

Independent Pricing and Regulatory Tribunal

Review of prices for Sydney Water Corporation From 1 July 2016

Water — Issues Paper September 2015



Independent Pricing and Regulatory Tribunal

Review of prices for Sydney Water Corporation From 1 July 2016

Water — Issues Paper September 2015 © Independent Pricing and Regulatory Tribunal of New South Wales 2015

This work is copyright. The *Copyright Act 1968* permits fair dealing for study, research, news reporting, criticism and review. Selected passages, tables or diagrams may be reproduced for such purposes provided acknowledgement of the source is included.

ISBN 978-1-925340-15-0 DP179

The Tribunal members for this review are:

Dr Peter J Boxall AO, Chairman

Ms Catherine Jones

Mr Ed Willett

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

Jean-Marc Kutschukian	(02) 9290 8453
Scott Chapman	(02) 9290 8449
Matthew Mansell	(02) 9113 7770

Independent Pricing and Regulatory Tribunal of New South Wales PO Box K35, Haymarket Post Shop NSW 1240 Level 15, 2-24 Rawson Place, Sydney NSW 2000 T (02) 9290 8400 F (02) 9290 2061 www.ipart.nsw.gov.au

Invitation for submissions

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

Submissions are due by 5 October 2015.

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

You can also send comments by mail to:

Sydney Water Corporation Price Review 2016 Independent Pricing and Regulatory Tribunal PO Box K35, Haymarket Post Shop NSW 1240

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

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

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

Contents

In۱	itation for submissions	iii
1	Introduction	1
	1.1 Process for conducting the review	2
	1.2 Sydney Water's pricing proposal for water, wastewater and sto drainage services	rmwater 3
	1.3 Sydney Water's pricing proposal for other services	10
	1.4 Approach for making pricing decisions	11
	1.5 Structure of this Issues Paper	12
	1.6 List of issues for stakeholder comment	13
2	Context for the review	20
	2.1 Sydney Water's regulatory framework	20
	2.2 Other IPART water pricing reviews	21
	2.3 Sydney Water's Operating Licence	25
	2.4 Sydney Water's environmental regulations	26
	2.5 Metropolitan Water Plan	27
	2.6 Government directions under section 16A of the IPART Act	29
3	Length of determination period and approach for calculating rev	venue
	requirement	31
	3.1 Length of the determination period	31
	3.2 Approach for calculating notional revenue requirement	33
4	Allowance for operating expenditure	39
	4.1 Sydney Water's actual operating expenditure in 2012 period	39
	4.2 Sydney Water's proposed operating expenditure in 2016 period	4 0
	4.3 IPART's response on operating expenditure	47
5	Prudent and efficient capital expenditure	52
	5.1 Sydney Water's proposal on past capital expenditure	53
	5.2 Sydney Water's proposal on forecast capital expenditure	55
	5.3 IPART's response on capital expenditure	57
6	Allowances for a return on assets, regulatory depreciation and t	ax
	liabilities	59
	6.1 The value of the RAB	59
	6.2 Rate of return	69
	6.3 Regulatory depreciation	70

Contents

7 Form of regulation 78 7.1 Modernising regulation 78 7.2 Efficiency benefit sharing scheme 81 7.3 Cost pass through mechanisms 90 7.4 Weighted average price cap 96 8 Forecast water sales and customer numbers 106 8.1 Actual water sales over 2012 determination period 108 8.3 Forecast water sales and customer numbers over 2016 determination period 108 8.3 Forecast chargeable wastewater volumes 116 9 Price structures 119 9.1 Rebase water and wastewater service charges 120 9.2 Fix the wastewater usage discharge allowance 122 9.3 Alter dual occupancy arrangements 130 9.5 Customer confusion about pricing terminology 133 10 Prices- water, wastewater, and stormwater services 135 10.1 Sydney Water's proposal on water, wastewater, and stormwater charges135 10.2 10.2 Water usage charge 147 10.5 Wastewater usage charges 152 10.7 Customer drainage c		6.4	Allowance for tax	72
8 Forecast water sales and customer numbers 106 8.1 Actual water sales over 2012 determination period 106 8.2 Forecast water sales and customer numbers over 2016 determination period 108 8.3 Forecast chargeable wastewater volumes 116 9 Price structures 119 9.1 Rebase water and wastewater service charges 122 9.3 Alter joint service arrangements 128 9.4 Alter dual occupancy arrangements 130 9.5 Customer confusion about pricing terminology 133 10 Prices- water, wastewater, and stormwater services 135 10.1 Sydney Water's proposal on water, wastewater, and stormwater charges 136 10.2 Water usage charges 146 10.4 Wastewater usage charges 152 10.7 Customer orlining charges 152 10.7 Customer bill impacts of Sydney Water's proposed prices 157 11 Prices - other services 162 11.1 Non-residential trade waste charges 162 11.2 Miscellaneous and ancillary charges 164 <t< td=""><td>7</td><td>Form 7.1 7.2 7.3 7.4</td><td>n of regulation Modernising regulation Efficiency benefit sharing scheme Cost pass through mechanisms Weighted average price cap</td><td>78 78 81 90 96</td></t<>	7	Form 7.1 7.2 7.3 7.4	n of regulation Modernising regulation Efficiency benefit sharing scheme Cost pass through mechanisms Weighted average price cap	78 78 81 90 96
9 Price structures 119 9.1 Rebase water and wastewater service charges 120 9.2 Fix the wastewater usage discharge allowance 122 9.3 Alter joint service arrangements 128 9.4 Alter dual occupancy arrangements 130 9.5 Customer confusion about pricing terminology 133 10 Prices- water, wastewater, and stormwater services 135 10.1 Sydney Water's proposal on water, wastewater, and stormwater charges 136 10.2 Water usage charges 136 10.3 Water service charges 146 10.4 Wastewater usage charge 147 10.5 Wastewater service charges 151 10.6 Stormwater drainage charges 152 10.7 Customer bill impacts of Sydney Water's proposed prices 157 11 Prices - other services 162 11.1 Non-residential trade waste charges 162 11.1 Non-residential trade waste charges 162 11.2 Miscellaneous and ancillary charges 164 11.3 Charges for the Rouse Hill Area <td< td=""><td>8</td><td>Fore 8.1 8.2 8.3</td><td>Actual water sales and customer numbers Actual water sales over 2012 determination period Forecast water sales and customer numbers over 2016 determination period Forecast chargeable wastewater volumes</td><td>106 106 108 116</td></td<>	8	Fore 8.1 8.2 8.3	Actual water sales and customer numbers Actual water sales over 2012 determination period Forecast water sales and customer numbers over 2016 determination period Forecast chargeable wastewater volumes	106 106 108 116
10Prices- water, wastewater, and stormwater services13510.1Sydney Water's proposal on water, wastewater, and stormwater charges13610.2Water usage charges13610.3Water service charges14610.4Wastewater usage charge14710.5Wastewater service charges15110.6Stormwater drainage charges15210.7Customer bill impacts of Sydney Water's proposed prices15711Prices - other services16211.1Non-residential trade waste charges16211.2Miscellaneous and ancillary charges16411.3Charges for the Rouse Hill Area17011.4Unfiltered water charges17611.5Unmetered water charges17711.6Minor service extension charges18012.1Pricing wholesale services18012.2Regulating wholesale customers18513Recycled water pricing18913.1Sydney Water's proposal on recycled water prices191Appendices1934	9	Price 9.1 9.2 9.3 9.4 9.5	e structures Rebase water and wastewater service charges Fix the wastewater usage discharge allowance Alter joint service arrangements Alter dual occupancy arrangements Customer confusion about pricing terminology	119 120 122 128 130 133
11Prices – other services16211.1Non-residential trade waste charges16211.2Miscellaneous and ancillary charges16411.3Charges for the Rouse Hill Area17011.4Unfiltered water charges17611.5Unmetered water charges17711.6Minor service extension charges17912Wholesale pricing18012.1Pricing wholesale services18012.2Regulating wholesale customers18513Recycled water pricing18913.1Sydney Water's proposal on recycled water prices19013.2IPART's response on recycled water prices191AMatters to be considered under section 15 of the IPART Act195	10	Price 10.1 10.2 10.3 10.4 10.5 10.6 10.7	es- water, wastewater, and stormwater services Sydney Water's proposal on water, wastewater, and stormwater charge Water usage charges Water service charges Wastewater usage charge Wastewater service charges Stormwater drainage charges Customer bill impacts of Sydney Water's proposed prices	135 es135 136 146 147 151 152 157
12Wholesale pricing18012.1Pricing wholesale services18012.2Regulating wholesale customers18513Recycled water pricing18913.1Sydney Water's proposal on recycled water prices19013.2IPART's response on recycled water prices191A Matters to be considered under section 15 of the IPART Act	11	Price 11.1 11.2 11.3 11.4 11.5 11.6	es – other services Non-residential trade waste charges Miscellaneous and ancillary charges Charges for the Rouse Hill Area Unfiltered water charges Unmetered water charges Minor service extension charges	162 164 170 176 177 179
13 Recycled water pricing18913.1 Sydney Water's proposal on recycled water prices19013.2 IPART's response on recycled water prices191Appendices193A Matters to be considered under section 15 of the IPART Act195	12	Who 12.1 12.2	lesale pricing Pricing wholesale services Regulating wholesale customers	180 180 185
Appendices193AMatters to be considered under section 15 of the IPART Act195	13	Recy 13.1 13.2	ycled water pricing Sydney Water's proposal on recycled water prices IPART's response on recycled water prices	189 190 191
	App	o <mark>endi</mark> A	ces Matters to be considered under section 15 of the IPART Act	193 195

В	Section 16A directions	196
С	Revenue requirement for Government directions (section 16A)	199
D	Application of the current SDP cost pass though mechanism	203
Е	Regulatory treatment of asset disposals	204
F	Weighted Average Cost of Capital	208
G	Efficiency Benefit Sharing Scheme	215
Н	Long-run marginal cost	222
I	Sydney Water's proposed non-residential trade waste prices	234
J	Sydney Water's proposed miscellaneous and ancillary charges	238
K	The WIC Act access regime	241
L	Pricing guidelines for recycled water schemes	245
Glossar	у	248

1 Introduction

The Independent Pricing and Regulatory Tribunal of NSW (IPART) has begun a review to determine the maximum prices Sydney Water Corporation (Sydney Water) can charge for the water, wastewater and stormwater drainage services it provides to residential and non-residential customers in the Sydney, Illawarra and Blue Mountains areas. As part of this review, we will also:

- determine maximum prices for Sydney Water's trade waste services and a range of its ancillary and miscellaneous services
- decide whether we should determine charges for Sydney Water's wholesale water services, and
- ▼ monitor Sydney Water's recycled water prices, in line with our 2006 Guidelines.¹

We will make a determination on these prices for a period of up to five years starting 1 July 2016 (the 2016 determination period).²

This Issues Paper explains the process we will follow to conduct the review, the approach we will use to make our pricing decisions, and the key issues we will consider in making these decisions. It also sets out our preliminary views on some of these issues (where we have them). We invite all interested parties to make submissions in response to this paper.

All dollar figures quoted in this Issues Paper are in 2015-16, unless stated otherwise.³

¹ IPART, Pricing arrangements for recycled water and sewer mining – SWC, HWC, GCC, WSC – Final Report, September 2006.

² Sydney Water's proposal is based on a 4-year determination period. Therefore, when we are reporting its forecasts for this period we are generally referring to the four years of 2016-17 to 2019-20, even though IPART is yet to confirm that this will be a 4-year determination period.

³ Prices and revenue for 2015-16 in Sydney Water's pricing proposal are forecasts, because at the time the proposal was drafted, the March-on-March CPI used to set prices was unavailable. Sydney Water based its proposal on an estimate of March 2014 to March 2015 CPI change of 2.5%; the actual change was 1.3%. In addition, the proposal assumes no Sydney Desalination Plant adjustment (ie, that charges would equal the forecast); however residential water service charges were reduced by \$0.52. We will use actual 2015-16 prices in our Draft Report, and report any resulting differences with Sydney Water's proposal, where material.

1.1 Process for conducting the review

Our process for this review is slightly different to our previous water price reviews. It will still include public consultation and detailed analysis by IPART and expert consultants. However, we have decided to adopt a propose-response process.

In particular, we have reordered the review timetable so we received Sydney Water's pricing submission and proposal⁴ before we prepared this Issues Paper and engaged our expenditure consultant. This has several benefits. For example, it enables us to use the information in the utility's pricing submission to better identify the issues that require consideration by stakeholders and our consultant. It also allows the utility to make its pricing proposal without being potentially constrained by the topics raised in our Issues Paper.

We received Sydney Water's pricing submission and proposal on 30 June this year,⁵ and expect to engage our expenditure consultant by September. We now invite stakeholders to make submissions in response to this Issues Paper and Sydney Water's pricing proposal. (Details on how to make a submission are provided on page iii at the start of the paper). We will hold a public hearing to provide stakeholders with another opportunity to provide their views on Sydney Water's pricing proposal and key issues for this review.

We will consider all comments made in submissions and at the public hearing before making our draft decisions. We will then release a Draft Report and Determination, and invite further comments from stakeholders and Sydney Water. We will consider all these comments before making our Final Determination and publishing our Final Report.

An indicative review timetable is set out in Table 1.1 below. We will update the timetable on our website as the review progresses.

Task	Timeframe
Receive pricing proposal from Sydney Water	30 June 2015
Release Issues Paper	7 September 2015
Receive submissions to the Issues Paper and to Sydney Water's pricing proposal	5 October 2015
Hold Public Hearing	10 November 2015
Release Draft Report and Draft Determination	Late-March 2016
Receive submissions to the Draft Report	Mid-April 2016
Release Final Report and Determination	Mid-June 2016

Table 1.1 Indicative review timetable

Note: These dates are indicative and are subject to change.

⁴ Sydney Water pricing proposal to IPART, June 2015.

⁵ We sent an information request to Sydney Water in November 2014, which contained information on the review process and our information requirements to assist it in preparing its submission.

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

Sydney Water proposed a revenue requirement of \$9.7 billion over the 4-year period 2016-17 to 2019-20. This is \$600 million lower than the revenue allowed for in the 2012 Determination (\$10.3 billion), which covered the 4-year period from 2012-13 to 2015-16.

To avoid unnecessary price fluctuations, Sydney Water also proposed a profile of cost recovery (ie, target revenue) that smooths customers' bills over the 2016 determination period.⁶ For water and wastewater services, its proposed target revenue is Net Present Value (NPV) neutral (that is, the present value of the revenue equals the present value of its proposed costs over the determination period). For stormwater services, its proposed target revenue is slightly NPV-positive (the present value of its proposed target revenue is slightly higher than the present value of its proposed costs for the period).⁷

Sydney Water's proposed revenue broken down by product is shown in Figure 1.1.





Source: Sydney Water pricing proposal, June 2015, p x.

⁶ Sydney Water pricing proposal to IPART, June 2015, p 81.

⁷ Sydney Water pricing proposal to IPART, June 2015, p 80.

1.2.1 Proposed prices and bill impacts

Sydney Water proposed that its prices for water, wastewater and stormwater drainage services would either fall or remain unchanged in real terms in 2016-17 compared to current prices, and remain flat in real terms over the 4-year determination period (See Table 1.2).

	2015-16 ^a	2016-17	2017-18	2018-19	2019-20
Water					
Usage charge (\$/kL)	2.29	1.97	1.97	1.97	1.97
Annual change		-13.9%	0.0%	0.0%	0.0%
Residential service charge (\$/year)	103.55	98.52	98.52	98.52	98.52
Annual change		-4.9%	0.0%	0.0%	0.0%
20mm non-residential service charge (\$/year)	131.12 ^b	98.52	98.52	98.52	98.52
Annual change		-24.9%	0.0%	0.0%	0.0%
Wastewater					
Usage charge (\$/kL)	1.10	1.10	1.10	1.10	1.10
Annual change		0.0%	0.0%	0.0%	0.0%
Residential service charge (\$/year)	612.10	582.34	582.34	582.34	582.34
Annual change		-4.9%	0.0%	0.0%	0.0%
20mm non-residential service charge (\$/year)	1,047.74 b	582.34	582.34	582.34	582.34
Annual change		-44.4%	0.0%	0.0%	0.0%
Stormwater					
Multi premise residential and small non-residential (\$/year)	31.70	30.79	29.90	29.04	28.21
Annual change		-2.9%	-2.9%	-2.9%	-2.9%
Standalone residential and medium non-residential (\$/year)	86.44	83.96	81.54	79.20	76.92
Annual change		-2.9%	-2.9%	-2.9%	-2.9%
Large non-residential (\$/year)	432.22	419.80	407.73	396.01	384.63
Annual change		-2.9%	-2.9%	-2.9%	-2.9%

Table 1.2Sydney Water's proposed prices for major services from 1 July
2016 (\$2015-16)

^a 2015-16 prices were not available when Sydney Water finalised its pricing proposal. The prices for 2015-16 are Sydney Water estimates based on forecast inflation.

b Under the 2012 Determination 20 mm standalone non-residential customers paid the residential service charges. From 2016-17 Sydney Water's proposal will see them charged the same as other non-residential customers with 20mm meters.

Sydney Water indicated that under its proposal, average annual residential water and wastewater bills would be:

▼ \$1,114 a year for customers with a free-standing house who use 220 kL of water a year. This is \$105 or 8.6% lower than the average bill for these customers in 2015-16 (see Figure 1.2).

 \$996 a year for customers with an apartment who use 160 kL of water a year. This is \$86 or 7.9% lower than the average bill for these customers in 2015-16.8

These figures are in real \$2015-16 - ie, they exclude the impact of inflation.

Assuming inflation of 2.5% a year, Sydney Water estimated that its proposal would mean most households experience a nominal increase in their annual water and wastewater bill of only \$11 or 0.9% by the end of the 4-year period. According to Sydney Water, this represents a much slower rate of increase than for other household items.⁹



Figure 1.2 Sydney Water's proposed real and nominal changes to customer bills

Data source: Sydney Water pricing proposal, June 2015, p iv.

Non-residential customers' bill impacts depend on their meter size and discharge factors as well as their water and wastewater usage. Sydney Water modelled the impact of its proposed prices on different types of non-residential customers,¹⁰ and found that approximately 43% would see a reduction of up to 10% on their annual bill in 2016-17 (in real terms). A small proportion (about 6.5%) of non-residential customers would experience greater reductions (35% to 39%).¹¹

⁸ Sydney Water pricing proposal to IPART, June 2015, pp iii-iv.

⁹ Sydney Water pricing proposal to IPART, June 2015, p 103.

¹⁰ See Sydney Water pricing proposal to IPART, June 2015, p 104.

¹¹ Sydney Water pricing proposal to IPART, June 2015, p 107.

1.2.2 Cost drivers

In its proposal, Sydney Water attributed its proposed reduction in its revenue requirement (and average annual water and wastewater bills) for the 2016 determination period to the following factors:¹²

- ▼ the expected low interest rate environment and resulting decrease in its forecast real Weighted Average Cost of Capital (WACC) from 5.6% to 4.6%
- realised and forecast savings of about \$450 million in its operating and capital expenditure over the 2012 determination period
- ▼ a reduction in its forecast bulk water purchase costs, due to an expected decrease in WaterNSW's real WACC and Sydney Desalination Plant's (SDP) forecast costs, and
- an increase in its forecast customer water demand, from an average of 435 GL to 474 GL per year.

According to Sydney Water, just over 30% of the average savings it proposes to pass on to customers is driven by efficiency savings within its control, and just under 70% stems from external factors beyond its control. The single most important driver of these savings is the decrease in its forecast WACC, which accounts for 52% of the overall reduction in customer bills.¹³

Sydney Water indicated that the proposed reduction in its revenue requirement will not affect its performance. It expects to maintain high customer service standards and its customer assistance programs, and continue to meet licence conditions in servicing rising levels of forecast demand and growth. It also expects to maintain its current Baa1 credit rating under the proposed prices and revenues.¹⁴

In relation to operating expenditure, Sydney Water reported that it achieved savings of \$223 million over the 2012 determination period of 2012-13 to 2015-16 (compared to the amount IPART allowed for in setting prices). It attributed this primarily to savings in:

- energy costs, including the removal of the carbon price
- labour costs, and improved procurement practices, and
- materials costs.

Sydney Water expects these savings will continue into the 2016 determination period. As a result, its forecast operating expenditure is \$393 million lower than its expected operating expenditure of \$5.4 billion for the 2012 period.¹⁵

¹² Sydney Water pricing proposal to IPART, June 2015, p viii.

¹³ Sydney Water pricing proposal to IPART, June 2015, p ix.

¹⁴ Sydney Water pricing proposal to IPART, June 2015, p viii.

¹⁵ Sydney Water pricing proposal to IPART, June 2015, p 128.

In relation to capital expenditure, Sydney Water reported that it achieved savings of \$199 million¹⁶ over the 2012 period (compared to the amount we allowed for in setting prices). Its forecast capital expenditure for the 2016 period is \$2.8 billion. This is \$137 million more than its expected capital expenditure for the 2012 period, and includes a proposed \$328 million investment in Information Technology (around half of which is to replace a 28-year old billing system).¹⁷ In line with its 2012 proposal, Sydney Water's proposed capital program over the 2016 determination period is largely driven by the need to replace ageing assets and service growth.

Sydney Water noted that its expected annual average capital expenditure over both the 2012 period (\$646 million) and 2016 period (\$691 million) is below its long-term annual average (\$720 million) - see Figure 1.3. Sydney Water attributed this downward trend in capital expenditure to a shift in focus from delivering essential once in a generation projects to efficiently managing and maintaining existing infrastructure with better management of condition and risk.¹⁸

Figure 1.3 Sydney Water's long-term capital expenditure (\$ millions, \$2015– 16)



Source: Sydney Water pricing proposal, June 2015, p 168.

¹⁶ We have added \$48 million in Housing Acceleration Fund (HAF) payments (which are a source of funding for capital projects) back into Sydney Water's capital expenditure over the 2012 determination period. This reduces Sydney Water's reported capital expenditure savings from \$247 million to \$199 million over the period.

¹⁷ Sydney Water pricing proposal to IPART, June 2015, p 161.

¹⁸ Sydney Water pricing proposal to IPART, June 2015, p 168.

1.2.3 Customer engagement

To inform its pricing proposal, Sydney Water engaged with customers and its Customer Council. As part of this engagement, it surveyed just under 1,700 customers online to assess whether they preferred greater **bill certainty** (ie, a higher fixed water service charge) or greater **bill control** (ie, a higher water usage price). It also provided customers with a bill analyser tool to assess how greater bill control would affect their bill, based on their water usage.¹⁹

The survey results indicated:

- ▼ before using the bill analyser tool, 73% preferred greater bill control over greater bill certainty
- after using the tool, this fell to 61% (the net effect was a 12 percentage point decline, with one-third of the survey participants switching their preference), and
- ▼ 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 \$1.90 to \$2.30 per kL.

Sydney Water used the survey results to help develop its proposed tariffs, particularly its proposed water usage price of \$1.97 per kL and its proposed water service charge for residential customers of \$98.52 per year.²⁰ It also used feedback from customers and its Customer Council to develop its proposal to recover the costs of switching on the Sydney Desalination Plant Pty Ltd (SDP) by increasing both the water usage price and the water service charge, rather than only the service charge as in the past.²¹

Sydney Water's customer engagement also revealed confusion around the meaning of a service charge.²² We explore the issue of misconceptions around services charges and propose alternative pricing terminology in Chapter 9.

Sydney Water indicated that it is conducting ongoing customer research on stormwater pricing. The research aims to understand community views on the scale of investment in stormwater services and how this should be funded, given its expected substantial increases in stormwater expenditure beyond the 2016 determination period.²³

¹⁹ Sydney Water pricing proposal to IPART, June 2015, p xxi.

²⁰ Sydney Water pricing proposal to IPART, June 2015, p xxii.

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

²² Sydney Water pricing proposal to IPART - Appendices, June 2015, p 80

²³ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 64.

1.2.4 Proposed changes to the regulatory framework, form of regulation and price structures

Sydney Water proposed the following changes to its current regulatory framework:

- Asset disposals 50% of proceeds (net of sales costs) from the sale of surplus land to be removed from the Regulatory Asset Base (RAB) and shared with customers. This 50:50 sharing rule would be applied retrospectively when rolling forward the RAB over the 2012 determination period and going forward over the 2016 determination period.²⁴
- Finance leases²⁵ separate water and wastewater RABs for finance lease assets to be established by discounting future lease payments, using the prevailing regulatory WACC.²⁶
- WACC a real post-tax WACC of 4.6% to be used in setting the revenue requirement, including changes by exception for this review to the equity beta and the appropriate balance of long-term and short-term debt.²⁷
- Tax the provision of revenue for capital gains tax (on land sales) to be included on a 'true-up' basis. This would mean basing the tax allowance for the 2016 determination period on actual/forecast capital gains from the 2012 determination period.

Sydney Water also proposed a number of changes to the form of regulation. These include introducing:²⁸

- An Efficiency Benefit Sharing Schemes (EBSS) to increase and equalise its financial reward, and therefore its incentives, for achieving cost savings during the regulatory period.
- A cost pass through mechanism to allow it to pass on to customers the costs of uncertain and uncontrollable events incurred during the regulatory period.
- A weighted average price cap (WAPC) to allow it to vary the types and levels of tariffs charged to customers during the regulatory period, subject to suitable pricing guidelines and, if necessary, side constraints.

²⁴ Sydney Water pricing proposal to IPART, June 2015, pp 208-82.

²⁵ We note that Sydney Water's preferred regulatory treatment is for all lease payments to be treated as operating expenditure, with a provision of revenue for tax. This is similar to the current regulatory treatment for both operating and finance leases. See Sydney Water pricing proposal to IPART, June 2015, p 287.

²⁶ Sydney Water pricing proposal to IPART, June 2015, p 287.

²⁷ Sydney Water pricing proposal to IPART, June 2015, p 219.

²⁸ Sydney Water pricing proposal to IPART, June 2015, p xxiv.

In addition, Sydney Water proposed the following changes to the structure of its prices:²⁹

- Rebase water and wastewater service charges for residential and nonresidential customers on the number of deemed 20mm water meters (a key base assumption for Sydney Water's pricing proposal).
- ▼ **Fix the wastewater usage discharge allowance**³⁰ for non-residential customers at 0.822 kL a day (equivalent to 300 kL a year).
- Alter joint service arrangements so that unrelated non-residential multipremises on a private joint service arrangement are treated as two distinct properties, and charged on an individual basis.
- Alter dual occupancy arrangements so that dual occupancies are treated as one property and receive only one water and wastewater service charge per year.

1.3 Sydney Water's pricing proposal for other services

For trade waste, and ancillary and miscellaneous services, Sydney Water has proposed minor changes to many of these prices. It has proposed a number of small adjustments to its miscellaneous and ancillary charges, including introducing new services, retiring obsolete ones and revising others. This includes the introduction of:

- a late payment fee set at \$4.10 or interest (whichever is the greater), and
- ▼ a credit card payment fee of 0.4%.³¹

It considers both these fees are cost-based and well below the level of similar fees applied by other utilities.³² It proposed to apply exclusions to ensure that the late payment fee does not unfairly affect customers who are in financial difficulty and cannot pay their bill.³³

²⁹ Sydney Water pricing proposal to IPART, June 2015, p 110.

³⁰ In the 2012 Determination, we proposed to align the discharge allowance for non-residential customers with the average discharge of 150 kL per year for residential customers (which is implicit in their service charges) at the next price review.

³¹ Sydney Water pricing proposal to IPART, June 2015, pp 95-96.

³² Sydney Water pricing proposal to IPART, June 2015, p 17.

³³ Sydney Water pricing proposal to IPART- Appendices, June 2015, p 28.

For Rouse Hill residents, Sydney Water proposed to maintain all stormwater and land charges in real terms (\$2015-16) over the 2016 determination period. In particular, it proposed to maintain the:

- ▼ Rouse Hill stormwater drainage charge at \$140.33 (plus inflation) per year.
- ▼ Rouse Hill land charge at \$249.97 (plus inflation) per year³⁴ for existing customers and for customers connecting to new properties by June 2026 (which extends the recovery period by four years).³⁵ To do so, it proposed to recover additional land costs (a net amount of \$17.1 million) by allocating them to Sydney Water's wastewater customers.³⁶

For wholesale water services, Sydney Water indicated that it supports our proposal to address the pricing of these services as part of the 2016 determination. It submitted that the access framework in the *Water Industry Competition Act 2006* (NSW) (WIC Act), including the principle of consistency with postage stamp pricing, supports efficient market entry of other potential water and/or wastewater service providers. However, it noted that some parties remain uncertain about the scope of the WIC Act and the services it covers. To increase certainty, it suggested either IPART could determine a wholesale access price (or a price methodology) or Sydney Water could further progress its voluntary access undertaking.³⁷

For recycled water services, Sydney Water proposed to set the recycled water usage price at 90% of the charge for drinking water (noting that under Sydney Water's proposal, the usage charge for drinking water decreases by 13.9%).³⁸ It considers that this will reduce the risk of it under-recovering its recycled water costs.

1.4 Approach for making pricing decisions

To reach our decisions on water, wastewater and stormwater prices, we propose to use an approach that involves the following six steps:

- 1. Decide on the length of the determination period and the approach for calculating Sydney Water's notional annual revenue requirement over this period.
- 2. Calculate the notional revenue requirement.
- 3. Decide on the form of regulation and other regulatory mechanisms to apply.
- 4. Decide on forecast sales volumes and customer numbers.

³⁴ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 15.

³⁵ Sydney Water pricing proposal to IPART, June 2015, p 291.

³⁶ Sydney Water pricing proposal to IPART, June 2015, p 102.

³⁷ Sydney Water pricing proposal to IPART, June 2015, p 245.

³⁸ Sydney Water pricing proposal to IPART, June 2015, p 101.

- 5. Decide on price structures and levels to generate the revenue requirement, in line with our decisions on the form of regulation and forecast sales and customer numbers.
- 6. Consider the implications of these prices to ensure they strike the right balance between matters we are required to consider.

To make our decisions on prices for the other services covered by this review, we propose to use separate approaches:

- For trade waste, ancillary and miscellaneous services, we will:
 - determine the efficient costs of providing these services and set prices to recover this revenue, and
 - subtract the target revenue from these services from the notional revenue requirement (as calculated in step 2 above).
- ▼ For Rouse Hill charges, we will consider the revenue required for these services and the prices needed to recover this revenue, and make any necessary adjustment to the notional revenue requirement.
- For wholesale water services, we will decide on whether we should determine charges for on-selling arrangements under this price determination and, if so, on what basis.
- For recycled water services, we will ensure that recycled water costs are ringfenced from the notional revenue requirement and monitor the prices proposed for all mandated recycled water schemes.

1.5 Structure of this Issues Paper

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

- Chapter 2 outlines context for the review, including key developments in Sydney Water's regulatory environment since our 2012 Determination that will affect our decisions and inputs into this review
- Chapters 3 to 12 discuss the issues related to the steps in our approach for setting water, wastewater and stormwater prices:
 - Chapter 3 covers the length of the determination period and the approach for calculating the notional annual revenue requirement
 - Chapters 4 to 6 focus on the key inputs for applying this approach, including the allowance for operating expenditure, prudent and efficient capital expenditure, and the allowances for a return on capital, regulatory depreciation and tax
 - Chapters 7 addresses the form of regulation, including an efficiency benefit sharing scheme, cost pass through mechanism, and weighted average price cap
 - Chapter 8 covers the forecast sales volumes and customer numbers

- Chapters 9 to 10 discuss price structures and levels
- Chapter 11 looks at the issues related to setting prices for Sydney Water's other services, including trade waste and ancillary and miscellaneous services
- Chapter 12 and 13 address the issues related to wholesale water pricing and recycled water pricing.

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

1.6 List of issues for stakeholder comment

Length of the determination period

1	What should be the length of this determination period?	33
2	Should the determination periods of regulated utilities align? If so, across which utilities and why?	33
Op	perating expenditure	
3	Are Sydney Water's proposed operating costs over the 2016 determination period efficient, taking into account drivers of this expenditure and water management outcomes achieved?	47
4	What scope is there for Sydney Water to achieve efficiency gains over the 2016 determination period?	47
Bu	Ik water costs – WaterNSW	
5	Are Sydney Water's proposed bulk water costs from WaterNSW reasonable?	49
6	How should bulk water costs associated with pumping from the Shoalhaven River be treated over the 2016 determination period, noting that our preference is to continue to pass these through on an expected cost basis?	49
7	If a Raw Water Quality Incentive Payment is included in WaterNSW's prices to Sydney Water, is our proposal not to include these payments in Sydney Water's allowance for bulk water costs from WaterNSW appropriate?	50

Bulk water costs - Sydney Desalination Plant

8	Should we continue to pass through variations in SDP's actual fixed costs because of changes to its operating modes through to water service charges at a one-year lag?	51
Cap	pital expenditure	
9	Is Sydney Water's past capital expenditure over the 2012 determination period prudent, taking into account drivers of this expenditure and service outcomes achieved?	58
10	Is Sydney Water's forecast capital expenditure program over the 2016 determination period efficient, taking into account expenditure drivers, scope for efficiency gains, and proposed water management outcomes?	58
11	Is Sydney Water's proposed expenditure on IT (including its customer information system) efficient?	58
12	Is Sydney Water's proposed expenditure on assets to service growth efficient?	58
13	Is Sydney Water's proposed capital expenditure on projects relating to its Environment Protection Licences, including wet weather overflow abatement, efficient?	58
Ass	set disposals	
14	What is the appropriate regulatory treatment of asset disposals?	66
Fina	ance leases	
15	What is the appropriate regulatory treatment of finance leases?	69
Rat	e of return	
16	What is an appropriate rate of return on Sydney Water's assets?	70
Re	gulatory depreciation	
17	Is Sydney Water's proposed allowance for regulatory depreciation, including the assumptions (eg, asset values and asset lives) underpinning this allowance, reasonable?	72

Form of regulation

18	Are there any significant similarities or differences between the regulated sectors identified by Sydney Water (which have adopted the proposed incentive mechanisms and pricing flexibility) and the NSW urban water sector? What are the implications of these similarities or differences for Sydney Water's proposal?	81
19	Does Sydney Water's proposal reflect an appropriate selection of incentive based approaches and mechanisms?	81
20	How successful have incentive mechanisms and pricing flexibility been in other jurisdictions or regulated sectors? What are the key determinants of success or failure?	81
Effic	ciency benefit sharing schemes	
21	Is our modified EBSS likely to remove the opportunity to game, while maintaining the incentive to achieve permanent efficiency savings? Are there alternative modifications to the EBSS that better achieve these objectives?	87
22	What is an appropriate holding period for permanent efficiency savings achieved by Sydney Water, taking into account observed outcomes in competitive markets and potential benefits to customers?	87
23	Would an opex EBSS likely result in an increase in regulatory complexity, reduction in transparency or increase in administrative costs? If so what could be done to minimise these effects?	87
24	Are there complements or alternatives to an opex EBSS, such as productivity benchmarking, that can drive further efficiency gains?	87
25	What are the arguments for and against a capex EBSS? How would it deliver long term benefits to customers?	90
26	Can the capex EBSS be modified to remove incentives to over forecast, while maintaining incentives to achieve permanent efficiency savings?	90
27	Are there complements or alternatives to a capex EBSS to drive further efficiency gains in capital expenditure?	90
We	ghted average price cap	
28	What can we learn from the experience of other jurisdictions and regulated industries with WAPCs?	104
29	How can a WAPC be used to set more cost-reflective prices or enhance value to customers?	104

1 Introduction

30	Should a WAPC apply at first only to large non-residential customers? Should it apply to both water and wastewater services?	104
31	What are suitable pricing principles and a pricing strategy to accompany a WAPC? In particular:	104
	 What should be the relevance and role of long-run marginal cost pricing under a WAPC? 	105
	 Should the WAPC be used to transition away from postage stamp pricing 	?105
32	What side constraints would we need to impose on the operation of the WAPC? Would allowing customers to opt out of regulated prices and opt int prices set by Sydney Water lead to better outcomes for customers?	o 105
Wa	ter sales and customer numbers	
33	Are Sydney Water's forecasts of water sales and customer numbers reasonable?	116
34	What regulatory mechanism, if any, should we use to account for demand volatility?	116
35	Is Sydney Water's proposed approach for forecasting chargeable wastewate volumes (including its assumptions) reasonable?	er 118
Re	basing water and wastewater service charges	
36	Is Sydney Water's proposal to rebase water and wastewater service charges to a 20mm meter equivalent reasonable, in terms of its impacts on different customer groups?	3 122
Wa	stewater discharge allowance	
37	Should the discharge allowance for non-residential customers remain at 300 kL a year as per Sydney Water's proposal, or be reduced to 150 kL to align with the average level of discharge for residential customers?	128
Joi	nt service arrangements	
38	Are Sydney Water's proposed changes to charges to joint service arrangements appropriate?	130

Dual occupancies

39	Should dual occupancies be charged:	132
	 a single water service charge and a wastewater service charge in line with Sydney Water's proposal; or 	1 132
	 as two distinct properties as is currently the case, where both the main dwelling and the secondary dwelling each attract a water service charge and a wastewater service charge? 	132
Pric	cing terminology	
40	What is the most appropriate name for the current fixed 'service charge'?	134
Wa	ter usage charge	
41	Is Sydney Water's proposed water usage charge of \$1.97 per kL reasonable If so, why?	? 145
42	Should the water usage charge be set with reference to the long-run margina cost of water supply, or should greater weight be placed on customer preferences?	l 145
43	Should Sydney Water's water usage charges vary to make drought-response costs more transparent to end-use customers (ie, by reflecting the per kilolitr cost of desalinated water if Sydney Desalination Plant is activated)?	e 145
Wa	ter service charges	
44	Are Sydney Water's proposed water service charges reasonable?	147
Wa	stewater usage charges	
45	Is Sydney Water's proposal to maintain the current wastewater usage charge applied to non-residential customers of \$1.10 per kL reasonable?	150
46	Should residential customers pay a wastewater usage charge?	150
Wa	stewater service charges	
47	Are Sydney Water's proposed wastewater service charges reasonable?	152
Sto	rmwater drainage charges	
48	Are Sydney Water's proposed stormwater charges reasonable?	157

49	Should stormwater charges transition further towards strict area-based charges?	157
Tra	de waste charges	
50	Are Sydney Water's proposed changes to trade waste charges reasonable?	164
Late	e payment fees	
51	Is Sydney Water's proposed late payment fee reasonable?	167
52	What type of customers should be exempt from late payment fees?	167
Mis	cellaneous and ancillary charges	
53	Are Sydney Water's proposed changes to its miscellaneous and ancillary charges reasonable?	170
Rou	ise Hill charges	
54	Is the proposed level of the Rouse Hill stormwater drainage charge reasonable?	172
55	Who should pay the additional costs of land acquisition for the stormwater drainage system in Rouse Hill?	174
Unf	iltered water charges	
56	Is the \$0.30 per kL discount used to calculate the unfiltered water charge still appropriate?	177
Unr	netered water charges	
57	Should the 180 kL per year of deemed usage embedded in the unmetered water charge increase to reflect the current average residential consumption of 200 kL per year or the current average consumption for metered single houses of 220 kL per year?	179
Min	or service extension charges	
58	Should the methodology used to determine minor service extension charges be changed? If so, how and on what basis?	179

Wholesale pricing

59	What is the most appropriate methodology or basis for setting wholesale prices?	184
60	What is a reasonable retail-minus avoidable costs price cap to apply to all wholesale customers?	187
61	Should wholesale prices be regulated under the WIC Act, IPART's price determination or a combination of both?	188
Rec	cycled water	

- 62 Is Sydney Water's proposed recycled water price of 1.77 per kL (set at 90% of its proposed drinking water charge) reasonable for its mandated schemes?192
- 63 Should all of Sydney Water's mandated recycled water schemes charge the same recycled water price, regardless of their use of potable top-up water? 192

2 Context for the review

This review will be conducted under section 11 of the *Independent Pricing and Regulatory Tribunal Act* 1992 (the IPART Act).³⁹ In making our price determination, we will have regard to the requirements of section 15 of the IPART Act (see Appendix A).

To provide the context for this review, the sections below outline Sydney Water's regulatory framework and the key developments in its regulatory environment since our 2012 Determination. These developments will affect our decisions and inputs into 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.

2.1 Sydney Water's regulatory framework

Sydney Water is a State Owned Corporation (SOC), wholly owned by the NSW Government.⁴⁰ Sydney Water's roles and responsibilities are prescribed by the *Sydney Water Act 1994* (NSW) (the Sydney Water Act), the *State Owned Corporations Act 1989* (NSW) (SOC Act) and the operating licence issued to Sydney Water under Part 5 of the Sydney Water Act.

Under Section 21 of the Sydney Water Act, Sydney Water is required to fulfil three equally weighted objectives:

- to be a successful business
- to protect the environment, and
- to protect public health.

According to Sydney Water, the equal importance of each objective provides a safeguard against adverse outcomes and acknowledges that Sydney Water was predominantly self-regulated before 1994.⁴¹

³⁹ Section 11 of the IPART Act provides us with a standing reference to determine maximum prices for Sydney Water.

⁴⁰ Sydney Water transitioned from a government department to a monopoly SOC under the Sydney Water Act 1994 (NSW) and (an amendment to) the State Owned Corporations Act 1989 (NSW).

⁴¹ Sydney Water pricing proposal to IPART, June 2015, p 67.

Since 1994, the safeguards to protect society against public health risks and major pollution events have subsequently evolved through explicit legislative and regulatory arrangements and licensing regimes. Sydney Water's primary regulators are:

- ▼ **IPART (pricing)**. We are responsible for setting the maximum prices that Sydney Water can charge for its monopoly services, as well as the maximum prices for bulk water services supplied to Sydney Water by WaterNSW and Sydney Desalination Plant (SDP).
- IPART (licensing). We are also responsible for monitoring and reporting on Sydney Water's compliance with its operating licence, including its obligations in relation to customer service, water quality, and system performance.⁴²
- NSW Environment Protection Authority (EPA). The EPA is responsible for monitoring and regulating Sydney Water's environmental performance. It issues Environment Protection Licences (EPLs) under *the Protection of the Environment Operations Act 1997* (NSW) for Sydney Water's wastewater treatment systems and water filtration plants.
- NSW Health. NSW Health is responsible for regulating the quality and safety of Sydney Water's drinking water.
- ▼ **DPI Water**. DPI water regulates Sydney Water's extractions from the Hawkesbury-Nepean River. These extractions are used by the North Richmond water filtration plant to provide a drinking water supply for the Hawkesbury area. The Metropolitan Water Directorate (part of DPI Water) leads a whole-of-government approach to water planning for greater Sydney and the lower Hunter.

2.2 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:

- bulk water costs
- price structures, and
- financing costs and tax allowance.

⁴² IPART also grants licences to water infrastructure operators, and has granted the Sydney Desalination Plant a Water Industry Competition Act 2006 (NSW) licence.

2.2.1 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.⁴³ We are concurrently conducting a review to determine WaterNSW's maximum prices from 1 July 2016. Therefore, we can use our final 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:⁴⁴

...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 2017.⁴⁵ 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.

This issue is discussed further in Chapter 4, and the sequencing of future Sydney Water reviews is discussed in Chapter 3.

⁴³ Sydney Water pricing proposal to IPART, June 2015, p ii.

⁴⁴ NSW Government, 2010 Metropolitan Water Plan, August 2010, p 36.

⁴⁵ IPART, Review of water prices for Sydney Desalination Plant Pty Limited from 1 July 2012 – Final Report, November 2011.

2.2.2 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 2012.⁴⁶ 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:⁴⁷

- 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 sewerage 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 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 will consider 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.⁴⁸

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.

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.⁴⁹

⁴⁶ IPART, *Review of Price Structures for Metropolitan Water Utilities – Final Report*, March 2012.

⁴⁷ IPART, Review of Price Structures for Metropolitan Water Utilities - Final Report, March 2012, p 3.

⁴⁸ 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 – Final Report*, June 2012, p 103.

⁴⁹ IPART, *Discharge factors for non-residential customers – Final Report*, December 2014.

Chapter 9 discusses Sydney Water's price structure proposals and our response to these proposals in the context of these reviews.

2.2.3 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 WACC⁵⁰ 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 WACC⁵¹
- estimating the debt margin parameter of the WACC⁵²
- ▼ assessing the short-term financial sustainability of regulated utilities and elements of our financeability test,⁵³ and
- calculating the credit ratios we use in our financeability test, including Funds From Operations (FFO), Debt Gearing and FFO over debt.⁵⁴

Sydney Water submitted that these reviews have increased the transparency of the regulatory process and provided more certainty for regulated businesses.⁵⁵ 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 Baa1.⁵⁶ However, it also raised some issues with the methodology by exception for this review.⁵⁷

In addition, we have recently 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.⁵⁸

Sydney Water's proposals on the WACC methodology and treatment of financial leases are discussed in Chapter 6.

⁵⁰ IPART, *Review of WACC Methodology – Final Report*, December 2013.

⁵¹ IPART, New approach to forecasting the WACC inflation adjustment, March 2015.

⁵² IPART, New approach to estimating the cost of debt, April 2014.

⁵³ IPART, Financeability tests in price regulation – Final Decision, December 2013.

⁵⁴ IPART, Financeability ratios – Final Decision, April 2015

⁵⁵ Sydney Water pricing proposal to IPART, June 2015, p xxiii.

⁵⁶ Sydney Water pricing proposal to IPART, June 2015, p xxiii.

⁵⁷ Sydney Water pricing proposal to IPART, June 2015, p 218.

⁵⁸ IPART, Regulatory treatment of finance leases – Fact Sheet, January 2015.

2.3 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.⁵⁹

Sydney Water's new licence started on 1 July 2015 and will end on 30 June 2020.⁶⁰ It contains similar standards to the 2010–2015 licence, which expired on 30 June 2015. The follow 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 placed on WICA licensees (referred to in clause 25 of the WIC Regulation).
- 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.
- 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.⁶¹

⁵⁹ IPART, Sydney Water Corporation Operating Licence – Report to the Minister, May 2015, p 4.

⁶⁰ IPART, Sydney Water Corporation Operating Licence 2015-2020, July 2015, p 2.

⁶¹ IPART, *Sydney Water Corporation Operating Licence – Report to the Minister*, May 2015, clause 3.2, clause 3.1, clause 5.8, clause 4.4, schedule 4 Customer Contract.

In undertaking Sydney Water's licence review (which recommended these changes to Sydney Water's licence),⁶² 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.⁶³

2.4 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:

- ▼ 23 for wastewater treatment systems
- two for water filtration plants
- one for an advanced recycled water filtration plant, and
- ▼ one to transport waste.⁶⁴

Sydney Water's EPLs are currently being reviewed by the EPA.⁶⁵ This has implications for Sydney Water's costs in the areas of wet weather overflow abatement and the Winmalee sewage treatment plant.

In its pricing proposal, Sydney Water noted that the EPA has no explicit legislative requirement to consider efficiency when introducing licence requirements.⁶⁶ It also noted that the EPA can vary the EPLs outside the price determination period and that variations occur regularly. Sydney Water's costs may increase substantially from such variations, which may be unfunded depending on the time of the variation and the price submission.⁶⁷

Sydney Water indicated that it is actively engaging with the EPA on the current licensing of wet weather overflows.⁶⁸ It is developing an effects-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.

⁶² 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, *Sydney Water Corporation Operating Licence – Report to the Minister*, May 2015, p 1.

⁶³ IPART, Sydney Water Corporation Operating Licence – Report to the Minister, May 2015, p 10.

⁶⁴ Sydney Water pricing proposal to IPART, June 2015, p 12.

⁶⁵ Unlike the Operating Licence, the EPLs do not have a defined start and end date and the EPA can vary them at any time.

⁶⁶ Sydney Water pricing proposal to IPART, June 2015, p 69.

⁶⁷ Sydney Water pricing proposal to IPART, June 2015, p 12.

⁶⁸ Sydney Water pricing proposal to IPART, June 2015, p 27.
Sydney Water estimated that under the terms of the current EPLs, full compliance with regard to wet weather overflows would require expenditure of about \$5.5 billion (\$2011-12) and increase wastewater bills by about 20% over the long-term.⁶⁹ It has committed to submitting a proposal to the EPA by December 2015 with alternative licence requirements.⁷⁰ 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.⁷¹

We will assess the reasonableness of Sydney Water's proposed EPL expenditure and the basis upon which it has developed this proposal. In our submission to the EPA's review of Sydney Water's EPLs, we expressed the view that:⁷²

- the utility has a role in participating in the regulatory process and working together with the regulator to develop the best possible outcome
- 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
- 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.

Sydney Water's proposed EPL expenditure is discussed further in Chapter 5.

2.5 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.⁷³

⁶⁹ Sydney Water pricing proposal to IPART, June 2015, p 27.

⁷⁰ Sydney Water pricing proposal to IPART, June 2015, p 205.

⁷¹ Sydney Water pricing proposal to IPART, June 2015, pp 204-05.

⁷² IPART Submission to the Environment Protection Authority review of Sydney Water Corporation's environmental protection licences, May 2015.

⁷³ NSW Government, Metropolitan Water Directorate, *Updating the Plan*, accessed on 12 June 2015 from http://www.metrowater.nsw.gov.au/planning-sydney/updating-plan

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:⁷⁴

- Phase 1 scoping, research and investigations and community engagement (complete).
- 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 current review of Sydney Water's prices will be:

- 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.⁷⁵ This review may impact the timing of the Metropolitan Water Plan.

⁷⁴ NSW Government, Metropolitan Water Directorate, Updating the Plan, accessed on 12 June 2015 from http://www.metrowater.nsw.gov.au/planning-sydney/updating-plan/current-review

⁷⁵ NSW Government, Department of Primary Industries, Hawkesbury-Nepean Valley Flood Management Review, accessed on 12 June 2015 from http://www.water.nsw.gov.au/watermanagement/water-availability/flood-management/hawkesbury-nepean-valley-floodmanagement-review

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 2015:⁷⁶

- ▼ 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).⁷⁷

2.6 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.⁷⁸ 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.⁷⁹ 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.

