.

99 For example, if the business makes a $10 million (X=$10m) saving in year 3 (n=3) of a 4-year regulatory period, the ECM ensures the $10 million saving is factored into the expenditure allowance of the next regulatory period and it provides a carryover benefit of $10 million*(3-1) = $20 million in the next regulatory period. Adding this $20 million carryover benefit to the $20 million gained from under spending in years 3 and 4 of the first regulatory period means the total benefit to the business is $40 million (4*$10m).
In preparation for the next price review, we would request the business populate and submit an ECM spreadsheet (provided by IPART) along with their pricing proposal. We would then use the populated ECM spreadsheet as a tool to inform the expenditure review. Our expectation is that by removing the incentive to delay savings and providing a tool for utilities to demonstrate their performance delivering efficiency savings over the regulatory period, the ECM will improve the amount and quality of information available to us at the next round of expenditure reviews.

Unlike the modified EBSS outlined in our Issues Paper, which passes temporary under spends on to customers, the ECM does not remove the incentive businesses could have to under spend the allowance early in the determination and to increase spending towards the end of the determination.\(^{100}\) We will continue to monitor historical expenditure patterns and factor this information into our expenditure review process.

Appendix E sets out the design of the ECM in greater detail and provides worked examples showing how the ECM would be applied in various scenarios.

### 3.5 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 the efficient costs of uncertain and uncontrolled events that arise during the regulatory period to be passed through to customers within the regulatory period.

A good example of this is the cost pass-through Sydney Water currently has for its Sydney Desalination Plant Pty Ltd (SDP) bulk water costs. If the desalination plant becomes operational, the additional costs Sydney Water incurs can be passed on to customers. In this case, the trigger event (WaterNSW dam levels falling below 70%) is clearly defined in the conditions of SDP’s licence and the resulting costs are clearly pre-determined and defined under SDP’s price

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\(^{100}\) The long term profit maximising strategy is to repeatedly under spend early in the regulatory period (in order to generate excess returns) and increase spending towards the end of the regulatory period (to make a case for maintaining the expenditure allowance at higher levels at the next price determination).
In these types of situations, a cost pass-through is preferable to providing an upfront expenditure allowance because:

- The nature of the cost is binary (i.e., all or none) so allowing an expected cost means that either customers will overpay or the business will over-recover.
- Having a cost pass-through does not affect the probability of the event occurring.
- Customers only pay if and when the event occurs and the business is able to pass on the full cost if and when the event occurs.

In its pricing proposal, Sydney Water proposed a broader application of cost pass-throughs, beyond its bulk water costs, during the determination period.102

**Decision**

4 We have decided not to broaden our approach to cost pass-through mechanisms at this time (noting that we have extended the application of our cost pass-through approach to include Shoalhaven transfers in addition to Sydney Desalination Plant’s additional costs when it operates).

### 3.5.1 Reasons for our decision

We consider that cost pass-through mechanisms should only be applied in exceptional circumstances. Box 3.3 outlines the circumstances under which we consider cost pass-throughs should apply.

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101 In line with the NSW Government’s Metropolitan Water Plan, SDP is required as part of its licence to operate at full production capacity and supply desalinated water to Sydney Water’s area of operations when total WaterNSW dam storage level is below 70% and will continue to do so until the total dam storage level reaches 80%. The cost pass-through mechanism allows Sydney Water to pass the resulting SDP costs on to customers through its water service charges. NSW Government, 2010 Metropolitan Water Plan, August 2010, p 36.

Box 3.3  Circumstances when cost pass-through mechanism may apply

Cost pass-through mechanisms should only be applied in situations where:

- There is a trigger event (to activate the cost pass-through), which can be clearly defined and identified in the price determination.
- The resulting efficient cost associated with the trigger event can be fully assessed including whether there are other factors that fully or partially offset the direct cost of the event.
- The resulting cost is assessed to exceed a materiality threshold.
- The regulated business cannot influence the likelihood of the trigger event or the resulting cost.
- The mechanism is symmetric in that it applies equally to both cost increases and cost decreases (in cases where the risk can result in both cost increases and cost decreases).
- It is clear that the cost pass-through will result in prices that better reflect the efficient cost of service.

a Under the IPART Act, the costs to be passed through must be specified in the price determination.

We currently include a cost pass-through mechanism under Sydney Water’s price determination that allows Sydney Water to pass-through costs it incurs if SDP is in operation. This is a good example of a cost pass-through mechanism that meets the criteria set out in Box 3.3.

For the 2016 determination period, we have decided to maintain the cost pass-through mechanism included in the 2012 Determination (with the exception that SDP’s additional variable costs are passed through to customers in the water usage charge as they are incurred). We are also introducing a service charge cost pass-through mechanism to compensate Sydney Water for actual bulk water costs incurred from WaterNSW for transfers from Shoalhaven (bulk water pass-through costs are outlined in Chapter 5).

Sydney Water has implied that our decision not to expand the application of cost pass-throughs is because of limitations in the IPART Act. While the IPART Act does limit our ability to exercise discretion during a regulatory period, this is not the reason we have decided to retain our current approach to cost pass-throughs. We consider our current approach of providing cost pass-throughs in exceptional circumstances is appropriate.

Sydney Water disagrees with our decision to largely maintain the existing approach to cost pass-throughs and considers this will expose it to risks largely beyond its control. Sydney Water gave an example of the risk that its environmental protection licence requirements could change in the future.

103 Sydney Water pricing proposal to IPART, June 2015, p 241.
104 Sydney Water submission to IPART Draft Report, April 2016, p 118.
105 Sydney Water submission to IPART Draft Report, April 2016, pp 118-119.
We consider that maintaining our approach to cost pass-throughs will not expose Sydney Water to new risk. We set expenditure allowances for the prudent and efficient level of expenditure to support Sydney Water’s ongoing operations. This includes expenditure to meet Sydney Water’s responsibilities under its environmental protection licences.

We consider our limited application of cost pass-throughs is working effectively at the moment. Under the current form of regulation, risk is shared between regulated businesses and customers to minimise the likelihood and cost of downside risk and maximise the likelihood and benefits of upside risk.

Sydney Water clarified its proposed framework for a broader application of cost pass-through mechanisms, noting that its proposed framework includes both cost pass-through mechanisms for uncertain events as well as cost contingency schemes for material changes in project costs.106 While this clarification makes the proposal clearer, it does not affect the reasons we have for maintaining the current approach for passing through costs during the determination.

In particular, we do not consider there is a case to broaden the application of cost pass-throughs for the following reasons:

- It is efficient for the business to be at least partially exposed to risks that it has some ability to control or influence. This provides the business with an incentive to minimise the likelihood and cost of downside risk and maximise the likelihood and benefits of upside risk.

- It is efficient for the business to have an incentive to influence new costs as a result of a legislative, legal or regulatory development. It is important that the regulated business retain some risk in these situations in order to incentivise it to actively engage in the consultation process and advocate for the most effective and efficient solutions.

- The current form of regulation accommodates the risk of a major event (ie, ‘shipwreck’), such as a natural disaster as it allows the business to seek an early price determination if a major event or change to its operating environment occurs.

- Due to asymmetric information between the business and the regulator, a broader application of cost pass-through mechanisms could be used to retain upside risk and pass downside risk onto customers. This may not result in a net benefit to customers in the long run.

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106 Sydney Water submission to IPART Issues Paper, October 2015, p 25.
3.6 Performance benchmarking

Performance benchmarking provides an opportunity to assess a business’s performance against comparators including other businesses in the same industry, components or functions of other businesses in other industries, and against the business itself over time. These assessments can produce useful information on where the business is performing strongly and where there is room for improvement.

Our current form of regulation makes some use of performance benchmarking in assessing regulated business’s performance during the expenditure review.

We have also previously undertaken performance benchmarking work in the urban water and transport sectors. For example, in 2009 we were asked by the NSW Government to review the productivity of selected State-Owned Corporations (SOCs). More recently, as part of our current review into public transport fares, we published an information paper on the total factor productivity of Sydney’s rail network.

Decision

5 We have decided to work with regulated businesses in NSW, other interested stakeholders, and regulators in other jurisdictions to develop a performance benchmarking capability to inform future price reviews.

3.6.1 Reasons for our decision

In a competitive market, firms are continually benchmarked against each other by their customers. Customers will gravitate towards strong performers that are offering value for money and away from poor performers that are not offering value for money. These competitive forces drive businesses to improve. In the absence of competition, there is an opportunity for the regulator to simulate these competitive forces by undertaking benchmarking.

There are several benefits to performance benchmarking, including that it will:

- help inform our expenditure reviews
- help businesses demonstrate their performance, and
- simulate competitive forces and help drive businesses to improve.

Benchmarking urban water businesses in NSW is challenging for a number of reasons - there are relatively few water businesses and each varies significantly in size and scope of operations. However, we consider the potential value in benchmarking justifies us finding solutions to these challenges and developing a performance benchmarking capability.

There are several approaches to performance benchmarking that we intend to consider and develop, including:

- **Cost driver and activity benchmarking.** This approach analyses and compares specific cost drivers (e.g., labour expenses) and activities (e.g., IT and billing systems) against other businesses. Some functions (e.g., billing) are general enough to be compared across businesses in different sectors.

- **Productivity index analysis.** This approach allows relatively small samples of firms to be benchmarked against each other. This is relevant in NSW where there are few urban water utilities. This approach also allows analysis of changes in a business’s own productivity over time.

- **Efficiency frontier analysis.** This approach involves measuring a business’s efficiency relative to an efficiency frontier, where the frontier represents the most efficient performance, across a range of measures, from a sample of comparable businesses.

There are opportunities to benefit from the benchmarking capabilities that have already been developed in other jurisdictions. For example, the Essential Services Commission (ESC) in Victoria has extensive experience in benchmarking urban water utilities.\(^{109}\) Ofwat in the UK and the AER in Australia have also developed and applied benchmarking methodologies, which we can learn from. There may also be opportunities to collaborate with regulators in other jurisdictions to broaden the set of comparator utilities included in comprehensive benchmarking exercises.\(^{110}\)

We note that the success of a performance benchmarking program depends significantly on the extent of involvement and buy-in from the utilities. A major challenge will be developing and refining data sets for the regulated businesses.

However, we consider benchmarking complementary to potential further changes in the form of regulation, as is the case in the UK. Developing datasets by business function could also facilitate a future move towards component pricing, which would make costs more transparent, assist in performance comparisons, and could open the sector up to greater competition.

Sydney Water has welcomed our decision to develop performance benchmarking capability. Sydney Water expects benchmarking will complement the ECM and should help improve the expenditure review process.\(^{111}\) Sydney Water also considers it important that IPART provide it with clear guidance around how benchmarking analysis will be used at the next price review.

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\(^{110}\) Note that this collaboration would extend the work already undertaken and published through the national performance report ([http://www.bom.gov.au/water/npr/](http://www.bom.gov.au/water/npr/)).

\(^{111}\) Sydney Water submission to Draft Report, April 2016, pp 121-122.
3 Form of regulation

We also note that PIAC supports the greater use of performance benchmarking and expressed interest in being involved in its development to help ensure it benefits customers.\textsuperscript{112}

\textsuperscript{112} PIAC submission to Draft Report, April 2016, p 4.
4 Length of determination period and revenue requirement

The first step in our approach for determining prices is to decide on the length of the determination period and the approach for calculating the revenue requirement over this period. This chapter outlines our decisions on each of these issues.

4.1 Length of the determination period

Decision

6 We have decided to adopt a 4-year determination period from 1 July 2016 to 30 June 2020.

4.1.1 Reasons for our decision

We have accepted Sydney Water’s proposal for a 4-year determination period from 1 July 2016 to 30 June 2020. In making our decision we considered the following issues.

▼ The confidence we can place in the utility’s forecasts. We consider a 4-year determination period gives sufficient confidence in our forecasts of capital and operating expenditure. We have less confidence in the detailed expenditure forecasts beyond June 2020.

▼ The risk of structural changes in the industry. A 4-year determination period balances the risk of structural change in the industry. We consider that significant structural change is unlikely in the next four years. However, the number of utilities operating under the Water Industry Competition Act 2006 (WIC Act) is growing, showing that the industry is potentially changing.

▼ The need for price flexibility and incentives to increase efficiency. We consider that a 4-year determination period provides sufficient incentives to achieve efficiencies, while allowing for a timely reset of prices.

▼ The need for regulatory certainty and financial stability. A 4-year determination period generally provides sufficient regulatory certainty, while balancing financial stability.
4 Length of determination period and revenue requirement

- The benefits of aligning the determination with the term of the operating licence. Sydney Water’s Operating Licence is due to expire on 30 June 2020. Aligning the operating licence and price reviews will ensure overlapping issues can be treated consistently.

Sydney Water supported maintaining a 4-year determination period for similar reasons. In particular, it noted that:

- It would provide an opportunity to align the next price review with the next review of its Operating Licence, scheduled for 2020.

- There are practical constraints that prevent a longer determination period from being applied from 2016. In particular, there is insufficient time to prepare the correct models, gather relevant data, and reassess forecasts accurately to support a longer determination period.

We have also decided to set a 4-year determination period for WaterNSW (Greater Sydney). It is useful to align Sydney Water’s and WaterNSW’s price reviews, as WaterNSW’s prices are a significant operating expenditure input into Sydney Water’s prices.

Other stakeholders including the Institute for Sustainable Futures, Permeate Partners, Total Environment Centre (TEC) and NSW Business Chamber also supported a 4-year determination period.

4.2 Approach for calculating notional revenue requirement

The notional revenue requirement 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.

As for previous reviews, we have used a ‘building block’ method to calculate Sydney Water’s revenue requirement. This involved 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.

- A return on the assets Sydney Water uses to provide its 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 and prudent levels of Sydney Water’s past and forecast capital costs.

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113 Sydney Water pricing proposal to IPART, June 2015, p 231.
114 We note that Sydney Water’s pricing proposal only includes prices to 2019-20.
115 Institute for Sustainable Futures UTS submission to IPART Issues Paper, October 2015, p 2.
116 Permeate Partners submission to IPART Issues Paper, October 2015, p 1.
117 Total Environment Centre submission to IPART Issues Paper, October 2015, p 2.
118 NSW Business Chamber submission to IPART Issues Paper, October 2015, p 1.
expenditure, the value of Sydney Water’s regulatory asset base (RAB), and the appropriate weighted average cost of capital (WACC).

- **A return of those assets (regulatory depreciation).** This allowance recognises that through the provision of services to customers, a utility’s capital infrastructure will wear out over time, and therefore revenue 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 obligations.** We use a real post-tax WACC to calculate the allowances of a return on assets and regulatory depreciation, and calculate the allowance for tax as a separate cost block. We consider this method accurately estimates the tax liability for a comparable commercial business.

- **An allowance for working capital,** which represents the holding cost of net current assets.

The sum of these allowances is the notional revenue requirement (see Figure 4.1).

**Figure 4.1    Building block approach**
Once we have calculated Sydney Water’s notional revenue requirement, we decided on the approach we would use to convert this amount into prices. This involved deciding on the target revenue for each year – that is, the actual revenue we expect Sydney Water to generate from prices and charges for that year. To make this decision, we considered a range of factors, including:

- the implications of the notional revenue requirement on price levels, and the rate and way in which they would change, and
- the impact of this on Sydney Water and its customers.

The section below summarises our findings and decisions on Sydney Water’s revenue requirements. Chapters 5 to 7 discuss our findings on the individual building-blocks of the notional revenue requirement in detail.

### 4.3 Sydney Water’s notional revenue requirements

**Decision**

7. We have decided to set Sydney Water’s notional revenue requirement and target revenue as set out in Table 4.1.

**Table 4.1 Notional and target revenue requirement ($millions, $2015-16)**

<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><strong>IPART decision</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating expenditure</td>
<td>1,247</td>
<td>1,243</td>
<td>1,231</td>
<td>1,226</td>
</tr>
<tr>
<td>Return on assets</td>
<td>784</td>
<td>799</td>
<td>813</td>
<td>825</td>
</tr>
<tr>
<td>Regulatory depreciation</td>
<td>283</td>
<td>299</td>
<td>315</td>
<td>331</td>
</tr>
<tr>
<td>Return on working capital</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Tax allowance</td>
<td>50</td>
<td>58</td>
<td>58</td>
<td>56</td>
</tr>
<tr>
<td><strong>Total notional revenue requirement</strong></td>
<td><strong>2,371</strong></td>
<td><strong>2,406</strong></td>
<td><strong>2,424</strong></td>
<td><strong>2,445</strong></td>
</tr>
<tr>
<td>Target revenue</td>
<td>2,369</td>
<td>2,397</td>
<td>2,425</td>
<td>2,455</td>
</tr>
<tr>
<td>Rate of return&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.9%</td>
<td>4.8%</td>
<td>4.9%</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

<sup>a</sup> Effective real post-tax rate of return. We set target revenue to be NPV neutral with the notional revenue requirement over the 4-year determination period. In some years, target revenue is higher than the notional revenue requirement, and in some years lower. As such, the predicted rate of return varies slightly from the WACC of 4.9% from year to year.

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

**Source:** IPART calculations.
4.3.1 Reasons for our decision

Our notional revenue requirement over the four years of the 2016 determination period is $9,646 million. This is:

- $78 million (0.8%) higher than our Draft Report notional revenue requirement of $9,567 million.
- $39 million (0.4%) lower than Sydney Water’s proposed notional revenue requirement of $9,685 million (contained in its June 2015 pricing proposal).
- $409 million (4.1%) lower than the notional revenue requirement of $10,054 million we used to set prices over the 2012 determination period.

Comparison with our Draft Report

Our notional revenue requirement of $9,646 million is $78 million (0.8%) higher than our Draft Report over the 2016 determination period. This is due to the combination of:

- higher operating expenditure (+$40 million), due to higher energy costs and forecasts of higher efficient core operating costs
- higher return on capital (+$49 million), due to a higher RAB and higher WACC, and
- lower regulatory depreciation (-$10 million), arising from the removal of short-lived IT assets from the RAB.

These changes are discussed further in Chapters 5 to 7.

Comparison with Sydney Water’s proposal

Our notional revenue requirement of $9,646 million is $39 million (0.4%) lower than Sydney Water’s proposal over the four years of the 2016 determination period. The notional revenue requirement compared to Sydney Water’s proposal is shown below in Table 4.2.

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPART decision</td>
<td>2,371</td>
<td>2,406</td>
<td>2,424</td>
<td>2,445</td>
<td>9,646</td>
</tr>
<tr>
<td>Sydney Water proposed</td>
<td>2,361</td>
<td>2,402</td>
<td>2,439</td>
<td>2,483</td>
<td>9,685</td>
</tr>
<tr>
<td>Difference</td>
<td>10</td>
<td>4</td>
<td>-15</td>
<td>-38</td>
<td>-39</td>
</tr>
<tr>
<td>Difference %</td>
<td>0.4%</td>
<td>0.1%</td>
<td>-0.6%</td>
<td>-1.5%</td>
<td>-0.4%</td>
</tr>
</tbody>
</table>

Note: Totals may not add due to rounding. The notional revenue requirement is our assessment of the efficient economic costs of delivering services. Before setting prices, we make other adjustments such as subtracting non-regulated income.

Source: Sydney Water’s pricing proposal to IPART, June 2015, p 83.
Table 4.3 below compares each of our building blocks with Sydney Water’s proposal over the 2016 determination period. The main reasons for the difference are our decisions to:

- **Lower operating expenditure (-$54 million)** due to:
  - Greater ongoing efficiencies, driven by scope for further rationalisation and improved productivity arising from the implementation of an enterprise resource planning platform.
  - Lower bulk water costs from WaterNSW, partially offset by higher bulk water costs from SDP.119

- **Higher return on capital (+$111 million)** through:
  - a higher WACC of 4.9% compared with Sydney Water’s proposed 4.6%
  - a higher RAB arising from a lower asset disposals program than Sydney Water originally included in its June pricing proposal, and
  - partially offset by a lower RAB arising from around $300 million less capital expenditure over four years than Sydney Water proposed.

- **Lower return of capital (-$60 million)** – mainly through lower capital expenditure than Sydney Water proposed.

- **Lower tax allowance (-$39 million)** – mainly due to making no allowance in the tax calculation for capital gains tax on disposed assets.

- **Higher return on working capital (+$3 million)** – mainly due to a higher WACC of 4.9% compared with Sydney Water’s proposed 4.6%.

### Table 4.3: IPART’s and Sydney Water’s proposed notional revenue requirement over the 2016 determination period ($millions, $2015-16)

<table>
<thead>
<tr>
<th>Building block</th>
<th>SWC proposed</th>
<th>IPART</th>
<th>Difference</th>
<th>Difference (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating expenditure</td>
<td>5,002</td>
<td>4,948</td>
<td>-54</td>
<td>-1.1%</td>
</tr>
<tr>
<td>Return on assets</td>
<td>3,109</td>
<td>3,221</td>
<td>111</td>
<td>3.6%</td>
</tr>
<tr>
<td>Regulatory depreciation</td>
<td>1,289</td>
<td>1,229</td>
<td>-60</td>
<td>-4.7%</td>
</tr>
<tr>
<td>Return on working capital</td>
<td>24</td>
<td>27</td>
<td>3</td>
<td>11.8%</td>
</tr>
<tr>
<td>Tax</td>
<td>261</td>
<td>221</td>
<td>-39</td>
<td>-15.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9,685</strong></td>
<td><strong>9,646</strong></td>
<td><strong>-39</strong></td>
<td><strong>-0.4%</strong></td>
</tr>
</tbody>
</table>

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

**Source:** Sydney Water’s pricing proposal to IPART, June 2015, p 83; IPART calculations.

119 Sydney Water included a forecast reduction in SDP’s regulated prices from 2017-18. We have based forecasts on SDP’s prices to Sydney Water remaining constant in real terms at 2016-17 prices. Any change in prices arising from the 2017 SDP determination will be passed through to Sydney Water’s customers. Customers’ water service charges will be increased/reduced to account for the difference between what SDP actually charges Sydney Water and the SDP-related costs we have included in the bulk water-related operating expenditure.
Comparison with our 2012 determination

Our notional revenue requirement is also $409 million (4.1%) below what we used to set prices at the 2012 Determination. Table 4.4 below compares each of the building blocks between those we used to set prices at the 2012 Determination, and our decisions for the 2016 Determination.

Table 4.4 Comparison of IPART’s notional revenue requirement for the 2016 determination period with the 2012 determination period ($millions, $2015-16)

<table>
<thead>
<tr>
<th>Building block</th>
<th>2012-16</th>
<th>2016-20</th>
<th>Difference</th>
<th>Difference (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating expenditure</td>
<td>5,540</td>
<td>4,948</td>
<td>-593</td>
<td>-10.7%</td>
</tr>
<tr>
<td>Return on assets</td>
<td>3,305</td>
<td>3,221</td>
<td>-85</td>
<td>-2.6%</td>
</tr>
<tr>
<td>Regulatory depreciation</td>
<td>1,011</td>
<td>1,229</td>
<td>218</td>
<td>21.6%</td>
</tr>
<tr>
<td>Return on working capital</td>
<td>29</td>
<td>27</td>
<td>-2</td>
<td>-8.3%</td>
</tr>
<tr>
<td>Tax</td>
<td>168</td>
<td>221</td>
<td>53</td>
<td>31.4%</td>
</tr>
<tr>
<td>Total</td>
<td>10,054</td>
<td>9,646</td>
<td>-409</td>
<td>-4.1%</td>
</tr>
</tbody>
</table>

Note: Totals may not add due to rounding.

Source: IPART, Review of prices for Sydney Water Corporation’s water, sewerage, stormwater drainage and other services – From 1 July 2012 to 30 June 2016, June 2012, p 46; IPART calculations.

The overall reduction in the notional revenue requirement is due to our decisions relating to:

- Lower operating expenditure (-$593 million) due to:
  - efficiencies Sydney Water achieved over the 2012 determination period and our decision on further ongoing efficiencies over the 2016 determination period
  - the removal of capital and interest payments associated with Sydney Water’s finance leases, and
  - lower bulk water costs from WaterNSW.

- Lower return on capital (-$85 million) through:
  - a reduction in the WACC from 5.6% to 4.9%, and
  - partially offset by a higher RAB arising from capital expenditure outstripping regulatory depreciation.

- Higher return of capital (+$218 million) from a higher RAB and greater expenditure on short lived assets.

- Higher tax allowance (+$53 million), due to a higher AFOC and a higher RAB.

- Lower return on working capital (-$3 million) due to a lower WACC of 4.9% compared with our 2012 WACC of 5.6%.
Figure 4.2 below compares our decision on the notional revenue requirement with both Sydney Water’s proposed and the notional revenue requirement we used to set prices over the 2012 determination period.

**Figure 4.2** Comparison of 2016 notional revenue requirement with 2012 determination and Sydney Water’s proposal ($millions, $2015-16)

Data sources: IPART, Review of prices for Sydney Water Corporation’s water, sewerage, stormwater drainage and other services – From 1 July 2012 to 30 June 2016 – Final Report, June 2012, p 45; Sydney Water pricing proposal to IPART, p 83; IPART analysis.

Our decisions and findings on each of Sydney Water’s building blocks are discussed in more detail in Chapters 5, 6 and 7.

### 4.4 Sydney Water’s target revenue

**Decision**

8 We have decided to set the components of the target revenue as set out in Table 4.6.

#### 4.4.1 Reasons for our decision

We have decided to set target revenue that smooths customers’ bills and prices over the 2016 determination period. That is, the price path provides an initial drop in prices in the first year and then constant prices thereafter for the following three years to achieve full cost recovery. For all services, target revenue is Net Present Value (NPV) neutral. This means that while the target revenue is higher than the notional revenue requirement in some years and lower in other years, customers are no better or worse off over the whole determination period (in present value terms).
This price path is consistent with Sydney Water’s proposed target revenue and price path over the 2016 Determination (except for stormwater drainage prices). Sydney Water sought to over-recover $12 million in notional stormwater drainage revenue in the 2016 determination period, and under-recover this revenue in the subsequent period, making its stormwater charges NPV-neutral over eight years (ie, the next two determination periods) rather than four (the 2016 determination period). We do not consider this appropriate and outline our reasons in Chapter 10.

The total target revenue is $9,647 million over four years, which is $48 million lower than proposed by Sydney Water. The target revenue is shown below in Table 4.5. It results in full cost-recovery in NPV terms over the 4-year period, with a slight under-recovery in 2016-17 and 2017-18, and a slight over-recovery in 2018-19 and 2019-20.

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>4-yr NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Notional revenue requirement (NRR)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>1,128</td>
<td>1,141</td>
<td>1,147</td>
<td>1,154</td>
<td>4,080</td>
</tr>
<tr>
<td>Wastewater</td>
<td>1,212</td>
<td>1,232</td>
<td>1,243</td>
<td>1,256</td>
<td>4,412</td>
</tr>
<tr>
<td>Stormwater</td>
<td>31</td>
<td>33</td>
<td>34</td>
<td>35</td>
<td>120</td>
</tr>
<tr>
<td><strong>NRR Total</strong></td>
<td>2,371</td>
<td>2,406</td>
<td>2,424</td>
<td>2,445</td>
<td>8,612</td>
</tr>
<tr>
<td><strong>Target revenue</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>1,123</td>
<td>1,137</td>
<td>1,148</td>
<td>1,162</td>
<td>4,080</td>
</tr>
<tr>
<td>Wastewater</td>
<td>1,213</td>
<td>1,227</td>
<td>1,244</td>
<td>1,259</td>
<td>4,412</td>
</tr>
<tr>
<td>Stormwater</td>
<td>33</td>
<td>33</td>
<td>34</td>
<td>34</td>
<td>120</td>
</tr>
<tr>
<td><strong>Target revenue total</strong></td>
<td>2,369</td>
<td>2,397</td>
<td>2,425</td>
<td>2,455</td>
<td>8,612</td>
</tr>
</tbody>
</table>

**Difference**

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>4-yr NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difference $</td>
<td>-2</td>
<td>-9</td>
<td>2</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Difference %</td>
<td>-0.1%</td>
<td>-0.4%</td>
<td>0.1%</td>
<td>0.4%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Return on assets</td>
<td>4.9%</td>
<td>4.8%</td>
<td>4.9%</td>
<td>5.0%</td>
<td>4.9%</td>
</tr>
</tbody>
</table>

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

**Source:** IPART calculations.

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120 Sydney Water pricing proposal to IPART, June 2015, p 80.
121 Sydney Water pricing proposal to IPART, June 2015, p 82.
Components of the target revenue

Whilst most of Sydney Water’s revenue is raised through usage and service charges for water, sewerage and stormwater (service charges only), it also generates revenue through other charges. When we set prices, we first deduct the total revenue generated from these other sources, and then set usage and service charges for its major services to raise the balance of the target revenue.122

The revenue components of Sydney Water’s total target revenue are set out in Table 4.6 below.

<table>
<thead>
<tr>
<th>Table 4.6</th>
<th>Components of target revenue ($millions, $2015-16)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2016-17</td>
</tr>
<tr>
<td>Target revenue</td>
<td>2,369</td>
</tr>
<tr>
<td>Less</td>
<td></td>
</tr>
<tr>
<td>Recycled water revenue(^a)</td>
<td>3.2</td>
</tr>
<tr>
<td>Non-regulated revenue (including rental income)</td>
<td>6.3</td>
</tr>
<tr>
<td>Revenue from potable top-up(^b)</td>
<td>0.8</td>
</tr>
<tr>
<td>Unfiltered water sales</td>
<td>0.9</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>11.8</td>
</tr>
<tr>
<td>Trade waste</td>
<td>31.8</td>
</tr>
<tr>
<td>Revenue from usage and service charges</td>
<td>2,314</td>
</tr>
</tbody>
</table>

\(^a\) Revenue from recycled water sales in the Rosehill (Camellia) scheme.
\(^b\) Notional revenue from recycled water schemes using potable water to top-up supply.

Note: Totals may not add due to rounding.
Source: IPART calculations.

As part of this determination, we have made a number of decisions relating to the revenue components shown in the table above. Revenue from:

- unfiltered water sales, miscellaneous charges, and trade waste charges are discussed in Chapter 11, and
- potable top-up of recycled water is discussed in Chapter 13.

Revenue from non-regulated income and the Rosehill (Camellia) recycled water scheme are discussed in the sections below.

122 Table 4.5 above shows target revenue comprised of water, sewerage and stormwater services. These services can also be broken down into revenue from other charges as shown in Table 4.6. For example, revenue from water can be derived from certain non-regulated revenue, bulk water sales, revenue from potable top-up, unfiltered water sales and certain miscellaneous services, in addition to revenue from usage and service charges.
Revenue from non-regulated sources

Historically, we have deducted non-regulated revenue derived from regulated assets from the notional revenue requirement before prices are set. In the 2008 Sydney Water price review, we decided to deduct 50% of Sydney Water’s rental income from the notional revenue requirement. This 50% sharing of rental income approach was adopted and maintained for water price reviews since the Sydney Water 2008 price review. The rationale for sharing the income is that it gives the agency a financial incentive to pursue more rental income where appropriate – while ensuring that 50% of the benefits will eventually flow on to customers through lower prices.

We have decided to maintain the above approach again for this price review. Table 4.7 below sets out Sydney Water’s forecast rental revenue and the amount we deduct from target revenue.

Table 4.7 Sydney Water’s rental income for the 2016 determination period ($’000, $2015-16)

<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>Total rental income</td>
<td>12,030</td>
<td>12,204</td>
<td>12,378</td>
<td>12,582</td>
</tr>
<tr>
<td>50% to be deducted</td>
<td>6,015</td>
<td>6,102</td>
<td>6,189</td>
<td>6,291</td>
</tr>
</tbody>
</table>


In addition to rental income, Sydney Water also forecasts it will receive around $300,000 per annum from the NSW Government as a community service obligation (CSO) payment. Our decision is to deduct all of this CSO income, shown in Table 4.8 below, from the target revenue.

Table 4.8 Sydney Water’s other non-regulated revenue for the 2016 determination period ($’000, $2015-16)

<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>Total</td>
<td>297</td>
<td>297</td>
<td>297</td>
<td>297</td>
</tr>
</tbody>
</table>

Note: This income is deducted from the target revenue for the purpose of setting wastewater charges, as the CSO is for a sewage pump-out service.


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123 This is distinct from unregulated revenue, which is revenue that is received from an agency’s unregulated businesses; that part of the business applied to producing products or services other than regulated business services.

124 This CSO provides a subsidy for Sydney Water to continue the Blue Mountains septic pump-out service. Sydney Water has included the full cost of the septic pump-out service in its operating expenditure. Sydney Water is then reimbursed for this subsidy from the NSW State Budget as a CSO.
Revenue from the Rosehill (Camellia) recycled water scheme

Recommendation

1 We recommend that, in light of the changes since the scheme was established, the ongoing economic case for the Rosehill (Camellia) recycled water scheme be reassessed.

The NSW Government (usually the portfolio Minister) can issue directions for Sydney Water to complete projects in the public interest, which may not be in the shareholders’ interests. To ensure this investment is not deemed imprudent, the Minister can direct IPART (with the Premier’s approval) under section 16A of the IPART Act to include the efficient costs of complying with the specified requirement in Sydney Water’s prices. 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).

One such s16A direction relates to the Rosehill (Camellia) Recycled Water Project. We are directed to pass through 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 (see Appendix B).

In its pricing proposal, Sydney Water forecasts that revenue from recycled water sales from the Rosehill (Camellia) scheme will decline significantly over the 2016 determination period.

Gross annual operating costs of the scheme are now around $18 million, while revenue from recycled water sales are forecast to fall to $1.7 million per annum in 2017-18 and beyond. This reduction in sales revenue is the result of two major industrial customers ceasing operation and no longer purchasing recycled water.

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125 Typically through a direction given under section 20P of the SOC Act. See Sydney Water pricing proposal to IPART, June 2015, p 68.
126 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.
127 Sydney Water pricing proposal to IPART, June 2015, p 302.
128 Sydney Water pricing proposal to IPART, June 2015, pp 300-302.
Over the four years of the 2016 determination period, Sydney Water forecasts that total costs of the scheme will be around $72 million, with sales revenue declining to around $8 million. This represents a net deficit of $64 million over the four years. For comparison, the net deficit over the current 2012 determination period is expected to be around $48 million.\textsuperscript{130}

For the volume of recycled water sold, the net cost of the scheme equates to around $15 per kilolitre over the 2016 determination period,\textsuperscript{131} with the net cost of the scheme adding around $8 to a typical residential customer’s water and sewerage bill. Whilst we are required to pass-through the net costs to customers through water prices, we consider it important that the ongoing economic case for this scheme be reassessed and all options considered.

\textsuperscript{130} Sydney Water pricing proposal to IPART, June 2015, p 302.

\textsuperscript{131} Average over the four years. In 2019-20, the net cost of the scheme equates to around $17 per kilolitre.
This chapter sets out our assessment of Sydney Water’s efficient level of operating expenditure over the 2016 determination period. As Chapter 4 discussed, the allowance for operating expenditure within the notional revenue requirement reflects our view of the efficient level of operating costs Sydney Water will incur in providing its services over the 2016 determination period. These costs include, amongst others, the costs of bulk water purchases, labour, service contractors, energy, materials, plant and equipment.

In making our decisions on operating expenditure, we engaged Atkins Cardno to review the efficiency of Sydney Water’s proposed operating expenditure over the 2016 determination period, including its submission to our Draft Report. We asked Atkins Cardno to recommend any further efficiency savings that it considered that Sydney Water should be able to achieve.

We have also decided to include a pass-through mechanism to account for uncertainties around Sydney Water’s future bulk water costs from WaterNSW (arising from Shoalhaven transfers) and SDP (arising from different modes of operation or new prices from 2017-18). These pass-through mechanisms ensure that both Sydney Water and its customers pay for the efficient bulk-water costs, no more or less.

5.1 Summary of operating expenditure

Decision

9 We have decided to set the efficient level of Sydney Water’s operating expenditure as set out in Table 5.1.
Table 5.1 Efficient operating expenditure ($millions, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General operating expenditure</td>
<td>256</td>
<td>255</td>
<td>250</td>
<td>248</td>
<td>1,009</td>
</tr>
<tr>
<td>BOO water filtration costs</td>
<td>89</td>
<td>89</td>
<td>88</td>
<td>88</td>
<td>354</td>
</tr>
<tr>
<td>Bulk water purchases</td>
<td>386</td>
<td>388</td>
<td>392</td>
<td>394</td>
<td>1,560</td>
</tr>
<tr>
<td>Total water services</td>
<td>731</td>
<td>732</td>
<td>730</td>
<td>730</td>
<td>2,923</td>
</tr>
<tr>
<td>Total wastewater services</td>
<td>504</td>
<td>499</td>
<td>488</td>
<td>483</td>
<td>1,974</td>
</tr>
<tr>
<td>Total stormwater services</td>
<td>12</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>50</td>
</tr>
<tr>
<td>Total operating expenditure</td>
<td>1,247</td>
<td>1,243</td>
<td>1,231</td>
<td>1,226</td>
<td>4,948</td>
</tr>
</tbody>
</table>

Note: Operating costs exclude ring-fenced recycled water costs, including corporate overheads allocated to recycled water (see Chapter 13). Totals may not add due to rounding.

Source: IPART calculations.

5.1.1 Reasons for our decision

We set Sydney Water’s allowance for operating expenditure at $4,948 million over the 2016 determination period. In doing so, we reduced Sydney Water’s proposed operating expenditure by 1.1% ($54 million), which included the following adjustments:

- core operating expenditure $46 million (1.3%) lower than Sydney Water’s proposal, and
- bulk water costs $8 million (0.5%) lower than Sydney Water’s proposal.

Our decision reflects our assessment of the level of the efficient operating expenditure Sydney Water should be able to achieve, given its operating environment. In making our decision, we considered:

- Sydney Water’s actual operating expenditure over the 2012 determination period
- the level of operating expenditure it forecast over the 2016 determination period
- the steps it has taken to continually improve its efficiency and the level of services it delivers, and
- the additional efficiency savings we consider it could make over the four years of the new determination.

In our Draft Report, we accepted Atkins Cardno’s recommendation that Sydney Water’s efficient level of core operating expenditure should be around $81 million lower than Sydney Water proposed over the four years to 30 June 2020.132

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132 This excludes bulk water costs. Atkins Cardno, Expenditure Review – Sydney Water, December 2015, p 89.
In its submission to our Draft Report, Sydney Water argued that it had reviewed its forecasts, and that core operating expenditure should be $24 million higher than our Draft Report.

Atkins Cardno reviewed Sydney Water’s submission and recommended that Sydney Water’s revised proposal should be accepted. We have accepted Atkins Cardno’s recommendation.

Sydney Water also made a supplementary submission to add a further $10 million in electricity-related operating expenditure over the 2016 determination period. We consider that these forecast additional electricity costs are reasonable. This has added a further $10 million to our assessment of efficient operating expenditure over the 2016 determination period.

We did not ask Atkins Cardno to make recommendations on Sydney Water’s bulk water purchase costs, which account for about 32% of total operating costs. Sydney Water purchases bulk water services from two suppliers, namely:

- WaterNSW (formerly the Sydney Catchment Authority), and
- Sydney Desalination Plant Pty Ltd (SDP).

We have undertaken a concurrent review of the prices that WaterNSW can charge Sydney Water for bulk water services. We have included our decisions on those bulk water prices in Sydney Water’s bulk water costs. We are also introducing a service charge cost pass-through mechanism to compensate Sydney Water for actual bulk water costs incurred from WaterNSW for transfers from Shoalhaven. This means we have set Sydney Water’s operating costs on the basis that there will be no Shoalhaven transfers for the whole 2016 determination period. This avoids double counting costs.

For SDP-related bulk water purchase costs, we have used SDP’s 2016-17 prices in SDP’s current price determination, which is due to expire on 30 June 2017. Any change in SDP’s prices arising from the new SDP price determination, which will set prices for SDP to apply from 1 July 2017, will be passed through to Sydney Water’s customers by an adjustment to water service charges in 2018-19 and 2019-20.

Table 5.2 below compares our decisions on Sydney Water’s efficient operating expenditure over the 2016 determination period with Sydney Water’s proposal.

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134 We have included an additional $0.43 million in Sydney Water’s 2016-17 SDP-related costs to account for SDP’s higher than forecast costs in 2015-16. This is in line with the cost pass-through mechanism in our 2012 Sydney Water determination and ensures that Sydney Water recovers any additional costs relating to SDP’s charges.
Table 5.2  Operating expenditure compared with Sydney Water proposed
($millions, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPART decision</td>
<td>1,247</td>
<td>1,243</td>
<td>1,231</td>
<td>1,226</td>
<td>4,948</td>
</tr>
<tr>
<td>Sydney Water proposed</td>
<td>1,253</td>
<td>1,254</td>
<td>1,248</td>
<td>1,247</td>
<td>5,002</td>
</tr>
<tr>
<td>Difference</td>
<td>-5</td>
<td>-11</td>
<td>-17</td>
<td>-21</td>
<td>-54</td>
</tr>
<tr>
<td>Difference %</td>
<td>-0.4%</td>
<td>-0.9%</td>
<td>-1.4%</td>
<td>-1.7%</td>
<td>-1.1%</td>
</tr>
</tbody>
</table>

Note: Totals may not add due to rounding.
Source: Sydney Water pricing proposal to IPART, June 2015, p 149; IPART analysis.

5.2  Sydney Water’s performance over the 2012 determination period

Sydney Water has made significant savings over the 2012 determination period. It expects actual expenditure over this period will be $5.4 billion, which is $223 million (4%) less than the operating expenditure allowance we used to set prices for the 2012 determination period (see Table 5.3 below).

Sydney Water reported that the key drivers of its lower core operating expenditure over the 2012 determination period were savings related to its:

- energy costs (-$121 million)
- contracting costs, including data management (-$53 million), and
- labour costs (-$49 million).

These savings were partly offset by higher costs related to:

- redundancy payments (+$32 million), and
- asset provisioning including site remediation, such as safety and asbestos (+43 million).

While some of the savings were the result of lower input costs such as energy prices, Sydney Water has taken a number of important steps to drive down its ongoing operating costs. Atkins Cardno stated that:

We have seen positive changes in Sydney Water since our previous review in 2011. Two thirds of the efficiency savings have been due to management action…

And:

Efficiency initiatives have been promoted during the current price path including outsourcing electrical/mechanical maintenance work and driving productivity savings in civil works activities to match the best performers in the market. A proactive approach to materials costs has shown savings in chemical costs and more effective procurement.

135  Sydney Water pricing proposal to IPART, June 2015, p 133.
136  Sydney Water pricing proposal to IPART, June 2015, p 133.
Furthermore, Atkins Cardno found that the reductions in operating expenditure achieved in the 2012 determination period has had no material impact on Sydney Water’s performance relative to the requirements of its Operating Licence. Atkins Cardno also considered that many of these cost savings should flow through to the 2016 determination period.

### Table 5.3 Sydney Water actual and IPART allowed operating expenditure over 2012 determination period ($millions, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IPART allowed</td>
<td>1,416</td>
<td>1,408</td>
<td>1,401</td>
<td>1,393</td>
<td>5,618</td>
</tr>
<tr>
<td>Actual</td>
<td>1,411</td>
<td>1,321</td>
<td>1,326</td>
<td>1,337</td>
<td>5,395</td>
</tr>
<tr>
<td>Difference</td>
<td>-5</td>
<td>-86</td>
<td>-75</td>
<td>-56</td>
<td>-223</td>
</tr>
<tr>
<td>Difference %</td>
<td>-0.4%</td>
<td>-6.1%</td>
<td>-5.4%</td>
<td>-4.0%</td>
<td>-4.0%</td>
</tr>
</tbody>
</table>

*Note:* Totals may not add due to rounding.  
*Source:* Sydney Water pricing proposal to IPART, June 2015, p 132.

### 5.3 Operating expenditure over the 2016 determination period

#### 5.3.1 Core operating expenditure

Core operating expenditure is the day-to-day operating, maintenance and administration costs Sydney Water incurs in delivering its water, wastewater and stormwater drainage services (i.e., its total operating costs excluding bulk water purchase costs).

As part of the expenditure review, Atkins Cardno found that while Sydney Water had made significant improvements over the current determination period, there was scope to further reduce core operating expenditure below what Sydney Water has proposed. Atkins Cardno also reviewed Sydney Water’s submission to our Draft Report.

Atkins Cardno recommended savings of $57 million over four years relating to:

- Specific adjustments to service delivery costs ($8.5 million).
- Specific adjustments to energy costs ($19.4 million).
- Continuing and catch-up efficiency savings ($29.1 million).

---

We have accepted Atkins Cardno’s recommendations, with the exception of forecast energy costs. We have reinstated $10 million over the 2016 determination period for additional energy costs, as a result of the Australian Competition Tribunal’s decision on the AER’s electricity distribution determination. This is discussed further below.145

We have set the total level of core operating expenditure over the 2016 determination period at $3,396 million. This is $34 million higher than our Draft Report.

Sydney Water’s submission to our Draft Report

In its submission to our Draft Report, Sydney Water argued that the core operating expenditure was lower than the efficient costs required to deliver its services.146 Sydney Water revised its operating expenditure forecasts and proposed that total core operating expenditure be increased by $23.9 million above our Draft Report.147

In its review, Atkins Cardno noted on Sydney Water’s revised proposed expenditure:

Sydney Water has derived further efficiencies from a review of its core operating expenditure using the methodology it applied to the 2015 [Pricing proposal]. This included a detailed review and update of its divisional budgets and internal challenge through its ‘heat map’ and other adjustments.148

And that:

Sydney Water has responded positively to the efficiency challenge made by the Draft Report and has carried out further analysis to identify further efficiencies from core operating expenditure.149

Specific adjustments to Sydney Water’s forecasts

Atkins Cardno recommended reducing operating expenditure on service delivery by around $8.5 million over the 2016 determination period.150 This adjustment reflects Atkins Cardno’s consideration that:

…there is further scope to reduce costs as activities go through the risk based planned maintenance review.151

145 In its review of Sydney Water’s submission to our Draft Report, we instructed Atkins Cardno that IPART would assess forecast energy costs for the Final Report and Determination. As such Atkins Cardno did not make a separate recommendation on energy costs, but included our decision in its final report for completeness.

146 Sydney Water response to IPART’s Draft Report and Determination, April 2016, p 57.


150 Atkins Cardno, Expenditure Review – Sydney Water, December 2015, p 85.

151 Atkins Cardno, Expenditure Review – Sydney Water, December 2015, p 82.
In its pricing proposal in June 2015, Sydney Water proposed operating expenditure included $173 million in energy costs over the 2016 determination period.152

In our Draft Report, we reduced energy expenditure by $19.4 million over the four years.153 This reflected Atkins Cardno’s recommendations that Sydney Water’s methodology for forecasting energy costs was:

…a low risk approach for Sydney Water to likely [achieve] energy cost savings and does not take into account the likely reduction from network charges and the variability of the retail rates. We would also expect that the 2020 strategy will deliver further energy savings beyond those forecast following management action as in the current price path. Our view is that the risk of energy cost variance should be shared more equitably with customers.154

Sydney Water made a supplementary to submission to IPART on energy costs in April 2016. It argued that given the recent decision by the Australian Competition Tribunal on electricity distribution prices, its energy costs will be higher than we included in our Draft Report. It proposed an additional $10 million in energy expenditure over the 2016 determination period.155

While the final outcome of the review of electricity distribution prices is not known, we consider that prices Sydney Water will pay over the next four years are likely to be higher than we included in the Draft Report. We also consider that Sydney Water’s proposed energy cost adjustment represents a reasonable share of the risk between Sydney Water and its customers.

As such, our decision is to accept Sydney Water’s supplementary submission on energy costs.

**Efficiency savings**

In addition to these specific adjustments, Atkins Cardno has recommended that **continuing and catch-up efficiency savings** be applied to Sydney Water’s forecast core operating expenditure.156 Continuing efficiency represents the scope for a top performing or ‘frontier’ company to continue to improve its efficiency. Catch-up efficiency relates to the improvements in systems and processes to achieve the performance of the frontier company over time.

In total, continuing and catch-up efficiencies represent around $29 million in savings over four years.157

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152 Sydney Water Annual Information Return, September 2015.
155 Sydney Water letter to IPART, 4 May 2016, p 1.
This reflects Atkins Cardno’s view that there are further savings to be made in the 2016 determination period through:

- the procurement strategy being implemented
- business improvement initiatives being implemented, and
- the planned Enterprise Resource Planning (ERP) platform, which should bring improvements in the latter half of the 2016 determination period.

Atkins Cardno noted that the adjusted level of catch-up efficiency does not assume that Sydney Water should be at the frontier by 2020, but reflects the achievability of delivering further cost reductions over the future price path. In particular, Atkins Cardno’s benchmarked comparisons of tolex (combined operating and capital expenditure) show that Sydney Water has further efficiencies to make to approach a frontier company or the average of the UK companies using the UK Competition and Markets Authority analysis.

We have considered Atkins Cardno’s review of operating expenditure and its recommendations on efficient core-operating costs. We have also considered Sydney Water’s revised forecasts contained in its submission to our Draft Report, and Atkins Cardno’s review of that submission.

Sydney Water has made significant savings in operating costs over the 2012 determination period. We acknowledge that efficiency savings included in our Draft Report were challenging.

Since our Draft Report, Sydney Water has undertaken a bottom-up re-assessment of its forecast operating costs, and has proposed further efficiencies beyond its original pricing proposal in June 2015. As recommended by Atkins Cardno, our decision is to accept Sydney Water’s revised forecasts.

Given Sydney Water’s proposal, Atkins Cardno’s recommended savings and our decision on energy expenditure, the total level of efficient core operating expenditure over the 2016 determination period is shown in Table 5.4 below. The savings to forecast operating expenditure are spread roughly proportionately between water, wastewater and stormwater.

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159 Atkins Cardno, Expenditure Review – Sydney Water, December 2015, p 16.
Table 5.4  Core operating expenditure ($millions, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Water proposed</td>
<td>864.8</td>
<td>865.2</td>
<td>858.4</td>
<td>853.8</td>
<td>3,442</td>
</tr>
<tr>
<td>IPART decision(^a)</td>
<td>865.0</td>
<td>857.0</td>
<td>840.3</td>
<td>833.7</td>
<td>3,396</td>
</tr>
<tr>
<td>Difference</td>
<td>0.2</td>
<td>-8.2</td>
<td>-18.0</td>
<td>-20.1</td>
<td>-46</td>
</tr>
<tr>
<td>Difference %</td>
<td>0.0%</td>
<td>-1.0%</td>
<td>-2.1%</td>
<td>-2.4%</td>
<td>-1.3%</td>
</tr>
</tbody>
</table>

\(^a\) For comparison purposes, includes $8.5 million in revenue from sales of recycled water from the Rosehill (Camellia) recycled water scheme. When setting prices, we have netted-off this revenue from Sydney Water’s efficient operating expenditure.

**Note:** Totals may not add due to rounding. Excludes bulk water costs, but includes all expenditure related to Rosehill (Camellia) recycled water scheme and all pure operating costs associated with Sydney Water’s finance leased WFPs.

**Source:** Sydney Water pricing proposal to IPART, June 2015, p 149; Atkins Cardno, *Sydney Water Corporation – Expenditure Review, Supplementary Report*, May 2016, p16; IPART calculations.

5.3.2 BOO water filtration costs

Sydney Water has Build Own Operate (BOO) agreements for water filtration services at its four largest water filtration plants (WFPs) – Prospect, Woronora, Illawarra and Macarthur.

We have accepted that Sydney Water’s proposed operating costs associated with these BOO filtration plants are efficient (see Table 5.5). Sydney Water indicated that BOO water filtration operating costs are largely dependent on outside factors, such as demand for water or the operation of the SDP.\(^{161}\)

We have not applied ongoing efficiency or catch-up efficiency targets to BOO related operating expenditure, as Atkins Cardno found that Sydney Water’s forecasts of operating expenditure at these BOO plants was sound.\(^{162}\) Sydney Water’s BOO expenditure relates to pure operating costs only. Interest and principal payments associated with finance lease agreements are no longer included in operating expenditure, but are recovered through an allowance for a return on capital and regulatory depreciation of these assets (see Chapter 7).

**Table 5.5  BOO filtration costs ($millions, $2015-16)**

<table>
<thead>
<tr>
<th>BOO filtration costs(^a)</th>
<th>2015-16</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>88.3</td>
<td>89.2</td>
<td>89.3</td>
<td>87.7</td>
<td>88.1</td>
<td>354.3</td>
</tr>
</tbody>
</table>

\(^a\) Excludes interest and principal payments associated with finance lease agreements.

**Source:** Sydney Water pricing proposal to IPART, June 2015, p 149; and IPART analysis.

\(^{161}\) Water produced by SDP is a direct substitute for water filtered at some of Sydney Water’s BOO plants.

5.3.3 Bulk water costs

Sydney Water purchases most of the bulk water it needs to supply its customers from WaterNSW. It also purchases bulk water from the SDP when this plant is operating, and pays a fixed charge when it is in water security shut down mode. Therefore, its bulk water costs depend on a range of factors, including:

- the volume of water it needs to purchase to meet its customers’ demand
- WaterNSW’s and SDP’s prices, which are regulated by IPART, and
- SDP’s mode of operation, which is governed by the operating rules set out in the Metropolitan Water Plan.

Our decision on the bulk water costs to be included in Sydney Water’s prices are set out in Table 5.6 below.

Table 5.6 Bulk water related operating expenditure ($millions, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPART decision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WaterNSW</td>
<td>193.7</td>
<td>196.3</td>
<td>200.8</td>
<td>202.9</td>
<td>793.8</td>
</tr>
<tr>
<td>SDP</td>
<td>191.9</td>
<td>191.5</td>
<td>191.5</td>
<td>191.5</td>
<td>766.4</td>
</tr>
<tr>
<td>Total</td>
<td>385.6</td>
<td>387.8</td>
<td>392.3</td>
<td>394.4</td>
<td>1560.2</td>
</tr>
<tr>
<td>Sydney Water Proposed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WaterNSW</td>
<td>197.2</td>
<td>199.8</td>
<td>203.8</td>
<td>209.9</td>
<td>810.7</td>
</tr>
<tr>
<td>SDP</td>
<td>194.0</td>
<td>190.9</td>
<td>187.8</td>
<td>185.2</td>
<td>757.9</td>
</tr>
<tr>
<td>Total</td>
<td>391.2</td>
<td>390.7</td>
<td>391.6</td>
<td>395.1</td>
<td>1,568.6</td>
</tr>
<tr>
<td>Difference</td>
<td>-5.6</td>
<td>-2.9</td>
<td>0.7</td>
<td>-0.7</td>
<td>-8.4</td>
</tr>
<tr>
<td>Difference %</td>
<td>-1.4%</td>
<td>-0.7%</td>
<td>0.2%</td>
<td>-0.2%</td>
<td>-0.5%</td>
</tr>
</tbody>
</table>

Additional costs associated with any Shoalhaven transfers will be passed through to Sydney Water customers in the following year.

Based on SDP’s determined prices for 2016-17. Any change in SDP’s prices from the 2017 Determination will be passed through to Sydney Water customers. The 2016-17 SDP-related costs include a $0.43 million cost pass-through related to actual SDP costs in 2015-16.

Note: Totals may not add due to rounding.

Source: Sydney Water pricing proposal to IPART, June 2015, p 149.

We have allowed Sydney Water to recover WaterNSW-related bulk water costs in accordance with our determination of WaterNSW’s maximum prices. We have issued our determination of WaterNSW’s prices, with the new prices to apply from 1 July 2016. As part of that review, we have considered WaterNSW’s pricing proposal and made decisions regarding its efficient expenditure.

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163 Sydney Water pricing proposal to IPART, June 2015, p ii.
164 Sydney Water pricing proposal to IPART, June 2015, p 157.
165 Under its current operating rules, SDP must operate at full production and supply Sydney Water’s area of operations when the total dam storage level is below 70%, and continue to do so until the total dam storage level reaches 80%. NSW Government, 2010 Metropolitan Water Plan, August 2010, p 36.
Sydney Water based its bulk water expenditure for WaterNSW’s services on the proposed notional revenue requirement WaterNSW included in its pricing proposal to IPART. Our decision reduces Sydney Water’s bulk water costs from WaterNSW by around $17 million over the four years of the 2016 determination period, compared to Sydney Water’s pricing proposal.

We have not included any costs associated with Shoalhaven transfers in our decision on bulk water expenditure to be included in Sydney Water’s prices to customers. The regulatory treatment of Sydney Water’s costs associated with Shoalhaven transfers is discussed further below.

Our decision is to maintain SDP-related bulk water costs constant in real terms using SDP’s determined 2016-17 prices. We have also assumed that SDP remains in water security shut-down mode for Sydney Water’s entire determination period. We have decided to maintain a pass-through mechanism to account for uncertainties around SDP’s future costs and prices to Sydney Water, which is discussed in further detail below.

Our decision leads to total SDP-related bulk water costs of $766 million. This is around $8 million higher than Sydney Water’s proposal because Sydney Water based its forecast on SDP’s Regulatory Asset Base (RAB) diminishing over 2016-17 to 2019-20. SDP costs represent about $94 (9%) of a typical annual residential bill.

### 5.4 Bulk water pass-through costs

**Decision**

10 We have decided to:

- continue to enable Sydney Water to pass through into water service charges (after a 1-year lag) the difference between its actual and forecast SDP-related bulk water costs over the 2016 determination period

- apply the current cost pass-through mechanism in the first year of the 2016 Determination period and pass through $0.43 million into 2016-17 water service charges, being the actual 2015-16 SDP costs incurred by Sydney Water above those included in 2015-16 prices, and

- introduce a pass through of the annual actual Shoalhaven transfer costs that Sydney Water incurs into the water service charges at a 1-year lag.

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166 Sydney Water pricing proposal to IPART, June 2015, p 156.
167 SDP’s current price determination sets prices to 30 June 2017, with a new determination scheduled to take effect from 1 July 2017. As such, the base prices which Sydney Water will pay for bulk water services from SDP are known for the first year of Sydney Water’s 2016 Determination only and not beyond 2016-17.
168 Sydney Water pricing proposal to IPART, June 2015, p 157.
5.4.1 Reasons for our decision

Service charge pass-through of SDP costs

We have decided to maintain the cost pass-through mechanism included in the 2012 Determination. This is because there is considerable uncertainty over the 2016 determination period surrounding SDP’s operating environment, its costs of operation and therefore its impact on Sydney Water’s costs and prices.

Currently, under the 2012 Determination, Sydney Water’s prices are calculated on the basis that SDP is in shutdown mode and not supplying water to Sydney Water. If SDP moves into operation mode, all additional costs Sydney Water incurs from purchasing desalinated water would be passed through to customers in their fixed water service charges in the following year. For the 2016 Determination, Sydney Water proposed that additional fixed costs continue to be passed through in this way, but that additional variable costs (ie, the additional costs incurred by Sydney Water when SDP is supplying it water), be passed through to customers as these costs are incurred in their water usage charges.\textsuperscript{169} We have accepted Sydney Water’s proposal to make drought-response costs more transparent to end-use customers by varying (retail) water usage charges to reflect the per kL cost of desalinated water if SDP is activated (see Chapter 9).

The service charge pass-through mechanism will, therefore, capture differences in SDP’s service charges (fixed costs) due to:

- SDP operating in different modes of operation over the 2016 determination period than the assumed water security shutdown mode factored in base operating costs
- new fixed charges resulting from our 2017 SDP price review, including adjustments to SDP’s fixed charges to reflect any changes in SDP’s efficient costs and the application of the energy and efficiency adjustment mechanisms, and
- network electricity costs, which are treated as a pass through in SDP’s determination.

In addition, the service charge pass-through mechanism will account for any forecast error in our estimate of the water usage charge adjustment.