⁷⁶ NSW Government, NSW Office of Water, 2010 Metropolitan Water Plan, August 2010, p 7.

⁷⁷ We note total demand for water in the greater Sydney area is around 500 GL each year.

⁷⁸ Typically through a direction given under section 20P of the SOC Act. See Sydney Water pricing proposal to IPART, June 2015, p 68.

⁷⁹ 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.

▼ **The Replacement Flows Project**. We are directed to pass through the efficient costs of construction and ongoing operation of the Replacement Flows Project.⁸⁰

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.⁸¹ The directions related to the Replacement Flows project and the Rosehill (Camellia) project were issued in August 2007 and March 2008, respectively.⁸²

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 3.

⁸⁰ 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.

⁸¹ 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).

⁸² At the time, we also received a direction relating to SDP. Since then, SDP has transferred ownership (ie, from Sydney Water) and is now regulated by us through a separate price determination.

3 Length of determination period and approach for calculating revenue requirement

As Chapter 1 discussed, 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. The sections below outline Sydney Water's proposal and our preliminary response on each of these issues.

3.1 Length of the determination period

For each water pricing review, we make a decision on the length of the determination period. In general, the determination period can have a duration of between one and five years, depending on the circumstances. However, we have typically favoured four years.

3.1.1 Sydney Water's proposal on length of determination period

Sydney Water proposed a 4-year determination period, from 1 July 2016 to 30 June 2020. It supported maintaining a 4-year determination period because:⁸³

- 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.⁸⁴

Sydney Water also noted that its proposals to enhance customer engagement and the regulatory framework will, if adopted, create some uncertainty for all parties. Therefore, it considers it would be appropriate for these implementation issues to be understood and addressed before considering a longer determination period.⁸⁵

⁸³ Sydney Water pricing proposal to IPART, June 2015, p231.

⁸⁴ We note that Sydney Water's pricing proposal only includes prices to 2019-20.

⁸⁵ Sydney Water pricing proposal to IPART, June 2015, p231.

3.1.2 IPART's response on length of determination period

Our preliminary view is that a 4-year period is most appropriate for this Sydney Water determination. For our recent metropolitan water determinations, we have mostly opted for a 4-year period.

In making our draft decision on this issue, we will consider:

- ▼ The range of factors that typically influence the appropriate length for a determination period. These factors are outlined in Box 3.1.
- ▼ The merits of maintaining the alignment of determination periods across regulated water utilities. Sydney Water, Hunter Water and WaterNSW (Greater Sydney) have each proposed a 4-year 2016 determination period. If we accept the utilities' proposals, the determination periods for all three utilities will be aligned. The issues we will consider are outlined in Box 3.2.

We also seek the views of stakeholders on the appropriate length of the determination period for Sydney Water, including any views on the merits of aligning determination periods across the large metropolitan water utilities.

Box 3.1 Factors we consider in deciding on length of determination period

In general, we consider the following factors when deciding on the length of the determination period:

- the confidence we can place in the utility's forecasts
- the risk of structural changes in the industry
- the need for price flexibility and incentives to increase efficiency
- the need for regulatory certainty and financial stability, and
- the benefits of aligning the determination with the term of the operating licence (where applicable).

Longer determination periods have several advantages over shorter periods. For example, a longer period provides greater stability and predictability (which may lower the utility's business risk and assist investment decision making), strong incentives for the utility to increase efficiency and reduced regulatory costs.

However, longer determination periods also have disadvantages. These include increased risk associated with inaccuracies in the data used to make the determination, possible delays in customers benefitting from efficiency gains, and the risk that changes in the industry will impact the effectiveness of the determination.

Box 3.2 Issues associated with alignment of determination periods

There are four broad categories of issues potentially associated with the alignment of determination periods:

- ▼ Methodological consistency. There can be issues when agencies of a similar nature have determinations at different times. For example, after a request from Hunter Water, we aligned its determination period with Sydney Water's because it allows for consistent regulatory decisions (eg, WACCs) for similar water utilities and allows better comparison of performance.
- Organisational relationships / interactions. Sydney Water purchases its bulk water from both WaterNSW and SDP. Therefore, Sydney Water's bulk water costs are determined by WaterNSW's and SDP's prices. If these utilities' determination periods are not aligned, we may need to use more complicated approaches to ensure Sydney Water's prices recover its bulk water costs, such as cost-pass-through mechanisms.
- Common customer base. Rural water customers in NSW receive services and common bills from two organisations: WaterNSW (Rural) and the DPI Water (formerly the NSW Office of Water). Customers may be confused about the distinct roles of each and the appropriate determination for a particular issue. Aligning pricing determinations may improve transparency and customers' understanding of prices.
- Internal organisation and cost allocation issues. There can be issues arising from an organisation's internal requirements. For example, in the coming years we will make two separate price determinations for WaterNSW – one for its services in the Greater Sydney area (ex-SCA) and another, later determination for its rural functions (ex-State Water). Aligned determination periods (or a combined determination) may save on the regulatory costs arising from conducting separate reviews of one organisation at different times.

IPART seeks comments on the following

- 1 What should be the length of this determination period?
- 2 Should the determination periods of regulated utilities align? If so, across which utilities and why?

3.2 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 will use a 'building block' method to calculate Sydney Water's revenue requirement. This method involves determining, for each year of the determination period, an allowance for:

 Operating expenditure, which represents our estimate of the efficient level of Sydney Water's forecast operating, maintenance and administration costs.

- ▼ 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 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 weighted 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 3.1).



Figure 3.1 Building block approach

Once we have calculated Sydney Water's notional revenue requirement, we decide on the approach we should use to convert this amount into prices. This involves deciding on the **target revenue** for each year – that is, the actual revenue we will expect Sydney Water to generate from prices and charges for that year. To make this decision, we consider 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.

3.2.1 Sydney Water's proposal on revenue requirement

Sydney Water's proposal on the revenue requirement included its proposed notional revenue requirement, target revenue and revenue requirement for Government directions under section 16A of the IPART Act, as well as proposed changes to the way some building block elements are calculated.

Proposed notional revenue requirement

Sydney Water proposed a notional revenue requirement of \$9.7 billion over the 4-year period to 2019-20. After adjusting for inflation, this is \$600 million lower than the revenue allowed for in the 2012 Determination (\$10.3 billion), which covered the 4-year period to 2015-16.

Figure 3.2 compares Sydney Water's proposed notional revenue requirement for the 2016 determination period with the notional revenue requirement we determined for 2012 determination period.

Figure 3.2 Sydney Water's proposed notional revenue requirement over the 2016 determination period (\$ millions, \$2015-16)



Data source: Sydney Water pricing proposal to IPART, p 83; and IPART analysis.

The main factors contributing to Sydney Water's proposed reduction in its notional revenue requirement are decreases in:

- operating expenditure, due to efficiency gains and lower forecast bulk water costs
- ▼ the return on assets allowance, due to a reduction in the WACC from 5.6% to 4.6%.

These decreases are partly offset by increases in the allowances for regulatory depreciation and tax.

Table 3.1 shows the compositional shifts in the building blocks that make up Sydney Water's proposed notional revenue requirement.

	2012-16 ^{a,b}		Proposed 2016-2		
Building block	Cost	Share of total	Cost	Share of total	
Operating expenditure ^c	5,639	55.1%	5,002	51.7%	
Return on assets	3,364	32.9%	3,109	32.1%	
Regulatory depreciation	1,029	10.1%	1,289	13.3%	
Return on working capital	30	0.3%	24	0.2%	
Тах	171	1.7%	260	2.7%	
Total	10,233	100%	9,685	100%	

Table 3.1Sydney Water's proposed notional revenue requirement over the
2016 determination period (\$ millions, \$2015-16)

a 2012-16 figures represent those IPART used to set prices in the 2012 Determination.

b Adjusted for inflation.

c Operating expenditure includes bulk water purchases.

Note: The reduction in operating expenditure is partially caused by a change in the treatment of finance leases. Interest and principal payments associated with finance leases are no longer included in operating expenditure. However, this is partially offset by an increase in the RAB by the value of finance lease assets and the associated increase in return on assets and depreciation.

Source: Sydney Water pricing proposal to IPART, June 2015, p 78.

Proposed target revenue

To avoid unnecessary price fluctuations, Sydney Water proposed target revenue that smooths customers' bills over the 2016 determination period.⁸⁶ For water and wastewater services – which make up most of a typical customer's bill – its proposed target revenue is Net Present Value (NPV) neutral.⁸⁷ That is, 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.

⁸⁶ Sydney Water pricing proposal to IPART, June 2015, p 81.

⁸⁷ Sydney Water pricing proposal to IPART, June 2015, p 80.

For stormwater services, Sydney Water's proposed target revenue is slightly NPV-positive – that is, it will recover more than the notional revenue requirement for stormwater drainage over the 4-year period. According to Sydney Water, this reflects its long-term view of stormwater pricing and will prevent price shocks in the future. In particular, it proposes to over-recover notional stormwater drainage revenue in the 2016 period, and under-recover this revenue in the subsequent period, making its stormwater charges NPV-neutral over eight years rather than four.⁸⁸

Sydney Water's proposed notional revenue requirement and target revenue are shown in Table 3.2 below.

Table 3.2	Sydney Water's proposed notional revenue requirement and
	target revenue (\$ millions, \$2015-16)

		-			
	2016-17	2017-18	2018-19	2019-20	NPV
Notional revenue requirement	2,361	2,402	2,439	2,483	8,658
Target revenue	2,385	2,411	2,436	2,464	8,669
Difference	24	8	-3	-19	12
Real post-tax WACC	4.6%	4.6%	4.6%	4.6%	

Note: Totals may not add due to rounding.

Source: Sydney Water pricing proposal to IPART, June 2015, p 83; and IPART analysis.

Proposed revenue for Government directions under section 16A

As Chapter 2 discussed, the Government can issue directions for Sydney Water to complete projects in the public interest and for IPART to pass on the efficient costs of these projects in prices (section 16A directions). Currently, three section 16A directions apply to Sydney Water. Its proposed notional revenue requirement includes the following amounts for these projects over the 2016 determination period:

- Stormwater works at Green Square: \$42 million in capital expenditure, which is expected to capture the entire capital expenditure for construction of the project.
- Rosehill (Camellia) Recycled Water Project: \$64 million in net operating expenditure,⁸⁹ which is a net increase of 23% compared to the net costs we included in prices over the 2012 period.
- ▼ **Replacement Flows Project:** \$33.7 million in operating expenditure, which is a net decrease of 7% compared to the costs we included in prices over 2012 period (See Appendix C for further details.)

⁸⁸ Sydney Water pricing proposal to IPART, June 2015, p 82.

⁸⁹ Net operating expenditure is total operating expenditure less revenue received from sales of recycled water.

Proposed changes to the building block method

Sydney Water proposed some changes to the way we calculate some of the building block allowances, including the tax allowance (see Chapter 6 for further details). It also proposed changes to the 'form of regulation' aimed at augmenting the traditional building blocks used to determine prices (see Chapter 7).⁹⁰ For example, Sydney Water has proposed a cost pass through mechanism to adjust its revenue requirement in each year if certain events occur.

3.2.2 IPART's response on revenue requirement

We will review each element of Sydney Water's proposal on the revenue requirement. We will examine each of the building block allowances and the key inputs to these allowances – including the prudent and efficient levels of Sydney Water's past and forecast capital expenditure, the value of Sydney Water's RAB, the appropriate WACC, the appropriate asset lives and depreciation method. We will also examine the proposed revenue for Government directions under section 16A included in these allowances.

In addition to our own investigations, we will engage consultants to review the efficiency of Sydney Water's forecast operating expenditure and the prudence and efficiency of its past and forecast capital expenditure. We will also consider stakeholder comments on the proposed revenue requirement.

Taking account of all of the above, we will form our own view of the efficient, prudent or appropriate value for each allowance and key input, and use these values to determine the notional revenue requirement. The issues we will consider are discussed in Chapters 4 to 6.

Once we determine the notional revenue requirement, we will set the target revenue taking into consideration the impact on customers and the utility.

⁹⁰ Sydney Water pricing proposal to IPART, June 2015, p 73.

4 Allowance for operating expenditure

As Chapter 3 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, among other, bulk water purchase costs, costs of labour, service contractors, energy, materials, plant and equipment.

This chapter outlines Sydney Water's actual operating expenditure over the 2012 determination period, and then discusses its proposed operating expenditure for the 2016 determination period and our preliminary response to this proposal.

4.1 Sydney Water's actual operating expenditure in 2012 period

In its proposal, Sydney Water indicated that it has improved the way it manages operating expenditure over the 2012 determination period. It expects that its actual expenditure over this period will be \$5.4 billion, which is \$223 million (4%) less than the operating expenditure allowed for in the 2012 Determination (see Table 4.1 below).

	2012-13	2013-14	2014-15	2015-16 ^a	Total
Determination	1,416	1,408	1,401	1,393	5,618
Actual	1,411	1,321	1,326	1,337	5,395
Difference	-5	-86	-75	-56	-223
Difference %	-0.4%	-6.1%	-5.4%	-4.0%	-4.0%

 Table 4.1
 Sydney Water actual operating expenditure compared with IPART determined over 2012 determination period (\$ millions, \$2015-16)

a 2015-16 figures are forecasts.

Note: Totals may not add due to rounding.

Source: Sydney Water pricing proposal to IPART, June 2015, p 132.

Sydney Water reported that compared with the IPART determined allowance, its core operating expenditure was \$234 million (or 6.9%) lower, while its non-core operating expenditure (ie, bulk water purchase costs) was \$11.5 million higher.⁹¹

⁹¹ Sydney Water pricing proposal to IPART, June 2015, p 131.

It indicated that the key drivers of its lower core operating expenditure over the 2012 determination period were savings related to its:⁹²

- 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:93

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

4.2 Sydney Water's proposed operating expenditure in 2016 period

Sydney Water proposed operating expenditure of around \$5 billion over the 4year period to 2019-20. According to Sydney Water, it has carried over the efficiencies it realised in the 2012 determination period, and as a result, its forecast operating expenditure for the 2016 period is \$393 million lower than it expects to spend in the 2012 period. It indicated that these efficiencies drive 24% of the expected average decrease in its residential customer bills over the 2016 period.⁹⁴

Table 4.2 shows Sydney Water's proposed operating expenditure in each year of the 2016 determination period, compared with its expected operating expenditure and IPART determined allowance for operating expenditure in 2015-16.

	-	-	-		
	2015-16	2016-17	2017-18	2018-19	2019-20
Determined	1,393				
Forecast	1,337	1,253	1,254	1,248	1,247
Difference	-56				

Table 4.2Sydney Water's proposed operating expenditure for the 2016
determination period (\$ millions, \$2015-16)

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

⁹² Sydney Water pricing proposal to IPART, June 2015, p 133.

⁹³ Sydney Water pricing proposal to IPART, June 2015, p 133.

⁹⁴ Sydney Water pricing proposal to IPART, June 2015, p 128.

As this table shows, Sydney Water's proposed annual operating expenditure in the first year of the 2016 period is substantially lower (\$84 million) than it expects to spend in 2015-16, and remains relatively constant over this period. The key reasons for the step reduction between 2015-16 and 2016-17 are:⁹⁵

- Sydney Water has excluded interest and principal payments associated with finance leases from its forecast operating expenditure from 2016-17 (-\$57 million), and
- its forecast bulk water purchase costs are lower (-\$21 million) due mostly to an expected decrease in WaterNSW's prices.

Figure 4.1 compares Sydney Water's forecast operating expenditure for the 2016 determination period with its actual and IPART determined expenditure over the 2012 period. This figure also shows Sydney Water's actual and forecast operating expenditure on a per property basis over these periods. This expenditure fell from \$467 to \$420 per property over the 2012 period, and is forecast to fall to \$391 per property by the end of the 2016 period.⁹⁶ According to Sydney Water, this forecast fall is the result of its operating costs remaining largely constant over the 2016 period, while its number of customer connections increases by around 1.3% per year.⁹⁷



Figure 4.1 Sydney Water's actual and forecast operating expenditure compared with 2012 IPART determined (\$ millions, \$2015-16)

Data source: Sydney Water pricing proposal to IPART, June 2015, pp 131-132, and 149.

⁹⁵ Sydney Water pricing proposal to IPART, June 2015, p 149.

⁹⁶ Sydney Water pricing proposal to IPART, June 2015, p 131.

⁹⁷ Sydney Water pricing proposal to IPART, June 2015, p 130.

Sydney Water's proposal on operating expenditure includes three main components:

- core operating expenditure, which makes up \$3.1 billion (or 62%) of the total proposed operating expenditure⁹⁸
- Build Own Operate (BOO) water filtration costs, which make up \$354 million (or 7%), and
- ▼ bulk water costs, which make up \$1.6 billion (or 31%).

4.2.1 Proposed 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 (ie, its total operating costs excluding BOO filtration costs and bulk water purchase costs).

Table 4.3 shows Sydney Water's proposed core operating expenditure in each year of the 2016 determination period, by product. Figure 4.2 shows the components of its total proposed core operating expenditure.

	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Water ^a	256.0	253.6	256.2	254.4	253.3	1,017.5
Sewerage	512.0	506.5	505.4	501.8	497.9	2,011.6
Stormwater	8.4	8.3	8.5	8.4	8.4	33.6
Rouse Hill ^b	3.6	3.9	4.1	4.4	4.4	16.8
Total	780.0	772.3	774.3	769.0	764.0	3,079.5

 Table 4.3
 Sydney Water's proposed core operating expenditure by product for 2016 determination period (\$ millions, \$2015-16)

a Includes deduction for revenue from recycled water sales from Rosehill (Camellia) Recycled water scheme.
 b Operating expenditure associated with managing stormwater drainage in the Rouse Hill Area is recovered through the Rouse Hill stormwater drainage charge. In Table 7.5 of its pricing proposal to IPART, Sydney Water has called the revenue raised from the Rouse Hill stormwater drainage charge, "River management".
 Note: Totals may not add due to rounding.

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

⁹⁸ Sydney Water pricing proposal to IPART, June 2015, p 149.



Figure 4.2 Components of Sydney Water's proposed core operating expenditure over 2016 determination period

Data source: Sydney Water pricing proposal to IPART, June 2015, p 158.

As this figure shows, labour and contractor and consultant costs make up around three-quarters of the total proposed core operating expenditure over the 2016 determination period. Compared to the 2012 period, Sydney Water expects to spend:⁹⁹

- less on wages and salaries for its direct labour force (-\$53 million)
- less on energy (-\$13 million)
- less on materials (-\$7 million), and
- more on contractors and consultants (+\$63 million).

Sydney Water has indicated that it has carried forward the savings made in the current period, but has factored in only limited additional efficiency gains into the proposed core expenditure from 2016.¹⁰⁰ It reported that a large proportion of this expenditure relates to:

- costs that are largely outside its control, or
- services that are tested in the market regularly, through contractors' rates and procurement activities including competitive tender processes.¹⁰¹

Sydney Water indicated it is committed to further improving its procurement and tendering processes over the 2016 determination period, although it expects this will deliver more modest savings than were achieved in the 2012 period.¹⁰²

⁹⁹ Sydney Water pricing proposal to IPART, June 2015, Annual Information Return.

¹⁰⁰ Sydney Water pricing proposal to IPART, June 2015, p 128.

¹⁰¹ Sydney Water pricing proposal to IPART, June 2015, p 156. Sydney Water indicated that about 73% of forecast regulatory operating expenditure is largely dependent on external factors or relate to services that have been tested in the market place.

In relation to the costs that are within its control – mainly labour and administration costs – Sydney Water indicated there is limited scope to drive further efficiencies while maintaining operating performance.¹⁰³

4.2.2 BOO water filtration costs

Sydney Water has BOO agreements for water filtration services at its four largest water filtration plants (WFPs) – Prospect, Woronora, Illawarra and Macarthur. Table 4.4 shows its proposed operating expenditure related to these services.

Sydney Water's BOO expenditure relates to pure operating costs only. Interest and principal payments associated with finance lease agreements is not included as operating expenditure.

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.¹⁰⁴

Table 4.4Sydney Water's proposed BOO filtration costs a for 2016
determination period (\$ millions, \$2015-16)

	2015-16	2016-17	2017-18	2018-19	2019-20	Total
BOO filtration costs	88.3	89.2	89.3	87.7	88.1	354.3

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.

4.2.3 Bulk water costs

As Chapter 2 discussed, Sydney Water purchases most of the bulk water it needs to supply its customers from WaterNSW.¹⁰⁵ It also purchases bulk water from the SDP when this plant is operating, and pays a fixed charge when it is in security shut down mode.¹⁰⁶ 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.

¹⁰² Sydney Water pricing proposal to IPART, June 2015, p 128.

¹⁰³ Sydney Water pricing proposal to IPART, June 2015, p 156.

¹⁰⁴ Water produced by SDP is a direct substitute for water filtered at some of Sydney Water's BOO plants.

¹⁰⁵ Sydney Water pricing proposal to IPART, June 2015, p ii.

¹⁰⁶ Sydney Water pricing proposal to IPART, June 2015, p 157.

Table 4.5 shows Sydney Water's proposed bulk water costs for the 2016 determination period. These costs are 5.8% lower than the Sydney Water's actual bulk water costs in the 2012 period.¹⁰⁷

			(*)	• • • • • • •		
	2015-16	2016-17	2017-18	2018-19	2019-20	Total
WaterNSW	213.7	197.2	199.8	203.8	209.9	810.7
SDP	197.8	194.0	190.9	187.8	185.2	757.9
Total	411.5	391.2	390.7	391.6	395.1	1,568.6

Table 4.5Sydney Water's proposed bulk water costs over the 2016
determination period (\$ millions, \$2015-16)

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

Sydney Water indicated that its proposed bulk water costs are based on the following assumptions:¹⁰⁸

- ▼ It will purchase a higher volume of water from WaterNSW over the 2016 determination period, in line with its forecast 4% increase in water consumption over the period.
- We will set WaterNSW's prices on the basis of Sydney Water's forecast demand and the annual revenue requirement we determine for WaterNSW as part of our 2016 Determination for that utility.¹⁰⁹
- ▼ WaterNSW prices will be lower than in 2015-16, driven by a lower WACC.
- ▼ SDP will remain in water security shutdown mode over the 2016 determination period, so Sydney Water will pay its fixed charges only.
- SDP's fixed charges will be as we have determined until the end of SDP's current determination period on 1 July 2017, and reduce in line with the reducing value of its RAB with no allowance for further capital expenditure.¹¹⁰

While Sydney Water has assumed that it will not be required to pay SDP usage charges over the 2016 period, it noted that this may not be the case. As Chapter 2 discussed, under its 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%.¹¹¹ If SDP were to operate at full production over the 2016 period, and assuming it produces a full year's output of 90 GL following its restart, Sydney Water has estimated it would incur:

▼ around \$74 million in additional operating costs a year (comprising \$13 million in fixed costs and \$61 million in variable costs), plus

¹⁰⁷ Sydney Water pricing proposal to IPART, June 2015, Annual Information Return.

¹⁰⁸ Sydney Water pricing proposal to IPART, June 2015, p 156.

¹⁰⁹ Sydney Water pricing proposal to IPART, June 2015, p 156.

¹¹⁰ Sydney Water pricing proposal to IPART, June 2015, p 157.

¹¹¹ NSW Government, 2010 Metropolitan Water Plan, August 2010, p 36.

 a one-off restart charge of about \$6 million. Sydney Water estimated that this would add about \$40 to each customer's annual bill.¹¹²

To enable recovery of these additional costs, Sydney Water proposed to maintain the cost pass through mechanism included in the 2012 Determination (see Box 4.1 below). However, it also proposed a change to this mechanism.

Box 4.1 SDP cost pass through mechanism in the 2012 Determination

```
SDP cost pass through<sub>t+1</sub> =
```

<u>All SDP costs charged to Sydney Water – SDP water security mode charges</u> Number of residential equivalent water customerst+1

where,

t indicates the year

Source: IPART, Review of Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Final Report, June 2012, p 41.

Currently, all additional costs Sydney Water incurs if SDP moves into operation mode are calculated on a per water customer basis, and passed through to customers in **fixed water service** charges in the following year. Sydney Water proposed that additional fixed costs continue to be passed through in this way, but that additional variable costs be passed through to customers in the **water usage** charge as they are incurred.¹¹³ Sydney Water also noted that any residual costs not recovered by the usage-based component and number of eligible customers would also need to be passed through in water service charges.¹¹⁴

Sydney Water argued that this proposed change would create an incentive for customers to save water, and potentially send a price signal to customers about the relationship between their water behaviour and the costs of operating SDP.¹¹⁵

¹¹² Sydney Water derives these costs from the current 2012 SDP Determination. It notes that when IPART sets a new determination for SDP in 2017, these cost figures may change. See Sydney Water pricing proposal to IPART, June 2015, p 240.

¹¹³ Sydney Water pricing proposal to IPART, June 2015, p 241.

¹¹⁴ Sydney Water pricing proposal to IPART, June 2015, p 242.

¹¹⁵ Sydney Water pricing proposal to IPART, June 2015, p 241.

4.3 IPART's response on operating expenditure

We have not formed a preliminary view on Sydney Water's proposed operating expenditure. To make our draft decision on its proposal, we will review the proposal and engage a consultant to review the efficiency of the proposed expenditure. This will involve examining whether this expenditure represents the best way of meeting the customer's need for the relevant services. We will also consider the responses of Sydney Water and other stakeholders to this Issues Paper and to our consultant's draft report.

In reviewing the proposal, we will particularly focus on the potential for efficiency gains over the 2016 determination period, given that:

- operating expenditure makes up more than half of Sydney Water's proposed revenue requirement, and
- Sydney Water has proposed an EBSS to increase and equalise its financial reward, and therefore its incentives, for achieving cost savings during the determination period.¹¹⁶

We note that Sydney Water has reported savings in operating expenditure over the 2012 determination period. Operating expenditure over the four years of the 2012 determination is expected to be \$223 million (\$2015-16) or 4% lower than we considered efficient at our 2012 determination.

For the 2016 determination, Sydney Water has proposed a further step reduction in operating expenditure in 2016-17 compared to 2015-16. However, much of this reduction comes from a change in the treatment of existing finance leases (which we discuss in Chapter 6), and lower bulk water costs (costs external to Sydney Water's control, which we respond to below). It then proposes to maintain operating expenditure relatively constant thereafter, with smaller reductions in core operating expenditure through efficiency gains to 2019-20.

IPART seeks comments on the following

- 3 Are Sydney Water's proposed operating costs over the 2016 determination period efficient, taking into account drivers of this expenditure and water management outcomes achieved?
- 4 What scope is there for Sydney Water to achieve efficiency gains over the 2016 determination period?

4.3.1 Response on bulk water costs – WaterNSW

We are reviewing WaterNSW's prices concurrently with Sydney Water's prices and expect to allow Sydney Water to recover the cost of all WaterNSW water charges in accordance with our determination of WaterNSW's maximum prices.

¹¹⁶ Sydney Water pricing proposal to IPART, June 2015, p 261.

As Sydney Water noted in its proposal,¹¹⁷ WaterNSW has forecast lower prices due to a lower WACC. However, the impact of this on Sydney Water's prices is partly offset by an expected increase in its customers' water demand and increased fixed charges, mainly driven by planned capital expenditure relating to the Burrawang to Avon Dam tunnel.¹¹⁸

We have identified some slight discrepancies between Sydney Water's proposed bulk water purchase costs and WaterNSW's proposed revenues from Sydney Water over the 2016 determination period (see Table 4.6) However, we estimate this to have a negligible effect on Sydney Water's proposed operating expenditure and water charges.

Table 4.6Sydney Water's proposed bulk water costs compared with
WaterNSW's proposed revenues over the 2016 determination
period (\$ millions, \$2015-16)

	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Sydney Water proposed	213.7	197.2	199.8	203.8	209.9	810.7
WaterNSW proposed	214.9	198.4	200.2	203.6	208.4	810.6

Source: Sydney Water pricing proposal to IPART, June 2015, p 149; WaterNSW pricing proposal to IPART, June 2015, p 57.

Shoalhaven pumping costs

WaterNSW proposed to include an expected cost for pumping from the Shoalhaven system of around \$2.1 million per year, to be recovered in its bulk water prices for Sydney Water.¹¹⁹ Under the 2010 Metropolitan Water Plan, WaterNSW must start pumping from the Shoalhaven River when Sydney's dam levels fall to 75% and continues until they rise above 80%.¹²⁰

This proposal is consistent with our treatment of Shoalhaven pumping costs over the 2012 determination period, and is in line with Sydney Water's proposal. Our preference is to maintain this treatment over the 2016 determination period, given the relatively small size of these costs.

¹¹⁷ Sydney Water pricing proposal to IPART, June 2015, p 156.

¹¹⁸ Sydney Water pricing proposal to IPART, June 2015, p 156.

¹¹⁹ WaterNSW pricing proposal to IPART, June 2015, p 50.

¹²⁰ Under the 2010 Metropolitan Water Plan, pumping from the Shoalhaven River commences when dam levels fall to 75% and continues 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.

The alternative treatment, which would be consistent with our proposed treatment of SDP costs, would be to establish cost pass-through mechanisms for Shoalhaven pumping costs. This would involve:

- determining both WaterNSW's and Sydney Water's revenue requirement on the basis that there will be no pumping from the Shoalhaven over the 2016 determination period
- setting a price for this pumping so that WaterNSW can charge Sydney Water on a 'fee for service' basis if and when it occurs, and
- ▼ establishing a mechanism to allow Sydney Water to pass through the additional costs it incurs for Shoalhaven pumping via its water prices in the following year, similar to the current SDP cost pass through mechanism.

We note that if we were to treat Shoalhaven transfers in this manner, we would need to restrict the cost pass through mechanism to only allow WaterNSW to charge for Shoalhaven transfers as specified under the current or updated Metropolitan Water Plan. That is, the trigger for Shoalhaven transfers would have to be clearly defined.

IPART seeks comments on the following:

- 5 Are Sydney Water's proposed bulk water costs from WaterNSW reasonable?
- 6 How should bulk water costs associated with pumping from the Shoalhaven River be treated over the 2016 determination period, noting that our preference is to continue to pass these through on an expected cost basis?

Raw water quality incentive payment

In 2013, WaterNSW and Sydney Water signed a Raw Water Supply Agreement. This agreement includes a proposed mechanism for water quality incentive payments up to \$1 million annually from Sydney Water to WaterNSW (called the Raw Water Quality Incentive Payment), depending on the quality of the raw water delivered by WaterNSW to the Prospect Water Filtration Plant (WFP).¹²¹

We support the rationale behind the Raw Water Quality Incentive Payment and the inclusion of the mechanism in WaterNSW's prices to Sydney Water. In terms of Sydney Water's costs, we expect that any incentive payments made to WaterNSW over the 2016 determination period would be offset by equivalent (if not greater) savings in treatment costs. Therefore, we do not consider it necessary to adjust Sydney Water's operating costs (or bulk water costs) to account for the likelihood of these payments occurring.

¹²¹ WaterNSW pricing proposal to IPART, June 2015, p 64.

IPART seeks comments on the following:

7 If a Raw Water Quality Incentive Payment is included in WaterNSW's prices to Sydney Water, is our proposal not to include these payments in Sydney Water's allowance for bulk water costs from WaterNSW appropriate?

4.3.2 Response on bulk water costs – SDP

Our preliminary response is to continue to use the existing cost pass through mechanism to enable Sydney Water to recover additional bulk water costs it incurs due to the operation of SDP during the 2016 determination period. The existing mechanism is designed to capture and allow Sydney Water to recover (after a one-year lag) **any** deviations between its actual and forecast SDP costs – whether they are due to SDP's future prices or future operating modes being unknown when the costs were forecast.

Accordingly, in making the 2016 Determination, we intend to:

- determine Sydney Water's allowance for operating expenditure on the basis that SDP is in water security shutdown mode for the whole 2016 determination period
- ▼ use our best estimates of SDP's costs in water security shutdown mode beyond 2016-17, and base these estimates on SDP's determined prices for 2016-17, and
- provide for Sydney Water to recover actual SDP costs incurred through the cost pass through mechanism at a one-year lag (including the time value of money).¹²²

The main difference between our proposed application of the cost pass through mechanism and Sydney Water's proposal is that we prefer to estimate the unknown costs of SDP in its various modes of operation beyond 2016-17 using SDP's determined prices for 2016-17¹²³ (ie, without any assumed reduction to the RAB). With this approach, we will not have to pre-empt outcomes of our 2017 SDP price review – ie, we do not have to explicitly outline assumptions regarding SDP's future modes of operation, costs and prices.

In addition, we agree with 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 ML cost of desalinated water if SDP is activated. Our full response on this proposal is in Chapter 10.

¹²² That is, use outcomes of our 2017 review of SDP's prices review (ie, prices determined by IPART from 1 July 2017) to determine actual prices/costs of different operating modes, as well as any efficiency and energy cost adjustments incorporated in SDP's prices.

¹²³ Using prices specified in IPART, *Review of water prices for Sydney Desalination Plant Pty Limited from 1 July 2012*, November 2011.

We will give further consideration to Sydney Water's proposal for recovering SDP's costs, including stakeholder comments on this issue. Appendix D provides more information on the application of the current cost-pass though mechanism and its implication for Sydney Water's prices in 2016-17.¹²⁴

IPART seeks comments on the following

8 Should we continue to pass through variations in SDP's actual fixed costs because of changes to its operating modes through to water service charges at a one-year lag?

¹²⁴ The current cost-pass through mechanism ends in 2015-16. Therefore, any additional costs Sydney Water incurs from SDP in 2015-16 will not be automatically passed through to 2016-17 prices determined as part of this price determination. These costs will need to be passed through into prices as a separate allowance.

5 Prudent and efficient capital expenditure

Under the building block method, there is no explicit allowance for capital expenditure in the notional revenue requirement. Instead, 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
- ▼ an efficiency test to its proposed capital expenditure for the 2016 determination period (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.

We incorporate the prudent and efficient capital expenditure into the value of the RAB, and then use this value in calculating the allowances for a return on assets and regulatory depreciation.

This chapter outlines Sydney Water's proposals on past and forecast capital expenditure and our preliminary response to these proposals.

5.1 Sydney Water's proposal on past capital expenditure

Sydney Water indicated that its actual capital expenditure over the 2012 determination period will be \$2.6 billion, which is \$199 million¹²⁵ (or 7%) less than allowed for in the 2012 Determination.¹²⁶ It attributed this to improvements in its asset management, investment planning and capital delivery processes,¹²⁷ and noted that its capital savings were not offset by an increase in its operating expenditure.

Sydney Water also 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:¹²⁸

- 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, and
- the acceleration of major works at the Malabar Wastewater Treatment Plant into the 2012 period.

Table 5.1 below compares Sydney Water's actual capital expenditure with the forecast efficient capital expenditure used to set prices in our the 2012 Determination.

(Þ					
	2012-13	2013-14	2014-15	2015-16 ^a	Total
Determination	766	778	684	598	2,827
Actual	653	576	694	705	2,628
Difference	-113	-202	10	107	-199
Difference %	-15%	-26%	1%	18%	-7.0%

Table 5.1 Sydney Water actual capital expenditure compared with IPART determined over the 2012 determination period (\$ millions \$2015-16)

a 2015-16 figures are forecasts.

Note: Totals may not add due to rounding.

Source: Sydney Water pricing proposal to IPART, June 2015, p 86; and IPART analysis.

Table 5.2 compares Sydney Water's actual capital expenditure over the whole determination period with the forecast efficient capital expenditure used to make

¹²⁵ Sydney Water stated in its pricing proposal that capital expenditure over the 2012 determination period is forecast to be \$247 million (8.7%) lower than allowed for in the 2012 Determination. However, total capital expenditure is reported net of all grants and equity injections, which overstates the underspend.

¹²⁶ Sydney Water pricing proposal to IPART, June 2015, p 86

¹²⁷ Sydney Water pricing proposal to IPART, June 2015, p 161.

¹²⁸ Sydney Water pricing proposal to IPART, June 2015, p 167.

the 2012 Determination, broken down by product area. As this table shows, Sydney Water's \$199 million saving in total capital expenditure came from lower than forecast spending on water assets. This saving was partly offset by higher than forecast capital expenditure on stormwater assets.

(\$	millions, \$2015-16)			
Product	Determination	Actual/	Difference	Difference (%)
		Forecast		
Water	964	707	-257	-27%
Sewerage	1,501	1,503	2	0%
Corporate	333	339	5	2%
Stormwater	28	78	50	179%
Recycled water	0	1	1	-
Total	2,827	2,628	-199	-7%

Table 5.2Sydney Water actual capital expenditure compared with IPART
determined over 2012 determination period, by product
(\$ millions \$2015-16)

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.

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

Sydney Water explained the variance between its actual and IPART determined capital expenditure by product as follows:

- Water capital expenditure (- 27% variance) due to:
 - lower renewals expenditure (-\$171 million) resulting from better targeted asset management practices and favourable weather conditions,¹²⁹ and
 - lower growth expenditure (-\$65 million)¹³⁰ resulting from improving its risk management strategy, including maximising existing capacity.¹³¹
- ▼ Wastewater expenditure (0% variance) due to:
 - higher renewals expenditure (+\$83 million) resulting from more accurate asset and risk data and from compliance with dry weather overflow licence requirements¹³²
 - higher growth expenditure (+\$50 million) resulting from higher than expected costs of developer provided growth assets and the south west growth centre,¹³³ and

¹²⁹ Sydney Water pricing proposal to IPART, June 2015, p 170.

¹³⁰ Sydney Water's direct expenditure on growth was \$109 million lower than what we allowed at the 2012 Determination. Offsetting this, however, are its purchase of assets from developers in growth areas of \$44 million higher than forecast in 2012 (See Sydney Water pricing proposal to IPART, June 2015, Annual Information Return).

¹³¹ Sydney Water pricing proposal to IPART, June 2015, Annual Information Return.

¹³² Sydney Water pricing proposal to IPART, June 2015, p 173.

¹³³ Sydney Water pricing proposal to IPART, June 2015, Annual Information Return.

- lower expenditure to meet EPA-mandated standards (-\$104 million) resulting from lower and deferred expenditure on the wet weather overflow abatement and the Vaucluse/Diamond Bay project.¹³⁴
- Stormwater capital expenditure (179% variance)¹³⁵ due to:
 - higher renewals and reliability expenditure (+\$22 million),¹³⁶ 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).¹³⁷

5.2 Sydney Water's proposal on forecast capital expenditure

Sydney Water forecasts total capital expenditure of \$2,764 million over the 4-year 2016 determination period. This is around \$63 million (or 2%) lower than the total capital expenditure we allowed at the 2012 determination period (\$2,827 million). However, it is \$137 million (5%) higher than its expected actual capital expenditure over the 2012 period.

Table 5.3 compares Sydney Water's actual and forecast capital expenditure for the 2012 and 2016 periods, by product.

Actual, 2012 period ^a	Forecast, 2016 period	Variance
707	731	3.4%
1,503	1,491	-0.8%
78	159	103.8%
339	383	13.0%
2,627	2,764	5.2%
	Actual, 2012 period ^a 707 1,503 78 339 2,627	Actual, 2012 perioda Forecast, 2016 period 707 731 1,503 1,491 78 159 339 383 2,627 2,764

Table 5.3Sydney Water actual and forecast capital expenditure over 2012
and 2016 determination periods, by product (\$2015-16 million)

a Excludes \$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).

Source: Sydney Water pricing proposal to IPART, June 2015, pp 187, 207; Sydney Water Annual Information Return, June 2015; and IPART analysis.

¹³⁴ Sydney Water pricing proposal to IPART, June 2015, p 185.

¹³⁵ 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.

¹³⁶ Sydney Water pricing proposal to IPART, June 2015, p 177.

¹³⁷ Sydney Water pricing proposal to IPART, June 2015, p 304.

In relation to its proposed capital expenditure, Sydney Water reported that:

- Its forecast costs are subject to uncertainty in some areas, but it has considered these and considers it can prudently manage them.¹³⁸
- Forecast stormwater capital expenditure is significantly greater than the 2012 period, because a number of assets built before 1910 need renewal.¹³⁹
- Forecast corporate costs of \$328 million represent investments in information technology. More than \$160 million of this expenditure is to replace a 28-year old billing system.¹⁴⁰

Table 5.4 shows Sydney Water's forecast capital expenditure by driver. It shows that the main drivers of this expenditure are existing standards (renewing or improving existing assets, which drives 64% of the forecast expenditure) and growth (25%).¹⁴¹

determination period, by driver (\$ millions, \$2015-16)								
Driver	2016-17	2017-18	2018-19	2019-20	Total			
Business efficiency	53	43	27	26	149			
Government programs	0	2	0	1	3			
Growth	206	242	159	76	684			
Mandatory standards	29	35	50	44	158			
Existing standards	418	410	472	470	1,770			
Total	707	733	708	617	2,764			

Table 5.4Sydney Water's forecast capital expenditure over the 2016
determination period, by driver (\$ millions, \$2015-16)

Source: Sydney Water pricing proposal to IPART, June 2015, p 189.

Sydney Water reported that its annual average capital expenditure for both the 2012 period (\$646 million, actual) and 2016 period (\$691 million, forecast) is below its long-term average capital expenditure (\$720 million), excluding SDP costs (see Figure 5.1).¹⁴²

Sydney Water attributes this downward trend in capital expenditure to a shift in focus from delivering essential once-in-a-generation projects to efficiently managing and maintaining existing infrastructure with better management of condition and risk.¹⁴³

¹³⁸ Sydney Water pricing proposal to IPART, June 2015, p 161.

¹³⁹ Sydney Water pricing proposal to IPART, June 2015, p 198.

¹⁴⁰ Sydney Water pricing proposal to IPART, June 2015, p 161.

¹⁴¹ Sydney Water pricing proposal to IPART, June 2015, p 189.

¹⁴² Sydney Water pricing proposal to IPART, June 2015, p 161.

¹⁴³ Sydney Water pricing proposal to IPART, June 2015, p 168.



Figure 5.1 Sydney Water's long-term capital expenditure (\$ millions, \$2015–16)

Source: Sydney Water pricing proposal to IPART, June 2015, p 168.

5.3 IPART's response on capital expenditure

We have not formed a preliminary view on Sydney Water's proposals on capital expenditure. To make our draft decision, we will review the proposals, and engage an expert consultant to conduct:

- a strategic review of Sydney Water's long-term investment plans and asset management systems and practices, and
- a detailed review of the prudence of Sydney Water's past capital expenditure and the efficiency of its forecast expenditure.

We will also consider the responses of Sydney Water and other stakeholders to this Issues Paper and our consultant's draft report.

In reviewing the proposals, we will consider the reasons Sydney Water has put forward to explain why its actual capital expenditure in the 2012 determination period was lower than we allowed for in making the 2012 Determination. We will consider the reasons it has put forward to justify its forecast capital expenditure for the 2016 determination period.

We will also examine its major proposed capital projects, including:

- IT projects, including a new customer information system
- projects related to EPLs, such as Wet Weather Overflow Abatement, and
- assets to cater for and the scale of capital expenditure driven by growth (including stormwater expenditure).

We will only include in the RAB capital expenditure that we deem to be prudent and efficient.

IPART seeks comments on the following

- 9 Is Sydney Water's past capital expenditure over the 2012 determination period prudent, taking into account drivers of this expenditure and service outcomes achieved?
- 10 Is Sydney Water's forecast capital expenditure program over the 2016 determination period efficient, taking into account expenditure drivers, scope for efficiency gains, and proposed water management outcomes?
- 11 Is Sydney Water's proposed expenditure on IT (including its customer information system) efficient?
- 12 Is Sydney Water's proposed expenditure on assets to service growth efficient?
- 13 Is Sydney Water's proposed capital expenditure on projects relating to its Environment Protection Licences, including wet weather overflow abatement, efficient?

6 Allowances 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 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 discuss Sydney Water's proposals on these three inputs and its proposed tax allowance, and our preliminary responses to these proposals.

6.1 The value of the RAB

In general, to determine the value of the RAB over the 2016 determination period, we will:

- Take the RAB value we determined at the start of the 2012 period (the opening RAB) and incorporate Sydney Water's prudent and efficient actual capital expenditure over that period (discussed in Chapter 5), and make adjustments to account for other changes to the RAB over the period (eg, asset disposals, capital contributions and regulatory depreciation). This determines the opening RAB for the 2016 period.
- Roll forward this opening RAB to the end of the 2016 determination period by including prudent and efficient forecast capital expenditure over the period (discussed in Chapter 5), and making adjustments to account for other forecast changes to the RAB (eg, asset disposals, capital contributions and regulatory depreciation). This gives the forecast RAB for each year of the 2016 period.

Table 6.1 shows Sydney Water's proposed opening RAB for the 2016 period, and the adjustments it made to derive that value. Table 6.2 shows its proposed RAB and adjustments for each year of the 2016 period.

	2012-13	2013-14	2014-15	2015-16
Opening RAB	12,868.5	13,549.6	14,254.2	14,967.5
Capital expenditure	597.1	548.2	682.4	691.4
Less: Cash capital contribution	1.9	0.0	12.2	0.0
Less: Asset disposals	7.0	13.9	42.1	80.3
Less: Regulatory depreciation	223.0	244.3	264.3	283.2
Indexation	315.9	414.5	349.6	381.8
Closing RAB	13,549.6	14,254.2	14,967.5	15,677.2

Table 6.1Sydney Water's proposed RAB roll forward for 2012-2016
(\$ millions, \$nominal)

Note: Closing RAB is shown in the dollars of the following financial year. **Source:** Sydney Water pricing proposal to IPART, June 2015, p 84.

Table 6.2Sydney Water's proposed RAB in each year of the 2016
determination period (\$ millions, \$2015-16)

	2016-17	2017-18	2018-19	2019-20
Opening RAB				
RAB excluding finance leases	15,677.2	16,095.1	16,507.8	16,861.8
RAB of finance leases	683.2	667.1	650.9	634.8
Adjustment	17.1 a	0.0	0.0	0.0
Total opening RAB	16,377.6	16,762.2	17,158.7	17,496.6
Plus: forecast capital expenditure	710.3	735.2	696.4	605.3
Less: Forecast cash capital contribution	0.0	0.0	0.0	0.0
Less: Asset disposals	25.6	18.8	18.8	18.8
Less: Proposed regulatory depreciation				
Depreciation excluding finance leases	284.0	303.7	323.6	342.6
Depreciation of finance leases	16.1	16.1	16.1	16.1
Total depreciation	300.2	319.8	339.8	358.7
Closing RAB	16,762.2	17,158.7	17,496.6	17,724.5

^a The total land purchases in the Rouse Hill Development Area less actual revenue raised from the Rouse Hill Land Charge (\$17 million). In 2014, Sydney Water reduced the Rouse Hill (Land Charge) by around 75% on the basis that land purchases were likely to be significantly lower than forecast at the 2012 Determination. Sydney Water's pricing proposal suggests that land purchases were actually higher than expected. Sydney Water proposes to add the full difference over the 2012 period to the opening wastewater RAB.
 Source: Sydney Water pricing proposal to IPART, June 2015, p 87.

As indicated above, Sydney Water's proposal on the adjustment for actual and forecast capital expenditure is discussed in Chapter 5. Its proposal on the adjustment for regulatory depreciation is discussed below. Its other proposed adjustments are also discussed below.

6.1.1 Adjustments for cash capital contributions

Cash contributions¹⁴⁴ Sydney Water receives from third parties towards its capital expenditure are typically deducted from the RAB. This ensures customers do not pay for a return on assets or regulatory depreciation for capital expenditure that Sydney Water has not funded.

Historically, most of Sydney Water's cash capital contributions revenue came from developer charges, which recovered some of the capital costs associated with serving new development areas. However, in 2008, the NSW Government announced reforms that resulted in the contributions paid by developers for water supply, wastewater and stormwater development being set at zero for some developments.

Sydney Water's proposed adjustment for cash capital contributions

Sydney Water proposed to deduct \$14.1 million for cash contributions and grants in its RAB roll-forward over the 2012 period,¹⁴⁵ and forecast zero cash contributions and grants in the 2016 period.

Sydney Water indicated that most of the deduction in the 2012 period is for grants provided by the NSW Government from the Housing Acceleration Fund (HAF) for stormwater works at Green Square (\$10 million).¹⁴⁶ While it also received an additional \$38 million in HAF grants for other projects during this period, these were equity injections rather than grants, and thus require a return.¹⁴⁷

IPART's response on cash capital contributions

We have not formed a preliminary view on Sydney Water's proposal on cash capital contributions. We will review its proposed deductions for cash contributions received over the 2012 determination period, and its forecast of zero cash contributions over the 2016 determination period.

6.1.2 Adjustments for 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 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.

¹⁴⁴ Cash capital contributions also include grants.

¹⁴⁵ Sydney Water pricing proposal to IPART, June 2015, p 84.

¹⁴⁶ Sydney Water pricing proposal to IPART, June 2015, p 304.

¹⁴⁷ Sydney Water pricing proposal to IPART, June 2015, p 166.

Sydney Water's proposed adjustments for asset disposals

Sydney Water raised two primary concerns with how we have treated asset disposals in past reviews, particularly land sales:¹⁴⁸

- 1. We removed 100% of the sales value of an asset from the RAB when it has been sold, so there is no incentive for regulated businesses to manage their assets efficiently.
- 2. We did not provide an allowance for the regulated business to pay any capital gains tax it is liable for as a result of the sale of surplus assets.

Sydney Water indicated that it manages an extensive portfolio of land assets throughout its entire area of operations, covering an area of 12,700 square kilometres across the Sydney, Illawarra and Blue Mountains regions.¹⁴⁹ Through its governance program, it has identified about \$444 million of surplus land to be sold between 2012 and 2020.¹⁵⁰ In particular, it expects to sell land valued at approximately:¹⁵¹

- ▼ \$291 million over the 2012 determination period, of which around 55% (\$160.5 million) is to be sold in 2015-16, and
- ▼ \$163.8 million over the 2016 determination period.

According to Sydney Water, the current regulatory treatment of land sales means that if it sold \$444 million of surplus land assets, it could incur a discounted NPV loss of up to \$222 million.¹⁵² It contended that such an outcome gives a large regulatory disincentive to sell land assets as part of the efficient management of its business.