\textsuperscript{169} Sydney Water pricing proposal to IPART, June 2015, p 241.
Throughout the 2016 determination period, the service charge pass through could be positive (increasing the service charge to Sydney Water’s customers) or negative (reducing the service charge to Sydney Water’s customers), depending on the above factors.\textsuperscript{170}

We note that in any financial year, a 1 July price change will pass through the following for the previous financial year:
\begin{itemize}
  \item approximately 10 months of SDP’s actual costs, and
  \item Sydney Water’s forecast of SDP’s costs for approximately two months of the relevant period.
\end{itemize}

It is necessary to rely on Sydney Water’s forecasts of SDP’s costs. At the time that IPART finalises prices for a financial year, it does not have information on SDP’s actual costs for approximately two months of the previous financial year. This is because IPART finalises Sydney Water’s prices for a financial year in June of the previous financial year (eg, IPART finalises Sydney Water’s prices for 2017-18 in June 2017). Sydney Water is therefore required to provide IPART with information necessary to calculate and finalise prices by about May 2017.

We expect Sydney Water to provide reasonable forecasts of costs and other parameters, where required, based on its actual costs for the relevant periods.

The formula used to determine the pass through of SDP costs to service charges is outlined in Appendix F.

**Application of the current cost pass-through mechanism and implications for 2016-17 prices**

The 2012 cost pass-through mechanism applies only within the current determination period. That is, our current determination only allows Sydney Water to adjust water service charges up to 30 June 2016 (ie, adjust 2015-16 prices) to reflect actual charges paid to SDP at a year lag (ie, covering actual costs incurred in 2014-15).

We have applied the cost pass-through mechanism in the first year of the 2016 determination period and passed through into 2016-17 prices the actual SDP costs incurred by Sydney Water in 2015-16 (ie, any costs above those included in 2015-16 prices).\textsuperscript{171} This additional cost was $0.43 million.

\textsuperscript{170} For example, if everything else were to remain constant (including SDP remaining in water security shutdown mode), but SDP’s WACC at the 2017 price determination were to decrease, we would expect the pass-through to be negative. Under this scenario, forecast SDP costs for Sydney Water, based on existing prices (and a 6.7\% pre-tax WACC), would be higher than actuals from 2017-18 onwards, which would result in negative pass throughs to service charges in 2018-19 and 2019-20.

\textsuperscript{171} We note that in any year, a 1 July price change will pass through 10 months of SDP’s actual costs at a year lag, and two months of forecasts – ie, for example, 2015-16 prices are finalised in June 2015, which means we do not have SDP’s actual costs for May and June 2015.
Pass through of Shoalhaven transfer costs

We are introducing a service charge cost pass-through mechanism to compensate Sydney Water for actual bulk water costs incurred from WaterNSW for transfers from Shoalhaven. This approach is consistent with Sydney Water’s proposal.172

Shoalhaven transfers represent uncertain bulk water operating costs to Sydney Water in terms of volume and price risk.173 Under the 2010 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%.174

In the 2012 Determination, we decided to allow for the cost recovery of Shoalhaven pumping on an expected costs basis (rather than through a cost pass-through mechanism). The WATHNET model was used to estimate Shoalhaven transfers under varying climatic conditions, given the current operating rules. We included around $2.4 million per year175 in Sydney Water’s operating costs to account for Shoalhaven transfers.

However, for the 2016 determination period, we are of the view that a cost pass-through mechanism is appropriate for Shoalhaven transfers. This is because we have allowed WaterNSW to charge Sydney Water on a “fee for service” basis for these transfers – ie, charge Sydney Water as Shoalhaven transfers occur (this is consistent with our criteria for applying cost pass-throughs – see Chapter 3).

Under this cost pass-through mechanism, the difference between Sydney Water’s forecast bulk water costs and its actual bulk water costs from WaterNSW as a result of Shoalhaven transfers will be passed through to Sydney Water’s customers. This will occur at a year’s lag via Sydney Water’s water service charge to its customers.176 We have set Sydney Water’s revenue requirement on the basis that there will be no Shoalhaven transfers for the whole 2016 determination period to not double count these costs.

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172 For the 2016 determination period, Sydney Water has requested that we adopt the same treatment for Shoalhaven transfers for both Sydney Water and WaterNSW (either an ex-ante probabilistic approach or the alternative cost pass-through methodology consistent with the approach used for SDP costs). Sydney Water submission to IPART Issues Paper, October 2015, p xi.

173 Volume risk refers to the amount of water potentially pumped from the Shoalhaven system given the operating rules set out in the 2010 Metropolitan Water Plan. Price risk refers to the electricity price estimates over the 2012 Determination.

174 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. NSW Government, 2010 Metropolitan Water Plan, August 2010, p 24.

175 IPART, Review of prices for the Sydney Catchment Authority - From 1 July 2012 to 30 June 2016 – Final Report, June 2012, p 65; adjusted for inflation.

176 We decided not to pass Shoalhaven transfer costs through to Sydney Water’s water usage charge, as the uplift would be negligible at times and difficult for customers to understand – unlike SDP which is a well understood drought response measure.
We note that, similar to the service charge pass-through of SDP costs, a 1 July price change would pass through about 10 months of actual Shoalhaven transfer costs at a year lag, and two months of forecasts. We expect Sydney Water to provide reasonable forecasts of costs and other parameters, where required, based on its actual costs for the relevant periods.

Appendix F provides details of the formula used for the service charge pass-through of Shoalhaven transfer costs.
Capital expenditure

This chapter sets out our decisions on Sydney Water’s prudent and efficient capital expenditure. As with operating expenditure, we engaged Atkins Cardno to review Sydney Water’s historical and forecast capital expenditure and make recommendations on the amount of capital expenditure that should be included in the RAB. This included a review of Sydney Water’s submission to our Draft Report and the associated supporting information.

Under the building block method, there is no explicit allowance for capital expenditure in the notional revenue requirement. Instead, the prudent and efficient capital expenditure is added to the RAB and recovered through the allowances for a return on assets and regulatory depreciation (discussed in Chapter 6).

To decide how much capital expenditure is added to the RAB, we review Sydney Water’s proposals and apply:

- a prudence test to its actual capital expenditure over the 2012 determination period (past capital expenditure) and to its proposed capital expenditure for the 2016 determination period (forecast capital expenditure), and
- an efficiency test to its past and forecast capital expenditure.

The prudence test assesses whether, in the circumstances that existed at the time, the decision to invest in the asset is one that the utility, acting prudently, would be expected to make. The test assesses both:

- the prudence of how the decision was made to invest, and
- the prudence of how the investment was executed (ie, the construction or delivery of the asset), having regard to information available at the time.

The efficiency test examines whether the proposed capital expenditure represents (over the life of the asset) the best way of meeting customers’ needs, subject to the utility’s regulatory requirements.
6 Capital expenditure

6.1 Summary of capital expenditure

Decision

11 We have decided to set the prudent and efficient level of Sydney Water’s capital expenditure to be included in the RAB as set out in Table 6.1 and Table 6.2.

Table 6.1 Efficient and prudent past capital expenditure ($millions, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2012-13</th>
<th>2013-14</th>
<th>2014-15</th>
<th>2015-16 (^a)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPART decision</td>
<td>641</td>
<td>566</td>
<td>632</td>
<td>691</td>
<td>2,530</td>
</tr>
<tr>
<td>Sydney Water proposed</td>
<td>641</td>
<td>566</td>
<td>632</td>
<td>691</td>
<td>2,530</td>
</tr>
</tbody>
</table>

\(^a\) 2015-16 figures are forecasts.

Source: Sydney Water Annual Information Return, September 2015; IPART calculations.

Table 6.2 Efficient and prudent forecast capital expenditure ($millions, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Water proposed</td>
<td>715</td>
<td>733</td>
<td>708</td>
<td>617</td>
<td>2,773</td>
</tr>
</tbody>
</table>

Less project specific adjustments

- Wastewater treatment plant renewals: -13 -13 -16 -20 -62
- Avoid fail sewer renewals: -17 -9 0 0 -26
- Water system renewals\(^a\): -13 -14 -10 -10 -47
- North Head biosolids: -3 -6 0 0 -9
- Other: -4 -13 -8 -3 -28

Less efficiency adjustments: -10 -29 -42 -48 -128

Total adjustments: -60 -83 -76 -80 -300

IPART decision: 655 650 632 537 2,473

\(^a\) Water system renewals includes: critical water mains; reticulation water mains; water pumping stations and reservoir renewals and reliability.

Note: Totals may not add due to rounding.

Source: Sydney Water pricing proposal to IPART, June 2015, p 189; Sydney Water Annual Information Return, September 2015; IPART calculations.

6.1.1 Reasons for our decisions

We set Sydney Water’s allowance for capital expenditure at $2,473 million over the 2016 determination period. In doing so, we reduced Sydney Water’s proposed capital expenditure by $300 million (10.8%), which included the following adjustments:

- $172 million (or 6.2%) of reductions to specific capital programs, and
- $128 million (or 4.6%) in efficiency savings.
We accepted Sydney Water’s actual capital expenditure over the 2012 determination period as prudent and efficient.\textsuperscript{177}

Our decisions on capital expenditure reflect our assessment of the efficient and prudent expenditure on capital works that should be included in the RAB, and hence recovered through prices.

In making our decisions, we considered Sydney Water’s historical capital expenditure and the savings it achieved in capital expenditure over the 2012 determination period. We then considered the capital programs it has proposed for the 2016 determination period, whether that proposed expenditure was fully justified and any potential further savings it could achieve through greater efficiencies in delivering its capital program.

In its review of Sydney Water’s expenditure, we asked Atkins Cardno to look at both historical and forecast capital expenditure. Atkins Cardno also undertook a strategic review of Sydney Water’s long-term investment plans and asset management systems and practices. Our decisions on prudent and efficient capital expenditure reflect Atkins Cardno’s recommendations.

Our assessment of Sydney Water’s capital expenditure over the 2012 determination period and reductions made to Sydney Water’s capital program over the 2016 determination period are discussed in the sections that follow.

### 6.2 Capital expenditure over the 2012 determination period

Our decision on historical capital expenditure is to accept Sydney Water’s proposal and include all $2.53 billion in capital expenditure between 2012-13 and 2015-16\textsuperscript{178} in the RAB.

Sydney Water has spent $247 million less on capital works over the 2012 determination period\textsuperscript{179} than forecast. In our 2012 Determination, we forecast that Sydney Water would need to spend around $2.78 billion over the four years of the 2012 determination period.

Table 6.3 below sets out the difference between the amount of capital expenditure we allowed at the 2012 Determination and Sydney Water’s actual expenditure over that period.

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\textsuperscript{177} However, we did remove an additional $24.8 million from the RAB in 2017-18 for stranded IT assets (Customer Management System ‘CMS’), arising from investment in a new IT billing system and enterprise resource planning suite (ERP). Our discussion of this adjustment to the RAB is in Chapter 7.

\textsuperscript{178} Including Sydney Water’s expected $691 million capital expenditure in 2015-16.

\textsuperscript{179} Including its forecast expenditure of $691 million in 2015-16.
Table 6.3  Sydney Water actual and IPART allowed capital expenditure over the 2012 determination period ($millions, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2012-13</th>
<th>2013-14</th>
<th>2014-15</th>
<th>2015-16a</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPART allowed</td>
<td>753</td>
<td>765</td>
<td>672</td>
<td>587</td>
<td>2,777</td>
</tr>
<tr>
<td>Actual</td>
<td>641</td>
<td>566</td>
<td>632</td>
<td>691</td>
<td>2,530</td>
</tr>
<tr>
<td>Difference</td>
<td>-111</td>
<td>-199</td>
<td>-40</td>
<td>104</td>
<td>-247</td>
</tr>
<tr>
<td>Difference %</td>
<td>-15%</td>
<td>-26%</td>
<td>-6%</td>
<td>18%</td>
<td>-9%</td>
</tr>
</tbody>
</table>

a 2015-16 figures are forecasts.

Note: Totals may not add due to rounding.


Our decision reflects Atkins Cardno’s recommendation that all of Sydney Water’s expenditure between 2011-12 and 2015-16 should be included in the RAB calculation. Atkins Cardno’s findings are based on its assessment of Sydney Water’s capital planning, procurement and delivery and include:

- **Strategic planning** – an increasing focus on Strategic System Integrated Planning and the adoption of regional strategies. The combination of these two frameworks appear to be resulting in more effective project and program assessments.181

- **Timing** – Sydney Water demonstrated a move towards optimisation of timing of expenditure. In particular, Sydney Water:

  …demonstrated examples of using interim solutions to delay capital investment, which appear to have been applied in a number of instances and represent a welcome development and approach to using “just in time” infrastructure where possible.182

- **Procurement** – including the development of standard procurement guidelines and strategy. Sydney Water has also evolved its alliance delivery model, which has transitioned into more effective models.183

Sydney Water indicated that the profile of its capital investment program differed from the forecast program used in making the 2012 Determination. In particular, its capital expenditure was higher than forecast in the final two years due to:184

- its decision to restrict IT expenditure while it restructured its IT function early in the period

- the deferral of some growth and renewal projects through improved planning,

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184 Sydney Water pricing proposal to IPART, June 2015, p 167.
the acceleration of major works at the Malabar Wastewater Treatment Plant into the 2012 period.

Table 6.4 compares Sydney Water’s actual capital expenditure over the whole determination period with the forecast efficient capital expenditure used to make the 2012 Determination, broken down by product area. Sydney Water’s $247 million saving in total capital expenditure came primarily from lower than forecast spending on water assets (-$263 million) and wastewater assets (-$24 million). This saving was partly offset by higher than forecast capital expenditure on stormwater assets (+$35 million).

Table 6.4  Sydney Water actual and IPART allowed capital expenditure over 2012 determination period, by product ($millions, $2015-16)

<table>
<thead>
<tr>
<th>Product</th>
<th>IPART allowed</th>
<th>Actual/Forecast</th>
<th>Difference</th>
<th>Difference (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>947</td>
<td>684</td>
<td>-263</td>
<td>-28%</td>
</tr>
<tr>
<td>Wastewater</td>
<td>1,475</td>
<td>1,451</td>
<td>-24</td>
<td>-2%</td>
</tr>
<tr>
<td>Corporate</td>
<td>327</td>
<td>332</td>
<td>5</td>
<td>2%</td>
</tr>
<tr>
<td>Stormwater</td>
<td>28</td>
<td>63</td>
<td>35</td>
<td>129%</td>
</tr>
<tr>
<td>Recycled water(^a)</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,777</strong></td>
<td><strong>2,530</strong></td>
<td><strong>-247</strong></td>
<td><strong>-9%</strong></td>
</tr>
</tbody>
</table>

\(^a\) Recycled water expenditure represents capital expenditure on the St Marys Recycled Water Scheme. This scheme is subject to a NSW Government direction under s16(A) of the IPART Act. Costs are recovered from water charges.

Note: Actual/forecast capital expenditure set out in Sydney Water’s proposal deducts $48 million received from the NSW Government’s Housing Acceleration Fund (HAF). We have reversed this deduction to enable comparison with our 2012 Determination which did not deduct forecast grants. Totals may not add due to rounding.

Source: Sydney Water pricing proposal to IPART, June 2015, p 187; Sydney Water Annual Information Return, September 2015; and IPART analysis.

Atkins Cardno accepted Sydney Water’s reasons for the variance between its actual and IPART determined capital expenditure by product, which include:

- **Water capital expenditure (-28% variance)** due to:
  - lower renewals expenditure (-$171 million) resulting from better targeted asset management practices and favourable weather conditions\(^{185}\) and
  - lower growth expenditure (-$70 million)\(^{186}\) resulting from improving its risk management strategy, including maximising existing capacity\(^{187}\).

\(^{185}\) Sydney Water pricing proposal to IPART, June 2015, p 170.
\(^{186}\) Sydney Water’s direct expenditure on growth was $112 million lower than what we allowed at the 2012 Determination. Offsetting this, however, are its purchase of assets from developers in growth areas of $42 million higher than forecast in 2012 (See Sydney Water pricing proposal to IPART, June 2015, pp 179-184; Sydney Water Annual Information Return, September 2015).
\(^{187}\) Sydney Water pricing proposal to IPART, June 2015, p 180; Sydney Water Annual Information Return, September 2015.
Wastewater expenditure (-2% variance) due to:
- higher renewals expenditure (+$83 million) resulting from more accurate asset and risk data and from compliance with dry weather overflow environment protection licence (EPL) requirements\(^{188}\), and
- lower expenditure to meet EPA-mandated standards (-$104 million) resulting from lower expenditure on the wet weather overflow abatement and deferred expenditure on the Vaucluse/Diamond Bay project.\(^{189}\)

Stormwater capital expenditure (129% variance)\(^{190}\) due to:
- higher renewals and reliability expenditure (+$22 million),\(^{191}\) and
- higher growth expenditure (+$18 million) for the Green Square development in Sydney’s south (one of the projects subject to Government direction under section 16A of the IPART Act).\(^{192}\)

### 6.3 Capital expenditure over the 2016 determination period

Our decision is to include $2,473 million in forecast capital expenditure over the 2016 determination period. This is $300 million (10.8%) below Sydney Water’s proposed capital expenditure over the same period.

Our decision on Sydney Water’s prudent and efficient capital expenditure over the 2016 determination period reflects Atkins Cardno’s recommendations.

Sydney Water proposed capital expenditure over the 2016 determination period of $2,773 million, which is:
- $4 million (or 0.1%) lower than we used to set prices in our 2012 Determination.
- $243 million (or 9.6%) higher than actual capital expenditure over the 2012 determination period.

In relation to its proposed capital expenditure, Sydney Water reported that:
- Its forecast costs are subject to uncertainty in some areas.\(^{193}\)
- Forecast stormwater capital expenditure is significantly greater than the 2012 determination period, because a number of assets built before 1910 need renewal.\(^{194}\)

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\(^{188}\) Sydney Water pricing proposal to IPART, June 2015, p 173.

\(^{189}\) Sydney Water pricing proposal to IPART, June 2015, p 185.

\(^{190}\) Sydney Water reported a 150% variance in stormwater expenditure, because it deducts from total stormwater expenditure funding received from the NSW Government’s Housing Acceleration Fund. (See Sydney Water pricing proposal to IPART, June 2015, p 187.) We have reversed this deduction to enable comparison with our 2012 Determination which did not deduct forecast grants.

\(^{191}\) Sydney Water pricing proposal to IPART, June 2015, p 177.

\(^{192}\) Sydney Water pricing proposal to IPART, June 2015, p 304.

\(^{193}\) Sydney Water pricing proposal to IPART, June 2015, p 161.

\(^{194}\) Sydney Water pricing proposal to IPART, June 2015, p 198.
Forecast corporate costs of $328 million represent investments in information technology, including a new billing system and Enterprise Resource Planning (ERP) platform.\textsuperscript{195}

Table 6.5 compares Sydney Water’s actual and forecast capital expenditure for the 2012 and 2016 determination periods, by product.

Table 6.5 Sydney Water actual and forecast capital expenditure, by product ($millions, $2015-16)

<table>
<thead>
<tr>
<th>Product</th>
<th>Actual, 2012 period\textsuperscript{a}</th>
<th>Forecast, 2016 period</th>
<th>Difference</th>
<th>Difference (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>684</td>
<td>731</td>
<td>46</td>
<td>7%</td>
</tr>
<tr>
<td>Wastewater</td>
<td>1,451</td>
<td>1,500</td>
<td>49</td>
<td>3%</td>
</tr>
<tr>
<td>Stormwater</td>
<td>63</td>
<td>159</td>
<td>97</td>
<td>15%</td>
</tr>
<tr>
<td>Corporate</td>
<td>332</td>
<td>383</td>
<td>50</td>
<td>153%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,530</strong></td>
<td><strong>2,773</strong></td>
<td><strong>243</strong></td>
<td><strong>10%</strong></td>
</tr>
</tbody>
</table>

\textsuperscript{a} Water capital expenditure includes $1 million capital expenditure on recycled water.

Note: Actual/forecast capital expenditure set out in Sydney Water’s proposal deducts $48 million received from the NSW Government’s Housing Acceleration Fund (HAF). Totals may not add due to rounding.

Source: Sydney Water Annual Information Return, September 2015; and IPART analysis.

Atkins Cardno assessed Sydney Water’s planning, procurement and cost-estimation practices as well as the business cases supporting its proposed capital program. Following its investigations, Atkins Cardno made a number of reductions to specific projects and programs over the 2016 determination period.

In addition to these project specific adjustments, Atkins Cardno also applied continuing and catch-up efficiency savings for Sydney Water’s capital expenditure program.\textsuperscript{196} In total Atkins, recommended over the 2016 determination period:

\begin{itemize}
  \item $172 million of reductions to specific projects and programs, and
  \item $128 million in reductions for continuing and catch-up efficiency targets.\textsuperscript{197}
\end{itemize}

Atkins Cardno’s findings and recommendations are discussed further below.

\textsuperscript{195} Sydney Water pricing proposal to IPART, June 2015, p 161; p 216.

\textsuperscript{196} Atkins Cardno, Sydney Water Corporation – Expenditure Review, Supplementary Report, May 2016, p 44.

\textsuperscript{197} Atkins Cardno, Sydney Water Corporation – Expenditure Review, Supplementary Report, May 2016, p 44.
6.3.1 Wastewater project and program specific adjustments

Wastewater treatment plant renewals

Atkins Cardno recommended a reduction in Wastewater Treatment Plant (WWTP) Renewals of $62 million (21% of Sydney Water’s proposed expenditure on this program). Sydney Water proposed a 54% increase in this program above the 2012 determination period, to a total of around $290 million capital expenditure over the 2016 determination period.

Sydney Water’s proposed increase was based on an expected shift in the asset condition profile into the poor or very poor condition range, which represents an unacceptable performance risk. However, Atkins Cardno found that there was no consideration of how different levels of renewals expenditure may affect the overall condition and risk profile:

In our view there was insufficient evidence provided to demonstrate a significant shift in performance against service levels…that would assist in justifying such a significant increase in expenditure.

In setting prices in our Draft Report, we made an adjustment of $101 million to the wastewater treatment plant renewal program. In its submission to our Draft Report, Sydney Water requested that this adjustment be fully reversed. It argued that:

This large and arbitrary program cut is likely to have a range of consequences. As we do more work to develop this program, actual asset condition is generally worse than previously thought. There is likely to be an increased need for reactive work, increasing costs and decreasing performance.

In its submission to our Draft Report, the EPA stated that it:

...is concerned that the proposed reduction in capital and operating expenditure will result in a deterioration of performance of Sydney Water’s sewage reticulation networks and treatment plants, resulting in additional non-compliances with Sydney Water’s environment protection licences and increased impacts on the environment and community.

Atkins Cardno reviewed Sydney Water’s submission to our Draft Report, including additional information. In Atkins Cardno’s supplementary report, it recommended around $40 million in capital expenditure for this program be reinstated.

200 Atkins Cardno, Expenditure Review – Sydney Water, December 2015, p 120.
201 Sydney Water’s submission to IPART’s Draft Report and Determination, April 2016, p 74.
We have accepted Atkins Cardno’s revised recommendations. We consider that the revised level of capital expenditure on WWTP renewals should allow Sydney Water to fully meet its environmental and other performance requirements over the 2016 determination period.

**Biosolids management facilities at North Head**

Atkins Cardno has also recommended a reduction of **$9 million** on Sydney Water’s proposed upgrade and augmentation of **biosolids management facilities at North Head** wastewater treatment plant.204

Sydney Water proposed to add an additional two digesters in order to increase capacity for growth, and to upgrade existing facilities to improve the biosolids treatment performance and reduce odour.

Atkins Cardno found that:

> As a consequence of the current plant’s poor performance, numerous odour complaints have been received about odour from the plant directly and because of trucking the biosolids out of the plant. The biosolids are also of poor quality…205

In our Draft Report, we accepted Atkins Cardno’s recommendation that the construction of one extra digester at North Head in 2017-18 would meet the load required to beyond 2020. It stated that Sydney Water:

> …has not made a strong case that a single additional digester would not be sufficient to cope with anticipated demand in the medium term (eg. next price path + 5 years).206

As such, we decided that the estimated $13 million cost of Sydney Water’s proposed second digester be excluded from our decision on the efficient and prudent capital expenditure.

In its submission to our Draft Report, Sydney Water reiterated its position that two additional digesters should be constructed over the 2016 determination period.207 It stated that:

> Adding one digester allows minimum standards to be met with all [digesters] in service but adding two means that the process is not constrained during frequent maintenance.208

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207 Sydney Water’s submission to IPART’s Draft Report and Determination, April 2016, pp 75-79.
208 Sydney Water’s submission to IPART’s Draft Report and Determination, April 2016, p 77.
We also received six public submissions\textsuperscript{209} to our Draft Report regarding odour at North Head WWTP. The Manly Environment Centre stated that it:

...fully supports the need for two additional digesters at the North Head Wastewater Treatment Plant...\textsuperscript{210}

Atkins Cardno has acknowledged the importance of capital expenditure at North Head WWTP. It found that:

Sydney Water’s proposed investment [at North Head WWTP] envisages a number of measures, which we are supportive of, to improve thickening of sludge, including additional rotary drum thickener capacity and dedicated recuperative thickening with polymer dosing.\textsuperscript{211}

And that:

...Sydney Water was rectifying one of the non-functional mixers in 2015.\textsuperscript{212}

Following its review of Sydney Water’s submission and additional information provided, Atkins Cardno recommended maintaining its finding for our Draft Report that forecast capital expenditure over the 2016 determination include one additional digester at North Head WWTP.

We consider that Sydney Water has not made a sufficiently robust case that, along with other proposed improvements at this site, construction of two additional digesters over the next price path is required.\textsuperscript{213}

However, Atkins Cardno has revised its recommendation for the estimated cost of an additional digester from $13.3 million to $9.2 million after considering further information provided by Sydney Water.\textsuperscript{214}

Sydney Water is planning to undertake a range of capital projects at North Head WWTP. Given Atkins Cardno’s recommendations and findings, we consider that the construction of one additional digester over the 2016 determination period should allow Sydney Water to meet all of its legislated environmental and other requirements over the period 2016-17 to 2019-20.

\textsuperscript{209} B. Trevenen, M. Burgers, J.A. Reizes, K. Ridge and one Anonymous submission to IPART’s draft report and determination, April 2016.
\textsuperscript{210} Manly Environment Centre submission to IPART Draft Report, p 4.
Energy management program

Atkins Cardno has recommended a reduction of **$2.2 million** (18.0%) to Sydney Water’s proposed $12.2 million capital expenditure on its **energy management** program, including biogas cogeneration facilities at some wastewater treatment plants.\(^{215}\)

Sydney Water expects to spend a total of around $8 million on its energy management program over the 2012 determination period.

Atkins Cardno found that while specific projects and expected costs and savings have been identified, detailed investigations have not yet been completed for the 2016 determination period.\(^{216}\) As such, it has recommended reducing expenditure on the program to $10 million, and re-phasing the expenditure with less expenditure in the first two years and more in the last two years of the 2016 determination period.

Wastewater assets for growth in Sydney’s North West Growth Centre

In our Draft Report, we reduced capital expenditure by $8 million on new wastewater assets for growth in Sydney’s North West Growth Centre (NWGC) over the 2016 determination period. This represented about 17% of Sydney Water’s $48 million proposed expenditure over the 4-year period.\(^{217}\)

In its submission to our Draft Report, Sydney Water argued that updated development figures in the centre over the next four years now showed that:

...the growth in the NWGC is now progressing ahead of forecast.\(^{218}\)

After examining Sydney Water’s updated and detailed information on its growth program, Atkins Cardno has recommended that Sydney Water’s proposed expenditure be accepted.\(^{219}\)

We have accepted Atkins Cardno’s recommendations and as such have reinstated $8 million for capital expenditure in the NWGC for wastewater infrastructure.

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218 Sydney Water’s submission to IPART’s Draft Report and Determination, April 2016, p 80.
6 Capital expenditure

6.3.2 Water project and program specific adjustments

Water system renewals

Atkins Cardno recommended a reduction in Water System Renewals of around $47 million (11% of Sydney Water’s proposed expenditure on this program). This represents a $21 million increase in capital expenditure compared with our Draft Report.

Sydney Water proposed a total of $405 million capital expenditure over the 2016 determination period on water system renewals, including renewals of:

- $116 million on critical water mains
- $134 million on reticulation water mains
- $97 million on reservoirs, and
- $58 million on water pumping stations.

Atkins Cardno found that for critical water mains and reticulation water mains renewals, Sydney Water has demonstrated significant reduction in costs in delivering this program over the 2012 determination period. However, it found that despite a significant decrease in expenditure, levels of service and performance had been:

...quite stable over a period of greater than 10 years. This and Sydney Water’s continuing trend of excellent performance against Operating Licence targets supports the case for further reductions in renewals expenditure.221

Sydney Water argues that all asset renewal programs are subject to an approved business case. With respect to renewals of water and wastewater mains, a financial evaluation is done in each case to determine whether repairs or asset renewals is the most efficient long-term option, and that “…a renewal will not proceed if it is not cost-effective”.222

Sydney Water’s position infers that reducing renewals capital expenditure to a level which brings Sydney Water’s performance against operating licence targets may actually increase overall expenditure, even if renewals capital expenditure is reduced. This could be the result of increased repairs or maintenance.

While we have considered the premise of Sydney Water’s argument, our decision is to accept the recommendations made by Atkins Cardno. We consider that given the decreasing unit costs of mains renewals and the headroom under the operating licence, the recommended program adjustment represents the efficient expenditure over the 2016 determination period.

221 Atkins Cardno, Expenditure Review – Sydney Water, December 2015, pp 102-103.
222 Sydney Water pricing proposal to IPART, June 2015, p 192.
For the reservoir renewals program, Atkins Cardno found that Sydney Water proposed a 75% increase in expenditure on this program over the 2016 determination period.\(^{223}\) Sydney Water argued that this increased program will:

\[\ldots\text{reduce current safety risks and maintain the structural integrity of these reservoirs.}\]

Expenditure on rechlorination plants is to ensure their continued reliability to achieve water quality targets.\(^{224}\)

Atkins Cardno found that while there was some justification for an increase in expenditure on this program, it had concerns regarding the magnitude of the program, and the high conversion rate of reservoir condition inspections to forecast expenditure.\(^{225}\) It recommended higher expenditure on the program than the 2012 Determination, but lower than Sydney Water proposed.

Atkins Cardno also recommended adjusting the water pumping station renewals program, to reflect potentially lower unit rates of expenditure, the exclusion of some expenditure included in 2015-16 to avoid double counting and further potential savings from possible decommissioning or downsizing.\(^{226}\)

In total, Atkins Cardno has recommended the following reductions in expenditure on water system renewals:

- $8 million (-6.9%) on critical water mains
- $5 million (-3.7%) on reticulation water mains
- $21 million (-21.2%) on reservoirs, and
- $13 million (-22.6%) on water pumping stations.

In total, we have increased the forecast efficient and prudent capital expenditure on water system renewals by around $21 million since our Draft Report. This is a result of updated Sydney Water information on predicted expenditure on water reticulation renewals over the 2012 determination period.

**Water assets for growth in Sydney’s North West Growth Centre**

As with wastewater assets for **growth in Sydney’s North West Growth Centre** over the 2016 determination period, we have accepted Sydney Water’s proposed capital expenditure on water assets. This reinstates $6 million of forecast expenditure.

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\(^{224}\) Sydney Water pricing proposal to IPART, June 2015, p 194.


6.3.3 Stormwater project and program specific adjustments

Atkins Cardno’s total reductions of $14 million to stormwater capital expenditure represent about 9% of Sydney Water’s proposed $159 million capital expenditure on stormwater assets over the 2016 determination period. Atkins Cardno recommended a number of adjustments to Sydney Water’s proposed expenditure programs on stormwater services.

Atkins Cardno recommended reducing proposed capital expenditure in Elizabeth Macarthur Creek in the Rouse Hill development area by $7.5 million over the 2016 determination period.

Sydney Water proposed to spend $20 million on civil works and land purchases over the four years of the determination period. Atkins Cardno found that the level of planning and solution definition for works on Elizabeth Macarthur Creek is not yet well advanced. As such, Atkins Cardno has re-phased this expenditure over six years rather than four years. This pushes some expenditure on this project to beyond 2019-20 and therefore out of the 2016 determination period.

Sydney Water is undertaking a program of asset inspections on its stormwater assets. It has based its forecast stormwater renewals expenditure of $58 million over the next four years on the assets at risk of imminent failure.

Atkins Cardno has recommended reducing the minor stormwater renewals program by around $5 million over the 2016 determination period. Given the time taken and difficulty in moving through the condition survey process, it has recommended deferring some of Sydney Water’s proposed capital expenditure on this program to beyond 2020. Atkins Cardno considers that it is difficult to robustly establish the remaining useful asset life based on condition surveys. However, ongoing condition surveys over 2016 determination period will uncover further assets requiring renewals expenditure beyond 2020.

6.3.4 Corporate project and program specific adjustments

Sydney Water has proposed $383 million in corporate capital expenditure over the 2016 determination period. Of this, $328 million (86%) is on information technology (IT) programs. This significant increase in IT capital expenditure over the 2016 determination period includes:

- a new customer billing system (T2020), and
- an Enterprise Resource Planning (ERP) platform.

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Atkins Cardno found that the proposed expenditure on the T2020 billing system was justified and efficient. Sydney Water’s current customer billing system is 28 years old. As such, Sydney Water proposed to replace it with a more up-to-date system. Atkins Cardno found that:

…there is a full and detailed audit trail dating back at least 10 years to support the replacement of the ACCESS billing system. There is no doubt about the need and overall the costs are built up in a robust way…  

And:

By far the biggest benefit [of the proposed new T2020 billing system] is the avoided cost of a catastrophic IT failure of not implementing a replacement for ACCESS.  

Atkins Cardno, therefore, found that the business cases for the proposed billing system were strong and has recommended no capital expenditure adjustment.

Atkins Cardno also supported the principle of an ERP:

…there is broad consensus in the world’s leading corporations that an ERP is a vital organisational tool…

The ERP is business management software – typically a suite of integrated applications – that a company can use to collect, store, manage and interpret data from many business activities. It provides an integrated view of core business processes, often in real time, using common databases.

Importantly, Atkins Cardno was of the view that the proposed T2020 billing system and ERP platform are closely linked, and should be jointly implemented by Sydney Water to realise the synergies and benefits of having an integrated ERP.

Atkins Cardno has, however, recommended reducing Sydney Water’s proposed capital expenditure on the ERP platform by $8 million across the 2016 determination period. This reflects Atkins Cardno’s assessment that $8 million in identified capital savings arising from the ERP have not been included in Sydney Water’s proposed expenditure.

Atkins has also recommended removing $24.8 million from the RAB in 2017-18 for redundant IT assets arising from replacing the existing Customer Management System, which it deems will be made prematurely redundant by Sydney Water’s proposed IT expenditure. This is discussed further in Chapter 7.

233 Atkins Cardno, Expenditure Review – Sydney Water, December 2015, p 146.
234 Atkins Cardno, Expenditure Review – Sydney Water, December 2015, p 147.
235 Atkins Cardno, Expenditure Review – Sydney Water, December 2015, pp 142-143.
236 Atkins Cardno, Expenditure Review – Sydney Water, December 2015, p 147.
In addition, Atkins Cardno has recommended that around $3 million in expenditure relating to the upgrade of SIRIUS for IT - field services management can be pushed back into the following (2020) determination period.239

A submission to our Draft Report raised a number of queries regarding the forecast expenditure on Sydney Water’s T2020 billing system and ERP.240 In its assessment of Sydney Water’s IT proposals, Atkins Cardno found that:

Sydney Water Corporation has undertaken expensive planning and investigation with some of the world’s leading IT consultancies as well as acquiring skills in house in order to identify the options and their relative costs.241

And:

Overall, the work done on the billing and customer relationship management components has been extensive; this is reflected in the robust cost build-up. Our review of the costs associated with the wider ERP implementation identified that the certainty of estimates relates to the stages of development.

We will review the efficiency and prudence of Sydney Water’s expenditure on, and implementation of, its major IT platforms at our next price review, which is scheduled to commence in 2019. These significant IT capital programs are scheduled to be rolled out to 2019-20. As with all capital expenditure, we may remove from the RAB any capital expenditure not deemed prudent and efficient.

6.3.5 Continuing and catch-up efficiency targets

As with operating expenditure, Atkins Cardno recommended a continuing efficiency factor of 0.25% per annum.242 Continuing efficiency represents the scope for a top performing or ‘frontier’ company to continue to improve their efficiency. It justified the application of continuing efficiencies to capex on the grounds that an efficient frontier company would continue to improve its efficiency in delivering its capital program. In total, continuing efficiencies represent around $16 million in savings over four years.243

Atkins Cardno has also identified four areas where Sydney Water should be able to make material improvement in its processes in the 2016 price path to bring it up to the level of the frontier company (ie, catch-up efficiencies). These are:

- **Capital program management and optimisation** – this adjustment recognises that Atkins Cardno considers that Sydney Water can improve the way it delivers its capital program.

- **Value engineering** – this provides an adjustment which allows for value engineering to become more wide spread, to ensure that schemes are delivered at an efficient cost.

- **Cost estimation** – Atkins Cardno found that Sydney Water’s approach to cost estimation is at an early stage of maturity. This catch-up efficiency reflects the potential for Sydney Water’s cost-estimates to fail to capture recent efficiency improvements and for estimates to routinely include conservative assumptions.

- **Procurement** – this reflects the potential for Sydney Water’s efforts to improve procurement efficiencies.

These catch-up efficiencies are over and above other specific adjustments made to capital projects and programs. They represent the ground that Sydney Water can make up in these fields to match the efficient frontier company. In total, catch-up efficiencies represent $114 million in savings over four years. Table 6.6 below sets out Atkins Cardo’s derivation of the efficiency targets applied to Sydney Water’s capital program.

<table>
<thead>
<tr>
<th>Table 6.6 Atkins Cardno cumulative efficiency targets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2016-17</strong></td>
</tr>
<tr>
<td><strong>Continuing efficiency at frontier</strong></td>
</tr>
<tr>
<td>Catch-up: program mgt</td>
</tr>
<tr>
<td>Catch-up: value engineering</td>
</tr>
<tr>
<td>Catch-up: cost estimating</td>
</tr>
<tr>
<td>Catch-up: procurement</td>
</tr>
<tr>
<td><strong>Catch-up efficiency to frontier</strong></td>
</tr>
</tbody>
</table>

| **Total efficiency** | **3.15%** | **6.30%** | **7.95%** | **9.60%** |


In our Draft Report, our total continuing and catch-up efficiencies reduced Sydney Water’s proposed capital expenditure by a further $155 million. Sydney Water argued that a portion of the catch-up efficiency, specifically relating to procurement, had been double counted.245

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245 Sydney Water’s submission to IPART’s Draft Report and Draft Determination, April 2016, pp 64-65.
In its review of Sydney Water’s submission and further information, Atkins Cardno agreed that some procurement efficiencies had been double counted, in particular to its forecast of capital expenditure on growth.246 We have accepted Atkins Cardno’s recommendations. As such, our decisions on catch-up efficiencies represent lower reductions than our Draft Report, and proposed expenditure by a further $128 million.

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7 Allowance for a return on assets, regulatory depreciation and tax liabilities

To calculate the allowances for a return on assets and regulatory depreciation in the revenue requirement, we need to determine three key inputs:

- the value of Sydney Water’s regulatory asset base (RAB), which represents the economic value of the assets used to deliver the monopoly services
- the appropriate asset lives and depreciation method for Sydney Water’s RAB, and
- the appropriate rate of return (eg, using the WACC) on Sydney Water’s RAB.

The sections below provide an overview of our decisions on these issues and their impact on the value of the RAB.

We also discuss our decisions on factors affecting the regulatory tax allowance and set out our findings on that tax allowance over the 2016 determination period.

7.1 The value of the Regulatory Asset Base

The RAB represents the value of Sydney Water’s assets on which we consider it should earn a return on capital and an allowance for regulatory depreciation. In determining the value of the RAB over the 2016 determination period, we have calculated:

- the opening RAB at 1 July 2016 by rolling the RAB forward from 2011-12 to 2015-16, and
- the value of the RAB in each year of the 2016 Determination.

Decision

12 We have decided to:

- set the opening RAB at 1 July 2016 by rolling the RAB forward from 2011-12 to 2015-16 as set out in Table 7.1
- adopt the value of the RAB in each year of the 2016 Determination as set out in Table 7.2.

\[247\] Regulatory depreciation is also known as ‘return of assets’, as the regulatory depreciation allowance returns the value of assets over their lives.
7 Allowance for a return on assets, regulatory depreciation and tax liabilities

7.1.1 Reasons for our decision

Calculating the opening RAB

In calculating the opening RAB, we rolled forward the RAB over the 2012 determination period. This involved using the determined RAB at 1 July 2011 and making the following adjustments:

- adding prudent and efficient capital expenditure (see Chapter 6)
- deducting cash capital contributions
- deducting the regulatory value of assets disposals
- deducting the regulatory depreciation we allowed at the 2012 determination, and
- adding the annual indexation of the RAB.

This determines the opening RAB for the 2016 determination period. The calculation of the opening RAB is set out in Table 7.1 below. Our decisions regarding the treatment of cash contributions and asset disposal are discussed in this chapter.

Table 7.1 Opening RAB for 2016 determination period
($millions, $nominal)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening RAB</td>
<td>12,190</td>
<td>12,874</td>
<td>13,557</td>
<td>14,264</td>
<td>14,826</td>
</tr>
<tr>
<td>Plus: Actual prudent and efficient capexb</td>
<td>612</td>
<td>597</td>
<td>548</td>
<td>621</td>
<td>691</td>
</tr>
<tr>
<td>Less: Cash capital contributions</td>
<td>-3</td>
<td>-1</td>
<td>0</td>
<td>-8</td>
<td>0</td>
</tr>
<tr>
<td>Less: Asset disposals</td>
<td>-4</td>
<td>-6</td>
<td>-12</td>
<td>-8</td>
<td>-38</td>
</tr>
<tr>
<td>Less: Allowed regulatory depreciation</td>
<td>-208</td>
<td>-223</td>
<td>-244</td>
<td>-262</td>
<td>-278</td>
</tr>
<tr>
<td>Plus: Indexationc</td>
<td>287</td>
<td>316</td>
<td>415</td>
<td>219</td>
<td>242</td>
</tr>
<tr>
<td>Closing RAB</td>
<td>12,874</td>
<td>13,557</td>
<td>14,264</td>
<td>14,826</td>
<td>15,444</td>
</tr>
</tbody>
</table>

a Figures for 2015-16 are forecasts.
b Capital expenditure figures have been adjusted for the timing of cash-based timing of Developer Commercial Agreements. As such, these figures vary slightly from those in Table 6.1 and Table 6.3.
c Inflation figures used are sourced from ABS All Capitals Consumer Price Index, 6401.0.: 2011-12, 2.3%; 2012-13, 2.4%; 2013-14, 3.0%; 2014-15, 1.5%; 2015-16, 1.6%.

Note: Totals may not add due to rounding.

248 When we set the RAB at our 2012 determination, the figures we used for 2011-12 were forecasts. Therefore, we need to adjust the 2011-12 figures for our actual figures including our decisions on capital expenditure for 2011-12.

249 Sydney Water’s pricing proposal was due by 30 June 2015. This meant that Sydney Water was unable to include actual inflation for 2014-15 in its RAB calculations. Instead, we directed Sydney Water to use the Bloomberg Mean Consensus inflation forecast (as at 10 October 2014) of 2.4% for 2014-15. We have updated inflation for this year to the actual 2014-15 inflation figure of 1.5%. The impact of adopting the actual inflation figure in the RAB roll-forward is a reduction in the typical annual residential bill of between $3 and $4.
Calculating the RAB over the 2016 determination period

To calculate the RAB in each year of the 2016 determination period, we rolled forward the RAB to 2019-20 by:

- adding $2,402 million of prudent and efficient forecast capital expenditure over the period (discussed in Chapter 6)
- adding $606 million to the opening RAB for the value of Sydney Water’s assets subject to finance leases
- adding $29 million to the opening RAB for capital expenditure in Rouse Hill (discussed in Chapter 9)
- deducting:
  - $54 million for the regulatory value of asset disposals
  - $13 million for capital contributions
  - $25 million in 2017-18 for redundant IT assets, and
  - $1,259 million for regulatory depreciation.

This gives the forecast RAB for each year of the 2016 period we have used to generate the return on capital and allowance for depreciation.

The RAB roll-forward over the 2016 determination period is shown in Table 7.2 below. With the exception of prudent and efficient forecast capital expenditure (discussed in Chapter 6), we discuss our decisions on the various RAB adjustments in further detail in the sections below.

<table>
<thead>
<tr>
<th>Table 7.2</th>
<th>RAB for 2016 determination period ($millions, $2015-16)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2016-17</td>
</tr>
<tr>
<td>Opening RAB</td>
<td>15,444</td>
</tr>
<tr>
<td>Plus: Adjustment for Rouse Hill capex</td>
<td>29</td>
</tr>
<tr>
<td>Plus: Adjustment for finance leases</td>
<td>606</td>
</tr>
<tr>
<td>Plus: Efficient capital expenditure</td>
<td>639</td>
</tr>
<tr>
<td>Less: Asset write-offs</td>
<td>-</td>
</tr>
<tr>
<td>Less: Asset disposals</td>
<td>-29</td>
</tr>
<tr>
<td>Closing RAB</td>
<td>16,398</td>
</tr>
</tbody>
</table>

*a* All asset disposals are sales of land.

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

Our calculation of the RAB for the 2016 determination results in the RAB being $571 million (or 3%) lower at the end of the determination period than Sydney Water proposed. Table 7.3 below compares our finding on the RAB to Sydney Water’s proposal.
7 Allowance for a return on assets, regulatory depreciation and tax liabilities

Table 7.3  IPART and Sydney Water proposed RAB ($millions, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IPART decision</td>
<td>15,444</td>
<td>16,398</td>
<td>16,696</td>
<td>16,978</td>
<td>17,154</td>
</tr>
<tr>
<td>Sydney Water Proposed</td>
<td>15,677</td>
<td>16,762</td>
<td>17,159</td>
<td>17,497</td>
<td>17,725</td>
</tr>
<tr>
<td>Difference</td>
<td>-233</td>
<td>-364</td>
<td>-463</td>
<td>-519</td>
<td>-571</td>
</tr>
<tr>
<td>Difference %</td>
<td>-1.5%</td>
<td>-2.2%</td>
<td>-2.7%</td>
<td>-3.0%</td>
<td>-3.2%</td>
</tr>
</tbody>
</table>

Note: Sydney Water’s proposed RAB includes forecast inflation for 2014-15 of 2.4%. The outturn inflation for 2014-15 was 1.5%. Totals may not add due to rounding.

Source: Sydney Water pricing proposal to IPART, June 2015, p 87.

The main differences leading to a lower RAB than Sydney Water proposed are:

- our decisions to reduce Sydney Water’s forecast capital expenditure by $300 million
- our decision to use a $77 million lower value for Sydney Water’s finance leased assets, and
- the use of actual inflation for 2014-15 in the RAB roll-forward, which decreased the RAB by around $130 million.

7.2 Asset disposals

The value of any regulatory assets Sydney Water disposes of during the 2012 determination period and proposes to dispose of during the 2016 determination period are deducted from the RAB. This ensures customers are not charged a return on assets or regulatory depreciation for assets that are no longer used to provide the regulated services.

Disposals can include asset sales, write-offs and write-downs. We regard disposals as significant if they attract capital gains tax or account for more than 0.5% of the RAB.
Decision

13 We have decided to:

- deduct the regulatory value of actual and forecast asset disposals from the RAB, where the regulatory value is determined as:
  
a. for significant sales of assets purchased before the RAB line-in-the-sand: Asset sales revenue x RAB/DRC at the time the RAB was established

b. for significant sales of assets purchased post RAB line-in-the-sand: purchase price + capital expenditure – depreciation + indexation

c. for significant asset write-offs: Determined on a case-by-case basis

d. for non-significant write-offs: Zero unless determined by exception on a case-by-case basis

e. for non-significant asset sales: Receipts from asset sales.

- not to deduct the sale of the Central Workshops land parcel from Sydney Water’s RAB.

7.2.1 Reasons for our decision

We have changed the way we treat asset disposals from our 2012 Determination.

Our approach to asset disposals reflects our view that the asset’s identifiable regulatory value should be removed from the RAB. This is the value of the asset as it entered the RAB (if known), adjusted for the effect of depreciation and indexation. We also consider that the business should pay any tax obligations from the regulatory profit it retains.

This approach means the business bears the risk of any profits or losses arising from the sale of an asset, and customers are not affected. We consider this to be appropriate because the benefit customers received came from consuming the service, not from ownership of the asset. We consider that the impact of any profit or loss should lie entirely with the business (or shareholder).

Our policy on the regulatory treatment of asset disposals is set out in detail in Appendix H.

Our treatment of Sydney Water’s proposed land sales

In its pricing proposal, Sydney Water proposed to sell around $455 million of land between 2012 and 2020. In November 2015, Sydney Water provided IPART with a revised estimate totalling $324 million over the same period.250

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250 Email to IPART, Sydney Water, 27 November 2015.
As set out in Appendix H, where the value of an asset as it entered the RAB is unknown, and this asset entered the RAB before the 2000 ‘line-in-the-sand’ (like most of Sydney Water’s surplus land251), we will estimate its regulatory value based on:

- the ratio of the RAB to the depreciated replacement cost (DRC) of Sydney Water’s assets at the time the RAB was established multiplied by
- the sale value of the asset.

For Sydney Water, the DRC of its noncurrent assets in 2000 was $12.5 billion,252 while the economic value (the RAB) was calculated by IPART at $5.3 billion.253 Therefore, at the time of the line-in-the-sand, all assets were included in the RAB at 42% ($5.3 billion/$12.5 billion=42%) of their DRC (ie, book value).

In its pricing proposal, Sydney Water proposed that 50% of the proceeds from asset sales be deducted from the RAB; with an adjustment to the regulatory tax allowance which reflected the 50% of its tax obligations.254

Our proposed approach for estimating the regulatory value of assets where their value as they entered the RAB is unknown will provide consistent and fair treatment of all assets acquired pre-2000. This approach will allow Sydney Water to retain a significant proportion of the proceeds from the sale of such assets, and thus remove any disincentive to sell non-productive assets.

We have applied this approach both in establishing the opening value of the RAB for the 2016 determination period, and in rolling forward this value over the determination period.

In its submission to our Issues Paper, Sydney Water supported our proposed approach in principle.255 However, it argued that using the RAB:DRC ratio (42%) overstated the fair regulatory value.256 It argued:

- land values had increased on average 4.80% per annum,257 and
- using 42% to calculate the regulatory value to be removed from the RAB included a regulatory profit component.258

251 Sydney Water notes that 99% of its land assets in its fixed asset register were held pre-2000. See Sydney Water pricing proposal to IPART, June 2015, p 280.
252 Sydney Water, Annual Report, 2000, p 56.
254 Sydney Water pricing proposal to IPART, June 2015, p 282.
255 Sydney Water submission to IPART Issues Paper, October 2015, p 40.
256 Because land prices had increased at a greater rate than CPI since 2000.
257 Sydney Water submission to IPART Issues Paper, October 2015, p 40.
258 Sydney Water sought an increase in the regulatory tax allowance to reflect the tax liability of the profit component deducted from the RAB. Sydney Water submission to IPART Issues Paper, October 2015, p 40.
Sydney Water reaffirmed its position in its submission to our Draft Report. It noted that our approach introduces a disincentive for efficient disposals of land because land sales are consistently above the RAB value.259

As noted in our Draft Report, we agree that land values have increased at a greater rate than general inflation since 2000. We consider that maintaining our 42% ratio for all asset sales, including land, ensures that the RAB as a whole is treated consistently. As such, for consistency we consider it reasonable to maintain our preferred regulatory treatment.

Under our approach, only the regulatory value of land removed from the RAB and Sydney Water retains the full regulatory profit. Accordingly, it would fund any capital gains tax (CGT) obligations from its retained profits and as such we have not included any CGT component in the regulatory tax allowance for land sales (see section below on tax allowance).

Excluding the sale of the Central Workshops land parcel from the RAB

Sydney Water has requested that the sale of ‘Central Workshops’ land parcel not be deducted from the RAB, as it was non-operational at the RAB line-in-the-sand.260 Sydney Water sold the parcel for $40.3 million in 2014-15.261

Our policy on asset disposals (outlined in Appendix H) states that if an asset was demonstrably non-operational at the line-in-the-sand then, on an exception basis, we would not deduct its sale from the RAB. On this basis, and the evidence presented to us, we have decided not to deduct the sale of the Central Workshops land parcel from the RAB.

With the exclusion of the Central Workshops land parcel sale, we have deducted $119 million262 from Sydney Water’s RAB for asset sales between 2012-13 and 2019-20.

Treatment of asset write-offs

We have accepted Sydney Water’s concerns regarding our proposed treatment of asset write-offs.263 Sydney Water argued that using the accounting treatment of write-offs to calculate a RAB deduction potentially double counts write-offs and will disadvantage the utility because of differences between regulatory and book asset lives (because regulatory lives are more aggregated).264

259 Sydney Water believes a significant practical flaw in our theoretical position is that it presumes the distribution of the sales value of assets sold are both above and below the RAB value, and the effects cancel out. According to Sydney Water, in practice, land sales, which comprise almost all significant asset disposals, consistently result in a value for the asset that is above the RAB value. Sydney Water submission to IPART Draft Report, April 2016, pp 21-22.
260 Sydney Water email to IPART, 14 December 2015.
261 Sydney Water email to IPART, 27 November 2015.
262 $119m = 42% x ($324m – $40.3m).
263 Sydney Water submission to IPART Issues Paper, October 2015, p 42.
264 Sydney Water submission to IPART Issues Paper, October 2015, pp 42, 83.
We consider that asset write-offs should be addressed through adjustments to the capital program and RAB for prudence and efficiency. As such, we have adopted a default assumption that non-significant asset write-offs have no regulatory value (because they have reached the end of their regulatory lives) unless a regulatory value is identified, by exception, on a case-by-case basis.

However, we have decided to treat all significant asset write-offs on a case by case basis.

**Write-off of $24.8 million in IT assets**

In its review of Sydney Water’s expenditure, Atkins Cardno found that Sydney Water’s investment in its IT program of $328 million over the four years of the 2016 determination period would lead to a redundancy in its existing Customer Management System (CMS).

For our Draft Report, we accepted Atkins Cardno’s recommendation to write down $24.8 million of electronic assets in 2017-18.

In its submission to our Draft Report, Sydney Water argued that this write-off be reinstated. It stated that the assumed 15 year economic life of this asset is inconsistent with our general use of 10 years for IT assets. It also argued that the purchase of the CMS represented the best value for customers.

In its review of Sydney Water’s submission to our Draft Report, Atkins Cardno has maintained its recommendation to remove $24.8 million from the RAB for redundancy of CMS. It found that:

…there is no further evidence to change our original view that early write-off of the CMS system was not prudent.

We have accepted Atkins Cardno’s recommendation and have accordingly maintained our position in the Draft Report and reduced the RAB by $24.8 million in 2017-18.

### 7.3 Adjustments for finance leases

A lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership of an asset. Assets subject to finance leases typically have three components – interest payments, principal payments, and payments covering the operating costs incurred in delivering the services associated with the asset.

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267 Sydney Water’s submission to IPART’s Draft Report and Draft Determination, April 2016, p 63.

Sydney Water currently has two contracts with finance lease components, namely:

- Blue Mountains Tunnel Sewage Transfer Agreement (BMT), and
- The Macarthur Water Filtration Agreement (WFA).270

It is also in the final stages of renegotiating two other WFAs which, once completed, will give rise to agreements with finance lease components:

- Prospect WFA (covering the Prospect water filtration plant), and
- Wyuna WFA (covering the Woronora and Illawarra water filtration plants).271

Decision

14 We have decided to value Sydney Water’s finance leased assets by:

- discounting all future principal and interest payments associated with each lease over the life of the lease agreement
- using the implied interest rate in each lease agreement as the discount rate
- adding $587.1 million to the RAB as the value of Sydney Water’s assets subject to finance leases (instead of passing through finance lease payments as operating expenditure), and
- adding a further $18.7 million to the RAB as the capitalised value of Sydney Water’s risk premium.

7.3.1 Reasons for our decision

We have decided to value Sydney Water’s finance lease assets at $587.1 million, which is the current value of the lease agreements. Our valuation is based on discounting each lease’s future interest and principal payments, over the life of each lease.

We will also add a further $18.7 million to the opening RAB for the 2016 determination period. This sum represents the present value of Sydney Water’s efficient risk premium payments for risks related to asset performance and condition. We have calculated this by:

- discounting each lease’s future median expenditure on asset related costs, and
- taking 50% of that value, being an estimate of the efficient outsourcing of those avoided costs.272

270 Sydney Water pricing proposal to IPART, June 2015, p 284.
271 Sydney Water pricing proposal to IPART, June 2015, p 284.
272 We note that Sydney Water’s proposed costs represents what it would have spent had the assets been its full responsibility. It does not represent the most efficient actual median risk, as the lessor may be willing to accept that risk at significantly less. As such, subject to any further information, we consider that a fair share of that additional $37.3 million customers should bear is 50%, or $18.7 million.
The discount rate used is the full interest rate implied in each lease agreement. This approach differs from that taken in the 2012 Determination, where we passed through all finance lease payments as operating expenditure. However, we consider our revised approach results in the operating expenditure cost block better reflecting pure operating costs, as interest and principal payments are removed. Similarly, the inclusion of the residual value of the assets in the RAB means that Sydney Water can earn an appropriate rate of return on the asset, and a depreciation allowance that reflects the economic value and life of the asset.

**Value of the underlying assets**

Sydney Water proposed to value its finance lease assets at **$683.2 million** and used a slightly different methodology to us. While it valued the finance lease assets by discounting all future interest and principal payments associated with each lease, it used the WACC rather than the interest rate in the lease as the discount rate.

However, we consider that for the purpose of valuing the underlying assets, the use of the WACC is not the most appropriate discount rate. We consider that using the actual or implied interest rates in Sydney Water’s finance leases will generate a more accurate asset value when discounting future lease payments.

In our view, the interest rates used in Sydney Water’s financial statements with respect to finance leases provides the best available estimate of its actual interest rate. Based on these discount rates, we calculate that the total value of Sydney Water’s underlying assets subject to finance leases is **$587.1 million**.

We have added this amount to the opening RAB, upon which Sydney Water earns a return on capital and depreciation allowance.

In our Draft Report, we valued the underlying assets at **$558.9 million**. In its submission to our Draft Report, Sydney Water argued that the value of the leased assets be increased by **$28 million**, for adopting a mid-year method of valuation, rather than the end-of-year approach we used in our Draft Report.

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273 In its pricing proposal in June 2015, Sydney Water reiterated that its preferred regulatory treatment of finance leases is to pass through annual lease payments as operating expenditure. This would include an upward adjustment of the regulatory tax allowance. However, in its proposal Sydney Water acknowledged that IPART’s preferred methodology was to add the value of the underlying asset(s) to the RAB. Its pricing proposal was based on this methodology. Sydney Water pricing proposal to IPART, June 2015, pp 287-288.

274 By discounting all future payments by the WACC, Sydney Water’s proposed value of assets to be added to the RAB ($683.2 million) generates a return on assets that is revenue neutral when compared to the actual principal and interest payments.

275 Sydney Water’s submission to IPART’s Draft Report and Draft Determination, April 2016, p 101.
We consider that given the lease payments occur throughout the year rather than at year end, that mid-year discounting is the most accurate method of valuation. As such, we accept Sydney Water’s proposal to increase the underlying value of the assets by a further $28.2 million, compared to our Draft Report.

Value of the risk premium

Sydney Water argued in its proposal that the interest component of its finance lease payments included a risk premium.\(^{276}\) This risk premium outsources a portion of the risks associated with the maintenance and performance of the assets to the lessor.

We consider that some of the annual lease payments efficiently manage the risks associated with these assets. One of the potential drawbacks of using the implied interest rates approach to value finance lease assets (outlined above) is that it may not recognise any additional risk premium that Sydney Water pays to the lessor. In the absence of these payments, Sydney Water would need to undertake additional operating and capital expenditure to maintain the assets in a satisfactory condition.\(^{277}\) Sydney Water argues that as well as the assets themselves, the lessor takes on additional risks associated with owning, operating and maintaining the asset.\(^{278}\)

We agree with Sydney Water that its current lease payments for its finance leased assets contain a risk premium component. The risks included in the payments under the agreements may include:

- interest rate risk
- asset price transfer risk, and
- asset condition and performance risk.