To address this issue, Sydney Water proposed that IPART set a fixed sharing ratio to be applied to the proceeds of its land and other asset disposals. In particular, Sydney Water proposed a sharing of 50 cents from every \$1 of all asset sale proceeds to customers, and 50 cents to shareholders.¹⁵³ According to Sydney Water, this 50:50 sharing rule should be implemented so that:

 it applies to all assets, irrespective of whether they are identified as being in the RAB pre or post the 2000 "line-in-the-sand", and

¹⁴⁸ Sydney Water pricing proposal to IPART, June 2015, pp 276-277.

¹⁴⁹ Sydney Water pricing proposal to IPART, June 2015, p i & 276.

¹⁵⁰ Sydney Water pricing proposal to IPART, June 2015, p 276.

¹⁵¹ Sydney Water pricing proposal to IPART, June 2015, p 281.

¹⁵² This is calculated as the difference over 100 years between the present value reduction in the RAB revenues equal to \$444 million and the interest payment savings on debt of the \$222 million generated from the sales proceeds net of expenses and taxes. The result assumes that the capital gain is on the full sales value, the nominal cost of debt is 6% and the real post-tax WACC is 5.6%. The assumption in relation to the capital gains tax reflects reality for Sydney Water, as the book value of most land within Sydney Water's regulatory and tax asset base has been recorded at close to zero. This means that the sale value of any land asset has a taxable capital gain close to 100%. See Sydney Water pricing proposal to IPART, June 2015, p 227.

¹⁵³ Sydney Water pricing proposal to IPART, June 2015, p 85.
▼ it is used both in establishing the opening value of the RAB for the 2016 determination period, and in rolling forward this value over the determination period, given the substantial land sales being considered.¹⁵⁴

Sydney Water noted that the 50:50 sharing rule has regulatory precedent, as it has been applied by Ofwat in dealing with land sales by regulated water utilities in the UK.¹⁵⁵ In addition, it contended that the approach is transparent, simple and consistent.

Sydney Water also proposed that, in calculating the capital gains tax liability to be included in the allowance for taxation, capital gains tax be applied to the 50% share of the land sales value passed on to customers (ie, removed from the RAB), and **actual (and forecast)** land sales over the 2012 determination period be used as the **forecasts** for the 2016 determination period.¹⁵⁶

IPART's response on asset disposals

In our view, the primary issues we need to consider 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 ownership of 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 come up with our best estimate of its regulatory value.

¹⁵⁴ Sydney Water pricing proposal to IPART, June 2015, pp 280-81.

¹⁵⁵ Sydney Water pricing proposal to IPART, June 2015, pp 279-80.

¹⁵⁶ Sydney Water pricing proposal to IPART, June 2015, pp 275 and 282.

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 land¹⁵⁷), we propose to 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.

We consider the RAB to DRC ratio is a good proxy to use in estimating 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 (ie, the DRC reflected the business' actual cost of the individual assets).

Table 6.3 sets out the RAB to DRC ratio for each of the metropolitan water businesses. We propose to use the relevant ratio to determine the regulatory value of assets acquired pre line-in-the-sand to be removed from the RAB.¹⁵⁸ For most of these water businesses, the DRC equals the book value of their assets at the time (2000). The exception is WaterNSW (formerly SCA). As the book value of this business' assets in 2000 was the deprival value (not the DRC), we have used an estimated DRC to determine its RAB to DRC ratio.

For Sydney Water, the DRC of its noncurrent assets in 2000 was \$12.5 billion,¹⁵⁹ while the economic value (estimated by IPART) was \$5.3 billion.¹⁶⁰ 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).

	RAB at line-in-the-sand (\$billion)	DRC value at line-in-the-sand (\$billion)	RAB to DRC ratio
Sydney Water	5.3	12.5	0.42
Hunter Water	0.8	1.9	0.42
Gosford Council	0.2	0.5	0.42
Wyong Council	0.2	0.5	0.35
WaterNSW (formerly SCA)	0.7	1.7	0.40

Table 6.3 RAB to DRC ratio for each metropolitan water business as at linein-the-sand (2000)

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. Source: IPART reports and Annual Reports of regulated businesses.

¹⁵⁷ Sydney Water notes that 99% of its land assets in its fixed asset register was held pre-2000. See Sydney Water pricing proposal to IPART, June 2015, p 280.

¹⁵⁸ We propose to apply this approach only to 'significant' asset disposals acquired pre line-in-thesand. Appendix E discusses our preliminary position on the treatment of other asset disposals

¹⁵⁹ Sydney Water, Annual Report, 2000, p 39.

¹⁶⁰ IPART, Sydney Water Corporation - Prices of water supply, sewerage and drainage services – Mediumterm price path - Final Report, October 2000, Attachment 5.

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 the businesses, including Sydney Water, to retain a significant proportion of the proceeds from the sale of such assets, and thus remove any disincentive to sell them under our current approach. It will also mean that customers will not continue to provide Sydney Water with a return on or of assets that have been sold, which will be reflected in lower prices.

We consider that this proposed approach is also simple to apply. Once the RAB to DRC ratios have been calculated (see Table 6.3), it is as simple to apply as Sydney Water's proposed 50:50 sharing ratio.

We propose to apply 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 our view, this use of our best estimate of the regulatory value of asset disposals is consistent with our use of actual capital expenditure (where prudent and efficient) to roll forward the RAB.

Under our proposed approach, the RAB to DRC ratio also determines the regulatory profit from which the business would pay any tax obligation. Given a RAB to DRC ratio of 42%, Sydney Water would keep about 58% of sales proceeds as profit – or \$168.8 million for land sold over the 2012 period (see Table 6.4). After taking its tax liability into account, Sydney Water's net position would be \$108.9 million under our proposed approach, compared to a net position of \$115.6 million under its proposed 50:50 sharing rule.

Option	Removed from RAB	Regulatory	Tax liability ^a	Tax	Net position
		(A)	(B)	(C)	(A)-(B)+(C)
100% of sales value	291.0	0	59.9	59.9 b	0
50:50 sharing ratio	145.5	145.5	59.9	30.0	115.6
RAB to DRC ratio at 2000°	122.2	168.8	59.9	0 q	108.9

Table 6.4Comparison of options – pre-2000 land assets sold by Sydney
Water 2012-13 to 2015-16 (\$millions, \$2015-16)

^a Based on a simplified statutory tax rate of 30% – ie, tax liability = 30% x (capital gain - as provided by Sydney water in its pricing proposal).

b We assume that capital gains tax is paid on in line with the percentage of sales proceeds removed from the RAB.

^c Sydney Water's RAB to DRC ratio is 42%, as shown in Table 6.3.

d The \$122.2 million removed from the RAB under this option represents the regulatory cost of the asset, and as such no capital gain is removed from the RAB. No adjustment to the tax allowance is therefore necessary as all tax obligations relating to the sale would be funded from the proceeds of the sale. **Note:** Numbers may not be exact due to rounding.

Source: Sydney Water pricing proposal, June 2015, p 281-82.

Appendix E discusses our preliminary position on the treatment of asset disposals in more detail, including our approach to land and other assets acquired post 'line-in-the-sand', and for distinguishing between significant and non-significant assets.

IPART seeks comments on the following

14 What is the appropriate regulatory treatment of asset disposals?

6.1.3 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.¹⁶¹ 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.

In the 2012 Determination, we included all three components in the forecast operating expenditure allowance of the revenue requirement. However, as Chapter 2 discussed, for the 2016 Determination, we propose to change this regulatory treatment. In particular, we propose to:

- include the payments covering the operating costs incurred in delivering the services associated with the asset in the operating expenditure building block, and
- add the residual value of each asset to the RAB.

Under this approach, Sydney Water will no longer directly recover the principal and interest payments of assets subject to financial leases from customers. Rather, it will earn an appropriate rate of return on these assets, and recover the depreciation of the assets.

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).¹⁶²

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).¹⁶³

¹⁶¹ Australian Government, Australian Accounting Standard AASB 117.

¹⁶² Sydney Water pricing proposal to IPART, June 2015, p 284.

¹⁶³ Sydney Water pricing proposal to IPART, June 2015, p 284.

Sydney Water's proposal on finance leases

Sydney Water indicated that its preferred regulatory treatment of finance leases is to include all annual finance lease payments as operating expenditure with a relevant regulatory revenue tax provision.¹⁶⁴ It argued that:

This is similar to the current regulatory treatment for both operating and finance leases, where the cash outflow for leases aligns fairly closely with cash inflow determined for these transactions as annual revenue requirements.¹⁶⁵

However, in its pricing proposal it has generally adopted our proposed treatment (described above). In particular, it removed the principal and interest components of its finance leases from its proposed operating expenditure for the 2016 determination period. In total, this represents a reduction of \$57.2 million per annum in operating expenditure from 2015-16 to 2016-17.¹⁶⁶

To appropriately recover the capital costs associated with the leases, Sydney Water added \$683 million to the opening RAB.¹⁶⁷ Sydney Water calculated this figure by:

- determining all future lease payments (interest and principal)
- determining the lease values for inclusion in the RAB by calculating the NPV of all future lease payments, and
- ▼ using the proposed WACC of 4.6% as the discount rate in the NPV calculation.¹⁶⁸

Sydney Water's objective is to achieve a financially neutral position (NPV of revenue = NPV of costs and taxes) for the regulatory treatment for its transactions that contain a finance lease component.¹⁶⁹ In its view, our proposed approach poses some risks to this, including:

- Cash flow risk a cash flow timing disadvantage to Sydney Water compared with the current operating costs approach, given that asset lease terms are typically significantly shorter than the asset economic lives.
- Interest rate risk 4-year resets of the regulatory WACC exposes the lessee to regulatory interest rate risk, resulting in potential under-recovery or overrecovery of the lease interest rate payments.
- Asset optimisation risk by IPART when determining the appropriate value of the underlying lease assets to be incorporated into the RAB.¹⁷⁰

¹⁶⁴ Sydney Water pricing proposal to IPART, June 2015, p 287.

¹⁶⁵ Sydney Water pricing proposal to IPART, June 2015, p 287.

¹⁶⁶ Sydney Water pricing proposal to IPART, June 2015, p 149.

¹⁶⁷ Sydney Water pricing proposal to IPART, June 2015, p 87.

¹⁶⁸ Sydney Water pricing proposal to IPART, June 2015, p 287.

¹⁶⁹ Sydney Water pricing proposal to IPART, June 2015, p 287.

¹⁷⁰ Sydney Water pricing proposal to IPART, June 2015, p 286.

To avoid the issue of under or over recovering returns, Sydney Water proposed that we consider:

- establishing a separate RAB for each finance lease and determining a fixed regulatory WACC over the lease term or over the useful life of the lease asset, or
- revaluing the component of the RAB for the leases at each determination at the prevailing WACC.¹⁷¹

Sydney Water also proposed to allocate the \$683 million to its CEMELND asset classes, with specific finance lease economic lives. In total, Sydney Water proposed a weighted average life of assets subject to finance leases of 54 years.¹⁷² In addition, Sydney Water proposed to include any relevant future capital expenditure related to these lease assets in the RAB in future determinations.

IPART's response on finance leases

Sydney Water's proposed methodology for the regulatory treatment of assets subject to finance leases generally aligns with our proposed position.

The removal of interest and principal payments from operating costs means that the operating expenditure cost block better reflects pure operating costs. 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 the depreciation allowance reflects the economic value and life of the asset.

Our preferred position on valuing existing assets that are being converted to finance leases is to use:

- the depreciated efficient capital cost of the asset, or
- ▼ the discounted future lease payments, with the discount rate being the interest rate in the lease agreement.¹⁷³

Sydney Water used a slightly different methodology. 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.

In making our decision, we will review Sydney Water's proposal, including this methodological difference. As we intend to depreciate the residual value of the assets subject to finance leases over the remaining economic life of the assets, we will also review Sydney Water's proposed asset lives for its finance lease assets and how those proposed lives were determined.

¹⁷¹ Sydney Water pricing proposal to IPART, June 2015, p 287.

¹⁷² Sydney Water pricing proposal to IPART, June 2015, p 287.

¹⁷³ IPART, Regulatory treatment of finance leases – Fact Sheet, January 2015.

IPART seeks comments on the following

15 What is the appropriate regulatory treatment of finance leases?

6.2 Rate of return

The allowance for a return on assets included in the revenue requirement represents our assessment of the opportunity cost of the capital the regulated business (or its owner) has invested to provide the regulated services, and ensures that it 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 intend to determine the rate of return using a weighted average cost of capital (WACC).

As for our 2012 Determination, we will use a real post-tax WACC to calculate the allowance for a return on assets, and provide for an explicit tax allowance as a separate cost building block.¹⁷⁴ We will also use our current methodology and process for calculating the WACC, which has been revised since the 2012 Determination (see Appendix F). =

6.2.1 Sydney Water's proposal on the WACC

Sydney Water noted that our review of the WACC methodology, and subsequent reviews of the cost of debt and inflation forecasting, mean that the potential for a regulated entity's and IPART's WACC estimates to differ due to methodological differences is likely to be relatively small.¹⁷⁵

However, it identified two important parameters which it believes warrant further consideration. These are:¹⁷⁶

- the equity beta, which was not subject to a comprehensive review in the previous review of the WACC methodology, and
- the cost of debt, as Sydney Water disagrees with IPART's position on the appropriate weighting of short-term and long-term debt.

Sydney Water estimated a WACC of 4.6% for the 2016 determination period using a 40:60 weighting between short-term (10-year average) and long-term (40-day average) debt.¹⁷⁷ This differs to our methodology, where we assume a 50:50 split between long-term and short-term debt. Sydney Water noted that it has also

¹⁷⁴ Previously the tax paid by the business was reflected in the rate of return through the use of a pre-tax WACC.

¹⁷⁵ Sydney Water pricing proposal to IPART, June 2015, p 221.

¹⁷⁶ Sydney Water pricing proposal to IPART, June 2015, p 221.

¹⁷⁷ Sydney Water pricing proposal to IPART, June 2015, p 219.

used an equity beta of 0.7 to estimate the cost of equity (and WACC), although it considers this to be a lower bound estimate.¹⁷⁸

6.2.2 IPART's response on the WACC

Sydney Water has largely adopted our WACC methodology¹⁷⁹ in developing its pricing proposal. However, it expressed a preference to use the upper bound of the equity beta range and rebalance the split between long-term and short-term debt in calculating the WACC.

Our objective in determining the WACC is to establish a value that reflects the efficient cost of capital for a **benchmark entity**. In doing so, we have regard to market practice of how investors form their expectations on future returns. We consider that the efficient cost of capital for a benchmark entity is likely to reflect a mix of current market rates and long-term averages.

Having established our objective in setting the WACC, we then use our decisionmaking framework to estimate the efficient cost of capital for a benchmark utility. The objective of the regulatory WACC is not to replicate the actual cost of capital of any particular regulated utility.

Accordingly, our preliminary view is that we will not change our short- and long-term debt mix used to calculate the WACC, as proposed by Sydney Water. At this stage, we cannot comment on the appropriate value of the equity beta or other input parameters used to calculate the WACC. We will undertake further analysis before the draft decision and update our equity beta estimate if necessary.

IPART seeks comments on the following

16 What is an appropriate rate of return on Sydney Water's assets?

6.3 Regulatory depreciation

The allowance for regulatory depreciation included in the revenue requirement (and used in calculating the value of the RAB, as discussed above) is intended to ensure that the capital the regulated business (or its owner) invests in the regulatory assets is returned over the useful life of each asset.

To calculate this allowance, we need to determine the appropriate lives for the assets in Sydney Water's RAB, and the appropriate depreciation method to use.

¹⁷⁸ Sydney Water pricing proposal to IPART, June 2015, p 223.

¹⁷⁹ IPART, *Review of WACC Methodology*, December 2013.

6.3.1 Sydney Water's proposal on regulatory depreciation

Table 6.5 shows Sydney Water's proposed allowance for regulatory depreciation over the 2016 determination period. This allowance comprises 13% of its proposed revenue requirement for this period. To calculate this allowance, it used its CEMELND¹⁸⁰ asset classes and the straight line depreciation method.

As Table 6.5 shows, Sydney Water proposed adding two separate RABs related to assets being converted to finance leases.¹⁸¹ Sydney Water's proposed allowance for depreciation represents a significant increase over the 2012 Determination. This is due to:

- depreciation for finance lease assets being included for the first time, and
- ▼ a significant proportion of capital expenditure being on short-lived assets (eg, IT).

Table 6.5Sydney Water's proposed allowance for regulatory depreciation
by product (\$ millions, \$2015-16)

	2016-17	2017-18	2018-19	2019-20	Total
Water	72.2	74.7	77.1	79.3	303.2
Wastewater	149.0	157.2	165.8	173.6	645.6
Stormwater	2.4	2.7	2.9	3.1	11.0
Corporate	60.4	69.2	77.9	86.6	294.1
Subtotal	284.0	303.7	323.6	342.6	1,253.9
Finance leases					
Water	14.2	14.2	14.2	14.2	56.8
Wastewater	1.9	1.9	1.9	1.9	7.8
Subtotal	16.1	16.1	16.1	16.1	64.6
Total regulatory depreciation	293.5	312.7	332.2	350.7	1,289.2

Source: Sydney Water pricing proposal to IPART, June 2015, p 89.

6.3.2 IPART's response on regulatory depreciation

Regulatory depreciation depends on the value assigned to the RAB, the expected or assumed life of those assets, and the depreciation method used.

For this determination, we propose to continue to use the straight-line depreciation method to calculate Sydney Water's return of capital. This means that the total value of an asset is recovered evenly over its assumed life.

¹⁸⁰ We classify assets into civil, electrical, mechanical, electronic, and non-depreciating components to calculate the allowance regulatory depreciation.

¹⁸¹ Sydney Water pricing proposal to IPART, June 2015, pp 89-90.

We will consider the full and remaining lives for assets in the RAB and appropriate asset lives for forecast capital expenditure deemed prudent and efficient.

We note that Sydney Water's proposed expenditure on corporate IT projects to be included in the RAB is \$328 million over the 2016 determination period. This includes around \$123 million¹⁸² for a new billing system. However, Sydney Water's actual cost estimate to deliver its planned IT program over the 2016 determination period is \$375 million. It stated in its proposal that it is:

...only seeking funding for \$328 million, to drive efficient expenditure. Sydney Water will carry the risk of the \$47 million funding gap. 183

The standard asset life for corporate electronic assets (including IT) used to calculate regulatory depreciation is 10 years. However, we will investigate the likely asset life of Sydney Water's major IT expenditure – particularly the proposed new billing system, which may have a significantly longer economic life than 10 years.

IPART seeks comments on the following

17 Is Sydney Water's proposed allowance for regulatory depreciation, including the assumptions (eg, asset values and asset lives) underpinning this allowance, reasonable?

6.4 Allowance for tax

As discussed above, because we use a post-tax WACC to estimate the allowance for a return on assets in the revenue requirement, we also include an explicit allowance for tax, which reflects the regulated business' forecast tax liabilities.

We calculate the tax allowance for each year by applying a 30% statutory corporate tax rate adjusted for gamma to the business' (nominal) taxable income.¹⁸⁴ 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.¹⁸⁵

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.

¹⁸² Sydney Water pricing proposal to IPART, June 2015, p 212.

¹⁸³ Sydney Water pricing proposal to IPART, June 2015, p 217.

¹⁸⁴ Under a post-tax framework, the value of franking credits (gamma) enters the regulatory decision only through the estimate of the tax liability.

¹⁸⁵ The nominal cost of debt is the sum of the nominal risk free rate and nominal debt margin.

6.4.1 Sydney Water's proposal on the tax allowance

Sydney Water proposed that its tax allowance increases from \$57 million in 2016-17 to \$78.3 million in 2019-20.¹⁸⁶ Over the 2016 determination period, Sydney Water's total proposed tax allowance is \$261 million, which is around \$105 million (or 68%) higher than the tax allowance we used to set prices over the 2012 determination period.¹⁸⁷

Sydney Water proposed three key changes that affect the tax allowance:

- including a provision for Capital Gains Tax (CGT) on land sales
- using a forecast value for non-cash contributions or Assets Free of Charge (AFOC), and
- adopting the diminishing value method to calculate tax depreciation.

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. It argued that this proposed approach would enable it to recover the appropriate tax paid on certain items, including cash contributions, grants, asset contributions and property sales.¹⁸⁸

Sydney Water's calculation of its proposed tax allowance is shown below in Table 6.6.

¹⁸⁶ Sydney Water pricing proposal to IPART, June 2015, p 92.

¹⁸⁷ IPART, Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Final Report, June 2012, p 44.

¹⁸⁸ Sydney Water pricing proposal to IPART, June 2015, pp 274-275.

	2016-17	2017-18	2018-19	2019-20
Income				
Notional revenue requirement (excl tax)	2,361.5	2,461.0	2,555.9	2,654.1
Cash contributions and AFOC	152.9	161.7	156.3	163.0
Capital gain on property sales ^a	3.5	9.1	35.1	62.5
Total income	2,517.9	2,631.8	2,747.4	2,879.6
Expenditure				
Operating expenditure	1,284.1	1,317.5	1,344.2	1,376.6
Interest expense allowance	650.9	682.9	715.3	745.5
Tax depreciation	381.8	415.0	445.3	459.9
Total expenses	2,316.8	2,415.4	2,504.8	2,582.0
Accumulated tax losses	0.0	0.0	0.0	0.0
Taxable income	201.1	216.4	242.6	297.6
Tax allowance (adjusted for gamma) ^b	58.4	62.8	70.4	86.4
Tax allowance (\$2015-16)	57.0	59.8	65.4	78.3

Table 6.6Sydney Water's proposed tax allowance for the 2016
determination period (\$ millions, \$nominal)

a Based on Sydney Water's proposed 50% share of capital gains on asset sales.

b Based on a gamma value = 0.25.

Source: Sydney Water pricing proposal to IPART, June 2015, p 92.

Including a provision for Capital Gains Tax on land sales

As noted above, Sydney Water proposed to recover its actual capital gains tax incurred over the 2012 determination period in the 2016 period. 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.¹⁸⁹ Sydney Water used a similar methodology to forecast its AFOC for the 2012 determination period, which IPART accepted.

Under Sydney Water's proposed 50:50 sharing arrangement on asset disposals (discussed above), only 50% of the tax on capital gains on asset sales would be included in the tax calculation.

Using a forecast value for AFOC

Sydney Water's proposed approach for forecasting the value of AFOC splits these assets into two groups:

- urban development, and
- major infrastructure development.

¹⁸⁹ Sydney Water pricing proposal to IPART, June 2015, p 91.

To forecast the value of AFOC for urban development, it considered the actual AFOC for each dwelling and the forecast development rate across different geographic areas. For major infrastructure developments, it based its forecast value on the information on scheduled projects informed by private companies and government agencies.¹⁹⁰

AFOC also includes gifted meter assets from developers in relation to new multiunit developments. Sydney Water forecast \$2 million a year from this contribution over the 2016 period.¹⁹¹

This proposed approach represents a departure from the methodology Sydney Water used to forecast AFOC for the 2012 Determination period, and which IPART accepted. For the 2012 review, Sydney Water used the mean annual AFOC over the preceding five years to determine its forecasts.

Adopting the diminishing value method to calculate tax depreciation

From July 2012, Sydney Water has used the diminishing value method to frontload tax depreciation as well as shorter useful lives set by the tax rules, for all new assets.¹⁹²

The impact of this move under the current regulatory framework is that higher tax depreciation can be claimed upfront, which will lower the regulatory tax allowance in the earlier years, but increase the allowance in the later years. According to Sydney Water, it is able to use this method for new assets; however the tax legislation does not allow it to use this method for existing assets.¹⁹³

Using the diminishing value method for new assets, Sydney Water forecast tax depreciation over the 2016 determination period to increase from \$382 million in 2016-17 to \$460 million in 2019-20. It stated that, on average, this is \$91 million higher per annum than regulatory depreciation in nominal terms (excluding finance lease assets).¹⁹⁴

6.4.2 IPART's response on the tax allowance

We have considered Sydney Water's proposals in relation to the tax allowance.

¹⁹⁰ Sydney Water pricing proposal to IPART, June 2015, p 93.

¹⁹¹ Sydney Water pricing proposal to IPART, June 2015, p 93.

¹⁹² Sydney Water pricing proposal to IPART, June 2015, p 93.

¹⁹³ Sydney Water pricing proposal to IPART, June 2015, p 93

¹⁹⁴ Sydney Water pricing proposal to IPART, June 2015, p 93.

Response on including a provision for Capital Gains Tax on land sales

Our preliminary position on capital gains tax on property sales is discussed above in the section on asset disposals. Under our preferred treatment for asset disposals, Sydney Water would not require a provision for capital gains tax. This treatment of asset sales would also reduce the argument for a 'true-up' mechanism in recovering any gain or losses in the tax allowance over a determination period.

In general, we do not support the proposal for a 'true-up' of the tax allowance. 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:

- interest expenses, arising from a different gearing ratio from our regulatory ratio (60:40 debt:equity) and a different cost of debt
- operating expenditure, and
- 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.

Response on using a forecast value for AFOC

On balance, our preference at this stage is to continue to use historical AFOC, capital contributions and grants in forecasts for the purpose of calculating the regulatory tax allowance.

In our 2012 Determination, we used the 5-year historical average to forecast AFOC for the purpose of the calculation of the regulatory tax allowance. Given the difficulty in forecasting these gifted assets, we considered that using historical AFOC as the basis of our forecasts protected both customers and Sydney Water from fluctuations in the long-run.

Sydney Water proposed using a different methodology for this review. Its proposal (around \$150 million per annum) would result in a significant increase in the value of AFOC, and hence the regulatory tax allowance. Sydney Water's data suggests that in the five year to 2015, average AFOC was around \$100 million per annum. This is a similar figure to AFOC used in our 2012 review – itself based on a 5-year average from 2007.

We accept that historical data is not always an accurate guide of future income. However, given the scale of the proposed increase and the safeguards that using historical data provides in the long run, our preference is to maintain our 2012 methodology in forecasting AFOC for calculating the regulatory tax allowance.

Response on the diminishing value method to calculate tax depreciation

With regards to tax depreciation, it is our policy to use the business' actual tax depreciation. We note that Sydney Water's move to a diminishing value method for new assets (from the straight-line method) will change the profile of the tax allowance over the 2016 determination period. We also note that Sydney Water's tax allowance may increase over the 2016 determination period due to the inclusion of finance leases in the RAB.

7 Form of regulation

Form of regulation refers to the regulator's approach to setting prices for regulated services. This approach determines how risks and rewards are shared between the regulated business and its customers. This in turn affects the incentives faced by the regulated business.

In previous water price determinations, we have used the building block method to determine the revenue requirement (discussed in Chapter 3), and then set maximum price caps for each regulated service to recover this revenue. For the 2016 determination period, Sydney Water has proposed changes to this traditional form of regulation.

In particular, Sydney Water argued there is a need to introduce greater incentives in the regulatory regime for its business, and proposed three specific changes to the form of regulation:

- ▼ efficiency benefit sharing schemes (EBSS) to increase and equalise the financial incentive to achieve efficiency savings during the regulatory period
- ▼ a **cost pass through mechanism** to allow Sydney Water to pass through material uncontrollable costs to customers during the regulatory period, and
- ▼ 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.

This chapter outlines Sydney Water's proposals in relation to the form of regulation and our preliminary responses to these proposals.

7.1 Modernising regulation

7.1.1 Sydney Water's proposal on modernising regulation

Sydney Water acknowledged that IPART has a mature economic regulatory framework, which has benefited customers through falling prices, in real terms, through most of the last two decades.¹⁹⁵ It also acknowledged that IPART has taken steps to enhance its regulatory framework for urban water utilities through

¹⁹⁵ Except for during the millennium drought, investment in SDP and recycled water initiatives.

measures including the introduction of financeability tests and a more robust WACC methodology.¹⁹⁶

However, Sydney Water contended that for it to deal successfully with existing, emerging and future challenges, it requires both improved management of its business and modernised regulation of the NSW urban water sector.¹⁹⁷

Sydney Water stated that IPART has an opportunity to move further along the spectrum of best-practice regulation by strengthening the incentives of the current regime, and modernising regulation of the urban water market.¹⁹⁸ It also stated:

Any best practice regulatory economic framework should provide firms with strong incentives to do the right thing and pursue allocative, productive, and dynamic efficiencies. It should encourage firms to innovate, and drive more cost-effective solutions than if outputs were prescribed externally to the business. Strong incentives also allow the regulator to 'step back' from detailed operational matters of the business, potentially reducing the overall burden of regulation on both the regulator and the firm. This avoids the risk that information asymmetry leads to regulators making decisions about the business that are not in customers' interests.¹⁹⁹

7.1.2 IPART's response on modernising regulation

In general, we consider that competitive markets are the best way to deliver services that customers want at prices that reflect efficient cost and efficient risk allocation. Economic regulation is required in situations where markets do not exist or are not competitive (ie, where there is market failure). The purpose of economic regulation is to address cases of market failure by limiting the ability of monopoly suppliers to exercise market power and, where possible, by promoting outcomes that are consistent with those observed in competitive markets.

We consider the main goal for any regulated service should be to move towards competitive markets, where feasible, through an ongoing process of structural reform. Over time, as competition develops, the need for economic regulation and the role of the economic regulator will diminish. As we move towards competitive markets, we support the idea of improving the regulatory framework to:

- ensure it is appropriately matched to the current state of competition in the regulated sector
- where possible, promote outcomes that are more consistent with competitive market outcomes, and
- support the ongoing structural reform process.

¹⁹⁶ Sydney Water pricing proposal to IPART, June 2015, p xxiii.

¹⁹⁷ Sydney Water pricing proposal to IPART, June 2015, p xxiii.

¹⁹⁸ Sydney Water pricing proposal to IPART, June 2015, p xxiv.

¹⁹⁹ Sydney Water pricing proposal to IPART, June 2015, p xxiv.

In response to Sydney Water's specific comments, we recognise that other regulatory regimes in the UK, New Zealand and Australia have introduced more sophisticated incentive mechanisms and pricing flexibility into their regulatory frameworks.²⁰⁰ However, this does not necessarily mean it is appropriate for us to follow the examples of these other jurisdictions. We need to assess whether these mechanisms suit our specific circumstances and whether they are likely to deliver net benefits to customers in the long term.

In assessing Sydney Water's proposals for modernising regulation, we will consider whether the potential benefits of these proposals are likely to outweigh the associated risk and costs. Specifically, we will consider:

- The potential benefits of the proposals how they can promote outcomes that are more consistent with competitive market outcomes, including allocative, productive and dynamic efficiency; efficient allocation of risk between the business and customers; and responsiveness to customer preferences.
- The potential limitations and risks of the proposals how they could result in limited and/or unintended consequences due to the level of competition in the sector; the governance framework; and asymmetric information.
- The potential costs of the proposals how they could lead to a more complex and administratively burdensome regulatory environment.

We consider there is significant benefit in continually improving our independent assessment of utilities' efficient costs. To this end, we intend to commence productivity benchmarking for urban water utilities in NSW, including Sydney Water, to inform our decisions on efficient levels of expenditure. Productivity benchmarking is a key feature of many regulatory regimes that have adopted more sophisticated incentive mechanisms (eg, Ofwat, Ofgem, and AER). Sydney Water acknowledged the potential value of productivity benchmarking in its pricing proposal.²⁰¹

There are several approaches to productivity benchmarking that we will consider going forward, including:

- ▼ Cost driver and activity benchmarking. This approach analyses and compares specific cost drivers (eg, labour expenses) and activities (eg, IT and billing systems) against other businesses.
- 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' own productivity over time.

²⁰⁰ Sydney Water outlines how regulation has evolved in the UK water sector, and UK, Australian and New Zealand energy sectors. Sydney Water pricing proposal to IPART, June 2015, pp 62-67.

²⁰¹ Sydney Water pricing proposal to IPART, June 2015, p 265.

▼ 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.

IPART seeks comments on the following

- 18 Are there any significant similarities or differences between the regulated sectors identified by Sydney Water (which have adopted the proposed incentive mechanisms and pricing flexibility) and the NSW urban water sector? What are the implications of these similarities or differences for Sydney Water's proposal?
- 19 Does Sydney Water's proposal reflect an appropriate selection of incentive based approaches and mechanisms?
- 20 How successful have incentive mechanisms and pricing flexibility been in other jurisdictions or regulated sectors? What are the key determinants of success or failure?

7.2 Efficiency benefit sharing scheme

We set maximum prices that reflect our best estimate of the efficient costs required to deliver regulated services over the determination period. If the business is able to find efficiency savings in operating or capital expenditure, it has the option of lowering prices below the maximum to pass these savings on to customers immediately. However, it is not required to pass savings on immediately. Instead, it can keep the savings until we reset its prices and pass the savings on to customers in the next price determination.

The rationale for this is that allowing the business to keep the savings provides a financial incentive for it to find and deliver efficiencies over the regulatory period. Ultimately, this benefits customers when revealed efficiency savings are passed through in the form of lower prices at the next determination period.

Under the current form of regulation, the length of time that a business can hold efficiency savings depends on: the length of the price determination and when the saving is achieved during the regulatory period. Savings made early in the regulatory period can be held for the entire regulatory period, whereas savings made at the end of a regulatory period can be immediately passed through to customers when prices are reset.

An EBSS is a mechanism that allows gains (or losses) to be held for a specified period of time, regardless of when they are achieved within the regulatory period. Sydney Water proposed an EBSS to apply to a portion of its operating expenditure (opex EBSS) and to a portion of its capital expenditure (capex EBSS).²⁰²

²⁰² Sydney Water pricing proposal to IPART, June 2015, p 257.

7.2.1 Sydney Water's proposal on an opex EBSS

Sydney Water proposed an opex EBSS to address what it considers are problems with the current form of regulation:²⁰³

- ▼ **Insufficient incentive to pursue efficiency savings.** Because the holding period for efficiency savings is currently a maximum of four years.
- A weakening incentive to realise efficiency gains over the determination period. Because efficiency gains are currently passed through to customers at the end of the determination period, the incentive to implement permanent efficiency savings declines throughout the period.
- Costly upfront expenditure reviews. To the extent that the EBSS reveals the business' efficient cost, there will be less need for IPART to undertake costly upfront expenditure reviews.

Sydney Water proposed the EBSS apply to approximately 60% of its total operating expenditure for regulated services (ie, excluding its bulk water purchase costs). Under its proposed opex EBSS, efficiency gains and losses are held by Sydney Water for five years and then passed through in full to customers. This means that Sydney Water would retain 24% of the present value of permanent efficiency savings (or losses), while customers would receive the remaining 76% through lower (or higher) prices in the future.²⁰⁴

Sydney Water's proposed EBSS rewards underspends and penalises overspends on a 'symmetrical' basis. This means that efficiency gains are rewarded and efficiency losses are penalised at the same rate. Efficiency gains and losses are measured on an incremental basis, which involves a two-step process:

- 1. Calculate the under (over) spend for each year of the determination period as the difference between actual and allowed expenditure.
- 2. Calculate the efficiency gain or loss for each year as the incremental change in the under (over) spend from one year to the next.

Sydney Water also proposed a 'cap and collar' that limits the potential gain or loss that could be carried over by the EBSS to +or- \$50 million over the carry over period (ie, the following regulatory period). It noted that these constraints limit both the risks and potential benefits of the EBSS.²⁰⁵

When setting future operating cost allowances, Sydney Water proposed that IPART give greater weight to revealed costs (ie, actual expenditure in Year 3 of the previous determination period).²⁰⁶ Sydney Water did not specify the weightings we should give to revealed costs in Year 3 of the regulatory period versus other relevant factors. However, it expressed the view that there is merit

²⁰³ Sydney Water pricing proposal to IPART, June 2015, pp 259-261.

²⁰⁴ Sydney Water pricing proposal to IPART - Appendix 5, June 2015, p 125.

²⁰⁵ Sydney Water pricing proposal to IPART, June 2015, p 257.

²⁰⁶ Sydney Water pricing proposal to IPART - Appendix 5, June 2015, p 126.

in complementing an EBSS with benchmarking to improve transparency and mitigate information asymmetry.²⁰⁷

Appendix G provides a worked example of our understanding of how Sydney Water's proposed opex EBSS would operate.

7.2.2 IPART's response on an opex EBSS

Our preliminary position is that we are open to considering a modified version of Sydney Water's proposed opex EBSS – one that equalises the financial incentive to achieve permanent efficiency savings over time while limiting the potential for gaming.

Figure 7.1 shows that Sydney Water has tended to increase actual expenditure up to or beyond the allowance in the later part of the regulatory period. Sydney Water's proposed EBSS would equalise the incentive to achieve permanent efficiency savings over time by allowing it to hold permanent efficiency savings for a fixed number of years, regardless of when they are made. This would address the concern that there is currently an incentive to delay efficiency savings from the end of one regulatory period to the beginning of the next.



Figure 7.1 Sydney Water – allowed versus actual opex (\$ nominal)^a

a Includes bulk water costs

Note: Actual operating expenditure in 2015-16 is a forecast provided by Sydney Water. **Data source:** Sydney Water Annual Information Return, June 2015.

²⁰⁷ Sydney Water pricing proposal to IPART, June 2015, p 265.

However, we have two main concerns with Sydney Water's proposed opex EBSS:

- 1. Costs can be shifted between years in order to generate an efficiency carryover gain, when no efficiency saving has been achieved. This would result in customers paying higher prices in the short term and receiving no benefit in return.
- 2. Costs can be shifted into the third year of a determination period, which is used as the 'base year' to set the allowance in the next regulatory period. This could allow the regulatory allowance to be artificially ratcheted up over time.

As a potential alternative option, we are considering a modified opex EBSS to address our above concerns, while maintaining the equalised financial incentive to deliver permanent efficiency savings.

- 1. To ensure that only permanent efficiency savings are rewarded, our modified EBSS would only apply to incremental efficiency gains and losses that occur below the regulatory allowance. Specifically:
 - When actual expenditure falls below the allowance, the gain is rewarded. If actual expenditure subsequently increases back towards the allowance, the reward is clawed back.
 - If actual expenditure goes above the allowance, the loss is not included in the EBSS. If actual expenditure subsequently decreases towards the allowance, the gain is not included in the EBSS.
- 2. To ensure that costs are not shifted into a specific 'base year' to influence the setting of the allowance in the next regulatory period, IPART would retain discretion to set future allowances based on all relevant information including revealed costs, expenditure reviews, benchmarking and additional efficiency targets.

Figure 7.2 illustrates the difference between Sydney Water's proposed opex EBSS that applies symmetrically to all incremental efficiency savings (losses) above and below the regulatory allowance compared to the modified opex EBSS that applies only to incremental efficiency savings (losses) below the regulatory allowance.



Figure 7.2 Difference between Sydney Water's proposed and IPART's modified opex EBSS

Source: IPART analysis.

We have set out examples in Appendix G demonstrating how Sydney Water's proposed opex EBSS could potentially be gamed and how our modified opex EBSS might be able to overcome these concerns. We note that successfully mitigating the risk of gaming may reduce the need for a cap and collar on the EBSS.

Setting the length of the EBSS holding period

The length of holding period is a key design feature of the opex EBSS, as it determines the strength of the financial incentive to make efficiency savings and how these savings are shared between the business and its customers. Because we do not know the relationship between the holding period and the incentive to deliver efficiency savings, selecting an appropriate holding period is likely to require considerable judgement (this issue is discussed further in Appendix G).

Sydney Water has proposed a 5-year holding period, which we estimate would allow it to retain approximately 23% of the present value of permanent efficiency savings.²⁰⁸ Alternative options include:

- A 4-year holding period matching Sydney Water's proposed length of determination period.
- A 2-year holding period the average of the current holding period which falls from four years at the start of the determination period to zero at the end.

Figure 7.3 illustrates the share of any permenant efficiency savings that would be held by Sydney Water under the current, proposed and alternative holding periods. In deciding on the appropriate length of the holding period, we will consider all relevant factors including what can be observed from competitive markets and what is likely to maximise long term benefits to customers.



Figure 7.3 Business' share of efficiency savings for various holding periods

Note: calculated as the present value of a \$1 efficiency saving over the specified holding period divided by the present value of a \$1 efficiency saving into perpetuity. Using a discount rate of 5.3% p.a. consistent with Sydney Water's pricing proposal.

Source: Sydney Water pricing proposal to IPART, June 2015, Figure 10-4, p 259. IPART analysis.

²⁰⁸ That is, the present value of a \$1 gain/loss per year for five years relative to the present value of a \$1 gain (loss) per year into perpetuity is 23%. The remaining 77% of the present value of the perpetuity occurs from year 6 into perpetuity and is assumed to be passed on to customers through lower prices. This is based on a discount rate of 5.3% p.a. consistent with Sydney Water's pricing proposal. Sydney Water calculated the sharing ratio to be 24% to Sydney Water and 76% to customers by over-discounting the future benefit to customers by one period. In Figure A5-1 on page 125 of the appendix to Sydney Water's pricing proposal, the present value of the future customer benefit of 27 into perpetuity is adjusted by a discount factor of 0.77 (implying the 393.5 future customer benefit perpetuity is valued at the end of year 9). It should have instead been adjusted with a discount factor of 0.81 (ie, the 393.5 future customer benefit perpetuity is actually valued at the end of year 8).

Complexity and administrative costs

Depending on its design and application, an opex EBSS could be a relatively complex mechanism. This may lessen transparency in the regulatory framework and lead to less engagement from other stakeholders including customers.

A benefit of the current form of regulation is that it is relatively light handed. IPART does not need to audit and confirm efficiency savings. Adopting an opex EBSS could result in an increase in administrative costs and a greater regulatory burden to the extent that there remains potential for gaming and/or unintended consequences. Given that our modified EBSS limits the potential for gaming, we consider it to be potentially less complex and costly to administer.

IPART seeks comments on the following

- 21 Is our modified EBSS likely to remove the opportunity to game, while maintaining the incentive to achieve permanent efficiency savings? Are there alternative modifications to the EBSS that better achieve these objectives?
- 22 What is an appropriate holding period for permanent efficiency savings achieved by Sydney Water, taking into account observed outcomes in competitive markets and potential benefits to customers?
- 23 Would an opex EBSS likely result in an increase in regulatory complexity, reduction in transparency or increase in administrative costs? If so what could be done to minimise these effects?
- 24 Are there complements or alternatives to an opex EBSS, such as productivity benchmarking, that can drive further efficiency gains?

7.2.3 Sydney Water's proposal on a capex EBSS

Although not explicit in its pricing proposal, it appears that Sydney Water proposed a capex EBSS on the basis that it will complement the opex EBSS and provide Sydney Water equal incentives to pursue capital and operating expenditure efficiencies.²⁰⁹

Under Sydney Water's proposal, the capex EBSS would apply to approximately 10% to 15% of total capital expenditure. Unlike operating expenditure, which is recurrent and relatively stable over time, capex is often not recurrent and can be lumpy over time. Therefore, Sydney Water is proposing to limit the capex EBSS to components of capex that are relatively stable over time, specifically:

- critical water mains and reticulation renewals, and
- ▼ electricity.²¹⁰

 ²⁰⁹ Sydney Water pricing proposal to IPART, June 2015, p 257.
 ²¹⁰ Sydney Water pricing proposal to IPART, June 2015, p 257.

Box 7.1 shows how the benefit or loss would be calculated under Sydney Water's proposed capex EBSS.

Box 7.1 Calculating the efficiency benefit under the capex EBSS

Sydney Water is proposing to include rewards for under spends and penalties for over spends on a symmetrical basis, with the capex efficiency benefit calculated according to the following formula:^a

Efficiency benefit = $\sum X_n * FS - \sum FB_n$

Where,

- ▼ X_n is the capex allowance minus actual capex in period n.
- FS is the firm's share of the efficiency gain (loss). Sydney Water is proposing this match the firm's share of benefits calculated under the operating expenditure EBSS (ie, 24%).
- FB_n is the net financing benefit (loss) accrued by the firm in period n due to capex under (over) spends during the regulatory period.^b
- a Sydney Water pricing proposal to IPART, Appendix 5, June 2015, pp 128-129.

b Capex is assumed to occur mid-year. Therefore the financing benefit (loss) in the first year of an under (over) spend is $0.5 \times WACC \times underspend$ (overspend). The financing benefit (loss) is then WACC $\times underspend$ (overspend) for each of the remaining years of the regulatory period

Note: As noted, we consider that Sydney Water's share should be calculated as 23% rather than 24%. We note that Sydney Water has used a figure of 25% in some parts of its capex EBSS proposal.

Source: Sydney Water pricing proposal to IPART, June 2015, pp 128-129.

The capex EBSS would effectively allow Sydney Water to retain 24% of capital expenditure underspends. Some of this value is captured during the regulatory period because the business is allowed to earn a return on forecast (not just actual) capital expenditure. The capex EBSS calculates the difference between the 24% of capital expenditure underspends and the benefit received during the regulatory period. This difference called the 'efficiency benefit' is then added to the revenue requirement as a separate building block for the next regulatory period.

Similar to the opex EBSS, Sydney Water proposed to cap and collar (ie, limit) the potential gain (loss) of the capex EBSS to + or - \$50 million over the carryover period. However, it proposed IPART retain discretion to set capital expenditure allowances in future regulatory periods. Sydney Water noted that due to the 'lumpy' nature of capital expenditure, the theory that revealed costs in Year 3 should be used to set the regulatory allowance in Year 5 does not apply.²¹¹

²¹¹ Sydney Water pricing proposal to IPART, Appendix 5, June 2015, 129.

7.2.4 IPART's response on a capex EBSS

Our preliminary view is that we will not adopt a capex EBSS at this time for the following reasons:

- Capital expenditure is fundamentally different to operating expenditure, which means that the arguments for the opex EBSS do not necessarily apply to capex. The main rationale for the opex EBSS is that unequal incentives to achieve efficiency savings over time can result in the regulated utility delaying efficiency savings from the end of one regulatory period (where the utility would only hold the benefit of the saving for a short time) to the beginning of the next period (where the utility would hold the benefit of the saving for the full length of the new regulatory period). This incentive is present because of the recurrent nature of opex. However, capex is generally not recurrent. This means that capex allowances are set relatively independently of each other over time, and therefore there is likely to be less incentive to delay a capex efficiency gain from the end of one regulatory period to the beginning of the next regulatory period.
- The relationship and trade-off between operating and capital expenditure is complex and driven by a range of dynamic factors, including management priorities, capital market conditions (including the relationship between the WACC and the utility's cost of capital), and the level of substitutability between operating and capital solutions. Given this range of factors, the incentive to pursue operating and capital savings is unlikely to be equalised by applying the same sharing ratio to both operating and capital expenditure.
- The non-recurrent nature of capital expenditure means that it may be difficult to distinguish between efficiency savings and deferrals. It also means that it may be difficult to distinguish between efficiency savings and over stated forecasts. Customers should not have to pay additional costs for projects to be deferred or when their forecasts are overstated.
- Strengthening the financial reward for underspending the regulatory allowance may increase current incentives to over forecast capital expenditure.
- Given asymmetric information between the business and the regulator, the combination of a capex EBSS and the proposed cost pass through mechanism for material variances in project costs could result in upside risks being retained by the business and downside risks being passed on to customers. Although, as discussed below, our preliminary position is to not adopt Sydney Water's cost-pass through proposal.

7 Form of regulation



Figure 7.4 Sydney Water – allowed versus actual capex (\$ nominal)

Note: actual capital expenditure in 2015-16 is a forecast provided by Sydney Water. **Data source:** Sydney Water Annual Information Return, June 2015.

Figure 7.4 shows that Sydney Water underspent allowed capital expenditure in the early years of the 2012 determination (regulatory period 2 in the figure) and increased spending in the later part of the regulatory period. However, in the 2008 determination period (regulatory period 1 in the figure), Sydney Water overspent early in the regulatory period and underspent late in the regulatory period. According to Sydney Water's submission to the 2012 price review, drivers of the higher than expected capex included the unexpected abolishment of developer charges in 2008, overspend on IT modernisation projects and unplanned purchases of land and easements.²¹²

IPART seeks comments on the following

- 25 What are the arguments for and against a capex EBSS? How would it deliver long term benefits to customers?
- 26 Can the capex EBSS be modified to remove incentives to over forecast, while maintaining incentives to achieve permanent efficiency savings?
- 27 Are there complements or alternatives to a capex EBSS to drive further efficiency gains in capital expenditure?

7.3 Cost pass through mechanisms

Cost pass through mechanisms allow uncertain and unknown costs that arise during the regulatory period to be passed through to customers immediately (ie, within the regulatory period).

²¹² Sydney Water submission in response to Issues Paper, 16 September 2011, p 61.

Sydney Water currently has a cost pass through mechanism for its SDP bulk water costs.²¹³ In this case, the trigger event (WaterNSW dam levels falling below 70%) is clearly defined in the Metropolitan Water Plan and the resulting costs are clearly pre-determined and defined under SDP's price determination.

Sydney Water proposed that IPART develop a methodology for cost pass throughs to manage the risk of uncontrollable costs beyond its bulk water purchase costs that occur during the regulatory period.

7.3.1 Sydney Water's proposal on a cost pass through mechanism

Sydney Water proposed a cost pass through mechanism to complement the EBSS, to ensure that efficient businesses are not prevented from earning a reasonable return due to unanticipated cost increases not provided for in the determination.²¹⁴

In its proposal, Sydney Water argued that because the WACC does not compensate the business for non-systematic (ie, business specific) risk, these risks should be either separately compensated for up front or allowed to be passed through to customers if and when they materialise in actual costs.²¹⁵ Sydney Water proposed the latter approach and identified three types of risks which could be addressed through a cost pass through methodology:²¹⁶

- Material variance: the risk that costs of existing projects could vary materially from those included in the regulatory allowance, for reasons outside Sydney Water's control.
- New obligation: the risk that material costs emerge, which are not included in the regulatory allowance. These could be due to changes in legislation or legal standards, or a regulatory obligation.
- Shipwreck: the risk that costs occur due to unforeseen circumstances that would have a substantial effect on a firm, including events such as earthquake, bushfire or pandemic illness.

Under the proposal, if such risks materialise into actual costs, Sydney Water would apply to IPART to adjust prices accordingly for the rest of the current regulatory period.²¹⁷ The mechanism would also allow Sydney Water to return revenue back to customers when expected costs do not materialise.²¹⁸ In

²¹³ When WaterNSW dam levels drop below 70%, SDP is instructed to turn on and supply desalinated water to Sydney Water at a price determined by IPART through a separate SDP price determination process. The cost pass through mechanism allows Sydney Water to pass the resulting SDP costs on to customers through its water service charges.

 $^{^{214}}$ Sydney Water pricing proposal to IPART, June 2015, p xxvi.

²¹⁵ Sydney Water pricing proposal to IPART, June 2015, p 265.

²¹⁶ Sydney Water pricing proposal to IPART, June 2015, p 266.

²¹⁷ Sydney Water pricing proposal to IPART, June 2015, p 266.

²¹⁸ Sydney Water pricing proposal to IPART, June 2015, pp 266-267.

addition, Sydney Water suggested that IPART should be able to offer to adjust prices if it thought circumstances warranted a change in allowed revenue.²¹⁹

Box 7.2 outlines Sydney Water's proposed methodology to calculate the price impact to customers of cost pass throughs.

Box 7.2 Methodology for calculating incremental revenue requirement

Sydney Water is proposing the following methodology to calculate the price impact to customers of cost pass throughs.

Additional revenue requirement (IRR) per customer:

 $=\frac{\text{Return on assets} + \text{Return of assets} + \text{Opex} + \text{Tax}}{\text{Number of customers}}$

Where,

- WACC = post tax real weighted average cost of capital
- Return on assets = Capex * WACC
- ▼ Return of assets = ∑⁴_{j=1} [Capex j / Asset life j]
- j = one of the following four resource categories type:
 - 1. Civil
 - 2. Electronic
 - 3. Mechanical
 - 4. Electrical
- Asset life category j = remaining asset life for resource category j.

Note: We removed the non-depreciating asset category because it does not have a remaining asset life and is therefore not part of the return of assets formula above.

Source: Adapted from Sydney Water pricing proposal to IPART, June 2015, p 269.

Sydney Water also proposed the following set of constraints to include in the cost pass through methodology:²²⁰

- Materiality: a materiality threshold based on combined operating and capital expenditure. For example, the materiality threshold could be set on an absolute basis (eg, \$50 million combined expenditure per year) or on a relative basis (eg, 5% of the average annual combined expenditure allowed under the current determination).
- Anticipated: that the risk of uncertain costs has been identified at the beginning of the regulatory period.

²¹⁹ Sydney Water pricing proposal to IPART, June 2015, p 267.

²²⁰ Sydney Water pricing proposal to IPART, June 2015, pp 267-268.

- Required: that costs are reasonably required for Sydney Water to meet its obligations.
- Unfunded: that costs are not already included in Sydney Water's regulatory allowance.
- **Uninsured:** that it is not efficient to fully insure the risk.

Table 7.1 summarises how the constraints apply to each of the three risk categories.

Risks / Constraints	Materiality	Anticipated	Required	Unfunded	Uninsured
1. Material variance	Yes	Yes	Yes	Yes	-
2. New obligation	Yes	-	Yes	Yes	-
3. Shipwreck	Yesa	Yes	Yes	Yes	Yes

 Table 7.1
 Proposed constraints on the cost pass through mechanism

^a Sydney Water is proposing a relatively higher materiality threshold for shipwreck events. **Source:** Sydney Water pricing proposal, June 2015, pp 266-267.

Proposed process for cost pass throughs

Sydney Water recognised that the IPART Act may place constraints on our ability to implement cost pass through mechanisms. However, Sydney Water contended that its proposal provides the authority for IPART to address these constraints and take the proposed methodology for cost pass throughs forward.²²¹

Sydney Water is proposing the following approval process for cost pass throughs during a regulatory period (see Figure 7.5):²²²

- Sydney Water would decide if there is a case to apply to IPART to adjust the regulatory allowance. In its application, Sydney Water would demonstrate how the various constraints have been satisfied.
- IPART would then assess Sydney Water's project-specific forecast capital and incremental operating expenditures, determining the impact on the revenue requirement over the remaining years of the regulatory period.
- If the application is approved by IPART, Sydney Water would adjust prices accordingly at the start of the new financial year.

²²¹ Sydney Water pricing proposal to IPART, June 2015, p 272.

²²² Sydney Water pricing proposal to IPART, June 2015, p 268.



Figure 7.5 Sydney Water's proposed process for cost pass throughs

Source: Sydney Water pricing proposal to IPART, June 2015, p 268.

7.3.2 IPART's response on a cost pass through mechanism

We consider that cost pass through mechanisms should only be applied in exceptional circumstances and where the business is no better placed than customers to control or influence the likelihood of the event occurring or the size of the resulting cost. Box 7.3 outlines the circumstances under which we consider cost pass throughs should apply.

Box 7.3 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.
- 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.^a
- 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 7.3.

An example of another risk that could be eligible for a cost pass through mechanism would be a significant tax change that could be assessed as having a material positive or negative impact on the business' costs.

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.

In particular, we do not consider there is a case to accept Sydney Water's proposal to broaden the application of cost pass throughs at this time 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 incentivises to minimise the likelihood and cost of downside risk and maximise the likelihood and benefits of upside risk. In competitive markets, risks tend to be held by the party best placed to manage that risk. For example, if project costs blow out, a business in a competitive market will not be able to pass these costs on to customers. The business will therefore have a strong incentive to ensure costs do not blow out and therefore that customers pay the efficient cost for services they receive.²²³
- It is efficient for the business to have an incentive to influence new costs as a result of a legislative, legal or regulatory development. For example, changes in environmental standards are often the result of comprehensive consultations with the various stakeholders. 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. A good example of this is Sydney Water's engagement in the EPA's review of Sydney Water's Environment Protection Licences.²²⁴
- 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.

²²³ We do not agree with the contention that the business should either be compensated for holding business specific risk or that these risks should be necessarily passed on to customers. The fact that the WACC does not compensate for business specific risk does not mean that these risks should be passed on to customers.

²²⁴ http://www.sydneywaternews.com.au/pricing-regulatory/sydney-waters-environment-protection-licences-review/

7 Form of regulation

• Due to asymmetric information between the business and the regulator, a broader application of cost pass through mechanism could be used to retain upside risk and pass downside risk onto customers. That is, there is a risk that cost increases will tend to be characterised by the business as outside its control while cost decreases will tend to be characterised as within its control. In order to mitigate this risk, the cost pass through mechanism would likely result in a significant increase in the administrative burden on the business and IPART. This may not result in a net benefit to customers in the long run.

7.4 Weighted average price cap

Our current form of regulation involves setting maximum prices for Sydney Water's water, wastewater and stormwater drainage services, for each year of the determination. This section outlines Sydney Water's proposal to move to a WAPC and our preliminary response to this proposal.

7.4.1 Sydney Water's proposal on a WAPC

Sydney Water proposed a move towards greater pricing flexibility in the upcoming price determination period. This would allow Sydney Water to vary prices throughout the period across different services and customer groups.²²⁵

According to Sydney Water, greater price flexibility would:

- Allow prices to be more cost reflective across different customer groups and/or better match prices to customer preferences.
- Complement Sydney Water's proposals for stronger incentives to achieve efficiency savings (ie, its proposed EBSS).
- Shift the burden of regulation away from IPART onto Sydney Water, particularly since Sydney Water has better information to set prices and can do so at lower cost compared to IPART.

Sydney Water proposed to use three baskets, for water, wastewater and stormwater services – each with its own price cap. It proposed this form of WAPC, because of some uncertainty around IPART's legal authority under the IPART Act to set a single price methodology for more than one group of regulated services.

²²⁵ Sydney Water pricing proposal to IPART, June 2015, p 247.

Box 7.4 shows Sydney Water's proposed WAPC formula. Sydney Water proposed that we set prices for the first year of the 2016 determination period (ie, 2016-17), before allowing it to transition to a WAPC for the remainder of the determination period. While individual prices can increase and decrease over the period, Sydney Water proposed that the weighted average across all prices not increase above the rate of inflation.²²⁶

Box 7.4 Sydney Water's proposed WAPC formula

$$\frac{\sum_{i=1}^{n} \sum_{j=1}^{m} p_{t}^{ij} q_{t-1}^{ij}}{\sum_{i=1}^{n} \sum_{j=1}^{m} p_{t-1}^{ij} q_{t-1}^{ij}} \le (1+K_{t}) * (1+CPI_{t})$$

Where,

- There are n tariffs, which each have m components and:
- ▼ i=1,...n
- ▼ j = 1, ... m
- p_t^{ij} is the price proposed for component j of tariff i for year t.
- p_{t-1}^{ij} is the price charged for component j of tariff i for year t 1.
- q_{t-1}^{ij} is the quantity of component j of tariff i sold in year t 1.
- *K_t* is the cap on the average increase in prices for each year t expressed as a weighted average percentage change.
- CPI_t is the rate of inflation (change in the CPI index) for year t.

Note: We have amended the right hand side of Sydney Water's proposed WAPC formula from $K_t^*(1+CPl_t)$ to $(1+K_t)^*(1+CPl_t)$. This means that when K=0, the WAPC will be limited to changes in CPI.

Source: Sydney Water pricing proposal to IPART, June 2015, p 249.

²²⁶ Sydney Water proposed that IPART set a price cap of zero in the upcoming regulatory period (ie, $K_t = 0$).

Box 7.5 provides some examples of how Sydney Water proposed to use a WAPC in practice.

Box 7.5 Sydney Water's examples of how a WAPC could be used

- A discounted tariff for large mains connected water customers who do not use the reticulation network.
- A usage only tariff for some customers to encourage efficient water use.
- A seasonal tariff for some non-residential customers whose consumption varies significantly throughout the year.
- A peak demand capacity charge for some non-residential customers that occasionally consume very large quantities of water.
- A discounted tariff for customers willing to have their supply curtailed during periods of high system demand or significant supply interruptions.
- Various combinations of service and usage charges to better reflect residential and non-residential customer preferences.
- A 'second home' tariff designed to recover more costs from the fixed service charge and less from the usage charge.
- A wastewater usage charge for residential customers.

Source: Sydney Water pricing proposal to IPART, June 2015, pp 253 – 254.

Proposed process for a WAPC

Sydney Water has not proposed formal side constraints²²⁷ to the WAPC because it considers that such constraints do not support the objectives of pricing flexibility and can constrain the regulated businesses' ability to quickly and easily adjust the parameters of the pricing framework during the regulatory period.²²⁸

In lieu of side constraints, Sydney Water proposed other measures to complement the WAPC, including:

- A set of pricing principles²²⁹, published by IPART, which Sydney Water must consider in its approach to pricing. Pricing principles could include, for example:
 - That Sydney Water must not show undue preference towards or discrimination against customers or groups of customers.
 - Prices should be simple, transparent and stable and should reflect efficient cost and customer preferences while minimising cross-subsidies.

²²⁷ Side constraints can be used to limit the annual price movements for certain groups of customers or types of tariffs.

²²⁸ Sydney Water pricing proposal to IPART, June 2015, p 251.

²²⁹ Sydney Water pricing proposal to IPART, June 2015, pp 250-251.
- ▼ A **pricing strategy**²³⁰ to be developed through customer consultation and agreed between Sydney Water and IPART. For example, Sydney Water's pricing strategy could set out that it will:
 - Take a measured approach to water pricing reform, promoting innovation in the availability and design of tariffs in accord with a timeframe and scale agreed with customers.
 - Introduce pricing innovation while minimising volatility in overall prices and avoiding undue disparity between prices charged to different groups of customers.
 - Initially focus on non-residential customers.
 - Approach pricing issues based on sound principles and evidence including significant customer engagement.

Sydney Water proposed an annual process to approve proposed tariffs and ensure changes are in line with the agreed charging principles (see Figure 7.6). The process would provide IPART with five months to approve tariff proposals before 1 July price changes are implemented each year.

Figure 7.6 Sydney Water's proposed WAPC approval process



Source: Sydney Water pricing proposal to IPART, June 2015, p 252.

7.4.2 IPART's response on a WAPC

Our preliminary position is that we are open to a WAPC applied to a **subset** of Sydney Water's regulated services and customers. In particular, this would involve:

 Fixing maximum prices for the first year of the determination and setting a WAPC for the remainder of the determination period.

²³⁰ Sydney Water pricing proposal to IPART, June 2015, pp 251-252.

- Restricting the WAPC to large non-residential customers (ie, with a connection or connections greater than a 20mm equivalent). This means the WAPC would not apply to residential and small non-residential customers.
- Developing a pricing strategy, and applying a combination of pricing principles and side constraints, where appropriate.

We also note that a potential alternative to side constraints could be for IPART to continue to set regulated prices for each year but allow Sydney Water to offer (large non-residential) customers the choice to opt out of the regulated price and opt in to an alternative price combination offered by Sydney Water, under a WAPC.

We consider that these types of WAPCs are more likely to, in the first instance, provide Sydney Water with enhanced price flexibility that promotes:

- improved cost-reflectivity and/or
- ▼ value for customers.

We will further consider the scope, potential benefits, risks and constraints on the WAPC to ensure that it provides Sydney Water pricing flexibility without opening the door to potential gaming and abuse of market power. We will also consider the interaction between the volatility adjustment mechanism (discussed in Chapter 8) and the WAPC, in particular the scope for a WAPC to mitigate demand volatility.

We note that the AER is now moving away from WAPCs and is adopting revenue caps to promote more efficient pricing for electricity distribution services in Australia.²³¹ There are also factors present in the NSW urban water sector that could limit the flexibility and potential benefits of a WAPC. For example:

- There is currently limited competition in the NSW urban water sector. This lack of competition could limit the incentive for Sydney Water to use the WAPC to provide greater value to its customers.
- Sophisticated metering technology in energy markets allows greater flexibility in pricing that, when combined with competition, can deliver value for customers. Current water metering technology is less sophisticated and may limit the ability for Sydney Water to provide greater value to its customers.
- There is currently a policy of postage stamp pricing in the NSW urban water sector. If maintained, this policy is likely to limit Sydney Water's ability to use the WAPC to make prices more cost reflective.

We explore some considerations regarding WAPCs in the sections below, including the need for pricing principles as proposed by Sydney Water. Box 7.6 outlines our scope to apply a WAPC under the IPART Act.

²³¹ AER, Stage 1 framework and approach paper - Ausgrid, Endeavour Energy, and Essential Energy, March 2013, p 10.

Box 7.6 Limitations under the IPART Act

IPART may adopt a WAPC to fix the maximum price for a single government monopoly service supplied by Sydney Water. This would be an example of IPART directly fixing the maximum price for that service. By way of example, this means that IPART may adopt a WAPC to fix the maximum price for wastewater services and a separate WAPC to fix the maximum price for water supply services.

The adoption by IPART of a WAPC to fix the maximum price for more than one government monopoly service supplied by Sydney Water would be an example of IPART setting a **methodology** for fixing the maximum price for those services. However, IPART may only set a methodology if it is of the opinion that it is impractical to directly fix the maximum price for each of those services separately.

Where pricing principles are intended to be binding constraints and form part of a methodology, the principles will need to be set out in the determination. Where pricing principles are intended to be pricing policies guiding Sydney Water's charging discretion within the WAPC, then IPART could issue a subsequent report within the determination period setting out those pricing policies. Under the IPART Act (s 18(3)), if IPART makes recommendations with respect to pricing policies for government monopoly services, the recommendations are to be taken into account in the fixing of prices for those services.

Price discrimination and efficiency

A WAPC is likely to result in different prices to different customer groups (see Box 7.7).

It has been shown that, under certain conditions, pricing flexibility can result in efficiency improvements through a form of price discrimination called 'Ramsey Pricing', whereby prices are reduced for customers with relatively elastic demand and increased for customers with relatively inelastic demand.²³²

However, regulators that have adopted WAPCs have typically controlled the extent to which prices are allowed to diverge between individual customers and groups of customers through:

- restricting the WAPC to operate within a subset of the businesses' regulated services, and
- the application of additional restrictions called 'side constraints'.

²³² Vogelsang and Finsinger, 'A regulatory adjustment process for optimal pricing by multiproduct monopoly firms', Bell Journal of Economics, 10(1) Spring 1979, pp 157-171.

Box 7.7 **Illustration of Price Discrimination**



10

Scenario A – both customer groups are charged same price

- Both customer groups are charged \$10 and consume 10 units each.
- Total revenue = $(\$10 \times 10) + (\$10 \times 10) = \$200$. ▼

10

Scenario B – prices are allowed to vary by customer group



- ▼ The business can maximise revenue by lowering the price for Customer Group A (elastic demand) and increasing the price for Customer Group B (inelastic demand).
- Total revenue = $(\$8 \times 14) + (\$12 \times 9) = \$220$.

Opportunity to extract rents through forecasting changes in demand

The proposed WAPC may provide Sydney Water with an opportunity to act strategically to maximise revenue within the price cap. Because the WAPC formula uses historical quantities in both the numerator and denominator, Sydney Water may be able to gain to the extent it can accurately predict relative changes in demand between customer groups. This is illustrated in Box 7.8.

Box 7.8 Benefiting from forecasting changes in demand

Period 1

- Both customer groups have the same demand of 10 units each.
- Both customer groups A and B are charged \$10 per unit.
- Total revenue = (\$10 x 10units) + (\$10 x 10units) = \$200.

Period 2

- Demand from group A is expected to increase to 12 units and demand from group B is expected to fall to 8 units.
- If prices are held constant, total revenue is unchanged: (\$10 x 12) + (\$10 x 8) = \$200.
- If the price for group A is increased to \$12 per unit and the price to group B is reduced to \$8 per unit, total revenue increases: (\$12 x 12) + (\$8 x 8) = \$208.
- In this example, the business can use the WAPC to benefit from accurately forecasting relative changes in demand between customer groups.
- We note that this strategy would satisfy the WAPC formula:
 - $[(\$12 \times 10) + (\$8 \times 10)] / [(\$10 \times 10) + (\$10 \times 10)] = 1.$

Source: IPART analysis.

The strategic behaviour illustrated in Box 7.8 could be used to pass some downside demand risk to customers while retaining upside demand risk.

Potential implications for the development of competition

The WAPC could have implications for competition and market entry in the future. For example, a business could use a WAPC to reduce prices in potentially contestable areas of its business (ie, limit pricing strategy). For this reason, WAPCs are usually restricted to baskets of services that are exposed to similar levels of competition.

Pricing strategy and principles

To reduce these risks, we consider it important that Sydney Water develop a pricing strategy stating what it intends to achieve through the WAPC and a robust set of pricing principles demonstrating how it intends to achieve these objectives.

Sydney Water has provided an outline of its pricing strategy and potential pricing principles. While the principles appear to be reasonable, there may be cases where they conflict. For example, there may be situations where customer preferences are not consistent with the principle of efficient cost recovery.

We encourage Sydney Water to continue to develop its WAPC pricing strategy and pricing principles to provide assurance that the WAPC will be used to meet the objectives of more cost reflective pricing and better value for customers.

Side constraints and customer choice

The WAPC does offer some overall protection that average price increases will not exceed the cap set by the regulator. The next level of protection is a robust pricing strategy and pricing principles demonstrating how the WAPC will deliver more cost reflective prices and value to customers. However, without specific constraints limiting certain types and levels of price discrimination, individual customers and groups of customers could be adversely affected under a WAPC.

WAPCs require fewer restrictions or 'side-constraints' in situations where there is an element of competition and customers have some ability to choose their supplier. Sydney Water's WAPC proposal focused on it being able to respond to customer preferences. As noted above, we consider a potential alternative to side constraints could be for IPART to continue to set regulated prices but allow Sydney Water to offer customers the choice to opt out of the regulated price and opt into an alternative price combination offered by Sydney Water, under a WAPC, that the customer considers better suits their needs and preferences.

Complexity and administrative burden

Under Sydney Water's proposal, as well as capping the overall level of change in prices, IPART would have a role in assessing any proposed changes (to the existing level and structure of prices), through the creation of a 'new annual tariff approval process'. To the extent that this process is more involved than a simple 'compliance check', it potentially increases regulatory burden, as it requires us to have a much greater understanding of individual customer segments.

Further, there are implementation issues around a partial or staged approach to introducing a WAPC. To the extent that a WAPC applies to only part of the customer base, there is a need to allocate costs between customers.

IPART seeks comments on the following

- 28 What can we learn from the experience of other jurisdictions and regulated industries with WAPCs?
- 29 How can a WAPC be used to set more cost-reflective prices or enhance value to customers?
- 30 Should a WAPC apply at first only to large non-residential customers? Should it apply to both water and wastewater services?
- 31 What are suitable pricing principles and a pricing strategy to accompany a WAPC? In particular:

- What should be the relevance and role of long-run marginal cost pricing under a WAPC?
- Should the WAPC be used to transition away from postage stamp pricing?
- 32 What side constraints would we need to impose on the operation of the WAPC? Would allowing customers to opt out of regulated prices and opt into prices set by Sydney Water lead to better outcomes for customers?

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 sales 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.

This chapter outlines Sydney Water's actual water sales over the 2012 determination period, then discusses its proposals on forecast water sales, customer numbers and chargeable wastewater volumes for the 2016 determination period, and our preliminary response to these proposals.

8.1 Actual water sales over 2012 determination period

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.

	2012-13	2013-14	2014-15 ª	2015-16 ^b
Residential				
Forecast	320,391	322,899	325,309	328,673
Actual	339,013	350,670	340,420	
Non-residential				
Forecast	111,585	111,146	110,835	110,843
Actual	101,968	116,503	115,554	
Total				
IPART Determined	486,702	488,813	490,957	494,513
Sydney Water Actual/Projected	515,661	527,343	514,832	
% Variation	5.95%	7.88%	4.86%	

Table 8.1 Sydney Water's actual and forecast water sales over the 2012 determination period (ML)

^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.²³³ 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.

Instead, Sydney Water attributed its higher than forecast water sales to the weather conditions over the 2012 determination period, which deviated from the average conditions on which its forecasts were based.²³⁴ 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).²³⁵

²³³ IPART, Review of Sydney Water Corporation's water, sewerage, stormwater drainage and other services - Final Report, June 2012, p 92.

²³⁴ Sydney Water pricing proposal to IPART, June 2015, p 315.

²³⁵ Sydney Water pricing proposal to IPART, June 2015, p 316.

Overall, Sydney Water reported a decline in its customers' total water use since the early 2000s of about 100 GL a year (or 16%).²³⁶ Over the same period, its customer numbers increased by about 15% to about 4.8 million people.²³⁷ Therefore, on a per person basis, total water use has decreased by more than a quarter to about 307 litres per person a day. In Sydney Water's view, the main drivers of this decrease are:²³⁸

- adoption of water wise behaviours and water efficient technologies (including dual flush toilets and efficient showerheads) by customers
- water conservation initiatives such as Sydney Water's water efficiency and leak reduction programs and government regulation such as BASIX
- structural changes in water use in the non-residential sector, and
- the drought from about 2003 to 2009 and the lack of significant bounce back following the lifting of drought-related water restrictions.

8.2 Forecast water sales and customer numbers over 2016 determination period

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, firefighting).²³⁹

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 11).

²³⁶ Sydney Water pricing proposal to IPART, June 2015, p 310.

²³⁷ Sydney Water pricing proposal to IPART, June 2015, p 310.

²³⁸ Sydney Water pricing proposal to IPART, June 2015, p 310.

²³⁹ Sydney Water pricing proposal to IPART, June 2015, p 312.

8.2.1 Sydney Water's proposal on forecast water sales and customer numbers

Table 8.2 shows Sydney Water's forecast water demand for the 2016 determination period. It indicates that Sydney Water expects its total water demand to increase from about 523 GL (in 2015-16) to 544 GL (in 2019-20) over the 4-year period.²⁴⁰

Demand component	2015-16 (current)	2016–17	2017–18	2018–19	2019–20
Residential	347	353	358	362	367
Non-residentiala	115	115	115	115	116
Total billed metered	463	468	473	477	483
Total billed unmetered and non-revenue	60	60	60	61	61
Total demand ^b	523	528	533	538	544

Table 8.2Sydney Water's forecast water demand over the 2016
determination period (GL)

a Includes unfiltered water demand.

b 2015-16 is included for comparison.

Source: Sydney Water pricing proposal, June 2015, p 312.

Forecast billed metered demand

Sydney Water forecast that billed metered demand from residential and non-residential customers will increase by 4.3% over the 2016 determination period – from 463 GL (in 2015-16) to 483 GL (in 2019-20).

From residential customers, Sydney Water forecast that demand will grow by 5.8% over the period (Figure 8.1). It attributed this growth to price effects (ie, residential demand responding to the lower usage charge proposed by Sydney Water) and expected growth in residential customer numbers (discussed below).

²⁴⁰ Note that 2015-16 is a forecast. Total water demand in 2014-15, the last year of actual data, was 515 GL.



Figure 8.1 Sydney Water's forecast billed metered demand from residential customers (GL)

Source: Sydney Water pricing proposal - Appendices, June 2015, p 170.

Based on the price elasticities used in its demand modelling (discussed below), Sydney Water estimated that a 10% decrease in the water usage charge – from the current (2014–15) level of \$2.23 per kL to \$2.00 per kL (\$2014–15) – would result in about a 3.5 GL a year increase in residential demand by the end of the 2016 determination period.²⁴¹ However, it reported that there is no evidence of residential demand bouncing back to pre-restrictions water usage levels and, that controlling for a constant price, average consumption per dwelling will continue to decrease in total over the 2016 determination period (see Figure 8.2).²⁴²

 ²⁴¹ Sydney Water pricing proposal to IPART, June 2015, p 322.
 ²⁴² Sydney Water pricing proposal to IPART, June 2015, p 308.



Figure 8.2 Sydney Water's forecast residential average demand per dwelling (kL per dwelling)

Source: Sydney Water pricing proposal, June 2015, p 314.

From non-residential customers, Sydney Water forecast that demand will grow by only around 0.1% over the period (Table 8.2 above). In developing this forecast, Sydney Water assumed non-residential customers exhibit perfect price inelasticity (ie, elasticity of 0).²⁴³ This means that non-residential customers have no alternative to purchasing drinking water from Sydney Water if the price increases or decrease, and therefore quantity demanded would remain constant.

Forecast customer numbers

Table 8.3 shows Sydney Water's forecast customer numbers over the 2016 determination period (ie, the numbers of residential dwellings and non-residential properties connected to its systems).

Table 8.3Sydney Water's forecast customer numbers over the 2016
determination period

	2015-16	2016-17	2017-18	2018-19	2019-20
Residential	1,774,025	1,784,240	1,808,152	1,832,637	1,857,528
Non-residential	128,551	129,367	130,299	131,245	132,161
Unmetered	13,775	13,775	13,775	13,775	13,775
Total	1,916,351	1,927,382	1,952,226	1,977,657	2,003,464

Note: 2015-16 is included for comparison.

Source: Sydney Water pricing proposal to IPART - Appendices, June 2015, p 47; and Sydney Water Annual Information Return, June 2015.

²⁴³ Sydney Water pricing proposal to IPART, June 2015, p 322.

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 of this period was higher. Over the 2016 determination period, it forecast growth of around 96,000.²⁴⁴ It attributed this growth mainly to government funding and housing acceleration programs. It expects about two-thirds of new residential connections to be in infill developments and about one-third in greenfield developments.²⁴⁵

Sydney Water indicated that it expects that overall, the forecast growth in residential dwellings will increase total residential demand by about 3 GL to 4 GL a year (the higher growth in 2015–16 and 2019–20 is due to these years including a leap day).²⁴⁶

In relation to non-residential customer numbers, Sydney Water reported that while growth of 6,810 properties was forecast for the 2012 determination period, actual growth was half of this due to property consolidations and residential redevelopment.²⁴⁷ As a result, it forecast more modest non-residential growth of about 1,042 properties per year²⁴⁸ over the 2016 determination period.

Demand modelling for residential customers

To forecast water demand from residential customers, Sydney Water indicated that it extended and updated the econometric model it adopted for the 2012 price review.²⁴⁹ This model uses an approach based on detailed segmentation of the residential customer base and panel data regression models of demand in each segment. Its key features include:²⁵⁰

- The data used was sampled from July 2010 to March 2014 (which excludes the period when water restrictions applied).
- Residential customers were segmented on the basis of property type (eg, houses and units); BASIX status; availability of a recycled water supply; tenancy (owner-occupied or tenanted); and participation in Sydney Water's demand management programs.
- Explanatory variables included in the regression models were the water usage price; seasonal variables; weather variables; and variables to capture participation in a Sydney Water demand management program.
- No variables for water restrictions were included, as all data used to estimate the model was post restrictions.²⁵¹

²⁴⁴ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 184.

²⁴⁵ Sydney Water pricing proposal to IPART, June 2015, p 180.

²⁴⁶ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 171.

²⁴⁷ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 184.

²⁴⁸ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 184.

²⁴⁹ Sydney Water pricing proposal to IPART, June 2015, p 308.

²⁵⁰ Sydney Water pricing proposal to IPART, June 2015, p 317-318.

²⁵¹ Sydney Water pricing proposal to IPART, June 2015, p 318.

Sydney Water noted that its forecasting model is constantly updated to take into account new information relating to demand, weather conditions and property growth. The model is also subject to a rigorous peer review.²⁵² It contended that the results indicate that the updated model is robust and can replicate the fluctuations in demand in the last three years on the basis of weather conditions.²⁵³

In addition, Sydney Water indicated that to estimate the increase in water use resulting from a reduction in usage prices (as per its proposal), it used price elasticities estimated in a 2010 study rather than those from the updated model.²⁵⁴ This is because the 2010 estimates are based on a period with large changes in the real price, whereas the updated model is based on a period where real prices were virtually constant.

For this estimate, Sydney Water assumed asymmetrical price effects. This reflects its view that consumers are less responsive to a price decrease because the nature of water demand is a complementary input to the existing technology stock.²⁵⁵ Therefore, Sydney Water halved the price elasticities from the 2010 study, which are based on a period with increasing prices only, to estimate the effect of the proposed price decreases. The key features of the price elasticities Sydney Water used include:

- a price effect was included in the model based on Sydney Water's lower proposed usage price of \$1.97 per kL
- residential customers' response to price changes was modelled asymmetrically, with a higher price elasticity to price increases than to price decreases
- ▼ the price elasticity of demand (when prices decrease) differed between residential types, with an elasticity of -0.124 for houses and -0.025 for apartments.²⁵⁶

Demand modelling for non-residential customers

Sydney Water indicated that its non-residential water demand forecasting models are based on time series analysis of seven segments of the non-residential customer base, ranging from industrial customers to agricultural users and industrial strata units.²⁵⁷

²⁵² Sydney Water pricing proposal to IPART, June 2015, p 308.

²⁵³ Sydney Water pricing proposal to IPART, June 2015, p 317.

²⁵⁴ Sydney Water pricing proposal to IPART, June 2015, p 321.

²⁵⁵ See, R. Correia and C. Roseta-Palma. Behavioural Economics in Water Management: An overview of behavioural economics applications to residential water demand, Preliminary version, April 2012. Instituto Universitario de Lisboa, Lisbon, Portugal; and J Sleich, How low can you go? Price responsiveness of German residential water demand, EAERE Conference 2009.

²⁵⁶ Sydney Water pricing proposal to IPART, June 2015, pp 321-322.

²⁵⁷ Sydney Water pricing proposal to IPART, June 2015, p 320.

Sydney Water developed a new approach to forecasting non-residential demand for the 2012 Determination. The approach was updated in 2013 and used to generate forecasts for the 2016 determination period. Sydney Water estimated separate models for each segment in each delivery system, which meant the total number of models increased from 13 to 72. Each model was estimated using data up to June 2012.²⁵⁸

According to Sydney Water, the updated model performs well.²⁵⁹ When back tested, the model overestimated metered non-residential demand by about 0.2% in 2012-13 and underestimated demand in 2013-14 by about 1.2%. Non-residential sales have been characterised by a downward trend and account for 23% of total water demand.²⁶⁰ This downward trend was extrapolated to forecast demand over the 2016 determination period.²⁶¹

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

Our preliminary response is that we will adopt Sydney Water's forecast water sales and customer connection numbers for the 2016 determination period, unless our review of these forecasts uncovers information to suggest otherwise, and/or we identify a concern with any of its key assumptions.

We conducted an extensive review of Sydney Water's demand forecasting model for the 2012 Determination.²⁶² We consider that this model performed reasonably well over the 2012 determination period, although there were some variations between forecast and actual demand. We note that Sydney Water has now updated the model with the latest data and growth figures and in doing so it found that these variations were due to weather variations, and not bounce back following the lifting of drought-related water restrictions.

In reviewing Sydney Water's water sales forecast for the 2016 determination period, we will consider the appropriateness of the timeframe over which the model is calibrated (noting that forecasts are based on data after water restrictions were lifted), and the relevance of the key assumptions supporting the model.

We will also examine the non-revenue water component of this forecast. Despite its name, the costs associated with non-revenue water are recovered through the

²⁵⁸ Sydney Water pricing proposal to IPART, June 2015, p 320.

²⁵⁹ Sydney Water pricing proposal to IPART, June 2015, p 321.

²⁶⁰ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 173.

²⁶¹ Sydney Water pricing proposal to IPART, June 2015, p 320.

²⁶² We accepted Sydney Water's approach to demand forecasting in the 2012 Determination, as it represented an improvement from previous approaches and that it was supported by a 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, p 92.

water prices paid by billed metered customers. Therefore, we need to ensure that these customers pay for only what is necessary. For example, we propose to deduct Sydney Water's forecast revenue from potable water top-up sales to recycled water customers from Sydney Water's revenue requirement before we set water prices (see Chapter 13 for further discussion on ring-fencing Sydney Water's recycled water costs).

In addition, we will consider the demand volatility adjustment mechanism we included in the 2012 Determination, and whether we should continue to provide for such a mechanism in the 2016 Determination.

Demand volatility adjustment mechanism

In the 2012 Determination, we provided for a mechanism to adjust Sydney Water's revenue to address the risk to the utility and its customers of a material variation between the net level of actual water demand over the 2012 determination period and the forecast demand used in making the determination. We defined a material variation as more than 10% (+ or -) over the whole determination period and that only the impact of variation outside of this 10% variation level could be adjusted for.²⁶³ Based on the information contained in Sydney Water's proposal, we consider it unlikely that the conditions for the implementation of this mechanism will be met.

While Sydney Water did not propose a demand volatility mechanism for the 2016 determination period, it did note that there is risk in forecasting future demand. Given this risk, we propose to consider whether we should continue to provide for such a mechanism.

One of the issues we will consider is whether the 10% deadband level remains appropriate. Given the improvements in the forecasting methodology Sydney Water applied to develop its demand forecasts for this review, the variances between its forecast and actual water sales are likely to be small going forward. For example, Sydney Water indicated that non-average weather conditions and more frequent weather extremes will be key risks to the accuracy of its demand forecast. Deviations from average weather conditions can cause differences between forecast and actual annual water use of up to +/-5%.²⁶⁴ Therefore, a lower percentage deadband may be more appropriate.

 ²⁶³ IPART, Review of Sydney Water Corporation's water, sewerage, stormwater drainage and other services
 – Final Report, June 2012, p 38.

²⁶⁴ Sydney Water pricing proposal to IPART, June 2015, p 308.

However, as we noted when making the 2012 Determination, a deadband lower than 10% may transfer too much business risk to customers. In our recent determination of Essential Energy's water prices in Broken Hill,²⁶⁵ we did not define the materiality threshold, but rather left this open to our discretion at the next price review, to allow us to take into account the circumstances around any significant discrepancy between forecast and actual sales volumes.

Our preliminary view is to implement the same mechanism. However, we will consider the need for such a mechanism alongside Sydney Water's proposal for greater pricing flexibility through a WAPC, which can also be used to mitigate demand risk.

IPART seeks comments on the following

- 33 Are Sydney Water's forecasts of water sales and customer numbers reasonable?
- 34 What regulatory mechanism, if any, should we use to account for demand volatility?

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.²⁶⁶

In the 2012 Determination, we decided to decrease the discharge allowance from 500 kL a year to 300 kL a year over the course of the determination. For the 2016 determination period, we are considering whether the discharge allowance should be further reduced to 150 kL a year. Sydney Water developed a model to estimate the impacts of this change on chargeable wastewater volumes.

²⁶⁵ IPART, Essential Energy's water and sewerage services in Broken Hill – Final Report, June 2014, pp 43-46.

²⁶⁶ 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 Sydney Water's proposal on forecast chargeable wastewater volumes

Sydney Water forecast that chargeable wastewater volumes will remain relatively constant at about 66.4 GL per year over the 2016 determination period.²⁶⁷ To develop this forecast, Sydney Water used an updated version of the model it used for its 2012 pricing proposal. This model:

- Uses a database of quarterly metered water consumption of non-residential properties and other relevant data (eg, discharge factors for each property).²⁶⁸
- Uses four years of historical meter readings from 2010-11 to 2013-14, whereas the previous model relied on one year of meter readings.²⁶⁹ To allow for property growth, the model averages the results for the existing properties and applies them to the expected number of new properties.²⁷⁰
- Assumes 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 indicated that the forecast growth in chargeable wastewater volumes is very low because most of the new non-residential properties are expected to be non-residential strata units, which have relatively low water use and hence very low chargeable wastewater volumes.

Sydney Water identified three major risks surrounding its forecasts:

- demand being higher or lower than forecast
- changes to the daily discharge allowance, and
- changes to the discharge factors.²⁷¹

According to Sydney Water, changes to the discharge allowance (set by IPART) could have a very significant impact on the chargeable wastewater volumes.

Sydney Water prepared an alternative forecast which assumes that the daily allowance will gradually decrease to 100 kL a year by 2019-20.²⁷² Under this assumption, it indicated there would be 9% increase in its chargeable wastewater volumes over the 2016 determination period, and a 41% increase in the number of customers who incur explicit wastewater usage charges.²⁷³

²⁶⁷ Sydney Water pricing proposal to IPART, June 2015, p 325.

²⁶⁸ Sydney Water pricing proposal to IPART, June 2015, p 324.

²⁶⁹ Sydney Water pricing proposal to IPART, June 2015, p 324.

²⁷⁰ Sydney Water pricing proposal to IPART, June 2015, p 324.

²⁷¹ Sydney Water pricing proposal to IPART, June 2015, p 325.

²⁷² Sydney Water pricing proposal to IPART, June 2015, p 325.

²⁷³ Sydney Water pricing proposal to IPART, June 2015, p 114.

8.3.2 IPART's response on chargeable wastewater volumes

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.

As Chapter 9 discusses, our preliminary position is to maintain the approach we used in the 2012 Determination and lower the discharge allowance for non-residential customers to 150 kL per year to ensure that residential and non-residential customers are treated equally.

If we were to phase in the reduction of the discharge allowance over the 2016 determination period (from its current level of 300 kL per year until it reaches 150 kL per year), this would mean that the discharge allowance for non-residential customers would be as follows:

- ▼ 2016-17: 250 kL per year
- ▼ 2017-18: 200 kL per year
- ▼ 2018-19 onwards: 150 kL per year.

Sydney Water has estimated the impact of decreasing the allowance from 300 kL in 2015–16 to 100 kL in 2019–20.²⁷⁴ We note that the model includes a significant proportion of non-residential properties that did not pay any wastewater usage charges because their discharge was less than the allowance.²⁷⁵ This allows the model to more accurately predict the effect of decreasing discharge allowances over time, as some of these customers may exceed the allowance as it is reduced.

This analysis will inform our decision regarding the appropriate level for the discharge allowance over the 2016 determination period or path for transitioning towards that level.

IPART seeks comments on the following

35 Is Sydney Water's proposed approach for forecasting chargeable wastewater volumes (including its assumptions) reasonable?

²⁷⁴ See Table 5-27 in Sydney Water pricing proposal to IPART, June 2015, p 114.

²⁷⁵ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 180.

9 Price structures

Currently, Sydney Water (like the other metropolitan water utilities we regulate) has a 2-tiered price structure for water and wastewater services. For example, water prices consist of a fixed service charge (\$ per property) that reflects the cost of making water supply services available to the customer's premises, and a variable usage charge (\$ per kL) that reflects the cost associated with the customer's water consumption.

In our 2012 review of the price structure for metropolitan water utilities, we did not reconsider this basic 2-tiered structure, as we are satisfied it is efficient and equitable. However, we examined how the fixed and variable charges are applied to different groups of customers within the broad categories of residential and non-residential customers. As a result of this review, in the 2012 Determination we restructured some of Sydney Water's prices to improve their cost reflectivity, and to increase equity between customer groups.

In its proposal for the current price review, Sydney Water proposed further adjustments to how the fixed and variable charges are applied to different customer groups. It indicated that its proposals on price structure aimed to reduce complexity, respond to changes in its operating environment, create operational efficiencies (and reduce costs), and make it easier for customers to understand their bills.²⁷⁶

This chapter outlines Sydney Water's proposals on price structure and our preliminary responses, including its proposals to:

- rebase water and wastewater service charges for residential and nonresidential customers on the number of 20mm equivalent and deemed 20mm water meters (a key base assumption for Sydney Water's pricing proposal)
- ▼ **fix**²⁷⁷ **the wastewater usage discharge allowance** for non-residential customers at 0.822 kL per day (equivalent to 300 kL per year)
- alter joint service arrangements so that unrelated non-residential multipremises on a private joint service arrangement are treated as two distinct properties and charged on an individual basis

²⁷⁶ Sydney Water's pricing proposal to IPART, June 2015, p 109.

²⁷⁷ In the 2012 Determination, we proposed to align the discharge allowance for non-residential customers with the average discharge of about 150 kL per year for residential customers (which is implicit in their service charges) at the next price review.

 alter dual occupancy arrangements so that dual occupancies are treated as one property and receive only one water and wastewater service charge per year.

The final section of this chapter discusses Sydney Water's findings on customer confusion about pricing terminology, and our response to these findings.

9.1 Rebase water and wastewater service charges

As noted above, we made decisions as part of the 2012 Determination to restructure Sydney Water's prices to remove cross-subsidies and improve cost reflectivity for all customer groups. These price structure changes mean that currently:

- all residential customers pay a standard water and wastewater service charge irrespective of dwelling type – ie, individual flats and units pay the same charges as houses
- standalone non-residential customers with a single 20mm meter pay the same standard water and wastewater service charge as residential customers
- non-residential customers in mixed multi-developments pay the same standard water and wastewater service charge as residential customers
- non-residential customers with multiple 20mm meters or any other meter size (including those on shared meters²⁷⁸) pay water and wastewater service charges with reference to a 25mm meter charge – ie, meter-based water and wastewater service charges.

9.1.1 Sydney Water's proposal on rebasing water and wastewater service charges

Sydney Water proposed to rebase water and wastewater service charges for residential and non-residential customers on a scale referenced to a 20mm meter service charge. This proposal is a key base assumption for its proposed water and wastewater prices (discussed in Chapter 10.)²⁷⁹ It involves:

 changing the current base on which non-residential meter-based charges are set from a 25mm meter to a 20mm meter equivalence

²⁷⁸ Non-residential customers with a shared 20mm meter are charged a 20mm meter charge based on the 25mm meter equivalent charge.

²⁷⁹ In its pricing proposal, Sydney Water only addressed setting the water service charge for non-residential customers on a scale referenced to the 20 mm service charge. However, its proposed water and wastewater service charges for both residential and non-residential customers have been rebased on a scale referenced to the 20 mm service charge. This involves deeming residential customers (both houses and apartments a 20mm meter). See Sydney Water pricing proposal to IPART, June 2015, p 109.

 deeming all residential dwellings (regardless of type) to have a 20mm meter to ensure that flats and house are still charged at the same rate.²⁸⁰

Sydney Water indicated that this proposal would mean that a non-residential customer with a 20mm water meter would contribute the same amount to its costs as a residential customer with a deemed 20mm meter.²⁸¹ Sydney Water also noted that it is a simple price structure for customers to understand and for Sydney Water to administer.²⁸²

9.1.2 IPART's response on rebasing water and wastewater service charges

Our preliminary view is to accept Sydney Water's proposal to rebase water and wastewater service charges on a scale referenced to a 20mm meter service charge, and deem all residential dwellings a 20mm meter to ensure flats and houses are still charged the same service charge.

We consider setting water and wastewater service charges in line with Sydney Water's proposal is consistent with our price structure principles and current charging regime. It would not result in major change to this charging regime:

- 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 service charges as all residential customers (however, the charge would reference a 20mm meter).
- All other non-residential customers would continue to pay water and wastewater service charges according to their meter size (occupancies within a common metered property would still share the meter-based service charge).

However, Sydney Water's rebasing proposal would correct an anomaly in our current charging regime, whereby non-residential customers with a single individual 20mm meter pay a different fixed charge (per meter) to those with multiple 20mm meters (see Table 9.1).²⁸³

²⁸⁰ Non-residential occupancies in mixed multi-developments are also deemed a 20mm meter to ensure that they are charged the same as residential dwellings.

²⁸¹ Sydney Water pricing proposal to IPART, June 2015, p 109.

²⁸² Sydney Water pricing proposal to IPART, June 2015, p 109.

²⁸³ This is because currently customers with multiple 20mm meters pay a charge for each of their meters with reference to a 25mm meter.

	Standalone 20mm	Multiple 20mm	Variation
Water	\$103.55	\$131.12	26.6%
Wastewater (100% discharge factor)	\$612.10	\$1,047.74	71.2%
Wastewater (78% discharge factor)	\$612.10	\$817.24	33.5%

Table 9.1Differences in 20mm non-residential service charges in 2015-16(\$2015-16)

Note: Under Sydney Water's proposal all of the above customers would pay the 20mm meter based charges for water and wastewater, no discharge factor would apply to 20mm service charges. Discharge factors are currently applied to shared 20mm and other meter based non-residential customers, a minimum bill is set such that no non-residential customer pays a service charge lower than the standalone 20mm charge. **Source:** Sydney Water Annual Information Return, June 2015; and IPART analysis.

We consider this change to price structures to be simpler for customers to understand. However, under this approach, a residential customer with a deemed 20mm meter would contribute the same amount to Sydney Water's costs as a non-residential customer with a 20mm meter (or equivalent). This is why Sydney Water's proposed reductions to service charges for non-residential customers are significantly larger than those for residential customers (see Chapter 10).

Before making any changes to our price structures, we will model the impacts on different customer groups. We will also consider stakeholder comments on this matter.

IPART seeks comments on the following

36 Is Sydney Water's proposal to rebase water and wastewater service charges to a 20mm meter equivalent reasonable, in terms of its impacts on different customer groups?

9.2 Fix the wastewater usage discharge allowance

Currently, explicit wastewater usage charges apply to non-residential customers who exceed a specified discharge allowance. In the 2012 Determination, we decided to reduce this discharge allowance by 50 kL a year over the 4-year determination period. We proposed to continue this reduction over the 2016 determination period until the allowance reaches 150 kL per year. This would align the non-residential customer discharge allowance with residential customers' average annual discharge (which is implicit in their service charges). In 2015-16, the non-residential discharge allowance is 300 kL per year (or 0.822 kL per day).

9.2.1 Sydney Water's proposal on the wastewater discharge allowance

Sydney Water proposed fixing the discharge allowance at the current level of 300 kL per year. It contended that reducing the annual discharge allowance below 300 kL per year would result in a significant increase in the number of non-residential customers who incur an explicit wastewater usage charge.²⁸⁴ In particular, it would mean that small businesses like pharmacies, newsagents and small takeaway food outlets would be required to pay the wastewater usage charge for the first time.²⁸⁵

Sydney Water argued that fixing the discharge allowance at 300 kL per year would avoid price volatility for these customers, who are likely to be pricesensitive. It would also avoid a high influx of customer enquiries (and the associated costs) about bill increases, which are likely to occur if the allowance continues to reduce. Sydney Water reported that some customers are already confused by this charge, particularly if they exceed the allowance in one quarter but not the next (and hence do not always incur a usage charge).²⁸⁶

Given the limited scope for many small businesses to reduce discharges, Sydney Water indicated that the efficiency gains from reducing the discharge allowance are likely to be small, relative to the additional administrative costs. Sydney Water provided analysis that shows a reduction in the discharge allowance to 150 kL per year would lead to a 29% increase in the number of customers billed, but produce only a 6% increase in the chargeable volume.²⁸⁷

9.2.2 IPART's response on the wastewater discharge allowance

Our preliminary view would be to continue to reduce the discharge allowance for non-residential customers to 150 kL per year. We consider this is important because it would:

- be more cost reflective, and
- remove cross subsidies
 - small businesses would no longer be subsidising medium to large businesses, and
 - small businesses would be charged on a consistent basis with residential customers.

²⁸⁴ Sydney Water pricing proposal to IPART, June 2015, p 114.

²⁸⁵ Sydney Water pricing proposal to IPART, June 2015, p 114.

²⁸⁶ Sydney Water pricing proposal to IPART, June 2015, p 113.

²⁸⁷ Sydney Water pricing proposal to IPART, June 2015, p 114.

We also consider that the costs associated with a deemed 150 kL per year discharge allowance for residential and non-residential customers should be explicitly added to their service charges as the final step in calculating these charges. This would ensure that non-residential customers with larger meter connections do not pay more than their share of costs.

Discharge allowance should be reduced to 150 kL to remove cross-subsidies between non-residential customers

It is important to understand there is no such thing as 'free' discharge. Customers discharging wastewater into the system impose costs on the system,²⁸⁸ and these costs are recovered either implicitly through Sydney Water's wastewater service charges, or explicitly through its wastewater usage charges. Currently:

- all residential customers pay for the costs of residential discharges implicitly through their fixed service charge, and
- all non-residential customers pay for the costs of non-residential discharges up to the current allowance of 300 kL implicitly through their fixed service charges, and individual customers pay for the costs of each kL they discharge above 300 kL per year explicitly through the variable usage charge.