We consider that the only risk which Sydney Water should be compensated through customer prices is that of asset condition and performance. In our Draft Report, we found that Sydney Water has efficiently outsourced a portion of the maintenance and renewals expenditure associated with its finance leased assets. We discounted future payments for the maintenance and renewals activities we considered to be efficient. Using this method, we added, in addition to the $558.9 million for the underlying assets, a further $18.7 million to the opening RAB in recognition of Sydney Water’s finance lease related risk premium.

\(^{276}\) Sydney Water pricing proposal to IPART, June 2015, pp 283-287.
\(^{277}\) Sydney Water pricing proposal to IPART, June 2015, p 284.
\(^{278}\) Sydney Water pricing proposal to IPART, June 2015, p 284.
In its submission to our Draft Report, Sydney Water argued that a further $54 million in capitalised risks should be added to the RAB. It argues that the contracts were competitively tendered and that our regulatory treatment and valuation provides a disincentive to converting operating leases into finance leases.279

We do not consider that managing interest rate risk or asset price transfer risk should be passed through to customers. On interest rate risk, if contracts include long term interest rates that are significantly higher than the WACC, Sydney Water’s customers should not bear the cost of those lock-in rates.

Our decision is to maintain our Draft Report position and include $17.8 million in the RAB for the efficiently managed risk premium.

### 7.4 Return on capital

We include an allowance for a return on assets in the revenue requirement. This represents our assessment of the opportunity cost of the capital invested to provide the regulated services. Our approach ensures that the business can continue to make efficient capital investments in the future.

To calculate this allowance, we multiply the value of the RAB in each year of the determination period by an appropriate rate of return. As for previous reviews, we have determined the rate of return using a weighted average cost of capital (WACC).

**Decision**

15 We have decided to:

- apply a real post-tax WACC of 4.9% for the purposes of calculating an appropriate rate of return on Sydney Water’s assets, and
- set an allowance for return on capital as set out in Table 7.5.

7.4.1 Reasons for our decision

Rate of return

We have developed our current approach to setting the WACC in consultation with stakeholders in a number of reviews. Our decision is to use our standard methodology for all parameters. We have selected the midpoint WACC value of 4.9%.

The WACC is based on market data (risk free rate, debt margin and inflation) sampled to and including 2 May 2016. Our decisions on parameters are shown in Table 7.4.

Table 7.4 WACC for decisions

<table>
<thead>
<tr>
<th>WACC: current data</th>
<th>WACC: long-term</th>
<th>WACC range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Mid</td>
</tr>
<tr>
<td>Nominal risk free rate</td>
<td>2.6%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Gearing</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>Equity beta</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>Cost of debt (nominal pre-tax)</td>
<td>Nominal Vanilla WACC</td>
<td>6.3%</td>
</tr>
<tr>
<td>Real pre-tax WACC</td>
<td>4.5%</td>
<td>5.3%</td>
</tr>
<tr>
<td>Post-tax real WACC</td>
<td>3.7%</td>
<td>4.3%</td>
</tr>
</tbody>
</table>

Note: Debt margin includes a 12.5 basis points allowance for debt raising costs. Data is sampled to and including 2 May, 2016. Source: Bloomberg, Datastream, Thomson Reuters, RBA, IPART calculations.

Our WACC decision of 4.9% represents a 10 basis points increase in the real post-tax WACC of 4.8% used in our Draft Report. This is due to upward movements in the market risk premium and the debt margin since our draft decision. We did not receive any stakeholder submissions on the WACC input parameters.

As market uncertainty is currently within one standard deviation of the long term average, we have selected the midpoint WACC value. We measure market uncertainty using our financial market uncertainty index. This is consistent with our decision rule for selecting a point within our range of WACC values established as part of our 2013 review of the WACC.


Sydney Water did not request any changes to our WACC methodology or the associated input parameters into our WACC calculation in their submission to our Draft Report.

Generally, Sydney Water is supportive our approach to estimating the WACC, and our objective of setting a WACC that reflects the efficient cost of capital for a benchmark entity that operates in a competitive market and faces similar risks to the regulated business.\textsuperscript{282}

However, in its pricing proposal and response to the Issues Paper, Sydney Water considered that the weighting of current and long-term estimates should reflect the ratio between current debt financing requirements (that is, the amount to be refinanced in the current period or flow requirements) and the total notional debt in the capital structure (that is, the stock requirements), and argued that a weighting of 40\% current market data and 60\% long-term market data is more appropriate.\textsuperscript{283} Sydney Water submitted that it now accepts the 50\% weighting of current market data and long-term market data in the estimation of our WACC.\textsuperscript{284}

\textsuperscript{282} Sydney Water response to IPART Issues Paper, October 2015, p xi.
\textsuperscript{284} Sydney Water’s response to IPART’s Draft Report and Draft Determination, 18 April 2016, p 105.
Allowance for return on capital

Based on the RAB values set out in section 6.1 and our decision to apply a WACC of 4.9%, the resulting return on capital (WACC% x RAB) is shown in Table 6.5 below.

Our allowance for a return on capital is higher than proposed by Sydney Water in its June 2015 pricing proposal. This is the result of the higher WACC more than offsetting lower RAB values due to our efficiency and prudency adjustments to capital expenditure.

Table 7.5  Return on capital ($millions, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPART decision</td>
<td>784</td>
<td>799</td>
<td>813</td>
<td>825</td>
<td>3,221</td>
</tr>
<tr>
<td>Sydney Water Proposed</td>
<td>752</td>
<td>770</td>
<td>787</td>
<td>800</td>
<td>3,109</td>
</tr>
<tr>
<td>Difference</td>
<td>32</td>
<td>29</td>
<td>26</td>
<td>24</td>
<td>111</td>
</tr>
<tr>
<td>Difference %</td>
<td>4.2%</td>
<td>3.8%</td>
<td>3.3%</td>
<td>3.1%</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

Source: Sydney Water pricing proposal to IPART, June 2015, p 83.

7.5 Regulatory depreciation

An allowance for regulatory depreciation is included in the revenue requirement (and used in calculating the value of the RAB, as discussed above). This is intended to ensure that the capital invested in the regulatory assets is returned over the useful life of each asset.

To calculate this allowance, we determine the appropriate lives for the assets in Sydney Water’s RAB, and the appropriate depreciation method to use.

Decision

16 We have decided to adopt:

- a straight-line depreciation method for the 2016 determination period
- new and existing asset lives as set out in Table 7.6, and
- asset lives for assets subject to finance leases as set out in Table 7.7.
7.5.1 Reasons for our decision

Adopting Sydney Water’s asset lives and straight-line depreciation method

We have accepted Sydney Water’s straight-line approach to depreciation. This is consistent with our approach in previous reviews.\textsuperscript{285} We consider this method is superior to alternatives in terms of simplicity, consistency and transparency.

We have also accepted Sydney Water’s asset lives (see Table 7.6). In its pricing proposal, Sydney Water set asset lives in-line with the 2012 Determination (using its CEMELND\textsuperscript{286} asset classes). Our consultant, Atkins Cardno, reviewed the asset lives for the 2016 Determination and considered them to be appropriate.\textsuperscript{287}

<table>
<thead>
<tr>
<th>Table 7.6 Asset lives for the existing RAB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing asset lives</strong></td>
</tr>
<tr>
<td><strong>Corporate</strong></td>
</tr>
<tr>
<td>Civil</td>
</tr>
<tr>
<td>Electronic</td>
</tr>
<tr>
<td>Mechanical</td>
</tr>
<tr>
<td>Electrical</td>
</tr>
<tr>
<td><strong>Water</strong></td>
</tr>
<tr>
<td>Civil</td>
</tr>
<tr>
<td>Electronic</td>
</tr>
<tr>
<td>Mechanical</td>
</tr>
<tr>
<td>Electrical</td>
</tr>
<tr>
<td><strong>Wastewater</strong></td>
</tr>
<tr>
<td>Civil</td>
</tr>
<tr>
<td>Electronic</td>
</tr>
<tr>
<td>Mechanical</td>
</tr>
<tr>
<td>Electrical</td>
</tr>
<tr>
<td><strong>Stormwater</strong></td>
</tr>
<tr>
<td>Civil</td>
</tr>
<tr>
<td>Electronic</td>
</tr>
<tr>
<td>Mechanical</td>
</tr>
<tr>
<td>Electrical</td>
</tr>
</tbody>
</table>


\textsuperscript{285} Under this method, the assets in the RAB are depreciated by an equal value in each year of their economic life, so that their real written down value follows a straight line over time, from the initial value of the asset to zero at the end of the asset’s life.

\textsuperscript{286} We classify assets into civil, electrical, mechanical, electronic, and non-depreciating components to calculate the allowance for regulatory depreciation.

\textsuperscript{287} Atkins Cardno, *Sydney Water Corporation – Expenditure Review*, December 2015, pp 165-166.
Adopting new asset lives for finance leases

We have adopted asset lives for Sydney Water’s finance leases following review by our consultant, Atkins Cardno. These differ from Sydney Water’s forecast because of our concerns with:

- The relatively low asset life for civil assets for the water finance leases.\(^{288}\)
- The electrical and mechanical asset lives for Macarthur WFA.\(^{289}\)

Sydney Water proposed adding two separate RABs, one for water and a second for wastewater, related to assets being converted to finance leases.\(^{290}\) Table 7.7 provides details of our asset lives for Sydney Water’s finance leases and Sydney Water’s proposal.

**Table 7.7  Asset lives for assets subject to finance leases (years)**

<table>
<thead>
<tr>
<th></th>
<th>Sydney Water asset lives</th>
<th>IPART asset lives(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macarthur Civil</td>
<td>70.0</td>
<td>80.0</td>
</tr>
<tr>
<td></td>
<td>14.0</td>
<td>14.0</td>
</tr>
<tr>
<td></td>
<td>19.0</td>
<td>21.0</td>
</tr>
<tr>
<td></td>
<td>14.0</td>
<td>21.0</td>
</tr>
<tr>
<td>Macarthur Electronic</td>
<td>20.0</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>21.0</td>
<td>21.0</td>
</tr>
<tr>
<td></td>
<td>22.0</td>
<td>21.0</td>
</tr>
<tr>
<td>Macarthur Mechanical</td>
<td>21.0</td>
<td>21.0</td>
</tr>
<tr>
<td>Macarthur Electrical</td>
<td>21.0</td>
<td>21.0</td>
</tr>
<tr>
<td>Prospect Civil</td>
<td>50.0</td>
<td>80.0</td>
</tr>
<tr>
<td></td>
<td>20.0</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>21.0</td>
<td>21.0</td>
</tr>
<tr>
<td></td>
<td>22.0</td>
<td>21.0</td>
</tr>
<tr>
<td>Prospect Electronic</td>
<td>21.0</td>
<td>21.0</td>
</tr>
<tr>
<td></td>
<td>21.0</td>
<td>21.0</td>
</tr>
<tr>
<td></td>
<td>21.0</td>
<td>21.0</td>
</tr>
<tr>
<td>Wyuna Civil</td>
<td>51.0</td>
<td>80.0</td>
</tr>
<tr>
<td></td>
<td>21.0</td>
<td>21.0</td>
</tr>
<tr>
<td></td>
<td>21.0</td>
<td>21.0</td>
</tr>
<tr>
<td></td>
<td>21.0</td>
<td>21.0</td>
</tr>
<tr>
<td>Blue Mountains TunnelCivil</td>
<td>80.0</td>
<td>80.0</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

\(^a\) The lives of civil assets from the Water Filtration Agreements have been set at 80 years. This represents the difference between Atkins Cardno’s recommended 100-year life of new civil assets, and the age of the treatment plants.

**Source:** Sydney Water Annual Information Return, September 2015.

\(^{288}\) Atkins Cardno suggested a 100-year asset life from the date of commissioning as appropriate. Atkins Cardno, *Sydney Water Corporation – Expenditure Review*, December 2015, p 169.

\(^{289}\) Unless this is due to poor asset condition, Atkins Cardno suggested these should be the same as the other two water finance leases. Atkins Cardno, *Sydney Water Corporation – Expenditure Review*, December 2015, p 169.

\(^{290}\) Sydney Water pricing proposal to IPART, June 2015, pp 89-90.
The comparison between our allowance for regulatory depreciation (a return of capital) is compared to Sydney Water’s proposed allowance in Table 7.8 below. Our lower depreciation allowance is due to our prudence and efficiency adjustments to Sydney Water’s proposed capital expenditure program, and hence lower RAB.

Table 7.8 Allowance for regulatory depreciation (return of capital) ($millions, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPART decision</td>
<td>283</td>
<td>299</td>
<td>315</td>
<td>331</td>
<td>1,229</td>
</tr>
<tr>
<td>Sydney Water Proposed</td>
<td>293</td>
<td>313</td>
<td>332</td>
<td>351</td>
<td>1,289</td>
</tr>
<tr>
<td>Difference</td>
<td>-10</td>
<td>-13</td>
<td>-17</td>
<td>-19</td>
<td>-60</td>
</tr>
<tr>
<td>Difference %</td>
<td>-3.5%</td>
<td>-4.3%</td>
<td>-5.1%</td>
<td>-5.5%</td>
<td>-4.7%</td>
</tr>
</tbody>
</table>

Note: Totals may not add due to rounding.
Source: Sydney Water pricing proposal to IPART, June 2015, p 83.

7.6 Allowance for tax

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

We calculate the tax allowance for each year by applying a 30% statutory corporate tax rate adjusted for franking credits to the business’s (nominal) taxable income.\(^{291}\) For this purpose, taxable income is the notional revenue requirement (excluding tax allowance) less operating cost allowances, tax depreciation, and interest expenses. As part of calculating the appropriate tax allowance, the business is required to provide forecast tax depreciation for the determination period. Other items such as interest expenses are based on the parameters used for the WACC, and the value of the RAB.\(^{292}\)

The tax allowance is one of the last building block items we calculate, due to its dependence on other items such as operating cost allowances and WACC parameters.

Decision

17 We have decided to:
- make no adjustment to the regulatory tax allowance for capital gains tax on land sales
- make no adjustment to the regulatory tax allowance for revenue from grants and cash capital contributions

\(^{291}\) Under a post-tax framework, the value of franking credits (\(\gamma\)) enters the regulatory decision only through the estimate of the tax liability.
\(^{292}\) The nominal cost of debt is the sum of the nominal risk free rate and nominal debt margin.
– adopt Sydney Water’s 4-year historical average assets free of charge (for the period between 2011-12 and 2014-15), and
  
a. pass through the holding costs over the 2016 determination period of differences between actual and forecast assets free of charge at the next determination period.

– adopt the regulatory tax allowance as set out in Table 7.9.

7.6.1 Reasons for our decision

We have provided a regulatory tax allowance for Sydney Water as detailed in Table 7.9. Our regulatory tax allowance is lower than that proposed by Sydney Water due largely to our treatment of asset disposals and grants, and a lower level of assets free of charge (AFOC). This is partially offset by Sydney Water’s updated tax depreciation, which is significantly lower than its June 2015 pricing proposal.

Table 7.9 Regulatory tax allowance ($millions, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPART decision</td>
<td>50</td>
<td>58</td>
<td>58</td>
<td>56</td>
<td>221</td>
</tr>
<tr>
<td>Sydney Water Proposed</td>
<td>57</td>
<td>60</td>
<td>65</td>
<td>78</td>
<td>260</td>
</tr>
<tr>
<td>Difference</td>
<td>-7</td>
<td>-2</td>
<td>-8</td>
<td>-23</td>
<td>-39</td>
</tr>
<tr>
<td>Difference %</td>
<td>-11.8%</td>
<td>-3.2%</td>
<td>-12.0%</td>
<td>-28.9%</td>
<td>-15.1%</td>
</tr>
</tbody>
</table>

Note: Totals may vary due to rounding.
Source: Sydney Water pricing proposal to IPART, June 2015, p 92.

Excluding revenue from grants and capital contributions from the regulatory tax allowance

We have decided to exclude the revenue from grants and capital contributions from the regulatory tax allowance. Instead, we have decided to deduct grants and cash contributions net of tax from capital expenditure. This better reflects the impact of tax for these contributions.

Cash contributions\(^{293}\) 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.

However, forecast cash contributions have previously been included as income in the tax allowance calculation to provide an agency an allocation of tax against that contribution. There was no tax adjustment for differences in actual historical cash contributions compared to those forecasts.

\(^{293}\) Cash capital contributions also include grants.
Under current ATO rules, an agency is required to pay tax on cash contributions and grants. This means that only the amount net of tax can be applied to capital expenditure. Deducting the full amount of the cash contribution from capital expenditure and providing the agency a tax allowance for that cash contribution effectively converts a proportion of the RAB into cash. As a result, we have decided to deduct only the cash contribution amount net of tax from capital expenditure (ie, the RAB) and not include the cash contribution in the tax allowance calculation.

For the 2012 Determination, cash contributions were forecast as zero and therefore there were no deductions from capital expenditure and no tax allowance attributed for cash contributions. Therefore, we consider it reasonable to apply our new approach to both actual and forecast capital contributions (2011-12 to 2019-20).

Under our approach, Sydney Water’s gross cash contributions set out in Table 7.10 for the period of 2011-12 to 2015-16 and Table 7.11 for the period of 2016-17 to 2019-20 will be deducted from the RAB at 70%. This has further reduced the tax allowance by around $5 million over the four years of the 2016 determination period.

Table 7.10 Sydney Water’s cash contributions for the 2012 determination period ($’000, nominal)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>533</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Wastewater</td>
<td>3,254</td>
<td>888</td>
<td>-</td>
<td>1,825</td>
<td>-</td>
</tr>
<tr>
<td>Stormwater</td>
<td>31</td>
<td>988</td>
<td>-</td>
<td>10,000</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>3,818</td>
<td>1,875</td>
<td>-</td>
<td>11,825</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Cash contributions for 2011-12 are updated because at the time of the previous determination, these values were forecasts. Cash contributions for 2015-16 are forecasts. Source: Sydney Water Annual Information Return, September 2015.

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294 Both Hunter Water and Sydney Water have advised that contributions are treated as taxable income. IPART, *The incorporation of company tax in pricing determinations – Final Decision*, December 2011, p 12.

295 We have adopted Sydney Water’s historical cash contributions and used a 4-year historical average to forecast cash contributions over the 2016 determination period (similar to Sydney Water’s proposed treatment of cash contributions for the tax calculation). The 4-year period uses actual data from 2011-12 to 2014-15, so that it coincides with the length of the regulatory period and is consistent with the approach for asset contributions.
Table 7.11 Sydney Water’s cash contributions for the 2016 determination period ($’000, $2015-16)

<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>Water</td>
<td>145</td>
<td>145</td>
<td>145</td>
<td>145</td>
</tr>
<tr>
<td>Wastewater</td>
<td>1,584</td>
<td>1,584</td>
<td>1,584</td>
<td>1,584</td>
</tr>
<tr>
<td>Stormwater</td>
<td>2,811</td>
<td>2,811</td>
<td>2,811</td>
<td>2,811</td>
</tr>
<tr>
<td>Total</td>
<td>4,540</td>
<td>4,540</td>
<td>4,540</td>
<td>4,540</td>
</tr>
</tbody>
</table>

Source: Sydney Water Annual Information Return, September 2015 and IPART analysis.

Sydney Water received $14.1 million in grants and cash contributions over the 2012 determination period. Of which, $10 million was a grant provided by the NSW Government from the Housing Acceleration Fund (HAF) for stormwater works at Green Square. Sydney Water indicated in its pricing proposal that only $7 million of the Green Square grant would be used to fund the project and the remaining $3 million was used to pay tax. This outcome is reflected under our new approach.

Excluding a provision for Capital Gains Tax on land sales

We have made no allowance in the regulatory tax calculation for capital gains tax. As discussed, we have deducted our estimate of the regulatory value of assets subjected to capital gains tax from the RAB (ie, 42% of Sydney Water’s forecast land sales from the RAB). Sydney Water, therefore, keeps the regulatory profit/loss from the sale of assets (ie, land) and can fund any capital gains tax obligations from those proceeds. This differs from Sydney Water’s proposed 50:50 sharing arrangement on asset disposals, where 50% of the tax on capital gains on asset sales would be included in the tax calculation.

Our treatment of asset disposals has reduced the tax allowance by around $29 million over the 2016 determination period compared to Sydney Water’s proposal.

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296 Sydney Water Annual Information Return, September 2015.
297 Sydney Water also received an additional $38 million from the HAF for other projects during the 2012 period. However, these were equity injections rather than grants, and thus require a return. The full amount of this $38 million is therefore included in the RAB.
298 In October 2013, Sydney Water was directed by the NSW Government under Section 20N(1) of the State Owned Corporations Act 1989 (NSW) to construct and amplify stormwater infrastructure for the Green Square development. In February 2014, the works were subject to a Ministerial direction to IPART under Section 16A of the Independent Pricing and Regulatory Tribunal Act 1992 (NSW).
299 In its June 2015 pricing proposal, Sydney Water proposed using the actual capital gains from asset disposals between 2012-13 and 2015-16 for the purpose of calculating the tax allowance over the 2016 determination period. Sydney Water pricing proposal to IPART, June 2015, p 275.
Sydney Water incurred significant capital gains tax liabilities over the 2012 determination period. Given the difficulty in forecasting asset disposals and the resulting capital gains tax, Sydney Water has proposed to recover its actual capital gains tax incurred over the 2012 determination period in the 2016 period.\textsuperscript{300} It indicated that this approach will ensure that the impact of asset sales volatility is minimised, and the appropriate tax is allowed for in the regulatory building block framework over the long term.\textsuperscript{301} Sydney Water also proposed that we consider adopting a ‘true-up’ process for regulatory tax adjustments to avoid potentially high regulatory tax losses or gains in any given year, and difficult-to-forecast taxable items.

Our view is that the regulatory tax allowance is not intended to match an agency’s actual tax liability. It is derived using our assessment of efficient expenditure, the notional gearing ratio and the WACC. The actual tax liabilities an agency will incur in a given year will vary from our regulatory tax allowance due to differences in:

\textbullet{} interest expenses, arising from a different gearing ratio from our regulatory ratio (60:40 debt:equity) and a different cost of debt

\textbullet{} operating expenditure, and

\textbullet{} sales volumes and customer numbers.

We further consider that conducting a true-up of the tax allowance is broadly inconsistent with our treatment of other cash flows, such as the return on capital and operating expenditure.

**Adopting 4-year historical average to forecast assets free of charge**

Assets free of charge (AFOC) are assets that utilities receive, usually from developers, for free. AFOC does not affect the RAB, and utilities do not earn a return on or of those assets. Utilities are required to pay tax equivalents on the value of AFOC.\textsuperscript{302} As such, we include forecast AFOC as revenue in the calculation of the regulatory tax allowance building block.

In its submission to the 2012 price review, Sydney Water proposed adopting an average of the previous five years of actual AFOC.\textsuperscript{303} We accepted this methodology when calculating the regulatory tax allowance for the final determination.\textsuperscript{304}

\textsuperscript{300} Sydney Water pricing proposal to IPART, June 2015, p 275.
\textsuperscript{301} Sydney Water pricing proposal to IPART, June 2015, p 275.
\textsuperscript{303} Sydney Water’s submission to IPART Draft Determination, April 2012, p 7.
\textsuperscript{304} IPART, Review of prices for Sydney Water Corporation’s water, sewerage, stormwater drainage and other services – From 1 July 2012 to 30 June 2016 – Final Report, June 2012, p 8.
Sydney Water has since changed its approach to forecast AFOC, which we accepted in our Draft Report. However, we noted that we would consider the implications of those forecasts between the draft and final reports, given that Sydney Water’s forecast for AFOC over the 2016 period were considerably higher than actual AFOC over the 2012 period (see Table 7.13 below).

We have reviewed Sydney Water’s methodology and found it difficult to reconcile the modest projected growth rate in the number of households over the 2016 determination period with the 22% increase in Sydney Water’s AFOC forecasts. Further, we found that Sydney Water’s total AFOC result is highly sensitive to the ‘Forecast AFOC Realisation Adjustment Factor’ in the model and how that factor is applied to growth projections.

Sydney Water considers its methodology reflects a reasonable estimate of the AFOC forecast for 2016-17 to 2019-20, averaging $140 million per annum, because it aligns closely with the current recent actuals in 2014-15 and 2015-16. However, in light of our findings of Sydney Water’s methodology, we would like to see Sydney Water’s model calibrate to more than just two years of actual data, before adopting its new methodology. We will test Sydney Water’s forecast methodology more thoroughly at the 2020 determination, where we can compare its forecasts now to the outturn.

In addition, AFOC has varied considerably over the past 16 years (see Figure 7.2). This suggests that accurately forecasting AFOC on a consistent basis is problematic.

Figure 7.2 Historical AFOC between 1999-2000 and 2014-2015


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305 Sydney Water pricing proposal to IPART, June 2015, p 93.
Considering the points made above, we have decided to revert to using an historical average for AFOC forecasts. This would ensure that Sydney Water recovers its AFOC related tax obligations, albeit at a lag. We have also decided to pass through the holding costs over the 2016 determination period of differences between actual and forecast AFOC at the next determination period.

Our forecast AFOC are based on a 4-year historical average, to coincide with the length of the regulatory period, using actual data from 2011-12 to 2014-15. The average actual annual AFOC between 2011-12 and 2014-15 is $113.7 million ($2015-16) per annum (see Table 7.12).

**Table 7.12  Comparison of forecast and actual AFOC between 2011-12 and 2014-15 ($millions, $2015-16)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IPART forecast</td>
<td>102</td>
<td>102</td>
<td>102</td>
<td>102</td>
</tr>
<tr>
<td>Actual</td>
<td>97</td>
<td>111</td>
<td>114</td>
<td>133</td>
</tr>
<tr>
<td>Difference</td>
<td>5</td>
<td>-9</td>
<td>-12</td>
<td>-31</td>
</tr>
<tr>
<td>Difference %</td>
<td>4.9%</td>
<td>-8.3%</td>
<td>-10.5%</td>
<td>-23.6%</td>
</tr>
</tbody>
</table>

* 2011-12 was the final year of the 2008 determination, but at the time of the 2012 price review, was forecast data. It is shown for comparison purposes.

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

**Source:** Sydney Water Financial Model, 2012 Final Report and Determination; Sydney Water Annual Information Return, September 2015.

Our decision on AFOC forecasts is compared to Sydney Water’s and set out in Table 7.13 below.

**Table 7.13  AFOC forecast ($millions, $2015-16)**

<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>IPART decision</td>
<td>114</td>
<td>114</td>
<td>114</td>
<td>114</td>
</tr>
<tr>
<td>Sydney Water proposed</td>
<td>145</td>
<td>150</td>
<td>141</td>
<td>144</td>
</tr>
<tr>
<td>Difference</td>
<td>-32</td>
<td>-36</td>
<td>-28</td>
<td>-30</td>
</tr>
<tr>
<td>Difference %</td>
<td>-22%</td>
<td>-24%</td>
<td>-20%</td>
<td>-21%</td>
</tr>
</tbody>
</table>

**Source:** Sydney Water Annual Information Return, September 2015.
8 Forecast water sales and customer numbers

Once we have determined the revenue requirement for the 2016 determination period, the next step in our approach is to decide on Sydney Water’s forecast water demand and customer numbers, and its forecast chargeable wastewater volumes. These forecasts are used in calculating the water and wastewater price levels required to recover the required revenue.

It is important that the forecasts are reasonable. If they differ markedly from Sydney Water’s actual water sales, customer numbers and chargeable wastewater volumes over the determination period, the determined prices will result in the utility significantly over- or under-recovering its required revenue. If the forecasts are lower than actual sales, customers will pay too much. If they are higher than actual sales, Sydney Water may not earn sufficient revenue to recover its efficient costs.

8.1 Forecast water demand

Sydney Water’s total water demand includes three components:

- billed metered demand, which is the volume of water used by residential and non-residential customers who have a water meter
- billed unmetered demand, which is the (estimated) volume of water used by the small number of customers who do not have a water meter, and
- non-revenue water, which includes (among other items), water associated with real system losses (ie, leakage), unauthorised consumption, and unbilled unmetered consumption (eg, for firefighting).306

The costs associated with both billed metered demand and non-revenue water are recovered through the water prices paid by billed metered customers. The costs associated with billed unmetered demand are deemed, and recovered through the higher water service charges paid by unmetered customers (discussed in Chapter 9).

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Decision

18 We have decided to:

– adopt Sydney Water’s revised estimate of -0.264 for the price elasticity of demand for non-residential customers, for the purpose of forecasting water sales

– make a 25% reduction in both residential and non-residential elasticity estimates in forecasting water sales, to account for the perceived asymmetry in demand responses to price increases and price decreases, and

– adopt the residential and non-residential water demand forecasts as set out in Table 8.4 for the purpose of setting Sydney Water’s maximum water prices.

8.1.1 Reasons for our decision

We conducted an extensive review of Sydney Water’s demand forecasting model for the 2012 Determination. We accepted Sydney Water’s approach to demand forecasting in the 2012 Determination, as it represented an improvement from previous approaches and was supported by an expert consultant’s report. We also held a workshop to discuss Sydney Water’s proposed approach to demand forecasting, and the use of possible alternative approaches. External expert stakeholders at our demand forecasting workshop agreed that Sydney Water’s model was likely to be the best approach to forecast water demand. IPART, Review of Sydney Water Corporation’s water, sewerage, stormwater drainage and other services – Final Report, June 2012, pp 92-93.

However, we identified some potential issues which, if they materialise, could result in under estimation of demand. In particular, we questioned the following demand elasticity assumptions Sydney Water adopted to derive its forecasts:

• non-residential customers exhibit perfect price inelasticity (ie, elasticity of 0), and

• a demand response to a price fall would only be half (ie, 50%) that of a price increase.

We discuss the adjustments we made to Sydney Water’s forecasts below, in light of these concerns.

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307 We accepted Sydney Water’s approach to demand forecasting in the 2012 Determination, as it represented an improvement from previous approaches and was supported by an expert consultant’s report. We also held a workshop to discuss Sydney Water’s proposed approach to demand forecasting, and the use of possible alternative approaches. External expert stakeholders at our demand forecasting workshop agreed that Sydney Water’s model was likely to be the best approach to forecast water demand. IPART, Review of Sydney Water Corporation’s water, sewerage, stormwater drainage and other services – Final Report, June 2012, pp 92-93.


309 We engaged a consultant, Jacobs, to assist with our review of Sydney Water’s demand forecasts. Much of the supplementary information used in our analysis was provided to us by Sydney Water on a commercial-in-confidence basis. Jacobs, Review of Demand Forecasts – Sydney Water, January 2016 (Commercial-in-Confidence).

310 Sydney Water pricing proposal to IPART, June 2015, p 322.
Actual water sales over 2012 determination period

We consider that Sydney Water’s model performed reasonably well over the 2012 determination period, although there were some variations between forecast and actual demand.

Table 8.1 compares Sydney Water’s actual water sales (billed metered demand) over the 2012 determination period to the forecast sales used to set prices for this period. It shows that, to date, its actual sales were higher than forecast in each year, and therefore that Sydney Water has over-recovered its revenue requirement for this period.

Table 8.1 Water sales over the 2012 determination period (ML)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IPART 2012 determination</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>320,391</td>
<td>322,899</td>
<td>325,309</td>
<td>328,673</td>
</tr>
<tr>
<td>Non-residential</td>
<td>111,585</td>
<td>111,146</td>
<td>110,835</td>
<td>110,843</td>
</tr>
<tr>
<td><strong>Total determined</strong></td>
<td>487,202</td>
<td>489,313</td>
<td>491,457</td>
<td>495,013</td>
</tr>
<tr>
<td><strong>Actual (and 15-16 Forecast)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-residential</td>
<td>101,968</td>
<td>116,503</td>
<td>115,554</td>
<td>115,693</td>
</tr>
<tr>
<td><strong>Total actual</strong></td>
<td>515,661</td>
<td>527,343</td>
<td>514,832</td>
<td>522,292</td>
</tr>
</tbody>
</table>
| Difference between actual and determined (%) | 5.84% | 7.77% | 4.76% | 5.51%

*a* Based on actual demand from July 2014 to May 2015 and forecast demand for June 2015.

*b* Forecast figures.

**Note:** Totals include non-revenue water usage.

**Source:** Actuals sourced from Sydney Water Annual Information Return, June 2015. Forecasts sourced from IPART’s final modelling for the 2012 Determination.

In making the 2012 Determination, we noted that consumer behaviour may change in response to the lifting of drought restrictions and their replacement with the Water Wise rules, and as a result, Sydney Water’s forecast sales could be too low.311 However, in its proposal to the current review Sydney Water indicated that in updating its demand model for this review, it found no evidence of this kind of ‘bounce back’ in water demand over the 2012 period.312 Instead, Sydney Water attributed its higher than forecast water sales to the weather conditions over the 2012 determination period, which deviated from the average weather conditions on which its original forecasts were based.313 For example, Sydney Water noted that during 2012-13 and 2013-14, maximum temperatures were above average almost every month while rainfall was below average in most months (with the exception of a few spikes).314

311 IPART, Review of Sydney Water Corporation’s water, sewerage, stormwater drainage and other services – From 1 July 2012 to 30 June 2016 – Final Report, June 2012, p 92.

312 Sydney Water pricing proposal to IPART, June 2015, p 319.

313 Sydney Water pricing proposal to IPART, June 2015, p 315.

314 Sydney Water pricing proposal to IPART, June 2015, p 316.
Sydney Water reports that its updated model’s prediction of residential demand in 2014-15, the model’s first out of sample prediction, was within 0.2% of actual demand. Nonetheless, we observe that forecast demand over the 2016 Determination continues to be based on average weather conditions. Therefore, variations between forecast and actual demand remain likely. The demand volatility mechanism that we have adopted acts as a safety net for customers should these variations eventuate and prove to be material (see Section 8.4 Demand volatility adjustment mechanism).

Overall, Sydney Water reported a decline in its customers’ total water use since the early 2000s of about 100 GL a year (or 16%). Over the same period, its customer numbers increased by about 15% to about 4.8 million people. Therefore, on a per person basis, total water use has decreased by more than a quarter to about 307 litres per person a day.

The price elasticity of demand for non-residential customers

We considered Sydney Water’s demand forecasts and assessed the assumptions used to derive these forecasts. One assumption we questioned was Sydney Water’s assumed zero price elasticity of demand for non-residential customers.

Sydney Water agreed with us that the price elasticity of demand for non-residential customers is unlikely to be zero. In response, Sydney Water submitted a survey of non-residential water demand elasticity studies that was published in 2010. From the results reported in this survey, Sydney Water averaged commercial and industrial estimates to arrive at a non-residential estimate of -0.264. We consider Sydney Water’s revised estimate to reasonably reflect the available evidence.

Asymmetry assumption in the price elasticity of demand

In our assessment of the assumptions used to derive Sydney Water’s demand forecasts, we also questioned Sydney Water’s assumed 50% reduction in price elasticity estimates to account for the perceived asymmetry in demand responses to price increases versus price decreases. That is, the expected demand response to Sydney Water’s proposed price decrease was assumed to be 50% that of the expected demand response to a price increase.

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315 Email to IPART, Sydney Water, 2 October 2015.
316 Sydney Water pricing proposal to IPART, June 2015, p 310.
317 Sydney Water pricing proposal to IPART, June 2015, p 310.
318 Sydney Water pricing proposal to IPART, June 2015, p 322.
319 Email to IPART, Sydney Water, 2 December 2015.
320 Worthington, Commercial and industrial water demand estimation: Theoretical and methodological guidelines for applied economics research, Griffith Business School, Discussion Papers, September 2010.
To support its proposed 50% reduction in price elasticity of demand, Sydney Water:

• Presented a rationale that the demand response to a price increase could be broken down into structural (more water efficient technology) and behavioural (less intensive use of water) components and that the structural component was unlikely to be reversed when prices fall.

• Submitted empirical evidence from energy and transport markets showing that, on average, the demand response to a price reduction was about 50% that of the demand response to a price increase.

In our Draft Report we decided to reduce the asymmetry adjustment from Sydney Water’s proposed 50% to 25% for the following reasons:

• We agreed in principle with Sydney Water’s rationale that the demand response to a price fall could be lower than the demand response to a price increase because consumers are unlikely to switch back to less efficient technology in response to a price decrease.

• However, we expressed concern with the relevance and strength of the empirical evidence submitted by Sydney Water. None of the evidence relates to water and it included a very wide range of estimates suggesting that the demand response to a price decrease is somewhere between 0% and 310% the demand response to a price increase.

Sydney Water does not support our decision to revise down its proposed asymmetry adjustment to the price elasticity of demand. It argued that we did not have statistical evidence to reject its proposal and we did not have a sound rational or evidence to support our decision to use a different asymmetry assumption.321

We have considered Sydney Water’s arguments and have decided to maintain our decision to reduce the asymmetry adjustment from Sydney Water’s proposed 50% to 25%. While we consider there may be some degree of asymmetry (at least in the short run over the next determination period), the empirical evidence submitted by Sydney Water is not compelling.

Given the low relevance, wide dispersion, and inconsistency between Sydney Water’s price elasticity of demand estimates (which control for technological change) and the empirical evidence for asymmetry (which does not control for technological change), we consider there is a strong case for using a more conservative estimate closer to the starting point of symmetry. Notably:

• Statistical evidence to reject Sydney Water’s proposal:
  - Sydney Water’s price elasticity of demand estimates (for residential demand) were derived from models that control for technological

change. However, much of the empirical evidence submitted by Sydney Water to support its asymmetry assumption was derived from models that do not control for technological change. This empirical evidence is likely to overestimate the degree of asymmetry by: overstating the demand response to a price rise; and, understating the demand response to a price fall. We consider it is not appropriate to apply an asymmetry adjustment derived from models that do not control for technological change to price elasticity of demand estimates derived from a models that do control for technological change.

Evidence to support our revised assumption:

- Of the 47 data points provided by Sydney Water, 11 data points report zero price elasticity of demand to a price decrease. In revising its non-residential price elasticity of demand assumption, Sydney Water agreed that it is not reasonable to assume a zero price elasticity of demand. Accordingly, if we omit these 11 data points from Sydney Water’s sample, the average increases from 0.55 to 0.72. If we also omit the remaining long-run estimates (which are less relevant to the next four years, and we consider are most likely to be affected by the model misspecification discussed above), the average increases from 0.72 to 0.78.

- Sydney Water claimed that our revised estimate of 0.75 is outside the 95% confidence interval around the average value of 0.55. This claim is based on an incorrect use of the population standard deviation (rather than the sample standard deviation). After correcting for this, the 95% confidence interval widens to 0.36 to 0.75 (rounded to two decimal places), which includes our estimate of 0.75. Nevertheless, given our concerns about the relevance and robustness of the data underlying this analysis, we have not relied on this analysis in making our decision.

Table 8.2 summarises the impacts of Sydney Water’s proposed and our revised price elasticity of demand estimates for the 13.5% price decrease from $2.276/kL to $1.970/kL, effective from 1 July 2016.


323 Griffin and Schulman, *Price asymmetry in energy demand models: a proxy for energy-saving technical change?* The Energy Journal, vol. 26 (2), 2005, pp 1-21. This article accepts the possibility of some degree of asymmetry in the short-run, but suggests that the empirical estimates of asymmetry could be the result of model misspecification by not including technical change.

324 Sydney Water submission to IPART Draft Report, April 2016, p 27.
Table 8.2  Indicative impact of elasticity assumptions over four years ($millions, $2015-16)

<table>
<thead>
<tr>
<th>Component</th>
<th>Elasticity for price increase</th>
<th>Asymmetry adjustment</th>
<th>Elasticity for price decrease</th>
<th>Demand impact</th>
<th>Revenue impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Water’s revised proposal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single residential</td>
<td>-0.249</td>
<td>50%</td>
<td>-0.124</td>
<td>+0.8%</td>
<td>$33.1</td>
</tr>
<tr>
<td>Multi residential</td>
<td>-0.049</td>
<td>50%</td>
<td>-0.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-residential</td>
<td>-0.264</td>
<td>50%</td>
<td>-0.132</td>
<td>+0.4%</td>
<td>$15.2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>+1.1%</td>
<td>$48.2</td>
</tr>
<tr>
<td>IPART decision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single residential</td>
<td>-0.249</td>
<td>75%</td>
<td>-0.186</td>
<td>+1.2%</td>
<td>$49.6</td>
</tr>
<tr>
<td>Multi residential</td>
<td>-0.049</td>
<td>75%</td>
<td>-0.037</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-residential</td>
<td>-0.264</td>
<td>75%</td>
<td>-0.198</td>
<td>+0.5%</td>
<td>$22.8</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>+1.7%</td>
<td>$72.3</td>
</tr>
</tbody>
</table>

Note: Demand impact: calculated as the expected percentage change in total forecast demand. Revenue impact: calculated as the expected kL change in demand * $1.97/kL usage price.

Source: IPART analysis.

Incremental costs of increased water sales

In response to our Draft Report, Sydney Water noted that we did not adjust Sydney Water’s operating expenditure allowance to account for the incremental costs of the higher forecast water sales compared to Sydney Water’s original proposal. Sydney Water’s submission estimated the incremental cost to be approximately $1 million over four years.

We agree with Sydney Water on this point and have therefore included the incremental costs of the additional water sales to Sydney Water’s operating expenditure allowance. The estimated incremental cost of $1.3 million over four years consists of:

▼ $0.5 million over four years to account for Sydney Water’s revision to its non-residential price elasticity of demand estimate.

▼ $0.8 million over four years to account for our revision to Sydney Water’s asymmetry assumption.

The estimate of incremental cost we used for this calculation relates to filtration and treatment costs. It does not include bulk water costs from water purchases from WaterNSW because these costs have already been included in Sydney Water’s operating expenditure allowance.
Table 8.3 Incremental cost from additional water sales ($2016/17)

<table>
<thead>
<tr>
<th></th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incremental cost ($/ML)</td>
<td>63.31</td>
<td>63.31</td>
<td>63.31</td>
<td>63.31</td>
<td>63.31</td>
</tr>
<tr>
<td>Additional water sales (ML)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Non-res elasticity</td>
<td>1,456</td>
<td>2,080</td>
<td>2,080</td>
<td>2,086</td>
<td>7,701</td>
</tr>
<tr>
<td>- Revised asymmetry</td>
<td>2,291</td>
<td>3,292</td>
<td>3,313</td>
<td>3,344</td>
<td>12,239</td>
</tr>
<tr>
<td>Incremental cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Non-res elasticity</td>
<td>$92,171</td>
<td>$131,669</td>
<td>$131,666</td>
<td>$132,048</td>
<td>$487,554</td>
</tr>
<tr>
<td>- Revised asymmetry</td>
<td>$145,012</td>
<td>$208,412</td>
<td>$209,733</td>
<td>$211,720</td>
<td>$774,877</td>
</tr>
<tr>
<td>Total cost</td>
<td>$237,182</td>
<td>$340,081</td>
<td>$341,399</td>
<td>$343,768</td>
<td>$1,262,431</td>
</tr>
</tbody>
</table>


Residential and non-residential water demand forecasts for the 2016 determination period

We have decided to adopt the residential and non-residential water demand forecasts in Table 8.4 for the purpose of setting Sydney Water’s maximum water prices for the 2016 determination period. These water demand forecasts reflect:

- The revised non-residential elasticity estimate. This change has increased the non-residential demand forecast by 0.4% or 7.7 GL over the four years (as compared to the zero elasticity assumption in Sydney Water’s pricing proposal).

- Our 25% reduction in elasticity for a price decrease (relative to a price increase) for both residential and non-residential demand (compared to Sydney Water’s proposed 50% reduction). This increases forecast demand by a further 0.6% or 12.2 GL over the four years.

Table 8.4 compares our forecasts with Sydney Water’s water demand forecasts. It shows that Sydney Water expects its total water demand to increase from about 523 GL (in 2015-16)\(^{325}\) to 544 GL (in 2019-20), while we expect total water demand to increase to 550 GL (in 2019-20) and total about 1% more per annum. At a usage charge of $1.97, this higher demand forecast would result in a one-off reduction in the 20mm meter water service charge of about $5 per customer.

---

\(^{325}\) Note that 2015-16 is a forecast. Total water demand in 2014-15, the last year of actual data, was 515 GL.
### Table 8.4 Residential and non-residential water demand forecasts over the 2016 determination period (GL)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sydney Water pricing proposal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>347</td>
<td>353</td>
<td>358</td>
<td>362</td>
<td>367</td>
</tr>
<tr>
<td>Non-residential&lt;sup&gt;a&lt;/sup&gt;</td>
<td>115</td>
<td>115</td>
<td>115</td>
<td>115</td>
<td>116</td>
</tr>
<tr>
<td>Total billed metered</td>
<td>463</td>
<td>468</td>
<td>473</td>
<td>477</td>
<td>483</td>
</tr>
<tr>
<td>Total billed unmetered and non-revenue</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>61</td>
<td>61</td>
</tr>
<tr>
<td>Total demand</td>
<td>523</td>
<td>528</td>
<td>533</td>
<td>538</td>
<td>544</td>
</tr>
<tr>
<td><strong>IPART decision</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>347</td>
<td>355</td>
<td>361</td>
<td>365</td>
<td>370</td>
</tr>
<tr>
<td>Non-residential&lt;sup&gt;a&lt;/sup&gt;</td>
<td>115</td>
<td>117</td>
<td>118</td>
<td>118</td>
<td>118</td>
</tr>
<tr>
<td>Total billed metered</td>
<td>463</td>
<td>471</td>
<td>478</td>
<td>482</td>
<td>488</td>
</tr>
<tr>
<td>Total billed unmetered and non-revenue</td>
<td>60</td>
<td>61</td>
<td>61</td>
<td>62</td>
<td>62</td>
</tr>
<tr>
<td>Total demand</td>
<td>523</td>
<td>532</td>
<td>539</td>
<td>544</td>
<td>550</td>
</tr>
</tbody>
</table>

<sup>a</sup> Includes unfiltered water demand.

<sup>b</sup> 2015-16 is included for comparison.

**Note:** Total metered water sales is the sum of the residential and non-residential metered water sales less the recycled water top-up. This is the figure that is multiplied by the water usage charge and then deducted from the target revenue requirement.

**Source:** Sydney Water pricing proposal, June 2015, p 312 and IPART analysis.

### 8.2 Forecast customer numbers

Forecasts of customer numbers are used in calculating the water, wastewater and stormwater drainage service charges as part of setting prices to recover the required revenue for each service.

**Decision**

19 We have decided to adopt for the purpose of setting Sydney Water’s maximum prices:

- the forecast residential customer numbers as set out in Table 8.5, and
- the forecast non-residential customer numbers as set out in Table 8.6.

### 8.2.1 Reasons for our decision

**Forecast residential customer numbers**

We consider that Sydney Water’s forecasts of residential customer numbers are reasonable:
Forecast residential water customer growth rates appear to be consistent with historical trends and are in line with forecast population growth.

Forecast residential wastewater and stormwater customer growth rates are reasonable and in line with forecast population trends.

We made two changes to the customer numbers for water and wastewater as a result of our decisions regarding the billing treatment of dual occupancies and joint services properties (discussed in Chapter 9). Our decision on dual occupancies has resulted in an additional 4,235 shared meter customers for water and wastewater, and our decision for joint services has reduced the number of stand-alone customers for water and wastewater by 544, for each year of the determination relative to Sydney Water’s proposal.

Table 8.5 compares Sydney Water’s forecast residential customer numbers (ie, the number of residential dwellings connected to its systems) to our forecast residential customer numbers over the 2016 determination period.

Table 8.5 Forecast residential customer numbers over the 2016 determination period

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sydney water proposed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual meters&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1,183,347</td>
<td>1,202,718</td>
<td>1,224,378</td>
<td>1,247,698</td>
<td>1,271,952</td>
</tr>
<tr>
<td>Share meters&lt;sup&gt;b&lt;/sup&gt;</td>
<td>590,678</td>
<td>581,522</td>
<td>583,774</td>
<td>584,939</td>
<td>585,576</td>
</tr>
<tr>
<td>Unmetered</td>
<td>13,775</td>
<td>13,775</td>
<td>13,775</td>
<td>13,775</td>
<td>13,775</td>
</tr>
<tr>
<td><strong>Total residential water customers</strong></td>
<td>1,787,800</td>
<td>1,798,015</td>
<td>1,821,927</td>
<td>1,846,412</td>
<td>1,871,303</td>
</tr>
<tr>
<td><strong>Wastewater</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual meters&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1,150,968</td>
<td>1,170,334</td>
<td>1,191,978</td>
<td>1,215,276</td>
<td>1,239,503</td>
</tr>
<tr>
<td>Share meters&lt;sup&gt;b&lt;/sup&gt;</td>
<td>586,923</td>
<td>577,725</td>
<td>579,956</td>
<td>581,110</td>
<td>581,741</td>
</tr>
<tr>
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<td>2,792</td>
<td>2,792</td>
<td>2,792</td>
<td>2,792</td>
<td>2,792</td>
</tr>
<tr>
<td><strong>Total residential wastewater customers</strong></td>
<td>1,740,683</td>
<td>1,750,851</td>
<td>1,774,726</td>
<td>1,799,178</td>
<td>1,824,036</td>
</tr>
<tr>
<td><strong>Stormwater</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-multi premise&lt;sup&gt;a&lt;/sup&gt;</td>
<td>199,976</td>
<td>203,598</td>
<td>203,971</td>
<td>204,341</td>
<td>204,702</td>
</tr>
<tr>
<td>Multi premise&lt;sup&gt;b&lt;/sup&gt;</td>
<td>287,964</td>
<td>288,437</td>
<td>295,473</td>
<td>302,545</td>
<td>309,761</td>
</tr>
<tr>
<td>Mixed multi premise</td>
<td>8,021</td>
<td>8,096</td>
<td>8,133</td>
<td>8,152</td>
<td>8,162</td>
</tr>
<tr>
<td><strong>Total residential stormwater customers</strong></td>
<td>495,961</td>
<td>500,131</td>
<td>507,577</td>
<td>515,038</td>
<td>522,625</td>
</tr>
</tbody>
</table>
Forecast water sales and customer numbers

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IPART decision</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual meters&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1,183,347</td>
<td>1,202,174</td>
<td>1,223,834</td>
<td>1,247,154</td>
<td>1,271,408</td>
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<tr>
<td>Share meters&lt;sup&gt;b&lt;/sup&gt;</td>
<td>590,678</td>
<td>585,757</td>
<td>588,009</td>
<td>589,174</td>
<td>589,811</td>
</tr>
<tr>
<td>Unmetered</td>
<td>13,775</td>
<td>13,775</td>
<td>13,775</td>
<td>13,775</td>
<td>13,775</td>
</tr>
<tr>
<td><strong>Total residential water customers</strong></td>
<td>1,787,800</td>
<td>1,801,706</td>
<td>1,825,618</td>
<td>1,850,103</td>
<td>1,874,994</td>
</tr>
<tr>
<td><strong>Wastewater</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual meters&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1,150,968</td>
<td>1,169,790</td>
<td>1,191,434</td>
<td>1,214,732</td>
<td>1,238,959</td>
</tr>
<tr>
<td>Share meters&lt;sup&gt;b&lt;/sup&gt;</td>
<td>586,923</td>
<td>581,960</td>
<td>584,191</td>
<td>585,345</td>
<td>585,976</td>
</tr>
<tr>
<td>Unmetered</td>
<td>2,792</td>
<td>2,792</td>
<td>2,792</td>
<td>2,792</td>
<td>2,792</td>
</tr>
<tr>
<td><strong>Total residential wastewater customers</strong></td>
<td>1,740,683</td>
<td>1,754,542</td>
<td>1,778,417</td>
<td>1,802,869</td>
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</tr>
<tr>
<td>Non-multi premise&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>203,598</td>
<td>203,971</td>
<td>204,341</td>
<td>204,702</td>
</tr>
<tr>
<td>Multi premise&lt;sup&gt;b&lt;/sup&gt;</td>
<td>287,964</td>
<td>288,437</td>
<td>295,473</td>
<td>302,545</td>
<td>309,761</td>
</tr>
<tr>
<td>Mixed multi premise</td>
<td>8,021</td>
<td>8,096</td>
<td>8,133</td>
<td>8,152</td>
<td>8,162</td>
</tr>
<tr>
<td><strong>Total residential stormwater customers</strong></td>
<td>495,961</td>
<td>500,131</td>
<td>507,577</td>
<td>515,038</td>
<td>522,625</td>
</tr>
</tbody>
</table>

<sup>a</sup> Such as houses.

<sup>b</sup> That is, multi-premise properties, such as apartments, flats and (for water and wastewater) mixed development.

**Note:** 2015-16 is included for comparison. Given our decision to rebase water and wastewater service charges, each residential customer has been deemed to have a 20mm meter for pricing purposes.

**Source:** Sydney Water pricing proposal to IPART - Appendices, June 2015, p 48-51; and Sydney Water Annual Information Return, September 2015.

In relation to residential customer numbers, Sydney Water noted that the Metropolitan Development Plan had forecast growth of 66,230 dwellings over the 2012 determination period, but that actual growth during this period was higher.<sup>326</sup>

Over the 2016 determination period, Sydney Water has forecast growth of around 96,000 dwellings.<sup>327</sup> It attributed this growth mainly to government funding and housing acceleration programs.

**Forecast non-residential customer numbers**

On balance, we have decided to adopt Sydney Water’s forecast non-residential customer meter numbers. We note that Sydney Water’s forecast growth rate for non-residential customers is lower than the population growth rate, despite actual growth in the non-residential stock being above population growth historically.

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<sup>326</sup> Sydney Water pricing proposal to IPART - Appendices, June 2015, p 184.

<sup>327</sup> Sydney Water pricing proposal to IPART - Appendices, June 2015, p 184.
In its pricing proposal, Sydney Water reported that while growth of 6,810 properties (or an average of about 1,700 properties per year) was forecast for the 2012 determination period, actual growth was half of this due to billing simplification, property consolidations, and residential redevelopment.\textsuperscript{328} As a result, Sydney Water has forecast a more modest non-residential growth of about 1,042 properties per year\textsuperscript{329} (3,610 properties in total) over the 2016 determination period.

We acknowledge that forecasting a growth rate for non-residential customers is more difficult than for residential customers due to the diverse nature of the non-residential customer base. It is also a smaller set of customers, particularly because they are represented by meter size, rather than actual number of customers connected to the system. Any discrepancy between forecast and actual non-residential customer growth can have a relatively large impact on the total number of non-residential customers. We have therefore adopted Sydney Water’s non-residential meter and customer forecasts for the 2016 determination period and will review the outcome of actual non-residential customer numbers at the next price review.

Table 8.6 presents forecast non-residential meter and customer numbers (ie, the number of non-residential properties and customers connected to its systems) over the 2016 determination period.

\textsuperscript{328} Sydney Water pricing proposal to IPART - Appendices, June 2015, p 184.
\textsuperscript{329} Sydney Water pricing proposal to IPART - Appendices, June 2015, p 184.
Table 8.6  Forecast non-residential meter and customer numbers over the 2016 determination period

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 mm individual meter</td>
<td>46,052</td>
<td>46,668</td>
<td>47,372</td>
<td>48,087</td>
<td>48,778</td>
</tr>
<tr>
<td>All other meters</td>
<td>52,033</td>
<td>52,233</td>
<td>52,461</td>
<td>52,692</td>
<td>52,916</td>
</tr>
<tr>
<td><strong>Total water meters</strong></td>
<td><strong>98,085</strong></td>
<td><strong>98,901</strong></td>
<td><strong>99,833</strong></td>
<td><strong>100,779</strong></td>
<td><strong>101,694</strong></td>
</tr>
<tr>
<td><strong>Wastewater</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 mm individual meter</td>
<td>39,128</td>
<td>39,744</td>
<td>40,448</td>
<td>41,163</td>
<td>41,855</td>
</tr>
<tr>
<td>All other meters</td>
<td>43,483</td>
<td>43,683</td>
<td>43,911</td>
<td>44,142</td>
<td>44,366</td>
</tr>
<tr>
<td><strong>Total wastewater meters</strong></td>
<td><strong>82,611</strong></td>
<td><strong>83,427</strong></td>
<td><strong>84,359</strong></td>
<td><strong>85,305</strong></td>
<td><strong>86,221</strong></td>
</tr>
<tr>
<td><strong>Stormwater</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very small &amp; strata (&lt;200 sq m)</td>
<td>8,783</td>
<td>8,799</td>
<td>8,815</td>
<td>8,831</td>
<td>8,847</td>
</tr>
<tr>
<td>Small (201-1,000 sq m)</td>
<td>14,973</td>
<td>15,005</td>
<td>15,037</td>
<td>15,069</td>
<td>15,101</td>
</tr>
<tr>
<td>Medium (1,001 - 10,000 sq m)</td>
<td>5,296</td>
<td>5,304</td>
<td>5,312</td>
<td>5,320</td>
<td>5,328</td>
</tr>
<tr>
<td>Large (10,001 - 45,000 sq m)</td>
<td>752</td>
<td>752</td>
<td>752</td>
<td>752</td>
<td>752</td>
</tr>
<tr>
<td>Very Large (&gt;45,000 sq m)</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
<td>134</td>
</tr>
<tr>
<td>Multi premise</td>
<td>19,985</td>
<td>20,535</td>
<td>21,098</td>
<td>21,645</td>
<td>22,164</td>
</tr>
<tr>
<td><strong>Total stormwater customers</strong></td>
<td><strong>49,923</strong></td>
<td><strong>50,529</strong></td>
<td><strong>51,148</strong></td>
<td><strong>51,751</strong></td>
<td><strong>52,326</strong></td>
</tr>
</tbody>
</table>

Note: 2015-16 is included for comparison. The figures for water and wastewater are for the number of non-residential customer meters and not the number of non-residential customers, as presented by Sydney Water in Sydney Water pricing proposal to IPART - Appendices, June 2015, pp 48-49.


8.3  Forecast chargeable wastewater volumes

Some non-residential properties connected to Sydney Water’s wastewater network are liable for a wastewater usage charge, if the volume of wastewater discharged is above a certain allowance (the discharge allowance). The volume above the allowance is called the chargeable wastewater volume. The chargeable wastewater volume for a non-residential property is calculated by multiplying the metered water consumption by a property-specific discharge factor.\(^{330}\)

Decision

20  We have decided to adopt the forecasts for wastewater chargeable volumes as set out in Table 8.7.

\(^{330}\) A discharge factor is the estimated percentage of incoming water used by a property (as measured by the property’s water meter) which is discharged to the sewer.
8.3.1 Reasons for our decision

We have adopted Sydney Water’s forecasts for wastewater chargeable volumes with a decreasing discharge allowance profile as shown in Table 8.7.\footnote{We have decided to reduce the non-residential discharge allowance from 300 kL to 150 kL per year, with a 50 kL per year transition from 2016-17 onwards. See Chapter 9.} We consider that Sydney Water’s bottom-up approach of modelling chargeable wastewater volumes is comprehensive. We agree with Sydney Water that a more aggregated approach would introduce error, given customers’ different discharge factors, usage pattern over different quarters, and timing of meter readings.

Sydney Water forecast that chargeable wastewater volumes will remain relatively constant at about 66.4 GL per year over the 2016 determination period.\footnote{Sydney Water pricing proposal to IPART, June 2015, p 325.} To develop this forecast, Sydney Water used an updated version of the model it used for its 2012 pricing proposal. This model:

- Used a database of quarterly metered water consumption of non-residential properties and other relevant data (e.g., discharge factors for each property).\footnote{Sydney Water pricing proposal to IPART, June 2015, p 324.}
- Used four years of historical meter readings from 2010-11 to 2013-14, whereas the previous model relied on one year of meter readings.\footnote{Sydney Water pricing proposal to IPART, June 2015, p 324.} To allow for property growth, the model averages the results for the existing properties and applies them to the expected number of new properties.\footnote{Sydney Water pricing proposal to IPART, June 2015, p 324.}
- Assumed that there will be no further changes to the discharge allowance or the discharge factors over the 2016 period. In particular, it assumed that the discharge allowance will be fixed at 300 kL a year over the period.

Sydney Water provided figures based upon a declining discharge allowance.\footnote{Sydney Water pricing proposal to IPART, June 2015, p 114.} We have adopted these volumes except for 2019-20 where we will keep the discharge allowance at 150 kL per year (instead of 100 kL per year as in Sydney Water’s impact analysis). The differences between our estimates and Sydney Water’s estimates are outlined in Table 8.7 below.
Table 8.7  Non-residential chargeable wastewater volumes

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sydney Water’s volumes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discharge allowance (kL)</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Total chargeable wastewater volumes (ML)</td>
<td>66,430</td>
<td>66,435</td>
<td>66,437</td>
<td>66,440</td>
<td>66,442</td>
</tr>
<tr>
<td><strong>IPART decision</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discharge allowance (kL)</td>
<td>300</td>
<td>250</td>
<td>200</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Total chargeable wastewater volumes (ML)</td>
<td>66,430</td>
<td>67,650</td>
<td>68,918</td>
<td>70,472</td>
<td>70,474</td>
</tr>
</tbody>
</table>

Note: 2015-16 is included for comparison.

Source: Sydney Water pricing proposal to IPART June 2015, p 114.

8.4 Demand volatility adjustment mechanism

Decision

21 We have decided to consider at the next determination of Sydney Water’s prices:

– an adjustment to the revenue requirement and prices to address any over- or under-recovery of revenue over the 2016 determination period due to material variation between the level of actual water sales over the 2016 determination period and the forecast water sales used in making this determination, where:

a. a material variation is defined as more than 5% (+ or -) over the whole determination period,

b. we would only consider adjusting for variation greater than 5% (+ or -), and

c. we will consult as part of the next price review on how the volatility mechanism could be applied, if a material variation occurs.

8.4.1 Reasons for our decision

We recognise there is some uncertainty around Sydney Water’s water sales forecasts. In the 2012 price review, we decided to provide a demand volatility adjustment mechanism to adjust Sydney Water’s revenue requirement in subsequent determination periods if the difference between actual and determined water sales exceeded a ‘deadband’ of 10% (+ or -). Table 8.1 above shows that this deadband was not exceeded during the 2012 determination period. We therefore have not used this mechanism to adjust Sydney Water’s revenue requirement for the 2016 determination period.
We consider there remains merit in providing a demand volatility adjustment mechanism. This is important for both protecting customers from potential over-recovery over the 2016 determination period, resulting from excess sales, and protecting Sydney Water from under-recovery if it sells less than expected over this period.

While our decisions in this 2016 Determination cannot bind a future Tribunal, we consider an adjustment to revenue should be made if there is a material variation between the actual level of water sales over the 2016 determination period and the forecast water sales used in making this determination. We consider a material variation to be more than 5% (+ or -) for the following reasons:

- Historical data shows that + or - 5% variation appears to cover normal deviations in weather and demand conditions that Sydney Water should be able to manage.
- Sydney Water considers the 10% (+ or -) deadband used for the 2012 determination period is too wide and it is highly unlikely that Sydney Water would trigger this threshold even if restrictions were implemented in the next four years.  
- It balances Sydney Water’s upside risk (ie, Sydney Water can underestimate demand and over-recover revenue) and downside risk (Sydney Water can overestimate demand and subsequently under recover revenue, which may impact their ability to finance debt obligations).

In our Draft Report, we decided not to specify a deadband within which the demand volatility mechanism would not apply. We have changed our decision after considering stakeholder submissions from Sydney Water and Hunter Water.

Sydney Water considered that a symmetric deadband should be specified in advance to provide certainty to Sydney Water, its customers and its shareholder about when prices and revenue might be adjusted. Sydney Water also recommended a deadband of +/-5%. Hunter Water noted the removal of the specified deadband, and requested that we consult with agencies well before the next price review to determine how to best make the revenue adjustment.

To further improve regulatory certainty, we will consult as part of the next price review on how the volatility mechanism could be applied, if a material variation were to occur.

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338 Sydney Water submission to IPART Draft Report, p 29.
9 Prices for water and wastewater services

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

- **Water** – a per kL consumption-based water usage charge, and a standard (fixed) water service charge.
- **Wastewater** – a standard (fixed) wastewater service charge.

Non-residential customers pay the following charges for these services:

- **Water** – a per kL consumption-based water usage charge (that is the same as for residential customers) and a meter-based fixed water service charge.\(^{341}\)
- **Wastewater**\(^{342}\) – a per kL consumption-based wastewater usage charge that only applies to discharge amounts above a 300 kL discharge allowance, and a meter-based fixed wastewater service charge.

Our prices for water and wastewater services over the 2016 determination period are summarised in Chapter 1. In the sections below, we outline our decisions underpinning each price.

\(^{341}\) Standalone 20mm meter non-residential customers and non-residential customers in mixed developments pay the same standard (fixed) water service charge as residential customers.

\(^{342}\) Some non-residential customers also face load-based trade waste charges. We outline these charges in Chapter 9.
9.1 Water usage charges

Decision

22 We have decided to:

- set Sydney Water’s maximum water usage charge at $1.97 per kL in real terms over the 2016 determination period
- pass through the per kL cost of desalinated water into Sydney Water’s water usage charges if the Sydney Desalination Plant (SDP) is operating and supplying water to Sydney Water:
  a. the water usage charge is increased by $0.12 per kL in real terms over the 2016 determination period if SDP is operating
  b. this uplift to the water usage charge is triggered if SDP is required to operate the plant under the conditions of its licence or operational approval (as in force at the relevant time) granted under the Water Industry Competition Act 2006.

9.1.1 Reasons for our decision

Water usage charges

We maintain our decision of the Draft Determination to accept Sydney Water’s proposed water usage charge of $1.97 per kL over the 2016 determination period. This represents a decrease of $0.31 per kL (or 13.5%) compared with the current usage charge.\(^{343}\)

As outlined below, our decision balances a number of considerations, including moving towards our current best estimate of the Long Run Marginal Cost (LRMC) of water supply, the uncertainty associated with this LRMC estimate at this point in time, customer preferences and price stability.

Table 9.1 Water usage charge ($2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2015-16(^a)</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Water proposed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usage charge ($/kL)</td>
<td>2.28</td>
<td>1.97</td>
<td>1.97</td>
<td>1.97</td>
<td>1.97</td>
</tr>
<tr>
<td>Annual change</td>
<td>-13.5%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>IPART decision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usage charge ($/kL)</td>
<td>2.28</td>
<td>1.97</td>
<td>1.97</td>
<td>1.97</td>
<td>1.97</td>
</tr>
<tr>
<td>Annual change</td>
<td>-13.5%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

\(^a\) 2015-16 prices were not available when Sydney Water finalised its pricing proposal. The prices for 2015-16 have been updated to reflect actual inflation and prices.

Note: Prices are presented to the nearest cent so calculations may be different due to rounding.

Source: Annual Information Return, June 2015; and IPART analysis.

\(^{343}\) This differs from the changes stated in Sydney Water’s pricing proposal to IPART, June 2015, p 100. This is because 2015-16 prices were not available when Sydney Water finalised its proposal so changes were based on forecast prices. PIAC supports the decrease in water price for Sydney Water customers. PIAC submission to IPART Draft Report, April 2016, p 2.
The relationship between the water usage charge and the LRMC of supply

Relative to the current charge of $2.28 per kL, a water usage charge of $1.97 per kL is a move towards our best estimate of the current LRMC of water supply of $1.30 per kL.

Our usual practice is to set water usage prices with reference to the LRMC of water supply. The LRMC of supply represents the costs of the next efficient augmentation to Greater Sydney’s water supply network. The aim of setting water usage charges at LRMC is to encourage the efficient use and allocation of resources, by signalling to customers the costs of their decisions to consume an extra unit of water. The LRMC of supply and our estimates of the current LRMC of supply are discussed further in Appendix I.

Other considerations

However, by deciding to set the water usage charge above our current best estimate of the LRMC, we also recognise:

- there is some uncertainty with our LRMC estimate, particularly with respect to the overall system yield and what the next water supply augmentation is likely to be;

- Sydney Water’s research suggests $1.97 per kL is broadly in line with customer preferences and

- the benefits of price stability – a significantly greater reduction in the water usage charge than what Sydney Water proposed would have a significant impact on the structure of customers’ bills and may lead to unexpected behavioural changes.

We also note that we have introduced an uplift to the water usage charge to reflect the additional costs of SDP’s operations which, under the current operating regime, are incurred during times of relative water scarcity. As discussed in the section below, this uplift ($0.12 per kL) would be added to the $1.97 per kL when SDP is operating and required to supply water to Sydney Water.

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344 This is particularly the case given the ongoing Metropolitan Water Plan Review and the Hawkesbury-Nepean Flood Management Review.

345 To inform its pricing proposal, Sydney Water surveyed approximately 1,700 customers online to assess whether they preferred greater bill certainty (i.e., a higher fixed water service charge) or greater bill control (i.e., a higher water usage price). Customers preferred three distinct water usage prices – $1.20, $1.90 and $2.60 per kL – and a substantial proportion preferred usage prices in the range of $1.90 to $2.30 per kL. We estimate the average water usage price from the survey results was $1.98 per kL. Sydney Water pricing proposal to IPART, June 2015, pp xxi-xxii.

346 This view was echoed in submissions. For instance, see Council of the City of Sydney submission to IPART Issues Paper, October 2015, p 4; and Sydney Coastal Councils Group Incorporated submission to IPART Issues Paper, October 2015, p 4.
Stakeholder responses to the Draft Report

In response to our Draft Report, some stakeholders expressed concern with the reduction in the water usage charge on the basis that:

- this could lead to behavioural shifts towards increased water consumption and reduce the incentive to invest in water efficiency measures.\(^{347}\)
- it does not account for the true cost of water, namely achieving social and environmental outcomes.\(^{348}\)

In response to each of these points (respectively), we note the following:

- Setting prices at LRMC should send appropriate signals regarding efficient water use (as discussed above), and while we have reduced the water usage price it is still at a level above our current estimate of the LRMC of supply. This suggests our decision on the water usage price should not result in inefficiently high levels of water consumption.

- Our prices do reflect environmental and social objectives, to the extent these are reflected in regulations imposed on Sydney Water and related entities (eg, WaterNSW) by environmental and social regulators. This is discussed further in Chapter 2, where we consider the issue of liveability.

Uplift usage charges for activation of Sydney Desalination Plant

We have accepted Sydney Water’s proposal to pass through the per kL cost of desalinated water into Sydney Water’s water usage charges if the Sydney Desalination Plant (SDP) is operating.

SDP’s operation is currently tied to water scarcity.\(^{349}\) This means that the usage charge pass-through will signal to consumers the additional cost of water supply in times of relative scarcity and make drought response costs more transparent.

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\(^{347}\) Council of the City of Sydney submission to IPART Draft Report Paper, April 2016, p 2.

\(^{348}\) Cooks River Alliance, the Parramatta River Catchment Group, the Sydney Coastal Councils Group and the Georges River Combined Councils’ Committee submission to IPART Draft Report Paper, April 2016, p 1.

\(^{349}\) SDP is instructed to operate at full production capacity and supply desalinated water to Sydney Water’s area of operations when total WaterNSW dam storage level is below 70% and will continue to do so until the total dam storage level reaches 80%. The cost pass-through mechanism allows Sydney Water to pass the resulting SDP costs on to customers through its water charges. NSW Government, 2010 Metropolitan Water Plan, August 2010, p 36.
The usage charge pass-through is revenue neutral. Under current arrangements, the additional costs to Sydney Water of purchasing desalinated water, if SDP is required to operate, would be passed through to water consumer’s fixed service charges at a one year lag.\(^{350}\) The usage charge pass-through will simply allow Sydney Water to recoup its costs of purchasing desalinated water from its usage charge to customers, as these costs are incurred.

Sydney Water used feedback from customers and its Customer Council to develop its proposal for a usage charge pass-through.\(^{351}\) Most stakeholders that commented on the pass-through supported Sydney Water’s proposal.\(^{352}\)

There are some challenges to varying Sydney Water’s usage price to reflect the cost of desalinated water over the 2016 determination period. This is because we only have one year of determined prices for SDP (ie, 2016-17 prices) on which to base the uplift to Sydney Water’s usage charge.\(^{353}\) From 2017-18 onwards, we do not currently have a determined price for SDP.\(^{354}\)

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\(^{350}\) In the 2012 Determination, SDP is assumed to be in a water security shutdown mode. When Sydney Water incurs additional costs from SDP operating or from variations in electricity costs, it is allowed to recover these costs the following year through a variation to the fixed service charge to its customers. IPART, *Review of prices for Sydney Water Corporation’s water, sewerage, stormwater drainage and other services - From 1 July 2012 to 30 June 2016 – Final Report*, June 2012, p 2.

\(^{351}\) Sydney Water pricing proposal to IPART, June 2015, p xxii.

\(^{352}\) Council of the City of Sydney submission to IPART Draft Report, April 2016, p 3; Total Environment Centre submission to IPART Issues Paper, October 2015, p 2; Sydney Coastal Councils Group Incorporated submission to IPART Issues Paper, October 2015, p 6; and Department of Primary Industries Water submission to IPART Issues Paper, October 2015, p 6. We note that the Public Interest Advocacy Centre cautioned about the impact upon renters of the cost pass-through (Public Interest Advocacy Centre submission to IPART Issues Paper, October 2015, p 4). Permeate Partners and the Institute for Sustainable Futures were concerned about the different treatment of recycled water and desalinated water (the former being ringfenced while the latter costs were borne across all customers). Permeate Partners submission to IPART Issues Paper, October 2015, p 1 and the Institute for Sustainable Futures, University of Technology, Sydney submission to IPART Issues Paper, October 2015, p 5.

\(^{353}\) SDP’s current price determination is due to expire on 30 June 2017. From June 2016, IPART will commence a review of SDP’s prices, to set new prices to apply from 1 July 2017.

\(^{354}\) In 2016-17, we will be conducting a review to determine SDP’s prices from 2017-18 onwards.
As a result, for the 2016 determination period we have decided to add an estimate of SDP’s water usage charge onto Sydney Water’s water usage charge, based on SDP’s determined charges for 2016-17. This approach allows us to set a specific price for SDP and therefore provide customers with a clear usage price signal. We will use the cost pass-through mechanism to Sydney Water’s service charge, which will remain in place as a true-up mechanism, to account for any forecast errors.

We have calculated the usage charge pass-through at $0.12 per kL using the following formula:

$$\text{Usage charge adjustment} = \frac{90,000 \times (\text{SDP usage charge} - \text{avoided water filtration costs}/\text{ML})}{\text{Total volume of treated water sold by Sydney Water}}$$

Where:

- 90,000 ML is SDP’s current production capacity
- SDP usage charge for 2016-17 is $677.20 per ML (or $0.68 per kL)
- avoided water filtration costs are based on the $0.06 per kL adjustment for treatment costs used in the current SDP cost pass-through mechanism
- the total volume of treated water sold for 2016-17 is 471,008 ML, based on IPART’s revised forecasts for Sydney Water

This formula reflects the average additional cost per kL of water when SDP is at full production (supplying about 20% of Sydney Water’s total treated water sales). Avoided filtration costs are deducted, given that Sydney Water purchases less water from WaterNSW, and avoids water filtration costs as SDP’s water is already treated.

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355 The alternative option is to use a formula to uplift Sydney Water’s usage price that refers to a future SDP determination.

356 Our preference is to assume SDP is operating at full production. If SDP were to operate at less than full production, Sydney Water would have to pass through any over-recovery of revenue into service charges through the cost pass-through mechanism at a year’s lag. Alternatively, to cater for potentially different production levels through the usage charge only, we would need to use a formula.

357 That is, the cost pass-through mechanism would pass through at a one-year lag actual differences in SDP’s usage charges (positive or negative) into Sydney Water’s fixed service charges. This excludes electricity network charges which SDP passes through to Sydney Water. As noted, the service charge pass-through will operate as a true-up mechanism.


359 We have inflated the $623.57/ML price for 2016-17 in SDP’s Determination from $2011-12 to $2015-16 using \( \Delta \text{CPI} = \left( \frac{\text{CPI}_{\text{Mar}2015}}{\text{CPI}_{\text{Mar}2011}} \right)^{-1} \) (ie, 8.6%). IPART, Prices for Sydney Desalination Plant Pty Limited’s Water Supply Services, Determination No. 2, December 2011, p 35 (Table 6).


361 We use treated water sales, because SDP does not contribute to unfiltered water. The volume of treated water is based on our forecast water sales.

362 SDP has an annual production capacity of about 90,000 ML. This supplies approximately 20% of total metered demand.
Defining the trigger for the usage charge uplift

The rational for the ‘uplift’ to the water usage price is to make SDP’s drought-response costs more transparent. Therefore, we have decided that the uplift to the usage price is triggered at times when SDP is required to operate the desalination plant under the conditions of its licence or operational approval (as in force at the relevant time) granted under the Water Industry Competition Act 2006 (WIC Act). SDP’s network operator’s licence granted under the WIC Act is subject to the following condition:

When Available Storage falls below 70%, the Licence Holder must, until the Available Storage\textsuperscript{363} rises to 80%, operate and maintain the Water Industry Infrastructure with the objective of maximising the production of drinking water for the exclusive supply into the Corporation’s area of operation (as defined in Sydney Water’s Operating Licence).\textsuperscript{364}

9.2 Wastewater usage charge

We set a wastewater usage charge and discharge allowance for Sydney Water’s non-residential customers. The wastewater usage charge applies to non-residential customers who are deemed\textsuperscript{365} to have discharged more than the discharge allowance to the sewerage network. The discharge allowance is currently set at 300 kL per year.

Decision

23 We have decided to:

– set a maximum non-residential wastewater usage charge of $1.10 per kL in real terms over the 2016 determination period

– reduce the non-residential discharge allowance from 300 kL to 150 kL per year, with a 50 kL per year transition from 2016-17 onwards, and

– not introduce an explicit residential wastewater usage charge.

\textsuperscript{363} Available Storage is defined in Sydney Desalination Plant’s Network Operator’s Licence as:

“the available storage in Sydney’s water supply reservoirs as published on a weekly basis on the website of the Sydney Catchment Authority. If for any reason the Sydney Catchment Authority is unable to calculate or publish the available storage, the available storage is the amount of water as calculated and notified from time to time by such other authority as is nominated by the Minister.”

\textsuperscript{364} Sydney Desalination Plant Network Operator’s Licence 2010-16, Schedule A, A2(b).

\textsuperscript{365} Sydney Water applies discharge factors to estimate each customer’s discharge volume; with reference to the customer’s metered water consumption. For example, if a customer consumes 400 kL of water per annum and Sydney Water applies a discharge factor of 78%, they are deemed to have discharged 312 kL of wastewater to the sewerage network (0.78 x 400 kL = 312 kL).
9.2.1 Reasons for our decision

Non-residential wastewater usage charge

We have accepted Sydney Water’s proposal to maintain the wastewater usage charge at $1.10 per kL.\(^{366}\) We consider this provides some stability in pricing for customers, particularly given Sydney Water’s evidence that wastewater pricing is not well understood by customers.\(^{367}\)

Table 9.2  Wastewater usage charge ($2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2015-16(^a)</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sydney Water proposed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usage charge ($/kL)</td>
<td>1.10</td>
<td>1.10</td>
<td>1.10</td>
<td>1.10</td>
<td>1.10</td>
</tr>
<tr>
<td>Annual change</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>IPART decision</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usage charge ($/kL)</td>
<td>1.10</td>
<td>1.10</td>
<td>1.10</td>
<td>1.10</td>
<td>1.10</td>
</tr>
<tr>
<td>Annual change</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

\(^a\) 2015-16 prices were not available when Sydney Water finalised its pricing proposal. The prices for 2015-16 have been updated to reflect actual inflation and prices.

Source: Annual Information Return, June 2015.

In the 2012 Determination, we stated that it was our intention to reduce wastewater usage charges to reflect the short run marginal cost (SRMC) of collecting, transporting, treating and disposing of effluent.\(^{368}\) We estimated this cost at about $0.25 per kL ($2015-16).\(^{369}\) Therefore, we phased in a decrease in the wastewater usage charge from $1.49 per kL in 2011-12 (nominal) to $1.10 per kL (nominal) by 2015-16.

Sydney Water, however, has noted that LRMC is also a relevant factor when setting wastewater usage prices and is seeking a review of the issue before 2020.\(^{370}\) Sydney Water notes the importance of LRMC, given the uncertainty around additional investments in wastewater services required to service growth over the next 50 years.\(^{371}\) Sydney Water also notes these costs are potentially significant, particularly as the Environment Protection Authority (EPA) is currently considering tightening Environment Protection Licence (EPL) load requirements for wastewater systems in the Hawkesbury-Nepean catchment to 2014-15 levels.\(^{372}\)

\(^{366}\) Sydney Water pricing proposal to IPART, June 2015, p 240.

\(^{367}\) Sydney Water pricing proposal to IPART, June 2015, p 236.

\(^{368}\) IPART, Review of prices for Sydney Water Corporation’s water, sewerage, stormwater drainage and other services – From 1 July 2012 to 30 June 2016 - Final Report, June 2012, p 103.

\(^{369}\) IPART, Review of prices for Sydney Water Corporation’s water, sewerage, stormwater drainage and other services – From 1 July 2012 to 30 June 2016 - Final Report, June 2012, p 103.

\(^{370}\) Sydney Water submission to IPART Draft Report, April 2016, p 33.

\(^{371}\) Sydney Water submission to IPART Issues Paper, October 2015, p 54.

\(^{372}\) Sydney Water submission to IPART Issues Paper, October 2015, p 54.
We acknowledge the various arguments for and against SRMC versus LRMC pricing. We consider that maintaining the current wastewater usage price is a satisfactory holding position.

**Non-residential discharge allowance**

We have reduced the non-residential discharge allowance from 300 kL to 150 kL per year, with a 50 kL per year transition from 2016-17 onwards. This reflects the approach taken in the 2012 Determination, where we reduced this discharge allowance by 50 kL per year over the 4-year determination period and proposed to continue this reduction until the allowance reached 150 kL per year.\(^{373}\)

Our decision ensures consistent treatment of all customers and removes cross-subsidies. Going forward, all wastewater service charges will include the cost of a fixed discharge allowance of 150 kL (explained below). This reflects a residential customer’s average annual discharge. The non-residential discharge allowance is therefore reduced to 150 kL by 2018-19 (ie, by 50 kL increments per year), to align it with residential customers’ average annual discharge. In particular, our approach:

- removes cross subsidies where small businesses (discharging up to 150 kL)\(^ {374}\) will no longer be subsidising medium to large businesses (discharging above 150 kL), and
- ensures small businesses will be charged on a consistent basis with residential customers.

In its submission to our Issues Paper, Sydney Water agreed with the transition to 150 kL per year over the 2016 determination period.\(^ {375}\) Stakeholders supported the move to a 150 kL discharge allowance.\(^ {376}\)

**Residential wastewater usage charge**

We have decided not to introduce an explicit residential wastewater usage charge at this determination. Currently, residential customers pay a fixed one-part tariff for wastewater.

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\(^{373}\) IPART, *Review of prices for Sydney Water Corporation’s water, sewerage, stormwater drainage and other services - From 1 July 2012 to 30 June 2016 - Final Report*, June 2012, p 120.

\(^{374}\) Most non-residential customers (about 56% of non-residential customers) discharge less than 150 kL per year.

\(^{375}\) Sydney Water submission to IPART Issues Paper, October 2015, p xiii.

\(^{376}\) The Cooks River Alliance, the Parramatta River Catchment Group, the Sydney Coastal Councils Group and the Georges River Combined Councils’ Committee, submission to IPART Draft Report, April 2016, p 2. Council of the City of Sydney submission to IPART Issues Paper, October 2015, p 4; Total Environment Centre submission to IPART Issues Paper, October 2015, p 5; and Sydney Coastal Councils Group Incorporated submission to IPART Issues Paper, October 2015, p 8.
We acknowledge that a residential wastewater usage charge would give residential customers more control of their bills and more closely reflect the impactor pays principle. For these and other reasons, a number of submissions supported or commented on a wastewater usage charge.377

However, our approach reflects feedback received from Sydney Water that implementation of an explicit residential wastewater usage would require detailed consideration, given discharges are not metered, as well as appropriate community consultation.378

9.3 Price structures: water and wastewater service charges

Decision

24 We have decided to:

– set water and wastewater service charges for residential and non-residential customers on a 20mm meter equivalent basis, where residential dwellings are deemed to each be one 20mm meter equivalent customer

– separate the implicit connection and usage components of the wastewater service charge, and

– apply a 75% discharge factor to the connection component of the residential wastewater service charge.

377 See, for example, B. Hope submission to IPART Issues Paper, July 2015; G. Carrard submission to IPART Issues Paper, July 2015; B. Slaughter submission to IPART Issues Paper, June 2015; Sydney Coastal Councils Group Incorporated submission to IPART Issues Paper, October 2015, p 7. Council of the City of Sydney supported this approach, while noting the practical difficulties in introducing a wastewater usage charge and the need for consultation (Council of the City of Sydney, submission to IPART Issues Paper, October 2015, p 4). Permeate Partners considered it impractical to implement a wastewater usage charge (Permeate Partners, submission to IPART Issues Paper, October 2015, p 2). The Energy & Water Ombudsman NSW and the Public Interest Advocacy Centre supported such a charge if the impact on low income earners was successfully managed (Energy & Water Ombudsman NSW submission to IPART Issues Paper, October 2015, p 5; Public Interest Advocacy Centre submission to IPART Issues Paper, October 2015, p 5).

378 Sydney Water, submission to IPART Issues Paper, October 2015, p 56. We received a combined submission from the Cooks River Alliance, the Parramatta River Catchment Group, the Sydney Coastal Councils Group and the Georges River Combined Councils’ Committee. This submission argued that residual wastewater usage charges should be implemented in the absence of detailed consideration. The Cooks River Alliance, the Parramatta River Catchment Group, the Sydney Coastal Councils Group and the Georges River Combined Councils’ Committee, submission to IPART Draft Report, April 2016, p 2. However, we consider detailed consideration is an essential part of best regulatory practice and a departure from this approach would need significant and extraordinary justification.
9 Prices for water and wastewater services

9.3.1 Reasons for our decision

Rebasing water and wastewater service charges on a 20mm meter scale

We have accepted Sydney Water’s proposal to rebase water and wastewater service charges for residential and non-residential customers on a scale referenced to a 20mm meter service charge. This involves:

- changing the current base on which non-residential meter-based charges are set from a 25mm meter to a 20mm meter equivalence, and
- deeming all residential dwellings (regardless of type) to have a 20mm meter to ensure that apartments and houses are still charged at the same rate.\(^{379}\)

Currently residential customers and non-residential customers on stand-alone 20mm meters pay proportionately less for their service charges compared with other non-residential businesses, which is outlined in Table 9.3.\(^{380}\) Rebasing to a standard 20mm meter charge removes this anomaly, and provides consistency in charging for equivalent sized connections. It also simplifies price structures.

### Table 9.3 Differences in 20mm non-residential service charges in 2015-16 ($ per year, $2015-16)

<table>
<thead>
<tr>
<th>Service Charge</th>
<th>Standalone 20mm</th>
<th>Multiple 20mm</th>
<th>Variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>$102.53</td>
<td>$129.83</td>
<td>26.6%</td>
</tr>
<tr>
<td>Wastewater (100% discharge factor)</td>
<td>$609.14</td>
<td>$1,042.67</td>
<td>71.2%</td>
</tr>
<tr>
<td>Wastewater (78% discharge factor)</td>
<td>$609.14</td>
<td>$813.28</td>
<td>33.5%</td>
</tr>
</tbody>
</table>

**Note:** Under our decision, all of the above customers would pay 20mm meter based service charges for water and wastewater, and discharge factors would apply to the service charges. Actual 2015-16 prices were not available when Sydney Water finalised its Annual Information Return. The prices have been updated to reflect actual inflation and prices.

**Source:** Annual Information Return, June 2015; and IPART analysis.

Among stakeholders, views on rebasing were mixed. The Energy & Water Ombudsman NSW supported rebasing if it provides clearer and more comprehensible price structures.\(^{381}\) The Public Interest Advocacy Centre opposed rebasing on the grounds that it may increase confusion among customers and change the relative cross-subsidy between small non-residential and residential consumers.\(^{382}\)

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\(^{379}\) Non-residential occupancies in mixed multi-developments are also deemed to have a 20mm meter to ensure that they are charged the same as residential dwellings.

\(^{380}\) Currently, non-residential customers with a 20mm standalone connection are charged the same as residential customers. However, an otherwise identical non-residential customer, with a shared or multiple 20mm connections, is charged on a different basis (that is, not the same as residential customers but on the same basis as other non-residential customers).

\(^{381}\) Energy & Water Ombudsman NSW submission to IPART Issues Paper, October 2015, p 2.

\(^{382}\) Public Interest Advocacy Centre submission to IPART Issues Paper, October 2015, p 5.
Rebasing service charges has resulted in larger reductions in service charges for non-residential customers than for residential customers. We consider rebasing is consistent with our price structure principles and current charging regime, where:

- All residential customers would continue to pay a common water and wastewater service charge – ie, apartments and houses would continue to be charged at the same rate (however, the charge would reference a 20mm meter).

- Standalone non-residential customers with a single 20mm meter or mixed multi-developments would continue to pay the same connection component of service charges as all residential customers (however, the charge would reference a 20mm meter).
  - However, wastewater service charges may vary between these non-residential customers and residential customers if they are subject to different discharge factors. We discuss this further below.

- All other non-residential customers would continue to pay water and wastewater service charges according to their meter size (non-residential occupancies within a common metered property would still share the meter-based service charge).

**Separation of the implicit connection and usage components of the wastewater service charge**

Residential and non-residential wastewater service charges must include some allowance for wastewater discharge to the sewerage network:

- all estimated residential discharge is included in the service charges (about 150 kL per year on average\(^{383}\)), and

- each non-residential customer’s discharge up to the discharge allowance is included in the service charge\(^{384}\).

We have decided to separate out the implicit usage charge for residential and non-residential customers. This removes the anomaly in usage charging where non-residential customers with large meters pay too much for wastewater discharge, as a result of the multiplication of the wastewater service charge per meter\(^{385}\). An example of this is provided in Box 9.1.

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\(^{384}\) This is the same for every non-residential customer eg, 150 kL in 2018-19.

\(^{385}\) This anomaly will only be removed in 2018-19 when the discharge allowance is reduced to 150 kL, matching the 150 kL implicit wastewater usage in the service charge. Prior to this point, the discharge allowance will be 250 kL in 2016-17 and 200 kL in 2017-18. As a result, there will be a difference between the implicit wastewater usage in the service charge and the actual discharge allowance of 100 kL in 2016-17 and 50 kL in 2017-18. This will continue to result in non-residential customers with large meters paying too much for wastewater discharge for this 2-year period.
Under our decision, the costs associated with 150 kL of implicit wastewater usage will be explicitly added to the wastewater service charges as the final step in calculating these charges. We do this by:

- removing the 150 kL per year from the 20mm service charge (ie, removing 150 kL at $1.10/kL from the 20mm service charge)
- calculating meter based service charges for larger meter sizes on the remaining service charge, and
- adding back 150 kL year to all meter based service charges (ie, adding 150 kL at $1.10/kL to the meter based service charges).

This change will increase service charges to residential and 20mm non-residential customers, and decrease service charges for customers with large meters (the larger a customer’s meter, the greater the decrease to their service charge).

**Box 9.1 Implicit discharge component included in non-residential wastewater service charges**

Sydney Water identified six significant segments within its non-residential market. We have used one of these segments – high use commercial – to illustrate why the costs of 150 kL per year of wastewater usage should be deemed and explicitly added to wastewater service charges.

We have assumed the high use commercial customer has a 80mm water connection, high water usage of 21,000 kL per year and a discharge factor of 82% (ie, it would discharge 82% or 17,220 kL of its water usage as wastewater each year).

The wastewater service charge implicitly recovers the costs of the 150 kL of discharge not recovered through the wastewater usage charge. However, under current arrangements, this level of wastewater usage is scaled up according to the customer’s meter size:

\[
\text{service charge} = df \times \left( \frac{\text{meter size}}{20} \right)^2 \times (20\text{mm connection} + 150 \text{ kL})
\]

\[
= 0.82 \times \left( \frac{80}{20} \right)^2 \times (20\text{mm meter charge} + 150 \text{ kL} \times $1.10) \\
= 0.82 \times [(16 \times 20\text{mm meter charge}) + (16 \times 150 \text{ kL} \times $1.10)] \\
= 0.82 \times [(16 \times 20\text{mm meter charge}) + 2,400 \text{ kL} \times $1.10] \\
= 0.82 \times 16 \times 20\text{mm meter charge} + 1,968 \text{ kL} \times $1.10
\]

Therefore, in this example, the high use commercial property pays for 1,968 kL of wastewater usage through the service charge after the discharge factor is applied. In total, this customer pays for 19,038 kL (17,220 kL–150 kL+1,968 kL) of wastewater usage, which is 1,818 kL more than it actually discharges.

**Source:** Data sourced from Sydney Water pricing proposal to IPART, June 2015, p 105.
Apply a 75% discharge factor to the connection portion of the residential wastewater service charge

We have decided that a discharge factor of 75% will be applied to residential service charges. This ensures consistency in the treatment of residential and non-residential customers, where the latter typically have a discharge factor applied to their wastewater service charges.

On average, residential customers use 200 kL of water per year and discharge 150 kL of wastewater per year. However, residential customers do not currently receive a discharge factor on their service charges. While this was not an issue when residential and non-residential bills were set on different bases, it would be inequitable to continue this approach following the rebasing of water and wastewater service charges on a 20mm meter scale. This approach will result in a reduction in residential wastewater service charges.

While Sydney Water accepts our reasoning behind the use of a discharge factor for residential customers, it noted that a 75% discharge factor may not represent a typical wastewater customer’s amount of discharge to the system. Sydney Water does not consider that there is such thing as a ‘typical’ household, but as residential wastewater customers are not metered, it is difficult to articulate a more appropriate discharge factor. Without the ability to suggest an alternative discharge factor at this point in time, Sydney Water accepts the proposed 75%, subject to it being able to seek to modify this in the future.

Sydney Water noted that applying a 75% discharge factor to residential service charges means that a non-residential customer will only receive the same wastewater service charge if they also have a discharge factor of 75%.

We consider it important that Sydney Water clearly communicate where the discharge factor is greater than 75% for non-residential customers with a 20mm standalone connection (ie, small businesses). Discharge factors have previously applied to all non-residential customers, except 20mm standalone customers who were charged the same as residential customers. Where a discharge factor has not been previously assigned to a non-residential customer (ie, 20mm meter standalone customers), Sydney Water states it will apply a default discharge factor of 78% in its policies.

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386 Sydney Water pricing proposal to IPART, June 2015, p 314.
387 It will also reduce the service charge for 20mm non-residential customers as they face the maximum of either the 20mm meter service charge multiplied by their own discharge factor or the residential service charge with a 75% discharge factor.
388 Sydney Water submission to IPART Draft Report, April 2016, pp 33-34.
389 Sydney Water submission to IPART Draft Report, April 2016, p 34.
9.4 Price levels: water and wastewater service charges

We have made changes across Sydney Water’s price structures to ensure that water and wastewater service charges are more cost reflective so that customer groups imposing similar costs on the system are treated consistently. The impact of these decisions is discussed below.

Decision

25 We have decided to

- set the maximum water service charges as set out in Table 9.4, and
- set the maximum wastewater service charges for:
  a. residential customers as set out in Table 9.7, and
  b. non-residential customers as set out in Table 9.9 (subject to discharge factors for the customer)

9.4.1 Reasons for our decision

Water service charges

As we have adopted Sydney Water’s proposed usage charge for water, all savings made in the NRR for water, or changes made since the Draft Report, are reflected in the water service charge. Under our determination:

- residential and non-residential 20mm customers on a stand-alone meter will experience a fall of 13.4% in their service charge (as compared to 18.1% in the Draft Report), and
- other non-residential customers will see a 31.6% decrease in their service charge (as compared to 35.3% in the Draft Report).

Our water service charges are outlined in Table 9.4 below.
### Table 9.4  Water service charge ($/year, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2015-16&lt;sup&gt;a&lt;/sup&gt;</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>% change 2016-20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sydney Water proposed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>102.53</td>
<td>98.52</td>
<td>98.52</td>
<td>98.52</td>
<td>98.52</td>
<td>-3.9%</td>
</tr>
<tr>
<td>Non-residential</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 20mm individual meter</td>
<td>102.53&lt;sup&gt;b&lt;/sup&gt;</td>
<td>98.52</td>
<td>98.52</td>
<td>98.52</td>
<td>98.52</td>
<td>-3.9%</td>
</tr>
<tr>
<td>- 20mm shared meter</td>
<td>129.83&lt;sup&gt;c&lt;/sup&gt;</td>
<td>98.52</td>
<td>98.52</td>
<td>98.52</td>
<td>98.52</td>
<td>-24.1%</td>
</tr>
<tr>
<td>- 25mm meter</td>
<td>202.86</td>
<td>153.94</td>
<td>153.94</td>
<td>153.94</td>
<td>153.94</td>
<td>-24.1%</td>
</tr>
<tr>
<td>- 32mm meter</td>
<td>332.38</td>
<td>252.21</td>
<td>252.21</td>
<td>252.21</td>
<td>252.21</td>
<td>-24.1%</td>
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<tr>
<td>- 40mm meter</td>
<td>519.35</td>
<td>394.08</td>
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<td>394.08</td>
<td>394.08</td>
<td>-24.1%</td>
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<tr>
<td>- 50mm meter</td>
<td>811.48</td>
<td>615.75</td>
<td>615.75</td>
<td>615.75</td>
<td>615.75</td>
<td>-24.1%</td>
</tr>
<tr>
<td>- 80mm meter</td>
<td>2,077.41</td>
<td>1,576.32</td>
<td>1,576.32</td>
<td>1,576.32</td>
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<td>-24.1%</td>
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<tr>
<td>- 100mm meter</td>
<td>3,245.95</td>
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<td>2,463.00</td>
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<td>2,463.00</td>
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<td>- 150mm meter</td>
<td>7,303.40</td>
<td>5,541.75</td>
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<td>5,541.75</td>
<td>5,541.75</td>
<td>-24.1%</td>
</tr>
<tr>
<td>- 200mm meter</td>
<td>12,983.82</td>
<td>9,852.00</td>
<td>9,852.00</td>
<td>9,852.00</td>
<td>9,852.00</td>
<td>-24.1%</td>
</tr>
<tr>
<td><strong>IPART decision</strong></td>
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<tr>
<td>Residential</td>
<td>102.53</td>
<td>88.80</td>
<td>88.80</td>
<td>88.80</td>
<td>88.80</td>
<td>-13.4%</td>
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<tr>
<td>Non-residential</td>
<td></td>
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<td></td>
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<tr>
<td>- 20mm individual meter</td>
<td>102.53&lt;sup&gt;b&lt;/sup&gt;</td>
<td>88.80</td>
<td>88.80</td>
<td>88.80</td>
<td>88.80</td>
<td>-13.4%</td>
</tr>
<tr>
<td>- 20mm shared meter</td>
<td>129.83&lt;sup&gt;c&lt;/sup&gt;</td>
<td>88.80</td>
<td>88.80</td>
<td>88.80</td>
<td>88.80</td>
<td>-31.6%</td>
</tr>
<tr>
<td>- 25mm meter</td>
<td>202.86</td>
<td>138.75</td>
<td>138.75</td>
<td>138.75</td>
<td>138.75</td>
<td>-31.6%</td>
</tr>
<tr>
<td>- 32mm meter</td>
<td>332.38</td>
<td>227.33</td>
<td>227.33</td>
<td>227.33</td>
<td>227.33</td>
<td>-31.6%</td>
</tr>
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<td>- 40mm meter</td>
<td>519.35</td>
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<td>355.20</td>
<td>355.20</td>
<td>355.20</td>
<td>-31.6%</td>
</tr>
<tr>
<td>- 50mm meter</td>
<td>811.48</td>
<td>555.00</td>
<td>555.00</td>
<td>555.00</td>
<td>555.00</td>
<td>-31.6%</td>
</tr>
<tr>
<td>- 80mm meter</td>
<td>2,077.41</td>
<td>1,420.80</td>
<td>1,420.80</td>
<td>1,420.80</td>
<td>1,420.80</td>
<td>-31.6%</td>
</tr>
<tr>
<td>- 100mm meter</td>
<td>3,245.95</td>
<td>2,220.00</td>
<td>2,220.00</td>
<td>2,220.00</td>
<td>2,220.00</td>
<td>-31.6%</td>
</tr>
<tr>
<td>- 150mm meter</td>
<td>7,303.40</td>
<td>4,995.00</td>
<td>4,995.00</td>
<td>4,995.00</td>
<td>4,995.00</td>
<td>-31.6%</td>
</tr>
<tr>
<td>- 200mm meter</td>
<td>12,983.82</td>
<td>8,880.00</td>
<td>8,880.00</td>
<td>8,880.00</td>
<td>8,880.00</td>
<td>-31.6%</td>
</tr>
</tbody>
</table>

<sup>a</sup> 2015-16 prices were not available when Sydney Water finalised its pricing proposal. The prices for 2015-16 have been updated to reflect actual inflation and prices.

<sup>b</sup> Under the 2012 Determination 20mm standalone non-residential customers paid the residential service charge. From 2016-17 these customers will be charged the same as other non-residential customers with 20mm meters.

<sup>c</sup> This service charge applied to non-residential customers on a shared or with multiple 20mm meters only and not to non-residential customers with a stand alone 20mm meter.

**Source:** Annual Information Return, June 2015; and IPART analysis.

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**Wastewater service charges**

As for water, since we have adopted Sydney Water’s proposed usage charge for wastewater, all savings made in the NRR for wastewater, or changes made since the Draft Report, are reflected in the service charge.
Relative to Sydney Water’s pricing proposal, we have changed the distribution of savings between residential and non-residential customers because of the following changes to the calculation of wastewater service charges:

1. including a wastewater usage charge for a deemed 150 kL per annum, per customer
2. applying a 75% discharge factor for residential customers.

Therefore, the wastewater service charge for all Sydney Water customers is made up of three components:

$\text{SC} = (\text{MC} \times \text{DF}) + \text{DU}$

where $\text{SC} =$ the maximum sewerage service charge

$\text{MC} =$ the meter connection charge according to meter size

$\text{DF} =$ discharge factor for the customer

$\text{DU} =$ deemed usage charge $= 150 \text{ kL} \times$ wastewater usage charge.

Our wastewater meter connection and deemed usage charges are outlined in Table 9.5 and Table 9.6 below.

<table>
<thead>
<tr>
<th>Table 9.5</th>
<th>Wastewater meter connection charge - without discharge factors ($/year, $2015-16)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2016-17</td>
</tr>
<tr>
<td>Residential</td>
<td></td>
</tr>
<tr>
<td>- 20mm equivalent connection (due to rebasing)</td>
<td>548.13</td>
</tr>
<tr>
<td>Non residential</td>
<td></td>
</tr>
<tr>
<td>- 20mm connection</td>
<td>548.13</td>
</tr>
<tr>
<td>- 25mm connection</td>
<td>856.45</td>
</tr>
<tr>
<td>- 32mm connection</td>
<td>1,403.21</td>
</tr>
<tr>
<td>- 40mm connection</td>
<td>2,192.52</td>
</tr>
<tr>
<td>- 50mm connection</td>
<td>3,425.81</td>
</tr>
<tr>
<td>- 80mm connection</td>
<td>8,770.08</td>
</tr>
<tr>
<td>- 100mm connection</td>
<td>13,703.25</td>
</tr>
<tr>
<td>- 150mm connection</td>
<td>30,832.31</td>
</tr>
<tr>
<td>- 200mm connection</td>
<td>54,813.00</td>
</tr>
</tbody>
</table>
Prices for water and wastewater services

Table 9.6  Wastewater deemed usage charge ($/year, $2015-16)

<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>Residential and Non-residential</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Deemed usage component</td>
<td>165.00a</td>
<td>165.00</td>
<td>165.00</td>
<td>165.00</td>
</tr>
</tbody>
</table>

(\textit{in addition to meter connection charges})

\textsuperscript{a} The deemed usage charge is 150 kL x the wastewater usage charge of $1.10 per kL. This charge applies to both residential and non-residential customers.

Final wastewater service charges depend on the discharge factor applied to the metered connection charge (ie, charges outlined in Table 9.5).

For \textbf{residential customers}, the 20mm equivalent charge of $548.13 is multiplied by the residential discharge factor of 75%. The deemed wastewater usage charge of $165 is then added. This will result in a $576.10 service charge, which is 5.4% lower than the current charges (or $6.15 higher than for the Draft Report).

Table 9.7  Wastewater service charge – residential ($/year, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2015-16\textsuperscript{a}</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>% change 2016-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>609.14</td>
<td>576.10</td>
<td>576.10</td>
<td>576.10</td>
<td>576.10</td>
<td>-5.4%</td>
</tr>
</tbody>
</table>

For \textbf{non-residential customers}, discharge factors are set by Sydney Water and will vary, as do customers’ meter size.

Standalone small businesses (ie, 20mm meter standalone customers) with discharge factors of 75% will face the same wastewater charges and reductions as residential customers. However, those standalone small businesses with discharge factors greater than 75% will face higher wastewater service charges than residential customers (see Table 9.8).

Small businesses with common 20mm meters will face large reductions in wastewater service charges. This is because they now pay the same metered connection charges (ie, as presented in Table 9.5) as standalone non-residential customers with 20mm meters.

Wastewater service charges for different types of small business are presented in Table 9.8.
### Table 9.8 Wastewater service charge – small business ($/year, $2015-16)

<table>
<thead>
<tr>
<th>Service Description</th>
<th>2015-16</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>% change 2016-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-residential (stand-alone 20mm meter) 75% discharge factor</td>
<td>609.14a</td>
<td>576.10</td>
<td>576.10</td>
<td>576.10</td>
<td>576.10</td>
<td>-5.4%</td>
</tr>
<tr>
<td>Non-residential (stand-alone 20mm meter) 81% discharge factor</td>
<td>609.14a</td>
<td>609.14</td>
<td>609.14</td>
<td>609.14</td>
<td>609.14</td>
<td>0.0%</td>
</tr>
<tr>
<td>Non-residential (stand-alone 20mm meter) 100% discharge factor</td>
<td>609.14a</td>
<td>713.13</td>
<td>713.13</td>
<td>713.13</td>
<td>713.13</td>
<td>17.1%</td>
</tr>
<tr>
<td>Non-residential (common 20mm meter) 81% discharge factor</td>
<td>1,042.67b</td>
<td>609.14</td>
<td>609.14</td>
<td>609.14</td>
<td>609.14</td>
<td>-41.6%</td>
</tr>
<tr>
<td>Non-residential (common 20mm meter) 100% discharge factor</td>
<td>1,042.67b</td>
<td>713.13</td>
<td>713.13</td>
<td>713.13</td>
<td>713.13</td>
<td>-31.6%</td>
</tr>
</tbody>
</table>

*Under the 2012 Determination, 20mm standalone non-residential customers paid the residential service charge. From 2016-17 these customers will be charged the same as other non-residential customers with 20mm meters.

*Under the 2012 Determination, this service charge applied to non-residential customers on a shared or with multiple 20mm meters only and not to non-residential customers on an individual 20mm meter.

The charges for remaining non-residential customers are presented below in Table 9.9. These charges assume a 100% discount factor and are therefore likely to be higher than actual service charges for these customers.
## Table 9.9 Wastewater service charges – non-residential customers ($/year, $2015-16)

<table>
<thead>
<tr>
<th>Sydney Water proposed</th>
<th>2015-16&lt;sup&gt;a&lt;/sup&gt;</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>% Change 2016-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 20mm individual</td>
<td>609.14&lt;sup&gt;b&lt;/sup&gt;</td>
<td>582.34</td>
<td>582.34</td>
<td>582.34</td>
<td>582.34</td>
<td>-4.4%</td>
</tr>
<tr>
<td>- 20mm shared</td>
<td>1,042.67&lt;sup&gt;c&lt;/sup&gt;</td>
<td>582.34</td>
<td>582.34</td>
<td>582.34</td>
<td>582.34</td>
<td>-44.1%</td>
</tr>
<tr>
<td>- 25mm meter</td>
<td>1,629.18</td>
<td>909.91</td>
<td>909.91</td>
<td>909.91</td>
<td>909.91</td>
<td>-44.1%</td>
</tr>
<tr>
<td>- 32mm meter</td>
<td>2,669.24</td>
<td>1,490.79</td>
<td>1,490.79</td>
<td>1,490.79</td>
<td>1,490.79</td>
<td>-44.1%</td>
</tr>
<tr>
<td>- 40mm meter</td>
<td>4,170.69</td>
<td>2,329.36</td>
<td>2,329.36</td>
<td>2,329.36</td>
<td>2,329.36</td>
<td>-44.1%</td>
</tr>
<tr>
<td>- 50mm meter</td>
<td>6,516.71</td>
<td>3,639.63</td>
<td>3,639.63</td>
<td>3,639.63</td>
<td>3,639.63</td>
<td>-44.1%</td>
</tr>
<tr>
<td>- 80mm meter</td>
<td>16,682.77</td>
<td>9,317.44</td>
<td>9,317.44</td>
<td>9,317.44</td>
<td>9,317.44</td>
<td>-44.1%</td>
</tr>
<tr>
<td>- 100mm meter</td>
<td>26,066.85</td>
<td>14,558.50</td>
<td>14,558.50</td>
<td>14,558.50</td>
<td>14,558.50</td>
<td>-44.1%</td>
</tr>
<tr>
<td>- 150mm meter</td>
<td>58,650.40</td>
<td>32,756.63</td>
<td>32,756.63</td>
<td>32,756.63</td>
<td>32,756.63</td>
<td>-44.1%</td>
</tr>
<tr>
<td>- 200mm meter</td>
<td>104,267.37</td>
<td>58,234.00</td>
<td>58,234.00</td>
<td>58,234.00</td>
<td>58,234.00</td>
<td>-44.1%</td>
</tr>
<tr>
<td>IPART decision&lt;sup&gt;d&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 20mm individual</td>
<td>609.14&lt;sup&gt;b&lt;/sup&gt;</td>
<td>713.13</td>
<td>713.13</td>
<td>713.13</td>
<td>713.13</td>
<td>17.1%</td>
</tr>
<tr>
<td>- 20mm shared</td>
<td>1,042.67&lt;sup&gt;c&lt;/sup&gt;</td>
<td>713.13</td>
<td>713.13</td>
<td>713.13</td>
<td>713.13</td>
<td>-31.6%</td>
</tr>
<tr>
<td>- 25mm meter</td>
<td>1,629.18</td>
<td>1,021.45</td>
<td>1,021.45</td>
<td>1,021.45</td>
<td>1,021.45</td>
<td>-37.3%</td>
</tr>
<tr>
<td>- 32mm meter</td>
<td>2,669.24</td>
<td>1,568.21</td>
<td>1,568.21</td>
<td>1,568.21</td>
<td>1,568.21</td>
<td>-41.2%</td>
</tr>
<tr>
<td>- 40mm meter</td>
<td>4,170.69</td>
<td>2,357.52</td>
<td>2,357.52</td>
<td>2,357.52</td>
<td>2,357.52</td>
<td>-43.5%</td>
</tr>
<tr>
<td>- 50mm meter</td>
<td>6,516.71</td>
<td>3,590.81</td>
<td>3,590.81</td>
<td>3,590.81</td>
<td>3,590.81</td>
<td>-44.9%</td>
</tr>
<tr>
<td>- 80mm meter</td>
<td>16,682.77</td>
<td>8,935.08</td>
<td>8,935.08</td>
<td>8,935.08</td>
<td>8,935.08</td>
<td>-46.4%</td>
</tr>
<tr>
<td>- 100mm meter</td>
<td>26,066.85</td>
<td>13,868.25</td>
<td>13,868.25</td>
<td>13,868.25</td>
<td>13,868.25</td>
<td>-46.8%</td>
</tr>
<tr>
<td>- 150mm meter</td>
<td>58,650.40</td>
<td>30,997.31</td>
<td>30,997.31</td>
<td>30,997.31</td>
<td>30,997.31</td>
<td>-47.1%</td>
</tr>
<tr>
<td>- 200mm meter</td>
<td>104,267.37</td>
<td>54,978.00</td>
<td>54,978.00</td>
<td>54,978.00</td>
<td>54,978.00</td>
<td>-47.3%</td>
</tr>
</tbody>
</table>

<sup>a</sup> 2015-16 prices were not available when Sydney Water finalised its pricing proposal. The prices for 2015-16 have been updated to reflect actual inflation and prices.

<sup>b</sup> Under the 2012 Determination 20 mm standalone non-residential customers paid the residential service charge. From 2016-17 these customers will be charged the same as other non-residential customers with 20mm meters.

<sup>c</sup> This service charge applied to non-residential customers on a shared or with multiple 20mm meter only and not to non-residential customers on an individual 20mm meter.

<sup>d</sup> The non-residential service charges assume a 100% discharge factor and have the 150 kL deemed usage of $165 added to it.

**Source:** Annual Information Return, June 2015; and IPART analysis.
9.5 Joint service arrangements

A joint service occurs where a single connection to Sydney Water’s network serves more than one unrelated property. The first property typically has a water meter that is connected to Sydney Water’s network (‘parent’ property), and the dependent properties use a private pipe connected to the first property’s connection (‘child’ properties).

According to Sydney Water, many joint services are a product of history, arising because of copper shortages during the second world war (ie, around the 1940s). Some have resulted from temporary plumbing arrangements that have become permanent over time. The number of premises in joint service arrangements are:

- 951 ‘parent’ premises, and
- 9,274 ‘child’ premises.

Sydney Water proposed a change to how non-residential multi-premise joint service customers are charged to simplify the way the dependent (or child) property is charged. It proposed no change to the way other types of joint service arrangements are charged.

Decision

26 We have decided to:

- maintain Sydney Water’s current charging regime for joint service customers, and
- codify Sydney Water’s current joint services charging approach in the 2016 Determination to increase transparency.

---


391 Note that this is a simplified description of a joint service arrangement. Joint services can exist as single dwellings, town houses, units, flats, non-residential properties within multi-premises or as mixed multi-premises. The properties can be metered, partially metered (some of the properties have their own sub-meter) or unmetered. See Sydney Water pricing proposal to IPART, June 2015, p 110.

392 According to Sydney Water, the above numbers are based on number of premises, rather than properties, that are in a joint services charging arrangement (ie, strata units and flats are only counted once). If we were to count the total number of properties, it would increase the number of ‘children’ by around 1,000.
9.5.1 Reasons for our decision

Maintain Sydney Water’s current charging regime for joint service customers

We consider joint service customers should be charged as multi-premises based on our price structure principles, where:

- non-residential joint services (ie, all properties are non-residential) are charged on a (common) meter basis,
- residential joint services (ie, all properties are residential) are charged on a dwelling basis, and
- mixed joint services (ie, those with mixed developments, or a mixture of residential, non-residential and/mixed development premises) are charged on a dwelling basis.

However, since its submission to the Draft Report, Sydney Water has provided us with information on the current charging arrangements for joint services. In particular, the variation in joint service arrangements is significantly more complicated than we initially understood. For example:

- There is no consistent number, size or type of property in a joint service arrangement. Some involve only two properties (one parent, one child); while others involve one parent property and a number of child properties with many dwellings (one parent, up to 281 child dwellings).

- In some arrangements all properties (parent and child) are the same type and scale (for example, four apartment blocks all containing the same number of units). In others, the parent and child properties are of a very different type and/or scale (for example, a shopping centre or apartment block connected to a single dwelling). The disparity in the scale of the properties can go both ways (with the parent being very large and children properties smaller, or vice versa).

Given this information, we understand that there could be significant bill impacts to customers if they were to move to our price structure principles. It would also be administratively costly for Sydney Water to implement by 1 July 2016.

In its submission, the Energy & Water Ombudsman NSW (EWON) noted that it considers any changes to the pricing structure need to be clear, easy to understand and communicated well to affected customers to minimise customer complaints. We agree with EWON.

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393 Energy & Water Ombudsman NSW submission to IPART Issues Paper, October 2015, p 3.
On balance, we have decided therefore to maintain Sydney Water’s current pricing arrangements, where the:

- **parent** property is charged in the same way it would be charged if it was not a joint services arrangement – ie, residential charge for residential properties and non-residential charges for non-residential properties, and

- **child** property is charged a residential charge, except for where there is a non-residential multi-premise directly connected to a non-residential multi-premises downstream – in which case they share a meter based charge.

We consider this pricing arrangement to be a holding position and that joint service arrangements should be revisited in 2020. Sydney Water’s preference is for properties serviced by Sydney Water to be directly connected to its system.394 This simplifies billing, as well as other obligations under its Customer Contract such as responsibilities for maintenance. We ask that Sydney Water, in advance of the next price review, investigate which joint service customers could be easily (ie, at a low cost) connected to Sydney Water’s network.

### Clarification of joint services in the 2016 Determination

We consider the 2016 Determination needs to be clear about how Sydney Water is to charge joint service customers. The 2012 Determination does not reference joint services.

As such, the 2016 Determination will explicitly codify Sydney Water’s current charging arrangements for joint services.

### 9.6 Dual occupancy arrangements

A dual occupancy is where the property owner has a second dwelling on that property. The secondary dwelling typically has its own entrance, kitchen facilities, bathroom and laundry facilities (eg, like a ‘granny flat’). The two dwellings are linked by the owner (the property owner owns the main dwelling and the secondary dwelling) and cannot be independently sold.395

Currently, dual occupancies are charged as two separate properties.396 That is, under the 2012 Determination, the main dwelling and the secondary dwelling each attract a water service charge and a wastewater service charge.397 However, Sydney Water has experienced difficulty in identifying dual occupancies, in particular since changes to planning requirements in 2011.398 These changes

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394 Email to IPART, Sydney Water, 11 May 2016.
395 Sydney Water pricing proposal to IPART, June 2015, p 112.
396 To attract a charge from Sydney Water, apartments do not need to have kitchen or laundry facilities.
397 IPART, Prices for Sydney Water Corporation’s water, sewerage, stormwater drainage and other services, Determination No. 1, June 2012, pp 5, 22.
enabled the expedited approval of dual occupancies and so Sydney Water no longer receives notification when new dual occupancies are created.399

Decision

27 We have decided to charge dual occupancies based on the number of meters connected to Sydney Water’s network.

9.6.1 Reasons for our decision

Our decision is based on recognising Sydney Water’s difficulty in identifying dual occupancies, while seeking to maintain consistency with our pricing principles. The Energy & Water Ombudsman NSW supported this approach in its submission.400

Sydney Water’s proposal seeks for dual occupancies to be priced as standalone, single residential properties. However, we consider this approach to be inconsistent with our pricing principle to charge each dwelling as a single customer. Under our approach, each dwelling will be charged individually where multiple meters or connections occur. Where a single meter or connection exists, dual occupancies will be charged as single dwellings.401

The impact of our approach to dual occupancies on the base 20mm meter service charge to all non-residential and residential customers is:

- around a 35 cent increase to the water service charge and a $3.15 increase to the wastewater service charge, compared to current charging arrangements; and

- about a 15 cent reduction to the water service charge and a $1.45 reduction to the wastewater service charge, compared to Sydney Water’s proposal.

9.7 Unfiltered water charges

Unfiltered water is water that has chemical treatment, but not at a water filtration plant. The unfiltered water charge is set to reflect an avoided cost. That is, an unfiltered water customer receives a discount to reflect the reduced water filtration costs Sydney Water incurs in providing unfiltered water.

399 Sydney Water pricing proposal to IPART, June 2015, pp 112-113.
400 Energy & Water Ombudsman NSW submission to IPART Issues Paper, October 2015, p 3. We note the Public Interest Advocacy Centre (PIAC) acknowledged the difficulty in identifying dual occupancies. PIAC supports further analysis of the issues to better understand the cost associated with accurately identifying these properties, while cautioning against any rises in bills for residential customers. Public Interest Advocacy Centre submission to IPART Issues Paper, October 2015, p 6.
401 This occurs even if the dual occupancy was previously charged as two dwellings.
Sydney Water currently only sells a small amount of unfiltered water to BlueScope Steel’s Port Kembla plant in Wollongong.402

Decision

28 We have decided to set the maximum unfiltered usage charge at the potable water usage charge less $0.30 per kL.

9.7.1 Reasons for our decision

Our decision is consistent with Sydney Water’s proposal and is broadly cost-reflective. The average forecast filtration cost for 2012-16 is $0.27 per kL ($2015-16),403 only marginally lower than the current discount of $0.32 per kL.