We consider that the non-residential discharge allowance should be set at 150 kL per year – in line with the average discharge volume for residential customers – and that the explicit usage charge should apply per kL discharged above this allowance. We recognise that this would mean that more small to medium businesses (those that discharge between 150 kL and 300 kL per year) incur wastewater usage charges. However, it would also mean that other small businesses (those that discharge up to 150 kL per year) no longer pay more than their share of costs. Box 9.1 illustrates the impacts of the cross subsidy on these non-residential customers.

²⁸⁸ At the very least, these costs would reflect Sydney Water's short run marginal cost (SRMC) of sewage transportation, treatment and disposal.

Box 9.1 Impacts of the cross subsidy on non-residential customers

Sydney Water's analysis shows that reducing the discharge allowance to 150 kL per year will mean that 11,673 more customers will be billed for wastewater usage. However, the extra revenue that results from this would reduce the service charge for all non-residential customers.

The following table shows the impact on the maximum bill of changing from a 300 kL per year discharge allowance to a 150 kL per year discharge allowance for non-residential customers with different levels of wastewater discharge.

Annual discharge	Customer bill (300 kL per year discharge allowance)	Customer bill (150 kL per year discharge allowance)	Change in customer bill
300 kL	\$582.34 Service charge +\$0 usage = \$582.34	\$548.13 Service charge +\$165 Usage = \$713.13	\$130.79
250 kL	\$582.34 Service charge +\$0 usage = \$582.34	\$548.13 Service charge +\$110 Usage = \$658.13	\$75.79
200 kL	\$582.34 Service charge +\$0 Usage = \$582.34	\$548.13 Service charge + \$55 Usage = \$603.13	\$20.79
150 kL or less	\$582.34 Service charge +\$0 Usage = \$582.34	\$548.13 Service charge + \$0 Usage = \$548.13	-\$34.21
Source: Sydney	Water pricing proposal to IPART, June 2	2015, p 114; and IPART analysis.	

We understand the issues concerning customer complaints that Sydney Water has raised. However, to a large extent,k these are perception issues that can be managed by educating customers about the costs they impose on the system and how their prices and bills are structured to recover these costs. We also note that there are always winners and losers when cross-subsidies are removed.

Discharge allowance should be reduced to 150 kL to avoid introducing crosssubsidies between residential and non-residential customers

As discussed above, Sydney Water has proposed rebasing the wastewater service charges on a scale referenced to a 20mm meter service charge. If this proposal is adopted, the costs associated with wastewater discharges not paid for through a usage charge – both residential and non-residential – will be recovered through the same fixed service charge (from all customers with a 20mm meter equivalent).

Given the average discharge volume for residential customers is assumed to be 150 kL per year, fixing the non-residential wastewater discharge allowance at 300 kL per year will introduce new cross-subsidies between residential and non-residential customers. In particular, it will mean that residential customers implicitly pay for some of the costs of non-residential discharge volumes between 150 kL and 300 kL through the rebased 20mm meter service charge.

This would be contrary to the user-pays principle, which Sydney Water has acknowledged is important for wastewater pricing over future determination periods.²⁸⁹

Reducing the maximum discharge allowance for non-residential customers to 150 kL per year would ensure that residential and non-residential customers with 20mm equivalent meters recover residual wastewater costs through service charges on an equitable basis.

Costs of 150 kL per year wastewater usage should be deemed and explicitly added to wastewater service charges

We consider the costs associated with 150 kL of wastewater usage that is recovered through wastewater service charges should be explicitly added to the service charges as the final step in calculating these charges. Otherwise, non-residential customers with larger meter connections will effectively pay for more than these costs through their service charge (due to the way services charges for these customers are scaled up), as well as an explicit usage charge for all wastewater discharged above 150 kL per year. (Box 9.2 provides an example to illustrate this.)

²⁸⁹ Sydney Water pricing proposal to IPART, June 2015, p 236.

Box 9.2 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 – private schools – to illustrate why we consider the costs of 150 kL per year wastewater usage should be deemed and explicitly added to wastewater service charges.

We have assumed the private school has a 80mm water connection, medium water usage of 24,000 kL per year and a discharge factor of 85% (ie, it would discharge 85% or 20,400 kL of its water usage as wastewater each year). We used the wastewater usage and service charges Sydney Water proposed for 2016-17, and applied the wastewater usage charge to discharge volumes above 150 kL per year.

Under this scenario, the private school's wastewater charges in 2016-17 would be:

- Wastewater service charge: \$9,317.49 × 0.85 = \$7,919.87
- Wastewater usage charge: \$1.10 × (20,400-150) = \$22,275

The wastewater service charge implicitly recovers the costs of the 150 kL of discharge not recovered through the wastewater usage charge. However, this level of wastewater usage is scaled up according to the customer's meter size:

service charge =df × $\left(\frac{\text{meter size}}{20}\right)^2$ × (20mm connection + 150 kL) =0.85 × $\left(\frac{80}{20}\right)^2$ × (20mm connection + 150 kL) =0.85 × [(16 × 20mm connection) + (16×150 kL)] =0.85 × [(16 × 20mm connection) + 2,400 kL] =0.85 × 16 ×20mm connection + 2,040 kL

Therefore, in this example, the private school implicitly pays for 2,040 kL of wastewater usage through the service charge after the discharge factor is applied. In total, this customer pays for 22,290 kL (20,400 kL–150 kL+2,040 kL) of wastewater usage, which is 1,890 kL more than it actually discharges.

Source: Prices are sourced from Sydney Water pricing proposal to IPART, June 2015, pp 100 and 105; and Sydney Water Annual Information Return, June 2015.

Before we make our decision on the discharge allowance, we will model the impacts of reducing the discharge allowance to 150 kL, noting the improvements that Sydney Water has made modelling chargeable wastewater volumes (see Chapter 8).

We will also bear in mind Sydney Water's preference to avoid large swings in prices and changes to tariff structures now when a future review may decide a different approach to wastewater pricing is appropriate.²⁹⁰ One option we could

²⁹⁰ Sydney Water pricing proposal to IPART, June 2015, p 240.

consider to minimise customer impacts is to transition the reduction in the discharge allowance to reach 150 kL by the end of the 2016 determination period. That is, we could adopt the approach we took over the 2012 determination period, and reduce the discharge allowance each year by 50 kL increments until we reach 150 kL in 2019-20.

We seek stakeholder feedback and comment on

37 Should the discharge allowance for non-residential customers remain at 300 kL a year as per Sydney Water's proposal, or be reduced to 150 kL to align with the average level of discharge for residential customers?

9.3 Alter joint service arrangements

A joint service is where a single connection to Sydney Water's network serves more than one unrelated property.²⁹¹ The first property typically has a water meter that is connected to Sydney Water's network (metered property), and the dependent properties use a private pipe connected to the first property's connection (unmetered properties).²⁹²

9.3.1 Sydney Water's proposal on joint service arrangements

Sydney Water proposed to change the treatment of joint services of unrelated non-residential multi-premises,²⁹³ to simplify the way the unmetered property is charged.

In particular, Sydney Water proposed to apply the normal meter-based water and wastewater charges to the metered non-residential multi-premises. The second unmetered (or dependent) multi-premises would receive a 'base' water and wastewater service charge.²⁹⁴ Sydney Water did not specify what the base charge would be, but we assume it means to charge each occupant in the second unmetered multi-premises the standard water and wastewater service charge currently levied to apartments in a residential multi-premises (ie, much like nonresidential customers in mixed developments).

²⁹¹ Sydney Water, Maintaining your service, accessed 6 July 2015: http://www.sydneywater.com.au/SW/your-business/meeting-yourresponsibilities/connections-and-disconnections/Maintaining_your_service/index.htm

²⁹² Note that this is a simplified description of a joint service arrangement. According to Sydney Water 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.

²⁹³ Note that each dwelling (flat/unit) in a residential joint service arrangements would receive a standard service charge.

²⁹⁴ Sydney Water pricing proposal to IPART, June 2015, pp 110-111.

Sydney Water indicated that this change will simplify the charging arrangements for joint services,²⁹⁵ and recover an additional \$0.4 million a year.²⁹⁶ Currently, these joint service arrangements are billed essentially as one multi-premises. That is, the metered multi-premises is charged one meter-based water and wastewater service charge, which is then divided among the occupants of both the metered and unmetered (or dependent) properties.

The example provided by Sydney Water in its proposal is shown in Table 9.2 below.

Table 9.2 Example of Sydney Water's proposed joint service arrangements

Scenario	Current arrangement	Sydney Water's proposal
Metered non-residential multi premise with 8 units (property A) on joint service with unrelated unmetered non- residential multi premise with 8 units (property B).	Each unit in property A and property B is charged 1/16th of the water and wastewater service charges relating to the connection to Sydney Water's network.	Each unit in property A is charged 1/8th of the water and wastewater service charges relating to the connection to Sydney Water's network.
	Both properties share one wastewater discharge allowance (300 kL per year)	Property A has a wastewater discharge allowance (300 kL per year)
		Each unit in property B is charged fixed 'base' water and wastewater charges.

Note: IPART notes that it is unclear under Sydney Water's proposal if Property B's wastewater discharges are calculated and subtracted from Property A's wastewater discharges.

Source: Sydney Water pricing proposal to IPART, June 2015, pp 110-111.

9.3.2 IPART's response on joint service arrangements

We have not formed a preliminary view on this proposal, and will need to consult other stakeholders and consider it in further detail.

In its proposal, Sydney Water estimated implementing the proposal would increase the total revenue collected from these joint service arrangements by about \$388,090 a year (see Table 9.3). However, it is not clear, from the evidence provided so far, that non-residential multi-premises joint service customers sharing one connection impose significantly greater costs than other non-residential multi-premises using the same size connection (with perhaps similar configurations).

It is also not clear whether customers on these joint service arrangements would understand the change in price structure and whether they have been consulted on the matter. We note that this proposed change to price structures would have a minor impact on Sydney Water's overall revenue. It also does not appear to be

²⁹⁵ Sydney Water pricing proposal to IPART, June 2015, p 110.

²⁹⁶ Sydney Water pricing proposal to IPART, June 2015, p 111.

any simpler than the current pricing arrangement. Therefore, we question the need for the change.

Table 9.3	Sydney Water's estimated revenue impact of its proposed
	changes to joint service arrangements (\$2015-16)

Annual charges	Current	Proposed
Water service	22,024	78,355
Wastewater service	175,991	507,750
Total	198,015	586,105

Source: Sydney Water pricing proposal to IPART, June 2015, p 112.

IPART seeks comments on the following

38 Are Sydney Water's proposed changes to charges to joint service arrangements appropriate?

9.4 Alter dual occupancy arrangements

A dual occupancy is where the property owner creates 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 secondary dwelling) and cannot be independently sold.²⁹⁷

Currently, dual occupancies are charged as two separate properties.²⁹⁸ That is, under the 2012 Determination, the main dwelling and the secondary dwelling each attract a water service charge and a wastewater service charge.²⁹⁹

9.4.1 Sydney Water's proposal on dual occupancies

Sydney Water proposed that we apply only one water service charge and one wastewater service charge to all the existing dual occupancy properties.³⁰⁰ This is due to difficulties identifying this type of development.

²⁹⁷ Sydney Water pricing proposal to IPART, June 2015, p 112.

²⁹⁸ To attract a charge from Sydney Water apartments do not need to have kitchen or laundry facilities.

²⁹⁹ IPART, Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services, Determination No. 1, June 2012, pp 5, 22.

³⁰⁰ Sydney Water pricing proposal to IPART, June 2015, p 113.

Sydney Water noted that historically it has had difficulty identifying dual occupancies and states that there are "an unknown number of undetected dual occupancies receiving one water service charge and one wastewater service charge."³⁰¹ Its awareness of existing dual occupancies is limited to those where the owners submitted development applications to Sydney Water and those identified by investigation (street walks and reports from neighbours). Sydney Water has identified 13,616 instances of dual occupancies (ie, 13,616 properties, with 27,232 dwellings).³⁰²

In addition, Sydney Water noted the following significant change in planning requirements for this type of development in 2011, which now makes it more difficult for Sydney Water to identify new dual occupancies:³⁰³

- ✓ dual occupancy less than 60 m² receive a fast track (10-day turnaround) lodgement and approval process
- this type of development does not require a development application and as such is not forwarded to Sydney Water.

9.4.2 IPART's response on dual occupancies

We have not formed a preliminary view on this proposal, and will need to consult other stakeholders and consider it in further detail.

Our pricing principle is that customers imposing similar costs on Sydney Water's system should pay similar charges. Currently, flats are single-owner multipremise residential complexes that are linked by the owner and cannot be sold separately. A dual occupancy is effectively a complex of two flats, which is how they are charged under the existing price structure.

It is not clear, from the evidence provided so far, that the cost imposed to Sydney Water of a secondary dwelling is significantly less than that of an apartment. However, we understand the difficulty Sydney Water has identifying dual occupancies, particularly given the change to planning requirements for this type of development.

³⁰¹ Sydney Water pricing proposal to IPART, June 2015, p 112.

³⁰² Sydney Water pricing proposal to IPART, June 2015, p 112.

³⁰³ Sydney Water pricing proposal to IPART, June 2015, pp 112-113.

One option would be for Sydney Water to charge dual occupancies as two separate properties, where they are clearly and easily identifiable. This would include the 13,616 dual occupancies already identified, as well as all emerging dual occupancies that require a development application that is forwarded to Sydney Water.³⁰⁴

Alternatively, we could accept Sydney Water's proposal to charge all dual occupancies as one property. However, in our view, if a dual occupancy is separately metered then two charges should apply.

Sydney Water estimated its proposed change to dual occupancy arrangements would reduce revenue by \$9.7 million per year (see Table 9.4). This revenue would have to be recovered from all other customers, which would add about \$5 to each customer's annual bill. If Sydney Water charged dual occupancies as two separate properties, its proposed water and wastewater service charges would decrease by about 5.2% in 2016-17, rather than 4.9% (assuming all other factors were held constant).³⁰⁵

	Water	Wastewater	Stormwater	Rouse Hill Stormwater
Current tariff structure				
Number of dwellings being billed	27,232	27,232	6,480	70
Revenue	2,819,874	16,668,707	205,416	9,823
Proposed tariff structure				
Number of dwellings being billed	13,616	13,616	3,240	35
Revenue	1,409,937	8,334,354	280,066	4,912
Revenue impact	-1,409,937	-8,334,354	74,650	-4,912
Total revenue impact				-9,674,552

Table 9.4Sydney Water's estimated revenue impact of its proposed
changes to dual occupancy service charges (\$2015-16)

Source: Sydney Water pricing proposal to IPART, June 2015, p 113.

IPART seeks comments on the following

- 39 Should dual occupancies be charged:
 - a single water service charge and a wastewater service charge in line with Sydney Water's proposal; or
 - as two distinct properties as is currently the case, where both the main dwelling and the secondary dwelling each attract a water service charge and a wastewater service charge?

³⁰⁴ Under the 2012 Determination, a property is defined as a building or part of a building used, or available to be used, as a separate place of domicile or separate place of business. Therefore, to attract a separate charge from Sydney Water, the property is not required to have a full kitchen, laundry, bathroom or separate entrance. IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services,* Determination No. 1, June 2012, p 71.

³⁰⁵ Based on IPART analysis.

9.5 Customer confusion about pricing terminology

Sydney Water's customer engagement revealed confusion around the meaning of the service charge.³⁰⁶ Customers were confused about what service was actually being provided, which suggests that the name of the charge does not best reflect the nature of the charge.

Our experience of customer enquiries is consistent with Sydney Water's findings. Most water customers who contact us query why their service charge is so high and not representative of their 'use' of the system or the level of 'service' they receive.

Over the short to medium term, the costs in water and wastewater are predominately fixed costs, which is why the majority of a bill does not vary with consumption. We consider that changing the name of the 'service charge' would help customers better understand why a component of their bill is fixed and unrelated to usage. The new name should describe the nature of the charge. For example, alternative names include:

- availability charge
- supply charge
- system access charge (see comment below)
- capacity charge
- utility charge
- network charge
- distribution charge
- delivery charge
- meter charge
- customer charge
- fixed charge, and
- pipeline / network rental (similar to line rental used in telecommunications).

We consider that the name 'access charge' is not appropriate as it may be confused with the term 'access pricing'. Access pricing is used in the water industry (and other industries) for the pricing of third party access to the network, often for alternative uses.

Our preferred option is 'availability charge', as this seems to best indicate that the fixed component of a bill represents the customers' ability to use the system (ie, that they are connected to the system), rather than actual use of the system.

³⁰⁶ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 80.

9 Price structures

IPART seeks comments on the following

40 What is the most appropriate name for the current fixed 'service charge'?
10 Prices– water, wastewater, and stormwater 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.
- Stormwater a fixed stormwater service charge that differs for standalone and multi-premises customers (ie, houses and apartments).

Non-residential customers pay the following charges 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.³⁰⁷
- Wastewater³⁰⁸ 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.
- Stormwater a fixed stormwater service charge that differs based on the size of the property.

This chapter outlines Sydney Water's proposed price levels for each of these charges, which reflect its proposals for the revenue requirement, forecast water sales and customer numbers, and price structure discussed in the previous chapters, and our response to these proposals. It also presents Sydney Water's analysis of the bill impacts of its proposed prices.

10.1 Sydney Water's proposal on water, wastewater, and stormwater charges

Table 10.1 shows Sydney Water's proposed prices for the major services over the 2016 determination period. In the sections below, we outline Sydney Water's proposed prices in further detail and our response.

³⁰⁷ Standalone 20mm meter non-residential customers and non-residential customers in mixed developments pay the same standard (fixed) water service charge as residential customers.

³⁰⁸ Some non-residential customers also face load-based trade waste charges. We outline these charges in Chapter 11.

	2015-16 ^a	2016-17	2017-18	2018-19	2019-20
Water					
Usage charge (\$/kL)	2.29	1.97	1.97	1.97	1.97
Annual change		-13.9%	0.0%	0.0%	0.0%
Residential service charge (\$/year)	103.55	98.52	98.52	98.52	98.52
Annual change		-4.9%	0.0%	0.0%	0.0%
20mm non-residential service charge (\$/year)	131.12 ^b	98.52	98.52	98.52	98.52
Annual change		-24.9%	0.0%	0.0%	0.0%
Wastewater					
Usage charge (\$/kL)	1.10	1.10	1.10	1.10	1.10
Annual change		0.0%	0.0%	0.0%	0.0%
Residential service charge (\$/year)	612.10	582.34	582.34	582.34	582.34
Annual change		-4.9%	0.0%	0.0%	0.0%
20mm non-residential service charge (\$/year)	1,047.74 b	582.34	582.34	582.34	582.34
Annual change		-44.4%	0.0%	0.0%	0.0%
Stormwater					
Multi premise residential and small non-residential (\$/year)	31.70	30.79	29.90	29.04	28.21
Annual change		-2.9%	-2.9%	-2.9%	-2.9%
Standalone residential and medium non-residential (\$/year)	86.44	83.96	81.54	79.20	76.92
Annual change		-2.9%	-2.9%	-2.9%	-2.9%
Large non-residential (\$/year)	432.22	419.80	407.73	396.01	384.63
Annual change		-2.9%	-2.9%	-2.9%	-2.9%

Table 10.1	Sydney Water's proposed prices for major services from 1 July
	2016 (\$2015-16)

^a 2015-16 prices were not available when Sydney Water finalised its pricing proposal. The prices for 2015-16 are Sydney Water estimates based on forecast inflation.

b Under the 2012 Determination 20 mm standalone non-residential customers paid the residential service charges. From 2016-17 Sydney Water's proposal will see them charged the same as other non-residential customers with 20mm meters.

10.2 Water usage charges

10.2.1 Sydney Water's proposal on the water usage charge

Sydney Water proposed a water usage charge of \$1.97 per kL over the 2016 determination period. This represents a decrease of \$0.32 per kL (or 13.9%) compared with the current usage charge.³⁰⁹

³⁰⁹ Sydney Water pricing proposal to IPART, June 2015, p 100.

Sydney Water indicated that in setting this proposed usage charge, it was more influenced by its extensive customer research than by its best estimate of the LRMC of water supply (\$1.16 per kL).³¹⁰ It indicated that by understanding customers' preferred pricing structures it has avoided large changes to the tariff structure, which could occur from simply following economic theory that is unsupported by customers.³¹¹ Specifically, Sydney Water noted that:

Setting the usage price with stronger weighting towards customers' preferences for tariff structures reflects our new corporate strategy of becoming a more customer-focused organisation that delivers tariffs aligned with what customers want. Through our research, customers have told us they prefer a higher usage price and a lower service charge. Maintaining a tariff structure broadly similar to the current structure also provides continuity for customers, avoiding wild swings in prices and encouraging water efficient behaviour.³¹²

Under Sydney Water's proposal, the water usage charge is calculated as a balancing item to recover any residual revenue not recovered through water service charges and other minor charges (eg, from unfiltered water customers). The water service charge for residential customers is set to achieve the same percentage reduction as the wastewater service charge.³¹³

Figure 10.1 illustrates our understanding of how Sydney Water calculated its proposed water service and usage charges over the 2016 determination period.



Figure 10.1 How Sydney Water calculated water charges

Note: This is our understanding of how Sydney Water has derived its proposed water usage and service charges.

³¹⁰ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 115.

³¹¹ Sydney Water pricing proposal to IPART, June 2015, p 235.

³¹² Sydney Water pricing proposal to IPART, June 2015, p 235.

³¹³ Sydney Water pricing proposal to IPART, June 2015, p 52.

Sydney Water also used feedback from customers to develop its proposal to recover the additional variable costs of switching on the SDP through the water usage charge.

Sydney Water's customer engagement

To inform its pricing proposal, Sydney Water engaged with customers and its Customer Council. As part of this engagement, it surveyed just under 1,700 customers online to assess whether they preferred greater **bill certainty** (ie, a higher fixed water service charge) or greater **bill control** (ie, a higher water usage price). It also provided customers with a bill analyser tool to assess how greater bill control would affect their bill, based on their water usage.³¹⁴ The survey results indicated:

- ▼ before using the bill analyser tool, 73% preferred greater bill control over greater bill certainty
- after using the tool, this fell to 61% (the net effect was a 12 percentage point decline, with one-third of the survey participants switching their preference), and
- ▼ 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 \$1.90 to \$2.30 per kL.

Sydney Water used the survey results to help develop its proposed price levels, particularly its proposed water usage price of \$1.97 per kL and its proposed water service charge for residential customers of \$98.52 per year.³¹⁵

Figure 10.2 below summarises Sydney Water's customer research on the water usage charge.

³¹⁴ Sydney Water pricing proposal to IPART, June 2015, p xxi.

³¹⁵ Sydney Water pricing proposal to IPART, June 2015, p xxii. We estimate the average water usage price from the survey results was \$1.98 per kL.



Figure 10.2 Distribution of preferred usage prices from Sydney Water's customer survey

Proposal on increasing water usage charge to reflect the variable costs of SDP

Sydney Water proposed to recover the additional variable costs it would incur if SDP is operating through the water usage charge. As Chapter 4 discussed, it proposed to amend the current SDP cost pass through mechanism so it can recoup these variable costs as they occur, rather than at a one-year lag though water service charges (as is currently the case).³¹⁶ It used feedback from customers and its Customer Council to develop this proposal.³¹⁷

Sydney Water put the view that the current approach for recovering the costs associated with operating SDP misses an opportunity to send customers a price signal about the relationship between their water behaviour and these costs.³¹⁸ Its proposal would also provide customers with an incentive to save water and, in the longer term, could form the basis of a scarcity price.³¹⁹

Source: Adapted from Sydney Water pricing proposal to IPART, June 2015, p 50.

³¹⁶ In the current 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, Sydney Water is allowed to recover these costs the following year through a variation to the fixed charge.

³¹⁷ Sydney Water pricing proposal to IPART, June 2015, p xxii.

³¹⁸ Sydney Water pricing proposal to IPART, June 2015, p 241.

³¹⁹ Sydney Water pricing proposal to IPART, June 2015, pp 241-242.

Assuming SDP produces a full year's output of 90 GL following its restart, Sydney Water estimated that operating SDP will add about \$74 million a year to its costs over the 2016 period, plus a one-off restart charge of about \$6 million. This \$74 million comprises \$13 million in fixed costs and \$61 million in variable costs.³²⁰ Sydney Water also estimated that recovering these additional SDP costs would add about \$40 to each customer's annual bill.³²¹

Under the current SDP cost pass through mechanism, this \$40 would be recovered through customers' fixed water service charges. Under Sydney Water's proposal, it would be recovered by a combination of a smaller increase to the fixed charge plus a higher usage charge (see Figure 10.3). That is, the \$61 million in variable costs would be recovered through an 'uplift' in the water usage charge and the \$13 million in additional fixed costs would be recovered through higher water service charges. Sydney Water noted that the structure would mimic the general water tariff, which customers are familiar with.³²²

Figure 10.3 Sydney Water's proposed change to the SDP cost recovery mechanism



Source: Sydney Water pricing proposal to IPART, June 2015, p 242.

To recover the usage charge element, Sydney Water proposed to:

 calculate the required 'uplift' to the usage charge based on the likely variable proportion of SDP costs and the volume of sales (ie, relative to bulk water sourced from WaterNSW)

³²⁰ Sydney Water derives these costs from the current 2012 SDP Determination. It notes that when IPART sets a new determination for SDP in 2017, these cost figures may change. See Sydney Water pricing proposal to IPART, June 2015, p 240.

³²¹ Sydney Water pricing proposal to IPART, June 2015, p 240.

³²² Sydney Water pricing proposal to IPART, June 2015, p 241.

- apply a single increment to the standard water usage charge for all volumes sold (that is, a single, higher charge not an inclining block tariff) to all customers (other than customers currently benefitting from or eligible for hardship schemes)
- recover the additional variable costs from SDP in the current year (ie, no lag) for as long as SDP operates
- return the usage charge to the standard level once SDP is no longer operating and relevant costs were no longer being incurred – ie, back to Sydney Water's proposed usage charge of \$1.97 per kL.³²³

Sydney Water has not quantified what the 'uplift' to usage prices would need to be to pass through SDP's variable costs.

Proposal on LRMC of water supply

As noted above, Sydney Water proposed to base its water usage price more on customer preferences than the LRMC of water supply.³²⁴ Nevertheless, it provided an updated estimate of the LRMC, derived using an improved version of the model it used to estimate the LRMC for the 2012 Determination. This model used an average incremental cost method to estimate the LRMC, and included the following key improvements:

- demand forecasts were updated
- pricing elasticity in demand forecasts were considered, and
- yield and spare capacity were included.³²⁵

Due to uncertainty surrounding the Metropolitan Water Plan and the Government's Hawkesbury-Nepean Valley Flood Management Review (see Chapter 2), Sydney Water modelled a range of LRMC estimates under a variety of scenarios, including the base case and options shown in Table 10.2. It found that the LRMC ranged from \$0.97 per kL to \$3.10 per kL, and the best estimate was \$1.16 per kL.³²⁶ Sydney Water's proposed usage charge (\$1.97 per kL) is about 70% greater than this best estimate.

Appendix H provides a more detailed discussion of Sydney Water's LRMC estimates.

³²³ Sydney Water notes that for most customers, the period when the SDP begins (and ceases) operating will not wholly align with their billing period. Sydney Water proposes to ensure customers pay the appropriate charge for their water usage based on a pro-rata allocation of usage under the different charges. See Sydney Water pricing proposal to IPART, June 2015, p 242.

³²⁴ Sydney Water pricing proposal to IPART, June 2015, p 233.

³²⁵ Sydney Water pricing proposal to IPART - Appendices, June 2015, pp 120-121.

³²⁶ Sydney Water pricing proposal to IPART, - Appendices, June 2015, p 115.

Assumption	Base case	Options
System yield	610 GL	565 GL, 580 GL, 585 GL, 595 GL, 600 GL, 615 GL, 630 GL
Base year demand	510 GL	
Demand growth	2.84 GL per year (\$2.00 usage price)	2.58 GL per year (\$2.23 usage price), 2.6 GL per year (\$2.23 with leap year adjustments), 2.8 GL per year (\$2.00 with leap year adjustments)
Augmentation cost ^a	\$1.2 billion capital, \$17 million annual operating, \$730/ML operating	
Benefits of additional water supply	70 GL per year	90 GL per year
Sydney Desal operation	Used to match demand	Full output only
Flood review impact	\$0	\$1 billion
Discount rate	5.3%	6%, 7%

Table 10.2 Sydney Water's assumptions in calculating LRMC

^a The timing of augmentation is endogenously determined through model. In the base case it occurs in 2043-44.

Source: Sydney Water pricing proposal to IPART- Appendices, June 2015, pp 116-117.

10.2.2 IPART's response on the water usage charge

Our inclination is to set the water usage charge with reference to the LRMC of water supply to encourage efficient water consumption. Setting the usage charge to reflect the LRMC signals the cost of water supply augmentation to consumers when supply is nearing a capacity constraint. That is, it sends customers an efficient, long-run scarcity signal, which helps them understand the long-run cost implications of their water usage.

In the 2012 Determination, we set the water usage charge at \$2.10 in real terms (\$2011-12) after considering Sydney Water's estimates of the LRMC and our own analysis. For the 2016 determination period, we will update our estimates of LRMC.

We note that the updated LRMC estimates will likely be lower than the current usage charge (Appendix H provides our preliminary modelling of LRMC). There may, therefore, be a case for gradually moving the current usage charge towards LRMC.

We will make a decision on the water usage charge after doing further analysis and taking into account stakeholder feedback.

Response on increasing water usage charge to recover variable SDP costs

In principle, we agree with Sydney Water's proposal to increase the water usage charge to recover the additional variable costs it would incur if SDP is activated. By varying the (retail) usage charge to reflect the per ML cost of desalinated water if SDP is activated, the proposal will make the costs of drought-response more transparent to end-use customers.

In particular, we agree with Sydney Water that the role of water pricing should be fully integrated with the Metropolitan Water Directorate's existing water conservation measures.³²⁷ Introducing an 'uplift' to the water usage price to make drought-response costs more transparent is a first step towards a more sophisticated approach to signalling the marginal costs of responding to drought situations, or to complement an integrated approach to managing supply and demand.

Under Sydney Water's proposal, the cost recovery mechanism for SDP would be revenue neutral and is simply a rebalancing of the approach by which existing costs would be recovered, and not a new charge.³²⁸ The existing cost pass through mechanism would capture differences in SDP's service charges (fixed costs). These fixed costs would continue to be passed through to retail customers in their water service charges (at a one-year lag).³²⁹ SDP's variable costs would be passed through as they occur in the water usage price, given that SDP's variable costs.

At this stage, we consider 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. From 2016-17 onwards, we do not have a determined price for SDP and would therefore have to either:

- use a formula to uplift Sydney Water's usage price that refers to a future SDP determination, or
- add an estimate of SDP's water usage charge onto Sydney Water's water usage charge and use the cost pass through mechanism to account for any forecast errors.³³⁰

³²⁷ Sydney Water pricing proposal to IPART, June 2015, p 243.

³²⁸ Sydney Water pricing proposal to IPART, June 2015, p 242.

³²⁹ SDP's 2016/17 service charges between plant operation mode and water security shutdown mode differ by about \$35,000 (\$2011-12) per day. see IPART, *Prices for Sydney Desalination Plant Pty Limited's Water Supply Services*, Determination No. 2, December 2011, pp 16 and 38.

³³⁰ 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.

Our preference at this stage is to adopt the latter approach, as it allows us to set a specific price for SDP and therefore provide customers with a clear usage signal.³³¹ We would estimate the uplift to Sydney Water's proposed usage price in 2016-17, based on the SDP's current prices. We propose using the following formula to adjust the usage charge:

Usage charge adjustment = $\frac{90,000 \times (\text{SDP usage charge - avoided water filtration costs/ML})}{\text{Total volume of treated water sold by Sydney Water}}$

where:

- ▼ SDP usage charge for 2016-17 is \$677.20 per ML (or \$0.68/kL)³³²
- avoided water filtration cost are based on the \$0.06 per kL adjustment for treatment costs used in the current SDP cost pass though mechanism³³³
- ▼ the total volume of treated water sold for 2016-17 is 467,016 ML based on Sydney Water's forecasts.³³⁴

Given that SDP supplies about 20% of total treated water sold, this formula reflects the average additional cost per kL of water when the SDP is at full production.³³⁵ Avoided filtration costs are deducted, given that Sydney Water purchases less water from WaterNSW, and in turn it avoids water filtration costs as SDP's water is already treated.

Applying our formula, the usage charge would increase by \$0.13 per kL if SDP is operating. This would then lower the amount required to be passed through into service charges the following year (see Table 10.3).

³³³ We have inflated the \$56.91/ML cost for 2015-16 from \$2012-13 to \$2015-16 in Sydney Water's

2012 Determination using $\Delta CPI_3 = \left(\frac{Adjusted CPI_{March2015}}{Adjusted CPI_{March2012}}\right) - 1$ (ie, 6.9%). IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services,* Determination No. 1, June 2012, p 19.

³³¹ 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 though 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.

³³² We have inflated the \$623.57/ML price for 2016-17 in SDP's Determination from \$2011-12 to \$2015-16 using $\Delta CPI_4 = \left(\frac{CPI_{Mar2015}}{CPI_{Mar2011}}\right)$ -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).

³³⁴ We use treated water sales, because SDP does not impact volumes of unfiltered water sales. The volume of treated water has been sourced from Sydney Water Annual Information Return, June 2015.

³³⁵ SDP has an annual production capacity of about 90,000 ML. This supplies approximately a fifth of total metered demand.

Pass-through	Existing	Proposed
SDP shut down		
Water usage charge	1.97	1.97
20mm water service charge	98.52	98.52
SDP full operation		
Adjustment to usage charge	+0.00	+0.13 ^a
Usage charge	1.97	2.10
Adjustment to service charge	+ 39.03 b	+10.08
Service charge (following year)	137.55	108.60

Table 10.3	IPART's estimated adjustment to 2016-17 usage charges if SDP is
	activated (\$2015-16)

^a Assumes SDP usage charge for 2016-17 is \$677.20 per ML (or \$0.68/kL). We also assume that Sydney Water avoids \$0.06/kL in water filtration, based on the avoided water filtration costs in 2015-16 included in IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services,* Determination No 1, June 2012, pp 18-21.

b The estimated pass-through for 2016-17 uses the existing approach and passes through all charges paid by Sydney Water to SDP if it enters full production mode from a water security mode (ie, adapting the adjustment formula in IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services*, Determination No. 1, June 2012, p 19). We estimate that the charges paid include fixed charges (\$154.2 million) variable charges based on 90 GL of production (\$60.9million) and restart charge (\$6 million), less avoided treatment costs (\$5.5 million) and the fixed charges during shutdown (\$140.9 million), which are already factored into prices. This total is divided by our estimate of number of customers (2 million 20mm equivalent connections).

Note: This estimate omits the impact of the electricity network costs passed through.

IPART seeks comments on the following

- 41 Is Sydney Water's proposed water usage charge of \$1.97 per kL reasonable? If so, why?
- 42 Should the water usage charge be set with reference to the long-run marginal cost of water supply, or should greater weight be placed on customer preferences?
- 43 Should Sydney Water's water usage charges vary to make drought-response costs more transparent to end-use customers (ie, by reflecting the per kilolitre cost of desalinated water if Sydney Desalination Plant is activated)?

10.3 Water service charges

10.3.1 Sydney Water's proposal on water service charges

Sydney Water's proposed water service charges for the 2016 determination period are shown in Table 10.4 below. Under this proposal, residential water service charges would decrease by 4.9% in 2016-17 and remain constant in real terms thereafter.³³⁶ This includes 20mm standalone non-residential customers and non-residential customers in mixed developments who currently pay the same standard water service charge as residential customers.

Non-residential customers currently on a meter-based charge³³⁷ would experience significant reductions in their water service charges of about 24.9% in 2016-17 and remain constant in real terms thereafter.³³⁸ This is a result of Sydney Water's proposal to rebase water and wastewater charges, which means non-residential customers with a 20mm meter would now contribute the same amount to Sydney Water's costs as a residential customer with a deemed 20mm meter (discussed in Chapter 9).

	2015-16	2016-17	2017-18	2018-19	2019-20
Residential ^a	103.55	98.52	98.52	98.52	98.52
20mm non-residential ^b	131.12	98.52	98.52	98.52	98.52
40mm non-residential	524.48	394.06	394.06	394.06	394.06
100mm non-residential	3,278.01	2,462.90	2,462.90	2,462.90	2,462.90

 Table 10.4
 Sydney Water's proposed water service charges (\$2015-16)

^a The residential charge applies to houses and apartments. It also applies to 20mm standalone non-residential customers and non-residential customers in mixed developments.

b Under the 2012 Determination, non-residential customers with multiple 20mm meters are charged a meter based charge and not the residential charge.

Note: Other non-residential meter-based charges can be calculated by applying the following formula to the 20mm non-residential charge (meter size)² × $\frac{20mm \text{ charge}}{400}$.

Source: Sydney Water's proposal to IPART's price review, June 2015, Appendices pp 8-10, and Sydney Water's 2015-16 price list.

10.3.2 IPART's response on water service charges

As discussed above, Sydney Water's proposed approach to setting its water usage charges differs from the one we used in making the 2012 Determination. This makes it difficult for us to comment at this stage on whether its proposed water service charges are reasonable and appropriate.

³³⁶ Sydney Water pricing proposal to IPART, June 2015, p 75.

³³⁷ That is, all non-residential customers with meter sizes larger than 20mm or with multiple 20mm meters.

³³⁸ Sydney Water pricing proposal to IPART, June 2015, p 19.

In past reviews, we have set the water service charge to recover the residual revenue requirement after accounting for expected water usage charge revenue. Therefore, our decisions regarding the basis for water usage charges will inform our approach to setting water service charges – including whether we aim for these charges to change by the same proportion as wastewater service charges in line with Sydney Water's proposal.

Rebasing water and wastewater service charges to a 20mm meter equivalent scale also affects the level of service charges, particularly between different customer types. Notably, non-residential service charges would decrease by a higher proportion than residential service charges. As Chapter 9 discussed, this is because setting water and wastewater service charges in this way would distribute Sydney Water's (residual) fixed costs evenly across residential and non-residential customers (ie, on a 20mm meter equivalent basis).

This means that the 20mm meter charge would become the minimum service charge (or base service charge) for all customers except non-residential customers with larger or multiple meters, whose charges would increase proportionately according to their actual meter size. This is why Sydney Water's proposed residential charge of \$98.52 in 2016-17 is the same as the 20mm meter non-residential charge (see Table 10.4).

IPART seeks comments on the following

44 Are Sydney Water's proposed water service charges reasonable?

10.4 Wastewater usage charge

10.4.1 Sydney Water's proposal on the wastewater usage charge

In its proposal, Sydney Water put the view that wastewater pricing is not well understood by customers.³³⁹ For this reason, it proposed maintaining the current non-residential wastewater usage charge of \$1.10 per kL in real terms over the 2016 determination period.³⁴⁰

Sydney Water does not support our 2012 proposal³⁴¹ to reduce this wastewater usage charge to reflect the short run marginal cost (SRMC) of the transport, treatment and disposal of effluent. It argued that this approach:

... is not a sustainable model for either water or wastewater services. It can encourage inefficient behaviour by sending an inappropriate price signal and bring forward the need for investment in capacity.³⁴²

³³⁹ Sydney Water pricing proposal to IPART, June 2015, p 236.

³⁴⁰ Sydney Water pricing proposal to IPART, June 2015, p 240.

³⁴¹ IPART, Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services, Final Report, June 2012, p 103.

³⁴² Sydney Water pricing proposal to IPART, June 2015, p 239

Sydney Water noted that there are 24 separate wastewater systems in its network with limited interconnectedness, implying that the marginal costs of these systems differ. It indicated that growth expenditure in Western Sydney and potential changes to environmental requirements will impact prices in the future. It stated that:

Both of these pressures are likely to raise the average costs of supply, which needs to be reflected in usage prices that send the right long-term price signal to consumers.³⁴³

Given these long-term investment needs, Sydney Water argued that the appropriate basis for wastewater usage charges should be the LRMC of supply.³⁴⁴

In addition, as Chapter 9 discussed, Sydney Water does not support our proposal to reduce the threshold for incurring the non-residential wastewater usage charge (ie, the discharge allowance) to 150 kL a year. Rather, it proposed to fix the discharge allowance at its current level of 300 kL a year, to minimise the number of small businesses that would otherwise incur a wastewater usage charge for the first time.³⁴⁵

Figure 10.4 illustrates our understanding of how Sydney Water calculated its proposed wastewater service and usage charges over the 2016 determination period.



Figure 10.4 How Sydney Water calculated wastewater charges

Note: This is our understanding of how Sydney Water has derived its proposed wastewater usage and service charges.

³⁴³ Sydney Water pricing proposal to IPART, June 2015, p 239.

³⁴⁴ Sydney Water pricing proposal to IPART, June 2015, pp 237-238.

³⁴⁵ Sydney Water pricing proposal to IPART, June 2015, p 114.

Sydney Water did not propose to introduce residential wastewater usage charges. However, it noted:

There could be a strong case put forward that the principles supporting a water usage charge apply equally to the wastewater service. Some non-residential customers pay a usage component in their wastewater bill already, so it could be argued that residential customers should pay for this as well. Such tariffs are standard practice in other jurisdictions, and do not need wastewater volumes to be metered separately from water demand.³⁴⁶

Sydney Water put the view that usage-based charging is equally appropriate to water and wastewater systems. It noted that a usage charge for wastewater could strengthen current conservation initiatives³⁴⁷ and cited a residential wastewater usage charge as an example of how it could use a WAPC.

10.4.2 IPART's response on the wastewater usage charges

In the 2012 Determination, we stated that it was our intention to reduce wastewater usage charges to reflect the SRMC of collecting, transporting, treating and disposing of effluent.³⁴⁸ We estimated this cost at about \$0.25 per kL (\$2015-16).³⁴⁹ 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.

This proposal to price on a SRMC basis was made in the context of postage stamp pricing. We consider that LRMC pricing for wastewater (as opposed to water) within a postage stamp pricing regime has limited signalling capacity. This is because wastewater catchments are many and diverse, such that changes in usage in one catchment may not affect capacity in another.

In particular, an LRMC-based usage charge under postage stamp pricing would increase when one catchment approached capacity and required an augmentation. With unrelated wastewater catchments, this would not send appropriate conservation signals to customers:

- For customers in the unrelated catchments, the usage charge would increase but they may not be able to do anything to prevent or delay the augmentation.
- For customers in the catchment needing an augmentation, the postage-stampprice LRMC would be lower than the catchment-specific LRMC, sending an inefficiently low signal to reduce wastewater discharges.

In contrast, a SRMC-based usage charge would not change as an augmentation approached. This would only be inefficient in catchments approaching augmentations.

³⁴⁶ Sydney Water pricing proposal to IPART, June 2015, p 254.

³⁴⁷ Sydney Water pricing proposal to IPART, June 2015, p 239

³⁴⁸ Sydney Water pricing proposal to IPART, June 2015, p 236.

³⁴⁹ IPART, Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services - Final Report, June 2012, p 103.

Should the Government's policy of postage stamp pricing be relaxed, we would consider setting the wastewater usage charge based on estimates of catchment-specific LRMC of supply, or on any other appropriate and cost-reflective basis. Until then, we consider SRMC to be a better basis for the wastewater usage charge. We will consider whether the current level of \$1.10 per kL is appropriate or whether it requires further transitioning towards SRMC.

In relation to the discharge allowance, our preliminary view is to not support Sydney Water's proposal to fix this allowance at 300 kL per year. Our reasons are discussed in Chapter 9.

In relation to Sydney Water's comments on applying wastewater usage charges to residential customers, we will consider this issue in our review depending on the feedback from Sydney Water and stakeholders. We are aware that wastewater usage pricing is common practice in other jurisdictions, including Melbourne,³⁵⁰ London,³⁵¹ and New York.³⁵² We also note Sydney Water's view that calculating discharges is straightforward.³⁵³

A residential usage charge may more closely reflect the user pays principle and give customers greater control of their bills. This aligns with customer preferences, according to Sydney Water's customer engagement.

If a wastewater usage charge were to apply to all customers, many customers with low usage would benefit. This is particularly the case if discharge factors are set at levels that distinguish between different types of users. For example, applying South East Water's wastewater discharge factors³⁵⁴ of 75% for houses and 85% for apartments, we estimate that 50% of houses and 75% of apartments would discharge less wastewater than the amount implicitly included in bills.³⁵⁵ These customers would potentially face lower total bills with the introduction of residential wastewater usage charges.

IPART seeks comments on the following

- 45 Is Sydney Water's proposal to maintain the current wastewater usage charge applied to non-residential customers of \$1.10 per kL reasonable?
- 46 Should residential customers pay a wastewater usage charge?

³⁵⁰ Essential Services Commission, 2015-16 Tariff Schedules for Victorian water businesses, accessed 21 July 2015: http://www.esc.vic.gov.au/Water/Tariff-approvals/2015-16-Tariff-Schedules-for-Victorian-water-busin

³⁵¹ Thames Water, Our Charges for household customers 2015/16, February 2015, p 11.

³⁵² New York City Water Board, Rates & Regulations, accessed 21 July 2015: http://www.nyc.gov/html/nycwaterboard/html/rate_schedule/index.shtml

³⁵³ Sydney Water pricing proposal to IPART, June 2015, p 239.

³⁵⁴ Sewage disposal charge=price ×actual metered volume of water supplied × return rate, where the return rate for houses is 75% and the return rate for units and flats is 85%. See South East Water, *South East Water Price Manual*, June 2015, p 19.

³⁵⁵ We applied these discharge factors to 2013-14 from Sydney Water's Annual Information Return as we have access to more disaggregated consumption data than in the forecast years.

10.5 Wastewater service charges

10.5.1 Sydney Water's proposal on wastewater service charges

Sydney Water's proposed wastewater service charges for the 2016 determination period are shown in Table 10.5 below. Under this proposal, residential wastewater service charges would decrease by 4.9% in 2016-17 and remain constant in real terms thereafter. ³⁵⁶ The same decrease would apply to non-residential customers with a 20mm standalone meter and non-residential customers in mixed developments, who currently pay the same standard water service charge as residential customers.

Non-residential customers currently on a meter-based charge³⁵⁷ would experience significant reductions in their water service charges of about 44.4% in 2016-17 and remain constant in real terms thereafter.³⁵⁸ This is a result of Sydney Water's proposal to rebase water and wastewater charges, which means non-residential customers with a 20mm meter would now contribute the same amount to Sydney Water's costs as a residential customer with a deemed 20mm meter (discussed in Chapter 9).

	2015-16	2016-17	2017-18	2018-19	2019-20
Residential ^a	612.10	582.34	582.34	582.34	582.34
20mm non-residential ^b	1,047.74	582.34	582.34	582.34	582.34
40mm non-residential	4,190.98	2,329.37	2,329.37	2,329.37	2,329.37
100mm non-residential	26,193.65	14,558.58	14,558.58	14,558.58	14,558.58

Table 10.5 Sydney Water's proposed wastewater service charges (\$2015-16)

^a The residential charge applies to houses and apartments. It also applies to 20mm standalone non-residential customers and non-residential customers in mixed developments.

b Under the 2012 Determination, non-residential customers with multiple 20mm meters are charged a meter based charge and not the residential charge.

Note: Other non-residential meter-based charges can be calculated by applying the following formula to the 20mm non-residential charge (meter size)² × $\frac{20mm charge}{400}$. Actual non-residential charges are the minimum of: {meter size × discharge factor, residential charge}.

Source: Sydney Water pricing proposal to IPART - Appendices, June 2015, p 11; and Sydney Water's 2015-16 price list.

10.5.2 IPART's response on wastewater service charges

Sydney Water's proposed method for calculating the wastewater service charge is consistent with our typical approach. That is, wastewater charges are set to recover the residual costs, once usage revenue has been accounted for.

³⁵⁶ Sydney Water pricing proposal to IPART, June 2015, p 75.

³⁵⁷ That is, all non-residential customers with meter sizes larger than 20mm or with multiple 20mm meters.

³⁵⁸ Sydney Water pricing proposal to IPART, June 2015, p 108.

However, much like water pricing, it is difficult for us to comment on the appropriate level of these charges at this stage of the review. This is because our decisions regarding the basis for wastewater usage charges (and revenue requirement) will affect the level of wastewater service charges. In particular, these charges will be affected by any changes made to the level of the wastewater usage charge, the customers it applies to, and the discharge allowance. In general, a decrease in the discharge allowance or an increase in the wastewater usage charge would result in lower wastewater service charges.

In line with our preferred approach, rebasing wastewater service charges to a 20mm meter equivalent scale affects the level of these charges, particularly between different customer types:

- ▼ Similar to water service charges, the 20mm meter charge of \$582.34 in 2016-17 would become the minimum service charge (or base service charge). This would be applicable to all customers except non-residential customers with larger meters, whose charges would increase proportionately according to their actual meter size.³⁵⁹
- With fixed costs spread evenly across residential and non-residential customers (ie, on a 20mm meter equivalent basis), non-residential customers experience a larger decrease in their wastewater service charges.

IPART seeks comments on the following

47 Are Sydney Water's proposed wastewater service charges reasonable?

10.6 Stormwater drainage charges

10.6.1 Sydney Water's proposal on stormwater drainage charges

Only some of Sydney Water's residential and non-residential customers are within its stormwater area.³⁶⁰ Currently, these customers are charged a stormwater charge based on area size. Local councils are the main provider of stormwater services in the Sydney Area.

Sydney Water's proposed stormwater drainage charges for the 2016 determination period are shown in Table 10.6. These prices reflect the existing price structure, and decrease by 2.9% in each year of the determination period.

³⁵⁹ Also includes customers with multiple meters and multi-premises sharing meters.

³⁶⁰ This area covers 30 Local Government areas, and generally includes the central business district and inner west of Sydney. According to Sydney Water, it provides stormwater drainage services to around 570,000 residential properties, which represent around 32% of the 1.8 million residential properties that it supplies water services to.