The current structure of unfiltered water charges will remain, which includes a fixed service charge set at the same level as the fixed service charge for potable water, based on meter size.404

9.8 Unmetered water charges

Some residential and non-residential properties do not have water meters. Therefore, these customers do not pay an explicit water usage charge. Rather, they are charged a deemed usage component that is added to their fixed water service charge. Sydney Water reports that billed unmetered demand accounts for about 1% of total demand.405

Decision

29 We have decided to maintain the current approach to charging unmetered properties, which includes:

– a water service charge equal to the residential service charge, and
– 180 kL of deemed water usage per year (ie, 180 kL x the water usage price).

9.8.1 Reasons for our decision

Our decision is consistent with Sydney Water’s proposal.406 We consider that unmetered customers should continue to pay a water service charge that reflects the residential service charge.

402 Sydney Water pricing proposal to IPART, June 2015, p 100.
403 Sydney Water submission to IPART Issues Paper, October 2015, p 105.
404 Sydney Water pricing proposal to IPART, June 2015, p 100.
405 Sydney Water pricing proposal to IPART, June 2015, p 310.
406 Sydney Water submission to IPART Issues Paper, October 2015, p 105.
Our view is that it is appropriate to include a deemed usage component for unmetered customers, as this accords with the impactor pays principle. Sydney Water noted that 80% of unmetered customers are either small inner-city terraces or small non-residential shops.\textsuperscript{407} On this basis, we consider that the proposed usage of 180 kL per year (slightly above average apartment usage of 160 kL per year) remains valid.\textsuperscript{408} This is lower than the average residential consumption of 200 kL or the 220 kL per year for metered single houses.\textsuperscript{409}

One submission expressed concern that the deemed usage charge is not tied directly to actual usage.\textsuperscript{410} However, we note that customers are at liberty to have a meter installed if they believe they are consuming less than the deemed amount. Sydney Water will provide the meter free of charge. The customer is responsible for the cost of installation.

<table>
<thead>
<tr>
<th>Table 9.10 Unmetered water charges ($/year, $2015-16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unmetered water charge</td>
</tr>
<tr>
<td>2015-16 charge</td>
</tr>
<tr>
<td>IPART decision\textsuperscript{a}</td>
</tr>
</tbody>
</table>

\textsuperscript{a} This charge is comprised of a deemed water usage component (180 kL x $1.97 kL) plus the standard residential water service charge ($88.80 per customer).

\textbf{Source:} IPART analysis.

\section*{9.9 Minor service extension charges}

Minor service extensions are a service provided by Sydney Water to extend the sewerage system and the water supply network to properties which are not connected. Owners of those properties must request to be connected.

\textbf{Decision}

30 We have decided to maintain the existing methodology for setting minor service extension charges, with the exception of:

- updating the discount rate to be based on Sydney Water’s pre-tax weighted average cost of capital.

\textsuperscript{407} Sydney Water submission to IPART Issues Paper, October 2015, p 105.
\textsuperscript{408} Sydney Water pricing proposal to IPART, September 2015 AIR/SIR Update.
\textsuperscript{409} Sydney Water pricing proposal to IPART, September 2015 AIR/SIR Update.
\textsuperscript{410} P. O’Neill submission to IPART Issues Paper, July 2015.
9.9.1 Reasons for our decision

We have decided to maintain the existing methodology for setting minor service extension charges:

\[ \text{minor service extension charge} = \frac{\text{PV(capital expenditure)} - \text{PV(revenues - costs)}}{\text{PV(equivalent tenements)}} \]

b) where PV stands for the present value, and the capital expenditure, revenues and costs are those attributable to the minor service extension.

We have consistently applied the same methodology to the minor service extension charge since our 2003 Determination. This is the same as that used for calculating developer charges and reflects the impactor pays principle. Sydney Water’s proposal does not address the minor service extension charge.

Similar to developer charges, minor service extension charges are set outside the building block approach. Therefore, Sydney Water does not receive revenue to meet tax liabilities, unless we use a pre-tax WACC which includes a tax component.

The existing minor extensions formula uses a seven per cent discount rate. We have updated the discount rate to the current real pre-tax WACC of 5.9% (see Chapter 7). This is consistent with the 2013 decision to update the discount rate used in Gosford Council’s and Wyong Council’s developer charges determinations from 7% to equal to the real pre-tax WACC.\(^{411}\) Seven per cent was the real pre-tax WACC in 2000, when the previous developer charges determination was completed.

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10 Prices for stormwater services

10.1 Stormwater drainage charges

Only some of Sydney Water’s residential and non-residential water and wastewater customers are within its stormwater area (and are therefore also its stormwater customers). Currently, Sydney Water’s stormwater customers are levied a stormwater charge based on their property area size. Local councils, rather than Sydney Water, are the main provider of stormwater services in the Sydney Area.

Currently, Sydney Water’s:

- residential customers pay a fixed stormwater service charge that differs for standalone and multi-premises customers (ie, houses and apartments), and
- non-residential customers pay a fixed stormwater service charge that differs based on the size of the property.

In this chapter, we outline our decisions on stormwater drainage charges and the reasoning underpinning each price.

10.2 Constrained area base pricing

Decision

31 We have decided to set stormwater drainage charges on a constrained area basis, as set out in Table 10.1.

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412 According to Sydney Water, this area covers 30 Local Government areas, and generally includes the central business district and inner west of Sydney. It provides stormwater drainage services to around 548,000 residential and non-residential properties (2015-16), which we estimate to represent around 28.6% of the 1.9 million properties that it supplies water services to (2015-16). Sydney Water pricing proposal to IPART, June 2015, p 52 and Sydney Water pricing proposal to IPART - Appendices, June 2015, p 48.
10.2.1 Reasons for our decision

We have decided to set stormwater charges on a constrained area basis, continuing the approach taken in the 2012 Determination. In the 2012 Determination, we introduced property-area-based stormwater pricing (ie, $ per m² of a property) and transitioned to the new price levels over the determination period. We consider area-based charging is the most equitable charging approach across customer categories and best reflects the impactor pays principle. A property’s area is a reasonable and readily available indicator of its contribution to Sydney Water’s stormwater costs.

Sydney Water proposed to maintain the current price relativities between different customer categories. It does not consider that a stricter application of area-based charging will lead to better cost reflectivity, given the number of factors that impact the costs of providing stormwater services over and above property size. It has proposed prices for all dwelling types to decrease by 2.9% a year over the 2016 determination period (ie, spread its proposed reduction in required revenue for stormwater evenly across customers).

However, our analysis suggest that apartments and small non-residential customers may currently be paying more than their share of these costs, while large non-residential customers may be paying less, on a strict billable area basis (see Table 10.1 below). That is, on average, each property should be charged $16 per 100m² if total stormwater revenue were recovered on a strict billable area basis (this is represented as the ‘pure’ area based charge in Table 10.1 below).

As a result, we have decided to continue the transition toward area-based stormwater drainage charges by:

- allocating the reduction in required revenue to residential and small non-residential customers, and
- maintaining prices at current levels (in real terms) for large non-residential customers.

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413 Sydney Water submission to IPART Issues Paper, October 2015, p 57.
414 Sydney Water submission to IPART Issues Paper, October 2015, p 115.
415 This is based on a comparison of the percentage of revenue each customer category currently contributes to Sydney Water’s stormwater costs to the percentage of the total billable area it represents.
Table 10.1 Comparison of stormwater drainage pricing approaches ($/year, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>Current prices$^a$</th>
<th>Based on current approach</th>
<th>Pure area based</th>
<th>IPART prices</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Residential</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apartments and low impact</td>
<td>31.55 ($37/100m²)</td>
<td>26.34 ($31/100m²)</td>
<td>13.19 ($16/100m²)</td>
<td>23.04 ($27/100m²)</td>
</tr>
<tr>
<td>Houses</td>
<td>86.02 ($18/100m²)</td>
<td>71.84 ($15/100m²)</td>
<td>73.81 ($16/100m²)</td>
<td>73.81 ($16/100m²)</td>
</tr>
<tr>
<td><strong>Non-residential</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small (0-200m²) and multi-premise</td>
<td>31.55 ($37/100m²)</td>
<td>26.34 ($31/100m²)</td>
<td>13.19 ($16/100m²)</td>
<td>23.04 ($27/100m²)</td>
</tr>
<tr>
<td>Medium (201-1,000m²) and low impact</td>
<td>86.02 ($18/100m²)</td>
<td>71.84 ($15/100m²)</td>
<td>73.81 ($16/100m²)</td>
<td>73.81 ($16/100m²)</td>
</tr>
<tr>
<td>Large (1,001-10,000m²)</td>
<td>430.12 ($14/100m²)</td>
<td>359.19 ($11/100m²)</td>
<td>497.42 ($16/100m²)</td>
<td>430.12 ($14/100m²)</td>
</tr>
<tr>
<td>Very large (10,001-45,000m²)</td>
<td>1,911.67 ($10/100m²)</td>
<td>1,596.42 ($8/100m²)</td>
<td>3,037.02 ($16/100m²)</td>
<td>1,911.67 ($10/100m²)</td>
</tr>
<tr>
<td>Largest (&gt;45,000m²)</td>
<td>4,779.19 ($4/100m²)</td>
<td>3,991.05 ($3/100m²)</td>
<td>20,219.63 ($16/100m²)</td>
<td>4,779.19 ($4/100m²)</td>
</tr>
</tbody>
</table>

$^a$ 2015-16 prices were not available when Sydney Water finalised its pricing proposal. The prices have been updated to reflect actual inflation and prices.

**Note:** The bracketed terms represent the stormwater charges on a 100m² basis given the total billable area within each category. Land size refers to the total size of the land (in m²) on which the property is located.

**Source:** Annual Information Return, June 2015; and IPART analysis.

The Total Environment Centre broadly supported this approach in its submission.$^{416}$ StormwaterNSW, however, opposed reductions to stormwater charges for Sydney Water’s small customers, on the grounds that it would reduce stormwater revenue.$^{417}$ We note that the reduction in stormwater revenue continues to fully fund Sydney Water’s stormwater expenditures and meet appropriate performance standards (see Chapters 5 and 6).

One of Sydney Water’s concerns was the practicality of disaggregating the current charging bands further.$^{418}$ Our proposed price structures do not change the bands. We have not adopted a ‘pure’ area based price structure across all categories. Rather, our constrained area based charge has:

- maintained the large, very large and largest customer charges constant in real terms
- reduced the house and medium non-residential charge to a ‘pure’ area based charge (ie, $16 per 100m²), and

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$^{416}$ The Total Environment Centre supported a transition towards strict area-based charges. Total Environment Centre submission to IPART Issues Paper, October 2015, pp 5-6.

$^{417}$ StormwaterNSW submission to IPART Issues Paper, October 2015, p 2.

$^{418}$ Sydney Water submission to IPART Issues Paper, October 2015, p 58.
• reduced the multi-premise residential, small non-residential and multi-premise non-residential customers charges towards a ‘pure’ area based charged, by allocating the residual reduction in revenue requirement to these customer groups.

10.3 Low-impact customer category

Decision

32 We have decided to introduce a low-impact customer category for residential customers equal to the charge for apartments from 1 July 2017.

10.3.1 Reasons for our decision

While we consider area (m²) to be the best available proxy for determining and allocating stormwater costs, there are instances where the contribution to costs of each property could be quite different (as also noted by Sydney Water419).

Generally, the size (and capacity) of stormwater assets, and therefore capital costs, are driven by the amount of runoff to be drained during major storms, not day-to-day rainfall. In fact, during heavy rainfall, both impervious and pervious surfaces see almost 100% runoff, because the intensity of the rainfall can far exceed the infiltration rate and soils quickly become waterlogged.420

However, some properties may not have heavy runoff during major storms. For example, properties that have installed significant detention infrastructure may be able to capture a large proportion of rainfall during heavy storms.

To reflect this, we introduced a low impact customer category for non-residential properties as part of the 2012 Determination. This allows non-residential customers to apply for a lower charge by demonstrating to Sydney Water (upon application) that their property made a relatively small contribution to stormwater load (and therefore the need for stormwater assets and infrastructure).

For the 2016 Determination, our decision is to introduce a low-impact customer category for residential customers equal to the charge for apartments. We consider the impactor (or polluter) pays principle applies equally to residential customers. As such, these customers should also have the opportunity to receive a discount where they have lowered the expense of removing the stormwater they create.

419 Sydney Water submission to IPART Issues Paper, October 2015, p 57.
420 Sydney Water submission to IPART Issues Paper – Appendix 19, September 2011, p 357.
Many stakeholders support this change to stormwater prices. While Sydney Water’s preference would be to defer consideration of this new customer category as part of a broader review of stormwater pricing, it requested one-year to develop the scheme should the low-impact discount be implemented.

To allow Sydney Water sufficient time to determine the circumstances under which a residential customer should qualify for the low impact discount, we have decided that the charge will apply from 1 July 2017. Sydney Water may wish to consult with its Customer Council in developing its process for implementing the low-impact discount. For instance, one option might be for Sydney Water to establish a process for residential stormwater customers to seek assessment from a Sydney Water accredited assessor.

10.4 Dual Occupancies

Decision

33 We have decided to set maximum prices for stormwater drainage services supplied to residential dual occupancy properties based on the number of connections/meters to the water network. That is:

- where each dual occupancy property is serviced by an individual meter (and are therefore identifiable), each of those properties is charged as an apartment
- where the dual occupancy properties are serviced by one common meter only (and are therefore not identifiable), they are together charged as one standalone house; and
- where the dual occupancy properties are serviced by more than one common meter (and are therefore identifiable), each of those properties is charged as an apartment.

For example, Mr Michael Mobbs says the introduction of the low-impact stormwater charge is “a good start to ending a tragic pricing system which maintains a highly damaging monopoly abuse of power over property owners” (p 1). While Mr Mobbs insists that he should not pay a stormwater charge, he highlights that “the annual 500 billion litres of stormwater pollution” has not been mentioned in the Draft Report. M. Mobbs submission to IPART Draft Report, April 2016, p 1. The Cooks River Alliance, the Parramatta River Catchment Group, the Sydney Coastal Councils Group and the Georges River Combined Councils’ Committee support the residential low-impact stormwater charge and area based stormwater charges. The Cooks River Alliance, the Parramatta River Catchment Group, the Sydney Coastal Councils Group and the Georges River Combined Councils’ Committee submission to IPART Draft Report Paper, April 2016, p 2. The Council of the City of Sydney supports the concept of a residential low-impact stormwater charge but questions the costs versus benefits to administer it. It would like IPART to consider a low-impact category for water and wastewater as well. The Council of the City of Sydney, submission to IPART Draft Report, April 2016, p3. The Sydney Coastal Councils Group Incorporated advocated for pricing based on impervious area, as this considerably affects the volume of stormwater entering the drainage network. Sydney Coastal Councils Group Incorporated, submission to IPART Issues Paper, October 2015, p 9. The Total Environment Centre advocated for allowances to be made for properties with a low ratio of impervious services to encourage water sensitive urban design. Total Environment Centre submission to IPART Issues Paper, October 2015, p 6. 

10.4.1 Reasons for our decision

Sydney Water experiences the same difficulty in identifying dual occupancies for the purpose of levying stormwater service charges as it does for water and wastewater service charges (outlined in Chapter 9). Our Draft Report did not address how to charge dual occupancies for stormwater services.

Sydney Water has confirmed that it currently charges dual occupancies as residential multi-premises - ie, each dwelling is levied a separate stormwater charge equal to that of an apartment, where dual occupancies can be identified. However, this charging regime is not practical, where a dual occupancy is unidentifiable.

On balance, we have decided to apply an approach to stormwater charges for dual occupancies that is broadly consistent with water and wastewater dual occupancy charges. That is:

- where each dual occupancy property is serviced by an individual meter (and are therefore identifiable), each of those properties is charged as an apartment
- where the dual occupancy properties are serviced by one common meter only (and are therefore not identifiable), they are together charged as one standalone house; and
- where the dual occupancy properties are serviced by more than one common meter (and are therefore identifiable), each of those properties is charged as an apartment.

Whilst we do not consider meters to be an indicator of the cost imposed by each customer for stormwater services, they are useful in identifying properties that receive stormwater services for charging purposes. This option therefore removes the difficulty in identifying dual occupancies. We are also mindful that any inconsistency between the charging arrangements for water, wastewater and stormwater drainage may be difficult to explain to customers.

10.5 Price levels - stormwater drainage charges

Decision

We have decided to set the maximum stormwater drainage charges as set out in Table 10.2.

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423 Under our 2016 Determination, a house is charged more for stormwater services than the sum of two apartments (Sydney Water – average house stormwater charge = $74, average apartment stormwater charge = $23).
Our stormwater drainage charges are outlined and compared to Sydney Water’s proposed charges in Table 10.2. Under our prices:

- Stand-alone residential and small non-residential customers will experience a 14.2% fall in stormwater charges.
- Customers in multi-premise properties will see a 27.0% decrease in stormwater charges.
- Non-residential customers that are in the large to largest area category will face constant prices.

These figures are in real $2015-16, and therefore exclude the effects of inflation.

**Table 10.2 Charges for stormwater drainage services ($/year, $2015-16)**

<table>
<thead>
<tr>
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<td><strong>Residential</strong></td>
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<td></td>
</tr>
<tr>
<td>Multi-premises and low impact</td>
<td>31.55</td>
<td>30.75</td>
<td>29.84</td>
<td>28.95</td>
<td>28.08</td>
</tr>
<tr>
<td>Annual change</td>
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<td>-3.0%</td>
<td>-3.0%</td>
<td>-3.0%</td>
<td>-3.0%</td>
</tr>
<tr>
<td>Standalone</td>
<td>86.02</td>
<td>83.86</td>
<td>81.36</td>
<td>78.93</td>
<td>76.57</td>
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<tr>
<td><strong>Non-residential</strong></td>
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<td></td>
</tr>
<tr>
<td>Small (0-200m²) and multi-premises</td>
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<td>30.75</td>
<td>29.84</td>
<td>28.95</td>
<td>28.08</td>
</tr>
<tr>
<td>Annual change</td>
<td>-2.5%</td>
<td>-3.0%</td>
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<td>-3.0%</td>
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<tr>
<td>Medium (201-1,000m²) and low impact</td>
<td>86.02</td>
<td>83.86</td>
<td>81.36</td>
<td>78.93</td>
<td>76.57</td>
</tr>
<tr>
<td>Annual change</td>
<td>-2.5%</td>
<td>-3.0%</td>
<td>-3.0%</td>
<td>-3.0%</td>
<td>-3.0%</td>
</tr>
<tr>
<td>Large (1,001-10,000m²)</td>
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<td>419.32</td>
<td>406.81</td>
<td>394.67</td>
<td>382.89</td>
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<td>-3.0%</td>
<td>-3.0%</td>
<td>-3.0%</td>
</tr>
<tr>
<td>Very Large (10,001-45,000m²)</td>
<td>1,911.67</td>
<td>1,863.65</td>
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<td>-3.0%</td>
<td>-3.0%</td>
<td>-3.0%</td>
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<tr>
<td>Largest (&gt;45,000m²)</td>
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</tr>
<tr>
<td>Multi-premises and low impact</td>
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<td>Standalone</td>
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<td>73.81</td>
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<tr>
<td>Small (0-200m²) and multi-premises</td>
<td>31.55</td>
<td>23.04</td>
<td>23.04</td>
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<td>23.04</td>
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<td>Annual change</td>
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<td>0.0%</td>
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<tr>
<td>Medium (201-1,000m²) and low impact</td>
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<td>73.81</td>
<td>73.81</td>
<td>73.81</td>
<td>73.81</td>
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</table>
Prices for stormwater services

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<thead>
<tr>
<th></th>
<th>2015-16(^a)</th>
<th>2016-17</th>
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<th>2018-19</th>
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<td>0.0%</td>
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</tr>
<tr>
<td>Large (1,001-10,000m(^2))</td>
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<td>430.12</td>
<td>430.12</td>
<td>430.12</td>
<td>430.12</td>
</tr>
<tr>
<td><strong>Annual change</strong></td>
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<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Very Large (10,001-45,000m(^2))</td>
<td>1,911.67</td>
<td>1,911.67</td>
<td>1,911.67</td>
<td>1,911.67</td>
<td>1,911.67</td>
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<tr>
<td><strong>Annual change</strong></td>
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<td>0.0%</td>
</tr>
<tr>
<td>Largest (&gt;45,000m(^2))</td>
<td>4,779.19</td>
<td>4,779.19</td>
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</tr>
</tbody>
</table>

\(^a\) 2015-16 prices were not available when Sydney Water finalised its pricing proposal. The prices for 2015-16 have been updated to reflect actual inflation and prices.

Source: Sydney Water submission to IPART Issues Paper, October 2015, p 115.

Sydney Water proposed that its stormwater prices over the 2016 determination period recover slightly more revenue in total than required to provide these services. It did so on the expectation that its stormwater capital expenditure would increase significantly between 2020 and 2024, as a number of assets built before 1910 require renewal.\(^{424}\) In the interest of price stability, Sydney Water proposed to under-recover revenue over the 2020–24 period, and therefore that stormwater prices be set on an NPV-neutral basis over the next eight years.\(^{425}\)

In their submissions, both the NSW Business Chamber and StormwaterNSW identified that Sydney Water’s proposed stormwater revenue exceeds its expected costs. In its submission to our Draft Report, Stormwater NSW requested stormwater expenditure and revenue be boosted to fund waterway health.\(^{426}\)

We have reviewed the proposed capital expenditure on stormwater assets and the efficient profile for this expenditure. Our prices ensure that revenue from stormwater charges will match expenditure on an NPV basis over four years. We also note that in its submission to our Draft Report Sydney Water accepted our decision to set stormwater drainage charges on a constrained area basis.\(^{427}\)

\(^{424}\) Sydney Water pricing proposal to IPART, June 2015, p 198.
\(^{425}\) Sydney Water pricing proposal to IPART, June 2015, p 82.
\(^{426}\) Stormwater NSW requested transparency and clear accountability to ensure that all stormwater revenue is spent on stormwater projects or stormwater servicing. StormWater NSW, submission to IPART Draft Report, April 2016, pp 2-3. The Sydney Coastal Councils Group Incorporated also supported increased expenditure on stormwater to account for ageing infrastructure and the anticipated environmental costs. Sydney Coastal Councils Group Incorporated submission to IPART Issues Paper, October 2015, p 8. The NSW Business Chamber did not support the increase in stormwater revenue in excess of expected costs. NSW Business Chamber Limited submission to IPART Issues Paper, October 2015, p 1.
\(^{427}\) Sydney Water submission to IPART Draft Report, April 2016, p 8.
Sydney Water’s longer-term proposal is to broaden the stormwater customer base, to reflect direct beneficiary pays pricing. In particular, it is investigating broadening the stormwater customer base in the future so that water and wastewater customers pay a proportion of stormwater costs. This reflects the wider community benefits generated from stormwater services (eg, cleaner waterways) and that most customers travel to city hubs for work or entertainment that are serviced by Sydney Water’s stormwater infrastructure (eg, Sydney’s central business district and Parramatta). We do not support spreading stormwater infrastructure costs across water and wastewater customers. Properties outside of Sydney Water’s stormwater catchment pay for stormwater costs in their local government areas to councils through their local government rates or stormwater levies. Properties within Sydney Water’s stormwater catchment pay for their trunk drainage through Sydney Water’s stormwater charges and their reticulation systems through local government rates or stormwater levies. At present, both sets of customers pay for their own stormwater costs.

Nonetheless, our view is that Sydney Water should continue to engage with relevant stakeholders over the next four years to determine other options to improve the management of stormwater. In its research, Sydney Water has commenced testing customers’ attitudes towards alternative charging scenarios for stormwater infrastructure. To date, its stormwater consultation has been conducted using focus groups.

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428 Sydney Water submission to IPART Draft Report, April 2016, p 36.
429 Sydney Water pricing proposal to IPART, June 2015, p 52.
430 Sydney Water’s submission to our Draft Report noted that we have an inaccurate understanding of stormwater services provided by Sydney Water and councils. We consider that there was a misunderstanding about what we were referencing, and the above text clarifies our statements from the Draft Report. Sydney Water submission to IPART Draft Report, April 2016, p 36.
431 Stakeholders include councils, as they typically own and operate the stormwater collection infrastructure. At our Public Hearing, representatives of councils were strong proponents of integrated water cycle management and liveability. See, for example, Public Hearing Transcript, 10 November 2015, pp 20-21 outlining the views of the Cooks River Alliance, the Parramatta River Catchment Group, the Sydney Coastal Councils Group and the Georges River Combined Councils Committee.
432 Sydney Water pricing proposal to IPART - Appendices, June 2015, p 85.
11 Prices for other services

Sydney Water provides a range of services other than water, sewerage and stormwater services for which we regulate its prices. These include:

- non-residential trade waste charges
- miscellaneous and ancillary charges, and
- charges for the Rouse Hill Stormwater Catchment Area.

This chapter explains our decisions on these charges.

11.1 Non-residential trade waste charges

Trade waste is defined as wastewater from commercial and industrial customers in which the concentrations of pollutants exceed a domestic equivalent. 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 costs of high strength wastes
- ancillary and agreement charges, which recover the cost of administering trade waste agreements and conducting inspections, and
- wastesafe charges, which recover the cost of monitoring liquid waste pits.

---

433 A domestic equivalent is a concentration or level that is the same as would be expected in household wastewater.
Decision

35 We have decided to:

- set the maximum trade waste prices as set out in Appendix J, which include an allowance for corporate overheads
- amend the trade waste pricing principles to clarify that charges should recover efficient costs, including corporate overheads
- deduct the trade waste revenue as set out in Table 11.1 from the notional revenue requirement
- change the trade waste price structure as proposed by Sydney Water as follows:
  a. reclassify shopping centres with centralised onsite pre-treatment as industrial customers (under Risk Index 6), and
  b. include "pre-treatment not maintained in accordance with requirements" as an explicit commercial activity code.

11.1.1 Reasons for our decision

Trade waste prices and pricing principles

We have accepted Sydney Water’s proposed trade waste prices, except for amending them to allow for recovery of a share of Sydney Water’s corporate overheads.\(^{434}\) We consider 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, we consider our approach may provide positive incentives towards competition. 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).

As a result, we have amended the trade waste pricing principles to clarify that charges should recover all efficient costs, including corporate costs. These principles are shown below in Box 11.1. Sydney Water has accepted our amendments to the pricing principles.\(^{435}\)

\(^{434}\) Sydney Water proposed to keep these charges flat in real terms throughout the 2016 determination period. However, due to the lower than expected inflation rate used to forecast 2015-16 prices, the proposed price level for 2016-17 is around 0.5% higher than current prices. Sydney Water pricing proposal to IPART - Appendices, June 2015, p 16.

\(^{435}\) Sydney Water submission to IPART Draft Report, April 2016, p 38.
Box 11.1 Principles for Trade Waste Charges

The application of appropriate pricing principles to trade waste requires that:

- Standards for acceptance should be set on the basis of the capacity of current systems to transport, treat and dispose of the waste, having regard to the health and safety of wastewater workers.

- Trade waste charges should cover the efficient costs to the water supplier of handling these wastes, including an allocation of corporate overheads.

- Charges should vary to reflect differences in the cost of treating waste to the required standards at particular locations.

- Water suppliers should set charges and standards in a manner that is transparent and accurate. The method of measurement should be reliable and the basis for setting charges should reflect costs incurred as far as possible.

Where environmental reasons are made for variations from the pricing principles detailed above, sufficient evidence needs to be available to justify these variations. The basis for calculating charges above the cost of service, where environmental justifications exist, should also be supported by sufficient evidence.

To limit price impacts to customers, prices include the recovery of half the efficient corporate costs (ie, $2.4 million of $4.9 million) for trade waste services by 1 July 2020, with an intention to achieve full cost-recovery in the future. This means trade waste prices will increase by 1.9% in real terms each year over the 2016 determination period (ie, a 7.8% cumulative increase). If corporate costs were re-allocated in full, trade waste prices would increase by 15.6% in 2016-17 (or 3.7% each year if they were phased in over 2016-19).436

In its submission, the Council of the City of Sydney indicated trade waste charges are too low compared to multi-premise residential charges.437 However, we note that multi-premise non-residential and residential service charges are currently set on a different basis and so are not directly comparable. In addition, as part of the 2012 Determination, we conducted an extensive review of trade waste charges and set maximum prices for Sydney Water’s trade waste charges at cost-reflective levels.438 Given this review, and the relatively minor nature of Sydney Water’s proposed changes to these charges over the 2016 determination period, we consider that these charges continue to reflect costs (subject to transitioning towards recovering full corporate overheads).

436 We note that this would not result in a windfall gain to Sydney Water, as forecast trade waste revenue is deducted from the notional revenue requirement.

437 Council of the City of Sydney submission to IPART Issues Paper, October 2015, p 3.

438 As part of the 2012 review, we conducted detailed stakeholder consultations, including two workshops with Sydney Water and key trade waste stakeholders to discuss proposed changes to charges. IPART, Review of Sydney Water Corporation’s water, sewerage, stormwater drainage and other services – From 1 July 2012 to 30 June 2016 - Final Report, June 2012, p 135.
No other stakeholders commented on trade waste charges. The full list of trade waste prices is outlined in Appendix J.

Trade waste revenue

We deduct the trade waste revenue from the notional revenue requirement.

Based on maintaining prices, Sydney Water forecasts that its trade waste revenue would increase from $30.5 million to $31.2 million in 2016-17, and then remain constant in real terms until 2019-20.439 We undertook a high-level review of Sydney Water’s proposal and concluded that the forecast was reasonable, given it was broadly commensurate with historical revenue.440

We have adjusted forecast revenue to reflect re-allocated corporate costs (as outlined above). These are shown in Table 11.1.

<table>
<thead>
<tr>
<th>Table 11.1 Forecast trade waste revenue ($millions, $2015-16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Water proposed</td>
</tr>
<tr>
<td>Sydney Water proposed</td>
</tr>
<tr>
<td>IPART decision</td>
</tr>
</tbody>
</table>

Source: Sydney Water pricing proposal to IPART, June 2015, p 97; and IPART analysis.

Trade waste pricing structure

We have accepted Sydney Water’s proposal to reclassify shopping centres with centralised onsite pre-treatment as industrial customers (Risk Index 6) and include “pre-treatment not maintained in accordance with requirements” as an explicit commercial activity code.441 This latter charge was previously incorporated in the 2012 Determination as a footnote to the table of pollutant charges for commercial customers.

There are currently five shopping centres with centralised pre-treatment of trade waste. Managing these shopping centres as industrial customers would allow them to gain some control over their trade waste charges (through the quality of wastewater discharged).442

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439 This increase is due to a small expected rise in pollutant charge revenue in 2016-17.
440 We engaged a consultant, Synergies, to assist with our review of Sydney Water’s trade waste prices. Much of the supplementary information on costs used in our analysis was provided to us by Sydney Water on a commercial-in-confidence basis. Synergies, *Trade waste charge review – Sydney Water*, December 2015 (Commercial-in-Confidence).
441 Sydney Water pricing proposal to IPART - Appendices, June 2015, pp 16-17.
442 We note that in accepting Sydney Water’s proposal, those sites that allow their pollutants to deteriorate will attract increased charges.
11.2 Miscellaneous and ancillary charges

Sydney Water levies miscellaneous and ancillary service charges for a number of non-contestable one-off services. These charges account for a small proportion of Sydney Water’s total revenue – approximately 0.5% of the $9.7 billion it seeks to recover over 2016-20.\textsuperscript{443}

For the 2012 price review, Sydney Water conducted a comprehensive review of its miscellaneous and ancillary charges. As a result, its number of chargeable services decreased from 55 to 23.\textsuperscript{444}

For the 2016 price review, Sydney Water proposed to introduce a number of new charges and to make a range of adjustments to its existing miscellaneous and ancillary service charges.

Decision

36 We have decided to:

- set the maximum prices for miscellaneous and ancillary services to apply from 1 July 2016 as set out in Appendix K
- not set maximum prices for hot water metering services at this stage
- not set maximum prices for ‘premium’ sewerage service diagrams (ie, a sewerage service diagram with additional information added), and
- deduct the revenue from miscellaneous and ancillary services from the notional revenue requirement as set out in Table 11.3.

11.2.1 Reasons for our decision

For most miscellaneous and ancillary services, we have adopted Sydney Water’s proposed prices, but with an upwards real adjustment of 1.9% each year over the determination period to account for corporate costs (ie, a 7.8% cumulative increase).

The inclusion of corporate costs is consistent with our approach on trade waste fees. We have decided to transition to half the efficient corporate costs by 1 July 2020 (ie, $0.9 million of $1.8 million per annum) to limit price impacts to customers.

\textsuperscript{443} Sydney Water pricing proposal to IPART, June 2015, p 20; and IPART calculations.

\textsuperscript{444} Sydney Water pricing proposal to IPART - Appendices, June 2015, pp 20-21.
In 2012, IPART conducted an extensive review of charges against our miscellaneous pricing principles. As a result of this review, we reduced miscellaneous prices by an average of 15%. For this reason, Sydney Water has proposed to apply a CPI increase to most charges for the 2016 determination period.

The full list of miscellaneous and ancillary charges is shown in Appendix K.

**New fees**

**Inaccessible meter fee**

We accept Sydney Water’s proposal to charge an inaccessible meter fee, however with an adjustment for corporate overheads. This brings the fee to $8.56, per quarter. The inaccessible meter charge is designed to recover Sydney Water’s costs of attempting meter reading and managing estimated accounts.

A key question is the interpretation of the scope of costs included in the attempted meter reading. Sydney Water proposed to limit the inaccessible meter charge to properties that have received four consecutive estimated bills and have not responded to other contact, including asking the customer to:

- relocate the meter at their cost.
- install a remote reading device, which may incur a fee, and
- read the meter and provide it with the reading (ie, self-reading).

We consider the charge should only be levied to customers on this basis.

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446 We engaged a consultant, Synergies, to assist with our review of Sydney Water’s miscellaneous and ancillary prices. Much of the supplementary information on costs used in our analysis was provided to us by Sydney Water on a commercial-in-confidence basis. Synergies, *Miscellaneous and ancillary charges review – Sydney Water*, December 2015 (Commercial-in-Confidence).
447 Email to Sydney Water, 13 November 2015.
448 Email to IPART, Sydney Water, 21 December 2015.
450 To meet the requirements imposed under its customer contract, Sydney Water may only levy the proposed fee once a customer has denied reasonable and safe access to their meter on two occasions. This is because the proposed fee has been calculated to recover the costs of property inspections and customer meter readings.
Sydney Water has indicated there are approximately 5,500 properties with chronically inaccessible meters (ie, not read in four quarters or more) in its area of operation. However, under the conditions outlined above, it anticipated the charge would be applied to:

- less than 200 customers per year with newly inaccessible meters, and
- a maximum of 500 existing customers per year (for two quarters, on average).

Sydney Water accepted our approach in its submission to our Draft Report.

Remote read meter fees

Under its Operating Licence Sydney Water can charge customers with inaccessible meters for installation of a remote meter reading device in certain circumstances. We note there is no impediment to customers requesting the service, which incurs a fee (the remote read meter fee).

Sydney Water proposed the following fees for customers receiving the remote meter reading service:

- $225.50 for new properties and existing properties with a 20mm meter
- $298.42 for existing properties with a 25mm to 40mm meter, and
- $463.64 for existing properties with a 50mm to 100mm meter.

Its intent is to recover costs from the customers responsible for inaccessibility.

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451 Email to IPART, Sydney Water, 21 December 2015.
452 Email to IPART, Sydney Water, 20 November 2015.
454 This charge recovers the cost of fitting and servicing a remote reading device (remote read meter). Consistent with the Customer Contract, Sydney Water may only install a remote read meter in the following circumstances where the customer has granted permission for installation:
- to replace an existing Meter that has been made inaccessible after 1 July 2016 on two or more occasions; or
- to replace an existing Meter at the customer’s request; or
- as a new Meter for a new connection.
455 This service may also be available to large commercial and industrial customers, which may have security or safety reasons for wanting to have their meter read remotely.
456 Email to IPART, Sydney Water, 3 December 2015.
457 Email to IPART, Sydney Water, 3 December 2015.
We have revised Sydney Water’s proposed remote read meter fees downwards, to cost-reflective levels outlined in Table 11.2. These adopt the balance of Sydney Water’s assumptions, but exclude costs related to recovering the remaining value of the existing meter (which would need to be removed).\textsuperscript{458} Our prices also include an upwards real adjustment of 1.9% each year, to allow for recovery of a share of corporate costs.

Sydney Water accepted our approach in its submission to our Draft Report.\textsuperscript{459}

<table>
<thead>
<tr>
<th>Charge</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>20mm</td>
<td>$187.70</td>
</tr>
<tr>
<td>25mm</td>
<td>$197.77</td>
</tr>
<tr>
<td>32mm, 40mm, 50mm (light)</td>
<td>$217.06</td>
</tr>
<tr>
<td>50mm (heavy), 80mm, 100mm</td>
<td>$380.77</td>
</tr>
</tbody>
</table>

\textbf{Table 11.2 Remote read meter fee ($2015-16)}

\textit{Source:} IPART analysis. These prices are for 2016-17. Subsequent years will increase by an upwards real adjustment of 1.9% to account for the inclusion of corporate costs.

\textbf{Unregulated fees}

\textbf{Hot water metering service fees}

We have decided not to set the fee for Sydney Water’s proposed hot water metering services at this stage. Sydney Water has proposed to introduce a hot water meter reading service, conditional on this service being unregulated by IPART.

Under this service, developers or Owners Corporations would be able to install individual hot water meters for each apartment in a multi-level individually metered (MLIM) building. Sydney Water would maintain, operate and renew each meter, and provide apartment residents with a direct bill for all of their actual water consumption, inclusive of hot water.\textsuperscript{460}

We consider that there is scope for hot water metering to be a contestable service. In addition, we would expect that the general contract provisions offered by Sydney Water would include an option for parties to opt out.

Sydney Water accepted our approach in its submission to our Draft Report.\textsuperscript{461}

\textsuperscript{458} In order to avoid double-recovery of costs, existing meters need to be either (1) treated as a disposal (with costs included in the charge), or (2) retained in the RAB and depreciated. The latter option is simpler to implement and what occurs in practice.

\textsuperscript{459} Sydney Water Corporation, submission to IPART Draft Report, April 2016, p 39.

\textsuperscript{460} Sydney Water pricing proposal to IPART - Appendices, June 2015, pp 25-26.

\textsuperscript{461} Sydney Water Corporation, submission to IPART Draft Report, April 2016, p 40.
Sewerage service diagram fees

We have set the maximum fees for sewer service diagrams. Sydney Water has proposed to supply sewerage service diagrams as an unregulated product from 1 July 2016, as there is no statutory obligation for it to provide the diagrams. Sewerage service diagrams are currently a ‘high volume’ product, constituting around 36% of all miscellaneous products sold in a given year.

We are of the view this service should continue to remain regulated and have set the maximum price, including an allowance for a share of the cost of corporate overheads, as stipulated in Appendix K. Sydney Water is the monopoly provider of the sewerage service diagrams in its area of operation.\textsuperscript{462}

We consider Sydney Water could provide a ‘premium’ service (ie, a sewerage service diagram with additional information added) as a commercial, unregulated service. This could provide an incentive for Sydney Water to innovate to meet potential customer demand, while still preserving a cost-reflective product for those interested in the basic, regulated service.

Sydney Water has accepted our decision on sewerage service diagram fees.\textsuperscript{463}

Revenue from miscellaneous and ancillary services

We deduct the miscellaneous revenue in Table 11.3 from the notional revenue requirement. We have upwardly adjusted Sydney Water’s proposed revenue from miscellaneous and ancillary services over the 2016 period to:

\begin{itemize}
    \item reflect higher miscellaneous prices from re-allocating corporate costs
    \item reflect the removal of $76,000 of remote meter read fees that were not included in the cost base, and\textsuperscript{464}
    \item reflect Sydney Water’s estimate of about 500 existing customers per year subject to the new inaccessible meter fee.
\end{itemize}

\textsuperscript{462} As listed in the 2012 Determination, government monopoly services supplied by Sydney Water for which IPART is to determine prices include: Ancillary and miscellaneous customer services for which no alternative supply exists and which relate to the supply of services of a kind referred to in paragraphs (a)-(e). The kind of services referred to in paragraphs (a) to (e) include sewerage services. As the diagrams show where private sewerage infrastructure is located, we consider they relate to the supply of sewerage services. IPART, Prices for Sydney Water Corporation’s water, sewerage, stormwater drainage and other services – Determination, June 2012, p 1.

\textsuperscript{463} Sydney Water submission to IPART Draft Report, April 2016, p 40.

\textsuperscript{464} Synergies identified that Sydney Water’s forecasts for revenue included around $76,000 for remote read meter fees that was not included in the cost base for the notional revenue requirement. Therefore, there should be no revenue offset. This amount was removed.
Table 11.3  Forecast revenue miscellaneous and ancillary services
($millions, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>2015-16a</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
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<tbody>
<tr>
<td>Sydney Water</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- existing services</td>
<td>10.1</td>
<td>9.7</td>
<td>9.7</td>
<td>9.7</td>
<td>9.7</td>
</tr>
<tr>
<td>- late payment fee</td>
<td>1.9</td>
<td>1.7</td>
<td>1.6</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>11.6</td>
<td>11.4</td>
<td>11.3</td>
<td>11.3</td>
<td></td>
</tr>
<tr>
<td>IPART decision</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- corporate costs</td>
<td>0.2</td>
<td>0.4</td>
<td>0.7</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>- remote meter read</td>
<td>-0.1</td>
<td>-0.1</td>
<td>-0.1</td>
<td>-0.1</td>
<td></td>
</tr>
<tr>
<td>- inaccessible meter fee(^b)</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>11.8</td>
<td>11.8</td>
<td>11.9</td>
<td>12.1</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) 2015-16 revenue is a forecast amount.
\(^b\) The revenue forecast from the inaccessible fee is minor – about $8,806 per annum – which reflects Sydney Water’s estimate of about 500 existing customers per year which will now be charged an inaccessible meter fee.

Source: Sydney Water proposal and September AIR; IPART analysis.

The forecast revenue differs from our Draft Report by $0.8m per year over the 2016 determination period. This reflects revised information provided by Sydney Water indicating a decrease in revenue over this period.\(^{465}\)

11.3 Charges for the Rouse Hill Stormwater Catchment Area

At present, Sydney Water owns and manages the trunk drainage services in the Rouse Hill Stormwater Catchment Area (Rouse Hill), as well as a large amount of flood-prone land. There are currently two charges for Rouse Hill:

\(^\Box\) **Rouse Hill stormwater drainage charge**, which recovers the operating costs of the drainage system, including for activities such as cleaning out trash racks\(^{466}\), bush regeneration and weed and ground management.

\(^\Box\) **Rouse Hill land charge**, which recovers a portion of Sydney Water’s capital expenses for the same system.

Under the current determination, both charges are to be levied upon properties within Rouse Hill (defined in Schedule 8 and the map in Attachment A of the 2012 Determination).\(^{467}\)

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.

\(^{465}\) While total volume of services remains constant over this period, actual revenue will decrease compared to 2015-16 due to a change in the type (and cost) of services provided. Email from Sydney Water, 29 April 2016.

\(^{466}\) Trash racks are designed to capture floating and submerged debris within water way systems.

\(^{467}\) They are not stormwater drainage charges for the purposes of s65 of the *Sydney Water Act 1994*. 
Unlike in other areas, stormwater in Rouse Hill is part of an integrated water management system, which processes wastewater (sewerage) and stormwater together. As a result, stormwater services in Rouse Hill cost more than in other stormwater drainage areas, reflecting the difference in costs to build, operate and maintain the Rouse Hill system.\(^\text{468}\)

Customers in Rouse Hill may also pay stormwater charges to their local councils. There is no overlap between the responsibility of Sydney Water and local councils for stormwater assets in Rouse Hill.\(^\text{469}\)

**Decision**

37 We have decided to:

- increase the Rouse Hill land charge by 10% per year in real terms over the 2016 determination period as set out in Table 11.4
- apply the land charge, for a period of five years, to new properties that connect (or have connected) to Sydney Water’s water system between 1 July 2012 and 30 June 2026
- maintain the Rouse Hill stormwater drainage charge at:
  a. $139.65 per year in real terms for residential properties and non-residential properties less than or equal to 1000m\(^2\)
  b. $139.65 per year x land area in m\(^2\)/1000 in real terms for non-residential properties greater than 1000m\(^2\)
- include the Rouse Hill Stormwater Catchment Area map (excluding Kellyville Village until such time as the relevant property is redeveloped to form part of the Rouse Hill Stormwater Catchment Area) in the 2016 Determination.

**11.3.1 Reasons for our decision**

**Rouse Hill land charges**

The current Rouse Hill land charge is $248.85 per year. This was reduced in 2013 from $969 to $237 following the Government’s direction to Sydney Water to decrease the amount of land purchased in Rouse Hill.\(^\text{470}\) The charge has since increased in line with inflation.

\(^{468}\) Sydney Water pricing proposal to IPART, June 2015, p 289.

\(^{469}\) We received a submission that raised concerns about the various stormwater charges Rouse Hill residents pay and whether there is any overlap in these charges. A. Syme submission to IPART Draft Report, 5 April 2016.

\(^{470}\) On 8 August 2013, the Treasurer directed Sydney Water to reduce the charge from $969.21 per annum to $237 per annum pursuant to section 18(2) of the IPART Act following a reconsideration, and reduction, of the amount of land needed in Rouse Hill. The charge was reduced to $237 per year to ensure the savings from the reduction in land acquisition were passed on in full to customers.
Sydney Water proposed that the land charge should remain at $248.85 per year in real terms over the 2016 determination period. This is despite Sydney Water revising upwards the amount of land to be purchased in Rouse Hill from 11 to 19 hectares.

Sydney Water argued that all additional land costs in Rouse Hill should be allocated to the wastewater RAB in 2016-17. In effect, Sydney Water proposed 70% of the Rouse Hill stormwater capital costs should be recovered from general (postage stamp) wastewater charges across the entire customer base. The remaining 30% would be recovered from Rouse Hill residents.

Sydney Water argued that most stormwater capital expenses in Rouse Hill should be paid for by all of its wastewater customers (ie, Sydney residents), because these customers have received the benefit of the integrated water management system. This is through reduced costs of wastewater management and by improved quality in the Hawkesbury-Nepean river system.

In addition, Sydney Water asserted stormwater costs are more expensive in Rouse Hill because of the need to manage water quality issues in the Hawkesbury-Nepean river system. It stated the use of the integrated water management system (including stormwater management) reduced the costs of treating wastewater (sewerage) while increasing the costs of stormwater treatment.

We have not accepted Sydney Water’s proposal for the Rouse Hill land charge to remain at $248.85 per year in real terms over the 2016 determination period. To maintain the current charge, Sydney Water argued that the additional land purchase costs in the Rouse Hill stormwater catchment area should be recovered entirely from its broader wastewater customer base (through wastewater charges).

We consider that the cost reflective level of the Rouse Hill land charge is $433.37. This would share the capital costs (both land and civil works) for Rouse Hill equally between residents in Rouse Hill and Sydney Water’s broader customer base. This reflects the integrated water management system in Rouse Hill, which performs dual stormwater (specific to Rouse Hill) and wastewater functions (costs to be shared across Sydney).

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471 In its June submission, Sydney Water forecast the 2015-16 price as $249.97, based on a CPI of 2.5%. Sydney Water pricing proposal to IPART - Appendices, June 2015, p 16. The actual price for customers in 2015-16 is $248.85, based on actual inflation.
472 Sydney Water pricing proposal to IPART, June 2015, p 102.
473 Sydney Water submission to IPART Draft Report, April 2016, p 44.
474 Sydney Water submission to IPART Draft Report, April 2016, p 44.
475 In its June submission, Sydney Water forecast the 2015-16 prices as $249.97, based on a CPI of 2.5%. The actual price for customers in 2015-16 is $248.85, based on actual inflation.
476 This charge differs slightly from that outlined in the Draft Report ($432.89) due to updates in the WACC (increase from 4.8% to 4.9%) and CPI (downward revision of forecasts).
However, to limit bill impacts, we have decided to transition the Rouse Hill land charge towards cost reflective levels by increasing the current charge by 10% per year over the 2016 determination period, so that it increases from its current level of $248.85 to $364.34 by 2019-20 (as detailed in Table 11.4).

The Rouse Hill land charge will not apply retrospectively but will affect existing Rouse Hill customers who currently pay the Rouse Hill land charge, as well as new Rouse Hill customers. Any Rouse Hill customers currently paying the Rouse Hill land charge will see their fees increase by 10% in 1 July 2016. New Rouse Hill customers who will start paying the land charge in July 2016 will also pay this fee.

Table 11.4  Rouse Hill land charge ($/year, $2015-16)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Water proposed</td>
<td>248.85</td>
<td>248.85</td>
<td>248.85</td>
<td>248.85</td>
<td>248.85</td>
</tr>
<tr>
<td>IPART decision</td>
<td>248.85</td>
<td>273.74</td>
<td>301.11</td>
<td>331.22</td>
<td>364.34</td>
</tr>
<tr>
<td>Difference</td>
<td></td>
<td>24.89</td>
<td>52.26</td>
<td>82.37</td>
<td>115.49</td>
</tr>
<tr>
<td></td>
<td>10%</td>
<td>21%</td>
<td>33%</td>
<td>46%</td>
<td></td>
</tr>
</tbody>
</table>

Note: The land charge applies for a five year period to properties within the Rouse Hill area that are connected to Sydney Water’s water supply system on or after 1 July 2012.

Source: IPART analysis.

Prudent and efficient capital costs in Rouse Hill

The Rouse Hill land charge is based on our calculation of the prudent and efficient capital costs (land acquisition and civil works) over this period, as identified by our consultant, Atkins Cardno. These are shown in Table 11.5 below.

Atkins Cardno found that historic expenditure was prudent. In terms of future expenditure, Atkins Cardno concluded that the urgency of project completion at Elizabeth Macarthur Creek was not clear (see Chapter 6). As such, Atkins Cardno re-profiled land acquisition and civil costs out to 2021-22, to allow time for Sydney Water’s strategy to be refined and detailed designs to be developed. These re-profiled costs are incorporated in our modelling below for the Rouse Hill land charge. Catch-up and continuing efficiency adjustments have also been applied to this expenditure (see Chapter 6 for the rationale for efficiency targets).

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We have added 50% of efficient capital costs for Rouse Hill to Sydney Water’s wastewater RAB, to be recovered from all of Sydney Water’s customers through wastewater prices. This comprises $25.9 million ($2015-16) in net present value terms.

We have also added $2.6 million ($2015-16) in net present value to the wastewater RAB. This accounts for the gap in revenue between:

- Sydney Water’s revenue under the transitional pricing arrangement (ie, the Rouse Hill land charge increasing from $248.85 in real terms by 10% per year from 1 July 2016), and
- Sydney Water’s revenue if the Rouse Hill land charge were set to $433.37 from 1 July 2016.

We have also set the land charge to recover capital costs from Rouse Hill properties that connect to Sydney Water between July 2012 and June 2026. This is in line with Sydney Water’s proposal and constitutes an extension of the cost recovery period by four years. We consider this extension appropriate, as Sydney Water expects the Rouse Hill Area to be largely developed (ie, with little capacity for new greenfield projects) by 2025-26.

The charges, however, will not be applied retrospectively to 2012, but rather apply from 1 July 2016. As a result, Sydney Water will be required to fund the gap between the historical charge of $237 in real terms from 2012-2016 and the cost-reflective charge ($433.37). This is about $1.6 million in net present value terms.

### Rouse Hill stormwater drainage charges

We have accepted Sydney Water’s proposal to maintain the stormwater drainage charge for Rouse Hill in real terms at $139.65 per year for residential and non-residential properties less or equal to 1,000 m$^2$. For non-residential properties greater than 1,000 m$^2$, the charge is levied as $139.65 per year multiplied by the land area in m$^2/1000$ (in real terms). This enables Sydney Water to recover its cumulative operating expenditure.

---

Table 11.5 Profile of Rouse Hill stormwater capital expenditure to 2022 ($millions, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th>12-13</th>
<th>13-14</th>
<th>14-15</th>
<th>15-16</th>
<th>16-17</th>
<th>17-18</th>
<th>18-19</th>
<th>19-20</th>
<th>20-21</th>
<th>21-22</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil</td>
<td>0.4</td>
<td>0.2</td>
<td>0.3</td>
<td>1.6</td>
<td>7.5</td>
<td>6.2</td>
<td>2.3</td>
<td>2.2</td>
<td>2.2</td>
<td>2.2</td>
<td>25.2</td>
</tr>
<tr>
<td>Land purchase</td>
<td>5.8</td>
<td>1.1</td>
<td>0.6</td>
<td>15.1</td>
<td>1.0</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
<td>29.6</td>
</tr>
</tbody>
</table>

Note: Totals may not add due to rounding.

Sydney Water’s most recent modelling suggests a delay in recovery of cumulative operating expenditure from 2022-23 to 2024-25 due to an increase in contractor costs. This is the result of additional degraded and weed-infested land coming under Sydney Water’s management.\(^{482}\) Sydney Water should continue to review the cumulative financial position of the Rouse Hill stormwater system (ie, operating costs against revenue) to ensure that the level of this charge remains appropriate in the future.

Table 11.6 Rouse Hill stormwater drainage charge ($/year, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rouse Hill stormwater</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>drainage charge for</td>
<td>139.65</td>
<td>139.65</td>
<td>139.65</td>
<td>139.65</td>
<td>139.65</td>
</tr>
<tr>
<td>Residential Properties,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vacant Land and Non-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential Properties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with Land Size(^a) ≤</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000m²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rouse Hill stormwater</td>
<td>139.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>drainage charge for</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Residential</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Properties with Land</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size(^a) &gt; 1000m²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Land Size refers to the total size of the land (in m²) on which the premises is located.

Source: IPART analysis.

**Rouse Hill Stormwater Catchment Area boundary**

We have decided to continue to include a map of Rouse Hill in the 2016 Determination. This defines the area for which the two stormwater charges apply, in order to ensure customer certainty and transparency. In addition, this meets the obligation contained in Sydney Water’s current Operating Licence for us to identify the area of land located in the Rouse Hill stormwater catchment.\(^{483}\)

In doing so, we have accepted Sydney Water’s proposal to ensure the map in the 2016 Determination accurately reflects the actual stormwater catchment. The revised map is based on topographical mapping of the actual catchment area by SKM and Sydney Water in 2011.\(^{484}\) This would correct the discrepancy between the map supplied by Sydney Water and published in the 2012 Determination and the actual stormwater catchment in Rouse Hill.

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\(^{482}\) To a lesser extent, revenue has also increased. This reflects a higher (actual and forecast) customer growth rate each year over 2012-19 than was previously forecast (excepting 2012-13 and 2015-16). Email to IPART, Sydney Water, 10 August 2015.

\(^{483}\) The current Operating Licence defines the Rouse Hill stormwater catchment area as “the area of land located in the Rouse Hill stormwater catchment as identified in any determination made by IPART of maximum prices that may be levied by Sydney Water for stormwater services, as in force from time to time.” IPART, Sydney Water Corporation Operating Licence 2015-20, Schedule 4 - Customer Contract, July 2015, p 45.

\(^{484}\) Sydney Water pricing proposal, June 2015, p 292.
The revision of the map means that around 2,000 additional customers will be charged by Sydney Water.\textsuperscript{485} These customers are inside the Rouse Hill Stormwater Catchment Area, but were not charged over the 2012 determination period because of the incorrect map included in the 2012 Determination, as outlined above.

**Kellyville Village**

In its submission to our Draft Report, Sydney Water indicated that it may be appropriate for the 974 Kellyville Village properties to commence paying Rouse Hill stormwater drainage charges.\textsuperscript{486} These properties were originally excluded from Rouse Hill charges as they existed prior to the Rouse Hill development and were treated by the (now defunct) Kellyville Sewage Treatment Plant.\textsuperscript{487} However, properties in Kellyville Village are now connected to the Rouse Hill integrated water system (although they do not receive recycled water).

Our view is there is merit in Sydney Water’s proposal, because the Rouse Hill stormwater drainage charge reflects the costs of the services Kellyville Village properties receive. However, we have not consulted on this issue, as it has been raised late in the review.

Kellyville Village properties currently pay Sydney Water’s standard (postage stamp price) stormwater drainage charges until they are redeveloped.\textsuperscript{488} Table 11.7 shows how the fees for Kellyville Village would change over the 2016 determination period under Sydney Water’s proposal.

Given the increase in charges, and the lack of consultation, we will revisit this proposal in the next Sydney Water price review. As a result, Kellyville Village properties will continue to pay standard stormwater drainage charges until they are redeveloped.

\textsuperscript{485} Email from Sydney Water, 29 April 2016.
\textsuperscript{486} Sydney Water submission to IPART’s Draft Report, April 2016, p 42; email from Sydney Water, 6 May 2016.
\textsuperscript{488} Although Kellyville Village is not a declared stormwater area, Sydney Water may still charge properties where it is providing stormwater services under section 60 of the Sydney Water Act 1994. Redeveloped means subdivision, construction of strata titles on existing dwellings or a change in property type. Since 1993, 10 Kellyville Village properties have been charged Rouse Hill stormwater drainage charges. No Kellyville Village properties have attracted the Rouse Hill land charge, as the properties were redeveloped prior to the introduction of the land charge.
## Table 11.7 Difference between Rouse Hill stormwater drainage charges and Sydney Water’s standard stormwater charges ($/year, $2015-16)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rouse Hill stormwater</td>
<td>139.65</td>
<td>139.65</td>
<td>139.65</td>
<td>139.65</td>
<td>139.65</td>
</tr>
<tr>
<td>drainage charge for</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential Properties,</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Vacant Land and Non-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential Properties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with Land Size(^a) ≤ 1000m(^2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current standalone</td>
<td>86.02</td>
<td>73.81</td>
<td>73.81</td>
<td>73.81</td>
<td>73.81</td>
</tr>
<tr>
<td>residential stormwater</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>charge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase</td>
<td>53.63</td>
<td>65.84</td>
<td>65.84</td>
<td>65.84</td>
<td>65.84</td>
</tr>
<tr>
<td></td>
<td>62.3%</td>
<td>89.2%</td>
<td>89.2%</td>
<td>89.2%</td>
<td>89.2%</td>
</tr>
</tbody>
</table>

\(^a\) The actual stormwater prices may vary slightly based on the WACC, CPI and customer numbers.

**Note:** To date, residents in Kellyville Village have paid standard stormwater drainage charges despite not being in a declared stormwater area. Kellyville Village properties will continue to pay standard stormwater drainage charges until they are redeveloped. We have only modelled the impact on standalone residential properties, given that 958 of the 974 properties are standalone residential properties.

**Source:** IPART analysis.
Prices for section 12A Review - dishonoured or declined payment and late payment fees

Sydney Water proposed to:

- introduce 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 Customer Contract, which is tied to its Operating Licence, states that it may charge its customers:

- interest on their overdue account balance, or
- a late payment fee, but only if maximum late payment fee is specified by IPART as part of a review conducted by IPART under the IPART Act.

Sydney Water proposed charging a late payment fee of $4.08 or interest accrued to the overdue bill (whichever is greater). It also stated that any late payment fee will be charged in accordance with any terms and conditions specified by IPART as part of the above-mentioned review.

Under the Customer Contract, Sydney Water may also charge a dishonoured or declined payment fee in an amount not exceeding the amount specified on its website, as amended from time to time. Sydney Water proposed to maintain this fee at $12.27.

In order to undertake a review of the late payment and dishonoured or declined payment fees, we required a referral under section 12A of the IPART Act. We are not able to determine either fee under section 11 of the IPART Act (unlike all other prices in this Report). Section 11 only enables us to determine maximum prices for “government monopoly services”. A late payment fee and a dishonoured or declined payment fee are not fees for the provision of a monopoly service.