	2015-16	2016-17	2017-18	2018-19	2019-20
Apartments	31.70	30.79	29.90	29.04	28.21
Houses	86.44	83.96	81.54	79.20	76.92
Non-residential by land area ^a					
$0 - 200m^2$	31.70	30.79	29.90	29.04	28.21
201m ² – 1,000m ² (or low impact ^b)	86.44	83.96	81.54	79.20	76.92
$1,001m^2 - 10,000m^2$	432.22	419.80	407.73	396.01	384.63
$10,001m^2 - 45,000m^2$	1.920.97	1,865.75	1,812.12	1,760.04	1,709.45
45,000m ² +	4,802.44	4,664.40	4,530.32	4,400.10	4,273.63

Table 10.6Sydney Water's proposed stormwater drainage charges
(\$2015-16)

a Land size refers to the total size of the land (in m²) on which the property is located.

b Sydney Water may assess a non-residential property as low impact having regard to relevant factors, including the impermeable surface area.

Source: Sydney Water pricing proposal to IPART - Appendices, June 2015, p 13, and Sydney Water's 2015-16 price list.

Proposal on long-term price stability

Sydney Water proposed that its stormwater prices over the 2016-17 to 2019-20 period recover slightly more revenue in total than required to provide these services. It indicated that this over-recovery in revenue will mitigate future bill shocks for customers. It expects its stormwater capital expenditure to increase significantly between 2020 and 2024, as a number of assets built before 1910 require renewal.³⁶¹ 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.³⁶²

Consultation on broadening the stormwater customer base

Given these expected increases in stormwater capital expenditure, Sydney Water indicated it is taking a long-term view on stormwater pricing, and has started engaging customers on the issue.³⁶³

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 services³⁶⁴ (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).

³⁶¹ Sydney Water pricing proposal to IPART, June 2015, 198.

³⁶² Sydney Water pricing proposal to IPART, June 2015, 82.

³⁶³ Sydney Water pricing proposal to IPART, June 2015, pp 52-54.

³⁶⁴ Sydney Water pricing proposal to IPART, June 2015, p 52.

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.³⁶⁵ This consultation found that all groups initially exhibited very limited knowledge of stormwater, how it is paid for and the nature of the larger infrastructure that manages and treats it.³⁶⁶ Also, very few participants initially understood the roles of local councils and Sydney Water in providing stormwater services.³⁶⁷

Sydney Water tested the following two charging scenarios:

- Scenario A: Stormwater service charges are spread across its entire customer base.
- ▼ Scenario B: Everyone in Local Government Areas containing its designated stormwater area equally bear the costs of increased stormwater infrastructure investment.

The majority of participants were in favour of Scenario A. They felt that the increased costs should be spread across the entire Sydney Water customer base, including residential and business customers, on the grounds of fairness.³⁶⁸ However, Sydney Water noted that a subset of participants were not in favour of sharing costs, because they were already paying their local council for stormwater services and they would be paying for services that did not benefit their local area.³⁶⁹

The initial consultations also found that customers consider the current charge regime to be inequitable:³⁷⁰

In an ideal world, participants thought households should bear less responsibility for paying for the costs of large stormwater infrastructure. Government, and to a lesser extent business, should be primarily responsible.

10.6.2 IPART's response on stormwater drainage charges

In the 2012 Determination, we introduced property-area-based stormwater pricing and transitioned to the new price levels over the period. As Figure 10.5 shows, this generally resulted in price increases for residential customers with houses, and price decreases for those with apartments. Under Sydney Water's proposal, prices for all dwelling types will decrease by 2.9% a year over the 2016 period, but are expected to increase again in the 2020 determination period.

³⁶⁵ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 85.

³⁶⁶ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 85.

³⁶⁷ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 85.

³⁶⁸ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 87.

³⁶⁹ Sydney Water pricing proposal to IPART, June 2015, p 54.

³⁷⁰ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 86.

As Chapter 5 discussed, our expenditure consultants will review Sydney Water's proposed capital expenditure on stormwater assets and the efficient profile for this expenditure over the medium term. This will inform our decision on the appropriate level of stormwater prices for the 2016 determination period.

Figure 10.5 Trend in stormwater prices over the 2012 determination period and proposed for the 2016 determination period (\$/year, \$2015-16)



Note: Non-residential customers have been omitted for simplicity. Sydney Water's proposed prices are shown as dashed lines.

Data source: IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services*, Final Determination, June 2012, p 42; and Sydney Water pricing proposal to IPART - Appendices, June 2015, p 13.

Stormwater prices are also affected by price structures. We will consider Sydney Water's proposal to maintain the current (2015-16) price relativities between different customer categories. We have compared the percentage of revenue each customer category currently contributes to Sydney Water's stormwater costs to the percentage of the total billable property area it represents (Table 10.7). This analysis suggests that apartments and small non-residential customers may be paying more than their share of these costs, while large non-residential customers may be paying less, on a strict billable area basis.³⁷¹

In view of Sydney Water's expected increases in future stormwater prices, we question whether the transition towards area-based charges is complete and, particularly, whether there is further scope for future costs to be recovered on a more cost-reflective or equitable basis.

³⁷¹ However, in the 2012 Determination, we noted that the proportion of impervious area is a relevant consideration in stormwater pricing. Larger properties are likely to have a lower proportion of impervious area. See IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services - Final Report, June 2012, p 123.*

Customer category	Percentage of revenue	Percentage of area
Apartments	16.5%	8.4%
Houses	66.4%	68.5%
Small non-residential	2.4%	0.9%
Medium and low-impact non-residential	3.4%	3.2%
Large non-residential	5.9%	8.2%
Very large non-residential	3.8%	4.5%
Largest non-residential	1.7%	6.3%

Table 10.7	Contribution of stormwater revenue compared to billable area by
	customer type

Note: We note that our estimates use a variety of data sources across different year. It is the best available information we have to report these statistics. The area data is from 2011 and the customer numbers are from June 2012 forecasts for 2015-16.

Source: Sydney Water Annual Information Return, June 2014; February 2011 Stormwater Area Model and February 2011 Non-residential property data.

Response on broadening the stormwater customer base

Sydney Water is not proposing to broaden the stormwater customer base over the 2016 determination period. However, it has raised questions regarding the future of stormwater pricing, particularly whether the beneficiaries of stormwater services extend beyond the customers that currently pay for these services.

We have commented on funding arrangements in a number of forums³⁷² and have developed a funding approach based on a hierarchy where:

- preferably, the impactor/risk creator should pay (including where government agencies are risk creators)
- if that is not possible, the beneficiary should pay (direct beneficiaries before indirect beneficiaries)
- as a last resort, taxpayers should pay.³⁷³

Accordingly, we do not support spreading stormwater infrastructure costs across water and wastewater customers. Changes to the built environment create the need for stormwater infrastructure. Therefore, residential and non-residential customers within Sydney Water's stormwater area that are causing changes to the built environment should pay for the stormwater infrastructure that services them.

³⁷² IPART, Submission to the Productivity Commission's review of natural disaster funding arrangements, June 2014.

³⁷³ IPART, Submission to the Productivity Commission's review of natural disaster funding arrangements, June 2014, p 3.

We do not propose to consult stakeholders on this issue for this review. Given that Sydney Water's stormwater proposal is a long-term plan, we would like interested stakeholders to have time to consider the issue of stormwater pricing for future reviews.

IPART seeks comments on the following

- 48 Are Sydney Water's proposed stormwater charges reasonable?
- 49 Should stormwater charges transition further towards strict area-based charges?

10.7 Customer bill impacts of Sydney Water's proposed prices

Sydney Water indicated that under its proposal, average annual residential water and wastewater bills would be:

- ▼ \$1,114 a year for customers with a free-standing house who use 220 kL of water a year. This is \$105 or 8.6% lower than the average bill for these customers in 2015-16 (see Figure 10.6).
- ▼ \$996 a year for customers with an apartment who use 160 kL of water a year. This is \$86 or 7.9% lower than the average bill for these customers in 2015-16.³⁷⁴





Data source: Sydney Water pricing proposal to IPART, June 2015, p iv.

³⁷⁴ Sydney Water pricing proposal to IPART, June 2015, pp iii-iv.

Assuming inflation of 2.5% a year, Sydney Water estimated that its proposal would mean most households experience a nominal increase in their annual water and wastewater bill of only \$11 or 0.9% by the end of the 4-year period (see Table 10.8). According to Sydney Water, this represents a much slower rate of increase than for other household items.³⁷⁵ Given the proposed reduction in the water usage charge, large water users will benefit more from the proposed price changes than small users.

	2015-16	2016-17	2017-18	2018-19	2019-20
160kL/year	1,082	1,021	1,046	1,072	1,099
Annual change		-5.6%	2.5%	2.5%	2.5%
Change from 2015-16					1.6%
200kL/year	1,173	1,102	1,129	1,157	1,187
Annual change		-6.1%	2.5%	2.5%	2.5%
Change from 2015-16					1.1%
220kL/year	1,129	1,142	1,170	1,200	1,230
Annual change		-6.3%	2.5%	2.5%	2.5%
Change from 2015-16					0.9%
160kL/year unit with stormwater ^a	1,113	1,053	1,078	1,104	1,131
Annual change		-5.5%	2.4%	2.4%	2.4%
Change from 2015-16					1.5%
220kL/year house with stormwatera	1,305	1,228	1,256	1,285	1,315
Annual change		-5.9%	2.3%	2.3%	2.3%
Change from 2015-16					0.7%

Table 10.8Residential water and wastewater bills under Sydney water's
proposed prices (\$ nominal)

^a 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. 160kL/year is average usage for a unit, 220kL/year is average for a house and 200kL/year is average for residential.

Source: Sydney Water pricing proposal to IPART, June 2015, p 103; Sydney Water Annual Information Return, June 2015; and IPART's analysis.

Non-residential customers' bill impacts depend on their meter size and discharge factors as well as their water and wastewater usage. Sydney Water modelled the impact of its proposed prices on different types of non-residential customers and found that approximately:

- 43% would see a real reduction of up to 10% on their annual bill in 2016-17 (in real terms)
- ▼ A small proportion (about 6.5%) of non-residential customers would experience greater reductions (35% to 39%).³⁷⁶

³⁷⁵ Sydney Water pricing proposal to IPART, June 2015, p 103.

³⁷⁶ Sydney Water pricing proposal to IPART, June 2015, p 107.

Sydney Water notes that there is no typical non-residential customer. Non-residential customers range from large industrial manufacturers to commercial offices, small food outlets, schools and hospitals. Water use and wastewater discharge vary greatly across and within those groups.³⁷⁷

To model the impact of its proposed price changes on the non-residential sector, Sydney Water identified six significant non-residential segments (see Table 10.9). Taken together, these segments cover about 74% of total non-residential revenue and 76% of the non-residential customer base.³⁷⁸ We consider Sydney Water's approach and analysis of bill impacts on the non-residential sector for this review to be a significant improvement on that for previous reviews.

Customer segment	Туре	Meter size	Average annual usage (kL)	Discharge factor
		(mm)	0 ()	(%)
Industrial	Low	20	200	82
	Medium	40	5,800	77
	High	80	26,000	69
Commercial	Low	20	310	83
	Medium	50	6,700	82
	High	80	21,000	82
Public hospital	Medium	80	20,000	89
	High	100	33,000	89
Private school	Low	50	7,700	84
	Medium	80	24,000	85
	High	100	35,000	83
Commercial strata unit	Low	20	130	80
	Medium	25	180	81
	High	40	2,100	88
Industrial strata unit	Low	20	75	80
	Medium	25	90	80
	High	50	32,000	69

 Table 10.9
 Sydney Water's significant non-residential segments

Source: Sydney Water pricing proposal to IPART, June 2015, p 105.

In nominal terms, Sydney Water indicated that under its pricing proposal, typical non-residential customers are likely to experience an initial reduction in bills, which will gradually increase. Non-residential customers with standalone 20 mm meters would experience similar changes to their bills as residential customers. In general, other non-residential customers would experience larger reductions in their bills, due to the significant proposed reduction in their service charges. Table 10.10 shows Sydney Water's analysis of the bill impacts of its proposed prices for each of the significant non-residential customer types.

³⁷⁷ Sydney Water pricing proposal to IPART, June 2015, p 104.

³⁷⁸ Sydney Water pricing proposal to IPART, June 2015, p 104.

Customer type	Туре	2015-16	2016-17	2017-18	2018-19	2019-20
Industrial	Low	1,173	1,102	1,129	1,157	1,186
	Annual change		-6.1%	2.5%	2.5%	2.5%
	Medium	21,604	18,646	19,112	19,590	20,080
	Annual change		-13.7%	2.5%	2.5%	2.5%
	High	92,557	80,571	82,586	84,650	86,767
	Annual change		-12.9%	2.5%	2.5%	2.5%
Commercial	Low	1,425	1,324	1,357	1,391	1,425
	Annual change		-7.1%	2.5%	2.5%	2.5%
	Medium	27,232	23,069	23,646	24,237	24,843
	Annual change		-15.3%	2.5%	2.5%	2.5%
	High	82,504	70,909	72,682	74,499	76,362
	Annual change		-14.1%	2.5%	2.5%	2.5%
Public hospital	Medium	82,028	70,214	71,969	73,768	75,612
	Annual change		-14.4%	2.5%	2.5%	2.5%
	High	134,071	115,187	118,067	121,019	124,044
	Annual change		-14.1%	2.5%	2.5%	2.5%
Private school	Low	30,723	26,260	26,917	27,590	28,280
	Annual change		-14.5%	2.5%	2.5%	2.5%
	Medium	93,369	80,836	82,857	84,929	87,052
	Annual change		-13.4%	2.5%	2.5%	2.5%
	High	136,724	117,968	120,917	123,940	127,038
	Annual change		-13.7%	2.5%	2.5%	2.5%
Commercial strata unit	Low	1,013	960	984	1,009	1,034
	Annual change		-5.2%	2.5%	2.5%	2.5%
	Medium	1,943	1,277	1,308	1,341	1,375
	Annual change		-34.3%	2.5%	2.5%	2.5%
	High	10,720	8,489	8,701	8,919	9,142
	Annual change		-20.8%	2.5%	2.5%	2.5%

Table 10.10	Non-residential water and wastewater bills under Sydney water's
	proposed prices (\$ nominal)

Customer type	Туре	2015-16	2016-17	2017-18	2018-19	2019-20
Industrial strata unit	Low	887	849	870	892	915
	Annual change		-4.3%	2.5%	2.5%	2.5%
	Medium	1,720	1,086	1,113	1,141	1,169
	Annual change		-36.9%	2.5%	2.5%	2.5%
	High	106,269	95,932	98,330	100,789	103,308
	Annual change		-9.7%	2.5%	2.5%	2.5%

Note: Inflation is estimated to be 2.5% per annum over the 2016 period.

Source: Sydney Water pricing proposal to IPART, June 2015, p 107. IPART has calculated the annual percentage changes.

11 Prices – other services

In addition to its main water, sewerage and stormwater services, Sydney Water provides a range of other services for which we regulate its prices. These include:

- non-residential trade waste charges
- miscellaneous and ancillary charges
- charges for the Rouse Hill Area
- unfiltered water charges
- unmetered water charges, and
- minor service extension 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.³⁷⁹ 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.

As part of the 2012 Determination, we undertook a comprehensive review of Sydney Water's trade waste charging arrangements. As part of this review, we conducted detailed stakeholder consultations, including two workshops with Sydney Water and key trade waste stakeholders to discuss proposed changes to charges.³⁸⁰ We also engaged a consultant, Deloitte, to review Sydney Water's proposed trade waste charges.

³⁷⁹ A domestic equivalent is a concentration or level that is the same as would be found in household wastewater.

³⁸⁰ IPART, Review of Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Final Report, June 2012, p 135.

As a result of our review in the 2012 Determination, we set maximum prices for Sydney Water's trade waste charges at cost-reflective levels. In some cases, we transitioned prices to cost-reflective levels over the determination period to minimise impacts on customers.³⁸¹

11.1.1 Sydney Water's proposal on trade waste charges

Sydney Water forecast that its trade waste revenue will increase by \$700,000 in 2016-17 (from \$30.5 million to \$31.2 million), then remain constant in real terms until 2019-20.³⁸² This forecast reflects its proposal to make minor changes to its trade waste charging structure in 2016-17, and its intention to keep these charges flat in real terms throughout the 2016 determination period.³⁸³

Sydney Water's proposed changes to the trade waste charging structure include:

- reducing the number of audit inspections and corresponding industrial agreement charges for Risk Index 6 and 7 customers
- reducing the substance charge for commercial ship to shore activity to \$0.00, and
- reclassifying shopping centres with sophisticated centralised onsite pretreatment as industrial customers (ie, as Risk Index 6 customers) from their current status as commercial customers.³⁸⁴

Sydney Water also proposed to include "pre-treatment not maintained in accordance with requirements" as an explicit commercial activity code. This 'charge' is not new and was previously included in the 2012 Determination as a footnote to the table of pollutant charges for commercial customers.³⁸⁵

In our 2012 Determination, we requested that Sydney Water provide evidence at the next pricing review that the higher wastesafe charge for customers with waste traps of more than 2 kL is appropriate.³⁸⁶ Sydney Water noted that the main reason for the higher charge is that larger pits require two staff to attend on-site inspections in order to meet work, health and safety standards.³⁸⁷

³⁸¹ IPART, Review of Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Final Report, June 2012, pp 135-136.

³⁸² Sydney Water pricing proposal to IPART, June 2015, p 97.

³⁸³ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 16. However, due to the lower than expected inflation rate used to forecast 2015-16 prices, the proposed price level for 2016-17 is around 0.4% higher than current prices.

³⁸⁴ Sydney Water pricing proposal to IPART - Appendices, June 2015, pp 16-17.

³⁸⁵ IPART, Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Determination, No. 1, 2012, p 54.

³⁸⁶ The missed service inspection charge for customers with liquid waste traps over 2 kL is approximately double that for customers with liquid waste traps less than 2 kL. IPART, *Review* of Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Final Report, June 2012, p 147.

³⁸⁷ Sydney Water pricing proposal to IPART, June 2015, p 306.

The full list of Sydney Water's proposed trade waste charges is provided in Appendix I.

11.1.2 IPART's response on trade waste charges

As noted above, we conducted an extensive review of trade waste charges as part of the 2012 price review. Given this review, and the relatively minor nature of Sydney Water's proposed changes to these charges over the 2016 determination period, we are inclined to accept Sydney Water's proposal.

This preliminary position is subject to feedback from stakeholders on the proposed changes, as well as the findings of our own high-level review.

IPART seeks comments on the following

50 Are Sydney Water's proposed changes to trade waste charges reasonable?

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 2.1% of the \$9.7 billion it seeks to recover over 2016-20.³⁸⁸

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 23.³⁸⁹

For the 2016 price review, Sydney Water proposed to introduce a number of new charges – including a late payment fee and a credit card payment fee – and to make a range of adjustments to its existing miscellaneous and ancillary service charges.

11.2.1 Sydney Water's proposal to introduce late payment fee

Sydney Water proposed to introduce a cost-reflective late payment fee of \$4.10 or interest accrued to overdue bills (whichever is the greater). It indicated that this will reduce administration time and costs, as well as create an incentive for prompt payment of bills.³⁹⁰

³⁸⁸ Sydney Water pricing proposal to IPART, June 2015, p 20; and IPART calculations.

³⁸⁹ Sydney Water pricing proposal to IPART - Appendices, June 2015, pp 20-21.

³⁹⁰ Sydney Water pricing proposal to IPART, June 2015, p 95.

Currently, late bills attract interest but no explicit charge to recover costs. Sydney Water contended that this is not enough of a deterrent. It noted that approximately 15% of customers do not pay by the time their bills are 28 days overdue.³⁹¹

Sydney Water reported that late payment of bills increases its operating costs, including its borrowing costs. It estimated that in 2013-14, late payments cost \$2.5 million in interest on borrowings.³⁹² In contrast, Sydney Water received approximately \$2 million in revenue from interest charged to overdue bills.³⁹³

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. In addition, Sydney Water will notify customers about the fee on bills and in other public materials.³⁹⁴

Sydney Water argued that late payment fees are common across all other utility industries. It indicated that the \$4.10 late fee it proposed is smaller than equivalent fees levied by other utilities, including AGL (for electricity and gas), Origin/Integral, Energy Australia and Optus.³⁹⁵

To protect customers experiencing financial hardship, Sydney Water indicated that it will apply the same exclusions contained in the National Energy Consumer Framework (NECF) with some additional provisions. Specifically, it 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 to pay by instalments or another payment plan
- part of the bill is being paid using its payment assistance scheme
- it 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 its BillAssist program
- the customer has been identified as being in hardship
- the customer pays by Direct debit, or
- EWON has asked it to waive the fee.³⁹⁶

³⁹¹ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 26.

³⁹² Sydney Water pricing proposal to IPART - Appendices, June 2015, p 27.

³⁹³ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 29. This implies that the additional costs (ie, administration costs and \$0.5 million for interest) are borne by all customers.

³⁹⁴ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 29.

³⁹⁵ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 26.

³⁹⁶ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 28.

These measures would be in addition to Sydney Water's current policies, including concessions for pensioners.³⁹⁷

11.2.2 IPART's response on late payment fee

Sydney Water has the provision to charge a maximum late payment fee under the customer contract (schedule 4.4.5).³⁹⁸ However, the customer contract notes that the maximum late payment fee must be **specified** by IPART as part of a review conducted under the IPART Act.³⁹⁹

Subject to receiving a referral from the Government to conduct a review of the late payment fee, we will consider whether Sydney Water's proposed late payment fee is cost-reflective (ie, whether it reflects the efficient administration and interest costs associated with the late payment of fees). In addition, we will consider the impact on different customer groups of any terms and conditions for the charging of the late payment fee under the customer contract.

Currently, the residual cost incurred by Sydney Water from late payments is recovered through the operating expenditure allowance and spread across all customers (ie, including those that pay bills on time). Sydney Water estimated that its proposed late payment fee would raise \$6.8 million in additional miscellaneous and ancillary revenue over the 2016 determination period.⁴⁰⁰ Therefore, we would need to consider the implications of any revenue adjustment and impact on working capital.

We note that 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.⁴⁰¹ Our preliminary view is that Sydney Water's proposal appears to comply with these provisions of the operating licence.

³⁹⁷ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 27.

³⁹⁸ IPART, Sydney Water Corporation Operating Licence 2015-20, Schedule 4 - Customer Contract, July 2015, p 14.

³⁹⁹ Late payment fees are not within the remit of our determination of Sydney Water's maximum prices (ie, under section 11 of the IPART Act). This is because interest on an overdue account cannot be characterised as part of the consideration exchanged for the provision of a monopoly service. To undertake a review of Sydney Water's proposed late payment fee, we require a Ministerial referral under section 12A of the IPART Act (and accompanying terms of reference). We have written to the NSW Premier to request this referral, and to also request a referral to review the maximum level of Sydney Water's dishonoured payment fee (contained in its schedule of miscellaneous and ancillary charges – see Appendix J). If we receive a Ministerial referral, we will review the charges concurrent to this 2016 review of the maximum prices for Sydney Water's water, wastewater and stormwater drainage services.

⁴⁰⁰ Sydney Water pricing proposal to IPART, June 2015, p 95.

⁴⁰¹ IPART, Sydney Water Corporation Operating Licence 2015-20, Schedule 4 - Customer Contract, July 2015, p 14.

IPART seeks comments on the following

- 51 Is Sydney Water's proposed late payment fee reasonable?
- 52 What type of customers should be exempt from late payment fees?

11.2.3 Sydney Water's proposal to introduce credit card payment fee

Sydney Water proposed to introduce a credit card payment fee. According to Sydney Water, this is in response to a direction from NSW Treasury (in May 2012) to NSW Government agencies and State Owned Corporations (SOCs) to recoup their merchant interchange fees.⁴⁰² Merchant interchange fees are incurred by SOCs and government agencies when they accept credit card payments from the public or customers.

The NSW Government requires recoupment of these fees through surcharging for payments accepted using debit or credit cards issued by card schemes such as Visa, MasterCard, American Express and Diners. This does not include payments accepted using ATM cards issued by banks and other deposit taking institutions.⁴⁰³

Sydney Water proposed to levy the credit card payment fee from 1 July 2016. It 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.⁴⁰⁴

Sydney Water did not introduce the fee in 2012 (as per the direction) because it has been recovering the costs of merchant interchange fees through the regulatory operating expenditure allowance set as part of our 2012 Determination. For the 2016 period, it has deducted \$1.5 million from its proposed operating costs, as it expects to recover these costs directly through the fee.⁴⁰⁵

11.2.4 IPART's response on credit card payment fee

Our view is to not regulate the maximum amount of a credit card payment fee levied by Sydney Water. We note that customers for the most part can avoid the credit card fee as they have a choice of payment methods.

As Sydney Water indicated, NSW Treasury directed all government agencies to impose surcharges on a cost-recovery basis to recoup their merchant interchange

⁴⁰² NSW Treasury, Treasury Circular, 24 May 2012.

⁴⁰³ NSW Treasury, Treasury Circular, 24 May 2012.

⁴⁰⁴ Sydney Water pricing proposal to IPART, June 2015, p 160.

⁴⁰⁵ Sydney Water pricing proposal to IPART, June 2015, p 160.

11 Prices – other services

fees in May 2012.⁴⁰⁶ While our understanding is that the direction refers only to government agencies and not SOCs, Sydney Water's proposal is consistent with the current rates of 0.4% set by NSW Treasury.

We will assess whether Sydney Water's \$1.5 million deduction to proposed operating costs is sufficient to offset the introduction of this fee, as part of our expenditure review.

11.2.5 Sydney Water's proposal to adjust existing miscellaneous and ancillary charges

In addition to introducing a late payment fee and credit card payment fee (as discussed above), Sydney Water proposed a range of adjustments to its existing miscellaneous and ancillary charges. These include:

- changing the provision of property sewerage diagrams from a regulated service to a non-regulated service
- discontinuing a number of plumbing-related services
- introducing online trade for a group of services
- increasing the price of two application charges by approximately 11%
- disaggregating the development requirements application charge into two separate charges.

Sydney Water also proposed to introduce:

- ▼ a remote meter reading service with related charges for properties with inaccessible meters, and
- ▼ a hot water meter reading service for multi-level individually metered properties and that this service be unregulated.⁴⁰⁷

Whilst Sydney Water has outlined its proposed charges for the hot water meter reading service, it prefers that this service be unregulated.

Sydney Water's proposed prices for the existing miscellaneous and ancillary services have marginally reduced in total as a result of cost efficiencies from improved processes and online trading.⁴⁰⁸ According to Sydney Water, this would result in a \$1 million real revenue reduction in 2016-17, with revenue then forecasted to remain constant until 2020.

The full list of Sydney Water's proposed miscellaneous and ancillary charges, including the late payment fee, is shown in Appendix J.

⁴⁰⁶ NSW Government, Treasury Circular (NSW TC 12/13), Agency recouping of merchant interchange fees, 24 May 2012.

⁴⁰⁷ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 24.

⁴⁰⁸ Sydney Water pricing proposal to IPART, June 2015, p 95.

11.2.6 IPART's response on existing miscellaneous and ancillary charges

As noted above, Sydney Water conducted an extensive review of miscellaneous and ancillary charges for the 2012 Determination. This included analysing customer requirements and calculating the cost of providing services in line with cost-reflective pricing principles.

In the review, Sydney Water used pricing principles that differed slightly from IPART's established method.⁴⁰⁹ In particular, it calculated business unit overheads as a cost per transaction rather than as a percentage of direct costs. Sydney Water considered this approach superior as it meant that overhead costs would not vary across services, depending on the cost of direct inputs.⁴¹⁰

At the time, we considered that Sydney Water's charging method was generally a reasonable interpretation of our pricing principles, appropriate for its own circumstances.⁴¹¹ However, we identified a minor issue of principle with Sydney Water's approach that we intend to consider for this review. Specifically, we disagreed with Sydney Water's decision to exclude corporate overheads from its calculation of miscellaneous charges, as it results in a cross-subsidy from other customers for these costs.⁴¹²

Our preliminary position is that most of Sydney Water's proposed adjustments to its existing miscellaneous and ancillary charges appear reasonable, and in line with its previous efforts to reduce administrative costs and simplify the application process for customers. However, this view is subject to our further evaluation of the proposal, as well as consideration of stakeholder feedback.

We note that while Sydney Water indicated that it intended to maintain most miscellaneous and ancillary charges at their current level in real terms, the majority of prices proposed in 2016-17 are slightly higher than current prices. This is because the expected 2015-16 inflation rate used by Sydney Water in forecasting was higher than IPART's forecasted inflated rate. A full account of the variance is contained in the schedule of proposed miscellaneous and ancillary charges, under Appendix J.

We also intend to consider the rationale and cost-reflectiveness of the new charges that Sydney Water has proposed, as well as its proposals for certain charges to be unregulated. In doing so, we will seek further information from Sydney Water as required. For example, it will be necessary to ascertain whether

⁴⁰⁹ Our Pricing Principles for Miscellaneous Charges used the following formula: [(direct cost of labour including on costs + transport equipment) x (business unit overheads)] + direct material cost. IPART, *Pricing principles for miscellaneous charges*, September 2004.

 ⁴¹⁰ IPART, Review of Sydney Water Corporation's water, sewerage, stormwater drainage and other services
 – Final Report, June 2012, p 150.

 ⁴¹¹ IPART, Review of Sydney Water Corporation's water, sewerage, stormwater drainage and other services
 – Final Report, June 2012, p 151.

⁴¹² IPART, Review of Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Final Report, June 2012, p 150.

the quarterly remote reading charges are intended to be levied on applicable properties in perpetuity. If so, we will need to consider whether this is an appropriate method of recovering the costs of fitting an automatic meter read meter to a property, which is what these charges are designed to recover.⁴¹³

IPART seeks comments on the following

53 Are Sydney Water's proposed changes to its miscellaneous and ancillary charges reasonable?

11.3 Charges for the Rouse Hill Area

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. At present, Sydney Water owns and manages the trunk drainage services in the area as well as a large amount of flood-prone land.⁴¹⁴

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 cleaning out trash racks, 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.

Under the current determination, both charges are to be levied upon properties within the Rouse Hill Area (defined in Schedule 8 and the map in Attachment A of the 2012 Determination).⁴¹⁵ In its pricing proposal, Sydney Water has raised issue with the current boundaries of the Rouse Hill Area (outlined below).

Sydney Water also noted that the price for stormwater services in the Rouse Hill Area is more than for stormwater services in a declared stormwater drainage area, reflecting the difference in costs to build, operate and maintain the Rouse Hill system.⁴¹⁶

11.3.1 Rouse Hill stormwater drainage charge

Sydney Water's proposal on Rouse Hill stormwater drainage charges

Sydney Water proposed to maintain the stormwater drainage charge for Rouse Hill in real terms at \$140.33 per year.⁴¹⁷ However, due to the lower than expected

⁴¹³ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 25.

⁴¹⁴ It also manages flood-prone land owned by other parties. IPART, *Review of Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Final Report*, June 2012, p 124.

⁴¹⁵ They are not stormwater drainage charges for the purposes of s65 of the Sydney Water Act 1994.

⁴¹⁶ Sydney Water pricing proposal to IPART, June 2015, p 289.

⁴¹⁷ Sydney Water pricing proposal to IPART, June 2015, p 17.
inflation rate used to forecast 2015-16 prices, the proposed price level for 2016-17 is around 1% higher than current prices.

Sydney Water noted that it found at the 2012 Determination that the charge under-recovered operating expenditure in the past, but if maintained in real terms, the charge would recover all cumulative operating expenditure by 2022-23.⁴¹⁸

Sydney Water also noted that although it proposed no change to the Rouse Hill stormwater charge, the 2012 Determination contains an anomaly (compared with regular stormwater charges) that disadvantages large non-residential customers (over 1,000m²) in Rouse Hill.⁴¹⁹

These customers are currently subject to a fixed charge multiplied by area (ie, land size/1,000m²).⁴²⁰ In contrast, equivalent customers within a declared stormwater area face an effective price cap. Further, these customers are eligible for a reduced charge (equal to that for a 1,000m² site) when they have taken steps to reduce the impact of their stormwater run-off and meet Sydney Water's assessment criteria.⁴²¹ This discount is not available for Rouse Hill customers.

Sydney Water stated that, because of this anomaly, it currently charges Castlebrook Memorial Gardens a reduced Rouse Hill stormwater drainage charge equivalent to that for non-residential customers with a land size of 1,000m².⁴²² This customer has a very large site in Rouse Hill (of approximately 360,000m²), for which it has invested in collecting, treating, storing and re-using stormwater on-site. The size of the reduction for Castlebrook Memorial Gardens is large (representing approximately \$46,923 in 2013-14), and was approved by the NSW Treasurer in June 2014.⁴²³

IPART's response on Rouse Hill stormwater drainage charges

In its 2012 pricing submission, Sydney Water presented the results of modelling it had completed on historical operating costs for the Rouse Hill stormwater trunk drainage system.⁴²⁴ As noted above, it found that the stormwater drainage charge would recover all cumulative operating expenditure by 2022-23. As a result, Sydney Water proposed to maintain the charge in real terms over 2012 determination period.

⁴¹⁸ Sydney Water pricing proposal to IPART, June 2015, p 101.

⁴¹⁹ Sydney Water pricing proposal to IPART, June 2015, p 290.

 ⁴²⁰ IPART, Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services
 – Determination No. 1, June 2012, p 46.

 ⁴²¹ IPART, Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services
 – Determination No. 1, June 2012, p 43.

⁴²² Sydney Water pricing proposal to IPART, June 2015, pp 289-290.

⁴²³ Sydney Water pricing proposal to IPART, June 2015, pp 289-290, and IPART calculations.

⁴²⁴ Sydney Water pricing proposal to IPART, June 2015, p 101.

We accepted this proposal, although we noted the limitations inherent in Sydney Water's modelling process. These limitations included that only one year of actual data was used to reconstruct figures over a 30-year period.⁴²⁵ Given that Sydney Water has again sought to maintain the charge over 2016-20, we intend to review how actual costs have measured up against the forecasts contained in the model.

IPART seeks comments on the following

54 Is the proposed level of the Rouse Hill stormwater drainage charge reasonable?

11.3.2 Rouse Hill stormwater drainage charge (Rouse Hill land charge)

The Rouse Hill stormwater drainage charge (Rouse Hill land charge) was introduced in the 2012 Determination, and is applicable to new properties in the Rouse Hill Area for five years following the date of connection.⁴²⁶

We established this charge on the principle that:

- The costs of future land purchases by Sydney Water for drainage and stormwater management in Rouse Hill are to be borne by new residents, given that such land is used to protect their properties from flooding.
- Capital expenditure on drainage-related civil works in the Rouse Hill Area are to be shared by all of Sydney Water's wastewater customers, as this improves the quality of water entering the Hawkesbury-Nepean River system (which indirectly benefits all of Sydney Water's customers).

Accordingly, the Rouse Hill land charge was set at \$969 a year (\$2012–13), based on estimates that Sydney Water would need to acquire 50 hectares of land (approximately 70% of forecasted capital expenditure).⁴²⁷ The charge was to apply to all new properties connected to Sydney Water's systems between July 2012 and June 2022. The remaining 30% of forecasted capital expenditure for civil projects⁴²⁸ was allocated to the wastewater RAB to be recovered from all wastewater customers.⁴²⁹

 ⁴²⁵ IPART, Review of Sydney Water Corporation's water, sewerage, stormwater drainage and other services
 – Final Report, June 2012, p 125.

⁴²⁶ Before 2008, capital costs for the Rouse Hill stormwater drainage system were recovered through a developer charge. Sydney Water levied this charge to all development that drained to the stormwater system. However, these costs were no longer able to be recovered when the NSW Government set all developer charges to zero in 2008. IPART, *Review of Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Final Report*, June 2012, p 126.

 ⁴²⁷ IPART, Review of Sydney Water Corporation's water, sewerage, stormwater drainage and other services
 – Final Report, June 2012, p 128.

⁴²⁸ Civil projects include constructing grass lined channels or artificial wetlands) and the provision of trash racks to remove rubbish from the water.

 ⁴²⁹ IPART, Review of Sydney Water Corporation's water, sewerage, stormwater drainage and other services
 – Final Report, June 2012, p 128.

In August 2013, in response to concerns raised by affected customers, the NSW Government sought to reduce the land charge and asked Sydney Water to reconsider the amount of land needed to carry out stormwater drainage and flood mitigation in the Rouse Hill Area. Based on information available at the time, the 50 hectares nominated for acquisition was reduced to 11 hectares.⁴³⁰ This reduced the land charge to \$237 a year (\$2012–13) and was backdated to 1 July 2012. The NSW Treasurer approved this in August 2013.⁴³¹

Sydney Water's proposal on Rouse Hill land charge

Sydney Water proposed to maintain the Rouse Hill land charge at its current level of \$249.97 per year in real terms over the 2016 determination period.⁴³² However, to achieve this it proposed to:

- allocate an additional \$17.1 million of land acquisition costs to the wastewater RAB in 2016-17, given it has upwardly revised estimates of the land it requires to 19 hectares (from the 11 hectares recovered through the current rate)
- ▼ extend the recovery period for capital costs related to the Rouse Hill stormwater drainage system by four years (from 2021-22 to 2025-26).

If the charging principles that we established for Rouse Hill in 2012 were to be applied, the additional costs would be recouped entirely through the Rouse Hill land charge. Sydney Water calculated that this would increase the current annual charge to \$533.70.⁴³³ Also, it stated that without the extended recovery period from customers, the additional land costs proposed to be included in the 2015-16 wastewater RAB would need to be increased by \$2.5 million to \$19.6 million.⁴³⁴

Sydney Water argued that such an increase would impose an excessively large burden on Rouse Hill customers. It estimated that its proposed approach of recovering the additional land acquisition costs from all customers would increase general wastewater bills by approximately \$0.40 per customer.

Sydney Water signalled its intention to maintain the charging principle established for civil works costs in the 2012 Determination. Specifically, it proposed to allocate the full amount of expenditure on drainage-related civil works to the wastewater RAB over 2016-20, to be shared by all of Sydney Water's wastewater customers.⁴³⁵

⁴³⁰ Sydney Water pricing proposal to IPART, June 2015, p 289.

⁴³¹ Sydney Water pricing proposal to IPART, June 2015, p 289.

⁴³² Sydney Water pricing proposal to IPART - Appendices, June 2015, p 15.

⁴³³ Assuming a cost recovery period for capital costs related to the Rouse Hill stormwater drainage system that extends to 2025-26. Sydney Water pricing proposal to IPART, June 2015, p 102.

⁴³⁴ Sydney Water pricing proposal to IPART, June 2015, p 294.

⁴³⁵ Sydney Water pricing proposal to IPART, June 2015, p 294.

IPART's response on Rouse Hill land charges

Our preliminary position is that if the costs of land acquisition for the Rouse Hill stormwater drainage system are not borne fully by new Rouse Hill residents, Sydney Water should bear those costs. These costs should not be passed through to all wastewater customers.

Under Sydney Water's proposal, wastewater customers would already contribute significantly to the costs of the Rouse Hill system. In particular, Sydney Water proposed that \$24.1 million of capital expenditure for drainage-related civil works in Rouse Hill be added to the wastewater RAB over the 2016 determination period. These costs would be in addition to the \$17.1 million for land acquisition it proposed to recover through higher wastewater charges.

For this review, we intend to determine the suitable level of the Rouse Hill land charge as well as the length of time it should be levied upon new residents. In order to do this, we have requested Sydney Water's modelling for our detailed review. In addition, we intend to seek clarification as required on key aspects of the proposal. For example, why has Sydney Water proposed to extend the capital cost recovery period by four years? Does it expect that the Rouse Hill Area will be largely developed (ie, with little capacity for new greenfield projects) by 2025-26? If so, this extension may align with the principle underlying the land charge.

In addition, we will investigate whether forecast costs for drainage civil capital expenditure in Rouse Hill over 2016 to 2020 represents prudent and efficient expenditure, noting that these forecasts are far above those incurred during the current determination period (ie, \$24.1 million as opposed to \$2.5 million).⁴³⁶

IPART seeks comments on the following

55 Who should pay the additional costs of land acquisition for the stormwater drainage system in Rouse Hill?

11.3.3 Rouse Hill Area boundary

Sydney Water's proposal on the Rouse Hill Area boundary

Sydney Water has notified us that it is not currently applying the stormwater drainage charge and the land charge to all customers within the Rouse Hill Area.⁴³⁷ This area is defined in the map under Attachment A of the 2012 Determination.

Under the current determination, both charges are to be levied upon properties within the Rouse Hill Area. However, Sydney Water identified a discrepancy in

⁴³⁶ Sydney Water pricing proposal to IPART, June 2015, pp 86-87 and IPART calculations.

⁴³⁷ Sydney Water pricing proposal to IPART, June 2015, pp 291-292.

2013 between the map published in Attachment A of the 2012 Determination and the actual stormwater catchment in Rouse Hill.⁴³⁸

Since this discrepancy was found, Sydney Water has only levied the stormwater charges on properties that fall within both the stormwater catchment area and the Determination map.⁴³⁹ According to Sydney Water, this has resulted in an estimated 2,300 Rouse Hill customers inside the stormwater catchment area not being charged (as shown in Table 11.1).

Categories	Customers (2014-15) ^a	Customer growth ^b	Boundary change	Customers (2015-16) ^c
Residential	24,378	-	1,645	26,023
Industrial	1,066	-	567	1,633
Exempt	298	-	37	335
Vacant land	813	-	34	847
Land under development/ occupied land	368	1,200	17	1,585
Total	26,923	1,200	2,300	30,423

Table 11.1 Sydney Water's estimated customer base for the Rouse Hill stormwater drainage charge

a As measured at 31 December 2014.

b Customer growth refers to estimated growth within the current chargeable area.

c Estimated to be included in the Rouse Hill chargeable area by 1 July 2016.

Source: Sydney Water pricing proposal to IPART, June 2015, p 293.

To rectify this, Sydney Water is seeking to remove the map from the 2016 Determination, and include a clause that states that all Rouse Hill properties that receive stormwater services will be liable for stormwater charges.⁴⁴⁰

If IPART does not agree to remove the map from the determination, Sydney Water has asked that the map is updated to reflect the topographically correct Rouse Hill stormwater catchment area.

Sydney Water estimates that its customer base in Rouse Hill will expand by 3,500 properties in 2016 (as shown in Table 11.1). This includes 1,200 properties within the current chargeable area that Sydney Water expects to be developed before July 2016.⁴⁴¹

⁴³⁸ The actual stormwater catchment referred to was determined in 2011 through topographical mapping by SKM and Sydney Water staff.

⁴³⁹ It also refunded stormwater drainage charges that had been paid since 1 July 2012 to customers whose properties were not within the boundaries of the map in Attachment A. Water pricing proposal to IPART, June 2015, pp 289.

⁴⁴⁰ Sydney Water pricing proposal to IPART, June 2015, p 292.

⁴⁴¹ Sydney Water pricing proposal to IPART, June 2015, p 292.

IPART's response on the Rouse Hill Area boundary

Our preliminary position is that Sydney Water should be able to recover costs from all customers in the Rouse Hill stormwater catchment who are receiving stormwater services. This is consistent with the intent of our previous determination, where charges were based on the beneficiary pays principle.

However, we are not inclined to support removing the Rouse Hill boundary map (and the accompanying definition currently under Schedule 8) from the determination. Rather, we favour amending the map at Attachment A of the 2012 Determination. In line with this, we request an updated map of the actual stormwater catchment area from Sydney Water.

This is because we consider it is important to visually define the area for which the two stormwater charges apply, in order to ensure customer certainty and transparency. Further, we note that there is an obligation contained in Sydney Water's current operating licence for us to identify the area of land located in the Rouse Hill stormwater catchment.⁴⁴²

These initial views are subject to our further evaluation of the proposal, as well as consideration of stakeholder feedback.

11.4 Unfiltered water charges

Unfiltered water is water that has chemical treatment, but not at a water filtration plant. Sydney Water currently only sells a small amount of unfiltered water to BlueScope Steel's Port Kembla plant in Wollongong.⁴⁴³

11.4.1 Sydney Water's proposal on unfiltered water charges

Sydney Water proposed to maintain the current approach of charging unfiltered water at a \$0.30 per kL discount to drinking water. It also proposed to maintain the current structure of unfiltered water charges, which includes:⁴⁴⁴

- a fixed service charge set at the same level as the fixed service charge for potable water, based on meter size, and
- a usage charge set at \$0.30 per kL less than the usage charge for potable water (to reflect the difference in treatment costs).

⁴⁴² 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.

⁴⁴³ Sydney Water pricing proposal to IPART, June 2015, p 100.

⁴⁴⁴ Sydney Water pricing proposal to IPART, June 2015, p 100.

Given Sydney Water's proposed reduction in the water usage charge to \$1.97 per kL, the unfiltered water charge would be \$1.67 per kL over the 2016 determination period.

11.4.2 IPART's response on unfiltered water charges

The unfiltered water charge is set to reflect an avoided cost, similar to the concept of 'retail minus' pricing for wholesale pricing (discussed in Chapter 12). That is, an unfiltered water customer receives a discount to reflect the reduced water filtration costs Sydney Water incurs in providing unfiltered water.

Although Sydney Water has proposed to retain the \$0.30 per kL discount that we set at the 2012 Determination, we consider there is merit in understanding whether this discount requires revision or updating. We note that the estimated cost per ML of water treated in the SDP cost pass through mechanism in our 2012 Determination is about \$60.84 per ML (or \$0.06 per kL).⁴⁴⁵ We ask that Sydney Water provide justification for maintaining the \$0.30 per kL discount.

IPART seeks comments on the following

56 Is the \$0.30 per kL discount used to calculate the unfiltered water charge still appropriate?

11.5 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 deemed a 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.⁴⁴⁶

If unmetered customers feel that they are consuming less than the deemed amount they are at liberty to have a meter installed. Sydney Water will provide the meter free of charge. However, the customer is responsible for the cost of installation.

⁴⁴⁵ We have inflated the \$56.91/ML cost for 2015-16 from \$2012-13 to \$2015-16 in Sydney Water's 2012 Determination using $\Delta CPI_3 = \left(\frac{\text{Adjusted}CPI_{March2015}}{\text{Adjusted}CPI_{March2015}}\right)$ -1 (ie, 6.9%). IPART, *Prices for Sydney Water*

Corporation's water, sewerage, stormwater drainage and other services, Determination No. 1, June 2012, p 19.

⁴⁴⁶ Sydney Water pricing proposal to IPART, June 2015, p 310.

11.5.1 Sydney Water's proposal on unmetered water charges

Sydney Water proposed maintaining the current approach to charging unmetered properties, which includes:

- a water service charge equivalent to the residential service charge, and
- ▼ 180 kL of deemed water usage per year.

Under Sydney Water's proposed prices, unmetered customers would pay an annual service charge of \$452.96 over the 2016 determination period⁴⁴⁷ (of which \$98.52 would be the residential service charge and the remainder \$354.45 would be the deemed usage component).

11.5.2 IPART's response on unmetered water charges

We consider that unmetered customers should continue to pay a water service charge that reflects the residential service charge (or 20mm equivalent charge, if water and wastewater service charges are rebased on this scale).

We also consider that including a deemed usage component that reflects average residential consumption in the water service is appropriate. However, we note that the average residential consumption has changed since the 2012 Determination. Sydney Water has used the following average consumption levels to present residential bill impacts in its pricing proposal:

- ▼ 160 kL/year for apartments (or residential multi premises), and
- ▼ 220 kL/year for metered single houses.

On this basis, we consider it appropriate to update the usage component of the unmetered charge to reflect these averages. We could either use the average residential consumption of 200 kL or the 220 kL per year for metered single houses on the assumption that most unmetered properties would be houses. We calculate the different bill impacts in Table 11.2 below.

Table 11.2 Estimated unmetered water charges (\$2015-16)

Unmetered water charge	% change from 2015-16 ^a
515.40	
452.96	-12.1%
453.12	-12.1%
492.52	-4.4%
531.92	3.2%
	Unmetered water charge 515.40 452.96 453.12 492.52 531.92

^a We use Sydney Water's proposed water usage charge of \$1.97 per kL to estimate the unmetered water charge.

Source: IPART analysis.

⁴⁴⁷ Sydney Water pricing proposal to IPART - Appendices, June 2015, p 10.

IPART seeks comments on the following

57 Should the 180 kL per year of deemed usage embedded in the unmetered water charge increase to reflect the current average residential consumption of 200 kL per year or the current average consumption for metered single houses of 220 kL per year?

11.6 Minor service extension charges

Minor service extensions are a service provided by Sydney Water to extend the sewerage system and the water supply to properties which are not connected. Owners of those properties must request to be connected.

11.6.1 Sydney Water's proposal on minor service extension charges

Sydney Water's proposal does not address the minor service extension charge.

11.6.2 IPART's response on minor service extension charges

In 2003, we first regulated the price of minor service extensions. We established the following methodology for Sydney Water to set the maximum price, which has not since changed:

Minor service extension charge = $\frac{PV(Capital expenditure) - PV(Revenues-Costs)}{PV(Equivalent tenements)}$

Where:

- PV stands for the present value, and
- the revenues and costs are those attributable to the minor service extension.

Assuming that this charge is still needed (noting its absence from Sydney Water's proposal), we still consider this methodology to remain appropriate, as it mirrors the formula for calculating developer charges. This ensures that minor service extensions are not cross-subsidised by other water and wastewater customers.

IPART seeks comments on the following

58 Should the methodology used to determine minor service extension charges be changed? If so, how and on what basis?

12 Wholesale pricing

Wholesale customers are utilities that buy drinking water and/or wastewater services from Sydney Water,⁴⁴⁸ and then on-sell water and/or wastewater services to end use customers. These wholesale customers are licensed as retail suppliers of water and/or wastewater services under the *Water Industry Competition Act* 2006 (the WIC Act). That is, they act as alternative water and/or wastewater retailers to Sydney Water.

To date, our determinations have set maximum prices for 'residential' and 'nonresidential' properties, with no specific reference to wholesale customers. For this price review, however, we intend to explicitly consider the issue of wholesale pricing.

This chapter outlines Sydney Water's proposal and our preliminary response on wholesale pricing, particularly in relation to two key questions:

- What is appropriate pricing approach for wholesale services?
- Should prices for wholesale services be regulated under the price determination or the access provisions of the WIC Act?

We note that this issue is equally relevant to our concurrent review of Hunter Water's prices, as Hunter Water also has wholesale customers. Our preliminary positions outlined in this chapter are consistent with those in the 'Wholesale pricing' chapter in our Hunter Water Issues Paper.

12.1 Pricing wholesale services

It is important to get wholesale prices right, otherwise prices may:

- encourage inefficient, costly, competition if the price is too low, and
- discourage efficient, beneficial competition if the price is too high.

⁴⁴⁸ It is not currently possible to buy and re-sell stormwater services.

12.1.1 Sydney Water's proposal on wholesale pricing

Sydney Water has argued that wholesale prices should be based on the relevant **retail price minus avoidable costs**, as this ensures the maintenance of postage stamp pricing to Sydney Water's retail customers.⁴⁴⁹

Under a retail minus avoidable costs approach, wholesale customers would be charged Sydney Water's **retail charges** that it would otherwise levy the houses, apartments and businesses being serviced by the wholesale customer **minus** an estimate of the costs that Sydney Water **avoids** as a result of the wholesale customer servicing these retail customers.

Sydney Water noted that IPART is to have regard to the need to promote competition in the supply of the service concerned,⁴⁵⁰ and that this should only apply to efficient competition:

Inefficient entry increases the total costs of supply and average prices. It can lead to lower (or similar) prices for some customers, at the expense of many customers, particularly those who pay geographically-averaged prices.⁴⁵¹

According to Sydney Water:

Deviating from [retail minus avoidable costs] risks encouraging inefficient entry that would place artificial upward pressure on average prices to the remaining customers by reducing the scope to fund services in higher-than-average cost areas from revenues in lower-than-average cost areas. This could amount to a transfer of funds to the private sector with no corresponding benefits to the remaining Sydney Water customers.⁴⁵²

12.1.2 IPART's response on wholesale pricing

There are several different methodologies that could be used to set wholesale prices. These include the following:

- Retail price minus avoided or avoidable costs the retail charges less the costs Sydney Water no longer incurs.
- ▼ **Cost of service** the actual cost of supplying the particular wholesale customer.
- Non-residential charge the non-residential customer charge based on the connection size, as set under our prevailing price determination.

⁴⁴⁹ Under postage stamp pricing, the same kinds of customers within Sydney Water's area of operations are charged the same price for the same service.

⁴⁵⁰ This is a requirement under section 15 (1) (i) of the IPART Act, we also have similar requirements when approving a voluntary access undertaking under section 38 (6) (b) of the WIC Act.

⁴⁵¹ Sydney Water pricing proposal to IPART, June 2015, p 244.

⁴⁵² Sydney Water's pricing proposal to IPART, June 2015, p 245.

 Mixed multi premise charge – the mixed multi premise charge based on the number of properties, as set under our price determination.

Our preferred approach is for wholesale prices to be based on the **retail price minus avoidable costs**. This approach creates the best signals for efficient new entry and competition under retail postage stamp pricing.

Retail price minus avoidable cost

We consider that wholesale customers and access seekers should be charged on a retail-minus avoidable cost basis. The retail minus avoidable cost approach is consistent with the maintenance of postage stamp pricing⁴⁵³ and allows the wholesale customer to compete with the incumbent on the costs of providing the contestable service (or services).

The contestable service is the service the wholesaler is providing (or seeking to provide) to retail customers 'upstream' or 'downstream' of the wholesale services it has purchased from the incumbent utility. Contestable services usually include, for example, retail services (such as billing customers and responding to customer enquiries and complaints).

A key challenge of retail minus pricing is assessing the minus costs associated with each wholesale customer's scheme. Retail minus charges are usually minus **avoided** or **avoidable** costs:⁴⁵⁴

- Avoided costs are the costs that Sydney Water would actually avoid if it no longer directly supplied water or wastewater services to end use customers (ie, short run marginal costs).⁴⁵⁵
- Avoidable costs typically include long term costs that Sydney Water may avoid in the present and future or could have been avoided in the past if the entry of a wholesale customer was expected.⁴⁵⁶

⁴⁵³ The postage stamp price reflects Sydney Water's area-wide average cost of servicing its customers. However, some locations within its area of operations are higher than average cost to service, while others are lower than average cost. Therefore, under postage stamp pricing, each retail customer effectively pays a positive or negative cross-subsidy.

⁴⁵⁴ We have used the terms as considered by the ACCC. In other jurisdictions, such as England and Wales, the term avoidable costs has been used to mean avoided cost as defined above.

⁴⁵⁵ Australian Competition and Consumer Commission, Access dispute between Services Sydney Pty Ltd and Sydney Water Corporation, Final Determination Statement of Reasons, 22 June 2007, p 5.

⁴⁵⁶ According to the ACCC, avoidable costs are costs that a vertically integrated access provider would otherwise incur in the provision of a good or service that could be avoided if it ceased provision of the relevant contestable activities completely in respect of the good or service in question. See Australian Competition and Consumer Commission, Access dispute between Services Sydney Pty Ltd and Sydney Water Corporation, Final Determination Statement of Reasons, 22 June 2007, p 5.

We support the avoidable cost approach, as it reflects optimised investment decisions that consider the potential of future market entry. Incumbent utilities may not be able to recover all the actual costs of their operations (ie, there is a risk of asset stranding). However, this is a legitimate business risk, in that Sydney Water should be making capital investment decisions with an understanding of the risk of market entry. It ensures that competitors are not subsidising the cost of any over investment by Sydney Water (due to unanticipated market entry).

Other regulators have also favoured retail minus pricing on an **avoidable** costs basis. For example, in the Services Sydney determination, the ACCC stated that retail minus **avoidable** costs is necessary to provide scope for entry for a wholesale customer that is more productively efficient than the incumbent.⁴⁵⁷

Cost of service/building block prices

A cost of service, or building block, approach to wholesale (or access) pricing is a bottom up approach (whereas the retail minus approach is top down). That is, the actual costs of providing the service to a wholesale customer are added to calculate a charge for drinking water and/or wastewater services.

Under a postage stamp pricing regime, the incumbent's prices reflect its systemwide average costs of supplying services, and therefore lower cost areas subsidise higher cost areas. By setting wholesale customer charges based on the area's actual cost of service, the wholesale customer would be excluded from the implicit postage stamp pricing subsidy scheme. This can mean that there is potential for the following perverse outcomes:

- In lower cost areas, the wholesale customer could be less efficient than the incumbent, but may still outcompete the incumbent on price due to the incumbent's requirement to price at postage stamp pricing (which reflects its system-wide average cost, rather than the actual cost of servicing the lower cost area).
- In higher cost areas, the wholesale customer could be more efficient than the incumbent, but may not be able to match the incumbent's prices (which reflects its system-wide average cost, rather than the actual cost of servicing the higher cost area).

The non-residential charge

Under our current determination, non-residential customers are charged for water and wastewater based on the size of their connection (service charges) and the quantity (and, in the case of wastewater, strength) of their usage (usage charges).

⁴⁵⁷ Australian Competition and Consumer Commission, Access dispute between Services Sydney Pty Ltd and Sydney Water Corporation, Final Determination Statement of Reasons, 22 June 2007, p 2.

Our determined non-residential and residential prices are cost reflective for end users, not intermediaries. Sydney Water has proposed, and we have supported, a proposal that all residential customers are deemed to have a 20mm connection for the purpose of determining service charges (see section 9.1). This is because we consider that if Sydney Water were to have a direct connection with each residential customer it would be a 20mm connection, reflecting the minimum meter size Sydney Water makes available.

Properties within a multi-premises typically share a main connection to Sydney Water's network, and then have individual connections to the multi-premises' plumbing network. The shared main connection's capacity is typically smaller than the sum of the capacity of each connection to the multi-premises plumbing network. If Sydney Water were to charge wholesale customers the non-residential service charge (based on main connection size) and wholesale customers were then able to charge individual houses and apartments Sydney Water's residential service charges, an arbitrage (or riskless profit) opportunity would exist.

An arbitrage opportunity would allow wholesale customers to enter the market without providing any additional services or improving overall system efficiency. The margin created by this arbitrage opportunity would ultimately need to be recovered from Sydney Water's wider customer base, which would increase prices to all remaining direct customers of Sydney Water.

The mixed multi premises charge

Under the existing determination, each individual property within a multi premises is charged a residential service charge. A wholesale customer could be viewed as a private business that is responsible for operating the plumbing beyond a mixed multi premises connection. Under this interpretation, it may be appropriate to charge a wholesale customer a mixed multi premises charge based on its customer numbers.

However, levying such a charge would make it difficult for a wholesale customer to compete with the incumbent, as it would leave no margin for the wholesaler to recover its costs of providing retail services. The wholesaler would therefore either need to operate at a loss or increase its retail prices above those of Sydney Water.

IPART seeks comment on the following

59 What is the most appropriate methodology or basis for setting wholesale prices?

12.2 Regulating wholesale customers

Wholesale customers can be regulated under the WIC Act access regime or our price determinations. It is important to design the right form of price regulation as it may influence how competition develops within the urban water market.

12.2.1 Sydney Water's proposal on how wholesale prices should be regulated

Sydney Water considers that the buying of wholesale services and on-selling them to end-users is not the same as buying those services as a customer. According to Sydney Water, any entity who wishes to do this via the monopoly infrastructure of a primary water utility is an access seeker.⁴⁵⁸

Sydney Water considers that the access framework in the WIC Act, including maintaining postage stamp pricing, supports efficient entry. It notes that the NSW Government has clearly shown its support for enabling efficient competitive entry to the NSW water sector by introducing and subsequently amending the WIC Act.⁴⁵⁹

However, Sydney Water recognises that some parties remain uncertain about the scope of the WIC Act and the services it covers. Therefore, Sydney water proposes the following alternatives:

- IPART could determine a wholesale price (or price methodology) to foster greater certainty in the market place, which is good for customers and water utilities, or
- Sydney Water could progress its voluntary access undertaking under the WIC Act.⁴⁶⁰

12.2.2 IPART's response on how wholesale prices should be regulated

In principle, our view is that wholesale prices should be regulated through the WIC Act's access regime. The WIC Act is the NSW Government's legislative framework for competition in the water industry, including the licensing of wholesale water customers.

However, this requires an access undertaking to be approved (or a coverage declaration being made) and agreements in place that cover the relevant wholesale services. The WIC Act's access regime is discussed in more detail in Appendix K.

⁴⁵⁸ Sydney Water pricing proposal to IPART, June 2015, p 244.

⁴⁵⁹ Sydney Water pricing proposal to IPART, June 2015, p 245.

⁴⁶⁰ Sydney Water pricing proposal to IPART, June 2015, p 245.

Without an approved voluntary access undertaking in place (or a coverage declaration being made) covering relevant services, there may be barriers to entry, especially for smaller utilities.

Our preliminary view, therefore, is that we should determine wholesale price caps under our price determination for a limited period, which would apply until a voluntary access undertaking has been approved by IPART and is in place or prices have been agreed between Sydney Water and the wholesale customer under the access regime of the WIC Act.

Options for how to regulate wholesale prices are discussed further below.

Voluntary access undertakings under the WIC Act

A voluntary access undertaking would set out the basic terms and conditions of access to Sydney Water's infrastructure services. To take effect under the WIC Act, we would need to approve the access undertaking. We consider that this is the best way to regulate wholesale prices in the long term. Typically, the access undertaking would set out a negotiate/mediate/arbitrate regime to arrive at individual access agreements.

Price determination

We have three options for how we could regulate Sydney Water's prices to its wholesale customers under our determination powers:

- set explicit maximum prices (price caps)
- set a methodology for calculating maximum prices, or
- monitor prices against pricing principles.

Price caps

Price caps set **specific** maximum prices for goods and/or services. A price cap needs to be 'self-executing', which requires the charge to be definable and relatively simple to apply.

Setting scheme specific price caps is unfeasible as we would need to foreshadow every scheme that may develop over a price path and the information requirements would be prohibitive. Therefore, we consider that only a standardised (postage-stamp) price cap that covers all schemes is feasible.

A standardised price cap would apply to all wholesale customers, and would likely reflect avoidable costs from retail services (eg, for the on-selling of water and wastewater). There is likely to be little variation in retailing costs between geographic areas (and the marginal cost of retailing is also relatively constant). Such a price cap could be relatively simple to set, such as the relevant retail price minus 10%.

However, where a wholesale customer performs a service in addition to or other than on-selling, such as recycled water, any avoidable costs apart from retail costs would not be reflected in the wholesale prices. In these instances, the prices may not be efficient for all wholesale customers.

IPART seeks comment on the following

60 What is a reasonable retail-minus avoidable costs price cap to apply to all wholesale customers?

Price methodologies

We could set maximum prices for secondary utilities by way of a methodology under our determination (or in a separate determination). The main advantage of a methodology is that it may provide greater flexibility than price caps. In particular, it would allow us to consider a wider range of pricing options and therefore better accommodate scheme specific attributes.

A methodology is binding, which means that the regulated utility cannot charge above the maximum price determined through the methodology. It would allow some negotiation between the incumbent and the secondary utility (the wholesaler), subject to the constraints of the specified methodology.

Our approach to regulating developer charges (water, wastewater, and recycled water) is a methodology supported by procedural requirements to ensure compliance and transparency (such as requirements for utilities to publish/lodge Development Servicing Plans).

However, we consider that applying a methodology is not markedly different to how the WIC Act's access regime operates. This could be considered as duplicating, or even as circumventing, the WIC Act.

Pricing principles

We could establish high level pricing principles for incumbent utilities to apply in negotiations with secondary utilities. Pricing principles are not binding and we have limited ability to ensure compliance with our pricing principles. The incentive for Sydney Water to comply would be reputational, as it can be required to report on its compliance in its annual report.

Transition from price determination to WIC Act

The WIC Act provides that new entrants can seek to have infrastructure services declared open for access (ie, a coverage declaration), subject to negotiation and arbitration on access terms and conditions. Alternatively, incumbents can submit voluntary access undertaking to IPART, which outline the proposed terms and conditions of access to their infrastructure services.

However, the costs of seeking a coverage declaration and arbitration are potentially prohibitive for small retail competitors to Sydney Water. For small retail businesses to use the access regime, we consider that a voluntary access undertaking that provides certainty on pricing principles, terms and conditions, and guarantees filtration and treatment services is required.

Our preliminary view is that, for the 2016 Hunter Water and Sydney Water determinations, we should determine temporary wholesale water and wastewater price caps, which apply until:

- ▼ a specified period (eg, 12 months) after a voluntary access undertaking covering the wholesale services has been approved by IPART (this period after approval of the access undertaking is intended to provide the incumbent and wholesale customers sufficient time to negotiate, and if necessary arbitrate, individual access agreements), or
- prices have been agreed between the incumbent (Hunter Water or Sydney Water, as relevant) and the wholesale customer under the access regime of the WIC Act.

IPART seeks comment on the following

61 Should wholesale prices be regulated under the WIC Act, IPART's price determination or a combination of both?

13 Recycled water pricing

Our approach to recycled water pricing is governed by our 2006 Guidelines.⁴⁶¹

Since the release of the 2006 Guidelines, we decided to take a light handed approach to recycled water pricing. In particular, we decided that we would now, in the first instance, *monitor* rather than determine all recycled water prices for mandated schemes (including Rouse Hill).⁴⁶² This approach was considered more appropriate, as it is proportionate to the costs and benefits of regulation given the increasing number of small schemes.⁴⁶³ The 2006 Guidelines contain principles that agencies can use to set their own prices.

As part of a price review, we also require that recycled water costs (and revenues) are ring-fenced from the water agencies' regulated business. Under the 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.⁴⁶⁴

In this chapter, we provide an overview of Sydney Water's recycled water schemes and proposed prices for these schemes over the 2016 determination period, and IPART's response relating to these proposed prices.

⁴⁶¹ IPART, Pricing arrangements for recycled water and sewer mining, Sydney water Corporation, Hunter Water Corporation, Gosford City Council and Wyong Shire Council, Water – Determination and Report, September 2006.

⁴⁶² This decision was made as part of the 2012 Sydney Water review.

⁴⁶³ IPART, Review of prices for Sydney Water Corporations water, sewerage, stormwater drainage and other services, June 2012, pp 130-133.

⁴⁶⁴ The exception is where a recycled water scheme may enable costs to be avoided or deferred elsewhere in the system or generate broader community benefits; or the Government formally directs the Tribunal to allow a portion of recycled water costs to be passed on to a water agency's broader customer base.

13.1 Sydney Water's proposal on 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.⁴⁶⁵ These are funded in a number of ways in line with IPART's funding framework:

- schemes delivered pursuant to Government direction are funded from the general Sydney Water customer base (ie, under Section 16A of the IPART Act)
- schemes to service new development in growth areas of Sydney Water are generally funded through contributions from developers (developer charges⁴⁶⁶) and by recycled water usage charges (mandated schemes)
- commercial schemes are funded by scheme customers under contractual arrangements (voluntary schemes).⁴⁶⁷

Table 13.1 shows the recycled water systems that Sydney Water operates.

Section 16A	Mandated schemes	Voluntary schemes
Rosehill/Camellia	Rouse Hill	Wollongong
St Marys – Western Sydney Replacement Flows	Hoxton Park	6 schemes at golf courses
	Oran Park and Turner Road	2 irrigation schemes
	Colebee	4 other voluntary schemes
	Ropes Crossing	

Table 13.1 Sydney Water's recycled water schemes

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.

Sydney Water reported that it continues to track and ring-fence recycled water costs and revenue in accordance with the approach that was detailed to IPART in its 2012 pricing submission.⁴⁶⁸

⁴⁶⁵ Sydney Water pricing proposal to IPART, June 2015, p 295.

⁴⁶⁶ Unlike water and wastewater developer charges, recycled water developer charges are not currently set to zero in Sydney and the Hunter.

⁴⁶⁷ Sydney Water pricing proposal to IPART, June 2015, p 296.

⁴⁶⁸ Sydney Water pricing proposal to IPART, June 2015, p 295.

Sydney Water proposed a recycled water usage charge of \$1.77 per kL for Rouse Hill, set at 90% of the drinking water usage charge.⁴⁶⁹ It noted that if it were to continue to set the recycled water usage charge at 80% of the drinking water usage charge (in accordance with IPART's guidelines), it would risk under-recovering costs. This is because Sydney Water proposed a drinking water usage price that is 13.9% lower than the level in 2015–16.⁴⁷⁰

Sydney Water proposed the same recycled water price for its other mandated schemes.⁴⁷¹ It has not proposed reintroducing a recycled water service charge.

While not seeking avoided costs, Sydney Water identified some areas where the avoided costs framework could be enhanced.⁴⁷² Notably, it contended that there is potential for under-funding of avoided costs after the investment has taken place. Sydney Water suggested that we could provide guidance on how we would assess avoided costs under the recycled water guidelines, meaning Sydney Water would retain responsibility for managing residual risk.⁴⁷³ Sydney Water noted the potential for some of this uncertainty to be reduced once the ELWC comes into operation.⁴⁷⁴

13.2 IPART's response on recycled water prices

We intend to monitor Sydney Water's recycled water prices in accordance with our pricing guidelines for recycled water (see Appendix L). Accordingly, it may be necessary for different schemes to charge different prices.

Another key principle of our 2006 Guidelines for recycled water is that costs and revenues of mandated and voluntary recycled water schemes must be ring fenced. Specifically, under our 2006 Guidelines, recycled water prices should recover the full direct cost of implementing the recycled water scheme concerned, unless:

- the scheme gives rise to avoided costs that benefit the water agencies and users other than the direct users of the recycled water, and/or
- the scheme gives rise to broader external benefits for which external funding is received, and/or
- the Government formally directs the Tribunal to allow a portion of recycled water costs to be passed on to a water agency's broader customer base.

⁴⁶⁹ Sydney Water pricing proposal to IPART, June 2015, p 101.

⁴⁷⁰ Sydney Water pricing proposal to IPART, June 2015, p 101.

⁴⁷¹ Sydney Water Annual Information Return, June 2015.

⁴⁷² Sydney Water pricing proposal to IPART, June 2015, p 298.

⁴⁷³ Sydney Water pricing proposal to IPART, June 2015, p 299.

⁴⁷⁴ Sydney Water pricing proposal to IPART, June 2015, p 299.

Two of Sydney Water's schemes are funded from the general customer base (ie, under Section 16A of the IPART Act). We have discussed these schemes in Appendix C. For the others, we will ensure that the costs of these schemes are not paid for by Sydney Water's broader customer base.

Sydney Water noted in its proposal that potable top-up sales to recycled water customers are included in its regulated operating expenditure.⁴⁷⁵ Sydney Water also noted that water volume supplied through some schemes is forecast to comprise 100% of potable water.⁴⁷⁶ We will ensure that recycled water customers pay for potable top-up volumes, and not the broader customer base. We will also ensure that corporate costs are appropriately allocated to recycled water schemes.

With respect to the avoided cost framework, we released a guideline paper explaining our assessment process in 2011.⁴⁷⁷ We established that assessments of avoided costs are conducted during a price review. However, at an agency's request, we will conduct an informal or preliminary review of an agency's avoided cost proposal to give the agency some comfort as to the reasonableness of their claim.⁴⁷⁸

As noted by Sydney Water, a new requirement of the Operating Licence is for Sydney Water to develop a methodology for an ELWC. We must approve the ELWC methodology by 31 December 2016. The ELWC is required to cover (at a minimum) water leakage, water recycling and water efficiency (demand management). Some of the issues raised by Sydney Water about the avoided costs framework could be addressed through this process.

We seek stakeholder comment and feedback on

- 62 Is Sydney Water's proposed recycled water price of 1.77 per kL (set at 90% of its proposed drinking water charge) reasonable for its mandated schemes?
- 63 Should all of Sydney Water's mandated recycled water schemes charge the same recycled water price, regardless of their use of potable top-up water?

⁴⁷⁵ Sydney Water pricing proposal to IPART, June 2015, p 297.

⁴⁷⁶ Sydney Water pricing proposal to IPART, June 2015, p 297.

⁴⁷⁷ IPART, Assessment process for recycled water scheme avoided costs – Guidelines, January 2011.

⁴⁷⁸ IPART, Assessment process for recycled water scheme avoided costs – Guidelines, January 2011, p 1.

Appendices

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
- standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

B | Section 16A directions

The Hon Nathan Rees MP Minister for Emergency Services **Minister for Water Utilities** RECEIVED SW Ref. SD 002243 2 3 AUG 2007 Dr Michael Keating AC Chairman Independent Pricing and Regulatory Tribunal PO BOX 0290 01586 QVB POST OFFICE NSW 1230 1 7 AUG 2007

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 Flows Project. The project consists of;

- an Advanced Water Treatment Plant with interconnecting systems from Penrith, St Marys and Quakers Hill Sewage Treatment Plants;
- associated infrastructure and a pipeline from the treatment plant; and
- a pilot plant at St Mary's Sewage Treatment Plant and associated infrastructure.

Pursuant to section 16A of the IPART Act, I direct the Tribunal, when it determines the maximum price for Government monopoly services provided by Sydney Water, to include in that price an amount representing the efficient cost of complying with the Direction, including the ongoing operating costs of the project.

As you are aware, it is also the Government's intention for costs relating to the Camellia Recycled Water scheme be included in the Tribunal's determination. Sydney Water is finalising the tenders for this project and once this process has concluded I intend to issue a direction to Sydney Water under section 20P of the SOC Act and to the Tribunal under section 16A of the IPART Act.

Yours since

Nathan Rees MP Minister for Water Utilities Minister for Emergency Services

> Level 25, 9 Castlereagh Street, Sydney NSW 2000 Telephone (02) 9228 5050 Facsimile (02) 9228 5099 reception@rees.minister.nsw.gov.au



The Hon Nathan Rees MP **Minister for Emergency Services Minister for Water Utilities**



Dear Dr Keating

My letter to the Tribunal directing it to include the efficient costs of the desalination plant in Sydney Water's prices foreshadowed a similar direction in relation to the Rosehill (Camellia) Recycled Water Project.

The Government's intention is that potable water prices should include some of the costs incurred by Sydney Water in undertaking the Rosehill (Camellia) Recycled Water Project. The costs to be included in potable water charges represent the difference between the charges paid by Sydney Water to the owner of the Rosehill (Camellia) Recycled Water infrastructure and distribution pipelines, and the revenue received by Sydney Water from the sale of recycled water to customers.

I have directed Sydney Water, under section 20P of the State Owned Corporations Act 1989, to undertake the Rosehill (Camellia) Recycled Water Project. Pursuant to section 16A of the Independent Pricing and Regulatory Tribunal Act 1992, I direct the Tribunal, when it determines the maximum price for government monopoly services provided by Sydney Water, to include in that price an amount representing the efficient cost of complying with the requirements imposed on Sydney Water to undertake the Rosehill (Camellia) Recycled Water Project, which includes:

- entering into agreements for the supply of recycled water to foundation customers;
- purchasing recycled water from a private recycled water supplier for supply to customers: and
- arranging for the private recycled water supplier to finance, construct, operate and maintain recycled water infrastructure, initially capable of supplying around 4.3 billion litres of recycled water per year, and the necessary distribution pipelines

Yours sincere

Nathan Rees MP Minister for Water Utilities Minister for Emergency Services

Level 25, 9 Castlereagh Street, Sydney NSW 2000 Telephone (02) 9228 5050 Facsimile (02) 9228 5099 Email : reception@rees.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 Q290 QVB POST OFFICE NSW 1230



Dear Dr Boxall

Following the Treasurer's approval, I have directed Sydney Water Corporation under section 20N of the *State Owned Corporations Act 1989* to undertake stormwater amplification works of Sydney Water Corporation's existing Victoria Park branch of the Sheas Creek stormwater system and the construction of interconnected stormwater infrastructure (and associated infrastructure, and including stormwater infrastructure constructed by Sydney Water on behalf of the City of Sydney) to provide a drainage system to accommodate the Green Square development. A copy of the Treasurer's approval and my Direction to Sydney Water Corporation are attached.

Given that, pursuant to section 16A of the *Independent Pricing and Regulatory Tribunal Act* 1992, I, with the approval of the Premier, hereby direct the Tribunal, when it next determines the maximum price for Government monopoly services provided by Sydney Water Corporation, to include in that price an amount representing the efficient costs of complying with the requirements imposed on Sydney Water Corporation to undertake stormwater amplification works and construct interconnected stormwater infrastructure in connection with the Green Square development. A copy of the Premier's approval is attached.

It is the Government's intention that Sydney Water Corporation's prices for stormwater services should include the efficient costs incurred by Sydney Water Corporation in undertaking the amplification works and construction of interconnected stormwater infrastructure for the Green Square development. The amount of the efficient costs to be passed through to maximum prices is to exclude any costs that Sydney Water is entitled to recover from the Housing Acceleration Fund (Round 2) or the City of Sydney Council in respect of the stormwater works.

Yours sincerely

The Hon. Andrew James Constance, MF Minister for Finance and Services

Dated:

C Revenue requirement for Government directions (section 16A)

As noted in Chapter 2, the Government can issue directions for Sydney Water to complete projects in the public interest and for IPART to pass the efficient costs of these projects into prices (section 16A directions). There are three section 16A directions that apply to the current Sydney Water review. These include:

- Stormwater works at Green Square we are required to pass through in prices Sydney Water's efficient costs of complying with requirements⁴⁷⁹ to undertake stormwater amplification works and construct interconnected stormwater infrastructure in connection with the Green Square development.
- Rosehill (Camellia) Recycled Water Project we are required 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.
- Replacement Flows Project we are required to pass through the efficient costs of construction and ongoing operation of the Replacement Flows Project.

Sydney Water's proposed costs related to these section 16A directions are outlined below.

C.1 Sydney Water's proposal on costs related to these section 16A directions

C.1.1 Stormwater works at Green Square

It is the Government's intention that the stormwater infrastructure costs for the Green Square development are recovered through Sydney Water's regulated stormwater charges. Sydney Water has advised that the construction works will occur between 2014-15 and 2017-18.⁴⁸⁰ This implies that a one-off direction for the 2016 determination would capture all capital expenditure.

⁴⁷⁹ 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).

⁴⁸⁰ Sydney Water pricing proposal to IPART, June 2015, p 304.

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. We would need to deduct these reimbursements from capital expenditure (as we would treat a developer charge), rather than deducting the payments from the calculated revenue requirement (which incorporates a return of and on capital expenditure, rather than the expenditure itself).

In its proposal, Sydney Water forecast \$41.8 million (\$2015-16)⁴⁸¹ of capital expenditure on the associated infrastructure at Green Square. It also received a \$10 million grant from the HAF in 2014-15.⁴⁸² However, as the \$10 million grant is subject to the corporate tax rate of 30%, Sydney Water's tax liabilities and regulatory tax allowance would increase by approximately \$3 million.

The section 16A direction refers only to the amplification works and construction of stormwater infrastructure. It does not refer to any operating or ongoing maintenance costs. Sydney Water noted that the operating costs for the scheme are minimal and will be absorbed into existing contracts.⁴⁸³

C.1.2 Replacement Flows project

Sydney Water was directed by the Government, as part of its commitment in the 2006 Metropolitan Water Plan,⁴⁸⁴ to construct, operate and undertake the Western Sydney Recycled Water Initiative Replacement Flows Project. We are to pass though into maximum water prices Sydney Water's efficient costs of complying with this direction.

The Replacement Flows Project is Sydney's largest water recycling project.⁴⁸⁵ It was designed to address ongoing drought conditions and to secure Sydney's long-term water supply by replacing up to 18 GL of drinking water that was being released each year from Warragamba Dam into the Hawkesbury-Nepean River with highly treated recycled water.⁴⁸⁶ 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

⁴⁸¹ \$42.4 million (\$nominal), Sydney Water pricing proposal to IPART, June 2015, p 304.

⁴⁸² Sydney Water sought funding from the HAF for \$36 million to complete the stormwater works for Green Square. In June 2013, the project was allocated \$10 million from the HAF, leaving a shortfall of \$26 million. The payment of the \$10 million from the HAF was made as a single lump sum capital grant to Sydney Water in June 2015. See Sydney Water pricing proposal to IPART, June 2015, p 304.

⁴⁸³ Sydney Water pricing proposal to IPART, June 2015, p 304.

⁴⁸⁴ Sydney Water pricing proposal to IPART, June 2015, p 302.

⁴⁸⁵ Sydney Water pricing proposal to IPART, June 2015, p 302.

⁴⁸⁶ Sydney Water pricing proposal to IPART, June 2015, p 302.

▼ a pilot plant at St Mary's Sewage Treatment Plant and associated infrastructure.

Sydney Water reported that the Replacement Flows Project was completed in 2010-11.⁴⁸⁷ Therefore, the capital investment for the scheme was allowed for and fully expended in the previous 2008 Determination.

In our 2012 Determination, we included \$36.2 million (\$2015-16) of operating costs associated with the project into prices. Sydney Water reported actual operating costs of \$29.4 million over the 2012 determination period, which is \$6.7 million lower than we forecast in 2012.⁴⁸⁸

Table C.1 shows that Sydney Water forecasts \$33.7 million in operating expenditure over the 2016 determination period.

Table C.1Sydney Water's forecast operating expenditure associated with
the Replace Flows project (\$ millions, \$2015-16)

	2016-17	2017-18	2018-19	2019-20	Total
Operating expenditure	9.3	9.2	7.7	7.6	33.7

Source: Sydney Water pricing proposal to IPART, June 2015, p 303.

C.1.3 Rosehill (Camellia) Project

The Rosehill (Camellia) scheme can provide up to 4.7 GL of recycled water each year to commercial and industrial customers in the Rosehill and Smithfield areas, reducing their use of drinking water.⁴⁸⁹

Consistent with the Government's directions, we have allowed these costs to be recovered from all water users in Sydney Water's area of operation since the 2008 Determination. We have done this by adding the efficient operating expenditure of the scheme to the operating expenditure cost block. Offsetting these operating costs is the revenue received from sales of the recycled water to customers.

As part of the 2012 review, Sydney Water reported that one of the major foundation customers, the Shell Refinery, was expected to withdraw from the scheme in 2013.⁴⁹⁰ The loss of this revenue would mean that more revenue is needed to be collected from Sydney Water's water customers to recover the costs of the scheme.

⁴⁸⁷ Sydney Water pricing proposal to IPART, June 2015, p 302.

⁴⁸⁸ Sydney Water pricing proposal to IPART, June 2015, p 303.

⁴⁸⁹ NSW Government, NSW Office of Water, 2010 Metropolitan Water Plan, p 28.

 ⁴⁹⁰ IPART, Review of Sydney Water Corporation's water, sewerage, stormwater drainage and other services
 – Final Report, June 2012, p 58.

C Revenue requirement for Government directions (section 16A)

In our 2012 Determination, we included total net operating expenditure of \$51.9 million (\$2015-16) over the four years of the determination. Sydney Water forecasts that the actual net operating expenditure over the four years of the 2012 Determination will be \$3.8 million lower than forecast in 2012.⁴⁹¹ This is due to:

- ▼ lower operating expenditure than our 2012 forecast (-\$1.9 million), and
- higher revenue from recycled water sales (+\$2 million).

Sydney Water forecasts an increase in net operating expenditure over the 2016 determination period (forecast \$63.9 million) compared to the 2012 determination (\$51.9 million). This increase is driven by a forecast reduction in revenue from sales of recycled water.⁴⁹²

C.2 IPART's response on costs related to these section 16A directions

As part of our expenditure review, we will review in line with the Government's direction Sydney Water's:

- proposal for its expenditure at Green Square and decide on the efficient and prudent capital expenditure to be included in the RAB. We will also consider the appropriate amount of the HAF grant to be excluded
- past and forecast level of operating costs associated with the Replacement Flows project, and include the efficient costs between 2016-17 and 2019-20 in the operating expenditure building block for water services, and
- the efficient costs of operating the Rosehill (Camellia) scheme, together with forecast revenue from sales. We will include the forecast efficient net operating expenditure in the operating cost building block for water services.

⁴⁹¹ Sydney Water pricing proposal to IPART, June 2015, p 302.⁴⁹² Sydney Water pricing proposal to IPART, June 2015, p 302.

D Application of the current SDP cost pass though mechanism

The pass-through mechanism for SDP (as specified in Sydney Water's 2012 Determination) only applies within the 2012 determination period – ie, up to 2015-16. Therefore, 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).

In determining Sydney Water's 2016-17 prices, we propose to pass through the actual SDP costs incurred by Sydney Water in 2015-16 (ie, SDP's costs above those already included in 2015-16 prices). This effectively 'honours' the cost pass through mechanism that we implemented as part of the last price review and are proposing to continue to implement as part of this review (see Chapter 4).

Our intention is to add these incremental costs to Sydney Water's 2016-17 bulk water allowance. We note, however, that we will have to estimate a proportion of these costs, given that our Final Report and Determination is due for release before financial year end – ie, before 30 June 2016.

E | Regulatory treatment of asset disposals

The purpose of this appendix is to outline our proposed policy or framework for asset disposals, for stakeholder comment (also included in Hunter Water and WaterNSW Issues Papers).

In our view, the primary issues we need to consider 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 ownership of 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 come up with our best estimate of its regulatory value.

We propose 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 asset). We also distinguish between significant and non-significant assets.

E.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.

E.2 Significant asset sales

Definition: (a) Assets that incur capital gains tax (ie, therefore 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 propose to 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 the business' actual cost of the individual assets).

Table E.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 pre line-in-the-sand to be removed from the RAB.

Table E.1 RAB to DRC ratio for each metropolitan water business as at linein-the-sand (2000)

	RAB at line-in-the-sand (\$billion)	DRC value at line-in-the-sand (\$billion)	RAB to DRC ratio
Sydney Water	5.3	12.5	0.42
Hunter Water	0.8	1.9	0.42
Gosford Council	0.2	0.5	0.42
Wyong Council	0.2	0.5	0.35
WaterNSW (formerly SCA)	0.7	1.7	0.40

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.

Source: IPART reports and Annual reports of regulated businesses.

The RAB to DRC ratio determines the regulatory profit from which the business would pay any tax obligation. This approach 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-thesand 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.

However, if a business can make a convincing case that an asset was clearly nonoperational at the line-in-the-sand, then, on an exception basis, we would not adjust the RAB for that asset sale.

Treatment post line-in-the-sand: If an asset was acquired after the line-in-thesand 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 propose that 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.

E.3 Non-significant asset disposals (sales and write-offs)

Definition: Assets that do not incur capital gains tax (ie, therefore 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 old 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 propose to treat these disposals in a simple, uniform manner. In particular, we propose removing non-significant disposals from the RAB using the book value of the disposals multiplied by the ratio of the utility's RAB to book value in the year in which the disposal occurs. The ratio of the RAB to book value serves as a means of deriving indicative estimates of regulatory value from book values.

F Weighted Average Cost of Capital

In this appendix we summarise the main points of Sydney Water's submission on the WACC and our preliminary comments.

F.1.1 Sydney Water's proposal on the weighted average cost of capital

Sydney Water contended that the WACC should be set at a level that ensures an efficient business can generate a sufficient return to service its ongoing debt requirements and provide returns for shareholders. This allows it to remain viable over the longer term and sustain the ongoing investment in infrastructure required to deliver the desired level of services to customers. Having an appropriately set regulated WACC for Sydney Water is therefore in the long-term interests of customers.⁴⁹³

Sydney Water noted that IPART's review of the WACC methodology, and the subsequent reviews of the cost of debt and inflation forecasting (see Chapter 2 for an outline of these reviews), means the potential for different WACC estimates between regulated utilities and IPART from methodological differences is likely to be relatively small.⁴⁹⁴

However, there are two important parameters which Sydney Water considers warrant further consideration:⁴⁹⁵

- the equity beta, which was not subject to a comprehensive review in the previous review of the WACC methodology, and
- estimating the cost of debt, where Sydney Water disagrees with IPART's position on the appropriate weighting of short- and long-term debt.

Sydney Water proposed a WACC of 4.6% for the 2016 determination period using a 40:60 weighting between short-term (40-day average) and long-term (10-year average) debt.⁴⁹⁶ This differs to our methodology, where we assume a 50:50 split between long- and short-term debt. Sydney Water used an equity beta

⁴⁹³ Sydney Water pricing proposal to IPART, June 2015, p 218.

⁴⁹⁴ Sydney Water pricing proposal to IPART, June 2015, p 221.

⁴⁹⁵ Sydney Water pricing proposal to IPART, June 2015, p 221.

⁴⁹⁶ Sydney Water pricing proposal to IPART, June 2015, p 219.

of 0.7 to estimate the cost of equity (and WACC), although it considers this to be a lower bound estimate.⁴⁹⁷

Sydney Water estimated its proposed WACC using parameters that reflect prevailing conditions in financial markets just before lodging its proposal, as well as its assessment of other parameters (eg, equity beta, market risk premium and gamma).⁴⁹⁸ In particular, Sydney Water estimated values for the risk-free rate, the debt-risk premium and the short-term market risk premium to the time when these figures will be observed and used to set prices.⁴⁹⁹ Sydney Water compared its proposed WACC to IPART's most recently published WACC in Table F.1 below.

	IPART Febr upda	uary 2015 ate	Sydney Water proposed WACC for 2016-20		
	Short-term	Long-term	Short-term	Long-term	
Risk free rate	2.7%	4.90%	2.42%	4.48%	
Inflation forecast	2.5%	2.9%	2.5%	2.5%	
Debt margin	2.20%	2.90%	2.54%	2.96%	
Market risk premium	8.3%	6.0%	8.2% c	6.0%	
Debt funding	60%	60%	60%	60%	
Equity funding	40%	40%	40%	40%	
Equity beta	0.70	0.70	0.70	0.70	
Cost of equity (nominal post-tax)	8.5%	9.1%	8.2%	8.7%	
Cost of equity (real post-tax)	5.9%	6.0%	5.5%	6.0%	
Cost of debt (nominal pre-tax)	4.9%	7.8%	5.0%	7.4%	
Cost of debt (real pre-tax)	2.3%	4.8%	2.4%	4.8%	
Real post-tax WACC	3.8%	5.3%	3.6%	5.3%	
Real post-tax WACC mid-point (50:50 ST:LT)ª	4.51%		4	.47%	
Real post-tax WACC mid-point (40:60 ST:LT)	4.65%b		4.62%		

Table F.1 Sydney Water's proposed real post-tax WACC 2016-20

a ST:LT is the split between short-term (40-day average) and long-term (10-year average) debt.

b We do not publish a WACC based on a 40:60 debt mix. This is Sydney Water's estimate based on our February update of the WACC.

c Implied market risk premium estimated at time of the proposal.

Note: A copy of our WACC model is available on our website with our biannual financial market update. **Source:** Sydney Water pricing proposal to IPART, June 2015, p 227.

⁴⁹⁷ Sydney Water pricing proposal to IPART, June 2015, p 223.

⁴⁹⁸ Sydney Water pricing proposal to IPART, June 2015, p 228.

⁴⁹⁹ Sydney Water pricing proposal to IPART, June 2015, p 226.

F Weighted Average Cost of Capital

Sydney Water supported our approach to estimate the debt margin and inflation

Sydney Water used and supported our approach to estimate the debt margin⁵⁰⁰ and stated that it aligns the cost of debt in the regulatory WACC with market rates.⁵⁰¹

Sydney Water used our revised approach to forecasting the WACC inflation adjustment ⁵⁰² and noted that it significantly improves the inflation adjustment by reducing the risk of systemically over-forecasting inflation which results in under-compensating regulated firms.⁵⁰³

Sydney Water proposed using the top of IPART's equity beta range

Sydney Water engaged economic consultants HoustonKemp⁵⁰⁴ to replicate and extend the equity beta analysis for water utilities previously undertaken by Strategic Finance Group (SFG)⁵⁰⁵ for IPART.

The analysis undertaken by HoustonKemp shows strong support for an equity beta range of 0.6 to 0.8, which is IPART's current range used for water utilities.⁵⁰⁶ However, HoustonKemp recommended that using an equity beta at the top of the range would be appropriate because:⁵⁰⁷

- It is consistent with IPART's last price determination, which set the WACC at the top of the plausible range.
- The Capital Asset Pricing Model (CAPM) tends to underestimate the required return on low beta assets. Studies suggest that an equity beta value closer to a central value of 1 should be adopted when applying the CAPM to reduce the risk of underestimating the required return⁵⁰⁸.
- This approach is adopted by regulators in the United States (US) who consistently allow returns on equity for water utilities above what the CAPM would generally estimate.

In its proposal, Sydney Water used an equity beta value of 0.7 to estimate the WACC, but considered this to be a lower bound estimate.

⁵⁰⁰ IPART, IPART's New Approach to Estimating the Cost of Debt, April 2014.

⁵⁰¹ Sydney Water pricing proposal to IPART, June 2015, p 220.

⁵⁰² That is, a 10-year geometric average of the one-year RBA inflation forecast and the middle of the RBA's target band of inflation, which is 2.5% for the remaining nine years. See IPART, *New Approach to Forecasting the Inflation Adjustment*, March 2015.

⁵⁰³ Sydney Water pricing proposal to IPART, June 2015, p 221.

⁵⁰⁴ Sydney Water pricing proposal to IPART - Appendix 7, June 2015.

⁵⁰⁵ Strategic Finance Group, Cost of Capital Parameters for Sydney Desalination Plant, August 2011.

⁵⁰⁶ Sydney Water pricing proposal to IPART, June 2015, pp 222-223.

⁵⁰⁷ Sydney Water pricing proposal to IPART, June 2015, p 223.

⁵⁰⁸ NERA, Empirical Performance of Sharpe-Lintner and Black CAPMs, February 2015.

Sydney Water proposed to transition towards the 50:50 weighting of the debt portfolio used in our WACC methodology

Sydney Water submitted that IPART's approach implicitly assumes that about half of a business' debt portfolio is refinanced at any point in time, which does not reflect an infrastructure business' efficient financing practice.⁵⁰⁹ According to Sydney Water, its actual proportion of long-term debt indicates a higher weighting should be given to the long-term WACC estimates. In particular, Sydney Water raised the following points:

- It is common for infrastructure service providers to issue long-term debt to mitigate refinancing risk.⁵¹⁰
- The optimal financing tenor for infrastructure assets tends to be much longer than general corporate financing requirements.⁵¹¹
- ▼ The debt profile of infrastructure businesses is heavily weighted towards long-dated maturities to match long asset lives and sourced at lowest economic cost with due consideration to interest rate and foreign exchange risks.⁵¹²
- The 'Maturity Matching Principle' suggests that long-term assets should be financed with long-term debt. Regulators such as Ofgem and BNetzA adopt this principle in setting prices for long-life infrastructure companies.⁵¹³
- United Utilities Group plc stated in its 2014 Annual Report: the long-term borrowing provided a good match to the company's long-life infrastructure assets and is a key contributor to the group's average-term debt maturity, which is about 25 years.⁵¹⁴

Nonetheless, Sydney Water indicated that it manages its debt portfolio in a way that minimises costs and the risk it faces as a result of regulation.⁵¹⁵ As an example, it has increased its proportion of inflation-indexed debt to hedge against the cash flow risk from having an indexed RAB.

⁵⁰⁹ Sydney Water pricing proposal to IPART, June 2015, p 224.

⁵¹⁰ Professor Stephen Gray, Frontier Economics report for Ashurst, TransGrid Cost of Debt transition, January 2015 (see Sydney Water pricing proposal to IPART, June 2015, p 224).

⁵¹¹ Queensland Investment Corporation (QIC), Submission to Financial System Inquiry, August 2014 (see Table 9-1 in Sydney Water pricing proposal to IPART, June 2015, p 224).

⁵¹² EPCOR Utilities Inc. Investor Presentation, March 2014 (per Sydney Water pricing proposal to IPART, June 2015, p 225).

⁵¹³ PwC presentation to NMa72, Optimal debt portfolio and the regulatory cost of capital, January 2013 (see Table 9-1 in Sydney Water pricing proposal to IPART, June 2015, p 225).

⁵¹⁴ United Utilities Group PLC Annual Report and Financial Statements for the year ended 31 March 2014 (see Table 9-1 in Sydney Water pricing proposal to IPART, June 2015, p 225).

⁵¹⁵ Sydney Water pricing proposal to IPART, June 2015, p 225.

F Weighted Average Cost of Capital

On this basis, while Sydney Water does not agree with IPART's proposed shortand long-term debt mix, consistent with its desire to decrease the risk associated with regulation, Sydney Water is looking to replicate the 50:50 portfolio used by IPART.⁵¹⁶

Sydney Water currently holds more long-term than short-term debt capital. The average mix of its short-term and long term debt over the period from 2016 to 2020 approximates a 40:60 split. Based on this approach the regulated WACC marginally increases by about 0.15% compared to using a 50:50 weighting (see Table F.1).

Sydney Water estimated the cost of making an immediate transition to a 50:50 weighting in the upcoming regulatory period would be \$60 million.⁵¹⁷ Sydney Water argued that such a cost is not in customers' best interests nor would it be financially prudent to incur this cost just to meet IPART's assumption.⁵¹⁸

Sydney Water submitted that it will be able to implement a 50:50 weighting from the next regulatory period (ie, from 2020).⁵¹⁹ Therefore, adopting a 40:60 split over the 2016–20 period would ease the transition to the long-term positon of 50:50 in the next price period.⁵²⁰

F.1.2 IPART's response on the weighted average cost of capital

Sydney Water has largely adopted our WACC methodology⁵²¹ in developing its pricing proposal. However, it expressed a preference to use the upper bound of the equity beta range and rebalance the split between long-term and short-term debt in calculating the WACC.

However, as Box F.1 indicates, our objective in determining the WACC is to establish a value that reflects the efficient cost of capital for a **benchmark entity**. In doing so, we have regard to market practice of how investors form their expectations on future returns. We consider that the efficient cost of capital for a benchmark entity is likely to reflect a mix of current market rates and long-term averages.

Having established our objective in setting the WACC, we then use our decisionmaking framework to estimate the efficient cost of capital for a benchmark utility. The objective of the regulatory WACC is not to replicate the actual cost of capital of any particular regulated utility.

⁵¹⁶ Sydney Water pricing proposal to IPART, June 2015, p 225.

⁵¹⁷ Sydney Water pricing proposal to IPART, June 2015, p 226.

⁵¹⁸ Sydney Water pricing proposal to IPART, June 2015, p 226.

⁵¹⁹ Sydney Water pricing proposal to IPART, June 2015, p 226.

⁵²⁰ Sydney Water pricing proposal to IPART, June 2015, p 226.

⁵²¹ IPART, Review of WACC Methodology – Final Report, December 2013.

Box F.1 Overview of our current WACC methodology

Our objective in determining the real post-tax WACC for a regulated business is to set a WACC that reflects the efficient cost of capital for a benchmark utility that operates in a competitive market and faces similar risks to the regulated business.

To do this, we determine the midpoint of two WACC estimates,^a which are derived from current market data and long-term averages. This means that we apply a weighting of 50% to current market data and 50% to long-term averages in our estimate of the midpoint. We use an index of economic uncertainty (uncertainty index) to assess if the use of this midpoint is consistent with current economic conditions:

- If the uncertainty index is within one standard deviation from the long-term average of zero, we will use the midpoint of our WACC range (and our input parameters).
- If the uncertainty index is not within one standard deviation from the long-term average of zero, we will investigate potential causes for this. If we find compelling evidence that there has been a shift in financial market conditions, we will consider moving away from using the midpoint of the WACC input parameters.

We have also adopted revised approaches for estimating two of the WACC parameters – the debt margin, and the inflation adjustment for our real post-tax WACC:

- To estimate the debt margin, we use credit spreads for Australian non-financial corporations, published by the Reserve Bank of Australia (RBA). We consider that using data readily available through the RBA's website increases the transparency of our WACC determination process. The RBA data set also provides an average tenor close to our target of 10 years, which makes it a better proxy for the 10-year debt margin. b
- To estimate the inflation adjustment for our real post-tax WACC, we use a 10-year geometric average of the one-year RBA inflation forecast^c and the middle of the RBA's target band of inflation (ie, 2.5%) for the remaining nine years.^d

We also publish biannual updates of the WACC on our website to allow stakeholders to better replicate and predict our WACC decisions.^e In conjunction with the update, we also release a WACC spreadsheet, which includes a working copy of our full WACC model.