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489 Email to IPART, Sydney Water, 9 November 2015. This email updates the fee specified on p 26 of the Sydney Water pricing proposal to IPART - Appendices, June 2015.
492 Email to IPART, Sydney Water, 9 November 2015. This email updates the fee specified on p 32 of the Sydney Water pricing proposal to IPART - Appendices, June 2015.
We received the referral and terms of reference for review of both fees on 7 December 2015 (see Appendix C). As part of this review we held a public hearing on 11 April 2016.

This chapter presents our decisions for these charges, to apply for the 2016 determination period. We also discuss our decision not to regulate Sydney Water’s credit card payment fee (ie, seek a section 12A referral to set this fee).

### 12.1 Dishonoured or declined payment fee

#### Decision under section 12A review

1. In accordance with the section 12A referral received on 7 December 2015, we:
   - specify the maximum price for the existing dishonoured or declined payment fee as set out in Table 12.1

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dishonoured or declined payment fee</td>
<td>12.27</td>
<td>12.50</td>
<td>12.74</td>
<td>12.98</td>
<td>13.23</td>
</tr>
</tbody>
</table>

#### 12.1.1 Reasons for our decision

We have accepted Sydney Water’s proposal to maintain the dishonoured or declined payment fee at $12.27, with an upwards real adjustment of 1.9% each year to account for corporate costs. Sydney Water supported the adjustment for corporate costs in its submission to the Draft Report. We engaged a consultant, Synergies, to assist with our review of Sydney Water’s miscellaneous and ancillary prices, including the dishonoured or declined payment fee. Much of the supplementary information on costs used in our analysis was provided to us by Sydney Water on a commercial-in-confidence basis. Stakeholders also commented the fee appears cost reflective.

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493 Sydney Water also indicated in its submission that any fees it incurs from Australia Post or banks are passed through to the customer in addition to the dishonoured or declined payment fee. Sydney Water submission to IPART Draft Report, April 2016, p 40.

494 We engaged a consultant, Synergies, to assist with our review of Sydney Water’s miscellaneous and ancillary prices, including the dishonoured or declined payment fee. Much of the supplementary information on costs used in our analysis was provided to us by Sydney Water on a commercial-in-confidence basis. Synergies, Miscellaneous and ancillary charges review – Sydney Water, December 2015 (Commercial-in-Confidence).

12 Prices for section 12A Review - dishonoured or declined payment and late payment fees

12.2 Late payment fee

Decision under section 12A review

2 In accordance with the section 12A referral received on 7 December 2015, we:
   – specify the maximum late payment fee as set out in Table 12.2 and
   – the terms and conditions in charging that fee as set out in Box 12.1.

Table 12.2 Late payment fee ($2015-16)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Late payment fee</td>
<td>N/A</td>
<td>4.16</td>
<td>4.24</td>
<td>4.32</td>
<td>4.40</td>
</tr>
</tbody>
</table>

12.2.1 Reasons for our decision

Level of the late payment fee

We have adopted Sydney Water’s proposed late payment fee of $4.08, with an upwards real adjustment of 1.9% for corporate costs. Our recommended late payment fee, therefore, is $4.16 in 2016-17 increasing to $4.40 in real terms by 2019-20, the end of the determination period.

Sydney Water reported that late payment increases its operating costs, including borrowing costs. Currently, late payments attract interest, but there is no explicit charge to recover its other costs of late payment. Sydney Water contended that this is not enough of a deterrent, with around 15% of customers allowing their bills to become more than seven days overdue. It also noted the proposed fee is smaller than that charged by many other utilities (see Table 12.3).

496 Sydney Water supported this adjustment. Sydney Water submission to IPART Draft Report, April 2016, p 40.
497 In its Customer Policy, Sydney Water states it uses the prejudgment interest section of the Uniform Civil Procedure Rules 2005 to calculate interest. This is stated to be at the RBA cash target rate plus 4%. Sydney Water, Customer policy: Overdue payments and disconnections for non-payment, 1 October 2012.
498 Residential bills are currently due for payment 21 days after issue. However, Sydney Water has indicated that it will not charge the late payment fee until a bill is 28 days overdue. Sydney Water pricing proposal to IPART - Appendices, June 2015, p 29.
12 Prices for section 12A Review - dishonoured or declined payment and late payment fees

### Table 12.3 Late payment fees levied by other utilities ($2015-16)

<table>
<thead>
<tr>
<th>Company</th>
<th>Late payment fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGL – electricity</td>
<td>$14.00 (including GST)</td>
</tr>
<tr>
<td>AGL – gas</td>
<td>$13.12 (including GST)</td>
</tr>
<tr>
<td>Origin/Integral</td>
<td>$7.00 (no GST applied)</td>
</tr>
<tr>
<td>Energy Australia</td>
<td>$12.00</td>
</tr>
<tr>
<td>Optus – more than $50 but less than $100</td>
<td>$15.00 (no GST applied)</td>
</tr>
<tr>
<td>Optus – $100 or more</td>
<td>$15.00 plus 2% above the prime lending rate charged to Optus, calculated daily</td>
</tr>
</tbody>
</table>


We consider that Sydney Water’s proposed fee is reasonable, simple to understand, and below that charged by other service providers. The fee reflects the combined interest and debt recovery costs across a range of plausible customer scenarios. However, we note that any fixed late fee will have the weakness of not being precisely cost reflective.

**Terms and conditions for late payment fee**

Under Sydney Water’s Customer Contract, any late payment fee will be charged in accordance with any terms and conditions specified by IPART as part of this review. Sydney Water’s Operating Licence provides that, at a minimum, Sydney Water must not charge a late payment fee if it has already agreed with a customer a deferred payment date, or an arrangement to pay by instalments with respect to the overdue account balance, or it has entered into a payment assistance arrangement with the customer.499

Sydney Water proposed terms and conditions for its late payment fee, including exemptions for certain customers.500 Sydney Water’s proposed exemptions were in accordance with its Customer Contract. They mostly mirror exemptions available in NSW under the National Energy Consumer Framework (NECF) and were generally supported by stakeholders. The Public Interest Advocacy Centre (PIAC) was supportive of the proposed fee and its conditions as long as it does not negatively impact those who are facing hardship.501

The Energy and Water Ombudsman of NSW (EWON) considered the exemptions should be extended to include customers who receive a rebate (concession) on their bill because it would provide consistency with the NECF. However, Sydney Water’s concession customers are different to those under the NECF.502

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500 Sydney Water pricing proposal to IPART - Appendices, June 2015, p 28.

501 PIAC submission to IPART Issues Paper, October 2015, p 9.

502 Rebates are available to customers that hold a Pensioner Concession Card from Centrelink or the Department of Veterans’ Affairs (DVA), a gold Repatriation Health Card from DVA or who receive a DVA intermediate rate pension.
In response to EWON’s suggestion to extend exemptions to pensioners, Sydney Water submitted that pensioners are good payers (on average only 3% receive reminder notices), and those that do have difficulty paying can qualify for exemption if they are on a hardship program or pay via CPAY.503

We have adopted Sydney Water’s terms and conditions, with an added provision that the fee only be levied:

• if the customer has been notified in advance of the late payment fee and the circumstances in which it may be levied, and

• at least 7 days after the due date.

This is consistent with IPART’s previous regulation of late payment fees in electricity.504

The above condition has been modified from our Draft Report to refer to 7 days, rather than 7 business days. Sydney Water submitted that a condition based on business days would carry significant implementation issues as its billing system is based on calendar days and payment methods are available at any time.505 Sydney Water’s bills are due 21 days after issue, which allows 28 calendar days for payment before the late payment fee is levied.

Sydney Water also objected to the inclusion of ‘and the circumstances in which it may be levied’, stating:

We are happy to notify customers in advance that a late payment fee or interest, whichever is higher, may apply to overdue accounts. We intend to include this information on customers’ bills. However, it would be administratively complex to notify customers on each bill of the circumstances that the fee may be applied. We believe the intent of the new condition is to allow customers to understand when the fee may be applied. We are happy to do this and will consider how this could best be done. This could be via a factsheet on our website or notifying customers of the new fee via our customer newsletter (WaterWrap). We do not feel this needs to be prescribed in the terms and conditions set by IPART.506

We have maintained this condition as we consider that providing a general notice in each bill that a late payment fee applies after the bill is 7 days overdue, along with a link to further detail on the website, as outlined by Sydney Water above, would be sufficient to meet the condition.

The full list of terms and conditions is outlined in Box 12.1.

503 Sydney Water submission to IPART Draft Report, April 2016, p 41.
504 Until 2013, IPART specified a similar provision for customers on regulated retail electricity tariffs.
505 Sydney Water submission to IPART Draft Report, April 2016, p 41.
506 Sydney Water submission to IPART Draft Report, April 2016, p 41.
Box 12.1  Sydney Water late payment fee terms and conditions

Sydney Water will not charge a late payment fee where:

- there is a billing matter being considered by the Energy and Water Ombudsman NSW (EWON)
- the customer has made an arrangement with Sydney Water to pay by instalments or another payment plan
- part of the bill is being paid using Sydney Water’s payment assistance scheme
- Sydney Water is aware that the customer has sought assistance from a community welfare organisation that is part of the payment assistance scheme
- the customer is registered with Sydney Water’s BillAssist program
- the customer has been identified as being in hardship
- the customer pays by Direct debit, or
- EWON has asked Sydney Water to waive the fee.

The fee will only be levied:

- if the customer has been notified in advance of the late payment fee and the circumstances in which it may be levied, and
- at least 7 days after the due date.

12.3  Credit card payment fee

In its June 2015 pricing proposal, Sydney Water also sought to charge a credit card payment fee of 0.4% from 1 July 2016.\(^\text{507}\)

Decision

3  We have decided not to regulate the credit card payment fee.

Similar to late payment and dishonoured or declined payment fees, a credit card payment fee is not charged for the provision of a monopoly service.\(^\text{508}\) However, we decided not to seek a section 12A referral to regulate the credit card payment fee, because customers have a choice of payment methods.

\(^{507}\) Sydney Water noted that the fee is set by NSW Treasury based on the normal cost of merchant interchange fees. The fee is currently set at 0.4% and will be reviewed periodically by NSW Treasury. Sydney Water pricing proposal to IPART, June 2015, p 160.

\(^{508}\) This means we cannot regulate this fee under section 11 of the IPART Act and would require a section 12A referral from the Premier in order to specify a maximum fee.
In its submission to the Issues Paper, PIAC recommended the credit card fee be subject to hardship protections similar to the late payment fee, as some low-income households may have no choice but to use a credit card to pay their water bill.\textsuperscript{509} We did not accept this recommendation in the Draft Report as customers experiencing financial hardship have the right under the Customer Contract to defer payment and negotiate an instalment plan.

In its response to the Draft Report, PIAC disagreed that those experiencing hardship may choose to avoid the credit card payment fee by paying in instalments. It cited that only 2% of Sydney Water’s customers are on its hardship program while (in 2012) almost 14% of the population was living below the poverty line. PIAC recommended that IPART conduct economic and social modelling of the impact of credit card fees on vulnerable and ‘working poor’ customers; and that the NSW Government direct IPART to regulate credit card fees.\textsuperscript{510}

We consider that, relative to the concern raised by PIAC, the solution would be broader than IPART regulating the credit card fee. The credit card payment fee, at 0.4% of the total water bill, is not likely to be a significant contributor to the difficulty faced by financially vulnerable customers. PIAC’s key concern appears to be that the hardship program is not capturing all customers in need. Sydney Water should continue to refine its hardship program\textsuperscript{511} with the aim of ensuring financially vulnerable customers are made aware of what it offers and how to access it.

\textsuperscript{509} PIAC submission to IPART Issues Paper, October 2015, pp 9-10.
\textsuperscript{510} PIAC submission to IPART Draft Report, April 2016, pp 5-6.
\textsuperscript{511} Under the Quality Management System in its Operating Licence, Sydney Water is required to review policies like the hardship program at regular intervals. \textit{Sydney Water Corporation Operating Licence 2015-20, Schedule 7 – Quality management}, July 2015, p 18.
In this chapter, we outline our approach to determining prices for Sydney Water’s recycled water schemes over the 2016 determination period.

Under our 2006 Pricing arrangements for recycled water and sewer mining (2006 Guidelines), the starting point for pricing recycled water is that the full direct cost of each recycled water scheme should be recovered from users of that scheme – ie, we apply a ‘user pays’ principle. The direct costs of the recycled water scheme include direct operating and capital costs and a share of any joint costs, such as corporate overheads. Therefore, recycled water costs should not generally be recovered from water and wastewater postage-stamp price customers.

The exception to the application of the user pays principle is where a recycled water scheme may enable costs to be avoided or deferred elsewhere in the system or generate broader community benefits; or where Government formally directs IPART to allow a portion of recycled water costs to be passed on to a water agency’s broader customer base (through a direction under section 16A of the IPART Act).

13.1 Determining recycled water prices

Sydney Water currently supplies about 13,000 ML of recycled water from a number of recycled water schemes to residential and industrial customers and for environmental flows. These are funded in a number of ways:

- schemes delivered pursuant to Government direction are funded from the general Sydney Water customer base (ie, under section 16A of the Independent Pricing and Regulatory Tribunal Act 1992 (IPART Act))

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513 Sydney Water pricing proposal to IPART, June 2015, p 295.
schemes to service new development in growth areas of Sydney Water are generally funded through contributions from developers (developer charges)\(^5\) and by recycled water usage charges (mandated schemes), and
c\^{}\textbullet{}\ commercial schemes are funded by scheme customers under contractual arrangements (voluntary schemes)\(^6\).

Table 13.1 shows the recycled water systems that Sydney Water operates.

**Table 13.1 Sydney Water’s recycled water schemes**

<table>
<thead>
<tr>
<th>Section 16A</th>
<th>Mandated schemes</th>
<th>Voluntary schemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosehill (Camellia)</td>
<td>Rouse Hill</td>
<td>Wollongong</td>
</tr>
<tr>
<td>St Marys – Western Sydney Replacement Flows</td>
<td>Hoxton Park</td>
<td>6 schemes at golf courses</td>
</tr>
<tr>
<td></td>
<td>Oran Park and Turner Road</td>
<td>2 irrigation schemes</td>
</tr>
<tr>
<td></td>
<td>Colebee</td>
<td>4 other schemes</td>
</tr>
<tr>
<td></td>
<td>Ropes Crossing</td>
<td></td>
</tr>
</tbody>
</table>

Note: Sydney Water is currently reviewing the servicing options and pricing arrangements for Oran Park and Turner Road in the South West Growth Centre; Colebee in the North West Growth Centre; Ropes Crossing in western Sydney. Sydney Water provides treated effluent (re-use water) to a number of small irrigation schemes such as parks and golf courses that are located close to wastewater treatment plants.

Source: Sydney Water pricing proposal to IPART, June 2015, pp 296-298; and Sydney Water Annual Information Return, June 2015.

Decision

38 We have decided to:

- defer regulation of recycled water prices for all schemes apart from Rouse Hill until we have completed a broader review of our approach to regulating recycled water prices

- set a maximum usage charge of $1.77 per kL in real terms over the 2016 determination period for recycled water supplied as part of the Rouse Hill recycled water scheme, and

- reallocate a proportional share of Sydney Water’s corporate costs from its water and wastewater business to its recycled water business.

13.1.1 Reasons for our decision

Our approach to the pricing of recycled water differs from that outlined in our Issues Paper. Under our legislative framework, we are required to determine maximum prices for all of Sydney Water’s recycled water services (both voluntary and mandated schemes).

\(^5\) Unlike water and wastewater developer charges, recycled water developer charges are not currently set to zero in Sydney and the Hunter. Sydney Water pricing proposal to IPART, June 2015, p 296.

\(^6\) Sydney Water pricing proposal to IPART, June 2015, p 296.
Prices for all Sydney Water’s recycled water services are to be determined

Section 11(1) of the IPART Act requires us to determine maximum prices for government monopoly services supplied by Sydney Water and other specified government agencies. The Independent Pricing and Regulatory Tribunal (Water, Sewerage and Drainage Services) Order 1997 (Order) lists the services declared by the NSW Premier to be government monopoly services. Recycled water services are government monopoly services under paragraph 3(a) of the Order as they are “water supply services”.

Sydney Water currently has five mandated schemes, one large voluntary scheme and twelve small voluntary schemes. We have only ever set prices for one scheme - Rouse Hill, which is a mandated scheme in Sydney.

In our 2012 Determination, we decided to set prices for the Rouse Hill recycled water scheme, but not for other mandated schemes because “they are not sufficiently established”.516 This decision is consistent with our legal framework. However, we noted that “[i]t is our intention for this to be the last time we set prices for recycled water schemes.”517

In our 2006 Guidelines, we decided that we would not regulate prices for voluntary recycled water schemes because “users have alternative options to recycled water,”518 as every recycled water customer is also supplied with drinking (potable) water and/or unfiltered water. However, we have now reconsidered this position as recycled water services are government monopoly services.

Price determination may be deferred on reasonable grounds

We have decided to defer regulation of recycled water prices for all schemes apart from Rouse Hill, until we have completed a broader review of our approach to regulating recycled water prices. This approach accords with that taken in 2012, where we decided to set prices for the Rouse Hill recycled water scheme, but not for other mandated schemes because “they are not sufficiently established.”519

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We have discretion as to the timing of our determinations, subject to limits. As a result, we can defer our determination for Sydney Water’s recycled water services if we have a reasonable basis for doing so.\textsuperscript{520}

We continue to hold the view that pricing for the other recycled water schemes should be deferred. This is because we do not have sufficient information for the other schemes. Unlike Rouse Hill, the other mandated schemes are 100% potable top up and we do not know when they will commence supplying recycled water.\textsuperscript{521} We have also decided to defer determining prices for Sydney Water’s other recycled water schemes as we intend to conduct a full review of our approach to recycled water pricing in 2017-18 (see below).

Sydney Water’s proposed prices for the mandated recycled water schemes are outlined in Table 13.2 below. Even though we are not determining these prices, we consider Sydney Water’s proposed prices are reasonable. Sydney Water’s proposed prices are below those that would be consistent with the 2006 Guidelines. However, as its recycled water business is ring-fenced, any losses from this lower price would not be paid for by the wider customer base.

<table>
<thead>
<tr>
<th>Mandated Scheme</th>
<th>Sydney Water proposed</th>
<th>IPART Guidelines$^b$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoxton Park</td>
<td>1.77</td>
<td>1.97</td>
</tr>
<tr>
<td>St Marys/Ropes Crossing</td>
<td>1.77</td>
<td>1.97</td>
</tr>
<tr>
<td>Colebee</td>
<td>1.77</td>
<td>1.97</td>
</tr>
<tr>
<td>South-West Growth Corridor</td>
<td>1.77</td>
<td>1.97</td>
</tr>
<tr>
<td>Wollongong</td>
<td>Not provided</td>
<td>1.17$^a$</td>
</tr>
<tr>
<td>Other voluntary schemes</td>
<td>Not provided</td>
<td>Insufficient information</td>
</tr>
</tbody>
</table>

\textsuperscript{a} This is based on dividing expected revenue from Wollongong recycled water scheme by expected sales volume from the annual information return.

\textsuperscript{b} IPART’s 2006 Guidelines tie the recycled water usage price to the percentage of potable water used by the scheme. Given, the volume of potable water expected to be used in these schemes over the 2016 determination period, the Guidelines suggest the recycled water prices for these schemes should equal the potable water price for the period.


**Rouse Hill**

We have decided that prices for Rouse Hill recycled water should not be deferred, as we have sufficient information because we have set these prices in the past.

\textsuperscript{520} In addition, section 13(6) of the IPART Act enables us to limit our determination of the price for a government monopoly service to a part or category of that service.

\textsuperscript{521} Typically, a scheme has 100% potable top-up because Sydney Water’s construction and connection of a recycled water plant to the scheme is expected to be completed after the 2016 determination period.
We have accepted Sydney Water’s proposed Rouse Hill prices as these prices are consistent with our 2006 Guidelines.\textsuperscript{522} In particular, Sydney Water proposed a recycled water usage charge of $1.77 per kL for Rouse Hill, set at 90\% of the potable water usage charge.\textsuperscript{523} This accords with our 2006 Guidelines, where the recycled water usage charge is to be calculated as a percentage of the potable water price according to the level of potable water ‘top-up’ of the recycled water supply.

Sydney Water has not proposed reintroducing a fixed recycled water service charge for Rouse Hill. Sydney Water has not charged a fixed recycled water service charge since 1 July 2012. We consider this is also consistent with our 2006 Guidelines.

The methodology used to determine the Rouse Hill recycled water price is detailed in Appendix L.

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Current prices (2015-16)</th>
<th>Sydney Water’s proposed prices</th>
<th>Price under our 2006 Guidelines</th>
<th>Forecast potable top-up volume 2016-2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rouse Hill</td>
<td>$1.82/kL\textsuperscript{a}</td>
<td>$1.77/kL</td>
<td>$1.77/kL</td>
<td>18.7%</td>
</tr>
</tbody>
</table>

\textsuperscript{a} This is set at 80\% of the potable water price. Our decision in the 2016 determination period is for the recycled water price in Rouse Hill to be set at 90\% of the potable water price, which has decreased from $2.28 per kL to $1.97 per kL. Appendix L provides more details on how this is calculated.


\section*{Review of recycled water pricing}

We intend to conduct a full review of recycled water developer charges, avoided costs and recycled water pricing guidelines in 2017-18 in conjunction with our planned review of water and wastewater developer charges.


\textsuperscript{523} Sydney Water pricing proposal to IPART, June 2015, p 101.
As part of our consultation on this review, many stakeholders commented on a range of pricing and regulatory issues around recycled water. The following emerged as key themes in consultation:

- **Liveable cities**: stakeholders emphasised the importance of recycled water in the concept of liveable cities, where the focus is upon living sustainably and better use of natural resources. We discuss ‘liveability’ issues in Chapter 2.

- **Integrated water cycle management**: stakeholders stated that recycled water was a key component of integrated water cycle management, where local water utilities manage urban water services collectively, not as individual components, saving resources and improving services to ratepayers.

- **Avoided costs**: stakeholders identified a discrepancy in the recovery of avoided costs between public utilities and the Water Industry Competition Act 2006 utilities in that the latter do not have the ability to claim avoided costs. Stakeholders argued this does not promote competition, innovation and investment in recycled water infrastructure.

We consider that our upcoming review of recycled water is the most appropriate review to reconsider our approach to recycled water pricing, including consideration of the above stakeholder views.

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524 The Council of the City of Sydney stated recycled water costs are not covered by Sydney Water’s broader customer base despite the benefits of recycling impacting all customers through reduced demand for water. The Council of the City of Sydney submission to IPART Draft Report, April 2016, p 3. E2Design Lab and Permeate Partners called for recycled water to be priced at parity with potable water, while City of Sydney called for a level playing field between Sydney Water and other recycled water businesses. E2Designlab submission to IPART Issues Paper, October 2015, p 2; Permeate Partners submission to IPART Issues Paper, October 2015, p 2; and Council of the City of Sydney submission to IPART Issues Paper, October 2015, p 7. We note the Total Environment Centre opposed Sydney Water’s proposed relative increase in the recycled water price. Total Environment Centre submission to IPART Issues Paper, October 2015, p 6.

525 Comments were made to this effect by representatives from Ms Lisa Mclean from Flow Systems and Mr Chris Derksema from the Council of the City of Sydney at the public hearing on wholesale prices. Transcript, 8 December 2015, pp 42, 58.

526 See, for example, Institute for Sustainable Futures submission to IPART Issues Paper, October 2015, p 6; Flow Systems submission to IPART Issues Paper, October 2015; and CRC for Water Sensitive Cities submission to IPART Issues Paper, October 2015.

527 See, for example, Council of the City of Sydney submission to IPART Issues Paper, October 2015, pp 6-7 and Flow Systems submission to IPART Issues Paper, October 2015, pp 4-5.
Ring-fencing recycled water costs

As part of a price review, we require that recycled water costs (and revenues) are ring-fenced from the water agencies’ regulated business. This is to ensure that recycled water costs are not recovered from other water and wastewater customers.\footnote{There are two exceptions where we allow water agencies to recover recycled water costs from the broader customer base: 1. The agency claims (and we approve) avoided costs - costs that potable water and wastewater customers would have otherwise incurred, had the recycled water scheme not proceeded. 2. The Government formally directs IPART to allow a portion of recycled water costs to be passed on to a water agency’s broader customer base (s16A Direction).}

We are satisfied that Sydney Water’s recycled water businesses are adequately ring-fenced, with the exception of corporate costs. Our expenditure consultants, Atkins Cardno found:

\begin{itemize}
  \item the efficient level of operating expenditure for the recycled water business to be $106 million over the four years of 2016-17 to 2019-20, which is about 3.5\% of Sydney Water’s total efficient operating expenditure (less bulk water costs), and\footnote{Atkins Cardno, \textit{Sydney Water Corporation - Expenditure Review}, December 2015, p 76.}
  \item Sydney Water does not currently allocate corporate costs to its recycled water business.\footnote{Atkins Cardno, \textit{Sydney Water Corporation - Expenditure Review}, December 2015, p 45.}
\end{itemize}

In its submission to our Draft Report, Sydney Water supported allocating a proportionate share of corporate costs to its recycled water business.\footnote{Sydney Water submission to IPART Draft Report, April 2016, p 45.} We have allocated corporate costs to recycled water for two reasons:

1. The recycled water business requires administration, billing and other corporate support.
2. Sydney Water’s recycled water competitors all have corporate overheads that they need to fund. It is important for competitive neutrality that Sydney Water allocates corporate costs to recycled water and that these are reflected in prices.

We have allocated 1.2\% of Sydney Water’s total corporate costs (about $2 million per annum) from the general customer base to recycled water.\footnote{At our request, Sydney Water estimated an allocation of corporate costs across all services, including recycled water, in proportion to direct operating costs. Email to IPART, Sydney Water, 11 January 2016.} This means for the purpose of setting water, wastewater and stormwater prices, the efficient operating expenditure allowances set in Chapter 5 are net of this amount (ie, they exclude all ring-fenced recycled water costs, including our allocation of corporate costs).
Implications of pricing decision

This chapter outlines the impact of our pricing decisions on Sydney Water’s customers. It also discusses the implication of our pricing decision on other matters we must consider under section 15 of the IPART Act (see Appendix A). These include:

- Sydney Water’s service standards
- Sydney Water’s financial viability and shareholders
- general inflation, and
- the environment.

We are satisfied that our 2016 Determination achieves an appropriate balance between these matters.

14.1 Bill structure and terminology

In our Issues Paper, we acknowledged customer confusion with the term ‘service charge’ as identified by Sydney Water in its customer engagement. The service charge is intended to recover the fixed costs associated with making the water, stormwater and wastewater services available to customers.

We sought submissions about a new name for this charge. Sydney Water indicated a preference for the term ‘availability charge,’ which was our suggestion in the Issues Paper. PIAC recommended replacing ‘service charge’ with ‘fixed’, ‘network’ or ‘distribution’ charge and commented that community consultation is needed for a billing terminology change. EWON suggested the term ‘daily supply charge’ to encourage consistency across the energy and water sectors.

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534 Sydney Water pricing proposal to IPART - Appendices, June 2015, p 80.
535 Sydney Water submission to IPART Issues Paper, October 2015, p xii.
537 Public Interest Advocacy Centre submission to IPART Issues Paper, October 2015, p 10.
We consider Sydney Water is best placed to engage with its customers to determine the term that captures customer understanding of the purpose of the service charge. In its submission to our Draft Report, NCOSS supported this approach.539

14.2 Implications for customer bills

Customers of Sydney Water currently receive bills which are composed of:

- Fixed charges:
  - **Water service charge**: this is a fixed charge that is paid by customers for being connected to Sydney Water’s water supply.540
  - **Wastewater service charge**: this is a fixed charge that is paid by customers for being connected to Sydney Water’s wastewater (sewerage) system.542

- Usage charges:
  - **Water usage charge**: this charge reflects the amount of water customers use (if they have a meter) or are deemed to use (if they do not have a meter).543
  - **Wastewater usage charge**: this charge applies to non-residential customers who are deemed to have discharged more than the discharge allowance.544

In addition, some customers pay:

- **Stormwater drainage charge**: this is a fixed charge paid by customers if they are located in one of Sydney Water’s stormwater drainage areas. This is to maintain the large trunk drains in Sydney Water’s stormwater system.545

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541 In our Issues Paper, we used the term sewerage. We have amended this to wastewater in response to Sydney Water’s preference to use this term. Sydney Water submission to IPART Issues Paper, October 2015, p 98. However, our 2016 Determination will use the term ‘sewerage’ as our IPART Act specifies that we are to price sewerage services.
544 The discharge is calculated through the application of a discharge factor by Sydney Water to their water consumption.
As part of this review, bills for residential and non-residential customers will change because we have changed the structure for some prices. As Chapter 9 explains, these changes do not aim to increase the total revenue Sydney Water recovers from its customer base. Rather, they are intended to ensure that customers who receive similar services in Sydney Water’s network pay similar charges.

Box 14.1 Understanding why bills have changed

**Reducing the water usage charge.** We have accepted Sydney Water’s proposed water usage charge of $1.97 per kL over the 2016 determination period. This represents a decrease of $0.31 per kL (or 13.5%) compared with the current usage charge. This particularly benefits large users of water.

**Reducing the wastewater discharge allowance for non-residential customers.** For non-residents, we are reducing the annual discharge allowance over the 2016 determination period by 50 kL per year to 150 kL in 2018-19, after which it will remain at this level. This ensures consistent treatment between residential and non-residential customers and within categories of non-residential customers (eg, industrial customers and commercial customers). We estimate that reducing the discharge allowance will decrease wastewater service charges by about $2 per customer (residential and non-residential) for most customers.

**Rebasing water and wastewater service charges.** We are simplifying water and wastewater service charges so that they are all referenced to a 20mm meter. This results in a large reduction in service charges for non-residential customers and a modest reduction for residential customers.

**Changing the calculation of the wastewater service charges.** We are separating out the implicit discharge allowance in the wastewater service charge for residential and non-residential customers. This will correct the existing discrepancy in usage charging, where non-residential customers with large meters pay too much for wastewater discharge. We are also applying a discharge factor to residential customers. This has previously only applied to non-residential customers. This ensures consistent treatment between residential and non-residential customers and a reduction in residential wastewater service charges.

**Stormwater charges.** We have made changes to the pricing of properties to reflect the contribution that each property makes to stormwater. As a result, stormwater charges are based on a constrained area basis and we have introduced a new low impact customer category for residential customers. This results in a reduction to stormwater charges for stand-alone residential and small non-residential customers and customers in multi-premise properties.
14.2.1 Residential customers

Bills for houses and apartments will fall over the 2016 determination period

All residential customers’ water and wastewater bills will fall under our prices in 2016-17 and then increase at the rate of inflation thereafter (estimated to be about 2.5% per year). Sydney Water’s proposal would mean most households experience a nominal increase in their annual water and wastewater bill by the end of the 4-year period.

Under our prices:

- A typical household consuming 220 kL per year would see its annual bill decrease by $100 or 8.2% in 2016-17 (with inflation). This is $29 lower than under Sydney Water’s proposed bills.\(^{546}\)

- A typical apartment consuming 160 kL per year would see its annual bill decrease by $83 or 7.7% in 2016-17 (with inflation). This is $28 lower than under Sydney Water’s proposed bills.

Following 2016-17, bills will increase by inflation to 2019-20:

- a total bill decrease for a typical household of 1.2% (or $14).

- a total bill decrease for a typical apartment of 0.6% (or $7).

Figure 14.1 shows typical residential bills for houses and apartments over the 2016 determination period.

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\(^{546}\) Excluding inflation, our typical residential annual bill in 2016-17 would be $16 lower than under Sydney Water’s proposed bills (this reflects our adjustments to Sydney Water’s notional revenue requirement). Including inflation, the difference between our 2016-17 bill and Sydney Water’s is greater than $16 due to different inflation assumptions. In its pricing proposal, Sydney Water assumed an inflation rate of 2.5% for 2016-17. We have since updated inflation for 2016-17 to reflect the actual change in CPI of 1.3%.
Implications of pricing decision

Figure 14.1 Water and wastewater bills for apartments and houses – with inflation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Apartments (160 kL/year)</td>
<td>$1,200</td>
<td>$1,200</td>
<td>$1,200</td>
<td>$1,200</td>
<td>$1,200</td>
</tr>
<tr>
<td>Houses (220 kL/year)</td>
<td>$1,400</td>
<td>$1,400</td>
<td>$1,400</td>
<td>$1,400</td>
<td>$1,400</td>
</tr>
</tbody>
</table>

**Note:** Inflation is estimated to be 2.5% per annum over the 2016 period, except for 2016-17 where it is set as 1.3%. 160 kL/year is average usage for apartments, 220 kL/year is average for a house (and 200 kL/year is average for residential).

**Source:** IPART analysis.

Despite the notional revenue requirement increasing by $78 million over the 4-year period, the nominal bill impacts differ marginally from the Draft Report due to revised forecast inflation figures for 2016-17 from 2% to 1.3%.

In their submissions to our Draft Report, PIAC and NCOSS supported the reduction in residential bills.547

Customers who pay stormwater drainage charges will also see a reduction in their bills.548 For households, annual stormwater service charges would decrease from $86.02 in 2015-16 to $73.81 in 2016-17. For residents in apartments, annual stormwater service charges would decrease from $31.55 in 2015-16 to $23.04 in 2016-17.

Table 14.1 shows the residential bills under our prices and Sydney Water’s proposed prices.

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547 Public Interest Advocacy Centre submission to IPART Draft Report, April 2016, p 2; NSW Council of Social Services submission to IPART Draft Report, April 2016, p 3.

548 Residential dwellings in Sydney Water’s stormwater catchments pay Sydney Water stormwater charges in addition to wastewater and water charges. Customers in other areas pay these fees to local councils.

549 Including 1.3% inflation.
Table 14.1  Residential bill impacts ($nominal) – with inflation

<table>
<thead>
<tr>
<th></th>
<th>2015-16a</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>IPART</th>
<th>Sydney Water</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Without stormwater</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>160 kL/year (Apartment)</td>
<td>1,076</td>
<td>993</td>
<td>1,018</td>
<td>1,043</td>
<td>1,069</td>
<td>-7</td>
<td>23</td>
</tr>
<tr>
<td>Annual change</td>
<td>-7.7%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-0.6%</td>
<td>2.1%</td>
<td></td>
</tr>
<tr>
<td>200 kL/year</td>
<td>1,167</td>
<td>1,073</td>
<td>1,099</td>
<td>1,127</td>
<td>1,155</td>
<td>-12</td>
<td>20</td>
</tr>
<tr>
<td>Annual change</td>
<td>-8.1%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-1.0%</td>
<td>1.7%</td>
<td></td>
</tr>
<tr>
<td>220 kL/year (House)</td>
<td>1,213</td>
<td>1,113</td>
<td>1,140</td>
<td>1,169</td>
<td>1,198</td>
<td>-14</td>
<td>17</td>
</tr>
<tr>
<td>Annual change</td>
<td>-8.2%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-1.2%</td>
<td>1.4%</td>
<td></td>
</tr>
<tr>
<td><strong>With stormwater</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>160 kL/year (Apartment)</td>
<td>1,108</td>
<td>1,016</td>
<td>1,042</td>
<td>1,068</td>
<td>1,094</td>
<td>-13</td>
<td>23</td>
</tr>
<tr>
<td>Annual change</td>
<td>-8.2%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-1.2%</td>
<td>2.1%</td>
<td></td>
</tr>
<tr>
<td>220 kL/year (House)</td>
<td>1,299</td>
<td>1,187</td>
<td>1,217</td>
<td>1,247</td>
<td>1,279</td>
<td>-20</td>
<td>16</td>
</tr>
<tr>
<td>Annual change</td>
<td>-8.6%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-1.5%</td>
<td>1.2%</td>
<td></td>
</tr>
</tbody>
</table>

a 2015-16 prices were not available when Sydney Water finalised its pricing proposal. The bills for 2015-16 have been updated to reflect actual inflation and prices.
b These figures were not included in Sydney Water’s proposal, and have been calculated by IPART.

Note: Inflation is estimated to be 2.5% per annum over the 2016 period, except for 2016-17 where it is set as 1.3%. In Sydney Water’s pricing proposal the 2016-17 inflation rate was assumed to be 2.5%. 160 kL/year is average usage for a unit, 220 kL/year is average for a house and 200 kL/year is average for residential.

Source: Sydney Water pricing proposal to IPART, June 2015, p 104; Sydney Water Annual Information Return, June 2015; and IPART analysis.

Pensioners will also experience bill reductions

Sydney Water provides rebates for service charges to pensioners. Each determination period, Sydney Water resets pensioner rebates to ensure pensioner and non-pensioner customers receive equitable treatment.\(^{550}\) The current concessions are:

- 100% of the service charge for water,
- 83% of the service charge for wastewater, and
- 50% of the service charge for stormwater drainage.\(^{551}\)

Under the current concessions, eligible pensioners will experience larger bill reductions under our prices. This is because pensioners receive a concession of 83% of the wastewater service charge and are consequently largely unaffected by our decision to restructure this charge.

\(^{550}\) Sydney Water submission to IPART Draft Report, April 2016, p46.
Table 14.2 shows the annual water and wastewater bills under current concessions. Assuming these concessions continue, pensioners’ annual water and wastewater bills would decrease between $10 and $25 over the 2016 determination period, depending on water consumption. This means that a pensioner’s bill in 2019-20 would be lower than their current bill, including the effect of inflation. Although we do not know what the pensioner concessions will be over the 2016 determination period, Sydney Water states they will ensure that pensioners experience the same percentage bill reduction as non-pensioners. Therefore, we anticipate pensioners’ bills would decrease relative to their 2015-16 bill.

### Table 14.2 Water and wastewater bills for pensioners ($nominal) – with inflation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>100 kL/year</td>
<td>331</td>
<td>299</td>
<td>306</td>
<td>314</td>
<td>322</td>
<td>-10</td>
</tr>
<tr>
<td>Annual change</td>
<td></td>
<td>-9.8%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-2.9%</td>
</tr>
<tr>
<td>160 kL/year</td>
<td>468</td>
<td>419</td>
<td>429</td>
<td>440</td>
<td>451</td>
<td>-17</td>
</tr>
<tr>
<td>Annual change</td>
<td></td>
<td>-10.6%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-3.7%</td>
</tr>
<tr>
<td>200 kL/year</td>
<td>559</td>
<td>498</td>
<td>511</td>
<td>524</td>
<td>537</td>
<td>-22</td>
</tr>
<tr>
<td>Annual change</td>
<td></td>
<td>-10.8%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-4.0%</td>
</tr>
<tr>
<td>220 kL/year</td>
<td>604</td>
<td>538</td>
<td>552</td>
<td>565</td>
<td>580</td>
<td>-25</td>
</tr>
<tr>
<td>Annual change</td>
<td></td>
<td>-11.0%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-4.1%</td>
</tr>
</tbody>
</table>

**Note:** Inflation is estimated to be 1.3% in 2016-17 and 2.5% per annum over the rest of the 2016 period.

**Source:** IPART analysis.

### 14.2.2 Non-residential customers

Non-residential customers’ bill impacts depend on their meter size and discharge factors, as well as their water and wastewater usage.

**Small business bills vary depending on discharge factor and water use**

Table 14.3 shows the bills under our prices for small businesses (assuming that these customers are on a standalone 20mm meter) using different discharge factors.

Small businesses with a discharge factor of 75% will face the same bill reductions as a residential customer (compared to Table 14.1 above). These customers have the same usage and discharge as residential customers: 200 kL water use and 150 kL wastewater (sewerage) discharge.

---

552 Sydney Water submission to IPART Draft Report, April 2016, p46.
Small businesses that discharge more than residential customers (ie, discharge factors above 75%), will face bill increases over the 4-year period. In particular, small businesses:

- With a discharge factor of 78% (Sydney Water’s default discharge factor), will face nominal bill increases of about $13 (or 1.1%) over the 4-year period.
- With a discharge factor of 83% (example of a different discharge factor), will face nominal bill increases of about $55 (or 4.7%) over the 4-year period.

Table 14.3  Small business water and wastewater bills - with inflation

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>200kL pa water usage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75% discharge factor</td>
<td>1,167</td>
<td>1,073</td>
<td>1,099</td>
<td>1,127</td>
<td>1,155</td>
<td>-12</td>
</tr>
<tr>
<td>Annual change</td>
<td>-8.1%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-1.0%</td>
<td></td>
</tr>
<tr>
<td>78% discharge factor</td>
<td>1,167</td>
<td>1,089</td>
<td>1,117</td>
<td>1,151</td>
<td>1,180</td>
<td>13</td>
</tr>
<tr>
<td>Annual change</td>
<td>-6.7%</td>
<td>2.5%</td>
<td>3.1%</td>
<td>2.5%</td>
<td>1.1%</td>
<td></td>
</tr>
<tr>
<td>83% discharge factor</td>
<td>1,167</td>
<td>1,117</td>
<td>1,145</td>
<td>1,192</td>
<td>1,222</td>
<td>55</td>
</tr>
<tr>
<td>Annual change</td>
<td>-4.3%</td>
<td>2.5%</td>
<td>4.1%</td>
<td>2.5%</td>
<td>4.7%</td>
<td></td>
</tr>
<tr>
<td><strong>310kL pa water usage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>83% discharge factor</td>
<td>1,418</td>
<td>1,345</td>
<td>1,435</td>
<td>1,530</td>
<td>1,568</td>
<td>151</td>
</tr>
<tr>
<td>Annual change</td>
<td>-5.1%</td>
<td>6.7%</td>
<td>6.6%</td>
<td>2.5%</td>
<td>10.6%</td>
<td></td>
</tr>
</tbody>
</table>

Note: Inflation is estimated to be 2.5% per annum over the 2016 period, except for 2016-17 where it is set as 1.3%.

Source: IPART analysis.

Notably, small businesses with discharge factors above 75% will face slightly higher bills in each year because these customers will now pay wastewater usage charges within the 2016 determination period. This is shown in Figure 14.2 below. For example:

- Small businesses using 200 kL of water per year will see a bill increase in 2018-19 above inflation, if they have a discharge factor above 75%. This is because these properties discharge more than 150kL of wastewater and the discharge allowance will decrease to 150kL in 2018-19.

Our price structure changes have been implemented to remove existing cross-subsidies (see Chapter 9). Before we reduced the non-residential discharge allowance from 300 kL to 150 kL, small non-residential customers discharging up to 150 kL were paying too much.
Sydney Water assigns discharge factors for non-residential customers, but not residential customers. Where a discharge factor has not been previously assigned to a non-residential customer, Sydney Water applies a default discharge factor of 78%. More information on discharge factors is provided in Box 14.2.
Box 14.2  Setting discharge factors

Sydney Water calculates a customer’s wastewater volume by multiplying the customer’s water use by a discharge factor.

Sydney Water assigns discharge factors for non-residential customers, but not residential customers. Where a discharge factor has not been previously assigned to a non-residential customer, Sydney Water states it will apply a default discharge factor of 78% in its policies.

In 2014, we undertook a review of non-residential discharge factors. We decided to continue to allow regulated water utilities to determine the discharge factors. However, we recommended that water utilities be transparent in the process of setting discharge factors and communicate with customers via their websites:

- how the discharge factor affects customers’ bills,
- a list of discharge factors used for different businesses, industries or customer types, and
- the process, cost and information required for customers to seek assessment.

For the 2016 determination period, we have introduced discharge factors for residential customers of 75%. In light of this decision, we consider it important that Sydney Water clearly communicate where the discharge factor is greater than 75% for non-residential customers with a 20mm connection (ie, small businesses).

Details of the changes we have made to wastewater charges including discharge factors are included in Chapter 8.

Sources: IPART conducted a review of discharge factors in 2014. In this review, we decided to “maintain our current approach of using the discharge factors as set by the water utilities” IPART, Discharge factors for non-residential customers, December 2014, p 3; Sydney Water, Customer Policy - Sewerage usage charging for non-residential customers, Sydney Water website, Last updated 8 March 2013, p 3.

Most other non-residential customers will see bill decreases

We have used the segments identified by Sydney Water to illustrate the impact of our pricing decisions on the water and wastewater bills of non-residential customers.\(^ {553} \) Taken together, these segments cover about 74% of total non-residential revenue and 76% of the non-residential customer base.\(^ {554} \)

Generally, bills will fall for all non-residential customers in 2016-17 ranging from 4.8% to 31.0%, and then increase broadly in line with the rate of inflation thereafter (estimated to be about 2.5%). Table 14.4 shows the non-residential water and wastewater bills by different customer segments under our prices.

\(^ {553} \) Sydney Water pricing proposal to IPART, June 2015, p 104.

\(^ {554} \) Sydney Water pricing proposal to IPART, June 2015, p 104.
Non-residential customer segments include public hospitals, private schools and medium to large commercial and industrial customers. As medium and large users of water, these customers benefit most from the lower water usage charge. Also, these customers benefit from our changes to calculating wastewater service charges (explained in Box 14.1).

Table 14.4  Non-residential water and wastewater bills – with inflation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Industrial</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1,167</td>
<td>1,112</td>
<td>1,139</td>
<td>1,184</td>
<td>1,214</td>
<td>47</td>
</tr>
<tr>
<td>Annual change</td>
<td>-4.8%</td>
<td>2.5%</td>
<td>3.9%</td>
<td>2.5%</td>
<td>4.0%</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>21,520</td>
<td>18,510</td>
<td>19,029</td>
<td>19,564</td>
<td>20,053</td>
<td>-1,467</td>
</tr>
<tr>
<td>Annual change</td>
<td>-14.0%</td>
<td>2.8%</td>
<td>2.8%</td>
<td>2.5%</td>
<td>-6.8%</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>92,194</td>
<td>79,334</td>
<td>81,375</td>
<td>83,468</td>
<td>85,554</td>
<td>-6,640</td>
</tr>
<tr>
<td>Annual change</td>
<td>-13.9%</td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.5%</td>
<td>-7.2%</td>
<td></td>
</tr>
<tr>
<td><strong>Commercial</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1,418</td>
<td>1,345</td>
<td>1,435</td>
<td>1,530</td>
<td>1,568</td>
<td>151</td>
</tr>
<tr>
<td>Annual change</td>
<td>-5.1%</td>
<td>6.7%</td>
<td>6.6%</td>
<td>2.5%</td>
<td>10.6%</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>27,124</td>
<td>22,789</td>
<td>23,416</td>
<td>24,060</td>
<td>24,661</td>
<td>-2,463</td>
</tr>
<tr>
<td>Annual change</td>
<td>-16.0%</td>
<td>2.8%</td>
<td>2.7%</td>
<td>2.5%</td>
<td>-9.1%</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>82,186</td>
<td>69,709</td>
<td>71,509</td>
<td>73,355</td>
<td>75,189</td>
<td>-6,997</td>
</tr>
<tr>
<td>Annual change</td>
<td>-15.2%</td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.5%</td>
<td>-8.5%</td>
<td></td>
</tr>
<tr>
<td><strong>Public hospital</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>81,715</td>
<td>68,981</td>
<td>70,763</td>
<td>72,591</td>
<td>74,405</td>
<td>-7,310</td>
</tr>
<tr>
<td>Annual change</td>
<td>-15.6%</td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.5%</td>
<td>-8.9%</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>133,563</td>
<td>113,074</td>
<td>115,958</td>
<td>118,915</td>
<td>121,888</td>
<td>-11,675</td>
</tr>
<tr>
<td>Annual change</td>
<td>-15.3%</td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.5%</td>
<td>-8.7%</td>
<td></td>
</tr>
<tr>
<td><strong>Private school</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>30,603</td>
<td>25,939</td>
<td>26,645</td>
<td>27,370</td>
<td>28,054</td>
<td>-2,549</td>
</tr>
<tr>
<td>Annual change</td>
<td>-15.2%</td>
<td>2.7%</td>
<td>2.7%</td>
<td>2.5%</td>
<td>-8.3%</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>93,016</td>
<td>79,506</td>
<td>81,550</td>
<td>83,648</td>
<td>85,739</td>
<td>-7,277</td>
</tr>
<tr>
<td>Annual change</td>
<td>-14.5%</td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.5%</td>
<td>-7.8%</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>136,201</td>
<td>115,876</td>
<td>118,830</td>
<td>121,859</td>
<td>124,906</td>
<td>-11,296</td>
</tr>
<tr>
<td>Annual change</td>
<td>-14.9%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-8.3%</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Inflation is estimated to be 1.3% in 2016-17 and 2.5% per annum over the rest of the 2016 period. Actual bills may vary from these figures depending on a customer’s discharge factor.

**Source:** IPART analysis.

The customer profile assumptions for each non-residential segment are presented in Table 14.5.\footnote{Sydney Water pricing proposal to IPART, June 2015, p 104.}
### Table 14.5  Sydney Water’s significant non-residential segments

<table>
<thead>
<tr>
<th>Customer segment</th>
<th>Type</th>
<th>Meter size (mm)</th>
<th>Average annual usage (kL)</th>
<th>Discharge factor (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Industrial</strong></td>
<td>Low</td>
<td>20</td>
<td>200</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>40</td>
<td>5,800</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>80</td>
<td>26,000</td>
<td>69</td>
</tr>
<tr>
<td><strong>Commercial</strong></td>
<td>Low</td>
<td>20</td>
<td>310</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>50</td>
<td>6,700</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>80</td>
<td>21,000</td>
<td>82</td>
</tr>
<tr>
<td><strong>Public hospital</strong></td>
<td>Medium</td>
<td>80</td>
<td>20,000</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>100</td>
<td>33,000</td>
<td>89</td>
</tr>
<tr>
<td><strong>Private school</strong></td>
<td>Low</td>
<td>50</td>
<td>7,700</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>80</td>
<td>24,000</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>100</td>
<td>35,000</td>
<td>83</td>
</tr>
<tr>
<td><strong>Commercial strata unit</strong></td>
<td>Low</td>
<td>20</td>
<td>130</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>25</td>
<td>180</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>40</td>
<td>2,100</td>
<td>88</td>
</tr>
<tr>
<td><strong>Industrial strata unit</strong></td>
<td>Low</td>
<td>20</td>
<td>75</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>25</td>
<td>90</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>50</td>
<td>32,000</td>
<td>69</td>
</tr>
</tbody>
</table>

*Source: Sydney Water pricing proposal to IPART, June 2015, p 105.*

**Bills for non-residential common meter customers will decrease**

Common metered non-residential customers with low to medium usage will see large reductions in their water and wastewater bills. Bills for these customers decrease largely because of rebasing service charges, which removes the historical anomaly in charges between 20mm meter standalone and common meter non-residential customers (explained in Box 14.1).

For example, customers in commercial strata units with medium usage (ie, 180 kL per annum) will see a significant reduction in their bills of $563 (or 29.1%) in 2016-17 including inflation.

Table 14.6 shows the non-residential water and wastewater bills for common meter customers.
Implications of pricing decision

Table 14.6 Non-residential common meter customer water and wastewater bills – with inflation

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Commercial strata unit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1,260</td>
<td>961</td>
<td>985</td>
<td>1,009</td>
<td>1,035</td>
<td>-225</td>
</tr>
<tr>
<td><strong>Annual change</strong></td>
<td>-23.8%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-17.9%</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>1,932</td>
<td>1,370</td>
<td>1,404</td>
<td>1,439</td>
<td>1,475</td>
<td>-457</td>
</tr>
<tr>
<td><strong>Annual change</strong></td>
<td>-29.1%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-23.7%</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>10,674</td>
<td>8,453</td>
<td>8,721</td>
<td>8,998</td>
<td>9,223</td>
<td>-1,451</td>
</tr>
<tr>
<td><strong>Annual change</strong></td>
<td>-20.8%</td>
<td>3.2%</td>
<td>3.2%</td>
<td>2.5%</td>
<td>-13.6%</td>
<td></td>
</tr>
<tr>
<td><strong>Industrial strata unit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1,135</td>
<td>851</td>
<td>872</td>
<td>894</td>
<td>916</td>
<td>-218</td>
</tr>
<tr>
<td><strong>Annual change</strong></td>
<td>-25.0%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-19.2%</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>1,711</td>
<td>1,181</td>
<td>1,211</td>
<td>1,241</td>
<td>1,272</td>
<td>-439</td>
</tr>
<tr>
<td><strong>Annual change</strong></td>
<td>-31.0%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>-25.7%</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>102,130</td>
<td>91,309</td>
<td>93,648</td>
<td>96,048</td>
<td>98,449</td>
<td>-3,681</td>
</tr>
<tr>
<td><strong>Annual change</strong></td>
<td>-10.6%</td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.5%</td>
<td>-3.6%</td>
<td></td>
</tr>
</tbody>
</table>

Note: Inflation is estimated to be 2.5% per annum over the 2016 period, except for 2016-17 where it is set as 1.3%.
Source: IPART analysis.

14.3 Additional costs of transfers from the Shoalhaven and Sydney Desalination Plant

It is important to note that the prices reported in the bill impact tables do not reflect the costs Sydney Water may incur for:

- transfers from Shoalhaven, or
- the purchase of potable water from the Sydney Desalination Plant.

Pass through of Shoalhaven transfer costs

We are introducing a service charge cost pass-through mechanism to compensate Sydney Water for actual bulk water costs incurred from WaterNSW for transfers from Shoalhaven (see Chapter 5). This differs from the 2012 Determination, where we decided to allow for the cost recovery of Shoalhaven pumping on expected costs basis (rather than through a cost pass-through mechanism).556

556 IPART, Review of prices for Sydney Water Corporation’s water, sewerage, stormwater drainage and other services - From 1 July 2012 to 30 June 2016 - Final Report, June 2012, p 67.
The size of these costs and their impact on customers will depend on the transfers from the Shoalhaven. Under the 2010 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%.557

Pass through of SDP costs

We have decided to pass through the per kilolitre (kL) cost of desalinated water into water usage charges if the SDP is operating. Specifically, our decision is to increase the water usage charge by $0.12 per kL over the 2016 determination period if SDP is operating to recover the variable costs associated with it supplying potable water.

For a typical household consuming 220 kL per year, this would add a further $26.40 to their annual bill. For a typical apartment consuming 160 kL per year, this would add a further $19.20 to their annual bill. Large users of water (ie, large non-residential customers) would pay proportionately more.

14.4 Implications for Sydney Water’s service standards

Under our 2016 Determination, we expect Sydney Water to achieve both operating and capital efficiency savings. We are satisfied that Sydney Water can achieve these efficiency savings and thus can generate sufficient revenue to achieve service standards at or above those expected by customers and required under its Operating Licence.558

Sydney Water’s pricing submission identified the expenditure required for it to meet its obligations under its Operating Licence. The Operating Licence also includes performance indicators against which Sydney Water’s performance is reviewed as part of the annual audit of its compliance with the licence. During 2014-15, IPART reviewed Sydney Water’s Operating Licence. The new licence commenced on 1 July 2015, and applies to 30 June 2020.

557 Under the 2010 Metropolitan Water Plan, pumping from the Shoalhaven River commences when dam levels fall to 75% and continue until they rise above 80%. 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. NSW Government, 2010 Metropolitan Water Plan, August 2010, p 24.

558 Sydney Water is licensed under the Sydney Water Act 1994 (NSW). The Act requires Sydney Water to hold an operating licence that is issued by the Minister and reviewed annually by IPART. This licence contains a number of standards that Sydney Water must meet, or risk facing penalties associated with a breach of licence conditions.
In its review of Sydney Water’s operating and capital expenditure for this determination, Atkins Cardno noted that Sydney Water performed well over the 2012 determination period. It maintained its service standards related to water pressure, continuity, water leakage and sewage chokes and sewer overflows.\footnote{Atkins Cardno, \textit{Expenditure Review – Sydney Water}, December 2015, pp 38-40.} Atkins Cardno found that Sydney Water’s performance showed that:

Good performance has been maintained against the [Operating] Licence performance parameters, with clear headroom against the targets set. Sydney Water has performed well against the EPA licence criteria and has demonstrated good performance in customer service measures when compared with other Australian water agencies.\footnote{Atkins Cardno, \textit{Expenditure Review – Sydney Water}, December 2015, p 13.}

We have revised the output measures introduced in the 2012 Determination to reflect the nature of the capital program over the 2016 determination period. These will assist us to identify how expenditure proposals have enabled Sydney Water to meet its regulatory requirements. A list of output measures for Sydney Water (along with targets) is set out in Appendix G.

### 14.5 Implications for Sydney Water’s financial viability and shareholders

We are satisfied our determination will not adversely affect the ability of Sydney Water to operate, maintain, renew and develop the assets required to deliver its regulated services over the 2016 determination period. Further, we are satisfied that this determination will enable Sydney Water to earn a reasonable rate of return on its assets.

#### 14.5.1 Rate of return

Our pricing decisions mean that Sydney Water is able to achieve the total notional revenue requirement we have set for the 2016 determination period. Therefore, we expect that Sydney Water will earn a real post-tax rate of return on its RAB of at least the target rate of 4.9% over the determination period (see Chapter 4). This calculation is based on the assumptions we used in our modelling of the financial impacts of its pricing decisions, and depends on Sydney Water achieving the efficiency targets we have set.
14.5.2 Financeability

Since the 2012 Determination, we have established a financeability test that we use to consider the effect of our regulated prices on the utility’s financial sustainability.\textsuperscript{561} We assess whether our decisions would enable the utility to raise finance consistent with an investment grade rated firm, over the regulatory period.

In our financeability assessment, we check whether a utility would achieve at least a Baa2 rating, based on our own financeability test. We have reviewed our approach to calculating the credit ratios we use in our financeability test, including Funds From Operations (FFO) Interest Cover, Debt Gearing, and FFO over debt.\textsuperscript{562}

Based on our analysis of Sydney Water’s credit metrics, and the improvement of these credit metrics over the 2016 determination period, we consider Sydney Water to be financially sustainable. We do not expect a utility will meet every benchmark in every year of a determination period.\textsuperscript{563}

Table 14.7 shows Sydney Water’s financial ratios based on our prices. These ratios have improved slightly from the Draft Report (due to the higher WACC). Table 14.8 shows our benchmark financial ratios.

Table 14.7 Sydney Water’s financial ratios (based on RAB values)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. FFO Interest Cover</td>
<td>2.3</td>
<td>1.9</td>
<td>2.0</td>
<td>2.0</td>
<td>2.1</td>
</tr>
<tr>
<td>2. Debt / RAB</td>
<td>55%</td>
<td>54%</td>
<td>54%</td>
<td>53%</td>
<td>52%</td>
</tr>
<tr>
<td>3. FFO / Debt</td>
<td>8.1%</td>
<td>5.5%</td>
<td>5.8%</td>
<td>6.1%</td>
<td>6.6%</td>
</tr>
</tbody>
</table>

Source: IPART analysis.

\textsuperscript{561} Our financeability test requires us to: construct financial statements for the regulated utility; use the utility’s actual cost of debt and gearing levels to compute the financial ratios; compare the financial ratios against our Baa2 benchmark levels; make an overall assessment taking into account the financial ratios, financial statements and other relevant information which could affect financial sustainability. IPART, \textit{Financeability tests in price regulation – Final Decision}, December 2013.

\textsuperscript{562} IPART, \textit{Financeability ratios – Final Decision}, April 2015.

\textsuperscript{563} We note that in December 2015, Moody’s released an update to its rating methodology for regulated water utilities, Moody’s, \textit{Regulated Water Utilities}, 22 December 2015. For the quantitative factors (which comprise 40% of its rating methodology) it now places the highest weight, 12.5%, to both FFO Interest Cover and FFO/Debt - previously it applied a weight of 15% for FFO Interest Cover and 5% for FFO/Debt.
Table 14.8  Financial Ratio Benchmarks (for water utilities)

<table>
<thead>
<tr>
<th>Credit Rating Range</th>
<th>Investment grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A3</td>
</tr>
<tr>
<td>1. FFO Interest Cover</td>
<td>&gt;2.9</td>
</tr>
<tr>
<td>2. Debt / RAB</td>
<td>&lt;60%</td>
</tr>
<tr>
<td>3. FFO / Debt</td>
<td>&gt;10%</td>
</tr>
</tbody>
</table>

Source: Kanangra Ratings Advisory Services advice to IPART, see IPART, Financeability tests in price regulation Research — Final Decision December 2013, p10.

Sydney Water’s actual financial ratios in 2015-16 are significantly stronger than we forecast in setting prices at the 2012 Determination. This is due to higher profits arising from:

- lower operating costs than we forecast in 2012, and
- higher revenue (from higher sales volumes) than we forecast in 2012.

As explained in the Draft Report, the credit metrics deteriorate from 2015-16 to 2016-17 due to the fall in the notional revenue requirement and target revenue and in particular from the reduction in the WACC from 5.6% to 4.9%. As the RAB increases throughout the determination period, due to capital investment and indexation, the credit ratios are projected to improve and reach levels consistent with a credit rating of Baa2 (ie, one level above the investment grade cut-off of Baa3) by 2018-19.

In Sydney Water’s response to the Draft Report, it expressed concern over the weakening of its credit metrics, stating that the “poorly performing highly-weighted FFO/Debt ratio (which is sub-benchmark), will potentially drag the overall credit rating down to Baa3.” Sydney Water also noted that in March 2016, Moody’s put Sydney Water on ‘negative outlook’.

However, in its March 2016 credit opinion, we note that Moody’s predicted a weakening of Sydney Water’s credit metrics to below rating tolerance levels as a result of the 2016 price review. Moody’s stated that lower regulatory returns are anticipated as a result of “prevailing low risk-free rates, a fundamental building block used by the regulator in setting tariffs”.

Moody’s also noted that the transparent regulatory framework which governs Sydney Water’s regulated tariffs provides Sydney Water (and its shareholder, the Government) with visibility into likely future revenue reductions and provides them with a window to implement the required countermeasures to protect its credit profile.

Lastly, we consider a credit rating downgrade to Baa3 unlikely, as this would require a consistent deterioration in credit metrics. As noted, the credit ratios are projected to improve and reach levels consistent with a credit rating of Baa2 (ie, one notch above the investment grade cut-off of Baa3) by 2018-19.

### 14.5.3 Impact on the Consolidated Fund

Under section 16 of the IPART Act, we are required to report on the likely impact to the Consolidated Fund if prices are not increased to the maximum levels permitted. If this is the case, then the level of tax equivalent and dividends paid to the Consolidated Fund will fall. The extent of this fall will depend on Treasury’s application of its financial distribution policy and how the change affects after-tax profit.

Our financial modelling is based on a tax rate of 30% for pre-tax profit and dividend payments at 70% of after-tax profit. A $1 decrease in pre-tax profit would result in a loss of revenue to the Consolidated Fund of 49 cents in total, which is 70% of the decrease in after-tax profit of 70 cents.

### 14.6 Implications for general inflation

Under section 15 of the IPART Act, we are required to consider the effect of our determinations on general price inflation. Currently, water and wastewater costs in Sydney, contribute 0.26% towards the consumer price index (all groups, 8 capital cities). Under our prices, the annual average increase of a water and wastewater bill for a customer consuming 200 kL per annum is -2.4% (in real terms). Therefore, the approximate annual impact on general price inflation is -0.006% points (above the change in the CPI).

### 14.7 Implications for the environment

In making our decisions on expenditure, revenue and prices, we have considered Sydney Water’s impact on the environment and its environmental obligations and performance requirements.

As discussed in Chapter 2, our standard approach is to allow Sydney Water to earn sufficient revenue to recover the prudent and efficient costs of meeting its legally mandated requirements.

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566 -0.006% = -2.4% x 0.26%.
We have set prices based on a lower forecast of efficient expenditure than proposed by Sydney Water. However, this forecast is our assessment of the efficient costs Sydney Water will incur in meeting all of its service and performance standards over the 2016 determination period. This includes its environmental obligations and licence requirements, as set by the Environmental Protection Authority (EPA).

The EPA is responsible for monitoring and regulating Sydney Water’s environmental performance by issuing Environment Protection Licences (EPLs)\(^\text{567}\), which it reviews every five years. Sydney Water’s EPLs are a key driver of its capital and operating expenditure on water and wastewater services and assets. In total, Sydney Water has 27 EPLs:

- 23 for wastewater treatment systems
- two for water filtration plants
- one for an advanced recycled water filtration plant, and
- one to transport waste.\(^\text{568}\)

Sydney Water’s EPLs are currently being reviewed by the EPA.\(^\text{569}\) This has implications for Sydney Water’s costs in the areas of wet weather overflow abatement and the Winmalee sewage treatment plant. Sydney Water submitted a proposal to the EPA in December 2015 with alternative licence requirements.\(^\text{570}\) It noted that its proposed capital expenditure of $158 million to meet EPL requirements over the 2016 determination period assumes the EPA accepts its proposed licence variation, and is therefore framed in an uncertain regulatory environment.\(^\text{571}\)

In meeting its environmental obligations, Sydney Water has undertaken, and plans to continue to undertake, a number of environment-specific projects. These include:

- **Wet Weather Overflow Abatement Program** – this program is designed to prevent repeat wet weather overflows to customer properties and sensitive environmental sites. Atkins Cardno found that Sydney Water’s proactive engagement with the EPA on this long-running program has produced significant savings and efficient outcomes.\(^\text{572}\)

- **North Head Wastewater Treatment Plant biosolids upgrade** – this project aims to significantly improve the quality of the biosolids facilities at the North Head WWTP, including reducing odour associated with biosolids.

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\(^{567}\) The EPA issues EPLs under the *Protection of the Environment Operations Act 1997* (NSW).

\(^{568}\) Sydney Water pricing proposal to IPART, June 2015, p 12.

\(^{569}\) Unlike the Operating Licence, the EPLs do not have a defined start and end date and the EPA can vary them at any time.

\(^{570}\) Sydney Water pricing proposal to IPART, June 2015, p 205.

\(^{571}\) Sydney Water pricing proposal to IPART, June 2015, pp 204-05.

• **Winmalee Wastewater Treatment Plant upgrade** – this project aims to reduce the nutrient load discharged from Winmalee WWTP into receiving waters.

• **Avoid fail sewer program** – which aims to renew high risk sewer mains before they reach the end of their life.

We have assessed the reasonableness of Sydney Water’s proposed EPL expenditure and the basis upon which it has developed this proposal. We are satisfied that our determination will not negatively affect Sydney Water’s ability to implement these programs.
Appendices
Implications of pricing decision

IPART Review of prices for Sydney Water Corporation
A  Matters to be considered 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).

Table A.1 outlines the sections of the report that address each matter.
Table A.1  Consideration of section 15 matters by IPART

<table>
<thead>
<tr>
<th>Section 15(1)</th>
<th>Report Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) the cost of providing the services</td>
<td>Section 4.2 and 4.3 and Chapters 5 and 6 generally</td>
</tr>
<tr>
<td>b) the protection of consumers from abuses of monopoly power</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>c) the appropriate rate of return and dividends</td>
<td>Chapter 7, Appendix H, Section 14.5</td>
</tr>
<tr>
<td>d) the effect on general price inflation</td>
<td>Section 14.6</td>
</tr>
<tr>
<td>e) the need for greater efficiency in the supply of services</td>
<td>Chapters 5 and 6</td>
</tr>
<tr>
<td>f) ecologically sustainable development</td>
<td>Chapters 2, 6, 9, 13 and section 14.7</td>
</tr>
<tr>
<td>g) the impact on borrowing, capital and dividend requirements</td>
<td>Section 14.5</td>
</tr>
<tr>
<td>h) impact on pricing policies of any arrangements that the government agency</td>
<td>Not applicable</td>
</tr>
<tr>
<td>concerned has entered into for the exercise of its functions by some other</td>
<td></td>
</tr>
<tr>
<td>person or body</td>
<td></td>
</tr>
<tr>
<td>i) need to promote competition</td>
<td>Chapters 3, 11 and 13</td>
</tr>
<tr>
<td>j) considerations of demand management and least cost planning</td>
<td>Chapters 8 and 9</td>
</tr>
<tr>
<td>k) the social impact</td>
<td>Chapter 2 and 14</td>
</tr>
<tr>
<td>l) standards of quality, reliability and safety</td>
<td>Section 14.4</td>
</tr>
</tbody>
</table>
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 Works 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 19A of the IPART Act.

Yours sincerely,

Nathan Rees MP
Minister for Water Utilities
Minister for Emergency Services

The Hon Nathan Rees MP
Minister for Emergency Services
Minister for Water Utilities

New South Wales

Dr Michael Keating AC
Chairman
Independent Pricing and Regulatory Tribunal
PO BOX 2280
QVB POST OFFICE NSW 1230

2 3 AUG 2007

1 7 AUG 2007

SW Ref. SD 002243
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 1999, 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 4.2 billion litres of recycled water per year, and the necessary distribution pipelines.

Yours sincerely,

[Signature]

Nathan Rees MP
Minister for Water Utilities
Minister for Emergency Services

Level 25, 9 Castlereagh Street, Sydney NSW 2000
Telephone (02) 9228 6000  Facsimile (02) 9228 5098
Email : reception@-emergency.minister.nsw.gov.au
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 0250
Coburg 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 1989 to undertake stormwater amplification works of Sydney Water Corporation's existing Victoria Park branch of the Shaws 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,

[Signature]

The Hon. Andrew James Constance, MP
Minister for Finance and Services

Dated:

21/1/14

Review of prices for Sydney Water Corporation IPART | 247
C Terms of reference for late payment, dishonoured or declined payment fees

Dr Peter Boxall
Chair
Independent Pricing and Regulatory Tribunal
PO Box K36
HAYMARKET POSTSHOP NSW 1240

Dear Dr Boxall,

Pursuant to section 12A of the Independent Pricing and Regulatory Tribunal Act 1992, I am writing to refer a periodic investigation and report on:

- the maximum late payment fee and dishonoured and declined payment fee to be charged by Sydney Water, and
- maximum dishonoured or declined payment fee to be charged by Hunter Water.

Each periodic review is to be conducted in accordance with the attached Terms of Reference. It is intended that, where possible, each review be conducted concurrent to IPART’s investigation of Sydney Water's and Hunter Water's maximum prices for its water and sewerage services. Any late maximum payment fee or maximum dishonoured or declined payment fee specified by IPART is to apply from the commencement of the next determination period, anticipated to be commencing 1 July 2016, and for such other periods as determined by IPART.

If you require further information, please contact Laura Eadie, Director, Department of Premier and Cabinet, on 9228 5546.

Thank you for your assistance in this matter.

Yours sincerely,

MIKE BAIRD MP
Premier

- 7 DEC 2015
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:
D Sydney Water’s operating environment

The sections below outline the key developments in Sydney Water’s regulatory environment since our 2012 Determination. These developments have been considered when making our decisions in this review, and include other recent or ongoing water pricing reviews, developments in Sydney Water’s Operating Licence and regulatory environment, the Metropolitan Water Plan, and the Government directions that currently apply to Sydney Water.

D.1 Other IPART water pricing reviews

We have recently completed or are concurrently conducting a number of reviews that will affect inputs to our calculations of Sydney Water’s costs and prices. These include reviews related to Sydney Water’s:

- wholesale water and sewerage prices
- bulk water costs
- price structures, and
- financing costs and tax allowance.

D.1.1 Review of prices for wholesale water and sewerage prices - Sydney Water and Hunter Water

In recent years, a new category of water customer has emerged in NSW: wholesale customers. They buy wholesale water and/or sewerage services from Sydney Water Corporation (Sydney Water) or Hunter Water Corporation (Hunter Water) and on-supply these services to end-use customers. Typically, wholesale customers will be licensed under the Water Industry Competition Act 2006 (the WIC Act).573

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573 Currently, retail suppliers licensed under the WIC Act must source sufficient quantities of water from a source other than a public water utility: WIC Act, section 10(4)(d). Therefore, wholesale customers often treat sewage, industrial sewage, contaminated groundwater or stormwater onsite and reuse it, as well as on-supply wholesale services. Examples include the water schemes within new developments such as Barangaroo and Central Park in Sydney and Huntlee in the Hunter Valley.
IPART is currently conducting our first review of the prices Sydney Water and Hunter Water can charge wholesale customers. We released a discussion paper on 26 April 2016. Table D.1 outlines our indicative timetable for the review. We will update this timetable on our website as the review progresses.

<table>
<thead>
<tr>
<th>What</th>
<th>When</th>
</tr>
</thead>
<tbody>
<tr>
<td>Released Issues Papers for Sydney Water and Hunter Water price</td>
<td>7 September 2015</td>
</tr>
<tr>
<td>reviews, with wholesale pricing chapters</td>
<td></td>
</tr>
<tr>
<td>Held first public hearing wholesale pricing</td>
<td>8 December 2015</td>
</tr>
<tr>
<td>Released Discussion Paper</td>
<td>26 April 2016</td>
</tr>
<tr>
<td>Submissions to Discussion Paper due</td>
<td>31 May 2016</td>
</tr>
<tr>
<td>Release Draft Report and Draft Determination</td>
<td>End August 2016</td>
</tr>
<tr>
<td>Hold second public hearing on wholesale pricing</td>
<td>Mid September 2016</td>
</tr>
<tr>
<td>Receive submissions to Draft Report and Draft Determination</td>
<td>Early October 2016</td>
</tr>
<tr>
<td>Release Final Report and Determination</td>
<td>December 2016</td>
</tr>
</tbody>
</table>

**D.1.2 Reviews related to Sydney Water’s bulk water costs**

Sydney Water purchases most of the bulk water it needs to supply its customers from WaterNSW. We have concurrently conducted a review to determine WaterNSW’s maximum prices from 1 July 2016. Therefore, we have used our decisions on these prices in determining Sydney Water’s bulk water costs.

Sydney Water also purchases bulk water from SDP which operates under a regime set out in the Government’s Metropolitan Water Plan:

> …the plant will operate at full production capacity and supply desalinated water to Sydney Water’s area of operations when the total dam storage level is below 70 percent and will continue to do so until the total dam storage level reaches 80 percent.

We set the maximum prices that SDP can charge Sydney Water in each of its modes of operation. SDP’s current price determination is due to expire on 30 June 2017. SDP’s next price review is due to commence next year, with new prices to apply from 1 July 2017.

This means we can use SDP’s prices in determining Sydney Water’s bulk water costs for the first year of the 2016 determination period (ie, 2016-17) only. The timing of SDP’s next price review (and other factors) means that there will be uncertainty about Sydney Water’s SDP bulk water costs for the remaining years of the 2016 period. This differs from Sydney Water’s 2012 Determination where we knew all of SDP’s costs and prices for each mode of operation.

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574 Sydney Water pricing proposal to IPART, June 2015, p ii.
This issue is discussed further in Chapter 5.

D.1.3 Reviews related to Sydney Water’s price structures

We reviewed the structure of prices for Sydney Water and the other metropolitan water utilities we regulate in 2012. As a result of this review, we established some general pricing principles to further improve the cost reflectivity of these prices, and to increase equity between customer groups. These principles were:

- The water usage charge should be a standard charge for all customers based on the Long Run Marginal Cost (LRMC) of water supply.
- Residential water and wastewater service charges should be standard for all customers, unless there are material cost differences.
- The wastewater usage charge should apply to non-residential customers over a particular consumption threshold, and be set with reference to (but not necessarily equal to) the Short Run Marginal Cost (SRMC) of supply.
- The total revenue collected from non-residential customers should reflect the costs incurred in servicing them, and customers imposing similar costs should pay similar charges.

In the 2012 Determination, we restructured Sydney Water’s prices in line with these principles. For the 2016 Determination, we have considered whether there is any further need to restructure Sydney Water’s prices, particularly in relation to some of the outstanding issues on wastewater charges from the 2012 Determination.

Since the 2012 Determination, we undertook a further investigation related to the cost of providing water and wastewater services. We circulated a discussion paper to the metropolitan water utilities in November 2014 for comment, and held a workshop in December 2014, which was attended by Sydney Water, Hunter Water Corporation (Hunter Water), and Gosford City Council. In the discussion paper, we outlined a number of possible options for rebasing water and wastewater service charges to improve the cost reflectivity of these charges and address some current pricing anomalies.

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579 For example, we stated that we would consider in subsequent determinations whether the wastewater usage charge should be further reduced towards SRMC and the free discharge allowance to 150 kL. See IPART, Review of Sydney Water Corporation’s water, sewerage, stormwater drainage and other services – From 1 July 2012 to 30 June 2016 - Final Report, June 2012, p 103.
In addition, we conducted a related review of the discharge factors used in determining sewerage prices for non-residential customers. We decided to maintain our current practice of adopting the discharge factors proposed by the regulated water utilities unless we identify a strong case to do otherwise during the price review process.580

Chapter 9 and 10 discuss our prices in the context of these reviews.

**D.1.4 Reviews related to Sydney Water’s financing costs and financeability**

Since the 2012 Determination, we have conducted several reviews that affect the way we determine a utility’s financing costs and assess its financeability. These include reviews on our approach to:

- determining the WACC,581 including the approach for estimating the cost of debt, the cost of equity, and the decision rule for choosing the WACC point estimate
- estimating the inflation adjustment used in determining the real post-tax WACC582
- estimating the debt margin parameter of the WACC583
- assessing the short-term financial sustainability of regulated utilities and elements of our financeability test,584 and
- calculating the credit ratios we use in our financeability test, including Funds From Operations (FFO), Debt Gearing and FFO over debt.585

Sydney Water submitted that these reviews have increased the transparency of the regulatory process and provided more certainty for regulated businesses.586 It noted that Moody’s highlighted the importance of the improved WACC methodology in its recent decision to increase Sydney Water’s baseline credit assessment from Baa2 to Baa1.587

In addition, we have reviewed how we treat finance leases in our regulatory decisions. We decided that our preferred approach is to include the efficient value of the underlying asset in the RAB, and to account for the efficient operating costs required to deliver the services associated with the asset in the allowance for operating expenditure.588

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582 IPART, *New approach to forecasting the WACC inflation adjustment – Fact Sheet*, March 2015.
585 IPART, *Financeability ratios – Final Decision*, April 2015
586 Sydney Water pricing proposal to IPART, June 2015, p xxiii.
587 Sydney Water pricing proposal to IPART, June 2015, p xxiii.
Our decisions on the WACC methodology and treatment of financial leases are discussed in Chapter 7.

### D.2 Sydney Water’s Operating Licence

Sydney Water’s primary regulatory instrument is its Operating Licence. The objective of the licence is to enable and require Sydney Water to provide services within its area of operations.

Consistent with this objective, the licence sets out the obligations on Sydney Water to meet legislative requirements, comply with quality and performance standards, recognise the rights given to customers and consumers, and be subject to operational audits.\(^{589}\)

Sydney Water’s new licence started on 1 July 2015 and will end on 30 June 2020.\(^{590}\) It contains similar standards to the 2010–2015 licence, which expired on 30 June 2015. The following changes to the licence are relevant for this pricing review:

- Sydney Water must develop a new methodology for determining its ‘Economic Level of Water Conservation’, which must be approved by IPART by 31 December 2016. This replaces the prescriptive water use and water leakage targets in the previous licence.

- Sydney Water must use its best endeavours to develop and agree a protocol with the Metropolitan Water Directorate on roles and responsibilities for developing and implementing the Metropolitan Water Plan. It must then maintain and comply with the agreed protocol.

- Sydney Water must use its best endeavours to co-operate with network operators and retail suppliers licensed under the WIC Act within its area of operation that seek to establish a code of conduct. This obligation mirrors similar obligations where the Minister can establish a code of conduct for WICA licensees (referred to in clause 25 of the *Water Industry Competition (General) Regulation 2008*).

- If required by the Minister, Sydney Water must implement and comply with any outcomes (including timeframes) of a Government review of the Priority Sewerage Program.

- Sydney Water is allowed to charge a fee for late payment of customer bills, subject to a maximum amount and terms and conditions set by IPART.

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Sydney Water must include in its customer contract a definition of the Rouse Hill stormwater catchment area identified in IPART’s pricing determination. This extends the protections of the customer contract to customers in this area and clarifies their rights and obligations under the customer contract.\textsuperscript{591}

In undertaking Sydney Water’s licence review (which recommended these changes to Sydney Water’s licence),\textsuperscript{592} we drew on best practice regulatory principles. That is, the licence conditions should regulate Sydney Water to ensure it achieves the desired outcomes without imposing unnecessary compliance and administrative costs. This approach is consistent with the evolution of good regulatory practice for public water utilities.\textsuperscript{593}

\subsection*{D.3 Sydney Water’s environmental regulations}

The EPA regulates Sydney Water’s environmental performance by issuing EPLs, which it reviews every five years. Sydney Water’s EPLs are a key driver of its capital and operating expenditure on water and wastewater services and assets. In total, Sydney Water has 27 EPLs:

\begin{itemize}
  \item 23 for wastewater treatment systems
  \item two for water filtration plants
  \item one for an advanced recycled water filtration plant, and
  \item one to transport waste.\textsuperscript{594}
\end{itemize}

Sydney Water’s EPLs are currently being reviewed by the EPA.\textsuperscript{595} This has implications for Sydney Water’s costs in the areas of wet weather overflow abatement and the Winmalee sewage treatment plant.

Sydney Water indicated that it is actively engaging with the EPA on the current licensing of wet weather overflows.\textsuperscript{596} It is developing a risk-based approach to wet weather overflow abatement as a possible alternative to the current frequency-based licensing regime. This risk-based approach aims to lower costs, while achieving the same overall environmental outcomes as frequency targets for individual wastewater treatment systems. It noted that its proposed capital expenditure of $158 million to meet EPL requirements over the


\textsuperscript{592} We completed an end of term review of Sydney Water’s Operating Licence in May 2015. The Minister administering the Sydney Water Act may accept or reject our recommendations, before endorsing a new licence for approval by the Governor of NSW and subsequent gazettal. See IPART, \textit{Sydney Water Corporation Operating Licence – Report to the Minister}, May 2015, p 1.


\textsuperscript{594} Sydney Water pricing proposal to IPART, June 2015, p 12.

\textsuperscript{595} Unlike the Operating Licence, the EPLs do not have a defined start and end date and the EPA can vary them at any time.

\textsuperscript{596} Sydney Water pricing proposal to IPART, June 2015, p 27.
2016 determination period assumes the EPA accepts its proposed licence variation, and is therefore framed in an uncertain regulatory environment.\textsuperscript{597}

In our submission to the EPA’s review of Sydney Water’s EPLs, we expressed the view that:\textsuperscript{598}

\begin{itemize}
  \item the utility has a role in participating in the regulatory process and working together with the regulator to develop the best possible outcome
  \item if the costs of complying with an inefficient environmental regulation are simply passed through to customers by a monopoly utility, the utility may not have the incentive to engage in a meaningful manner with the environmental regulator in the standard setting process, and
  \item in relation to selective regulations that are costly and material, if inefficient regulation is implemented, the price regulator could determine that only a portion of costs be passed through to customers via prices.
\end{itemize}

We have assessed the reasonableness of Sydney Water’s proposed EPL expenditure when drawing our conclusions in Chapter 5 and Chapter 6.\textsuperscript{599}

\section*{D.4 Metropolitan Water Plan}

The NSW Government’s Metropolitan Water Plan outlines the mix of supply augmentation and demand management measures that ensure Sydney, the Illawarra and the Blue Mountains have enough water now and for the future. The Metropolitan Water Plan is reviewed periodically. It was first developed in 2004 in response to indications a drought was taking hold, updated in 2006 due to deepening drought, and updated again in 2010 as part of the review cycle.\textsuperscript{600}

The 2010 Metropolitan Water Plan is currently being reviewed to take account of changes in water demand and supply, and new data and research. The Metropolitan Water Directorate (responsible for developing the plan) has adopted a phased approach to the review of the 2010 Plan, with reports to the NSW Government at the end of each phase:\textsuperscript{601}

\begin{itemize}
  \item Phase 1 – scoping, research and investigations and community engagement (complete).
\end{itemize}

\begin{flushleft}
\textsuperscript{597} Sydney Water pricing proposal to IPART, June 2015, pp 204-05.
\textsuperscript{598} IPART Submission to the Environment Protection Authority review of Sydney Water Corporation’s environmental protection licences, May 2015, p 5.
\textsuperscript{599} Atkins Cardno, \textit{Sydney Water Corporation - Expenditure Review}, December 2015, p 171.
\end{flushleft}
Phase 2 – portfolio development and assessment, including hydro-economic modelling; review of options for future water conservation and recycling; preliminary business case for releasing environmental-flows from Warragamba Dam; community engagement; development of a monitoring, evaluation, reporting and improvement plan (commenced).

Phase 3 – further hydro-economic modelling and community engagement before finalising the preferred portfolio of measures for securing water supply.

Phase 4 – Government consideration and endorsement of the revised plan.

Currently, the Metropolitan Water Plan has no statutory force. However, as noted above, Sydney Water is required to maintain and comply with an agreed roles and responsibility protocol regarding the development and implementation of the Metropolitan Water Plan under its Operating Licence.

Of particular relevance to our review of Sydney Water’s prices is:

- the operating environment and rules prescribed for SDP
- the impact of the Metropolitan Water Plan 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), and
- possible cost implications for WaterNSW and flow through to Sydney Water’s long-term bulk water costs.

The Metropolitan Water Plan has strong links with the Government’s Hawkesbury-Nepean Valley Flood Management Review, which considers options for managing flooding downstream of Warragamba Dam.602 This review may impact the timing of the Metropolitan Water Plan.

In the 2012 Determination, we passed through the prudent and efficient costs related to the Metropolitan Water Plan. The 2010 Metropolitan Water Plan set the following goals for 2015:603

- 70 GL per year of recycled water in Sydney (these projects are mostly delivered by Sydney Water).
- Up to 90 GL per year of desalinated water.
- Saving 145 GL per year through water efficiency (Sydney Water has had a large role in implementing these measures).604

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604 We note total demand for water in the Greater Sydney area is around 500 GL each year.
D.5 Government directions under section 16A of the IPART Act

The Government (ie, the portfolio Minister) can issue directions for Sydney Water to complete projects in the public interest, which may not be in the shareholders’ interests. To ensure this investment is not deemed imprudent, the Minister can direct IPART (with the Premier’s approval) under section 16A of the IPART Act to include the efficient costs of complying with the specified requirement in Sydney Water’s prices. 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).

For this review, three Ministerial directions pursuant to section 16A of the IPART Act (section 16A directions) apply. These relate to:

- **Stormwater works at Green Square.** We are directed to pass through in prices Sydney Water’s efficient costs of complying with requirements to undertake stormwater amplification works and construct interconnected stormwater infrastructure in connection with the Green Square development.

- **The Rosehill (Camellia) Recycled Water Project.** We are directed to pass through 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.** We are directed to pass through the efficient costs of construction and ongoing operation of the Replacement Flows Project.

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605 Typically through a direction given under section 20P of the SOC Act. See Sydney Water pricing proposal to IPART, June 2015, p 68.

606 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.

607 All these directions appear to be ‘standing directions’. Those related to Rosehill (Camellia) and Replacement Flows project are stated to apply “when (IPART) determines the maximum price for government monopoly services provided by Sydney Water.” The wording strongly indicates that the directions are ‘standing directions’ which apply each time we determine prices for Sydney Water’s services.
The direction related to stormwater works at Green Square was issued to IPART in January 2014, and is therefore a new direction for this review. The directions related to the Replacement Flows project and the Rosehill (Camellia) project were issued in August 2007 and March 2008, respectively.

Each of these section 16A directions can be found at Appendix B. Sydney Water’s proposed costs related to these section 16A directions are discussed in Chapter 4 to 6.

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608 IPART received the Ministerial direction in January 2014. The underlying direction (to Sydney Water) is under s20N of the *State Owned Corporations Act 1989* (s20N direction).

609 At the time, we also received a direction relating to SDP. Since then, SDP has transferred ownership (i.e., from Sydney Water) and is now regulated by us through a separate price determination.
E  Efficiency carryover mechanisms

E.1  Current form of regulation

In its pricing proposal, Sydney Water identified that under the current form of regulation the financial reward for making permanent efficiency savings deteriorates over the regulatory period. That is, a saving made in year 1 can be held for four years while a saving made in year 3 can be held for just two years before it is passed on to customers through lower prices.

This can result in an incentive to delay revealing efficiency savings from the end of one regulatory period until the beginning of the next regulatory period. Figure E.1 illustrates how there can be an incentive to delay efficiency savings and how this can be addressed by an efficiency carryover mechanism (ECM).

Figure E.1  Problem identified with the current form of regulation

<table>
<thead>
<tr>
<th>Present value</th>
<th>Regulatory period 1</th>
<th>Regulatory period 2</th>
<th>Regulatory period 3</th>
<th>Terminal value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Opex allowance</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Actual opex</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Profit to business</td>
<td>$16.87</td>
<td>-</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>Benefit to customers</td>
<td>-$16.87</td>
<td>-</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>Terminal value</td>
<td>$176.10</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Terminal Value is the present value of the benefit to customers into perpetuity (ie, $10 / discount rate).

Data source: IPART analysis using a discount rate of 5%. This discount rate was chosen for simplicity and is for illustrative purposes only. We note that the real post-tax WACC applying for the next regulatory period is 4.9%.

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610 Sydney Water pricing proposal to IPART, June 2015, p 255.
Panel 1: if the business makes a permanent efficiency saving in year 3, it can retain this benefit for two years before it is passed to customers in year 5 through a lower allowance leading to lower prices.
- The present value to the business is $16.87.
- The present value to customers is $159.24.
- While this would be the best outcome for customers, the business may have an incentive to delay the saving in order to hold onto it for longer as shown in the next panel.

Panel 2: if the business decides to delay this efficiency saving until year 5, it retains the benefit for four years before it is passed to customers in year 9.
- The present value to the business is $29.17 (ie, greater than $16.87). Therefore the business may have an incentive to delay this saving.
- Delaying the saving results in waste (ie, it is inefficient because the total present value falls from $176.10 in panel 1 to $159.24 in panel 2).
- Delaying the saving makes customers worse off (ie, the present value to customers falls from $159.24 in panel 1 to $130.06 in panel 2).

Panel 3: With an ECM in place, the business retains the benefit from an efficiency saving for four years regardless of when the saving is made. In theory, the business will then have an incentive to deliver efficiency savings as soon as possible.
- The key difference in panel 3 (compared to panel 1) is the allowance remains at $100 in years 5 and 6, allowing the business to retain the saving for four years before it is passed on to customers.
- The present value to the business is $32.16 (ie, greater than $29.17). With an ECM, the business has an incentive to make the saving as soon as possible.
- Bringing savings forward makes customers better off (ie, the present value to customers increases from $130.06 in panel 2 to $143.94 in panel 3).
- Note that under the ECM the total present value ($176.10) is the same as in panel 1. Therefore, removing the incentive to delay savings results in a more efficient outcome.

E.2 CEPA’s recommended efficiency carryover mechanism

We engaged Cambridge Economic Policy Associates (CEPA) to review Sydney Water’s proposed EBSS, our modified EBSS and other options in light of experiences in other jurisdictions and having regard to the particular circumstances in NSW’s urban water sector.611

CEPA considered both symmetric and asymmetric options and recommended that we adopt an asymmetric approach. Key features of CEPA’s recommended ECM include:

- It applies to controllable operating expenditure (i.e., total operating expenditure less bulk water costs).

- It does not apply to capex. Although CEPA supports an ECM for capital expenditure in principle, it did not consider there to be evidence of significant substitutability between operating and capital expenditure. Given the additional costs and complexity involved in extending the ECM to include capex, the risk of unintended consequences (i.e., over forecasting and inefficient deferral of capex), and the limited potential for substitutability between operating and capital expenditure, CEPA recommended that we not apply the ECM to capex at this time.

- It is an asymmetric mechanism that rewards permanent cost reductions and does not additionally penalise permanent cost increases. A feature of symmetric schemes is that permanent cost increases are retained by the business for a fixed number of years before being passed on to customers. CEPA considers that the regulator should retain discretion to reset expenditure allowances, which would include reviewing permanent cost increases to ensure they are efficient before passing them on to customers. Sydney Water expressed that it is open to the regulator retaining discretion to reset the allowance. We consider this view is more consistent with an asymmetric approach rather than a symmetric approach.

- It ensures permanent efficiency savings are held for four years. Although the ECM would be simplified by allowing savings to be held for five years as per Sydney Water’s proposal, CEPA considers that a 4-year holding period provides sufficient incentive for the business to find and deliver cost savings.

- Temporary over and under spends are retained by the business. This is the major difference between the ECM and the modified EBSS and directly addresses Sydney Water’s concern with the modified EBSS.

### E.3 Design and operation of the efficiency carryover mechanism

The following four examples show how the ECM is built up from a simple concept to a more complex model capable of handling the fact that we will implement the ECM during year 4 of the determination when we do not know the actual expenditure for that year. Each step builds on the last.

In this section, we also make it clear where we have clarified or extended CEPA’s recommended ECM.

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612 Evidenced by Sydney Water’s proposal to limit the capital expenditure EBSS to about 9.5% of capital expenditure which it considers to be more recurrent and clearly substitutable with operating expenditure.
Figure E.2 provides a simple worked example. If a permanent saving is made in year 3, the ECM ensures that the business will carry the benefit over into the next regulatory period so that the business gets to retain the benefit for four years.

**Figure E.2 Simple example of how the ECM works**

<table>
<thead>
<tr>
<th>Year</th>
<th>Regulatory Period 1</th>
<th>Regulatory Period 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base allowance</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Actual</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Under (over)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Outperformance</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Permanent gain</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Incremental gain</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ECM calc</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- year 1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- year 2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- year 3</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>- year 4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ECM benefit</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Total allowance</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Total gain (loss)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Data source: IPART analysis.

The ECM involves the following steps:

- **Under (over):** this gives the difference between the base allowance and actual expenditure.
- **Outperformance:** is the same as the under (over) when this is an under-spend and is zero when the under (over) is an over-spend.
- ** Permanent gain:** working backwards from year 4 to year 1, this calculates how much of the outperformance in year 4 also occurred in year 3; how much of the outperformance that occurred in both years 4 and 3 also occurred in year 2; and how much of this outperformance that occurred in years 4, 3, and 2 also occurred in year 1.
- **Incremental gain:** working forwards from year 1 to 4, this calculates the first year that a permanent saving occurred. It is the ‘incremental gain’ that the ECM ensures is carried forward for four years.
- **ECM calculations:** ensures that any incremental gain is held for four years.
- **The regulator retains discretion to reset the base allowance in regulatory period 2.** The permanent reduction in expenditure of $20 is factored into the next period’s base allowance. In this example, there are no other adjustments to the base allowance in regulatory period 2.
Figure E.3 shows how the ECM is lagged one year to account for the fact that we do not know actual expenditure for the last year of a regulatory period when the ECM is implemented.

**Figure E.3   ECM is lagged one year so that it is based on actuals**

<table>
<thead>
<tr>
<th>Year</th>
<th>ECM1</th>
<th>ECM2</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>100</td>
<td>80</td>
</tr>
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<td>6</td>
<td>100</td>
<td>80</td>
</tr>
<tr>
<td>7</td>
<td>100</td>
<td>80</td>
</tr>
<tr>
<td>8</td>
<td>100</td>
<td>80</td>
</tr>
</tbody>
</table>

Data source: IPART analysis.

In practice, there is a complicating factor. That is, we do not know year 4 actual expenditure when we implement the ECM during the price review (which occurs during year 4). The solution to this problem involves **looking back at four years of actual data**.

- When we implement ECM1 in year 4, we look at the four previous years of actual data (ie, years 0, 1, 2, and 3). This is implicit in CEPA’s model. Our presentation of the ECM makes this explicit.
- Figure E.3 shows what happens when a permanent efficiency saving is made in year 3, the benefit is assumed to be held in both years 3 and 4. The ECM ensures that the benefit is carried forward a further two years (years 5 and 6).
- Any further saving made in year 4 will be captured by ECM2. That is, ECM2 will calculate the under (over) spend in year 4 as the lesser of:
  - The base allowance in year 4 minus actual spend in year 4, or
  - The actual spend in year 3 minus the actual spend in year 4.

Figure E.4 shows how the ECM has an adjustment factor to ensure permanent savings made in the last year of the previous determination are only held for four (not five) years.
In this example, a permanent efficiency saving of $20 is made in year 0. Without an adjustment factor, the business would be able to retain this saving for five years.

If this is not corrected, the business may have an incentive to delay savings until the last year of a determination in order to retain a benefit for five years and maximise returns.\(^\text{613}\)

Retaining the saving for five years would be inconsistent with the purpose of the ECM of equalising incentives over time. We have therefore decided to include an adjustment term to ensure efficiency savings are retained for four years.

ECM1 has an adjustment term (‘year 4 adjustment’) which, in this case, offsets the fifth year of benefit (received in year 4) with a corresponding negative adjustment to the allowance in the first year of the next regulatory period (ie, year 5). We have adjusted the formula used by CEPA to be clear that the adjustment factor only applies when a permanent efficient saving made in year 0. This is consistent with the intent of CEPA’s adjustment factor.

Note that we are inflating this adjustment term by the WACC\(^\text{614}\) in order to ensure incentives are fully equalised (assuming the WACC represents whatever benefit the business receives from the additional 5th year cash flow in year 4). This is an extension to CEPA’s model. CEPA recognised and discussed the effect

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\(^{613}\) This incentive already exists under the current form of regulation and is precisely the incentive the ECM is designed to remove.

\(^{614}\) If cash flows are assumed to occur at the end of each year, this should be the nominal WACC calculated for regulatory period 2.
of the time value of money, but, for simplicity, did not include time value of money adjustments in its recommended model.

The adjustment term recognises when a permanent efficiency saving is made in year 0. Because the business receives this benefit for five years (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 this amount to customers in year 5.

Given permanent savings made in year 4 are not immediately observed by the regulator and consequently could be held for five years, we include an adjustment to the carryover calculation that claws back 1-year worth of benefit for savings made in year 4 of the previous determination period.

### E.4 Initial application of efficiency carryover mechanism

In response to our Draft Report, Sydney Water argued that the ECM should apply prospectively from 1 July 2016 and should therefore exclude 2015-16 expenditure when it is applied at the next review.

We agree with Sydney Water that incentive mechanisms should apply prospectively not retrospectively. That is, there is little point applying an incentive mechanism to something that has already happened. We also note that Sydney Water made efficiency savings during the last regulatory period which we have factored into the allowance going forward. If we include 2015-16 expenditure in the initial application of the ECM, we risk double counting efficiency savings made before 2015-16.

Therefore, we have decided to limit the initial application of the ECM in 2019-20 to three years from 2016-17 to 2018-19. The implication is that there will be no need for an adjustment factor for the initial application of the ECM because any under spend that occurs in 2015-16 will not be included in the mechanism. All subsequent applications of the ECM would apply to the four years immediately preceding that application. For example, the second application of the ECM would occur in 2023-24 and would apply to the four years from 2019-20 to 2022-23. This is shown in Figure E.5 below.
E. Efficiency carryover mechanisms

Figure E.5 Initial application of ECM

<table>
<thead>
<tr>
<th>Real WACC 5%</th>
<th>Regulatory Period 2016</th>
<th>Regulatory Period 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>ECM 1</td>
<td>ECM 2</td>
</tr>
<tr>
<td>2015-16</td>
<td>2016-17</td>
<td>2017-18</td>
</tr>
<tr>
<td>Base allowance</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Actual</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Under (over)</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Outperformance</td>
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<td>20</td>
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<td>Permanent gain</td>
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<tr>
<td>- 2018-19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECM benefit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total allowance</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Total gain (loss)</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

Data source: IPART analysis.

E.5 Measuring outperformance in year four

Although this does not affect ECM1 which does not apply to 2015-16, we consider it important to be clear about how outperformance would be measured in year four of the next regulatory period (i.e., 2019-20) which would be the first year included in ECM2.

Generally, outperformance in a year is measured relative to the base allowance in that year. However, if a permanent efficiency saving is identified and included in ECM1, we have to take this into account to ensure the same saving isn’t also included in ECM2.

Therefore, outperformance in 2019-20 would be measured against the base allowance less any permanent efficiency identified and included in ECM1.
E.6 Reasons for not applying the efficiency carryover mechanism to capex

A potential side-effect of introducing a rolling incentive mechanism is that it can change the relationship between operating and capital expenditure. On the face of it, there is an argument to introduce ECMs for both operating and capital expenditure on the grounds that this will balance incentives and trade-offs between operating and capital expenditure. However, we have decided to limit the ECM to apply only to operating expenditure at this time for the following reasons:

- The rationale behind rolling incentive mechanisms like the EBSS and ECM is that businesses have an incentive to delay cost savings because, once revealed, this information will be used to reduce the allowance in the next period. It is clear how this rationale applies to operating expenditure, which is relatively stable over time. It is less clear how this rationale applies to capital expenditure, which can vary over time as capex plans are delayed or accelerated. A reduction in capex could be a deferral or an efficiency saving, it is difficult to know.

- Applying the ECM to a small portion of capital expenditure is problematic because it could result in inefficient cost shifting for the purpose of generating benefits through the mechanism.

- We consider that introducing an ECM for capital expenditure would strengthen the incentive to over forecast and inefficiently defer capital expenditure. Due to asymmetric information, it is difficult to distinguish between efficiency savings and deferrals. Due to the lag between capital expenditure deferral and the resulting deterioration in service standards, it can be difficult to distinguish between efficient and inefficient deferrals.

- The relationship between operating and capital expenditure is influenced by a range of factors. The premise that operating and capital expenditure incentives will be balanced by applying the same mechanisms to both may not hold in practice and there may be better approaches available to achieve this outcome. For example, balancing incentives for operating and capital expenditure solutions was a major reason in Ofwat’s decision to move away from separate operating and capital expenditure allowances (and rolling incentive mechanisms) and to adopt a total expenditure approach.

---

615 Including the extent of substitutability between opex and capex, the actual cost of capital relative to the allowed WACC, governance frameworks, and management incentives.

The potential risk of introducing an operating expenditure ECM and not a capital expenditure ECM is that businesses could have an incentive to increase capital expenditure in order to reduce operating expenditure late in the determination period. We consider this risk is limited by ex-post capital expenditure reviews that assess whether increases in capex are prudent and efficient.

E.7 Examples of how the efficiency carryover mechanism would apply under various scenarios
Example 1 of 6: When a permanent saving is made in year 1 (2016-17)

- The saving is made in year 1 of the regulatory period. There is no additional carryover benefit under the ECM. The business retains the saving for four years.

<table>
<thead>
<tr>
<th>ROW</th>
<th>Year</th>
<th>Input Values</th>
<th>Regulatory Period</th>
<th>Efficiency Carryover Mechanism</th>
<th>Source: IPART analysis.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>WACC: 5%</td>
<td>RP2012</td>
<td>ECM1</td>
<td>IPART analysis.</td>
</tr>
<tr>
<td>1</td>
<td>Base allowance</td>
<td>RP2016: 100</td>
<td>2012-13</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Actual expenditure</td>
<td>RP2016: 90</td>
<td>2013-14</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Gain (loss)</td>
<td>ECM1: 10</td>
<td>2014-15</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Out performance</td>
<td>ECM2: 10</td>
<td>2015-16</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Permanent gain</td>
<td>ECM2: 10</td>
<td>2016-17</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Incremental gain</td>
<td>ECM2: 10</td>
<td>2017-18</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>ECM calculations</td>
<td>ECM2: 10</td>
<td>2018-19</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>ECM2 benefit</td>
<td>ECM2: 10</td>
<td>2019-20</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>- 2016-17</td>
<td>ECM2: 10</td>
<td>2020-21</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>- 2017-18</td>
<td>ECM2: 10</td>
<td>2021-22</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>- 2018-19</td>
<td>ECM2: 10</td>
<td>2022-23</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>- 2019-20 adjustment</td>
<td>ECM2: 10</td>
<td>2023-24 adjustment</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Total allowance</td>
<td>ECM2: 10</td>
<td>2024-25</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Total gain / loss</td>
<td>ECM2: 10</td>
<td>2025-26</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>ECM2: 10</td>
<td>2026-27</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>ECM2: 10</td>
<td>2027-28</td>
<td>-10</td>
<td></td>
</tr>
</tbody>
</table>
Example 2 of 6: When a saving is made in year 2 (2017-18)

- The saving is made in year 2 of the regulatory period. The ECM carries the benefit forward one year into the next regulatory period (ie, the benefit is carried forward to 2020-21). The business retains the saving for four years.

Source: IPART analysis.
Example 3 of 6: When a saving is made in year 3 (2018-19)

- The saving is made in year 3 of the regulatory period. The ECM carries the benefit over two years into the next regulatory period. The business keeps the saving for four years.

Source: IPART analysis.
Example 4 of 6: When a saving is made in year 4 (2019-20)

- The saving is made in year 4 of the regulatory period. The business keeps this saving for five years. However, ECM3 returns the fifth year of saving (after adjusting this amount by the WACC) to customers in year 1 of the next determination period (ie, 2024-25).

Source: IPART analysis.
Example 5 of 6: When there are temporary over and under spends

- Temporary over and under spends are retained by the business. The ECM treats temporary over and under spends symmetrically.

<table>
<thead>
<tr>
<th>ROW</th>
<th>Year</th>
<th>WACC</th>
<th>Base allowance RP2012</th>
<th>Base allowance RP2016</th>
<th>Base allowance RP2020</th>
<th>Base allowance RP2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>5%</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Gain (loss)</td>
<td>10</td>
<td>10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Out performance</td>
<td>10</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Permanent gain</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Incremental gain</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>ECM calculations</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>ECM1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>ECM2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>ECM1 benefit</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>ECM2 benefit</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: IPART analysis.
Example 6 of 6: The ECM should not apply to temporary under spends in year 3

- If a temporary under spend in year 3 is mistaken as a permanent saving under the ECM, this could result in a loss for the business. This is not an intended outcome of the ECM. If there is doubt whether the saving is permanent, we consider the business is unlikely to apply for a carryover under the ECM. We will continue to assess historical expenditure when resetting of the allowance.

Source: IPART analysis.
F Formulae for bulk water pass-throughs

F.1 Formula for service charge pass-through of SDP costs

We have decided to maintain the cost pass-through mechanism included in the 2012 Determination. The service charge pass-through mechanism will capture differences in SDP’s service charges (fixed costs) and any forecast error in our estimate of the water usage charge adjustment.

The SDP formula for the 2016 determination period is:

\[
\Delta \text{Water service charge}_{t}^{\text{SDP}} = \frac{\alpha_{t-1} - \epsilon_{t-1}}{\rho_{t}} \mu_{t-1} (\gamma_{t-1} \times \alpha_{t-1}) \times \frac{\pi^2}{400} \times \mu_{t} \times (1+\theta_{t})
\]

Table F.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>$1 + \Delta CPI_{1}$</td>
<td>$1 + \Delta CPI_{2}$</td>
<td>$1 + \Delta CPI_{3}$</td>
</tr>
<tr>
<td>$\rho_{t}$</td>
<td>n/a</td>
<td>2,025,7847</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 $\alpha$. Avoided filtration costs, $\gamma$, are provided by Sydney Water. Customer Numbers, $\rho$, are calculated by IPART based on Sydney Water’s pricing proposal and our analysis.


Where:

- $t$ = the current financial year
- $\alpha_{t}$ = total regulated payments from Sydney Water to SDP in year $t$, payments will be made in $\$year t$ (ie, nominal)
- $\epsilon_{t}$ = total revenue recovered from the usage charge uplift in year $t$, revenue will be recovered in $\$year t$ (ie, nominal)
Formulae for bulk water pass-throughs

\( \sigma_t \) = total quantity of water (in ML) Sydney Water purchased from SDP in year \( t \)

\( \pi \) = 20 for residential customers, properties within mixed-multi premises., boarding houses with 10 rooms or fewer and unmetered properties, and the size of all other customer’s 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)

\( \gamma_t \) = avoided water filtration costs per ML from SDP water production in year \( t \), these costs are in $2016-17 (in the determination)

\( \theta_t \) = 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 \( t \)

\( \Delta CPI_1 = \frac{CPI_{March2017}}{CPI_{March2016}} - 1 \) as defined in the determination

\( \Delta CPI_2 = \frac{CPI_{March2018}}{CPI_{March2016}} - 1 \) as defined in the determination

\( \Delta CPI_3 = \frac{CPI_{March2019}}{CPI_{March2016}} - 1 \) as defined in the determination

\( \rho_t \) = the number of 20mm equivalent customers in year \( t \)

We note that in any financial year, a 1 July price change will pass through the following for the previous financial year:

- approximately 10 months of SDP’s actual costs, and
- Sydney Water’s forecast of SDP’s costs for approximately two months of the relevant period.

It is necessary to rely on Sydney Water’s forecasts of SDP’s costs. At the time that IPART finalises prices for a financial year, it does not have information on SDP’s actual costs for approximately two months of the previous financial year. This is because IPART finalises Sydney Water’s prices for a financial year in June of the previous financial year (eg, IPART finalises Sydney Water’s prices for 2017-18 in June 2017). Sydney Water is therefore required to provide IPART with information necessary to calculate and finalise prices by about May 2017.

We expect Sydney Water to provide reasonable forecasts of costs and other parameters, where required, based on its actual costs for the relevant periods.
The current cost pass-through mechanism also applies only within the 2012 determination period. That is, our current determination only allows Sydney Water to adjust water service charges up to 30 June 2016 (ie, adjust 2015-16 prices) to reflect actual charges paid to SDP at a year lag (ie, covering actual costs incurred in 2014-15).

For the 2016 determination period, we have also applied the cost pass-through mechanism in the first year of the determination period and passed through into 2016-17 prices the actual SDP costs incurred by Sydney Water in 2015-16 (ie, costs above those included in 2015-16 prices).

### F.2 Formula for service charge pass-through of Shoalhaven transfer costs

We are introducing a service charge cost pass-through mechanism 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 2010 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%. 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 at a year’s lag via the water service charge.

We note that, similar to the service charge pass-through of SDP costs, a 1 July price change would pass through about 10 months of actual Shoalhaven transfer costs at a year lag, and two months of forecasts. We expect Sydney Water to provide reasonable forecasts of costs and other parameters, where required, based on its actual costs for the relevant periods.

The formula is:

\[
\Delta \text{Water service charget}_{t}^{\text{Shoalhaven}} = \frac{\omega_{t-1}}{\rho_{t}} \times \frac{n^2}{400} \times \frac{H_t}{P_{t-1}} \times (1+\theta_t)
\]

---

617 Volume risk refers to the amount of water potentially pumped from the Shoalhaven system given the operating rules set out in the 2010 Metropolitan Water Plan. Price risk refers to the electricity price estimates over the 2012 Determination.

618 Under the 2010 Metropolitan Water Plan, pumping from the Shoalhaven River commences when dam levels fall to 75% and continue until they rise above 80%. 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. NSW Government, *2010 Metropolitan Water Plan*, August 2010, p 24.

619 We decided not to pass Shoalhaven transfer costs through to Sydney Water’s water usage charge, as the uplift would be negligible at times and difficult for customer’s to understand – unlike SDP which is a well understood drought response measure.
Table F.2  Variables in Shoalhaven transfer service charge pass-through formula

<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>θt</td>
<td>n/a</td>
<td>0.059</td>
<td>0.059</td>
<td>0.059</td>
</tr>
<tr>
<td>μt</td>
<td>1</td>
<td>1+ΔCPI1</td>
<td>1+ΔCPI2</td>
<td>1+ΔCPI3</td>
</tr>
<tr>
<td>ρt</td>
<td>n/a</td>
<td>2,025,784</td>
<td>2,051,057</td>
<td>2,076,809</td>
</tr>
</tbody>
</table>

**Note:** Customer Numbers, ρt, are calculated by IPART based on Sydney Water’s pricing proposal and our analysis.

Where:

- t = the current financial year
- ωt = total WaterNSW Shoalhaven Transfer costs from the pass-through mechanism, as defined by the WaterNSW determination, (see Chapter 8 of our Final Report for WaterNSW), in year t
- π = 20 for residential customers, properties within mixed-multi premises, boarding houses with 10 rooms or fewer and unmetered properties, and the size of all other customer’s water meter (in mm)
- θt = Sydney Water’s real pre-tax weighted average cost of capital in year t
- μt = the change in the CPI to be applied to the determination in year t
- ΔCPI1 = \( \frac{\text{CPI}_{\text{March}2017}}{\text{CPI}_{\text{March}2016}} - 1 \) as defined in the determination
- ΔCPI2 = \( \frac{\text{CPI}_{\text{March}2018}}{\text{CPI}_{\text{March}2016}} - 1 \) as defined in the determination
- ΔCPI3 = \( \frac{\text{CPI}_{\text{March}2019}}{\text{CPI}_{\text{March}2016}} - 1 \) as defined in the determination
- ρt = the number of 20mm equivalent customers in year t
G 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.

While meeting output measure targets is important, conclusions about an agency’s performance should not be drawn wholly on the basis of whether or not it has met or even exceeded these targets. There may be reasonable explanations why it does not meet targets. In fact, as circumstances evolve over a determination period, changing a target may result in a better outcome for stakeholders.

However, ongoing inability to meet output measure targets may also indicate that the required levels of service, to which we have linked our prices, are not being met and there is a deficiency in the planning and delivery of capital projects.

G.1 Output measures - 2012 determination period

Sydney Water has reported on the output measures that were set in the 2008 Determination to track the delivery of its capital program from 2008 to 2012. Sydney Water reports that 47% of the target measures have been or will be met, 11% have been exceeded and 42% of the targets were not met.620

Our consultant, Atkins Cardno, notes that there may be reasonable explanations for each of these responses to the target measure.621 Further, Atkins Cardno states that several of the measures show reduced asset renewal activity as result of the application of new risk-based methodologies.622 This is particularly the case when original planning decisions were based on asset lives and these have been extended, resulting in a reduction in required asset renewals over the 2008-2012 timeframe.623

Details of each measure and Sydney Water’s performance is provided in Table G.1 below.

---

### Table G.1  Activity against output measures 2008-2012

<table>
<thead>
<tr>
<th>Output or activity measure</th>
<th>Description of indicator of activity</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Renewal of critical water mains</td>
<td>51km</td>
<td>45km (6km decommissioned)</td>
</tr>
<tr>
<td>2. Renewal/reliability of distribution mains</td>
<td>287km</td>
<td>198 km (5km decommissioned)</td>
</tr>
<tr>
<td>3. Reservoir reliability program</td>
<td>13 reservoirs re-roofed 24 reservoirs re-lined</td>
<td>Marginally less than 13 re-roofed 7 re-lined</td>
</tr>
<tr>
<td>4. Water Pumping Station Renewals</td>
<td>24 pumping stations renewed</td>
<td>19 pumping stations renewed</td>
</tr>
<tr>
<td>5. System reliability</td>
<td>At least 3 projects in construction phase</td>
<td>All projects deferred beyond 2016</td>
</tr>
<tr>
<td>6. Renewal of customer water meters</td>
<td>384,400 meters</td>
<td>309,000c</td>
</tr>
<tr>
<td><strong>Wastewater services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Avoid fail sewers</td>
<td>64 km</td>
<td>54 kmd</td>
</tr>
<tr>
<td>8. Dry weather flows</td>
<td>137 km</td>
<td>112 km</td>
</tr>
<tr>
<td>9. Wastewater treatment plant renewals</td>
<td>11 HV renewals</td>
<td>3 HV renewals deferredf Cronulla and Malabar completed by 2016 North Head substantially completed and finalised by 2017</td>
</tr>
<tr>
<td>10. Wet weather overflow abatement</td>
<td>Northern Beaches, Illawarra and Southern catchments completed</td>
<td>3 schemes at Northern Beaches, Illawarra and Southern catchments completed</td>
</tr>
<tr>
<td><strong>Stormwater services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Stormwater renewals</td>
<td>3.5 km including Birds Gully (777 metres)</td>
<td>3.6 km</td>
</tr>
<tr>
<td>12. Stormwater condition assessment</td>
<td>91.76 km</td>
<td>174 km</td>
</tr>
</tbody>
</table>

---

**Source:** Atkins Cardno, *Sydney Water Corporation - Expenditure Review*, December 2015, pp 55-56.

---

**Notes:**
- There has been a deferral of planned relining through an improved risk based approach and better understanding of both condition assessments results and failure modes. Atkins Cardno, *Sydney Water Corporation - Expenditure Review*, December 2015, p 55.
- Some pumping stations planned for renewal have been decommissioned. Atkins Cardno, *Sydney Water Corporation - Expenditure Review*, December 2015, p 55.
- This is due to the revision to a revised approach to calculating asset life. Atkins Cardno, *Sydney Water Corporation - Expenditure Review*, December 2015, p 55.
- The variance was due to a risk based approach to renewals, access constraints and use of magnesium hydroxide coating to defer renewals. Atkins Cardno, *Sydney Water Corporation - Expenditure Review*, December 2015, p 56.
- This is as a result of condition assessments and some planning issues. Atkins Cardno, *Sydney Water Corporation - Expenditure Review*, December 2015, pp 55-56.
G.2 Output measures – 2016 determination period

Sydney Water proposed an additional 31 output measures to be applied in the future price path. Our consultant, Atkins Cardno, reduced these to 11, which are outlined in Table G.2, to focus on key asset renewal activity and to bring these in line with the outputs from previous determinations.

Table G.2 Output Measures over 2016 determination period

<table>
<thead>
<tr>
<th>Output (or activity) Measure</th>
<th>Description of indicator of activity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water services</strong></td>
<td></td>
</tr>
<tr>
<td>Critical water mains renewal</td>
<td>47 km</td>
</tr>
<tr>
<td>Large valve renewals</td>
<td>120</td>
</tr>
<tr>
<td>Reticulation water mains</td>
<td>180 km</td>
</tr>
<tr>
<td>Reservoir reliability program</td>
<td>33 reservoirs renewed</td>
</tr>
<tr>
<td>System reliability</td>
<td>15 pumping stations renewed</td>
</tr>
<tr>
<td></td>
<td>16 HV upgrades</td>
</tr>
<tr>
<td>Renewal of customer water meters</td>
<td>471,500 meters</td>
</tr>
<tr>
<td><strong>Wastewater services</strong></td>
<td></td>
</tr>
<tr>
<td>Large wastewater mains</td>
<td>34 km</td>
</tr>
<tr>
<td></td>
<td>80 deep maintenance hole and vent stacks</td>
</tr>
<tr>
<td></td>
<td>4 km pressure mains</td>
</tr>
<tr>
<td>Dry weather flows</td>
<td>112 km</td>
</tr>
<tr>
<td>Wastewater treatment plant renewals</td>
<td>163 wastewater treatment</td>
</tr>
<tr>
<td></td>
<td>41 chemical system renewals</td>
</tr>
<tr>
<td></td>
<td>11 odour control</td>
</tr>
<tr>
<td></td>
<td>82 solids treatment</td>
</tr>
<tr>
<td>Wastewater pumping stations</td>
<td>19 major renewals</td>
</tr>
<tr>
<td></td>
<td>37 pump renewals</td>
</tr>
<tr>
<td><strong>Stormwater services</strong></td>
<td></td>
</tr>
<tr>
<td>Stormwater assets</td>
<td>7 km conduit renewal</td>
</tr>
<tr>
<td></td>
<td>3 km open channel renewal</td>
</tr>
<tr>
<td></td>
<td>160 km condition assessment</td>
</tr>
</tbody>
</table>


---

624 Atkins Cardno, Sydney Water Corporation - Expenditure Review, December 2015, p 56.
The purpose of this appendix is to outline our policy or framework for asset disposals.

The primary issues we considered in relation to asset disposals are:

- how and when to remove an asset from the RAB, given that it is no longer used to provide regulated services to customers, and
- whether the business should be provided an allowance in the revenue requirement to pay any capital gains tax resulting from the sale of an asset subject to capital gains tax.

From first principles, we consider the asset’s identifiable regulatory value should be removed from the RAB. This is the value of the asset as it entered the RAB (if known), adjusted for the effect of depreciation and indexation. We also consider that the business should pay any tax obligations from the regulatory profit it retains.

This approach means the business bears the risk of any profits or losses arising from the sale of an asset, and customers are not affected. We consider this appropriate because although the asset was purchased by the business to provide regulated services to customers, the benefit customers received came from consuming the service, not owning the asset. Therefore, the impact of any profit or loss should lie entirely with the business (or shareholder).

However, data on the value of individual assets in the RAB and their original cost may be limited. This means that, in many cases, when an asset is sold we will be required to estimate its regulatory value.