^a The two WACC estimates are the midpoints of two separate WACC ranges based on long-term averages and current market data (40-day average of most recent data).

b IPART, WACC - IPART's New Approach to Estimating the Cost of Debt – Fact Sheet, April 2014, pp 1-2. Tenor (or time-to-maturity) is the length of time until the maturity date of a bond.

- c RBA's forecast of underlying inflation is obtained from its quarterly Statement on Monetary Policy.
- **d** IPART, New Approach to forecasting the WACC inflation adjustment Fact Sheet, March 2015, p 1.
- e http://www.ipart.nsw.gov.au/Home/Industries/Research/Market_Update

Accordingly, our preliminary position is to not change our short- and long-term debt mix used to calculate the WACC, as proposed by Sydney Water. At this stage, we cannot comment on the appropriate value of the equity beta or other input parameters used to calculate the WACC. We will undertake further analysis before the draft decision and update our equity beta estimate if necessary. It is likely that the methodologies used in our analysis will be similar to the analysis undertaken for us by SFG in 2011.⁵²²

We note that under our current WACC methodology, we depart from midpoints on the input parameters on an exception basis. In particular:⁵²³

- We use the midpoints of our WACC (and hence our input parameters) if our uncertainty index is within 1 standard deviation from the long-term average of zero.
- If the uncertainty index is not within 1 standard deviation from the long-term average of zero we will investigate potential causes for this. If we find compelling evidence that there has been a shift in financial market conditions, we will consider moving away from using the midpoint of any of the WACC input parameters, including the equity beta and the cost of debt.

Applying our WACC methodology, using a 50:50 weighting of long to short-term estimates and equity beta of 0.7, the WACC would be 4.5%. We will update the cost of debt, the cost of equity and the inflation adjustment closer to our draft and final decisions.

⁵²² SFG, Cost of Capital Parameters for Sydney Desalination Plant, August 2011

⁵²³ IPART, Review of WACC Methodology – Final Report, December 2013, pp 23-29.

G Efficiency Benefit Sharing Scheme

G.1 Sydney Water's proposal on EBSS for operating expenditure

We provide a worked example of our understanding of Sydney Water's proposed EBSS for operating expenditure in Table G.1 below.

	Regulatory period 1 (P1)				Regulatory period 2 (P2)			
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Base allowance	775	775	775	775	750	750	750	750
Actual spend	775	740	750	745				
Under(over)	0	35	25	30				
Incremental gain(loss)	0	35	(10)	5				
In-period gain(loss)	0	35	25	30				
EBSS calculations								
- Year 1		0	0	0	0			
- Year 2			35	35	35	35		
- Year 3				(10)	(10)	(10)	(10)	
- Year 4					5	5	5	5
Total EBSS gain(loss)		-			30	30	(5)	5
Capped and smoothed carry-over					12.5	12.5	12.5	12.5
Net allowance in P2					762.5	762.5	762.5	762.5

Table G.1 Example of Sydney Water's proposed opex EBSS (\$ millions)

Note Sydney Water is proposing that IPART use the actual spend in Year 3 (\$750 million in this example) to heavily inform the setting of regulatory allowances in the next regulatory period. This means that the \$5 million saving in Year 4 is rewarded through the EBSS but not reflected in future prices.

Source: Adapted from examples provided in Sydney Water's pricing proposal to IPART, Appendix 5, June 2015, pp 125–128.

The following steps work through the example above:

- ▼ In Year 1, the regulatory allowance is \$775 million. Sydney Water's actual spend is \$775 million. Therefore, there is no under or over spend in Year 1. There is no in-period gain and no incremental gain to carry forward.
- ▼ In Year 2, the regulatory allowance is \$775 million. Sydney Water's actual spend is \$740 million resulting in an under spend of \$35 million.
 - This \$35 million is recorded as an in-period gain for Year 2.
 - Because there was no under or over spend in Year 1, the \$35 million under spend in Year 2 represents an incremental gain of \$35 million.
 - The EBSS mechanism comes into effect to 'carry-over' the incremental gain for four additional years. The \$35 million gain is assumed to be held by Sydney Water for the remainder of the first regulatory period (Years 3 and 4) and is then carried forward to the first two years of the following regulatory period (Years 5 and 6).
- ▼ In Year 3, the regulatory allowance is \$775 million. Sydney Water's actual spend is \$750 million resulting in an under spend of \$25 million.
 - This \$25 million is recorded as an in-period gain for year 3.
 - On an incremental basis, Sydney Water has become \$10 million less efficient than it was in Year 2. That is, the under spend fell from \$35 million in Year 2 to just \$25 million in Year 3.
 - The EBSS mechanism comes into effect to 'carry-over' the incremental gain for four additional years. The \$10 million efficiency loss is assumed to be held by Sydney Water for the remainder of the first regulatory period (Year 4) and is then carried forward to the first three years of the following regulatory period (Years 5, 6 and 7).
- ▼ In Year 4, the regulatory allowance is \$775 million. Sydney Water's actual spend is \$745 million resulting in an under spend of \$30 million.
 - This \$30 million is recorded as an in-period gain for year 3.
 - On an incremental basis, Sydney Water is \$5 million more efficient than it was in Year 3. That is, the under spend increased from \$25 million in Year 3 to \$30 million in Year 4.
 - The EBSS mechanism comes into effect to 'carry-over' the incremental gain for four additional years. The \$5 million efficiency gain is then carried forward to the four years of the following regulatory period (ie, Years 5, 6, 7 and 8).
- The carry-over gains/losses are calculated as follows:
 - The carry-over gain/loss in Year 5 is the sum of carry-overs resulting from incremental efficiency savings from Years 1 to 4 (ie, \$0 + \$35 \$10 + \$5 million = \$30 million).
 - The carry-over gain/loss in Years 6, 7 and 8 are the sum of carry-overs resulting from incremental efficiency savings from Years 2 to 4, Years 3 and 4, and Year 4, respectively.

- ▼ Because the total EBSS gain in regulatory period 2 is calculated to be \$60 million (ie, \$30 + \$30 - \$5 + \$5 million), the \$50 million cap would come into effect under Sydney Water's proposal.
 - Sydney Water has not specified how it intends the capped EBSS gain / loss to be applied over the carryover period (ie, whether or not it will be smoothed). In the case that it is smoothed, the capped gain of \$50 million would be applied evenly at \$12.5 million per year for each year of regulatory period 2.
 - Sydney Water's net allowance in years 5 through 8 would be \$762.5 million (ie, \$750 million base allowance plus \$12.5 million EBSS gain).
 - Sydney Water's net allowance in regulatory period 2 is \$3.05 billion (ie, \$762.5 million per year over 4 years).
- ▼ Sydney Water is proposing that IPART use the actual spend in Year 3 (\$750 million in this example) to heavily inform the setting of regulatory allowances in the next regulatory period.⁵²⁴

⁵²⁴ We note that this means that the EBSS mechanism would include the \$5 million saving achieved in Year 4 – however this saving would not feed into prices in the next regulatory period. In this case, the sharing ratio would be 27% Sydney Water and 73% customers.

G.2 Risk of the proposed opex EBSS being gamed

Table G.2 demonstrates how Sydney Water's EBSS could be misused to deliver excess returns and drive up future allowances without achieving any permanent efficiency saving.

· · ·								•	
	Reg	Regulatory period 1 (P1)				Regulatory period 2 (P2)			
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	
Base allowance	100	100	100	100	130	130	130	130	
Actual spend	90	90	130	90					
Under(over) spend	10	10	(30)	10					
In-period gain(loss)	10	10	(30)	10					
Incremental gain(loss)	10	-	(40)	40					
EBSS calculations									
- Year 1		10	10	10	10				
- Year 2			-	-	-	-			
- Year 3				(40)	(40)	(40)	(40)		
- Year 4					40	40	40	40	
Total EBSS gain(loss)					10	-	-	40	
Capped carry-over					12.5	12.5	12.5	12.5	
Net allowance in P2					142.5	142.5	142.5	142.5	

Table G.2 Example of how the opex EBSS could be gamed (\$ millions)

Notes: The figures in this table are for illustration purposes only.

Note: The total EBSS gain of \$50 million is spread evenly (\$12.5 million per year) over regulatory period 2. **Source:** IPART analysis.

Here the business shifts \$10 million per year out of Years 1, 2, and 4 in order to inflate actual expenditure in Year 3 by \$30 million. This has two main effects:

- It allows the business to record a \$40 million incremental efficiency gain in Year 4 when no actual permanent efficiency has been achieved.
- It allows the business to artificially inflate the base allowance in regulatory period 2.

This would result in customers paying an additional \$50 million through the EBSS (ie, \$12.5 million capped carryover for four years) and an additional \$120 million due to the inflated regulatory allowance in regulatory period 2 (ie, \$30 million per year over four years due to the base allowance increasing from \$100 to \$130 million per annum).

G.3 IPART's proposed modified EBSS

For the purpose of this Issues Paper, we have developed a modified EBSS that attempts to address the concerns we have with Sydney Water's proposal. We are

keen to receive feedback from stakeholders regarding this modified EBSS including whether there are alternative ways to address our main concern with Sydney Water's proposal.

The following example illustrates how it may be possible to retain the financial incentive to achieve permanent efficiency savings while removing the potential to profit through cost shifting through a modified EBSS.

Key elements of this modified EBSS include:

- A 4-year holding period (ie, 3-year carry over period) to match the length of the regulatory period.
- ▼ EBSS is symmetrical below the regulatory allowance but does not apply above the allowance. Efficiency gains (losses) are only recorded below the base allowance.
- The Tribunal would retain discretion over setting the base allowance in regulatory period 2 (informed by actual expenditure in regulatory period 1, benchmarking and expenditure review).

	Regulatory period 1 (P1)				Regulatory period 2 (P2)			
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Base allowance (A)	100	100	100	100	90	90	90	90
Actual spend (B)	90	90	130	90				
Under(over) spend	10	10	(30)	10				
Incremental calcs								
- min (A) or (B) = (C)	90	90	100	90				
- (A) – (C)	10	10	0	0				
- Incremental gain(loss)	10	0	(10)	10				
EBSS calculations								
- Year 1		10	10	10				
- Year 2			0	0	0			
- Year 3				(10)	(10)	(10)		
- Year 4					10	10	10	
Total EBSS gain(loss)					-	-	10	-
Net gain(loss) under the EBSS	10	10	-	10	-	-	10	-
Net gain(loss) above the allowance	-	-	(30)	-				

Table G.3 Operation of a modified opex EBSS (\$ millions)

Source: IPART analysis.

G Efficiency Benefit Sharing Scheme

In this example, the EBSS is applied on a symmetric basis for actual expenditure below the regulatory allowance.

- ▼ The \$40 million EBSS gain achieved in Year 1 (ie, orange numbers) is fully offset by a \$40 million EBSS loss incurred in Year 3 (ie, red numbers).
- ▼ The \$30 million overspend in Year 3 is outside the scope of the modified EBSS. As is the reduction in expenditure back to the allowance in Year 4. This results in a strong incentive to control costs and not overspend the regulatory allowance.
- The \$10 million underspend in Year 4 is included in the EBSS and results in a \$40 million EBSS gain (green numbers).

The business is assumed to have delivered a permanent efficiency saving of \$10 million in Year 4. The EBSS ensures that it will receive an overall net gain of \$40 million (ie, purple numbers). This efficiency saving is then reflected in the base allowance for regulatory period 2. If no efficiency saving has been made, the overall net gain of \$40 million will be clawed back.

We note that actual expenditure for Year 4 would be an estimate at the time the EBSS gains / losses are calculated and the base allowance is reset. An expenditure review and benchmarking would prevent inefficient expenditure from regulatory period 1 being carried forward into the base allowances in regulatory period 2.

G.4 Selecting an appropriate holding period

Under the current form of regulation, the maximum holding period is tied to the length of determination period. That is, in the absence of an adjustment mechanism, the maximum holding period is equal the length of the determination period. One advantage of carryover mechanisms like the EBSS is that it allows the efficiency savings holding period to be set independently from the length of the determination.

There is a trade-off between the effectiveness of the incentive (unknown) and the share that goes to customers (known). The effectiveness of the incentive will depend on a range of factors including the availability of potential efficiency savings and the business' governance framework. These factors and their impact on the business' incentive to deliver permanent efficiency savings are currently not well understood. This trade-off is shown in Figure G.1.



Figure G.1 Selecting the optimal holding period

Note: The figures presented in this box are for illustration only. **Data source:** IPART analysis.

As the holding period is increased, the incentive to achieve efficiency savings increases (we assume the incentive increases at a diminishing rate). At the same time, as the holding period is increased, the share of savings that are passed on to customers falls (linearly). Under these conditions, there is likely to be a holding period that maximises the benefit to customers as show in the figure above. However, because we do not know the relationship between the holding period and the incentive to achieve efficiency savings, selecting the appropriate holding period will require significant judgement from the regulator.

H | 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 and Hawkesbury-Nepean Valley Flood Management reviews, discussed in Chapter 2, 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.

H.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 two tables below, we have shown Sydney Water's and IPART's preliminary estimates of the LRMC of water in Sydney.

- Table H.1 shows Sydney Water's and IPART's estimates of LRMC based on Sydney Water's preferred discount rate of 5.3%.
- ▼ Table H.2 shows both Sydney Water's and IPART's estimates of LRMC based on IPART's preferred discount rate of 4.8%.

Sydney Water's best estimate is \$1.16 per kL⁵²⁵ (shown in Table H.1) and IPART's best estimate ranges from \$1.12 per kL to \$1.24 per kL (shown in Table H.2).

⁵²⁵ Sydney Water proposal to IPART - Appendices, June 2015, p 115.

System yield	Sydney V	IPART						
	SDP matches demand	SDP at full output	AIC	Perturbation				
610 GL	1.16	1.62	1.10	1.30				
595 GL	1.52	2.06	1.26	1.40				
580 GL	1.91	2.36	1.49	1.31				
565 GL	2.29	2.71	1.69	1.46				

Table H.1 LRMC estimates with demand based on \$2.00 per kL and Sydney Water's 5.3% discount rate (\$/kL)

Note: Sydney Water's estimates are based on its base case unless otherwise identified.

Source: Sydney Water proposal to IPART – Appendices, June 2015, p 121, and IPART's long-run marginal cost model.

Table H.2LRMC estimates with demand based on \$2.00 per kL and IPART's4.8% discount rate (\$/kL)

System yield	Adapted from Sydney Water's model			IPART		
	SDP matches demand	SDP at full output	AIC	Perturbation		
610 GL	1.18	1.62	1.12	1.24		
595 GL	1.52	2.04	1.26	1.31		
580 GL	1.90	2.33	1.46	1.21		
565 GL	2.25	2.67	1.63	1.32		

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 4.8% 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.

H.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 H.3 below.

Assumption	Sydney Water	IPART
Method	AIC	AIC and perturbation (5% positive shock)
System operation	540 GL from WaterNSW remainder from SDP (either to match demand or at full operation)	Simulated inflow data with Shoalhaven transfers operating on 75/80 rule and SDP operating on 70/80 rule
Components	Existing bulk water costs and bulk water augmentations	Existing bulk water, treatment, distribution and retail costs, bulk water augmentations, supplementary supplies and water restrictions (demand impacts not costs)
Augmentations ^a	Demand exceeds yield – expansion of desalination plant followed by another desalination plant	Demand exceeds yield – Tunnel from Burrawang to Avon Dam followed by generic augmentation Drought – expansion of desalination plant when storage levels fall below 30%
Discount rate	5.3%	4.8%
Demand	Sydney Water's demand forecast	Sydney Water's demand forecast
Modelling period	50 years	20, 30, 40 or 50 years

Table H.3	Main differences between Sydney Water's model and IPART's
	model

a The timing of augmentation is endogenously determined through the model. In the base case it occurs in 2043-44 for both Sydney Water's and our models – this is because we both use the same demand estimates.
 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.

H.2 IPART's LRMC model

In this section, we outline our LRMC model, including the key assumptions that we have made.

H.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 in its estimate. We have estimated LRMC using both methods.

H.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
- servicing growth demand within the existing capacity.

In Figure H.1 below, 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 H.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 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 H.1 AIC approach taking into account all demand growth

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.⁵²⁶ Our LRMC model includes:

- Augmentations the capacity costs of increasing the system yield in response to demand growth.⁵²⁷
- Drought response the costs of responding to a supply deficit.
- Water restrictions the water restrictions imposed on customers in response to drought.⁵²⁸

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.

⁵²⁶ 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.

⁵²⁷ 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.

⁵²⁸ 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.

H.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 H.1). The key modelling decisions to make include:

- ▼ The types of augmentation.
- 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.

At present our LRMC model includes the augmentations included in Table H.4 below.⁵²⁹

Augmentation	Trigger
Burrawang to Avon Dam Tunnel ^a	Demand exceeds yield
Generic augmentation (could be dam or desalination plant)	Demand exceeds yield after first augmentation
Second stage of the desalination plant ^b	Storages fall below 30%

Table H.4 Supply augmentations in IPART's LRMC model

^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 the demand estimates provided by Sydney Water.

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.

⁵²⁹ Our model is not an optimisation model. The estimate could possibly be improved through the use of optimisation within the model.

We have prepared LRMC estimates using a range of system yields.

H.2.4 Drought response measures

To include the costs of demand met by current capacity (ie, costs within areas B and C in Figure H.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)
- 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.

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%
- ▼ 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).⁵³⁰

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

⁵³⁰ Sydney Catchment Authority, Greater Sydney's Sustainable Water Supply - Yield, 2012, run 18, p 15.

lower tail of the distribution. This observation is consistent with the conclusion of an academic study of rainfall distributions⁵³¹ 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 model⁵³²
- historical inflows from 50 years 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 H.5 below 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 H.5 LRMC estimates from alternative approaches to inflow modelling (\$/kL)

Inflow modelling		610GL		595GL	580GL	
approacn	AIC	Perturbation	AIC	Perturbation	AIC	Perturbation
Lognormal	1.12	1.24	1.26	1.31	1.46	1.21
Autoregressive model	0.97	1.27	1.17	1.36	1.43	1.25
Historical inflows	0.94	1.14	1.08	1.28	1.37	1.20
Low inflow - historical	0.94	0.94	1.08	1.08	1.37	1.37
High inflow - historical	0.89	1.29	1.11	1.42	1.42	1.30

Note: We have omitted results for a system yield of 565GL due to space restrictions. **Source:** IPART's long-run marginal cost model.

⁵³¹ Sharma, M. A., Singh, J. B., *Use of Probability Distribution in Rainfall Analysis*, New York Science Journal 2010;3(9).

⁵³² Sydney Catchment Authority, Water Supply System Model and Yield Review 2009/2010, Appendix A: Historical Inflow Review, Annex C WATHNET Input Historical Inflow Series 1909-2007, Volume 2, June 2011, pp 118-161.

H Long-run marginal cost

H.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.

The perturbation approach is a more complex model. It also tends to be sensitive to demand assumptions, 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 has continued for decades. Both methodologies have their supporters (see Box H.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.⁵³³

⁵³³ Tooth, R., Hefter, H., *LRMC – Drinking Water services in SA – Final Report*, Sapere Research Group, Report for the Essential Services Commission of South Australia, March 2013, p ix.

Box H.1 Current views on methodologies for estimating long-run marginal cost

The Perturbation approach is generally the preferred method by regulators in the UK (OFWAT), Western Australia (Economic Regulatory Authority), Victoria (ESC) and South Australia (ESCOSA). In practice, many regulators allow the water businesses to choose their preferred approach, and most tend to use the AIC approach because it is relatively simple and computationally straightforward to apply.

Economics consultants have also 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.

Source: Marsden Jacob Associates, *Estimation of Long Run Marginal Cost, Final report prepared for the Queensland Competition Authority*, November 2004, pp 32-33; Frontier Economics, *Estimating and using the Long Run Marginal Cost (LRMC) of water, A Final Report prepared for Sydney Water*, October 2014, p 42; NERA Economic Consulting, *An Economic Framework for Estimating Long Run Marginal Costs in the Victorian Water Industry*, 24 January 2012, p 32.

H.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.

We have used IPART's current midpoint WACC estimate of 4.8% to model the business' cost of capital.⁵³⁴ This will be updated when we decide on the WACC for the Draft Report and Final Report.

⁵³⁴ IPART, WACC Biannual Update, Fact Sheet, August 2015, p 3.

H.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 50 years, while ESCOSA's estimate of the LRMC for SA Water was calculated over a 35 year period.⁵³⁵ Our previous LRMC estimate for Sydney Water used a period of 53 years.⁵³⁶

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.⁵³⁷ We show the sensitivity of our LRMC estimate to changes in the length of the period below in Table H.6.

System yield	20 years	30 years	40 years	50 years
Average incremental cost method				
610 GL	0.66	1.01	1.12	1.03
595 GL	1.30	1.39	1.26	1.13
580 GL	2.29	1.76	1.46	1.31
565 GL	2.87	1.97	1.63	1.46
Perturbation method				
610 GL	2.62	1.87	1.24	1.17
595 GL	2.74	1.59	1.31	1.26
580 GL	1.84	1.28	1.21	1.17
565 GL	1.64	1.41	1.32	1.28

Table H.6 Impact of time period on LRMC estimates (\$/kL)

H.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% year zero shock.

⁵³⁵ Sapere research group, LRMC – Drinking Water services in SA Final Report, Report for the Essential Services Commission of South Australia, March 2013, p vii.

⁵³⁶ IPART, Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services - Final Report, June 2012, p 222.

⁵³⁷ Alternatively, we could represent capital costs in our model on an annualised or annuity basis.

Table H.7 below estimates the LRMC for Sydney Water with different sized shocks on demand.

System yield	2.5%	5%	10%
610 GL	1.16	1.24	1.23
595 GL	1.36	1.31	1.26
580 GL	1.24	1.21	1.23
565 GL	1.26	1.32	1.28

Table H.7 LRMC estimates under different perturbation shocks (\$/kL)

Sydney Water's proposed non-residential trade waste prices

•	•			
Pollutant ^a	Acceptance standard (mg/L) ^b	Domestic equivalent	Current 2015-16 (\$/kg) ^{c,e}	Proposed 2016-20 (\$/kg) ^c
BOD – primary WWTPs	See note 1	230	0.277+ [0.120 x (BOD mg/L)/600]	0.277+ [0.120 x (BOD mg/L)/600]
BOD – secondary and tertiary WWTPs	See note 1	230	1.794+ [0.120 x (BOD mg/L)/600]	1.800+ [0.120 x (BOD mg/L)/600]
Suspended solids – primary WWTPs	600	200	0.501	0.503
Suspended solids – secondary and tertiary WWTPs	600	200	1.452	1.457
Grease – primary WWTPs	110	50	0.452	0.453
Grease – secondary and tertiary WWTPs	200	50	1.386	1.391
Nitrogen ^d – secondary/ tertiary inland WWTPs	150	50	1.644	1.650
Phosphorus ^d - secondary/ tertiary inland WWTP	50	10	5.896	5.917

Table I.1 Actual and proposed pollutant charges for Industrial Customers (\$2015-16)

^a The charges for all other pollutants (including ammonia, sulphate (SO4), total dissolved solids and nondomestic pollutants) are nil.

b The mass of any substance discharged at a concentration which exceeds the nominated acceptance standard (as determined under the Trade Waste Policy) will be charged at double the rate for the mass in excess of the domestic equivalent. Concentration is determined by daily composite sampling by either the customer or Sydney Water.

c Per kg of mass above domestic equivalent

d Nitrogen and phosphorus limits do not apply where a sewage treatment plant (to which the customer's sewerage system is connected) discharges directly to the ocean.

e The actual 2015-16 prices have been calculated using the methodology contained in Schedule 5 of IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services-Determination*, June 2012. The prices for 2015-16 in Sydney Water's proposal were Sydney Water estimates based on forecast inflation. This because 2015-16 prices were not available when Sydney Water finalised its pricing proposal.

Note: 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: Sydney Water pricing proposal to IPART - Appendices, June 2015, p 17; IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Determination*, June 2012, pp 51-52; and IPART calculations

Table I.2 Actual and proposed corrosive substance charges for Industrial Customers – corrosion impacted catchment (\$2015-16)

Pollutant	Units	Current 2015-16 ^a	Proposed 2016-20
рН	Per ML of wastewater of pH <7.0 ^b	62.457	62.691
Temperature	Per ML of wastewater with temperature >25°Cc	6.915	6.941

^a The actual 2015-16 prices have been calculated using the methodology contained in Schedule 5 of IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services-*

Determination, June 2012. The prices for 2015-16 in Sydney Water's proposal were Sydney Water estimates based on forecast inflation. This because 2015-16 prices were not available when Sydney Water finalised its pricing proposal.

b The charge is applied for each pH1 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.

^c 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: Sydney Water pricing proposal to IPART - Appendices, June 2015, p 18; IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Determination, June 2012, p 52; and IPART calculations.*

Risk level	Current inspections per year	Proposed inspections per year	Current 2015-16 ^a	Proposed 2016-20	Change in prices (%)
1	13	13	1,961.62	1,968	0.3
2	13	13	1,961.62	1,968	0.3
3	13	13	1,961.62	1,968	0.3
4	6	6	905.44	908	0.3
5	4	4	603.99	606	0.3
6	4	2	603.99	303	-50
7	4	1	603.99	151	-75

Table I.3Current and proposed trade waste industrial agreement charges
for Industrial Customers by risk index (\$2015-16)

^a The actual 2015-16 prices have been calculated using the methodology contained in Schedule 5 of IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services-Determination,* June 2012. The prices for 2015-16 in Sydney Water's proposal were Sydney Water estimates based on forecast inflation. This because 2015-16 prices were not available when Sydney Water finalised its pricing proposal.

Note: Charges in bold are those that Sydney Water is proposing to alter for 2016-20.

Source: Sydney Water pricing proposal to IPART - Appendices, June 2015, p 18; IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Determination*, June 2012, p 53; and IPART calculations.

I Sydney Water's proposed non-residential trade waste prices

Activity	Units ^a	Current 2015-16 ^b	Proposed 2016-20
Low strength BOD food	Per kL	2.128	2.136
Higher strength BOD food	Per kL	3.498	3.510
Automotive	Per kL	0.695	0.697
Laundry	Per kL	0.434	0.435
Lithographic	Per kL	0.335	0.335
Photographic	Per kL	Nil	Nil
Equipment hire wash	Per kL	3.172	3.183
Ship to shore	Per kL	1.505	Nil
Shopping centres with centralised pre-treatment (DAF, biological treatment)	Per kL	2.128	Propose to manage as an industrial customer
Miscellaneous	Per kL	Nil	Nil
Other	Per kL	Nil	Nil
Pre-treatment not maintained in accordance with requirements ^c	Per kL	10.925	10.966

Table I.4Current and proposed substance charges for Commercial
Customers (\$2015-16)

^a Per kL of trade waste discharged into the Sewerage System (as determined by Sydney Water in accordance with its Trade Waste Policy).

b The actual 2015-16 prices have been calculated using the methodology contained in Schedule 5 of IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services*-

Determination, June 2012. The prices for 2015-16 in Sydney Water's proposal were Sydney Water estimates based on forecast inflation. This because 2015-16 prices were not available when Sydney Water finalised its pricing proposal.

^c This item is currently a note to the table in the 2012 Determination. Sydney Water has proposed that it is a process within the table. The current note states: If the pre-treatment is not maintained in accordance with the Trade Waste Policy, a higher charge applies for low strength BOD food and higher strength BOD food. **Note:** Charges in **bold** are those that Sydney Water is proposing to alter for 2016-20.

Source: Sydney Water pricing proposal to IPART - Appendices, June 2015, p 19; IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Determination, June 2012, p 53; and IPART calculations.*

Table I.5 Current and proposed commercial agreement charges for Commercial Customers (\$2015-16)

Charge	Units	Current 2015-16 ^a	Proposed 2016-20
Commercial agreement charges for Commercial Customers– first process	Per each process	35.437	35.569
Commercial agreement charges for Commercial Customers – each additional process	Per each additional process	12.165	12.210

^a The actual 2015-16 prices have been calculated using the methodology contained in Schedule 5 of IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services-Determination*, June 2012. The prices for 2015-16 in Sydney Water's proposal were Sydney Water estimates based on forecast inflation. This because 2015-16 prices were not available when Sydney Water finalised its

pricing proposal. **Source:** Sydney Water pricing proposal to IPART - Appendices, June 2015, p 19; IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Determination,* June 2012, p 54; and IPART calculations.

Service	Units	Current 2015-16 ^a	Proposed 2016-20
Fixed \$/liquid waste trap charge	Per liquid waste trap	25.21	25.301
Missed service (pump-out) inspection charge for liquid waste traps - 2kL or less	Per event	277.77	278.808
Missed service (pump-out) inspection charge for liquid waste traps – more than 2kL	Per event	555.54	557.61
Processing grease trap waste	Per litre	N/A	N/A

Table I.6Current and proposed Wastesafe charges for Commercial
Customers (\$2015-16)

^a The actual 2015-16 prices have been calculated using the methodology contained in Schedule 5 of IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services*-

Determination, June 2012. The prices for 2015-16 in Sydney Water's proposal were Sydney Water estimates based on forecast inflation. This because 2015-16 prices were not available when Sydney Water finalised its pricing proposal.

Source: Sydney Water pricing proposal to IPART - Appendices, June 2015, p 20; IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Determination*, June 2012, pp 54-55; and IPART calculations.

Table I.7 Current and proposed Trade waste ancillary charges (\$2015-16)

Service	Units	Current 2015-16 ^a	Proposed 2016-20
Additional inspection charge	Per inspection	188.88	189.588
Trade waste application fee for Industrial Customers – standard	Per application	455.95	457.655
Trade waste application fee for Industrial Customers – non-standard	Per hour	139.68	140.198
Trade waste application fee for Industrial Customers - variation	Per application	548.18	550.234
Sale of trade waste data	Per hour	136.12	131.26

^a The actual 2015-16 prices have been calculated using the methodology contained in Schedule 5 of IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services*-

Determination, June 2012. The prices for 2015-16 in Sydney Water's proposal were Sydney Water estimates based on forecast inflation. This because 2015-16 prices were not available when Sydney Water finalised its pricing proposal.

Source: Sydney Water pricing proposal to IPART - Appendices, June 2015, p 20; IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services – Determination, June 2012, p 55; and IPART calculations.*

J Sydney Water's proposed miscellaneous and ancillary charges

Number	Ancillary and miscellaneous customer services	Current 2015-16 ^a	Proposed 2016-20	Change (%)
1	Conveyancing Certificate - Electronic	6.14	6.16	0.4
2	Property Sewerage Diagram ^c			
(a)	Over the Counter	26.12	N/A	
(b)	Electronic ^b	10.10	10.14	0.4
(c)	Online	N/A	25.66	
3	Service Location Diagram			
(a)	Over the Counter	17.86	N/A	
(b)	Electronic ^b	6.14	6.16	0.4
(c)	Online	N/A	17.36	
4	Special Meter Reading Statement	26.12	26.24	0.5
5	Billing Record Search Statement	26.12	26.24	0.5
6	Building Over/Adjacent to Asset advice	43.88	44.09	0.5
7	Water reconnection	26.12	26.24	0.5
8	Workshop Test of Water Meter			
(a)	20, 25 & 32 mm meters	221.51	222.57	0.5
(b)	40 and 50 mm light meters	307.64	309.12	0.5
(c)	50, 80, 100 & 150 mm meters	503.41	505.85	0.5
(d)	200, 250 & 300 mm meters	1,118.69	1,124.12	0.5
9	Water Service Disconnection Application ^c	Nil	Nil	-
10	Water Service Connection Installation Application ^c	Nil	Nil	-
11	Water Service Connection Approval Application (32 – 65 mm)	221.51	222.57	0.5
12	Water Service Connection Approval Application (80mm or greater)	221.51	222.57	0.5
13	Application to Assess a Water Main Adjustment	N/A	N/A	
14	Standpipe Hire – Security Bond	N/A	N/A	
15	Standpipe Hire – Annual Fee	N/A	N/A	
16	Standpipe Water Usage Fee	N/A	N/A	
17	Backflow Prevention Device Application and Registration Fee	N/A	N/A	

Table J.1 Current and proposed miscellaneous and ancillary charges (\$2015-16)

18	Backflow Prevention Device Annual Administration Fee	N/A	N/A	
19	Major Works Inspection Fee	N/A	N/A	
20	Statement of Available Pressure and Flow	125.29	125.31	-
21	Request for Asset Construction Details	43.88	43.52	-0.8
22	Supply System Diagram	125.29	125.31	-
23	Building Plan Approval Application	17.86	17.37	-3
24	Asset Adjustment Application	221.51	244.77	11
25	Water Main Fitting Adjustment Application	Nil	Nil	-
26	Water Pump Application	125.29	125.31	-
27	Extended Private Service Application	Nil	Nil	-
28	Wastewater Connection Installation Application	Nil	Nil	-
29	Wastewater Ventshaft Relocation Application	Nil	Nil	-
30	Disuse of Wastewater pipe or structure	Nil	Nil	-
31	Plumbing and Drainage Inspection Application	93.52	Delete	
32	Plumbing and Drainage Re-inspection Fee	93.52	Delete	
33	Stormwater Connection Approval Application	Nil	Nil	-
34	Application for inspection of Stormwater Connection	Nil	Nil	-
35	Development Requirements Application	401.59	N/A	
(a)	Development requirements - complying development	N/A	168.61	
(b)	Development requirements - other	N/A	445.87	
36	Road Closure Application	Nil	Nil	-
37	Water and Sewer Extension Application	401.59	445.87	11
38	Dishonoured or Declined Payment Fee	12.27	12.33	0.5
39	Cancel Plumbers Permit			
(a)	Where both parties sign the application		D 1 1	
(h)		Nil	Delete	
(u)	Where one party has signed the application	Nil 67.44	Delete Delete	
(b) 40	Where one party has signed the application Plumbing and Drainage Audit Inspection Application	Nil 67.44 194.14	Delete Delete Delete	
(D) 40 41	Where one party has signed the application Plumbing and Drainage Audit Inspection Application Alternate Water Inspection	Nil 67.44 194.14 272.28	Delete Delete Delete Delete	
(D) 40 41 42	Where one party has signed the application Plumbing and Drainage Audit Inspection Application Alternate Water Inspection Monthly Meter Reading Request by Customer	Nil 67.44 194.14 272.28 10.10	Delete Delete Delete Delete 10.14	0.4
(b) 40 41 42 43	Where one party has signed the applicationPlumbing and Drainage Audit InspectionApplicationAlternate Water InspectionMonthly Meter Reading Request by CustomerReplacement of Meter Damaged by Customer/ Customer's agent	Nil 67.44 194.14 272.28 10.10	Delete Delete Delete 10.14	0.4
(b) 40 41 42 43 (a)	Where one party has signed the applicationPlumbing and Drainage Audit InspectionApplicationAlternate Water InspectionMonthly Meter Reading Request by CustomerReplacement of Meter Damaged by Customer/ Customer's agent20 mm	Nil 67.44 194.14 272.28 10.10 125.29	Delete Delete Delete 10.14 125.89	0.4
(b) 40 41 42 43 (a) (b)	Where one party has signed the applicationPlumbing and Drainage Audit InspectionApplicationAlternate Water InspectionMonthly Meter Reading Request by CustomerReplacement of Meter Damaged by Customer/ Customer's agent20 mm25, 30 & 40 mm	Nil 67.44 194.14 272.28 10.10 125.29 267.61	Delete Delete Delete 10.14 125.89 268.90	0.4 0.5 0.5
(b) 40 41 42 43 (a) (b) 44	Where one party has signed the applicationPlumbing and Drainage Audit Inspection ApplicationAlternate Water InspectionMonthly Meter Reading Request by CustomerReplacement of Meter Damaged by Customer/ Customer's agent20 mm25, 30 & 40 mmIntegrated Service Connection Application	Nil 67.44 194.14 272.28 10.10 125.29 267.61 221.51	Delete Delete Delete 10.14 125.89 268.90 222.57	0.4 0.5 0.5 0.5
(b) 40 41 42 43 (a) (b) 44 45	Where one party has signed the applicationPlumbing and Drainage Audit Inspection ApplicationAlternate Water InspectionMonthly Meter Reading Request by CustomerReplacement of Meter Damaged by Customer/ Customer's agent20 mm25, 30 & 40 mmIntegrated Service Connection ApplicationSydney Water Hourly Rate	Nil 67.44 194.14 272.28 10.10 125.29 267.61 221.51 126.42	Delete Delete Delete 10.14 125.89 268.90 222.57 127.02	0.4 0.5 0.5 0.5 0.5
(b) 40 41 42 43 (a) (b) 44 45 46	Where one party has signed the applicationPlumbing and Drainage Audit Inspection ApplicationAlternate Water InspectionMonthly Meter Reading Request by CustomerReplacement of Meter Damaged by Customer/ Customer's agent20 mm25, 30 & 40 mmIntegrated Service Connection ApplicationSydney Water Hourly RateRemote read meter – new property (quarterly charge)	Nil 67.44 194.14 272.28 10.10 125.29 267.61 221.51 126.42 N/A	Delete Delete 10.14 125.89 268.90 222.57 127.02 4.61	0.4 0.5 0.5 0.5 0.5
(b) 40 41 42 43 (a) (b) 44 45 46 47	Where one party has signed the applicationPlumbing and Drainage Audit Inspection ApplicationAlternate Water InspectionMonthly Meter Reading Request by CustomerReplacement of Meter Damaged by Customer/ Customer's agent20 mm25, 30 & 40 mmIntegrated Service Connection ApplicationSydney Water Hourly RateRemote read meter – new property (quarterly charge)Remote read meter – existing property made inaccessible (quarterly charge)	Nil 67.44 194.14 272.28 10.10 125.29 267.61 221.51 126.42 N/A	Delete Delete Delete 10.14 125.89 268.90 222.57 127.02 4.61	0.4 0.5 0.5 0.5 0.5
(b) 40 41 42 43 (a) (b) 44 45 46 47 (a)	Where one party has signed the applicationPlumbing and Drainage Audit Inspection ApplicationAlternate Water InspectionMonthly Meter Reading Request by CustomerReplacement of Meter Damaged by Customer/ Customer's agent20 mm25, 30 & 40 mmIntegrated Service Connection ApplicationSydney Water Hourly RateRemote read meter – new property (quarterly charge)Remote read meter – existing property made inaccessible (quarterly charge)20mm	Nil 67.44 194.14 272.28 10.10 125.29 267.61 221.51 126.42 N/A	Delete Delete Delete 10.14 125.89 268.90 222.57 127.02 4.61	0.4 0.5 0.5 0.5 0.5

J Sydney Water's proposed miscellaneous and ancillary charges

(c)	32mm	N/A	6.66
(d)	40mm	N/A	6.91
(e)	50mm (light)	N/A	9.73
47	Inaccessible meter fee	N/A	8.45
48	Hot water meter read quarterly charge ^c - multi	N/A	6.15
	level individually metered properties only	(pl	us GST)
49	Late payment fee	N/A	4.10

^a The actual 2015-16 prices have been calculated using the methodology contained in Schedule 6 of IPART, *Prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services-Determination*, June 2012. The prices for 2015-16 in Sydney Water's proposal were Sydney Water estimates based on forecast inflation. This because 2015-16 prices were not available when Sydney Water finalised its pricing proposal.

b Services provided via a network of conveyance brokers.

c Proposed to be an unregulated product.

Note: Charges in **bold** are those that Sydney Water is proposing to alter for 2016-20.

"N/A" means that Sydney Water either does not provide the relevant service or the service has been combined with other services and recovered by one charge.

Source: Sydney Water pricing proposal to IPART - Appendices, June 2015, pp 31-34, and IPART calculations.

K | The WIC Act access regime

The WIC Act was introduced by the NSW Government to promote private-sector investment and innovation in the water and wastewater industries, and it establishes a regime for third-party access to certain water infrastructure services in NSW.

Part Three of the WIC Act establishes a NSW-based access regime for water industry "infrastructure services" within the Sydney Water and Hunter Water areas of operations.⁵³⁸ Infrastructure services under the WIC Act means:⁵³⁹

The storage, conveyance or reticulation of water or sewage by means of water industry infrastructure, and includes the provision of connections between any such infrastructure and the infrastructure of the person for whom the water or sewage is stored, conveyed or reticulated, but:

(a) does not include the storage of water behind a dam wall, and

(b) does not include:

- (i) the filtering, treating or processing of water or sewage, or
- (ii) the use of a production process, or
- (iii) the use of intellectual property, or
- (iv) the supply of goods (including the supply of water or sewage),

except to the extent to which it is a subsidiary but inseparable aspect of the storage, conveyance or reticulation of water or sewage.

A limitation of the WIC Act is that a wholesale customer's purchases are explicitly not covered – ie, the supply of water and wastewater services. The WIC Act focuses on access to infrastructure services to **transport** water and wastewater, rather than the wholesale purchase of bundled water services (comprising the water itself and its treatment, in addition to its transportation) and wastewater services (including wastewater treatment and disposal, in addition to its transportation) at point of connection.

This limitation could potentially be overcome through separate negotiation and agreement with Sydney Water and bulk water providers and/or an access seeker providing its own services (eg, treatment) upstream and downstream of the

⁵³⁸ Note – WIC Act access regime covers infrastructure services of any 'service provider' within the Sydney Water and Hunter Water areas of operations.

⁵³⁹ Dictionary of the Water Industry Competition Act 2006.

incumbent's water and wastewater transportation network. It is already possible, for example, for WIC licensed water utilities to purchase water from WaterNSW and the Sydney Desalination Plant.⁵⁴⁰ However, this could add significantly to wholesalers' or access seekers costs, limiting the extent of new entry and competition in the market.

Under the WIC Act, an infrastructure service is subject to compulsory access if:541

- The Minister makes a 'coverage declaration' in respect of it,⁵⁴² which means that new entrants can negotiate with Sydney Water or Hunter Water to obtain access to these networks for the purpose of competing in upstream and downstream markets.
- IPART approves a utility's voluntary access undertaking in respect of it. An approved access undertaking would provide standard terms, conditions and a pricing methodology for using a service provider's network to all secondary utilities and other access seekers.

K.1 Coverage declarations

Third parties, including wholesale customers, can seek access to infrastructure services through private negotiations with Sydney Water or Hunter Water. If negotiations fail, third parties can seek a coverage declaration from the Minister.

A coverage declaration creates a negotiate-arbitrate access regime, where if negotiations between a third party and Sydney Water or Hunter Water cannot be negotiated, the issue is referred to IPART for arbitrating the terms and conditions (including price) on which access must be granted.

A third party can lodge a coverage application with IPART at any time. We are required to consider the application and prepare a report to the Minister within four months that details whether we are of the opinion that all the coverage declaration criteria (see Box K.1) are met.

 $^{^{540}}$ Water purchased from the Sydney Desalination Plant does not need further treatment.

⁵⁴¹ An infrastructure owner can voluntarily grant access outside of access undertakings or coverage declarations but cannot be compelled to provide it.

⁵⁴² The Bondi, Malabar and North Head wastewater reticulation networks are declared.
Box K.1 The WIC Act's declaration criteria

Section 23 of the WIC Act sets out the following criteria for the assessment of applications for coverage:

- a) that the infrastructure is of State significance, having regard to its nature and extent and its importance to the State economy,
- b) that it would not be economically feasible to duplicate the infrastructure,
- c) that access (or an increase in access) to the service by third parties is necessary to promote a material increase in competition in an upstream or downstream market,
- d) that the safe use of the infrastructure by access seekers can be ensured at an economically feasible cost and, if there is a safety requirement, that appropriate regulatory arrangements exist,
- e) that access (or an increase in access) to the service would not be contrary to the public interest.

If we consider that all the declaration criteria are met, we must also detail our recommended terms and period for a coverage declaration. The Minister, to his or her best endeavours, will make a decision within six months of the application being lodged with IPART.

We are not aware of any applications for a coverage declaration that have been rejected under the WIC Act. The Bondi, Malabar and North Head wastewater reticulation networks in Sydney Water's network are already subject to a coverage declaration. Notably, this does not include Sydney Water's wastewater treatment plants serving these networks.

The existing coverage declaration process allows wholesale customers to seek access to infrastructure services (as defined under the WIC Act) on fair terms. This creates a disincentive for Sydney Water to refuse access to these services on reasonable terms.

K.2 Voluntary access undertaking process

Sydney Water or Hunter Water can, at any time, submit a voluntary access undertaking to IPART. Where approved, this sets out which infrastructure Sydney Water or Hunter Water is compelled to provide access to and under what terms. Section 38(6) of the WIC Act sets out four criteria IPART must consider in approving access undertakings:

- the legitimate business interests of the service provider
- the public interest, including the public interest in having competition in markets
- the interests of prospective access seekers
- any other matters that IPART considers relevant.

IPART is also required to consider pricing principles under the WIC Act in approving an access undertaking, as listed in Box K.2.⁵⁴³ The principles must be implemented in a manner consistent with postage stamp pricing.⁵⁴⁴

Box K.2 Pricing principles under section 41 (2) of the WIC Act

The "pricing principles" in relation to any infrastructure service are as follows:

- a) the price of access should generate expected revenue for the service that is at least sufficient to meet the efficient costs of providing access to the service, and include a return on investment commensurate with the regulatory and commercial risks involved,
- b) the price of access should allow multi-part pricing and price discrimination when it aids efficiency,
- c) the price of access should not allow a vertically integrated service provider to set terms and conditions that discriminate in favour of its downstream operations, except to the extent to which the cost of providing access to other operators is higher,
- d) the price of access should provide incentives to reduce costs or otherwise improve productivity.

In 2012, Sydney Water submitted a voluntary access undertaking to IPART. While Sydney Water chose not to ultimately seek approval of this undertaking,⁵⁴⁵ we consider that it could form a solid basis for a future access undertaking. A voluntary access undertaking allows Sydney Water to set the terms and conditions of access (with IPART's approval).

We consider that a voluntary access undertaking, with guarantees to provide water filtration and wastewater treatment services, could potentially service wholesale customers.

 $^{^{543}}$ Arbitrators are bound by the same pricing principles in relation to coverage declarations. 544 S41 (3) of the WIC Act.

⁵⁴⁵ Sydney Water pricing proposal to IPART, June 2015, p 244.

L Pricing guidelines for recycled water schemes

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*.⁵⁴⁶

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:

Total direct cost = PV₁(K_i+OC_i + JC_i) for i years 1,....n: n = 30 (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:

Cost Offset = PV_r (Subsidy_i + Avoided Cost_i + Deferred Cost_i + Govt Directive⁵⁴⁷) (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.

⁵⁴⁶ IPART, Pricing arrangements for recycled water and sewer mining - Final Report, September 2006, p 58.

⁵⁴⁷ 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*.⁵⁴⁸
- 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,⁵⁴⁹ the recycled water usage charge is to be calculated as a percentage of the potable water price as shown below:

Potable water top-up %	% of potable water price
>10% and ≤ 15%	80%
>15% and \leq 20%	90%
>20%	100%

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.

⁵⁴⁸ See Appendix C of IPART, Pricing arrangements for recycled water and sewer mining – Final Report, September 2006.

⁵⁴⁹ 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

2005 Determination	Sydney Water Corporation, Hunter Water Corporation, Sydney Catchment Authority – Prices of Water Supply, Wastewater and Stormwater Services, Final Determination and Report, September 2005 (Determination Nos 5, 6 and 7, 2005)
2005 determination period	The period from 1 October 2005 to 30 June 2009, as set in the 2005 Determination
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 period	The period commencing 1 July 2016
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
Annual revenue requirement	The notional revenue requirement in each year of the determination period
ВОО	Build Own Operate
САРМ	Capital Asset Pricing Model
CEMELND	Assets are grouped into civil, electrical, mechanical, electronic, and non- depreciating components to calculate the allowance regulatory depreciation
COAG	Council of Australian Governments
Current determination period	The period from 1 July 2012 to 30 June 2016, as set in the 2012 Determination
СРІ	Consumer Price Index
Determination period	Price limits (maximum prices) set by IPART for a given period
DRC	Depreciated Replacement Cost
EBSS	Efficiency Benefit Sharing Scheme
ELWC	Economic Level of Water Conservation
EPA	Environment Protection Authority
EPL	Environment Protection Licence
EWON	Energy and Water Ombudsman NSW
GL	Gigalitre
HAF	Housing Acceleration Fund
Hunter Water	Hunter Water Corporation
IPART	Independent Pricing and Regulatory Tribunal of NSW
IPART Act	Independent Pricing and Regulatory Tribunal Act 1992 (NSW)

Glossary

kL	Kilolitre
LGAs	Local Government Areas
LRMC	Long Run Marginal Cost (of supply)
ML	Megalitre
NECF	National Energy Consumer Framework
Notional revenue requirement	Revenue requirement set by IPART that represents the efficient costs of providing Sydney Water's monopoly services
NPV	Net Present Value
PSP	Priority Sewerage Program
RAB	Regulatory Asset Base
RBA	Reserve Bank of Australia
Rouse Hill Area	The area to which the Rouse Hill stormwater drainage charges apply.
RWSA	Raw Water Supply Agreement between Sydney Water and WaterNSW
SCA	Sydney Catchment Authority (now part of WaterNSW)
SDP	Sydney Desalination Plant Pty Ltd
Section 16A directions	Ministerial directions pursuant to section 16A of the IPART Act
SFG	Strategic Finance Group
SOC	State-owned corporation
SOC Act	State Owned Corporations Act 1989 (NSW)
SRMC	Short Run Marginal Cost (of supply)
Sydney Water	Sydney Water Corporation
Sydney Water Act	Sydney Water Act 1994 (NSW)

Target revenue	The revenue Sydney Water generates from maximum prices set by IPART for that year
Upcoming determination period	the period commencing 1 July 2016
WACC	Weighted Average Cost of Capital
WAPC	Weighted Average Price Cap
WFA	Water Filtration Agreement
WFP	Water Filtration Plant
WIC Act	<i>Water Industry Competition Act</i> 2006 (NSW)