We use different methods for estimating the regulatory value of assets when the original cost is unknown, depending on when the asset being disposed entered the RAB (ie, whether it is a pre or post line-in-the-sand\textsuperscript{625} asset). We also distinguish between significant and non-significant assets.

\textsuperscript{625} The year of Sydney Water’s regulatory line-in-the-sand is 2000.
H.1 Significant asset write-offs

**Definition:** Assets that are not sold and where the book value of the disposed asset or class of assets accounts for more than 0.5% of the opening value of the RAB in the year in which the asset is disposed.

**Treatment:** These disposals will be dealt with separately, as and when the need arises.

H.2 Significant asset sales

**Definition:** (a) Assets that incur capital gains tax (ie, this includes all land sales), or (b) those where the receipts from sale from the asset or class of assets accounts for more than 0.5% of the opening value of the RAB in the year in which the asset is sold.

**Treatment pre line-in-the-sand:** Where the regulatory value of the asset as it entered the RAB is unknown, we will estimate its regulatory value based on:

- the ratio of the RAB to the depreciated replacement cost (DRC) at the time the RAB was established multiplied by
- the sale value of the asset.

We consider the RAB to DRC ratio is a good proxy for an asset’s regulatory value because it represents the average value at which all assets were entered into the RAB at the line-in-the-sand (the DRC reflected each business’s actual cost of the individual assets).

The RAB to DRC ratio is also used to determine the regulatory profit from which the business would pay any tax obligation. Our treatment of pre-line-in-the-sand assets will allow the businesses to retain a significant proportion of the proceeds from the sale of their assets, removing potential disincentives to sell assets surplus to requirements. It will also mean that customers will not continue to provide the business with a return on or of assets that have been sold, which will be reflected in lower prices.

Given the difficulty of unravelling what assets were operational (and therefore included in the RAB) and what were non-operational at the time the line-in-the-sand was drawn (and the initial RABs established), we consider that we should apply the RAB to DRC ratio to sales values of all pre line-in-the-sand assets.

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626 The regulatory profit would be calculated as ‘sale value of asset x (1-RAB/DRC)’.
We first set Sydney Water’s RAB in 2000, the “line-in-the-sand”. To set the RAB at the 2000 line-in-the-sand, we calculated the economic value of Sydney Water’s assets. This was based on the operating profit that Sydney Water was expected to achieve, and our estimate of the appropriate rate of return (the WACC). In subsequent price determinations, we have rolled this RAB forward by adding all prudent and efficient capital expenditure, indexing for inflation, and deducting depreciation and asset disposals.

As the RAB at this point estimated the value of the business as a whole, it is not possible to identify which specific assets contributed to that RAB and in what proportion. However, if a business can make a convincing case that an asset was clearly non-operational at the line-in-the-sand, then, on an exception basis, we would not adjust the RAB for that asset sale.

Table H.1 sets out the RAB to DRC ratio for each metropolitan water business. These are the ratios that would be used to determine the regulatory value of assets acquired prior to the line-in-the-sand to be removed from the RAB.

Table H.1 RAB to DRC ratio for each metropolitan water business as at line-in-the-sand (2000)

<table>
<thead>
<tr>
<th>Business</th>
<th>RAB at line-in-the-sand ($billion)</th>
<th>DRC value at line-in-the-sand ($billion)</th>
<th>RAB to DRC ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney Water</td>
<td>5.3</td>
<td>12.5</td>
<td>0.42</td>
</tr>
<tr>
<td>Hunter Water</td>
<td>0.8</td>
<td>1.9</td>
<td>0.42</td>
</tr>
<tr>
<td>Gosford Council</td>
<td>0.2</td>
<td>0.5</td>
<td>0.42</td>
</tr>
<tr>
<td>Wyong Council</td>
<td>0.2</td>
<td>0.4</td>
<td>0.43</td>
</tr>
<tr>
<td>WaterNSW (formerly SCA)</td>
<td>0.6</td>
<td>1.7</td>
<td>0.39</td>
</tr>
</tbody>
</table>

Note: The RAB to DRC ratio has been calculated using unrounded numbers. In 2000, the book value was the DRC for each of the businesses, except for WaterNSW where we have used an estimated DRC. This is because the 2000 book value for SCA was based on an optimised deprival value rather than a DRC.


628 It did not represent the accounting value of its physical assets. As the calculation used revenue from prices at the time, this ensured that there would be no price shocks to customers resulting from a return on capital calculation using a RAB based on physical asset values multiplied by WACC. See IPART, Sydney Water Corporation - Prices of water supply, sewerage and drainage services - Medium-term price path from 1 October 2000 – Determination and Final Report, September 2000, pp 20-22.
Treatment post line-in-the-sand: If an asset was acquired after the line-in-the-sand was drawn, then in principle it should be possible to estimate the value of the asset in the RAB (taking into account the effects of depreciation and indexation).

In practice, the available information will differ depending on the type of asset sold and when it was purchased. For example, the purchase cost of a parcel of land may be readily available. On the other hand, the cost of purchasing an old building, converting it to the required standard and maintaining it, may not be available.

We treat these disposals on a case-by-case basis, adopting the underlying principle that we will use our best estimate of the regulatory value of the asset. Some of the options that may be available to us include:

- tracking actual capex (actual purchase costs and improvements), where possible and practical to do so, and calculating the appropriate depreciation and indexation
- using an indexed tax value, or
- using an indexed book value, which may be appropriate for example for plant and equipment, where the book value is generally the depreciated historical cost.

H.3 Non-significant asset disposals (sales and write-offs)

Definition: Assets that do not incur capital gains tax (ie, this excludes all land assets) and where the book value of the disposed asset or class of assets accounts for 0.5% or less of the opening value of the RAB in the year in which the asset is disposed.

Treatment: Businesses regularly dispose of assets that have not reached the end of their book lives, for example computer equipment, vehicles or water meters. Some of these assets have market value and are sold, while others are simply written off and discarded. These ‘normal’ disposals are usually very small and have very little impact on the RAB.

We will treat these disposals differently, depending on whether they are sales or write-offs.

For asset sales, we will remove the receipt from sales from the RAB. We consider that this approach is simple to administer, particularly for disposals that represent a relatively small proportion of the utility’s RAB (ie, less than 0.5%).
For **asset write-offs**, we will not deduct any value from the RAB, except as deemed necessary on a case-by-case basis. This reflects that our decisions on efficient and prudent capital expenditure will take into account the expected asset lives of classes of assets. Where an expenditure review has been undertaken, further adjusting the RAB by using the accounting treatment of asset write-offs risks double counting RAB deductions.
Long-run marginal cost

The long-run marginal cost (LRMC) is the additional cost of a permanent additional unit of demand. The aim of setting usage charges at LRMC is to encourage an efficient allocation of resources, by signalling to customers the costs of their decisions to consume an extra unit of water. This is seen as ensuring an economically efficient outcome, whereby users consume water only to the point where the value placed on more water justifies the cost of its provision.

LRMC is typically dominated by required augmentations to bulk water supply. However, a LRMC model should also include the LRMC of all stages of the supply chain, including any capacity augmentations.

The ongoing Metropolitan Water Plan Review and Hawkesbury-Nepean Valley Flood Management Review may have a significant impact on annual system yield. As such, we have presented all estimates of LRMC based on a range of system yields from 610 GL (the current system yield) to 565 GL.

I.1 Estimates of LRMC for Sydney Water

Sydney Water and IPART have developed different estimates of the LRMC. Sydney Water has used the average incremental cost (AIC) method and we have used the AIC and perturbation approach. In the Table I.1, we have shown Sydney Water’s and IPART’s preliminary estimates of the LRMC of water in Sydney LRMC based on IPART’s discount rate of 4.9%.

Sydney Water’s estimate is $1.16 per kL\(^{629}\) (based on a discount rate of 5.3%) and IPART’s best estimate ranges from $1.11 per kL to $1.30 per kL (shown in Table I.1).

\(^{629}\) Sydney Water proposal to IPART, June 2015, p 235.
Table I.1  LRMC estimates with demand based on $2.00 per kL and IPART’s 4.9% discount rate ($/kL)

<table>
<thead>
<tr>
<th>System yield</th>
<th>Adapted from Sydney Water’s model</th>
<th>IPART</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SDP matches demand</td>
<td>SDP at full output</td>
</tr>
<tr>
<td>610 GL</td>
<td>1.18</td>
<td>1.62</td>
</tr>
<tr>
<td>595 GL</td>
<td>1.52</td>
<td>2.04</td>
</tr>
<tr>
<td>580 GL</td>
<td>1.90</td>
<td>2.34</td>
</tr>
<tr>
<td>565 GL</td>
<td>2.26</td>
<td>2.68</td>
</tr>
</tbody>
</table>

Note: Sydney Water’s estimates are based on its base case unless otherwise identified. Sydney Water’s proposal did not include an estimate using a 4.9% discount rate. The figures have been calculated by IPART using Sydney Water’s model.

Source: Sydney Water’s long-run marginal cost model and IPART’s long-run marginal cost model.

I.1.1  Key differences in Sydney Water’s and IPART’s LRMC estimates

Sydney Water and IPART have both, independently, updated and developed LRMC models for this price review. The main differences between Sydney Water’s model and IPART’s model are summarised in Table I.2 below.

Table I.2  Main differences between Sydney Water’s model and IPART’s model

<table>
<thead>
<tr>
<th>Assumption</th>
<th>Sydney Water</th>
<th>IPART</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>AIC</td>
<td>AIC and perturbation (5% positive shock)</td>
</tr>
<tr>
<td>System operation</td>
<td>540 GL from WaterNSW remainder from SDP (either to match demand or at full operation)</td>
<td>Simulated inflow data with Shoalhaven transfers operating on 75/80 rule and SDP operating on 70/80 rule</td>
</tr>
<tr>
<td>Components</td>
<td>Existing bulk water costs and bulk water augmentations</td>
<td>Existing bulk water, treatment, distribution and retail costs, bulk water augmentations, supplementary supplies and water restrictions (demand impacts not costs)</td>
</tr>
<tr>
<td>Augmentations</td>
<td>When demand exceeds system yield the desalination plant is expanded if demand exceed yield again a new desalination plant is built</td>
<td>When demand exceeds yield a Tunnel from Burrawang to Avon Dam is constructed, and if demand exceeds yield again there is a generic augmentation. When storages fall below 30% the desalination plant is expanded</td>
</tr>
<tr>
<td>Discount rate</td>
<td>5.3%</td>
<td>4.9%</td>
</tr>
<tr>
<td>Demand</td>
<td>Sydney Water’s demand forecast</td>
<td>Sydney Water’s demand forecast</td>
</tr>
<tr>
<td>Modelling period</td>
<td>50 years</td>
<td>20, 30, 40 or 50 years</td>
</tr>
</tbody>
</table>

Source: Sydney Water pricing proposal to IPART- Appendices, June 2015, pp 114-122.

For more information regarding Sydney Water’s LRMC model see Sydney Water’s proposal to IPART – Appendix 5, section 5.1.
I.2 IPART’s LRMC model

In this section, we outline our LRMC model, including the key assumptions that we have made.

I.2.1 Approach to calculating LRMC

There are two main methods to estimate the LRMC:

- **Average Incremental Cost approach (AIC).** This approach involves estimating the (average) per unit cost of meeting all growth in demand over the period. The present value of all operating and capital expenditure generated by demand growth over the forward period (including both the costs of utilising existing capacity and of new augmentations) is divided by the present values of the benefit (ie, the growth in water demand).

- **Perturbation approach (also known as the Turvey approach).** This approach involves estimating the change in costs over the period associated with a marginal change in demand. The difference between the costs associated with the revised capacity curve and the base capacity curve are divided by the difference between the shocked demand curve and the base demand curve to indicate the cost impact of the marginal increase in demand.

Sydney Water has used the AIC approach to estimate LRMC. We have estimated LRMC using both methods.

I.2.2 Long-run costs

LRMC estimates should include all costs incurred to service demand growth over a defined period. This includes the costs of:

- augmenting current capacity to meet future growth, and
- servicing growth demand within the existing capacity.

In Figure I.1, we show a simplified water utility where expenditure increases with growth demand, under an AIC approach. Initially, demand growth is met by current capacity, represented by area B.

However, when the system yield is exceeded by demand, an augmentation in supply is triggered. Demand growth above system yield is serviced by the capital expenditure program and further operating costs needed to augment the system, which is represented by the area A.

---


Demand growth under system yield continues to be serviced by current capacity, which is represented by area C.

The AIC model we used for Sydney Water in the 2012 review included only the expenditure relating to the next supply augmentation, and the demand growth it would service (ie, area A in Figure I.1). Our model did not include the incremental costs of servicing demand within the existing capacity (ie, areas B and C). By ignoring existing capacity, which typically costs less per unit of water supplied, our model systematically overestimated the LRMC.

We have updated our LRMC model to incorporate both existing capacity costs and augmentations. This ensures that all the expenditure to service demand growth is accounted for. This is particularly important in modern water supply systems, where this may mean “switching on” supply sources that are currently unused, such as Shoalhaven water transfers and the SDP.

Figure I.1 AIC approach taking into account all demand growth

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632 IPART, Review of prices for Sydney Water Corporation’s water, sewerage, stormwater drainage and other services – From 1 July 2012 to 30 June 2016 - Final Report, June 2012, p 216.
Types of long-run costs

Modern water planning, such as that performed by the Metropolitan Water Directorate in preparing the Metropolitan Water Plan, focuses as much on drought response as it does on the long-term supply and demand balance. Therefore, it is appropriate that a LRMC model includes all efficient long-run costs. Our LRMC model includes:

- **Augmentations** – the capacity costs of increasing the system yield in response to demand growth.

- **Drought response** – the costs of responding to a supply deficit.

- **Water restrictions** – the water restrictions imposed on customers in response to drought.

Our LRMC model does not include the costs of complying with other Government requirements, such as BASIX, or the externalities of water use, such as carbon costs.

I.2.3 Augmentations

Augmentations to system capacity costs are the costs of increasing the capacity of the system in response to demand exceeding the sustainable level (ie, area A in Figure I.1). The key modelling decisions to make include:

- the types of augmentation, and

- the timing of augmentations.

We have only included capacity costs of bulk water in our LRMC estimate; we are not currently in a position to make similar estimates for the other stages of the water supply chain.

Types of augmentation

Capital expenditure for bulk water supply augmentations will typically be the largest influence on any LRMC estimate. Ideally, we would align our estimate of LRMC with the next Metropolitan Water Plan, but our ability to do so will depend on the timing of its release.

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633 Our model considered uncertainty in water inflows to WaterNSW’s dams, however it does not model any uncertainty in other inputs, such as costs. The estimates could possibly be improved through modelling cost uncertainty.

634 While demand growth potentially encompasses augmentations to bulk water supply, water filtration, distribution and retail, our LRMC model only includes capacity constraints for bulk water supply. We currently have insufficient information to estimate capacity constraints on the other stages of the supply chain or the likely augmentations.

635 Our LRMC model includes the demand impacts of water restrictions to Sydney Water and its suppliers. We have not included the costs of complying with water restrictions for Sydney Water or its customers as we do not have access to robust estimates of these costs.
At present, our LRMC model includes the augmentations included in Table I.3 below.636

**Table I.3  Supply augmentations in IPART’s LRMC model**

<table>
<thead>
<tr>
<th>Augmentation</th>
<th>Trigger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burrawang to Avon Dam Tunnel(^a)</td>
<td>Demand exceeds yield</td>
</tr>
<tr>
<td>Generic augmentation (could be dam or desalination plant)</td>
<td>Demand exceeds yield after first augmentation</td>
</tr>
<tr>
<td>Second stage of the desalination plant(^b)</td>
<td>Storages fall below 30%</td>
</tr>
</tbody>
</table>

\(^a\) The 2010 Metropolitan Water Plan identified the Burrawang to Avon Dam Tunnel as the first supply augmentation, see NSW Government, 2010 Metropolitan Water Plan, August 2010, p 24.

\(^b\) WaterNSW’s yield estimates from 2012 includes the second stage of the desalination plant to operate when storages fall below 20\%, we have therefore estimated that construction would need to begin around 30\%, see Sydney Catchment Authority, Greater Sydney’s Sustainable Water Supply - Yield, 2012, run 18, p 15.

**Timing of augmentations**

The timing of capital and operating expenditure for future augmentations is critical to estimating the LRMC. It is endogenously determined by our model when forecast demand exceeds the sustainable system yield. We are using our demand estimates.

The system yield for Greater Sydney has not been formally updated since 2012 (ie, currently at 610 GL). The system yield may be updated following the release of the next Metropolitan Water Plan and the Hawkesbury-Nepean flood review.

We have prepared LRMC estimates using a range of system yields.

**I.2.4  Drought response measures**

To include the costs of demand met by current capacity (ie, costs within areas B and C in Figure I.1), we should factor in drought response costs, which presents a number of modelling challenges, including:

- the number of drought response measures to include in the model (ie, the granularity of the model), and
- the need to simulate inflows into the system (ie, WaterNSW’s main dams) to estimate storage levels and triggers for the use of supplementary sources.

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636 Our model is not an optimisation model. The estimate could possibly be improved through the use of optimisation within the model.
Ideally, the inclusion of drought response costs should be guided by the Government’s water plans. The drought response measures costed in our LRMC model are based on the current 2010 Metropolitan Water Plan and include:

- operation of Shoalhaven Pumping on the 75%/80% rule
- operation of the SDP on the 70%/80% rule
- two stages of water restrictions - stage 1 restrictions at 50% and stage 2 restrictions at 40%, and
- the second stage of the desalination plant triggered at 20% dam levels (we have estimated that construction of the plant is triggered at 30% dam levels).

However, the update to the Metropolitan Water Plan may change the operating rules for Sydney’s water system. We do not have information that allows us to pre-empt the next Metropolitan Water Plan.

To trigger the drought measures based on the above operating rules, we simulate variable inflows to the system to estimate dam levels in each year. We do this by using a statistical distribution of annual inflows based on historical storage data from WaterNSW’s annual information return. We calculate the level of storage at the end of each of the next 50 years using synthetically generated inflows, based on the probability distribution. We repeat this calculation 5,000 times to estimate the LRMC.

We have used a log-normal distribution to simulate inflows into WaterNSW’s storages. We have decided to use a log-normal distribution because that type of distribution provides a reasonable match to historic WaterNSW/Sydney Catchment Authority data on storage and consumption from 2000 to 2014 from the annual information returns to IPART. The probability density function generated from that data suggests that the upper tail is much thicker than the lower tail of the distribution. This observation is consistent with the conclusion of an academic study of rainfall distributions that annual rainfall tends to be best approximated by either a lognormal or Pearson type 5 distribution, both of which are skewed to the right. This means that there is greater probability of large inflows (eg, flood years) than under a normal distribution.

---

For comparison, we have also modelled inflows based on four other distributions:

- an autoregressive model (AR1) where the previous year’s inflows influence current inflows, based on data from 1910 to 2007. This is similar to the approach used by WaterNSW in the WATHNET model\(^{640}\)

- historical inflows from 1910 to 2007

- a low flow version of the historical distribution, where inflows are 50% lower than actuals, and

- a high flow version of the historical distribution, where inflows are 50% higher than actuals.

Table I.4 shows our modelling under each of the distributions. The LRMC estimates based on the AR1 and historic inflows modelling are relatively close to the base lognormal LRMC estimates. We consider that this supports our finding that the lognormal distribution is a reasonable match to actual inflows.

### Table I.4  LRMC estimates from alternative approaches to inflow modelling ($/kL)

<table>
<thead>
<tr>
<th>Inflow modelling approach</th>
<th>610 GL</th>
<th>595 GL</th>
<th>580 GL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AIC</td>
<td>Perturbation</td>
<td>AIC</td>
</tr>
<tr>
<td>Lognormal</td>
<td>1.11</td>
<td>1.30</td>
<td>1.24</td>
</tr>
<tr>
<td>Autoregressive model</td>
<td>0.97</td>
<td>1.38</td>
<td>1.17</td>
</tr>
<tr>
<td>Historical inflows</td>
<td>0.92</td>
<td>1.35</td>
<td>1.11</td>
</tr>
<tr>
<td>Low inflow - historical</td>
<td>0.90</td>
<td>1.71</td>
<td>1.08</td>
</tr>
<tr>
<td>High inflow - historical</td>
<td>0.91</td>
<td>1.38</td>
<td>0.91</td>
</tr>
</tbody>
</table>

**Note:** We have omitted results for a system yield of 565 GL due to space restrictions.

**Source:** IPART’s long-run marginal cost model.

### I.2.5 Method of calculating LRMC

Our model estimates the LRMC using both the AIC approach and the perturbation approach.

By focusing on the cost impact of an increment (or decrement) in demand, the perturbation approach is relatively more consistent with the concept of marginality and thus more economically robust. The AIC approach is the average cost of supplying all demand growth. It is most useful with relatively small augmentations.

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The perturbation approach is a more complex model. It also tends to be sensitive to demand assumptions compared to AIC, both base demand and the shock imposed.

In past price reviews, we have set water usage charges with reference to estimates of the LRMC calculated on an AIC basis. The debate surrounding the most appropriate estimation of marginal costs is contentious. Both methodologies have their supporters (see Box I.1 for recent views on the two approaches by economic regulators and consultants).

We consider that there is merit in presenting a range of LRMC estimates using both approaches, and not ruling out either approach at this stage. We note that this philosophy was adopted recently by Sapere Research Group when estimating the LRMC for SA Water on behalf of ESCOSA.641

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**Box I.1 Current views on methodologies for estimating long-run marginal cost**

Economics consultants have reviewed the theoretical and practical issues involved in defining LRMC for pricing of water services in Australia and have reached different conclusions about the merits of using either the perturbation or AIC methodologies. In particular:

- Marsden Jacobs (2004) recommended the AIC approach as it easy to understand and is computationally straight forward; it is consistent with infrastructure planning; and produces stable results.
- Frontier Economics (2014) concluded that the perturbation methodology is the preferred in-principle approach, as it is generally seen as the most economically robust, most reflective of actual outcomes, and avoids allocation of costs to demand.
- NERA (2012) recommends that the approach used to estimate the LRMC depends on the nature of the capital expenditure profile. For example, the perturbation approach should be used when there is a `lumpy' capital expenditure profile and the AIC approach when there is a `smooth' profile.


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I.2.6 Discount rates

LRMC is used to signal to water consumers the future cost of their consumption. Future consumption levels, in turn, create an incentive and a need for water businesses to invest in additional capacity. Therefore, it is reasonable that the discount rate should be the business’s cost of capital.

Our decision is to use IPART’s midpoint WACC estimate of 4.9% to model the business’s cost of capital.

I.2.7 Time period for the model

Precisely defining the long run in years is difficult. Generally, the longer the timeframe used for modelling, the less accurate the demand forecasts. The shorter the timeframe, the more volatile the estimate. For the perturbation estimate, it is important that large capital expenditures are included in both the base case and the shocked demand case, otherwise LRMC may be overestimated.

Sydney Water’s model extends over a 50-year period, while ESCOSA’s estimate of the LRMC for SA Water was calculated over a 35-year period.642 Our previous LRMC estimate for Sydney Water used a period of 53 years.643

We consider that we should use a 40-year estimate, because in our base case the major supply augmentations are completed by year 40 of the model. This avoids an overestimation of LRMC under the perturbation approach as augmentations appear in both the shocked and base case demand. It also balances the long-run nature of costs with the uncertainty of demand forecasts.644 We show the sensitivity of our LRMC estimate to changes in the length of the period below in Table I.5.

643 IPART, Review of prices for Sydney Water Corporation’s water, sewerage, stormwater drainage and other services – From 1 July 2012 to 30 June 2016 - Final Report, June 2012, p 222.
644 Alternatively, we could represent capital costs in our model on an annualised or annuity basis.
### Table I.5  Impact of time period on LRMC estimates ($/kL)

<table>
<thead>
<tr>
<th>System yield</th>
<th>20 years</th>
<th>30 years</th>
<th>40 years</th>
<th>50 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AIC method</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>610 GL</td>
<td>0.79</td>
<td>1.08</td>
<td>1.11</td>
<td>1.02</td>
</tr>
<tr>
<td>595 GL</td>
<td>1.33</td>
<td>1.42</td>
<td>1.24</td>
<td>1.13</td>
</tr>
<tr>
<td>580 GL</td>
<td>2.29</td>
<td>1.71</td>
<td>1.45</td>
<td>1.32</td>
</tr>
<tr>
<td>565 GL</td>
<td>2.65</td>
<td>1.92</td>
<td>1.62</td>
<td>1.46</td>
</tr>
<tr>
<td><strong>Perturbation method</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>610 GL</td>
<td>2.99</td>
<td>1.80</td>
<td>1.30</td>
<td>1.25</td>
</tr>
<tr>
<td>595 GL</td>
<td>2.85</td>
<td>1.56</td>
<td>1.41</td>
<td>1.36</td>
</tr>
<tr>
<td>580 GL</td>
<td>1.68</td>
<td>1.39</td>
<td>1.30</td>
<td>1.26</td>
</tr>
<tr>
<td>565 GL</td>
<td>1.53</td>
<td>1.34</td>
<td>1.26</td>
<td>1.76</td>
</tr>
</tbody>
</table>

### I.2.8 Size of the perturbation shock

In perturbation models the estimates are sensitive to the size of the shock to demand. In general, we consider that we should use the smallest shock that gives a reliable estimate. We found that a 5% estimate is a relatively small shock, but large enough to create a stable estimate. We have also presented a perturbation estimate using a 2.5% and 10% shock.

Table I.6 below estimates the LRMC for Sydney Water with different sized shocks on demand.

### Table I.6  LRMC estimates under different perturbation shocks ($/kL)

<table>
<thead>
<tr>
<th>System yield</th>
<th>2.5%</th>
<th>5%</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>610 GL</td>
<td>1.17</td>
<td>1.30</td>
<td>1.30</td>
</tr>
<tr>
<td>595 GL</td>
<td>1.48</td>
<td>1.41</td>
<td>1.31</td>
</tr>
<tr>
<td>580 GL</td>
<td>1.33</td>
<td>1.30</td>
<td>1.16</td>
</tr>
<tr>
<td>565 GL</td>
<td>1.33</td>
<td>1.26</td>
<td>1.41</td>
</tr>
</tbody>
</table>
Non-residential trade waste prices

The maximum charge that Sydney Water may levy for each trade waste service is in Table J.1 to Table J.7.

<table>
<thead>
<tr>
<th>Service</th>
<th>Units</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional inspection charge</td>
<td>Per inspection</td>
<td>192.46</td>
<td>196.11</td>
<td>199.83</td>
<td>203.62</td>
</tr>
<tr>
<td>Trade waste application fee for Industrial Customers – standard</td>
<td>Per application</td>
<td>464.58</td>
<td>473.39</td>
<td>482.37</td>
<td>491.51</td>
</tr>
<tr>
<td>Trade waste application fee for Industrial Customers – non-standard</td>
<td>Per hour</td>
<td>142.32</td>
<td>145.02</td>
<td>147.77</td>
<td>150.57</td>
</tr>
<tr>
<td>Trade waste application fee for Industrial Customers - variation</td>
<td>Per application</td>
<td>558.57</td>
<td>569.16</td>
<td>579.95</td>
<td>590.95</td>
</tr>
<tr>
<td>Sale of trade waste data</td>
<td>Per hour</td>
<td>138.69</td>
<td>141.32</td>
<td>144.00</td>
<td>146.73</td>
</tr>
</tbody>
</table>

Source: IPART analysis.
Table J.2  Pollutant charges for Industrial Customers ($2015-16)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Units</th>
<th>Acceptance standard (mg/L)</th>
<th>Domestic equivalent</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD – primary WWTPs</td>
<td>Per kg of mass above domestic strength</td>
<td>See note 1</td>
<td>230</td>
<td>0.281 $ + $0.121 x (BOD mg/L) /600</td>
<td>0.287 $ + $0.124 x (BOD mg/L) /600</td>
<td>0.292 $ + $0.126 x (BOD mg/L) /600</td>
<td>0.298 $ + $0.128 x (BOD mg/L) /600</td>
</tr>
<tr>
<td>BOD – secondary and tertiary WWTPs</td>
<td>Per kg of mass above domestic strength</td>
<td>See note 1</td>
<td>230</td>
<td>1.827 $ + $0.121 x (BOD mg/L) /600</td>
<td>1.862 $ + $0.124 x (BOD mg/L) /600</td>
<td>1.897 $ + $0.126 x (BOD mg/L) /600</td>
<td>1.933 $ + $0.128 x (BOD mg/L) /600</td>
</tr>
<tr>
<td>Suspended solids - primary WWTPs</td>
<td>Per kg of mass above domestic strength</td>
<td>600</td>
<td>200</td>
<td>0.510</td>
<td>0.520</td>
<td>0.530</td>
<td>0.540</td>
</tr>
<tr>
<td>Suspended solids - secondary and tertiary WWTPs</td>
<td>Per kg of mass above domestic strength</td>
<td>600</td>
<td>200</td>
<td>1.479</td>
<td>1.507</td>
<td>1.535</td>
<td>1.564</td>
</tr>
<tr>
<td>Grease – primary WWTPs</td>
<td>Per kg of mass above domestic strength</td>
<td>110</td>
<td>50</td>
<td>0.461</td>
<td>0.469</td>
<td>0.478</td>
<td>0.487</td>
</tr>
<tr>
<td>Grease – secondary and tertiary WWTPs</td>
<td>Per kg of mass above domestic strength</td>
<td>200</td>
<td>50</td>
<td>1.412</td>
<td>1.439</td>
<td>1.466</td>
<td>1.494</td>
</tr>
<tr>
<td>Nitrogen - secondary/ tertiary inland WWTP</td>
<td>Per kg of mass above domestic strength</td>
<td>150</td>
<td>50</td>
<td>1.675</td>
<td>1.707</td>
<td>1.739</td>
<td>1.772</td>
</tr>
<tr>
<td>Phosphorous - secondary/ tertiary inland WWTP</td>
<td>Per kg of mass above domestic strength</td>
<td>50</td>
<td>10</td>
<td>6.007</td>
<td>6.121</td>
<td>6.237</td>
<td>6.355</td>
</tr>
</tbody>
</table>

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 Nitrogen and phosphorus limits do not apply where a wastewater treatment plant (to which the customer’s wastewater system is connected) discharges directly to the ocean.

Note 1: BOD acceptance standards will be set only for wastewater systems declared as being affected by accelerated odour and corrosion. Where a customer is committed to and complying with an effluent improvement program, the customer will not incur doubling of the BOD charging rate. The oxygen demand of effluent is specified in terms of BOD5. Acceptance standards for BOD are to be determined by the transportation and treatment capacity of the receiving system and the end use of sewage treatment products.

Source: IPART analysis.
### Table J.3  Corrosive substance charges for Industrial Customers – corrosion impacted catchment ($2015-16)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Units</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>Per ML of wastewater of pH &lt;7.0&lt;sup&gt;a&lt;/sup&gt;</td>
<td>63.641</td>
<td>64.848</td>
<td>66.077</td>
<td>67.330</td>
</tr>
<tr>
<td>Temperature</td>
<td>Per ML of wastewater with temperature &gt;25°C&lt;sup&gt;b&lt;/sup&gt;</td>
<td>7.046</td>
<td>7.180</td>
<td>7.316</td>
<td>7.454</td>
</tr>
</tbody>
</table>

<sup>a</sup> The charge is applied for each pH by which the pH per ML of wastewater is less than pH7, eg, 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, eg, a pH6.5 will be rounded up to pH7 and a pH6.3 will be rounded down to pH6.

<sup>b</sup> The charge is applied for each 1°C by which the temperature per ML of wastewater is greater than 25°C, eg, 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, eg, 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.

**Note:** 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.

**Source:** IPART analysis.

### Table J.4  Trade waste industrial agreement charges for Industrial Customers by risk index ($2015-16)

<table>
<thead>
<tr>
<th>Risk level</th>
<th>Units</th>
<th>Commencement date to 30 June 2017</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Per quarter</td>
<td>1,998.80</td>
<td>2,036.69</td>
<td>2,075.30</td>
<td>2,114.64</td>
</tr>
<tr>
<td>2</td>
<td>Per quarter</td>
<td>1,998.80</td>
<td>2,036.69</td>
<td>2,075.30</td>
<td>2,114.64</td>
</tr>
<tr>
<td>3</td>
<td>Per quarter</td>
<td>1,998.80</td>
<td>2,036.69</td>
<td>2,075.30</td>
<td>2,114.64</td>
</tr>
<tr>
<td>4</td>
<td>Per quarter</td>
<td>922.61</td>
<td>940.10</td>
<td>957.92</td>
<td>976.08</td>
</tr>
<tr>
<td>5</td>
<td>Per quarter</td>
<td>615.43</td>
<td>627.10</td>
<td>638.99</td>
<td>651.10</td>
</tr>
<tr>
<td>6</td>
<td>Per quarter</td>
<td>307.72</td>
<td>313.55</td>
<td>319.49</td>
<td>325.55</td>
</tr>
<tr>
<td>7</td>
<td>Per quarter</td>
<td>153.86</td>
<td>156.77</td>
<td>159.75</td>
<td>162.77</td>
</tr>
</tbody>
</table>

**Source:** IPART analysis.
### Table J.5  Wastesafe charges for Commercial Customers ($2015-16)

<table>
<thead>
<tr>
<th>Service</th>
<th>Units</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed $/ liquid waste trap charge</td>
<td>Per liquid waste trap</td>
<td>25.68</td>
<td>26.16</td>
<td>26.66</td>
<td>27.17</td>
</tr>
<tr>
<td>Missed service (pump-out) inspection charge for liquid waste traps – 2 kL or less</td>
<td>Per event</td>
<td>283.03</td>
<td>288.39</td>
<td>293.86</td>
<td>299.43</td>
</tr>
<tr>
<td>Missed service (pump-out) inspection charge for liquid waste traps – more than 2 kL</td>
<td>Per event</td>
<td>566.06</td>
<td>576.79</td>
<td>587.73</td>
<td>598.87</td>
</tr>
</tbody>
</table>

Source: IPART analysis.

### Table J.6  Commercial agreement charges for Commercial Customers ($/quarter, $2015-16)

<table>
<thead>
<tr>
<th>Charge</th>
<th>Units</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial agreement charges for Commercial Customers – first process</td>
<td>Per first process</td>
<td>36.10</td>
<td>36.79</td>
<td>37.48</td>
<td>38.19</td>
</tr>
<tr>
<td>Commercial agreement charges for Commercial Customers – each additional process</td>
<td>Per each additional process</td>
<td>12.39</td>
<td>12.63</td>
<td>12.86</td>
<td>13.11</td>
</tr>
</tbody>
</table>

Source: IPART analysis.
## Table J.7 Substance charges for Commercial Customers ($2015-16)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Units&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Commencement date to 30 June 2017</th>
<th>1 July 2017 to 30 June 2018</th>
<th>1 July 2018 to 30 June 2019</th>
<th>1 July 2019 to 30 June 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low strength BOD food&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Per kL</td>
<td>2.168</td>
<td>2.209</td>
<td>2.251</td>
<td>2.294</td>
</tr>
<tr>
<td>Higher strength BOD food&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Per kL</td>
<td>3.563</td>
<td>3.631</td>
<td>3.700</td>
<td>3.770</td>
</tr>
<tr>
<td>Automotive</td>
<td>Per kL</td>
<td>0.707</td>
<td>0.721</td>
<td>0.734</td>
<td>0.748</td>
</tr>
<tr>
<td>Laundry</td>
<td>Per kL</td>
<td>0.442</td>
<td>0.451</td>
<td>0.459</td>
<td>0.468</td>
</tr>
<tr>
<td>Lithographic</td>
<td>Per kL</td>
<td>0.340</td>
<td>0.347</td>
<td>0.353</td>
<td>0.360</td>
</tr>
<tr>
<td>Photographic</td>
<td>Per kL</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>3.231</td>
<td>3.292</td>
<td>3.355</td>
<td>3.418</td>
</tr>
<tr>
<td>Ship to shore</td>
<td>Per kL</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>Per kL</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Other</td>
<td>Per kL</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Charge for low and high strength BOD food if pre-treatment is not maintained in accordance with requirements&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Per kL</td>
<td>11.127</td>
<td>11.338</td>
<td>11.553</td>
<td>11.772</td>
</tr>
</tbody>
</table>

<sup>a</sup> Per kL of trade waste discharged into the wastewater system (as determined by Sydney Water in accordance with its Trade Waste Policy).

<sup>b</sup> This charge applies if pre-treatment is not maintained in line with Sydney Water’s Trade Waste Policy.

**Note:** Shopping centres with centralised pre-treatment (DAF, biological treatment) will be managed as industrial customers (Risk Index 6) and receive site-specific substance charges.

**Source:** IPART analysis.
K Miscellaneous and ancillary charges

The maximum charge that Sydney Water may levy for each miscellaneous service is in Table K.1.
### Table K.1 Charges for ancillary and miscellaneous customer services ($2015-16)

<table>
<thead>
<tr>
<th>No</th>
<th>Ancillary and miscellaneous customer services</th>
<th>Commencement date to 30 June 2017</th>
<th>1 July 2017 to 30 June 2018</th>
<th>1 July 2018 to 30 June 2019</th>
<th>1 July 2019 to 30 June 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Property Sewerage Diagram – diagram showing the location of the private house service line</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>(a) Over the Counter</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>(b) Electronic</td>
<td>10.29</td>
<td>10.49</td>
<td>10.69</td>
<td>10.89</td>
</tr>
<tr>
<td></td>
<td>(c) Online</td>
<td>26.01</td>
<td>26.51</td>
<td>27.01</td>
<td>27.52</td>
</tr>
<tr>
<td>3</td>
<td>Service Location Diagram – diagram showing the location of Sydney Water’s pipe and structures and property wastewater connection point</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) Over the Counter</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>(b) Electronic</td>
<td>6.25</td>
<td>6.36</td>
<td>6.49</td>
<td>6.61</td>
</tr>
<tr>
<td></td>
<td>(c) Online</td>
<td>17.60</td>
<td>17.93</td>
<td>18.27</td>
<td>18.62</td>
</tr>
<tr>
<td>4</td>
<td>Special Meter Reading Statement</td>
<td>26.60</td>
<td>27.11</td>
<td>27.62</td>
<td>28.14</td>
</tr>
<tr>
<td>5</td>
<td>Billing Record Search Statement – up to and including five years</td>
<td>26.60</td>
<td>27.11</td>
<td>27.62</td>
<td>28.15</td>
</tr>
<tr>
<td>6</td>
<td>Building Over/Adjacent to Asset advice – a letter from Sydney Water regarding a building’s compliance with Sydney Water’s standards and regulations for building over or adjacent to its pipes or structures</td>
<td>44.71</td>
<td>45.56</td>
<td>46.42</td>
<td>47.30</td>
</tr>
<tr>
<td>7</td>
<td>Water reconnection – reconnection of water service at meter, following payment of overdue accounts</td>
<td>26.60</td>
<td>27.11</td>
<td>27.62</td>
<td>28.15</td>
</tr>
<tr>
<td>No</td>
<td>Ancillary and miscellaneous customer services</td>
<td>Commencement date to 30 June 2017</td>
<td>1 July 2017 to 30 June 2018</td>
<td>1 July 2018 to 30 June 2019</td>
<td>1 July 2019 to 30 June 2020</td>
</tr>
<tr>
<td>----</td>
<td>----------------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
<td>----------------------------</td>
<td>----------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>8</td>
<td>Workshop Test of Water Meter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) 20, 25 &amp; 32 mm meters</td>
<td>225.70</td>
<td>229.98</td>
<td>234.34</td>
<td>238.78</td>
</tr>
<tr>
<td></td>
<td>(b) 40 and 50 mm light meters</td>
<td>313.46</td>
<td>319.40</td>
<td>325.46</td>
<td>331.63</td>
</tr>
<tr>
<td></td>
<td>(c) 50 mm heavy, 80, 100 &amp; 150 mm meters</td>
<td>512.95</td>
<td>522.68</td>
<td>532.59</td>
<td>542.68</td>
</tr>
<tr>
<td></td>
<td>(d) 200, 250 &amp; 300 mm meters</td>
<td>1139.89</td>
<td>1161.50</td>
<td>1183.52</td>
<td>1205.95</td>
</tr>
<tr>
<td>9</td>
<td>Water Service Disconnection</td>
<td></td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>– application for the disconnection of an existing water service. This</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>covers administration only. A separate charge will be payable to</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sydney Water if it also performs the physical disconnection.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Water Service Connection Installation Application –</td>
<td></td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>application for an accredited supplier to install a new connection point into</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sydney Water’s water main. This covers administration only. A separate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>charge will be payable to Sydney Water if it also performs the physical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>connection.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Water Service Connection Approval Application (32 – 65 mm) –</td>
<td>225.11</td>
<td>229.38</td>
<td>233.72</td>
<td>238.15</td>
</tr>
<tr>
<td></td>
<td>application for Sydney Water to approve a water service connection that</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>requires detailed hydraulic assessment. This covers administration and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>system capacity analysis as required.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Water Service Connection Approval Application (80 mm or greater) –</td>
<td>225.11</td>
<td>229.38</td>
<td>233.72</td>
<td>238.15</td>
</tr>
<tr>
<td></td>
<td>application for Sydney Water to approve a water service connection that</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>requires detailed hydraulic assessment. This covers administration, system</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>capacity analysis as required, and time taken to determine cost of physical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>installation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Application to Assess a Water Main Adjustment</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>14</td>
<td>Standpipe Hire – Security Bond</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>15</td>
<td>Standpipe Hire – Annual Fee</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>16</td>
<td>Standpipe Water Usage Fee</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>17</td>
<td>Backflow Prevention Device Application and Registration Fee</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>No</td>
<td>Ancillary and miscellaneous customer services</td>
<td>Commencement date to 30 June 2017</td>
<td>1 July 2017 to 30 June 2018</td>
<td>1 July 2018 to 30 June 2019</td>
<td>1 July 2019 to 30 June 2020</td>
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<td>-----------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>18</td>
<td>Backflow Prevention Device Annual Administration Fee</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>19</td>
<td>Major Works Inspection Fee</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>20</td>
<td>Statement of Available Pressure and Flow</td>
<td>127.07</td>
<td>129.48</td>
<td>131.94</td>
<td>134.44</td>
</tr>
<tr>
<td>21</td>
<td>Request for Asset Construction Details – detailed plans of Sydney Water’s assets showing water, wastewater and drainage. Plans are also known as work orders, long sections or benchmarks.</td>
<td>44.12</td>
<td>44.96</td>
<td>45.81</td>
<td>46.68</td>
</tr>
<tr>
<td>22</td>
<td>Supply System Diagram – a large plan that shows Sydney Water’s wastewater, water and stormwater assets. The information can be provided in hard copy or electronic format.</td>
<td>127.07</td>
<td>129.48</td>
<td>131.94</td>
<td>134.44</td>
</tr>
<tr>
<td>23</td>
<td>Building Plan Approval Application – application for approval of building plans, to determine if proposed building works will affect Sydney Water’s pipes or structures.</td>
<td>17.62</td>
<td>17.95</td>
<td>18.29</td>
<td>18.64</td>
</tr>
<tr>
<td>24</td>
<td>Asset Adjustment Application – application for Sydney Water to investigate the feasibility of relocating a water, wastewater or stormwater asset.</td>
<td>248.19</td>
<td>252.89</td>
<td>257.69</td>
<td>262.57</td>
</tr>
<tr>
<td>25</td>
<td>Water Main Fitting Adjustment Application – Application for Sydney Water to investigate the feasibility of lowering or raising a water main fitting. This covers administration only. A separate charge will be payable to Sydney Water if it also performs the physical connection.</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>26</td>
<td>Water Pump Application – application for Sydney Water to assess the impact on its water assets, in regards to the installation of a pump on a private water service.</td>
<td>127.07</td>
<td>129.48</td>
<td>131.94</td>
<td>134.44</td>
</tr>
<tr>
<td>27</td>
<td>Extended Private Service Application – application for Sydney Water to approve a water service connection, for a property where a normal point of connection is not available.</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>No</td>
<td>Ancillary and miscellaneous customer services</td>
<td>Commencement date to 30 June 2017</td>
<td>1 July 2017 to 30 June 2018</td>
<td>1 July 2018 to 30 June 2019</td>
<td>1 July 2019 to 30 June 2020</td>
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</tr>
<tr>
<td>28</td>
<td>Wastewater Connection Installation Application – application for an accredited supplier to insert a new point of connection into a Sydney Water wastewater pipe. This covers administration only. A separate charge will be payable to Sydney Water if it also performs the physical connection.</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>29</td>
<td>Wastewater Ventshaft Relocation Application – application for Sydney Water to investigate the feasibility of relocating or adjusting a wastewater ventshaft. This covers administration only and does not include design review or assessment.</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>30</td>
<td>Disuse of Wastewater pipe or structure – application for Sydney Water to investigate the feasibility of ceasing to use an existing wastewater pipe or structure. This covers administration only and does not include design review or assessment.</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>31</td>
<td>Stormwater Connection Approval Application – application for Sydney Water to determine the conditions of connecting to a Sydney Water stormwater pipe or channel &gt; 300 mm.</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>32</td>
<td>Application for inspection of Stormwater Connection – application for an inspection of the connection to Sydney Water’s stormwater pipe or channel &gt; 300 mm</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>No</td>
<td>Ancillary and miscellaneous customer services</td>
<td>Commencement date to 30 June 2017</td>
<td>1 July 2017 to 30 June 2018</td>
<td>1 July 2018 to 30 June 2019</td>
<td>1 July 2019 to 30 June 2020</td>
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</tr>
<tr>
<td>33</td>
<td>Development Requirements Application – application to determine the servicing requirements for a proposed development or subdivision (including development charges if applicable). Sydney Water will only issue a compliance certificate (Section 73 Certificate) if the development consent is submitted with the application, otherwise it will issue a letter of general requirements only. Sydney Water will determine its full requirements when an application is received with the development consent from the relevant planning authority.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) Development requirements - complying development</td>
<td>170.96</td>
<td>174.20</td>
<td>177.50</td>
<td>180.87</td>
</tr>
<tr>
<td></td>
<td>(b) Development requirements - other</td>
<td>452.10</td>
<td>460.67</td>
<td>469.41</td>
<td>478.30</td>
</tr>
<tr>
<td>34</td>
<td>Road Closure Application – application for a permanent road closure</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>35</td>
<td>Water and Sewer Extension Application – request for approval to expand reticulation systems, to provide a new point of connection.</td>
<td>452.10</td>
<td>460.67</td>
<td>469.41</td>
<td>478.30</td>
</tr>
<tr>
<td>36</td>
<td>Monthly Meter Reading Request by Customer – this monthly charge will cover the additional costs that Sydney Water will incur to process customer requests to have the water meter read and billed monthly</td>
<td>10.29</td>
<td>10.49</td>
<td>10.69</td>
<td>10.89</td>
</tr>
<tr>
<td>37</td>
<td>Replacement of Meter Damaged by Customer/Customer's Agent - this charge allows Sydney Water to recoup the cost of replacing meters that have been damaged other than by normal wear and tear. Sydney Water will continue to pay for the replacement of meters that are faulty or due to be replaced as part of the regular maintenance program.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) 20 mm</td>
<td>127.66</td>
<td>130.08</td>
<td>132.54</td>
<td>135.05</td>
</tr>
<tr>
<td></td>
<td>(b) 25, 30 &amp; 40 mm</td>
<td>272.68</td>
<td>277.85</td>
<td>283.12</td>
<td>288.49</td>
</tr>
<tr>
<td>No</td>
<td>Ancillary and miscellaneous customer services</td>
<td>Commencement date to 30 June 2017</td>
<td>1 July 2017 to 30 June 2018</td>
<td>1 July 2018 to 30 June 2019</td>
<td>1 July 2019 to 30 June 2020</td>
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<td>-----------------------------</td>
</tr>
<tr>
<td>38</td>
<td>Integrated Service Connection Application – this is a service that consolidates a number of existing services into a single application form. The charge will apply only to complex connections where detailed hydraulic assessment is required. Standard connections will not incur any application charges.</td>
<td>225.70</td>
<td>229.98</td>
<td>234.34</td>
<td>238.78</td>
</tr>
<tr>
<td>39</td>
<td>Sydney Water Hourly Rate – this hourly rate will apply across all divisions of Sydney Water, to allow Sydney Water to recover the full cost of providing services for customers, where a designated charge otherwise does not apply.</td>
<td>128.81</td>
<td>131.25</td>
<td>133.74</td>
<td>136.27</td>
</tr>
<tr>
<td>40</td>
<td>Remote Read Meter (one-off fee) – This charge recovers the cost of installing a Remote Read Meter. Consistent with the Customer Contract, Sydney Water may only install a Remote Read Meter in the following circumstances where the customer has granted permission for the Remote Read Meter to be installed: ▪ to replace an existing Meter that has been made inaccessible after 1 July 2016 on two or more occasions; ▪ to replace an existing Meter at the customer’s request; or ▪ as a new Meter for a new connection. The charges for installing Remote Read Meters of the following sizes are set out below:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) 20mm</td>
<td>187.70</td>
<td>191.26</td>
<td>194.89</td>
<td>198.58</td>
<td></td>
</tr>
<tr>
<td>(b) 25mm</td>
<td>197.77</td>
<td>201.52</td>
<td>205.34</td>
<td>209.23</td>
<td></td>
</tr>
<tr>
<td>(c) 32mm, 40mm, 50mm light</td>
<td>217.06</td>
<td>221.17</td>
<td>225.37</td>
<td>229.64</td>
<td></td>
</tr>
<tr>
<td>(d) 50mm heavy, 80mm, 100mm</td>
<td>380.77</td>
<td>387.99</td>
<td>395.35</td>
<td>402.84</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Ancillary and miscellaneous customer services</td>
<td>Commencement date to 30 June 2017</td>
<td>1 July 2017 to 30 June 2018</td>
<td>1 July 2018 to 30 June 2019</td>
<td>1 July 2019 to 30 June 2020</td>
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</tr>
<tr>
<td>41</td>
<td>Inaccessible meter fee (quarterly charge) – this charge recovers the costs of attempted Meter readings and managing estimated accounts where a customer’s Meter is inaccessible. Sydney Water may only levy this charge where: • a customer’s Meter is inaccessible after 1 July 2016; • Sydney Water had provided that customer with four or more consecutive estimated bills; and • the customer has not responded to other contact from Sydney Water, including requests that the customer: • relocate the Meter at its cost • install a remote Meter reading device, and • read the Meter and provide Sydney with the reading (i.e., self-reading).</td>
<td>8.56</td>
<td>8.72</td>
<td>8.89</td>
<td>9.06</td>
</tr>
</tbody>
</table>

*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: IPART analysis.
In this appendix we have included our pricing guidelines for mandated recycled water schemes, from our 2006 Pricing arrangements for recycled water and sewer mining.645

1. The maximum cost that can be recovered for a recycled water scheme is the efficient “total direct cost” of the scheme, given by formula A below:

\[
\text{Total direct cost} = PV_r(K_i + OC_i + JC_i) \text{ for } i = 1, \ldots, n; \ n = 30 \quad (A)
\]

Where

- K is the total capital cost associated with the project, including recycled water treatment plants, other infrastructure and storage.
- OC is the annual operating cost of the scheme, including pumping, treatment, chemicals, labour, monitoring and any other costs of operating the system.
- JC is the share of joint costs allocated to the recycled water scheme.
- n is the life of the project in years and for the purposes of calculating recycled water prices is equal to 30 years.
- r is the cost of capital and should be equivalent to the WACC used to calculate the return on capital for water and sewerage prices.

2. The retail price of potable water used to supplement the recycled water scheme is to be included as an operating cost of the scheme when calculating the total direct cost.

3. The maximum amount that a water agency can ‘offset’ against the cost of a recycled water scheme to be recovered from recycled water customers is to be calculated using formula B below:

\[
\text{Cost Offset} = PV_r (\text{Subsidy}_i + \text{Avoided Cost}_i + \text{Deferred Cost}_i + \text{Govt Directive}^{646}) \quad (B)
\]

4. Other than costs included in the ‘cost offset’ amount, all costs are to be recovered through recycled water usage, fixed and developer charges.

---

646 This means that the Government has directed the Tribunal to allow water agencies to recover a portion of costs from customers other than recycled water users.
5. Except as provided for in Clauses 7 and 8 below, the total revenue that the water agency can recover from recycled water customers is to be calculated using the formula: \( A - B \)

6. If the agency wishes to recover the avoided or deferred costs from water or sewerage customers, it will be required to demonstrate to the Tribunal that costs have been calculated and allocated in accordance with the Guidelines for Calculation of Avoided and Deferred Costs of Recycled Water Schemes.\(^{647}\)

7. Recycled water prices are to include a usage component, which is to be set no greater than the potable water usage price prevailing from time to time unless the Tribunal’s prior approval has been obtained. The usage charge is to be set at such a level that it sends appropriate consumption signals aimed at equating the demand for recycled water with the available supply.

8. If potable water ‘top-up’ of the recycled water supply exceeds more than 10% by volume on an annual basis,\(^{648}\) the recycled water usage charge is to be calculated as a percentage of the potable water price as shown below:

<table>
<thead>
<tr>
<th>Potable water top-up %</th>
<th>% of potable water price</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;10% and ≤ 15%</td>
<td>80%</td>
</tr>
<tr>
<td>&gt;15% and ≤ 20%</td>
<td>90%</td>
</tr>
<tr>
<td>&gt;20%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Water agencies may adopt an alternative pricing approach to that shown above where they can demonstrate to the Tribunal’s satisfaction that the alternative approach will yield prices that are economically efficient and will balance demand for recycled water with supply and also, at a minimum, recover costs.

9. Prices may include a fixed component, which should not be so high as to act as an incentive for customers to disconnect from the recycled water scheme.

10. Where customers are subject to developer charges, the developer charge is to be calculated according to the Recycled Water Developer Charges Determination.

11. Where customers are not subject to developer charges, any residual cost not recovered through usage charges is to be recovered via an annual fixed charge or in the case of non-residential customers, may be recovered through a negotiated up-front capital contribution.

12. Agencies are to review recycled water prices at least once every 3 years. Between price reviews, recycled water prices may be indexed for inflation.

---


\(^{648}\) In calculating the annual recycled water volume the water agency may normalise seasonal fluctuations in demand.
13. Agencies are required to publish and publicly exhibit their calculations of recycled water prices. This exhibition process is to include information on the costs of the scheme, avoided or deferred costs and assumptions used to calculate the prices. The calculated recycled water prices must be made available to customers and published on the agencies’ websites.

14. Costs and revenues from recycled water schemes are to be ring fenced from the regulated business.
Glossary

2008 Determination  Review of prices for Sydney Water Corporation’s water, sewerage, stormwater and other services from 1 July 2008, June 2008 (Determination No 1, 2008)

2008 determination period  The period commencing 1 July 2008 to 30 June 2011

2012 Determination  Review of prices for Sydney Water Corporation’s water, sewerage, stormwater and other services from 1 July 2012, June 2012 (Determination No 1, 2012)

2012 determination period  The period commencing 1 July 2012 to 30 June 2016

2016 Determination  Review of prices for Sydney Water Corporation’s water, sewerage, stormwater and other services from 1 July 2016, June 2016 (Determination No 1, 2016)

2016 determination period  The period commencing 1 July 2016 to 30 June 2020.

70/80 rule  Under Government’s 2010 Metropolitan Water Plan, SDP is to operate at full production and supply Sydney Water’s area of operations when the total dam storage level is below 70% and continue to do so until the total dam storage level reaches 80%.

ACCC  Australian Consumer and Competition Commission

AFOC  Assets free of charge
### Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<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>CAPM</td>
<td>Capital Asset Pricing Model</td>
</tr>
<tr>
<td>CEMELND</td>
<td>Assets are grouped into civil, electrical, mechanical, electronic, and non-depreciating components to calculate the allowance regulatory depreciation.</td>
</tr>
<tr>
<td>COAG</td>
<td>Council of Australian Governments</td>
</tr>
<tr>
<td>CSO</td>
<td>Community service obligation payment</td>
</tr>
<tr>
<td>Current determination period</td>
<td>The period from 1 July 2012 to 30 June 2016, as set in the 2012 Determination.</td>
</tr>
<tr>
<td>CPI</td>
<td>Consumer Price Index</td>
</tr>
<tr>
<td>Determination period</td>
<td>Price limits (maximum prices) set by IPART for a given period.</td>
</tr>
<tr>
<td>DRC</td>
<td>Depreciated Replacement Cost</td>
</tr>
<tr>
<td>ECM</td>
<td>Efficiency Carryover Mechanism</td>
</tr>
<tr>
<td>EBSS</td>
<td>Efficiency Benefit Sharing Scheme</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>EWON</td>
<td>Energy and Water Ombudsman NSW</td>
</tr>
<tr>
<td>GL</td>
<td>Gigalitre</td>
</tr>
<tr>
<td>HAF</td>
<td>Housing Acceleration Fund</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>Glossary</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>IPART Act</td>
<td><em>Independent Pricing and Regulatory Tribunal Act 1992</em> (NSW)</td>
</tr>
<tr>
<td>kL</td>
<td>Kilolitre</td>
</tr>
<tr>
<td>LGAs</td>
<td>Local Government Areas</td>
</tr>
<tr>
<td>LRMC</td>
<td>Long Run Marginal Cost (of supply)</td>
</tr>
<tr>
<td>ML</td>
<td>Megalitre</td>
</tr>
<tr>
<td>NCOSS</td>
<td>NSW Council of Social Service</td>
</tr>
<tr>
<td>NECF</td>
<td>National Energy Consumer Framework</td>
</tr>
<tr>
<td>Notional revenue requirement</td>
<td>Revenue requirement set by IPART that represents the efficient costs of providing Sydney Water’s monopoly services.</td>
</tr>
<tr>
<td>NPV</td>
<td>Net Present Value</td>
</tr>
<tr>
<td>PIAC</td>
<td>Public Interest Advocacy Centre</td>
</tr>
<tr>
<td>PSP</td>
<td>Priority Sewerage Program</td>
</tr>
<tr>
<td>RAB</td>
<td>Regulatory Asset Base</td>
</tr>
<tr>
<td>RBA</td>
<td>Reserve Bank of Australia</td>
</tr>
<tr>
<td>Rouse Hill Area</td>
<td>The area to which the Rouse Hill stormwater drainage charges apply.</td>
</tr>
<tr>
<td>RWSA</td>
<td>Raw Water Supply Agreement between Sydney Water and WaterNSW.</td>
</tr>
<tr>
<td>SCA</td>
<td>Sydney Catchment Authority (now part of WaterNSW)</td>
</tr>
<tr>
<td>SDP</td>
<td>Sydney Desalination Plant Pty Ltd</td>
</tr>
<tr>
<td>Section 16A directions</td>
<td>Ministerial directions pursuant to section 16A of the IPART Act.</td>
</tr>
<tr>
<td>SFG</td>
<td>Strategic Finance Group</td>
</tr>
<tr>
<td>SOC</td>
<td>State-owned corporation</td>
</tr>
<tr>
<td>SOC Act</td>
<td><em>State Owned Corporations Act 1989</em> (NSW)</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SRMC</td>
<td>Short Run Marginal Cost (of supply)</td>
</tr>
<tr>
<td>Sydney Water</td>
<td>Sydney Water Corporation</td>
</tr>
<tr>
<td>Sydney Water Act</td>
<td><em>Sydney Water Act 1994</em> (NSW)</td>
</tr>
<tr>
<td>Target revenue</td>
<td>The revenue Sydney Water generates from maximum prices set by IPART for that year.</td>
</tr>
<tr>
<td>Upcoming determination period</td>
<td>The period commencing 1 July 2016 to 30 June 2020.</td>
</tr>
<tr>
<td>WACC</td>
<td>Weighted Average Cost of Capital</td>
</tr>
<tr>
<td>WAPC</td>
<td>Weighted Average Price Cap</td>
</tr>
<tr>
<td>WFA</td>
<td>Water Filtration Agreement</td>
</tr>
<tr>
<td>WFP</td>
<td>Water Filtration Plant</td>
</tr>
<tr>
<td>WIC Act</td>
<td><em>Water Industry Competition Act 2006</em> (NSW)</td>
</tr>
<tr>
<td>WWTP</td>
<td>Wastewater treatment plant</td>
</tr>
</tbody>
</table>